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Volume-II (Lentil, Field pea & Lathyrus)



All India Coordinated Research Project on Rabi Pulses

ICAR-Indian Institute of Pulses Research
Kanpur – 208 024

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भाग-द्वितीय (मसूर, मटर एवं खेसारी)

All India Coordinated Research Project on Rabi Pulses
Volume II (Lentil, Field pea and Lathyrus)

(INDIAN COUNCIL OF AGRICULTURAL RESEARCH)

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Published by : Dr. Shailesh Tripathi
Project Coordinator (AICRP on Rabi Pulses)

Compiled and edited by:

Dr. Shailesh Tripathi
Dr. Ashok K Parihar
Dr. Vaibhav Kumar
Dr. K.P.S. Kushwaha
Dr. Narendra Kumar
Dr. K. Swarnalakshmi
Dr. J.P. Purwar

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All India Coordinated Research Project on Rabi Pulses

Volume II (Lentil, Field pea and Lathyrus)

WORKING SETUP

COORDINATION UNIT

Dr. Shailesh Tripathi
Project Coordinator

Dr. A.K. Parihar
Senior Scientist

Dr Vaibhav Kumar
Scientist

Sh. A.S. Yadav
Senior Tech. Officer

Sh. H.G. Rathore
Personal Assistant

PROGRAMME EXECUTION

Principal Investigators

Crop Improvement		:	Dr. A.K. Parihar Senior Scientist, ICAR-IIPR, Kanpur
Crop Protection	Pathology	:	Dr. K.P.S. Kushwaha Principal Scientist, GBPUA&T, Pantnagar
	Entomology	:	Dr. J.P. Purwar Scientist, GBPUA&T, Pantnagar
Crop Production	Agronomy	:	Dr. Narendra Kumar Head, CPD, ICAR-IIPR, Kanpur
	Microbiology	:	Dr. K. Swarnalakshmi Principal Scientist, ICAR-IARI, New Delhi
BSP, FLD & Germplasm		:	Dr. Vaibhav Kumar Scientist, ICAR-IIPR, Kanpur

PREAMBLE

This is the 30th annual report (Vol. II – Lentil, Field pea and Lathyrus) of AICRP on Rabi Pulses which encompasses the results of trials conducted during 2024-25 at various cooperating centres in the disciplines of Plant Breeding, Agronomy, Microbiology, Plant Pathology, Entomology and Nematology. Information on Breeder Seed production and frontline demonstrations organized by AICRP centres on various technologies developed under the project have also been included in the report.

The research programme on plant breeding focused on development of high yielding varieties having resistance to major biotic and abiotic stresses. In lentil, trials were conducted to evaluate large and small seeded genotypes for various ecologies. In field pea, the thrust was on development of high yielding, tall and dwarf genotypes while in lathyrus the emphasis was on development of low ODAP genotypes. The focus was also given on development of short duration varieties of rabi pulses suitable for late planting in rice fallow areas. New initiatives were taken to strengthen crop improvement programme through initiation of pre breeding activities, organizing national crossing programme, shuttle breeding, and use of off-season facility at IIPR Regional Station, Dharwad to speed up generation advancement.

Agronomy programme covered experiments on lentil and field pea based efficient intercropping system, weed management, evaluation of AVT 2 genotypes, yield optimization through customized fertilizers and biofortification of Zn and Fe through agronomic intervention and organic farming. Efforts have been made to optimize yield under rice-lathyrus relay cropping system. Identification and evaluation of efficient endophytic micro-organisms, screening for symbiotic efficiency, evaluation of microbial consortia for alleviating moisture stress and microbial mediated biofortification were the major activities of microbiology programme. Plant pathology research focussed on identification of resistant lines against economically important diseases of lentil (wilt and rust) and field pea (powdery mildew and rust). Advance breeding lines/genotypes were screened in national nurseries against major diseases. Entomological programme laid emphasis on management of pod borer and leaf minor through host plant resistance and integrated management by use of bioagents, biorationals and botanicals. Screening of germplasm and advance breeding lines and monitoring of Insect pest population were taken up at various locations. Studies on nematology were carried out on screening of IVT & AVT entries in collaboration with AICRP-Nematode.

This consolidated report is an outcome of the sincere and dedicated efforts of Principal Investigators Dr Ashok K Parihar (Crop Improvement), Dr. Narendra Kumar (Crop Production), Dr. K.P.S. Kushwaha (Crop Protection), Dr. J.P. Purwar (Entomology), Dr. K. Swarnalakshmi (Microbiology), and Dr. Vaibhav Kumar (Breeder Seed Production & Germplasm and FLDs) who compiled the information and monitored the programme. Thanks are also due to PC (Nematode) and all the cooperators who successfully implemented the programme and generated valuable information.

I wish to place on records my sincere thanks and gratitude to Dr. M L Jat, Secretary, DARE and Director General, ICAR; Dr. D K Yadava, Deputy Director General (Crop Science), ICAR; and Dr. Sanjeev Gupta, Assistant Director General (O&P), ICAR for guidance and necessary support. I would like to express my deep gratitude to Dr. G P Dixit, Director, ICAR-IIPR for guidance and providing facilities.

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(Shailash Tripathi)
Project Coordinator

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PLANT BREEDING

Lentil, Field pea, lathyrus and some other minor rabi pulses are recognized as secondary winter pulses which altogether contributing >14 % to the rabi pulses production. There is ample scope of bringing additional area under these pulses in new niches like rice fallows, *tal* areas, hill agriculture and in intercropping for remunerating cropping system. It is estimated that about 3.0 million ha additional area can be brought under these pulses. These secondary winter pulses have demonstrated the remarkable growth in productivity during recent decade. The productivity of lentil has increased from 765 kg/ha in 2015-16 to 1038 kg/ha in 2024-25 with production reaching around 1.77 m tonnes. Similarly, the productivity of field pea increased from 821 kg/ha to 1352 kg/ha in 2022-23.

Breeding programme for improved varieties of Lentil, lathyrus and field pea was initiated in the country with the inception of All India Co-ordinated Pulses Improvement Project (AICPIP) in 1967. Since many of these crops occupy specific niches under cultivation, focused attention was required to improve plant types and provide insulation against diseases and pests. Therefore, these crops were brought under the domain of independent AICRP on MULLaRP which became operational in November 1995, which provided an opportunity to the access of improved germplasm of pulses to the breeders and evaluate their improved breeding lines in multi-locations testing in different ecologies across the country. The development of high yielding varieties having resistance against major diseases like wilt and rust in lentil, rust and powdery mildew in field pea has been the major objectives of plant breeding programme. Consequently, about 150 varieties of Lentil, Field pea and Lathyrus have been released which are adapted to various growing environments and have inbuilt resistance/resilience against key biotic and abiotic stresses predominant in the growing niches. These efforts have led to increased production of lentil in the country. Most recently, in the XII five year plan the three AICRPs on Chickpea, Pigeonpea and MULLaRP and the Network Project on Arid Legumes were restructured into two AICRPS viz., AICRP on Kharif Pulses and AICRP on Rabi Pulses to have focused programmes on breeding and refinement of production and protection technologies in respective pulse crops. In recent years, the secondary winter pulses have started experiencing terminal moisture and heat stresses due to prevailing climate change which is a great challenge in sustaining pulses production. Therefore, the attention has been made to develop short duration, nutrient-dense, high yielding climate resilient varieties in these crops to ensure maximum yield of these crops. Since, these secondary winter legumes offer great opportunities for their cultivation in rice fallow situation, efforts are directed to identify appropriate varieties for such situations to achieve horizontal expansion.

Lentil is second important cool season pulse crop of India. Its cultivation is mainly concentrated in MP, UP, West Bengal, Bihar and Jharkhand which together contribute more than 95% production of lentil. Northern part of the country has been the traditional area of small seeded lentil cultivation with rust as a major impediment in realization of actual yield potential of lentil. Dedicated efforts have been made and several small seeded and high yielding varieties coupled with resistant to rust have been developed for northern region. During recent years' efforts have also been made to develop varieties with high iron, zinc and folate. Consequently, two **biofortified lentil** varieties i.e. **IPL 220 (small seeded)** and **L 4717 (large seeded)** with resistant to rust and wilt have been recommended for cultivation in NEPZ and CZ, respectively. Nutrient-dense lentils with high iron, zinc and folate can be important ingredient of balance diet of growing children and health supplement for lactating and pregnant women and thus it plays instrumental role in achieving goal of nutritional security. Lentil has a great potential in **rice fallows** ecologies of Assam, West Bengal, Bihar, Chhattisgarh, Eastern

UP and Jharkhand. Few varieties like HUL 57, WBL 77, KLS 218, PL 6 and NDL 1 are well adapted to rice-fallow situations. Traditionally grown cultivars produce good harvest under normal rainfall, but fail to maintain their productivity in deficit rains and high temperature and moisture stress at terminal stage. Therefore, efforts have been made to develop early maturing and high yielding cultivars in lentil which can escape terminal stress. A good progress has been made in development of high yielding and extra early varieties of lentil which can mature in 100-105 days. These efforts resulted in to development of new varieties **L 4717 (Pusa Ageti), RVL 11-6, IPL 534 Chhattisgarh Masoor 1, Kota Masoor-1, Kota Masoor-2** which matures in about 105 days. Intensive efforts were also made during recent years to design **large seeded lentils** with good level of resistance against wilt, since, its a serious limitation in harnessing actual potential of lentil production in the central part of India. Consequently, numerous varieties suitable for central parts of India were developed e.g. L 4076, JL 3, IPL 316, L4727, L-4729, Kota masoor-3, Kota masoor-4 and Kota masoor-6. In the eastern states of country particularly in West Bengal, stem phyllium blight and collar rot have been emerged as serious threats to lentil production. Thus, sincere efforts have been made and most recently a high yielding variety Bidhan Lentil 16 has been developed with resistant against stem phyllium blight and collar rot. The popular varieties of lentil during recent past are: HUL 57, Pant L 8, JL 3, Pant L 7, WBL 77, Pant L 6, K 75, IPL 316, L 4717 and IPL 220.

Field pea is another important rabi pulse crop grown mainly in northern parts of country specifically in U.P., M.P., Bihar, Assam, Chhattisgarh, and Jharkhand. The average productivity of this crop has increased substantially over the years which is now nearly 1.4 t/ha. This could be possible due to concerted breeding efforts towards restructuring of plant type with in-built resistance against powdery mildew and tolerance to rust. Consequently, numbers of high yielding varieties coupled with resistance to biotic stress in dwarf and tall background with and without *afila* (*af*) mutation have been developed. Each of these traits has played a significant role in increasing productivity of the crop. The new plant type with *afila* mutation converted leaflets into tendrils and retains the normal stipules has several advantages such as penetration of sunlight to lower portion of the plant, natural mechanical support to prevent lodging and network of interlocked tendrils above crop canopy to prevent bird damage. Incorporation of the dwarfing gene has also enhanced the productivity by increasing response to inputs like fertilizers and irrigation and high plant population. HFP 4 (Aparna) was the first dwarf, leafless and powdery mildew resistant variety. The land mark variety HUDP 15 was also a dwarf, leafless, powdery mildew resistant and rust tolerant variety dominated the seed chain for many years. Likewise, first tall and leafless variety Aman (IPF 5-19) was developed which has resistance to powdery mildew and tolerance to rust created substantial space in the seed chain during last decade. Development of extra early (<110 days) and high yielding cultivars have allowed expansion of field pea in new niches where growing window is either short or prone to terminal stresses like in rice fallows areas of Chhattisgarh, Bihar, West Bengal, Jharkhand and Assam. In addition, such varieties can well fit in different cropping systems and ultimately increases per unit time and area productivity. Therefore, dedicated efforts have been made and a short duration variety RFP 2009-1 suitable for rice fallow ecology has been developed with tolerant to powdery mildew. The seed coat texture of this variety makes it amenable for *utera* cultivation. Besides, field pea varieties like Vikas, Prakash, DDR 27, IPFD 11-5, and IPFD 2014-2 are the short duration varieties which have created space in new niches for themselves. A new tall field pea variety TRCP 9 has been developed which is popular in North- eastern hilly regions. Efforts are also being made to develop varieties with value added traits which would help in making diversified products. Green seeded field pea varieties IPFD 10-12 and IPF 16-13 have been released which remained green in color on drying. These are suitable for various culinary preparations and can be stored without additional cost of

freezing or canning. In the case of North Eastern Plain Zone comprising states of Bihar, Jharkhand, Assam, West Bengal and eastern parts of Uttar Pradesh very limited options were available among farmer for varietal selection due to dearth of varieties. Consequently, concerted efforts have been made and most recently few high-yielding varieties i.e. Shikhar, Arpan, Pant Pea 462, HFP 1426 and IPFD 18-3 (Purvansh) have been developed. These varieties would be best replacement for ruling variety HUDP-15 and will play important role in increasing production and productivity of field pea in north eastern plains of India. The field pea varieties IPFD 12-2, Pant Pea 243, Pant Pea 437, IPFD 12-8, TRCP 9, VL Matar- 64, KPF 101, Pant P 484, Pant Pea 497, Pant Pea 498, Pant Pea 501, Pant Pea 517, HFP 1709, HFP 1428, IPFD 18-3 and AAU SPC 101 are the recent released varieties suitable for cultivation in different parts of the country.

Lathyrus is a climate resilient cool season pulse crop with in-built ability to grow in climatic extremities. However, a neurotoxin Beta N-oxalyl-L- alpha-beta diaminopropionic acid (ODAP) presence in grain has been the major limitation for promotion of this crop. Nevertheless, this crop is still being grown in traditional areas with local cultivars having relatively high level of ODAP. In past efforts were made to develop varieties with low ODAP content and consequently, varieties like Ratan, Prateek and Mahateora have been developed with low ODAP level. These varieties are appropriately introduced in traditional areas with an objective to replace local varieties. Lathyrus has a great promise in the rice fallows of north-eastern and central regions of the country including *Tal* areas of Bihar, Chhattisgarh and West Bengal. Bidhan Khesari-1 and Hazari are recently developed variety of lathyrus with earliness (100-110 days) and low neurotoxin recommended for cultivation in West Bengal.

The results on plant breeding trial conducted during 2024-25 have been elaborated in this report. The information regarding breeding programme, breeding materials, list of candidate entries and checks with their pedigrees, sources and the zones in which they are tested, name of the trials conducting centre and promising entries have been compiled and presented in this report.

This year total 145 trials were allotted to different centres and all locations data have been received and 135 (93 %) were accepted for calculating zonal mean and judging the performance of the entries.

1.1 Highlights

1.1.1 Varieties released and notified

Lentil

Pant Lentil 14 (PL 320): It is small seeded derived from the cross PL 5 / L 4145. The average yield is 1555 kg/ha and maturity is 128 days. It has moderate resistance to rust and resistant to *Ascochyta* blight. The protein content is 25.72 %. The variety Pant Lentil 14 (PL 32) was **released and notified** for the North West Plain Zone comprising states of western Uttar Pradesh, northern Rajasthan, Delhi, plains of Uttarakhand, Punjab, Haryana and part of Jammu and Kashmir.

Pant Lentil 15 (PL 342): It is small seeded derived from the cross PL 8 / DPL 58. The average yield is 1559 kg/ha and maturity is 127 days. It has resistance to *Ascochyta* blight and moderate resistance to rust. The protein content is 26.24 %. The variety Pant Lentil 15 (PL 342) was **released and notified** for the North West Plain Zone comprising states of western Uttar Pradesh, northern Rajasthan, Delhi, plains of Uttarakhand, Punjab, Haryana and part of Jammu and Kashmir.

Pant Lentil 16 (PL 366): It is large seeded lentil variety developed from the cross L 4188 / L 4147. It is moderately resistant to rust and wilt. The average yield is 1491 kg/ha and maturity 154 days. Hence, the variety Pant Lentil 16 (PL 366) was **released and notified** for the North Hill Zone comprising

states of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and hills of West Bengal and North eastern states.

Kota Masoor 6 (RKL 20-26): It is large seeded lentil variety derived from the cross RKL 11 / PL 5. It is tolerant to drought. The average yield is 1600 kg/ha and matures in 125 days in North West Plain Zone. In Central zone the average yield is 1737 kg/ha and matures in 111 days. It is moderately resistant to rust and wilt. Hence, the variety Kota Masoor 6 (RKL 20-26) was **released and notified** for both North West Plain Zone and Central Zone comprising states of western Uttar Pradesh, Rajasthan, Delhi, plains of Uttarakhand, Punjab, Haryana, part of Himachal Pradesh, Madhya Pradesh, Chhattisgarh, Gujarat, Maharashtra, Bundelkhand region of Uttar Pradesh.

Field pea

Pant Pea 484: It is dwarf field pea variety derived from the cross Pant Pea 200 / VL 201. It has an average yield of 2333 kg/ha and matures in 120 days. It is resistant to Ascochyta blight and moderately resistant to rust and powdery mildew. The seed protein content is 26.17%. The variety Pant Pea 484 was **released and notified** for the North West Plain Zone comprising states of western Uttar Pradesh, northern Rajasthan, Delhi, plains of Uttarakhand, Punjab, Haryana and part of Jammu and Kashmir.

Pant Pea 497: It is tall type field pea variety derived from the cross IPFD 5-19 / HFP 530. It has an average yield of 1966 kg/ha and matures in 123 days. It is resistant to Ascochyta blight and moderately resistant to rust and powdery mildew. The seed protein content is 25.05%. The variety Pant Pea 497 was **released and notified** for the North West Plain Zone comprising states of western Uttar Pradesh, northern Rajasthan, Delhi, plains of Uttarakhand, Punjab, Haryana and part of Jammu and Kashmir.

Pant Pea 498: It is tall type field pea variety derived from the cross IPFD 5-19 / HFP 530. It has an average yield of 2050 kg/ha and matures in 123 days. It is resistant to Ascochyta blight and moderately resistant to rust and powdery mildew. The variety Pant Pea 498 was **released and notified** for the North West Plain Zone comprising states of western Uttar Pradesh, northern Rajasthan, Delhi, plains of Uttarakhand, Punjab, Haryana and part of Jammu and Kashmir.

Pant Pea 501: It is tall type field pea variety derived from the cross IPFD 5-19 / HFP 530. It has an average yield of 2140 kg/ha and matures in 123 days. It is resistant to powdery mildew and Ascochyta blight and moderately resistant to rust. The variety Pant Pea 501 was **released and notified** for the North West Plain Zone comprising states of western Uttar Pradesh, northern Rajasthan, Delhi, plains of Uttarakhand, Punjab, Haryana and part of Jammu and Kashmir.

Pant P 509: It is dwarf field pea variety derived from the cross Pant P 26 / FC 1. The average yield is 1809 kg/ha and maturity is 114 days. It has resistance to Powdery mildew & Ascochyta blight. Hence, the variety Pant Pea 509 was **released and notified** for North East Plain Zone of India comprising states of eastern UP, Bihar, Jharkhand, West Bengal and Assam.

Pant P 517: It is tall type field pea variety developed from the cross IPFD 05-19 / HFP 530. The average yield is 2130 kg/ha, maturity duration is 125- 130 days and average plant height is 151 cm. It showed resistance to Powdery mildew and Ascochyta blight. The variety Pant P 517 was **released and notified** for North West Plain Zone comprising states of western Uttar Pradesh, northern Rajasthan, Delhi, plains of Uttarakhand, Punjab, Haryana and part of Jammu and Kashmir.

HFP 1709: It is dwarf field pea variety derived from the cross Pant P 25 / HFP 8909. The average yield is 1652 kg/ha and maturity duration is 110-115 days. It has resistance to Powdery mildew and

is moderately resistant to rust. Hence, the variety HFP 1709 was **released and notified** for North East Plain Zone comprising states of eastern Uttar Pradesh, Bihar, Jharkhand, West Bengal and Assam.

IPFD 18-3 (Purvansh): It is dwarf and leafy type field pea variety derived from the cross HUDP 15 / P 1544-4. The average yield is 1731 kg/ha and duration is 117 days. It showed resistance to Powdery mildew and Ascochyta blight. The seed protein content is 25.7%. Hence, the variety IPFD 18-3 was released and notified for North East Plain Zone of India comprising states of eastern UP, Bihar, Jharkhand, West Bengal and Assam.

1.1.2 Promising entries: On the basis of 2024-25 yield data, the following entries out yielded the best check by more than 5% in IVT and 10% in AVTs. The mean yield (kg/ha) of the promising entries as well as best check has been mentioned below.

Lentil

Trial	Zone	Entries	Yield (kg/ha)	% increase over best check	Best check	Yield (kg/ha)
IVT (Small Seed)	NHZ	IPL 251	1739	6.68	VL 126	1630
	NWPZ	IPL 251	2059	9.28	LL 1655	1884
		IPL 252	2046	8.59		
		PL 455	2019	7.16		
		LL 1831	1991	5.67		
IVT (Small Seed)	NEPZ	IPL 252	1421	7.57	HUL 57	1321
		IPL 251	1398	5.82		
IVT (Large Seed)	NHZ	LL 1859	1316	9.12	Shalimar Masoor 2	1206
	NWPZ	LL 1859	2193	10.53	LL 1613	1984
IVT (Rice Fallow)	CZ	RL 2021-2	1159	15.09	RVL 11-6	1007

Field pea

Trial	Zone	Entries	Yield (kg/ha)	% increase over best check	Best check	Yield (kg/ha)
AVT -1 (Tall)	NWPZ	Pant P 568	2094	11.03	Aman (IPF 5-19)	1886
		Pant P 574	2415	28.05		
	NHZ	NDP 22-4	1368	32.30	Pant P 42	1034
		IPF 23-23	1304	26.11		
		Pant P 568	1273	23.11		
		Pant P 574	1195	15.57		
		IPF 23-19	1154	11.60		
IVT (Tall)	NWPZ	IPF 24-13	2436	28.96	Aman (IPF 5-19)	1889
		Pant P 628	2359	24.90		
		Pant P 633	2103	11.33		
		IPF 24-15	2089	10.58		
	NEPZ	RFP 2020-4	1940	18.65	IPF 16-13	1635

IVT (Dwarf)	NHZ	Pant P 610	1478	33.75	Prakash	1105
		SPC 103	1474	33.39		
		IPFD 24-7	1354	22.53		
		Pant P 605	1246	12.76		
		IPFD 24-1	1229	11.22		
		RNCP 17-05	1217	10.13		
		Pant P 592	1167	5.61		
		IPFD 24-8	1165	5.42		
AVT-1 (Rice Fallow)	NEPZ	Pant P 568	1418	12.54	IPF 16-13	1260

Lathyrus

Trial	Zone	Entries	Yield (kg/ha)	% increase over best check	Best check	Yield (kg/ha)
IVT	CZ	RLS 3004-2 (ODAP 0.09)	1231	4.05	Mahateora	1183

1.1.3 Weighted mean of yield (kg/ha) of AVT 2 entries of lentil and Field pea**Lentil (Large seed)**

Zone: NHZ

S. N.	Entry	2022-23 (IVT)	2023-24 (AVT-1)	2024-25 (AVT-2)	W.M.	% increase best check	
						Pant L 11	Shalimar M-2
1	LL 1809	1740(5)	1814(4)	1393(4)	1656	19.5	26.2
2	LL 1798	1721(5)	1773(4)	1289(4)	1604	15.7	22.3
3	Pant L 11 (Ch)	1444(5)	1458(4)	1240(4)	1386		
4	Shalimar Masoor 2 (Ch)	1413(5)	1608(4)	890(4)	1312		
5	VL 514	1405 (5)	1371(4)	1069(4)	1291		
6.	VL 507	1145(5)	1384(4)	-	1251		

Field pea (Tall)

Zone: NWPZ

S. N.	Entry	2022-23 (IVT)	2023-24 (AVT-1)	2024-25 (AVT-2)	W.M.	% increase best check	
						Aman	Pant P 42(Ch)
1	Pant P 550	1984(5)	2176(5)	1983(4)	2052	15.90	20.07
2	Pant P 554	2043(5)	2213(5)	2254(4)	2164	22.32	26.62
3	Aman (Ch)	1764(5)	1679(5)	1886(4)	1769		
4	HFP 9907B (Ch)	1684(5)	1661(5)	1718(4)	1686		
5.	Pant P 42 (Ch)	1806(5)	1485(5)	1869(4)	1709		

1.1.4 Status of trial conducted

The crop wise, trial wise & zone wise trials allocation, number of locations responded and finally accepted for computing the zonal mean is indicated in the following table.

Lentil

Trial	Zone	Allocation	Responded	Accepted	Trial failed/ Data not received	Rejected due to	
						High/ Low CV%	Yield below state average
Lentil (Small Seed)							
AVT-1	NWPZ	7	7	6	-	-	Mandor
	NEPZ	8	8	8	-	-	-
IVT	NHZ	4	4	3	-	Agartala	
	NWPZ	5	5	5	-	-	-
	NEPZ	7	7	7	-	-	-
Lentil (Large Seed)							
AVT 2 + AVT 1	NHZ	4	4	4	-	-	-
AVT 1	CZ	7	7	6	-	-	Indore
IVT	NHZ	4	4	2	-	Agartala, Imphal	-
	NWPZ	6	6	6	-	-	-
	CZ	7	7	6	-	-	Sagar
Lentil (Rice Fallow)							
AVT-1	CZ	3	3	3	-	-	-
IVT	NEPZ	6	6	4	-	-	Sabour, Shillongani
	CZ	4	4	4	-	-	-
Total		72	72	64		3	5

Field pea

Trial	Zone	Allocation	Responded	Accepted	Trial failed/ Data not received	Rejected due to	
						High/ Low CV%	Yield below state average
Field pea (Tall)							
AVT 2+ AVT-1	NHZ	3	3	3	-	-	-
	NWPZ	4	4	4	-	-	-
	NEPZ	5	5	5	-	-	-
IVT	NHZ	3	3	2	-	Agartala	-
	NWPZ	4	4	4	-	-	-
	NEPZ	4	4	4	-	-	-
	CZ	6	6	6	-	-	-
Field pea (Dwarf)							
AVT-1	NHZ	3	3	3	-	-	-

IVT	NHZ	3	3	3	-	-	-
	NWPZ	5	5	5	-	-	-
	NEPZ	4	4	4	-	-	-
	CZ	7	7	6	-	Banda	-
Field pea - Rice Fallow							
AVT-1	NEPZ	5	5	5	-	-	-
IVT	NEPZ	5	5	5	-	-	-
	CZ	4	4	4	-	-	-
Total		65	65	63	-	2	-

Lathyrus

Trial	Zone	Allocation	Responded	Accepted	Trial failed/ Data not received	Rejected due to	
						High/ Low CV%	Yield below state average
IVT	NEPZ	5	5	5	-	-	-
	CZ	3	3	3	-	-	-
Total		8	8	8	-	-	-

1.2 Salient Results

1.2.1 Lentil

The results of All India Coordinated Varietal Trials conducted for Lentil during Rabi 2024-25 are elaborated in this report. The trials for large seeded (more than 2.5 g/100 seed wt.) and small seeded (less than 2.5 g/100 seed wt.) lentils were conducted independently except rice fallow.

AVT 1 (Small Seed)

In small seeded lentil AVT-1 trials were executed in NWPZ and NEPZ at seven, and eight locations, respectively. In NWPZ, AVT-1 trial was carried out at seven locations with six entries including three checks. Six testing locations data were accepted for calculating the zonal mean. The mean performance results revealed that the highest yielding entry was check variety L 4147 (1813 kg/ha), consequently, none of the entry demonstrated desired superiority over the best check. Likewise, in NEPZ for two candidate entry with three checks AVT-1 trial was conducted over eight locations. All the locations data were considered to judge the entries performance. Based on mean grain yield the highest yield was recorded in check variety HUL 57 which gave 1380 kg/ha grain yield. Therefore, none of the entry could promote for further testing in advance trials.

IVT (Small Seed)

In small seeded lentil category, IVT trials were laid out in three zones i.e. NHZ, NWPZ and NEPZ over 16 locations. In the case of NHZ, trial was carried out at four locations with 17 candidate entries and three checks. Data was received from all locations and three locations data was considered to assess the candidate entries performance. Based on the mean performance the highest yielding entry was IPL 251 (1739 kg/ha) followed by VL 168 (1641 kg/ha). The best check was VL 126 which gave 1630 kg/ha grain yield. Likewise, IVT trial was conducted in NWPZ over five locations for same set of entries along with three checks. All locations data were received and accepted for computing the zonal mean. Based on mean performance the highest yielding entry was IPL 251 (2059 kg/ha) followed by IPL 252 (2046 kg/ha). The best check variety LL 1655 yielded 1884 kg/ha. Similarly, in NEPZ an IVT trial was laid out at seven locations and all the locations data were accepted to

compute zonal mean. Considering mean performance, the highest yielding IVT entry was IPL 252 (1421 kg/ha) followed by IPL 251 (1398 kg/ha). The best check variety HUL 57 yielded 1321 kg/ha.

AVT (Large Seed)

In this category a combined AVT 2+1 trial was conducted in NHZ at four locations with six entries. All the locations data were accepted to judge the entries performance. The highest yield was recorded in AVT-2 entry LL 1809 (1393 kg/ha) followed by LL1798 (1289 kg/ha). The best check variety Pant L 11 gave 1240 kg/ha grain yield. Similarly, an AVT 1 trial was carried out in CZ at seven locations for one candidate entry with three checks. Data were received from all the locations and six locations data were considered to judge the candidate entry performance. The highest yield was recorded in check variety Kota Masoor 3 (1743 kg/ha).

IVT (Large Seed)

Initial varietal trials were organized in three zones i.e. NHZ, NWPZ and CZ over 17 locations for 20 new entries with three checks. In case of NHZ, trial was conducted at four locations, of which, two locations data were accepted to calculate zonal mean. On the basis mean performance, the highest yield was obtained in candidate entry LL 1859 (1316 kg /ha) followed by RLG 354 (1233 kg/ha). Of them, only one entry LL 1859 could register desired superiority over the best check Shalimar Masoor 2 (1206 kg/ha). Similarly, in NWPZ, trial was conducted at six locations and all the locations data were considered for calculating zonal mean. The mean performance revealed LL 1859 (2193 kg/ha) was the best entry followed by PL 448 (2015 kg/ha). The best check variety was LL 1613 (1984 kg/ha). In case of CZ trial was carried out over seven locations, of which, six locations data were accepted to judge the entries performance. The zonal mean performance exhibited that the highest yield was achieved by check variety L 4727 (2258 kg/ha) followed by RKL 16-401 (2064 kg/ha). Thus, none of the candidate entry could promote for further testing in advance yield trials.

AVT 1+ IVT (Rice fallow)

In rice fallow ecology AVT-1 trial was laid out in CZ over three locations for five entries with three checks. All the test locations data were accepted to compute the zonal mean. Based on mean performance highest yield was recorded in entry PLR 23-1 (964 kg/ha) followed by check variety Kota Masoor 2 (731 kg/ha). In rice fallow ecology, IVT trials were organized in two zones i.e. NEPZ and CZ at six and four locations, respectively. In the case of NEPZ, IVT trial was conducted at six locations, of them, four locations data were considered for judging the entries performance. Based on mean performance the highest yield was recorded in check variety HUL 57 (1292 kg/ha), hence, none of the entry was promoted to advance yield trials. Likewise, IVT trial was laid out in CZ at four locations and all the locations data were used for computing zonal mean. The mean performance revealed that the highest yielding entry was RL 2021-2 (1159 kg/ha) followed by check variety RVL 11-6 (1007 kg/ha). The performance of lentil entries was good in rice fallow ecology which offer scope for horizontal expansion of lentil in rice fallow areas of central and north-eastern states of India.

1.2.2 Field pea

The outcome of field pea All India Coordinated Varietal Trials conducted during rabi 2024-25 are presented in this section. On the basis of plant type i.e. Tall and Dwarf genotypes trials were conducted independently in different zones except rice fallow ecology.

AVT (Tall)

In tall category, AVT-1 trial was carried out in NHZ at three locations for eight entries with three checks. All the locations data were used for the calculation of zonal mean. Based on mean performance, highest yielding entry was NDP 22-4 (1368 kg/ha) followed by IPF 23-23 (1304 kg/ha) and Pant P 568 (1273 kg/ha). The best check variety was Pant Pea 42 (1034 kg/ha). Likewise, a combined AVT 2+1 trial was organized in NWPZ over four locations. All the locations data were received and considered to judge the entries performance. The mean performance revealed that in AVT 1, the highest yield was recorded in Pant P 574 (2415 kg/ha) followed by Pant P 568 (2094 kg/ha). In the case of AVT 2, highest yield was obtained in Pant P 554 (2254 kg/ha) followed by Pant P 550 (1983 kg/ha). The best check variety was Aman with 1886 kg/ha grain yield. Similarly, in NEPZ AVT 1 trial was conducted at five locations and all the locations data were considered to judge the candidate entry performance. The highest yielding entry was Pant P 574 with 1951 kg/ha grain yield. None of the entry could express the desired superiority over the best check VL 42 (1920 kg/ha).

IVT (Tall)

In this group, trials were laid out in four zones i.e. NHZ, NEPZ, NWPZ and CZ over 17 locations. In case of NHZ, trials of 13 test entries were conducted with three checks at three locations. Data of two locations were considered to compute zonal mean. The zonal mean results revealed that the highest grain yield was recorded in check variety TRCP 9 which yielded 1686 kg/ha. Thus, none of the entry showed desired superiority over the best check. Similarly, in NWPZ, IVT trials were executed at four locations and all the locations data were considered to compute the zonal mean. Based on mean performance the highest yielding entry was IPF 24-13 (2436 kg/ha) followed by Pant P 628 (2359 kg/ha). The highest yielding check was IPF 5-19 (1889 kg/ha). The same set of test entries with three checks was tested in NEPZ at four locations and all the locations data were accepted to calculate zonal mean. Considering zonal mean performance only one candidate entry RFP 2020-4 (1940 kg/ha) surpassed the best check IPF 16-13 (1635 kg/ha) with about 19% superiority. Similarly, in CZ trial was conducted over six locations and all the locations data were accepted to assess the entries performance. The highest yielding entry was Pant P 628 (2514 kg/ha) followed by IPF 23-13 (2453 kg/ha). The best check variety Pant P 243 yielded 2414 kg/ha, therefore, none of the entry has been promoted for further testing.

AVT (Dwarf)

In Dwarf field pea, AVT 1 trials were laid out in NHZ over three locations for two candidate entries with three checks. All the locations data were received and considered to compare the entries performance. Based on mean performance, highest yield was recorded in check variety Prakash (1500 kg/ha), therefore, none of the entry could be promoted for next level testing.

IVT (Dwarf)

In this category IVT trials were conducted over 18 locations in four zones namely NHZ, NWPZ, NEPZ and CZ. In NHZ, trial was conducted at three locations and all the locations data were used to ascertain the entries performance. The mean performance results revealed that the highest yield was recorded in entry Pant P 610 (1478 kg/ha) followed by SPC 103 (1474 kg/ha). The best check variety was Prakash which gave 1105 kg/ha grain yield. In this zone total eight entries registered desired superiority over the best check, and were promoted for further testing. In the case of NWPZ, eleven entries were tested at four locations with four checks. All the locations data were considered

for computing the zonal mean. On the basis of mean performance, the highest yield was recorded in entry IPFD 24-7 (2390 kg/ha) followed by check variety Pant P 347 (2334 kg/ha). None of the entry showed desired superiority over the best check variety, hence, could not be promote for further testing. Similarly, trials were conducted in NEPZ over four locations and all the locations data were accepted. The mean performance revealed that the highest yield was obtained by check IPFD 19-1 (1946 kg/ha), hence, none of the candidate entry was promoted for further testing. Likewise, in CZ trials were laid out over seven locations and of them six locations data were used to calculate zonal mean. The highest yield was recorded in check variety IPFD 14-2 (2508 kg/ha), therefore, none of the entry could be promoted.

IVT +AVT 1 (Rice fallow)

In rice fallow ecology, AVT 1 trial was conducted in NEPZ over five locations for one AVT 1 entry with three checks. All the locations data were considered to compute zonal mean. Considering mean performance, the highest grain yield was recorded in Pant P 568 (1418 kg/ha). The best check variety was IPF 16-13 which gave 1260 kg/ha grain yield. While, IVT trial in NEPZ was conducted at five locations and all the locations data were considered to compute zonal mean. Based on mean performance the highest yield was recorded in check variety IPF 16-13 (1241 kg/ha) followed by Pant P 628 (1253 kg/ha) and IPFD 24-2 (1186 kg/ha). Likewise, in CZ trial was laid out at four locations and all the locations data were considered for judging the entries performance. On the basis of mean performance highest yield was obtained in check variety IPFD 11-5 (1163 kg/ha), hence, none of the entry could be promoted for further testing.

1.2.3 Lathyrus

In lathyrus IVT trials were conducted at five locations in NEPZ with six test entries and three checks. All the test locations data were considered for calculating the zonal mean. Based on the mean grain yield and ODAP content none of the tested entry was found superior to the best check Mahateora which gave 1421 kg/ha grain yield with low ODAP value. In CZ trial was conducted over three locations and all the locations data were accepted. Considering mean performance, the highest yield was recorded in entry RLS 3004-2 (1231 kg/ha) which also has low ODAP content. The highest yielding check variety was Mahateora which yielded 1183 kg/ha.

1.3 Lentil Breeding Programme

1.3.1 RARI, Durgapura

(a) **Hybridization:** During 2024-25 under national crossing programme six fresh crosses were attempted using different trait specific donors.

S.N.	Cross	S.N.	Cross
1	RKL 1003- 57 F / L 4727	4	RKL 1003-66 G / L 4727
2	RKL 1003- 57 F / L 4710	5	RKL 1003-66 G / L 4710
3	RKL 1003- 57 F / VL 148	6	RKL 1003-66 G / VL 148

- (b) Status of breeding material:** Different filial generations were evaluated and best performing single plants/bulks were selected in different generations. Selection was based on yield and yield contributing traits and resistant to major diseases.

Generation	Number of crosses	Single plant /bulks Planted	Single plant /bulks selected
F ₁	15	-	-
F ₂	11	79	Bulk Harvest
F ₃	22	70	129
F ₄	5	39	156
F ₅	7	65	221
F ₆	14	58	192
Bulks	25	65	26
Germplasm	-	105	-

1.3.2 ARS, Sehore

- a) Hybridization:** During reporting period total 23 fresh crosses were made using donors possessing earliness, large seed size, wilt resistance and high yield potential.

S.N.	Cross	S.N.	Cross	S.N.	Cross
1	RVL 31 / IPL 321	9	RVL 31 / L 4717	17	RVL 13-5 / LL 1805
2	RVL 31 / VL 14	10	RVL 31 / DPL 58	18	RVL 13-5 / PL 117
3	RVL 31 / PL 289	11	RVL 31 / L 4602	19	RVL 13-5 / PL 411
4	RVL 31 / LL 1805	12	RVL 31 / LL 931	20	RVL 13-5 / PL 289
5	RVL 31 / L- 4710	13	RVL 13-5 / L 4717	21	RVL 13-5 / VL 14
6	RVL 31 / VL 540	14	RVL 13-5 / VL 540	22	RVL 13-5 / PL 413
7	RVL 31 / DPL 62	15	RVL 13-5 / DPL 62	23	RVL 13-5 / IPL 321
8	RVL 31 / PL 412	16	RVL 13-5 / L 4710		

- b) Status of breeding material**

S.N.	Generation	No. of Crosses	S.N.	Generation	No. of Crosses
1	F ₁	18	4	F ₄	40
2	F ₂	17	5	F ₆	11
3	F ₃	33	6	F ₇	15

1.3.3 ARS, Kota

- a) Hybridization:** Twelve fresh crosses were developed involving various donors having large seed size, wilt resistance and high yield potential.

S.N.	Cross	S.N.	Cross	S.N.	Cross
1	L 4727 / KM 2	5	ILWLS 118 / KM 2	9	SLLOPF / KM 3
2	KM 2 / L 4727	6	ILWLS 118 / KM 4	10	CLLOPF / KM 4
3	L 4727 / KM 4	7	SLLOPF / KM 4	11	CLLOPF / KM 2
4	KM 4 / L 4727	8	SLLOPF / KM 2	12	CLLOPF / KM 1

b) Status of breeding material:

Generation	No. of crosses evaluated	No. of Progenies evaluated	No. of single plant selected	Number of progenies bulked
F1	27	-	-	-
F2	12	39	54	-
F4	2	13	20	
F5	10	70	60	
F6	5	98	94	
F6 bulk	9	188	-	132
F7	2	21	-	15
Advance fixed lines	2	94	-	54

1.3.4 ICAR-IARI, New Delhi**a) Hybridization:** Total 27 fresh crosses were produced aiming various traits.

S.N.	Cross	S.N.	Cross
1.	Banka local / L 4717	2.	Banka local / L 4727
3.	FLIP 96-51 / L 4717	4.	ILL 7663 / L 4717
5.	ILL 7663 / L 4727	6.	IC208326 / L 4717
7.	IC 208326 / PSL 17	8.	L 4727 / PDL 1
9.	L 4727 / PSL 9	10.	PSL 17 / L 4717
11.	PSL 17 / L 4727	12.	PSL 17 / IC 208326
13.	PSL 19 / L 4727	14.	PSL 23-3 / PDL 1
15.	PSL 23-223 / L 4727	16.	L 4076 / L 4717
17.	L 4076 / L 4727	18.	AMP 1 / L 4727
19.	AMP 1 / L 4717	20.	AMP 1 / L 4729
21.	AMP 1 / PDL 1	22.	AMP 1 / PSL 9
23.	AMP 1 / PSL 19	24.	Pusa 2401 / L 4717
25.	Pusa 2401 / L 4076	26.	Pusa 2401 / PDL 1
27.	Pusa 2401 / PSL 9	28.	

b) Status of breeding material

Generation	No. of crosses evaluated	Generation	No. of crosses evaluated
F ₁	32	F ₅	6
F ₂	28	F ₆	2
F ₃	37	F ₇	10
F ₄	24		

1.3.5 ICAR-IIPR, Kanpur

(a) **Generation of breeding material:** Twenty-four fresh crosses attempted for desirable traits and disease resistance.

S.N.	Cross	S.N.	Cross
1	DPL15 / DPL 62	13	MOKAMA LOCAL / IPLPBR-1
2	DPL62 / IPL 406	14	MOKAMA LOCAL / IC 315962
3	IPL406 / DPL15	15	IPL 406 / IC 315962
4	DPL 62 /3/ [(IPLS9-23 / DPL62) // BARI 5]	16	DPL 62 / IC 315962
5	IPL406 /3/ [(IPLS9-23 / DPL62) // BARI 5]	17	DPL 15 / IC 315962
6	JL3 / DPL 62	18	MOKAMA LOCAL / JL-1
7	RKL605-3 / IPL 406	19	MOKAMA LOCAL / JL-3
8	IPL 406 / RKL605-3	20	MOKAMA LOCAL / DPL 62
9	DPL62 / RKL 606-3	21	MOKAMA LOCAL / IPL 406
10	IPL316 / RKL 605-3	22	IPL 220 / MOKAMA LOCAL
11	IPL 316 / IPL 406	23	IPL 406 / ICARDA MH
12	MOKAMA LOCAL / IG 54	24	IPL 220 / ICARDA MH

(b) Status of breeding material

Total 140 F₁ plants were generated from 32 crosses from which F₂ seeds were harvested. The single plants were selected from 21F₂ (297+ 3Bulk), 29F₃ (537353 SPS), 24F₄ (399 SPS), 27 F₅ (222 SPS), and 656 progenies of 26 F₆ were bulked for yield evaluation. 60 improved breeding lines having higher yield potential (170-280 g/ line) were selected from F₆ bulk progenies for PYT. Produced 1061 kg nucleus seeds of 11 released varieties and 6500 SPS for next year nucleus seed production

(c) Development and maintenance of mapping populations

Trait-specific RIL mapping populations for earliness (Precoz / L4603; 137 RILs) and root traits (IPL 98/193 / EC 208362; 198 RILs) were maintained and evaluated for yield and root traits.

1.3.6 GBPUA&T, Pantnagar

a) **Hybridization:** Total 36 crosses were made engaging several trait specific donors.

S.N.	Cross	S.N.	Cross	S.N.	Cross
1.	DPL 62 / LL 1374	2.	L 4710 / L 4603	25	LL 875 / L 4603
3.	DPL 62 / L 4710	4.	L 4710 / PL 8	26	LL 875 / L 4710
5.	DPL 62 / L 4603	6.	L 4710 / LL 1374	27	LL 875 / DPL 62
7.	DPL 62 / PL 8	8.	L 4603 / LL 1374	28	LL 875 / LL 931
9.	PL 7 / LL 931	10.	LL 1374 / PL 8	29	ILL 7663 / PL 7
11.	PL 7 / PL 8	12.	LL 931 / LL 1374	30	ILL 7663 / LL 875
13.	PL 7 / LL 875	14.	LL 931 / DPL 62	31	ILL 7663 / L 4603
15.	PL 7 / DPL 62	16.	LL 931 / L 4710	32	ILL 7663 / L 4710
17.	PL 7 / L 4710	18.	LL 931 / PL 8	33	ILL 7663 / DPL 62
19.	PL 7 / LL 1374	20.	L 931 / L 4603	34	ILL 7663 / PL 8
21.	PL 7 / L 4603	22.	LL 875 / PL 8	35	ILL 7663 / LL 931
23.	L 4603 / PL 8	24.	LL 875 / LL 1374	36	ILL 7663 / LL 1374

(b) Status of breeding material

Generation	No. of crosses evaluated	No. of single plant selected/ Progenies/ bulked
F ₁	30	-
F ₂	8	315
F ₃	10	380
F ₄	17	462
F ₅	4	81
F ₆	8	70

1.3.7 BCKV, Mohanpur

(a) Hybridization: A total of 10 fresh crosses were generated involving the elite breeding lines and donors with an objective of earliness, resistance to collar rot, lentil blight, rust and heat tolerance.

S. N.	Cross	Trait	Pods harvested
1	WBL 77S / IC 241447	Collar rot tolerance	5
2	WBL 77S / EC 0213199-A	Blight tolerance	6
3	IPL 220 / IC 241447	Collar rot tolerance	7
4	IPL 220 / IC 201684	Heat tolerance	5
5	HUL 57 / IC 201684	Heat tolerance	5
6	WBL 256S / PL 9	Rust tolerance	6
7	BCL 10155 / IC 241447	Collar rot tolerance	4
8	BCL 1032 / IC 241447	Collar rot tolerance	5
9	IC 201684 / EC 397812	Heat tolerance	5
10	IC 241447 / EC 223212A	Collar rot tolerance	6

b) Status of breeding materials

S. N.	Generation	No. of crosses evaluated	No. of progenies evaluated	No. of SPS	No. of progenies bulked
1	F1	11	-	-	-
2	F2	08	64	138	-
3	F3	05	42	63	-
4	F4	11	126	153	-
5	F5	15	190	265	-
6	F6	19	356	-	178
7	F7	08		-	161

1.3.8 PAU, Ludhiana

- (a) **Hybridization:** Total 25 fresh crosses attempted involving diverse parents having high yield potential, improved plant type, earliness, medium to bold seed size and resistance to major diseases like lentil rust.

S. N.	Cross	S. N.	Cross
1	LL 1613 / DPL 58	14	LL 1373 / LSS 21-48
2	LL 1613 / Pant L 9	15	LL 1373 / LSS 21-56
3	LL 1655 / Pant L 9	16	LL 1373 / LSS 21-63
4	LL 1655 / Pant L 289	17	LL 1373 / LSS 21-68
5	LL 1373 / PL 117	18	RKL 14-29 / ILWL 35
6	LL 1373 / ILWL 35	19	BCL 10212 / ILWL 35
7	LL 1373 / ILWL 02	20	PLS 20-2 / ILWL 35
8	LL 1613/ ILWL 118	21	PLS 20-1 / ILWL 35
9	LL 1613/ ILWL 350	22	LL 1373 / LL 699
10	LL 1613/ ILWL 248	23	LL 1613 / LL 699
11	LL 1613/ ILWL 93	24	LL 1373 / L 4717
12	LL 1613/ ILWL 97	25	LL 1613 / L 4717
13	LL 1613 / 235092		

(b) Status of breeding material

Generation	No. of crosses evaluated	No. of progenies evaluated	No. of single plant selected	No. of progenies bulked
F1	17	17	-	-
F2	25	25	207	-
F3	20	148	397	-
F4	12	111	307	-
F5	14	185	190	-
F6	13	234	-	144

1.3.9 BAU, Ranchi

- (a) **Hybridization:** Total six fresh crosses were developed involving different trait specific donors.

S.N.	Cross combination	No. of cross attempted	Characters
1	WBL 77 / PL 117	12	Wilt resistant
2	L 4717 / PL 117	19	Early & Wilt resistant
3	HUL 57 / PL 117	08	Wilt resistant
4	WBL77 / LL 931	14	Biomass, adaptability, rust resistance
5	L 4717 / LL 931	10	Rust resistance
6	Kota Masoor 2 / PL 9	18	

b) Status of breeding material

Generation	Crosses evaluated	Progenies evaluated	Single plant selected	Progenies bulked
F ₁	05	16	34	-
F ₂	04	21	24	-
F ₃	03	18	13	03
F ₄	04	23	25	05
F ₅	03			

1.3.10 IGKV, Raipur

a) **Hybridization:** Total 12 fresh crosses were successfully developed targeting high yield, wilt resistance, multiple resistance and extra earliness using different donors.

S.N.	Crosses	S.N.	Crosses	S.N.	Crosses
1	CG Masoor 1 / Titua	4	CG Masoor 1 / IPL-321	7	CG Masoor 1 / DPL-58
2	CG Masoor 1 / VL-514	5	CG Masoor 1 / IL-931	8	CG Masoor 1 / ILWLS-118
3	CG Masoor 1 / PL-413	6	CG Masoor 1 / L-4717	9	CG Masoor 1 / DPL-62
				10	CG Masoor 1 / LL-1373

b) Status of breeding material:

Generation	Crosses evaluated	No. of single plant selected	Progenies bulked
F ₁	09	-	-
F ₂	06	101	-
F ₃	07	222	
F ₈	07		Bulk

1.3.11 CCS HAU, Hisar

a) **Hybridization:** Total twelve fresh crosses were made under national crossing programme.

S. N.	Cross	S. N.	Cross
1	LH 7-26 / LH17-19	7	KM 3 / Sapna
2	KM 3 / LH17-19	8	LH 17-19 / LH 7-26
3	WBL 77 / LH17-19	9	HM 1 / LH 7-26
4	RKL 20-26 / LH17-19	10	L4717 / LH 7-26
5	L 4717 / LH17-19	11	WBL 77 / LH 7-26
6	LH 7-26 / Sapna	12	LH 18-1 / LH 7-26

b) Status of breeding material

Generation	No. of Crosses	Generation	No. of Crosses
F ₂	5	F ₅	5
F ₃	7	F ₆	4
F ₄	8		

c) Station Trial

S. N.	Trials	No. of entries	S. N.	Trials	No. of entries
1	SST	14 + 4 (C)	2	MLT	9+3 (C)

1.3.12 ANDUAT, Ayodhya

a) **Hybridization:** Four new crosses were made.

S. N.	Cross	S. N.	Cross
1	IPL 316 / L 4717	3	VL 514 / Titua
2	IPL 316 / DPL 62	4	VL 148 / DPL 58

b) **Status of breeding material:** The breeding materials of different generations were grown for evaluation, selection and advancement to the next generation.

Generations	Number of crosses	Number of selection
F ₁	3	-
F ₂	3	75
F ₃	3	85
F ₄	7	90
F ₅	5	70
F ₆	10	120
F ₇	9	75

1.3.13 TCA, Dholi

a) **Hybridization:** Total 8 crosses were made involving various trait specific genotypes.

S. N.	Cross	S. N.	Cross	S. N.	Cross
1	IPL 316 / IG 4258	4	IPL 406 / IG 4258	7	IPL 406 / IPL 98/193
2	IPL316 / IPL 98193	5	IPL 608 / IG-54	8	Kota M1 / IPL 316
3	Kota M2 / L4710	6	IG 54 / L9-12		

b) **Status of breeding material**

Generation	No. of Crosses	No. of single plant selected
F ₂	20	
F ₃	14	9
F ₄	3	16
F ₅	2	13

1.3.14 ICAR-VPKAS, Almora

a) **Hybridization:** During *rabi* season 2024-25, total 70 new crosses were attempted using trait specific genotypes.

b) **Status of breeding material**

Generations	Crosses	Progenies	Generations	Crosses	Progenies
F ₁	76	-	F ₄	23	91
F ₂	64	-	F ₅	9	36
F ₃	50	160	F ₆	18	59

1.3.15 CAU, Imphal

a) **Hybridization:** Total 20 crosses were made under national crossing programme.

S. No.	Cross	S. No.	Cross
1.	HUL 57 / PL 411	2.	HUL 57 / L 4710
3.	HUL 57 / TITUA	4.	HUL 57 / IPL 321
5.	HUL 57 / PL 117	6.	HUL 57 / DPL 62
7.	HUL 57 / VL 148	8.	HUL 57 / VL 540
9.	HUL 57 / L 4602	10.	HUL 57 / BANKA LOCAL
11.	HUL 57 / PL 289	12.	HUL 57 / L 4717
13.	HUL 57 / PANT L-9	14.	HUL 57 / PL 412
15.	HUL 57 / PL 413	16.	HUL 57 / LL1805
17.	HUL 57 / DPL 58	18.	HUL 57 / VL 514
19.	HUL 57 / L 4603	20.	HUL 57 / LL 931

b) **Status of breeding material**

Generations	Crosses	SPS/Bulk
F ₂	6	Bulk
F ₆	4	Bulk

1.3.16 BHU, Varanasi

a) **Hybridization:** Total 23 crosses were made under national crossing programme.

S. N.	Cross	S. N.	Cross
1.	DPL-58 / ILL-7663	2.	P.Ageti / HUL-57
3.	IPL-316 / ILL-7663	4.	L-4602 / RKL-605-03
5.	PL-117 / L-4717	6.	LL-1641 / Pant-9
7.	L-4717 / L-4710	8.	BRL-1 / Pusa Ageti
9.	HUL-57 / Pusa Ageti	10.	L-4717 / L-4727
11.	LL-1694 / L-1641	12.	DPL-62 / ILWLS-118
13.	BRL-1 / HUL-57	14.	ILWL-118 / LL-1373
15.	Pant-9 / L-4717	16.	LL-1373 / DPL-62
17.	ILL-7663 / IPL-321	18.	Pant-9 / PL-117
19.	ILWLS-118 / ILWL-118	20.	L-4710 / L-4727
21.	LL-1698 / LL-931	22.	RKL-605-03 / L-4602
23.	LL-981 / LL-1373		

1.3.17 BAU, Sabour

a) **Hybridization:** Total 23 fresh crosses were attempted using different trait specific donors.

S. N.	Crosses	S. N.	Crosses
1.	DPL-58 / ILL-7663	13.	Pusa Ageti / HUL-57
2.	IPL-316 / ILL-7663	14.	L-4602 / RKL-605-03
3.	PL-117 / L-4717	15.	LL-1641 / Pant-9
4.	L-4717 / L-4710	16.	BRL-1 / Pusa Ageti
5.	HUL-57 / Pusa Ageti	17.	L-4717 / L-4727
6.	LL-1694 / L-1641	18.	DPL-62 / ILWLS-118
7.	BRL-1 / HUL-57	19.	ILWL-118 / LL-1373
8.	Pant-9 / L-4717	20.	LL-1373 / DPL-62
9.	ILL-7663 / IPL-321	21.	Pant-9 / PL-117
10.	ILWLS-118 / ILWL-118	22.	L-4710 / L-4727
11.	LL-1698 / LL-931	23.	RKL-605-03 / L-4602
12.	LL-981 / LL-1373		

1.3.18 RARS, Sagar

a) **Hybridization**

S.N.	Crosses	S.N.	Crosses	S.N.	Crosses
1.	PL-02 / BM	2.	LL-1373 / DPL-58	3.	IPL-10-3-4-26 / BM
4.	PL-289 / L-4602	5.	IPL-321 / BM	6.	LL-1698 / L-4117
7.	DPL-62 / BM	8.	DPL-62 / BM	9.	PL-02 / BM
10.	L-4727 / DPL -58	11.	LL-669 / BM	12.	DPL-58 / flip-96-57
13.	DPL 58 / PL 02	14.	L- 4717 / BM		

b) **Status of breeding material**

Generations	Crosses	Generations	Crosses
F ₁	5	F ₅	9
F ₂	5	F ₆	20
F ₃	11	F ₇	18
F ₄	22	F ₈	2

1.4 Field pea Breeding Programme

1.4.1 BHU, Varanasi

a) **Hybridization programme:** To transfer the powdery mildew and rust resistance along with earliness, agronomically good and popular variety 'HUDP 15' along with NCP donors was crossed.

S. N.	Genotype	Rust reaction	S. N.	Genotype	Rust reaction
1.	HFP-1802	Rust Susceptible	6.	RFP 2009-2	Rust Resistant
2.	IPF-2-19	Rust Susceptible	7.	PANT P 200	Rust Resistant
3.	IC-341725	Rust Susceptible	8.	EC -57170	Rust Resistant
4.	JC208311	Rust Susceptible	9.	HUDP-15	Rust Resistant
5.	EC-341753	Rust Resistant			

b) Status of breeding material

Generation	No. of crosses/ progenies	Pedigree of important crosses
F ₁	09	HUDP-15 / RFP-2009-2; HUDP-15 / Pant P-200; HUDP-15 / IPF 14-16; HUDP-15 / VL Matar-47; HUDP-15 / IPF 14-13; HUDP-15 / Pant P-243; HUDP-15 / Pant P 347; HUDP-15 / HFP-1802
F ₂	08	HUDP -1802 / RILHF-2; HUDP -1802 / HFP 1802; Aman/ Pant P-347; HUDP-1802 / Pant P-200; Aman/ IPF 14-16; Aman/ 14-13; HUDP-15 / VL-47; Aman/ Pant P-243
F ₃	08	HUDP 15 / IPF 14-13; HUDP 15 / HFP-715; HUDP 15 /RFP 2009-2;HUDP 15 / Pant P 243; HUDP 15 / Pant P 200; HUDP 15 / IPF 14-16
F ₄	07	HUDP 15 / Pant P 243; HUDP 15 / Indira Matar 1; HUDP 15 / Pant P 200; HUDP 15 / IPF 14-16; HUDP 15 / RFP 2009-2; HUDP 15 / Aman; HUDP 15 / DDR 23
F ₅	10	HUDP 15 / IPF 14-16, HUDP 15 /Pant P 243, HUDP 15 / RFPG 79, HUDP 15 / DDR 23, HUDP 15 / HFP 715, HUDP 15 / IPF 13-14, HUDP 15 / Aman, HUDP 15 / Pant P 200 ; HUDP 15 / RFP 2009-2; SPS 225/ RILHF-2
F ₆	05	HUDP 15 / DDR-23, HUDP 15 / HFP-715, HUDP 15 / Aman, HUDP 15 / Pant P-125, HUDP 15 / IPF 13-14
F ₇	06	HUDP 15 / Pant P 125, HUDP 15 / Pant P 200, HUDP 15 / Aman, HUDP 15 / IPF 13-14, HUDP 15 / HFP 715, HUDP 15 / RFPG 7-9
F ₈ Bulk	05	HUDP 15 / IPF 15-14, HUDP 15 / Pant P 200, HUDP 15 / Aman, HUDP 15 / HFP 715, HUDP 15 / RILHF-2, HUDP 15 / RFTG 78
F ₉ Bulk	09	HUDP 15 / IPF 10-21, HUDP 15 / Pant P200, HUDP 15 / Pant P 25, HUDP 15 / Pant P 101, HUDP 15 / NM 90102, HUDP 15 / Pant P 125, HUDP 15 / DDR 23, HUDP 15 / Pant P 138, HUDP 15 / FC 1
F ₁₀ Bulk	03	KPMR 516 / HUDP 15, HUDP 15 / DDR 23, Pant P 138 / HUDP 15
RILs	162	S 143 / FC 1, JPBB 3 / FC 1, HUVP 1 / FC1

1.4.2 RARI, Durgapura

a) **Hybridization:** Under national crossing programme the following crosses were attempted using different trait specific donors.

S.N.	Cross	S.N.	Cross
1	RFPG 230 / Pant P 347	5	RFPG 236 / IPFD 18- 14
2	RFPG 230 / IPFD 18- 14	6	RFPG 236 / Pant P 347
3	RFPG 230 / IPFD 18- 26	7	Pant P 574 / RFPG 225
4	RFPG 236 / Pant P 347		

b) Status of breeding material evaluated

The different filial generations were evaluated and best performing single plants/bulks were selected in different generations. Selection was based on yield and yield contributing traits and resistant to major diseases.

Generation	Number of crosses	Single plant/bulks planted	Single plant Planted /bulks selected
F ₁	11	-	Bulk harvest
F ₂	6	27	Bulk harvest
F ₃	6	96	47
F ₄	10	128	
F ₅	3	108	
F ₆	4	138	
Advanced Breeding Lines (ABLs)	15	72	

1.4.3 ARS, Kota

a) **Hybridization:** Fourteen crosses were made under national crossing programme using different trait specific donors.

S.N.	Crosses attempted	S.N.	Crosses attempted
1	IPFD 10-12 / VP	8	IPFD 14-2 / IC 417860
2	IPFD 10-12 / HFP 8712	9	Pant P 243 / KPF 101
3	IPFD 10-12 / IC 417860	10	Pant P 243 / VP
4	IPFD 10-12 / KPF 101	11	Pant P 243 / IC 417860
5	IPFD 10-12 / IPFD 12-2	12	Pant P 243 / HFP 8712
6	IPFD 14-2 / HFP 8712	13	Pant P 243 / IPFD 14-2
7	IPFD 14-2 / VP	14	IPFD 12-2 / IC 417860

b) Status of breeding material

Generation	No. of crosses evaluated	No. of Progenies evaluated	No. of single plant selected	Number of progenies bulked
F ₁		24	31	
F ₃	6	8	15	-

1.4.4 CCS HAU, Hisar

a) **Hybridization:** Total twenty-four fresh crosses were made under national crossing programme.

S. N.	Cross	S. N.	Cross
1	HFP 2160 / Pant P 200	13	HFP 1819 / Pant P 200
2	HFP 2160 / VL Matar 47	14	HFP 1819 / VL Matar 47
3	HFP 2160 / RFP 2009-2	15	HFP 1819 / RFP 2009-2
4	HFP 2160 / Pant P 545	16	HFP 1819 / Pant P 545
5	HFP 2160 / Pant P 568	17	HFP 1819 / Pant P 568
6	HFP 2160 / Pant P 574	18	HFP 1819 / Pant P 574
7	HFP 2160 / Pant P 347	19	HFP 1819 / Pant P 347
8	HFP 2160 / IPFD 18-26	20	HFP 1819 / IPFD 18-26
9	HFP 2160 / IPF 2013-14	21	HFP 1819 / IPF 2013-14
10	HFP 2160 / IPF 2014-16	22	HFP 1819 / IPF 2014-16
11	HFP 2160 / Pant P 243	23	HFP 1819 / Pant P 243
12	HFP 2160 / IPFD 18-14	24	HFP 1819 / IPFD 18-14

b) **Status of breeding material**

S. N.	Generation	No. of Crosses	SPS/Bulk
1	F	24	
2	F ¹	26	723
3	F ²	30	391
4	F ³	25	314
5	F ⁴	24	187/25 Bulk
6	F ⁵	16	6 Bulk

1.4.5 GBPUA&T, Pantnagar

a) **Hybridization:** Total 27 fresh crosses were made using diverse trait specific genotypes under national crossing programme.

S.N.	Cross	S.N.	Cross
1.	E 5 / IPFD 18-4	2.	Pant P 497 / IPFD 18-14
3.	DDR 27 / Pant P 497	4.	DDR 27 / E 5
5.	JM 2 / IPFD 18-14	6.	JM 1 / Pant P 497
7.	Pant P 497 / IPFD 18-26	8.	P 1594 / IPFD 18-26
9.	Pant P 497 / E 5	10.	PSM 3 / JM 1
11.	E 5 / IPFD 18-26	12.	DDR 27 / IPFD 18-26
13.	Pant P 501 / IPFD 8-26	14.	PSM 3 / Pant P 501
15.	JM 1 / P 1594	16.	Pant P 497 / Pant P 501
17.	JM 1 / IPFD 18-26	18.	DDR 27 / Pant P 501
19.	PSM 3 / P 1594	20.	PSM 3 / Pant P 497
21.	JM 1 / DDR 27	22.	DDR 27 / P 1594
23.	IPFD 18-26 / IPFD 18-14	24.	G 10 / Pant P 250
25.	P 1594 / E 5	26.	G 10 / Pant P 243
27.	DDR 27 / IPFD 18-14		

b) Status of breeding material

S.N.	Generation	Crosses	Single plant/progenies selections
1	F ₁	38	-
2	F ₂	14	607
3	F ₃	24	902
4	F ₄	9	272
5	F ₅	6	136
6	F ₆	19	95

1.4.6 RARS, Sagar

a) **Hybridization:** Total six new crosses were made involving diverse trait specific donors.

S.N.	Crosses	S.N.	Crosses
1.	JP885 / Arkel	4.	Ambika / JP 885
2.	JPF 1115 / JP 885	5.	Aadarsh / Prakash
3.	Prakash / Ambika	6.	JP885 / AADRSH

b) Status of breeding material

Generations	Crosses	Generations	Crosses
F ₁	5	F ₆	12
F ₂	5	F ₇	5
F ₃	12		
F ₄	8		
F ₅	7		

1.4.7 SDAU, S.K. Nagar

a) **Hybridization:** Total six new crosses were made involving promising donors under national crossing programme.

S. N.	Cross	S. N.	Cross
1.	SKNFP 2304 / SKNFP 2301	4.	FPD 23-377 × FPD -23-275
2.	FPD 23-390 / FPD -23-321	5.	FPD 23-373 × FPD -23-374
3.	FPD 23-382 / FPD -23-384	6.	GP 63 × SKNFP 2001

b) Status of breeding material

Generation	Crosses	Generation	Crosses
F ₁	5	F ₄	12
F ₂	3	F ₅	12
F ₃	17	F ₆	1

1.4.8 ICAR-IIPR, Kanpur

- a) **Hybridization:** Total 24 crosses were successfully made using various donors possessing specific traits i.e. seed size, no. of seeds per pods, pod length, no. of pods, earliness, powdery mildew resistance and rust tolerant.

S.N.	Cross	S.N.	Cross
1.	IPF 2025-15 // (IPFD 12-2 / P 1430-2)	2.	IPFD 12-2 // (IM 9102 / SGS 10)
3.	IPF 2025-17 / IPF 2025-19	4.	IPFD 12-2 / IPFD 18-14
5.	IPF 2025-17 // (IP2K 58/IPFD 9-2)	6.	(IPFD 12-2 / MDP2) // G10)/3/(IM 9102 / SGS 10)
7.	IPF 2025-19 // (IP2K 58 / IPFD 9-2)	8.	IPFD 1-10 /3/ (IPFD 11-5 / MDP 2) //G 10
9.	IPF 2025-19 / IPF 2025-21	10.	IPFD 1-10 /3/ (IPFD 11-5 / MDP 2) //G 10
11.	IPF 2025-19 / IPF 2025-15	12.	IPFD 1-10 // (IM 9102 / SGS 10)
13.	IPF 2025-19 // (IPFD 12-2 / P 1430-2)	14.	IPFD 1-10 // (IPFD 12-2 / G 10)
15.	IPF 2025-21 // (IPFD 12-2 / P 1430-2)	16.	IPFD 1-10 // (P 1809 / SGS 10)
17.	IPFD 18-14 / IPFD 12-2	18.	IPFD 1-10 / IPFD 2025-11
19.	IPFD 18-14 / IPFD 2024-1	20.	(IM 9102 / SGS 10) // IPFD 12-2
21.	IPFD 18-14 / IPF 16-13	22.	IPFD 99-13 // (IPF 5-19 / P 1824-1)
23.	IPFD 18-8 // (IM 9102 / SGS 10)	24.	IPFD 99-13 // (IPFD 12- / G10)

b) Status of breeding material

Generation	Crosses	SPS/bulk lines
F ₁	30	-
F ₂	23	1035
F ₃	38	1520
F ₄	33	1155
F ₅	19	153
F ₆	34	463
ABL		111

1.4.9 BAU, Ranchi

- a) **Hybridization:** Total five fresh crosses were developed involving different trait specific donors.

S. N.	Cross combination	No. of cross attempted	Characters
1	VL 42 / Pant 243	27	Rust tolerance and podding
2	Pant P 42 / IPFD 18-26	34	Rust tolerance and earliness
3	DFP-1 / IPFD 18-26	18	Rust tolerance
4	HFP 4 / KPMR 910	26	PM resistant, dwarf, high yielding
5	Prakash / KPMR 910	16	PM resistant and plant type

b) Status of breeding material

Generation	No. of crosses evaluated	No. of progenies evaluated	No. of single plant selected	No. of progenies bulked
F ₁	05	32	26	-
F ₂	06	19	16	-
F ₃	04	23	28	02
F ₄	05	16	22	04

1.4.10 IGKVV, Raipur

- a) **Hybridization:** A total 12 fresh crosses were developed using high yielding, powdery mildew resistance and extra early donors under National Crossing Programme.

S.N.	Cross	S.N.	Cross
1	Ambika / Pant P-545	7	Ambika / RILHF-2
2	Ambika / VL Matar-47	8	Paras / Pant P-347
3	Ambika / Pant P-568	9	Paras / VL Matar-47
4	Ambika / Pant P-200	10	IPFD-18-14 / IPFD-18-26
5	Ambika / Pant P-243	11	IPFD-18-26 / IPFD-18-14
6	Ambika / HFP-1802	12	Pant P-347 / Pant P-200

- b) **Status of breeding material**

Generation	Crosses	SPS
F ₁	6	
F ₂	6	161
F ₃	4	82
F ₄	1	28
F ₅	4	78
F ₈	2	Bulk

1.4.11 CAU, Imphal

- a) **Hybridization:** Total twelve fresh crosses were made with the objectives to increase yield along with early maturity and multiple disease resistance.

S. N.	Cross	S. N.	Cross
1.	Makhyatmubi / RFP-2009-2	7	Makhyatmubi / pant P-545
2.	Makhyatmubi / pant P-568	8	Makhyatmubi / pant P-243
3.	Makhyatmubi / VL- Matar 47	9	Makhyatmubi / IFPD 18-26
4.	Makhyatmubi / pant P-200	10	Makhyatmubi / IFPD 18-14
5	Makhyatmubi / pant P-347	11	Makhyatmubi / IPF 2014-16
6	Makhyatmubi / pant P- 574	12	Makhyatmubi / IPF2013-14

- b) **Status of breeding material**

Generation	No. of Progenies/ Crosses evaluated	SPS/Bulk made
F ₁	3	Bulk
F ₃	10	Bulk
F ₆	6	Bulk
F ₇ and onwards	10	Bulk

1.4.12 ANDUAT, Ayodhya

- a) **Hybridization:** Nine crosses were made engaging various trait specific donors with good agronomic bases under national crossing programme.

S. N.	Cross	S. N.	Cross
1	HUDP 15 / Pant P 243	6	HUDP 15 / Pant P 826
2	HUDP 15 / Pant P 574	7	HUDP 15 / IPFD 18-26
3	HUDP 15 / Pant P 243	8	HUDP 15 / Pant P 243
4	IPFD 18-26 / Pant P 243	9	HUDP 15 / RFP 2009-2
5	SKNP 04-09 / IPF 1826		

- b) **Status of breeding materials:** The breeding materials of different generations were grown for evaluation, selection and advancement to the next generation.

Generations	Crosses	Number of selection	Generations	Crosses	Number of selection
F ₁	25	-	F ₅	9	80
F ₂	10	110	F ₆	6	60
F ₃	4	100	F ₇	8	100
F ₄	5	90			

1.4.13 TCA, Dholi

- a) **Hybridization:** Total 14 fresh crosses were made under national crossing programme.

S.N.	Cross	S.N.	Cross
1	HFP 715 / HFP 1817	8	IPFD 18-14 / EC-598508
2	DDR 23 / HFP 1817	9	Pant P 243 / HFP 1602
3	Pant P 243 / HFP 1809	10	HFP 715 / HFP 1711
4	Pant P 243 / HFP 1709	11	IPFD 12-2 / P 1457
5	Pant P 243 / HFP 1817	12	IPFD 16-13 / P 1457
6	IPFD 10-12 / EC-1	13	IPFD 5-19 / P 1430-2
7	IPFD 10-12 / EC-1	14	IPFD 99-13 / P1430-2

1.4.14 PAU, Ludhiana

- a) **Hybridization:** Total 47 fresh crosses were attempted and 5-15 seeds per cross were collected.
- b) **Status of breeding material:**

Generation	No. of single plants selected
F ₂	106
F ₃	122

1.5 Lathyrus Breeding Programme

1.5.1 BCKV, Mohanpur

- a) **Hybridization:** A total of 7 fresh crosses were made in lathyrus involving donors for high biomass and low ODAP.

S. N.	Crosses	Purpose	No. of pods harvested
1.	BCK 24-3 / IC 0634664	High yield, low ODAP, tolerance to heat	11
2.	BCK 23-167 / IFLA 1864	High yield and biomass, low ODAP	6
3.	BCK 23-167 / BCK 24-3	High yield, low ODAP	22
4.	BCK 23-155 / BCK 24-3	High yield, low ODAP	12
5.	Prateek / BCK 24-3	High yield, low ODAP	10
6.	Prateek / IFLA 1864	High yield and biomass, low ODAP	15
7.	BCK 23-162 / BCK 24-3	High yield, low ODAP, aphid tolerance	23

- b) **Status of breeding materials**

Generation	No. of crosses evaluated	No. of progenies evaluated	No. of SPS	No. of progenies bulked
F1	11		-	-
F2	12	145	82	-
F3	05	34	56	-
F4	11	79	116	-
F5	08	23	49	-
F6	14	44	-	108
F7	08	46	-	52

1.5.2. IGKVV, Raipur

- a) **Hybridization:** Nine fresh crosses were made using different trait specific donors like high yield, low ODAP, high biomass and seed size.

S.N.	Cross	S.N.	Cross
1	Prateek / IFLA-123	6	Mahateora / RLS 3004
2	Prateek / RLS 3004	7	Mahateora / IFLA-1926
3	Prateek / IFLA-1193	8	Mahateora / IFLA-2341
4	Prateek / IFLA-3001	9	Mahateora / IFLA-2241-53
5	Prateek / IFLA-1864		

- b) **Status of breeding material**

Generation	No. of crosses evaluated	SPS/Bulk
F ₁	5	-
F ₂	4	36
F ₃	8	125
F ₄	18	224
F ₈	6	Bulk

1.5.3. TCA, Dholi

a) **Hybridization:** Total ten crosses were made during rabi 2024-25.

S.N.	Cross	S.N.	Cross
1	IFLA 2341 / IG114983	6	IFLA 2341 / IG154101
2	IFLA 1193 / IG114983	7	IFLA 1193 / IG154101
3	IFLA 2441 / IG114983	8	IFLA 2441 / IG154101
4	IFLA 2460 / IG114983	9	IFLA 2460 / IG154101
5	(IFLA 12-2 / EC 507770) // IG114983	10	(IFLA 12-2 / EC 507770) // IG154101

b) **Status of breeding material**

Generation	No. of Crosses	No. of single plant selected
F2	7	20
F3	7	25
F4	3	17
F5	6	10

1.6 Special Breeding Efforts

1.6.1 Lentil

1.6.1.1 ICAR-IIPR, Kanpur

Maintenance of mapping populations and development of linkage map

Trait-specific RIL mapping populations for earliness (Precoz / L4603; 137 RILs) and root traits (IPL 98/193 / EC 208362; 198 RILs) were maintained and evaluated for yield and root traits. The root trait mapping population of 190 F₁₀ recombinant inbred lines (RILs) was subjected to genotype-by-sequencing (GBS) analysis. Joint genotype calling identified 1,789,572 genomic variants across the RILs. After stringent filtration (Qual > 30, DP > 5, MAF > 0.3, F missing ≤ 0.8), 22,256 high-quality variants were retained and annotated using the *Lens culinaris* reference genome via SnpEff. This yielded 7,486 SNPs distributed across all seven chromosomes. Using MSTmap software, 441 SNP markers were mapped onto the seven chromosomes, spanning 3,009.1 cM and developing a linkage map for QTL identification related to root and other traits.

Plant Genetic Resources Management and its utilization through pre-breeding

Total 93 accessions (*L. orientalis*: 71, *L. tomentosus*: 5, *L. odemensis*: 7, *L. ervoides*: 7, *L. nigricans*: 3) of wild species were maintained. Two wide crosses were made for generating prebreeding material.

1	IPL 23-132 / ILWL 132	Pods/plant
2.	IPL 23-132 / ILWL 92	Pods/plant

Physical, mechanical, functional and pasting properties of lentil cultivars

Sixteen variety of lentil were evaluated for physical, mechanical, functional and pasting properties. The mean length, width, and height of lentil seeds was measured and which ranged from 2.014 mm (KLS 218) to 2.446 mm (IPL 316), 2.035mm (Pant-L-234) to 2.727mm (IPL 406) and 2.025 mm (KLS 218) to 2.625 mm (IPL 316), respectively. The variation in these parameter has led to changes in the seed volume (i.e seed size) which varied from 4.351 mm³ (KLS 218) and 8.337 mm³ (IPL 406). Therefore, genetic variability for these parameters should be taken into considerations for breeding the high yielding genotypes. The variation in dimension led to the change in geometric and arithmetic mean

diameter and varied in the range of 2.026 mm (KLS 218) to 2.516 mm (IPL 406) and 2.026 mm (KLS 218) to 2.521 mm (IPL 406), respectively. Similarly, mean area of surface, mean area of transverse surface and sphericity was assessed which varied in the range of 3.223 3 mm² (KLS 218) to 4.955 mm² (IPL 406), 3.24 mm³ (KLS 218) to 5.405 mm³ (IPL 406) and 94.631 % (Pant-L-234) to 109.166% (IPL 321), respectively. The variation in physical properties is observed directly correlated with the genetic constitution of the genotypes. Therefore, it can be positively used for the identification and development of handling and grading equipment for the lentil. The value of angle of repose, bulk density, and 100 grain weight varied in the range of 0.265 (IPL 316) to 0.388 0.46 (IPL 220), 0.825 kg/mm³ (Narendra Masoor 1) to 0.872 kg/mm³ (KLS 218), and 1.9 g (HUL-57) to 4.025 g (IPL 406), respectively. The 100 seed weight (i.e. seed size) showed medium to high positive correlation with all studied physical properties except bulk density and angle response. Different functional properties of flour samples were analyzed for all tested sixteen lentil cultivars. The water absorption capacity (WAC) of lentil starch ranged from 0.968 (IPL 526) and 2.096 (Pant-L-234). Oil absorption capacity (OAC; g/g) ranged from 4.869 (IPL 81) to 5.568 (Narendra Masoor 1) with a mean value of 5.313. Solubility of starch and swelling power (SP) are controlled by amylose and amylopectin. The solubility of lentil starch (g/g) was ranged from 0.202 (IPL 81) to 0.358 (IPL 220). Swelling power of starch (g/g) of lentil cultivars ranged from 5.513 (Narendra Masoor 1) to 7.616 (IPL 329) with a mean value of 6.6356875. The pasting of lentil flour has been analyzed among sixteen cultivars. The values of pick viscosity, pasting temperature, holding viscosity, breakdown viscosity, and final viscosity, ranged from 546.067 (KLS 218) to 1115.667 (IPL 329), 72.31 (IPL-225) to 74.77 (DPL-15), 466.433 (KLS 218) to 1003.933 (IPL 329), 53.15 (IPL 321) to 119.767 (DPL 62) and 851.2 (KLS 218) to 1252.667 (IPL 81), respectively. The different old and newly developed varieties had variable peak viscosity. No significant association was observed old/newly and small/large seeded cultivars with peak viscosity property of pasting.

1.6.1.2 ICAR-IARI, New Delhi

Delineation of loci governing an extra-earliness trait in lentil (*Lens culinaris* Medik.) using the QTL-Seq approach

Developing early maturing lentil has the potential to minimize yield losses, mainly during terminal drought. Whole-genome re-sequencing (WGRS) based QTL-seq identified the loci governing earliness in lentil. The genetic analysis for maturity duration provided a good fit to 3:1 segregation (F₂), indicating earliness as a recessive trait. WGRS of Globe Mutant (late parent), late-flowering, and early-flowering bulks (from RILs) has generated 1124.57, 1052.24 million raw and clean reads, respectively. The QTL-Seq identified three QTLs (LcqDTF3.1, LcqDTF3.2, and LcqDTF3.3) on chromosome 3 having 246244 SNPs and 15577 insertions/deletions (InDels) and 13 flowering pathway genes. Of these, 11 exhibited sequence variations between bulks and validation (qPCR) revealed a significant difference in the expression of nine candidate genes (LcGA20oxG, LcFRI, LcLFY, LcSPL13a, Lcu.2RBY.3g060720, Lcu.2RBY.3g062540, Lcu.2RBY.3g062760, LcELF3a, and LcEMF1). Interestingly, the LcELF3a gene showed significantly higher expression in late-flowering genotype and exhibited substantial involvement in promoting lateness. Subsequently, an InDel marker (I-SP-383.9; LcELF3a gene) developed from LcqDTF3.2 QTL region showed 82.35% PVE (phenotypic variation explained) for earliness. The cloning, sequencing, and comparative analysis of the LcELF3a gene from both parents revealed 23 SNPs and InDels. Interestingly, a 52 bp deletion was recorded in the LcELF3a gene of L4775, predicted to cause premature termination of protein synthesis after 4 missense amino acids beyond the 351st amino acid due to the frame shift during

translation. The identified InDel marker holds significant potential for breeding early maturing lentil varieties.

Characterization of Indian mini core lentil collection for PUE in lentil

Phosphorus (P) deficiency significantly limits lentil productivity, necessitating the identification of phosphorus-use efficient genotypes for sustainable agriculture. This study evaluated 168 lentil genotypes from the Indian core germplasm under optimum (OP) and low phosphorus (LP) hydroponic conditions to assess variability in root architectural traits associated with phosphorus efficiency. Significant genotypic variation with high heritability (above 0.80) was observed across root and biomass traits, indicating strong genetic control suitable for targeted breeding. Random Forest regression analysis revealed that total root length, root surface area, and root volume were key predictive traits influencing biomass accumulation and phosphorus uptake efficiency under LP conditions. The comprehensive phosphorus efficiency measurement (CPEM) effectively distinguished superior phosphorus-efficient genotypes (IC260062, IC616579, IC267078) from less efficient ones (IC277173, IC73121, IC95658), highlighting genotypes with adaptive root morphologies capable of sustaining productivity under phosphorus stress. These insights provide valuable selection criteria to breed lentil cultivars better adapted to phosphorus-limited environments, thus supporting sustainable agricultural production.

Screening for dry root rot

Under CRP-Agro biodiversity project 500 lentil accessions conserved in the National genebank, ICAR-National Bureau of Plant Genetic Resources, New Delhi, were evaluated to identify sources of resistance against dry root rot. The studied accessions were evaluated against the pathogen at seedling stage under controlled condition using sick pot method. Two genotypes IC201541 and IC553082 were found to be resistant with plant disease incidence <10%. Two genotypes IC201534 and IC201542 were found to be moderately resistant with plant disease incidence 10.1 – 20.0%. Further, the previous identified resistant accessions were evaluated using the paper towel method to confirm their resistance. Five accessions viz. IC 241429, IC 241152, IC 299645, IC 355616, IC 283423 were found resistant under artificial epiphytotic conditions, with <10 percent disease incidence (PDI). These accessions showed consistently lower PDI and minimal root lesions. The identified accessions could be useful in breeding programs to develop dry root rot-resistant lentil varieties.

Characterization of Indian minicore for total protein and carbohydrates in lentil

The protein content of the 143 lentil genotypes of Indian minicore collection (25 exotic, 110 indigenous, and 8 varieties) was estimated by the NIRS-DS3 flour analyser. The analysis of lentil genotypes demonstrated notable variations in protein and anti-oxidant properties of lentil flour. The protein levels varied from 19.66% to 24.05%, with an average of 21.74%. Genotype EC 267595-A (germplasm accession) exhibited the highest protein concentration, whereas IC 59038 displayed the lowest concentration of protein. Protein content estimates the amounts of amino acids present in the flour sample. Significant variations were observed in anti-oxidant contents, ranging from 0.454% to 1.951%, with an average of 1.105%. The germplasm IC 98391 (accession) showed the greatest anti-oxidant concentration, while IC 274090 displayed the lowest anti-oxidant concentration. The glucose content of the flour ranged from 0.033 to 0.263 g/100g with a mean of 0.11 g/100g. Notable differences were noted for sucrose concentration varying between 0.704 g/100g and 2.139 g/100g with a mean of 1.175 g/100g. In the same way, raffinose concentration ranged from 1.307 g/100g to 3.309 g/100g accompanied by a mean of 1.919 g/100g. Genotype IC 16453 (indigenous accession)

showed the highest glucose concentration while EC 223269 showed the least concentration of D-glucose. Genotype NC 60969 (germplasm accession) demonstrated the highest sucrose concentration, whereas IC 316132 exhibited the minimal level of concentration of sucrose. Genotype IC 73121 (germplasm accession) exhibited the highest raffinose concentration, whereas EC 267578 demonstrated the lowest concentration of raffinose.

Identification of heat tolerant lentil genotypes through stress tolerance indices

With climate change projections indicating an increase in the frequency of extreme heat events and irregular rainfall patterns globally, the threat to global food security looms large. Terminal heat stress, which occurs during the critical reproductive stage, significantly limits lentil productivity. Therefore, there is an urgent need to improve lentil's resilience to heat stress to sustain production. However, studies identifying heat-tolerant sources in lentils are limited. To address these issues, we assessed 158 lentil genotypes under normal and late-sown conditions over two consecutive seasons. We employed eleven heat stress indices to identify lines tolerant to heat stress. All genotypes exhibited a decrease in average grain yield when subjected to stress conditions as compared to non-stress conditions, indicating the impact of heat stress on crop yield. Correlation analysis showed significant positive correlation between yield in normal and late-sown conditions and the following heat stress indices: STI, MP, MRP, YI, GMP, and HM. In contrast, TOL, SSPI, and PYR showed negative associations with yield in late-sown conditions. Based on these indices, we identified the genotypes P13143, P13130, and P13135 as high-yielding in both stress and non-stress conditions. Cluster analysis and biplot display in PCA also confirmed that genotypes P13143, P13130, and P13135 exhibited suitability and high yield potential in both environments.

1.6.2 Shuttle Breeding Programme

Shuttle Breeding provides an opportunity for flow of breeding material of diverse origin among cooperative centres of AICRP on Rabi Pulses in order to strengthen their breeding program. The material developed through this project also served as input to breeding programme of various ecosystems.

Material shared among coordinating centres during 2017-18 to 2024-25

S. No.	Centres	Crosses Shared								
		2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Total
A	Lentil									
1	Srinagar						5		6	11
2	Berthin		2		2		5			9
3	Sagar		2		2		5			9
4	Tripura		2		2		5			9
5	Mohanpur		2		2		5			9
6	Durgapura		2		2		5			9
7	Imphal				2		5		6	13
8	Ranchi							2	6	8
9	Dholi						5	2	6	13
10	Sabour						5	2	6	13
11	Hisar						5			5
12	Banda						5			5

13	Varanasi								6	6
14.	Shillongani								6	6
15.	ICAR-IIPR								6	6
B. Fieldpea										
1	Srinagar	12	18		13	54	16	5	10	128
2	Ranchi					54	16	4	10	84
3	Dholi		18				16	4	10	48
4	Ludhiana							3		3
5	Tripura		18		13	54	16			101
6	Imphal		18		13	54	16		10	111
7	Mohanpur				13	54	16			83
8	Raipur					54				54
9	Shillongani						16			16
10	S.K. Nagar						16			16
11	Sabour								10	10
C. Lathyrus										
1	Mohanpur				16		23		14	53
2	Raipur				16		23		14	53
3	Dholi				16		23		14	53
4	Shillongani				16		23			39
5	Ranchi				16					16
6	Sabour						23		14	37
7	Akola						23			23
	Total	12	82		144	324	321	22	154	1059

1.7 Pedigree of check varieties and test entries in IVT and AVTs

1.7.1 Pedigree and source of lentil entries included in All India Coordinated Varietal Trial conducted during ra bi 2024-25

S. No.	Entry	Source	Pedigree	Zone
Lentil : Small Seed				
1	L 4147 (Ch.)	IARI, New Delhi	L 3875 / P 4 // PKVL 1	NWPZ
2	PL 11(Ch.)	GBPUAT, Pantnagar	DPL 15 / L 4188	NWPZ
3	PL 063 (Ch.)	GBPUAT, Pantnagar	DPL 59 / IPL 105	NWPZ
4	LL 1655(Ch)	PAU, Ludhiana	LL 1112 / LL 699	NWPZ
5	LH 17-19 (Ch)	PAU, Ludhiana	LH 07-26 / PL 01	NWPZ
6	WBL 77 (Ch)	Berhampore (W.B)	ILL 7723 / BLX 88176	NEPZ
7	Bidhan Lentil-16 (Ch)	BCKV, Mohanpur	LL56 / L4710	NEPZ
8	HUL 57 (Ch.)	BHU, Varanasi	Mutant of HUL-11	NEPZ
9	IPL 220 (Ch)	IIPR, Kanpur	DPL 44 / DPL 62 // DPL 58	NEPZ
10	VL 126 (Ch.)	VPKAS, Almora	VL 4 / PL 406	NHZ
11	Pant L 12 (Ch)	GBPUA&T, Pantnagar	PL 6 / DPL 58	NHZ
12	VL 148 (Ch)	VPKAS, Almora	DPL 15 / L 4076	NHZ

13	PLS -25	IARI, New Delhi	JL-3 / DPL-1	NWPZ
14	LL 1805	PAU, Ludhiana	LL 1114 / DPL 62	NWPZ
15	PL 411	GBPUAT, Pantnagar	PL 406/ PL 7	NWPZ
16	BRL 22-5	BAU, Sabour	Noori / KLS 218	NEPZ
17	IPL249	IIPR, Kanpur	IPL 316 / PL07	NEPZ
18	PLS 24-2	ICAR-IARI	L 4717 / L 4603	NHZ, NWPZ, NEPZ
19	IPL 250	IIPR, Kanpur	IPL 316 / IPL 321	NHZ, NWPZ, NEPZ
20	IPL 251	IIPR, Kanpur	IPL 316 / LL 931	NHZ, NWPZ, NEPZ
21	IPL 252	IIPR, Kanpur	ILWL 118 / IPL 220 // IPL 220	NHZ, NWPZ, NEPZ
22	LL 1831	PAU, Ludhiana	LL 931 / MH 1	NHZ, NWPZ, NEPZ
23	LL 1835	PAU, Ludhiana	LL 1316 / LL 978	NHZ, NWPZ, NEPZ
24	PL 457	GBPUAT, Pantnagar	PL 7 / PL 4	NHZ, NWPZ, NEPZ
25	PL 455	GBPUAT, Pantnagar	PL 8 / PL 4	NHZ, NWPZ, NEPZ
26	BCL 1026	BCKV, Mohanpur	WBL 58 / BCL 1032	NHZ, NWPZ, NEPZ
27	BCL 1088	BCKV, Mohanpur	BCL 10212 / BCL 1030	NHZ, NWPZ, NEPZ
28	BRL 30-4	BAU, Sabour	Arun / GP-4182	NHZ, NWPZ, NEPZ
29	BRL-26-3	BAU, Sabour	Arun / Land race	NHZ, NWPZ, NEPZ
30	VL 167	VPKAS, Almora	VL 1 / ILL 763	NHZ, NWPZ, NEPZ
31	VL 168	VPKAS, Almora	VL 133 / VL 514	NHZ, NWPZ, NEPZ
32	PLS 24-1	ICAR-IARI	L 931 / IPL 406	NHZ, NWPZ, NEPZ
33	PDL-17	ICAR-IARI	L-4076 / PDL-1	NHZ, NWPZ, NEPZ
34	RNCL 16-09	BAU, Ranchi	PL 639 / PL 117	NHZ, NWPZ, NEPZ

Lentil : Large Seed

1	VL 514 (Ch)	VPKAS, Almora	VL 501 / VL 103	NHZ
2	Shalimar Masoor 2	SKUAST, Srinagar	EC 3109(Sel.from ICARDA material)	NHZ
3	PL 11(Ch.)	GBPUAT, Pantnagar	DPL 15 / L 4188	NHZ
4	PL 024 (PL 7) (Ch.)	GBPUAT, Pantnagar	L 4076 / DPL 15	NWPZ
5	LL 1613 (Ch)	PAU, Ludhiana	LL 1112 / PL 02-6	NWPZ
6	LL 1373 (Ch)	PAU, Ludhiana	IPL 406 / FLIP 2004-7L	NWPZ
7	L 4727 (Ch)	IARI, New Delhi	Sechore 74-3 / Precoz	CZ
8	RKL 607-1 (Ch)	AU, Kota	KLB 339 / SL 94-09	CZ
9	Kota Masoor 3 (Ch)	AU, Kota	L 4682 / SL 73-3	CZ
10	Kota Masoor 4 (Ch)	AU, Kota	Mutant of DPL 62	CZ
11	LL 1798	PAU, Ludhiana	LL 699 / LH 07-26	NHZ
12	LL 1809	PAU, Ludhiana	LL 1203 / FLIP 2004-7L	NHZ
13	PL 420	GBPUAT, Pantnagar	PL 5/ PL 8	NHZ
14	PL 412	GBPUAT, Pantnagar	PL 406/ PL 7	CZ
15	IPL356	IIPR, Kanpur	IPL 333 / IPL 338	NHZ, NWPZ, NEPZ
16	IPL357	IIPR, Kanpur	IPL 406 / ILL 6882	NHZ, NWPZ, NEPZ
17	IPL358	IIPR, Kanpur	IPL 406 / ILL 6882	NHZ, NWPZ, NEPZ

1.7.2 Pedigree and source of fieldpea entries included in All India Coordinated Varietal Trial conducted during rabi 2024-25

S. No.	Entry	Source	Pedigree	Zone
Field pea: Tall				
1	TRCP 9 (Ch)	Tripura	BMR 7 / P 163	NHZ
2	HFP 9426 (Ch)	CCSHAU, Hisar	KPMR 84-2 / EC 109195	NHZ
3	Pant P 42 (Ch)	GBPUAT, Pantnagar	HUDP-7 / HFP 4 // EC-1	NWPZ,NHZ
4	Aman (Ch)	IIPR, Kanpur	KPMR 144-1 / EC 8495	NWPZ
5	HFP 9907B (Ch.)	CCSHAU, Hisar	Rachna / Bonneville	NWPZ
6	VL 42 (Ch)	VPKAS, Almora	VL Matar 1 / P 388	NEPZ
7	SKNP 04-09 (Ch)	SDAU, S.K. Nagar	Sel. from DDR 49	NEPZ
8	IPF 16-13 (Ch)	IIPR, Kanpur	IPF 99-25 / VRP-22	NEPZ
9	Ambika (Ch)	IGKV, Raipur	DMR 7 / HUP 27	CZ
10	Adarsh (Ch)	IIPR, Kanpur	PDPD 8 / Pant P 5	CZ
11	Pant P 243 (Ch)	GBPUAT, Pantnagar	Pant P 14 / Pant P 41	CZ
12	Pant P 554	GBPUAT, Pantnagar	IPFD 5-19 / HFP 530	NWPZ
13	Pant P 550	GBPUAT, Pantnagar	IPFD 5-19 / HFP 530	NWPZ
14	HFP 2056	CCS HAU, Hisar	Pant P-213 / HFP 530B	NHZ, NWPZ
15	RFP 2021-1	IGKV, Raipur	Ambika / Aman	NHZ
16	IPF 23-19	IIPR, Kanpur	IPFD 99-13 / P-1579	NHZ
17	IPF 23-23	IIPR, Kanpur	IPF 5-19 / HFP 529	NHZ, NWPZ
18	HUTP2202	BHU, Varanasi	HUDP 15 / Pant P125	NHZ
19	NDP 22-4	ANDUAT, Ayodhya	Rachna / Pant P 42	NHZ
20	Pant P 574	GBPUAT, Pantnagar	PP 200/ VL 201	NHZ, NWPZ, NEPZ
21	Pant P 568	GBPUAT, Pantnagar	IPFD 5-19/ HFP 9907B	NHZ, NWPZ
22	HFP 2055	CCS HAU, Hisar	Pant P-213 / HFP 530B	NHZ, NWPZ, NEPZ, CZ
23	HFP 2131	CCS HAU, Hisar	Pant P 200 / HFP 1125 // HFP 1125	NHZ, NWPZ, NEPZ, CZ
24	RFP 2020-1	IGKV, Raipur	Ambika / Aman	NHZ, NWPZ, NEPZ, CZ
25	RFP 2020-4	IGKV, Raipur	RFPH 9907 / A-2010-3	NHZ, NWPZ, NEPZ, CZ
26	Pant P 633	GBPUA&T, Pantnagar	FC 1 / EX 507771	NHZ, NWPZ, NEPZ, CZ
27	Pant P 628	GBPUA&T, Pantnagar	PP 66 / FC 1	NHZ, NWPZ, NEPZ, CZ
28	Pant P 612	GBPUA&T, Pantnagar	PP 66 / HFP 9841	NHZ, NWPZ, NEPZ, CZ
29	JM2413-6	JNKV, Sagar	RFP75 / DDR55	NHZ, NWPZ, NEPZ, CZ
30	IPF 24-18	ICAR-IIPR, Kanpur	IPF 5-19 / P 1062	NHZ, NWPZ, NEPZ, CZ
31	IPF 24-15	ICAR-IIPR, Kanpur	IPF 5-19 / HFP 529	NHZ, NWPZ, NEPZ, CZ
32	IPF 24-13	ICAR-IIPR, Kanpur	IPF 5-19 / EC398595	NHZ, NWPZ, NEPZ, CZ
33	SKAU-P-24	SKUAST, Srinagar	Pant P 10 / Aman	NHZ, NWPZ, NEPZ, CZ
34	SKAU-P-26	SKUAST, Srinagar	HFP-10 / Aman	NHZ, NWPZ, NEPZ, CZ
Field pea : Dwarf				
1.	Prakash (Ch)	IIPR, Kanpur	PDPD 8 / HUDP 7	NHZ
2.	HUDP 15 (Ch)	BHU, Varanasi	PG 3 /3/(PG 3 / S-143) //FC 1	NHZ, NEPZ
3.	HFP 715 (Ch)	CCS HAU, Hisar	DMR 50 / HFP 9948	NHZ
4.	HFP 529 (Ch)	CCS, HAU, Hisar	(HUDP 9 / Arkel) // (HUDP 12 / Arkel)	NWPZ

5.	HFP 1428(Ch)	CCS, HAU, Hisar	HFP 529 / Pant P 25	NWPZ
6.	Pant P 250 (Ch)	GBPUAT, Pantnagar	Pant P 14 / Pant P 41	NWPZ
7.	Pant P 347 (Ch)	GBPUAT, Pantnagar	Pant P 13 / IPFD 08-3	NWPZ
8.	IPFD 19-1 (Ch)	IIPR, Kanpur	IPF 5-19 / MDP 2	NEPZ
9.	IPFD 19-3 (Ch)	IIPR, Kanpur	IPFD 1-10 / IPFD 10-13	NEPZ
10.	HFP 1426(Ch)	CCS, HAU, Hisar	HFP 529 / Pant P 25	NEPZ
11.	Pant P 462 (Ch)	GBPUAT, Pantnagar	HFP 529 / Pant P 31	NEPZ
12.	IPFD 12-2 (Ch)	IIPR, Kanpur	IPF 99-25 / EC 384275	CZ
13.	IPFD 11-5 (Ch)	IIPR, Kanpur	DDR 16 / HUDP 7 // DDR 16	CZ
14.	IPFD 14-2 (Ch)	IIPR, Kanpur	IPFD 99-13 / P 1297-97	CZ
15.	Pant P 559	GBPUAT, Pantnagar	PP 200 / VL 201	NHZ
16.	HFP 1962	CCS HAU, Hisar	HFP 530 / HFP 9907B	NHZ
17.	HFP 2140	CCS HAU, Hisar	Pant P 223 / HFP 1125 // HFP 1125	NHZ, NWPZ, NEPZ, CZ
18.	HFP 2160	CCS HAU, Hisar	Pant P-200 / HFP 1125	NHZ, NWPZ, NEPZ, CZ
19.	Pant P 592	GBPUAT, Pantnagar	PP 74 / HFP 529	NHZ, NWPZ, NEPZ, CZ
20.	Pant P 605	GBPUAT, Pantnagar	PP 74 / HFP 9841	NHZ, NWPZ, NEPZ, CZ
21.	Pant P 610	GBPUAT, Pantnagar	PP 74 / HFP 530	NHZ, NWPZ, NEPZ, CZ
22.	SKNFP 2202	SDAU, SK Nagar	DF 1 / FPD 14-41	NHZ, NWPZ, NEPZ, CZ
23.	IPFD 24-7	ICAR-IIPR, Kanpur	EC 564815 / IPFD 1-10	NHZ, NWPZ, NEPZ, CZ
24.	IPFD 24-1*	ICAR-IIPR, Kanpur	HUDP 15 / Pant P-14	NHZ, NWPZ, NEPZ, CZ
25.	IPFD 24-8	ICAR-IIPR, Kanpur	Pant P-14 / EC-1	NHZ, NWPZ, NEPZ, CZ
26.	SPC 103	AAU, Shillongani	HUDP 15 / Pant P 200	NHZ, NWPZ, NEPZ, CZ
27.	RNCP 17-05	BAU, Ranchi	HUDP 15 / IPF 13-14	NHZ, NWPZ, NEPZ, CZ
Field pea : Rice Fallow				
1	IPFD 12-2 (Ch)	IIPR, Kanpur	IPF 99-25 / EC 384275	CZ,NEPZ
2	IPF 16-13 (Ch)	IIPR, Kanpur	IPF 99-25 / VRP-22	CZ,NEPZ
3	HUDP 15 (Ch)	BHU, Varanasi	PG 3 /3/(PG 3 / S-143) //FC 1	NEPZ
4	SKNP 04-09 (Ch)	SDAU, S.K. Nagar	Sel. from DDR 49	NEPZ
5	IPFD 2014-2 (Ch)	IIPR, Kanpur	IPFD 99-13 / P 1297-97	CZ
6	IPFD 11-5 (Ch)	IIPR, Kanpur	DDR 16 / HUDP 7 // DDR 16	CZ
7	Pant P 568	GBPUAT, Pantnagar	IPFD 5-19 / HFP 9907B	NEPZ
8	IPFD 24-3	IIPR, Kanpur	IPFD 6-3 / EC499762	CZ,NEPZ
9	IPFD 24-2	IIPR, Kanpur	HUDP 15 / P-1589	CZ,NEPZ
10	RFP 2020-6	IGKV, Raipur	Aakash / IPFD 13-14	CZ,NEPZ
11	IPF 21-16	IIPR, Kanpur	HFP 4 / FC 1	CZ,NEPZ
12	IPF 24-11	IIPR, Kanpur	IPF 5-19 / EC 398595	CZ,NEPZ
13	Pant P 592	GBPUAT, Pantnagar	PP 74 / HFP 529	CZ,NEPZ
14	Pant P 605	GBPUAT, Pantnagar	PP 74 / HFP 9841	CZ,NEPZ
15	Pant P 633	GBPUA&T, Pantnagar	FC 1 / EX 507771	CZ,NEPZ
16	Pant P 628	GBPUA&T, Pantnagar	PP 66 / FC 1	CZ,NEPZ

18	RKL 23-316	AU, Kota	L 4682 / DPL 62	NHZ, NWPZ, NEPZ	
19	RKL 16-401	AU, Kota	RKL 1001 / PL 5	NHZ, NWPZ, NEPZ	
20	PLL 24-2	ICAR-IARI	L 4710 / PL6	NHZ, NWPZ, NEPZ	
21	LL 1854	PAU, Ludhiana	LL 1374 / PL 02	NHZ, NWPZ, NEPZ	
22	LL 1859	PAU, Ludhiana	LL 1375 / MH 1	NHZ, NWPZ, NEPZ	
23	RL 2020-2	IGKV, Raipur	JL 3 / ILL 7663	NHZ, NWPZ, NEPZ	
24	RL 2020-6	IGKV, Raipur	JL 3 / PL-07	NHZ, NWPZ, NEPZ	
25	VL 541	VPKAS, Almora	L 84-8 / VL 1	NHZ, NWPZ, NEPZ	
26	VL 542	VPKAS, Almora	VL 521 / VL 125	NHZ, NWPZ, NEPZ	
27	RVL 23-6	RAK, Sehore	RVL 31 / RVL 11-6	NHZ, NWPZ, NEPZ	
28	RVL 23-7	RAK, Sehore	RVL 31 / X2007S 134	NHZ, NWPZ, NEPZ	
29	PL 456	GBPUAT, Pantnagar	PL 7 / PL 639	NHZ, NWPZ, NEPZ	
30	PL 448	GBPUAT, Pantnagar	PL 7 / PL 8	NHZ, NWPZ, NEPZ	
31	RLG 354	RARI, Durgapura	Sapna / LL 8643 // PL 01	NHZ, NWPZ, NEPZ	
32	RLG 385	RARI, Durgapura	Sapna / RLG 5	NHZ, NWPZ, NEPZ	
33	PLL 24-1	ICAR-IARI	L 4705 / Sehore 74-3	NHZ, NWPZ, NEPZ	
34	PHL-1	ICAR-IARI	JL-3 / PDL-2	NHZ, NWPZ, NEPZ	

Lentil : Rice Fallow

1	KLS 218 (Ch.)	CSAU, Kanpur	KLS 133 / LG 362	CZ,NEPZ	
2	HUL 57 (Ch.)	BHU, Varanasi	Mutant of HUL-11	CZ,NEPZ	
3	RKL 14-20 (Kota Masoor 2) (Ch)	AU, Kota	LL 1049 / RKL 11	CZ,NEPZ	
4	WBL 77 (Ch)	PORS, Berhampore (W.B.)	ILL 7723 / BLX 88176	NEPZ	
5	L 4717 (Ch)	IARI, New Delhi	ILL 7617 / 91516	CZ	
6	RKL 607-1 (Ch)	AU, Kota	KLB 339 / SL 94-09	CZ	
7	RVL 11-6 (Ch)	RAK College, Sehore	JL 3 / DPL 62	CZ	
8	IPL 220 (Ch)	IIPR, Kanpur	DPL 44 / DPL 62 // DPL 58	NEPZ	
9	BCL 10145	BCKV, Mohanpur	ILL 6002 / ILWL 118	CZ	
10	PLRF 22-1	IARI, New Delhi	L 830 / L 4602	CZ	
11	PSL-24	IARI, New Delhi	VL 507 / PSL-9	CZ	
12	PLRF 22-2	IARI, New Delhi	P 43120 / L 4603	CZ	
13	PLR 23-1	IARI, N Delhi	L 4717 / LSS 17-123	CZ	
14	RL 2021- 2	IGKV, Raipur	IPL 81 / ILL 7663	NEPZ, CZ	
15	IPL614	IIPR, Kanpur	IPL 316 / PL 117	NEPZ, CZ	
16	IPL615	IIPR, Kanpur	IPL 316 / IPL 321	NEPZ, CZ	
17	IPL 616	IIPR, Kanpur	ILL 2501 / ILL 6882	NEPZ, CZ	
18	BCL 1025	BCKV, Mohanpur	BCL 10212 / Pusa Vaibhav	NEPZ, CZ	
19	BCL 1028	BCKV, Mohanpur	KLS 218 / BM 8	NEPZ, CZ	
20	PLRF 24-1	ICAR-IARI	L 4717 / LSS17-130	NEPZ, CZ	
21	PDL-19	ICAR-IARI	VL-507 / PDL-1	NEPZ, CZ	
22	PLRF 24-2	ICAR-IARI	L 4710 / PL 6	NEPZ, CZ	
23	PL 457	GBPUAT, Pantnagar	PL 7 / PL 4	NEPZ, CZ	
24	PL 455	GBPUAT, Pantnagar	PL 8 / PL 4	NEPZ, CZ	

1.7.3 Pedigree and source of Lathyrus entries included in All India Coordinated Varietal Trial conducted during rabi 2024-25

S. No.	Entry	Source	Pedigree	Zone
1	Mahateora (Ch)	IGKV, Raipur	Ratan / JRL 2	CZ,NEPZ
2	Prateek (Ch)	IGKV, Raipur	LS 8246 / a 60	CZ,NEPZ
3	Bidhan Khesari 1 (Ch)	BCKV, Mohanpur	Nirmal / BioL-212	CZ,NEPZ
4	RLS-2022-2	IGKV, Raipur	Selection from IG 117475	CZ,NEPZ
5	RLS-2022-4	IGKV, Raipur	Selection from IG 115105	CZ,NEPZ
6	BCK-24-3	BCKV, Mohanpur	Ratan / IFLA 143	CZ,NEPZ
7	BCK-23-167	BCKV, Mohanpur	Mahateora / BK-12-2-2-1	CZ,NEPZ
8	BRLa 09	BAU, Sabour	Selection IFLA1826-S5	CZ,NEPZ
9	RLS 3004-2	IGKV, Raipur	RW 12 / Ratan	CZ,NEPZ

Status of data reporting centre wise:

Lentil

Zone	Centre	No. of allotted trials	No. of trial conducted	Reporting
NHZ	Srinagar	3	3	100%
	Imphal	4	4	100%
	Agartala	3	3	100%
	Almora	3	3	100%
NWPZ	Pantnagar	3	3	100%
	Durgapura	3	3	100%
	Ludhiana	3	3	100%
	Gurdaspur	1	1	100%
	Samba	3	3	100%
	Hisar	1	1	100%
	Jodhpur(mandor)	1	1	100%
IARI,New Delhi	3	3	100%	
NEPZ	CSUAT,Kanpur	1	1	100%
	Varanasi	2	2	100%
	Ayodhya(Kumarganj)	2	2	100%
	Shillongani	3	3	100%
	Dholi	3	3	100%
	Mohanpur	3	3	100%
	Ranchi	3	3	100%
	Sabour	3	3	100%
CZ	Sagar	2	2	100%
	Sehore	2	2	100%
	Kota	2	2	100%
	Raipur	4	4	100%
	Jabalpur	2	2	100%
	Indore	2	2	100%
	Banda	2	2	100%
	Jagdapur (Chhattisgarh)	2	2	100%
	Kanker	2	2	100%
	Balaghat	1	1	100%
Total		72	72	100%

Field pea

Zone	Centre	No. of allotted trials	No. of trial conducted	Reporting
NHZ	Srinagar	4	4	100%
	Imphal	5	5	100%
	Agartala	4	4	100%
NWPZ	Pantnagar	3	3	100%
	Durgapura	3	3	100%
	Ludhiana	3	3	100%
	Samba	1	1	100%
	Hisar	3	3	100%
NEPZ	CSUAT,Kanpur	1	1	100%
	Varanasi	3	3	100%
	Ayodhya (Kumarganj)	3	3	100%
	Shillongani	5	5	100%
	Dholi	2	2	100%
	Mohanpur	1	1	100%
	Ranchi	5	5	100%
	Sabour	2	2	100%

CZ	Sagar	2	2	100%
	Sehore	2	2	100%
	Kota	2	2	100%
	Raipur	3	3	100%
	Jabalpur	1	1	100%
	S.K. Nagar	2	2	100%
	Banda	2	2	100%
	Jagdapur (Chhattisgarh)	1	1	100%
	Kanker	1	1	100%
	Balghat	1	1	100%
Total		65	65	100%

Lathyrus

Zone	Centre	No. of allotted trials	No. of trial conducted	Reporting
NEPZ	Shillongani	1	1	100%
	Dholi	1	1	100%
	Mohanpur	1	1	100%
	Ranchi	1	1	100%
	Sabour	1	1	100%
CZ	Raipur	1	1	100%
	Jagdapur (Chhattisgarh)	1	1	100%
	Kanker	1	1	100%
Total		8	8	100%

1.8 Yield and Ancillary Data

INFORMATION SHEET

Crop: Lentil Trial: AVT-1 (Small seed)

S.No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rained	Net plot fertilizer N:P:K	Date of harvesting
NWPZ							
1.	Gurdaspur	Dr. Ashok Kumar	15.11.2024	8.0	-	12.5:20:00	28.04.2025
2.	Pantnagar	Drs. R.K.Panwar and S.K. Verma	26.11.2024	7.2	-	100 Kg DAP	12.04.2025
3.	Ludhiana	Dr. Suruchi Vij	14.11.2024	7.2	2	12.5:40:00	21.04.2025
4.	Samba	Dr Naresh Kumar	14.11.2024	8.0	-	20:50:20	Plot wise
5.	Durgapura	Dr. S.S. Punia	28.11.2024	9.6	-	20:40:20	Plot wise
6.	IARI, New Delhi	Dr. H.K. Dikshit	22.11.2024	7.5	-	100 kg DAP	Plot wise
7.	ARS, Mandore	Dr. Suneeta Pandey	16.11.2024	9.6	3	15:30:00	Plot wise
NEPZ							
1	CSA Kampur	Dr. Manoj Katiyar	18.11.2024	7.2	2	15:45:20	2.4.2025
2	Varanasi	Dr. Anil Kumar Singh	07.12.2024	6.3	-	25:40:30	Plot wise
3	Ayodhya	Dr. Shiva Nath	9.11.2024	5.4	-	20:40:20	19.03.2025
4	Dholi	Dr. Ravi Kant	20.11.2024	7.2	1	20:40:20	04.04.2025
5	Ranchi	Dr. C. S. Mahto	05.11.2024	7.2	3	20:40:20	08.03.2025
6	Shillongani	Dr. Nabajyoti Bhuyan	28.11.2024	7.2	2	0.75:4.1:0.5	26.03.2025
7	Sabour	Dr. Pooja Yadav	12.12.2024	6.0	-	20:40:00	21.04.2025
8	Mohanpur	Dr. Arpita Das	19.11.2024	8.0	-	20:40:20:20 ZnSO ₄	Plot wise

Data not considered due to:

- CV (%) more than 5% (irrigated)
- CV (%) less than : 20% (irrigated) :-
- GM less than state average :- **Mandore**

Crop : Lentil		Trial : AVT-1 (Small seed)				Zone : NWPZ				Yield (Kg/ha)	
S. No.	Entry	Code	Pantnagar	Mandore (Rej.)	Ludhiana	Gurdaspur	IARI	Samba	Durgapura	Mean	Freq.
1	L 4147 (Ch)	L 24287	1823	1115	1927	1438	2309	1379	2004	1813	4/6
2	Pant L 11 (Ch)	L 24289	1253	452	1875	1875	1566	1173	1779	1587	1/6
3	Pant L 063 (Ch)	L 24291	1024	729	1910	1750	1590	1492	1760	1588	2/6
4	PL 411	L 24282	1830	675	1736	1500	1747	1254	1574	1607	2/6
5	LL 1805	L 24283	753	1152	2118	1719	2060	1469	1982	1684	4/6
6	PLS 25	L 24286	1938	488	2153*	1781	1722	1104	1543	1707	3/6
	CV (%)		9.9	10.5	7.0	9.2	5.0	11.1	8.2		
	CD at 5 %		217	124	210	234	137	268	220		
	GM		1437	769	1953	1677	1832	1312	1774		
	State Av. Yield		818	1434	772	772	-	-	1434		

Crop : Lentil		Trial : AVT-1 (Small seed)				Zone : NWPZ				Days to 50% flowering	
S. No.	Entry	Code	Pantnagar	Mandore (Rej.)	Ludhiana	Gurdaspur	IARI	Samba	Durgapura	Mean	Freq.
1	L 4147 (Ch)	L 24287	83	72	88	97	97	85	71	85	
2	Pant L 11 (Ch)	L 24289	81	69	84	94	94	83	68	82	
3	Pant L 063 (Ch)	L 24291	80	76	87	97	97	89	69	84	
4	PL 411	L 24282	81	76	92	102	102	92	77	89	
5	LL 1805	L 24283	83	81	93	102	102	93	76	89	
6	PLS 25	L 24286	80	57	78	87	87	80	55	76	

Crop : Lentil		Trial : AVT-1 (Small seed)				Zone : NWPZ				Days to maturity	
S. No.	Entry	Code	Pantnagar	Mandore (Rej.)	Ludhiana	Gurdaspur	IARI	Samba	Durgapura	Mean	Freq.
1	L 4147 (Ch)	L 24287	130	123	135	151	121	140	113	132	
2	Pant L 11 (Ch)	L 24289	127	120	134	152	118	138	116	131	
3	Pant L 063 (Ch)	L 24291	127	123	135	152	121	139	114	131	
4	PL 411	L 24282	128	122	133	152	118	139	111	130	
5	LL 1805	L 24283	129	124	133	150	114	139	109	129	
6	PLS 25	L 24286	126	118	133	143	116	141	112	129	

Crop : Lentil

Trial : AVT-1 (Small seed)

Zone : NWPZ

100 seed wt. (g)

S.No.	Entry	Code	Pantnagar	Mandore (Rej.)	Ludhiana	Gurdaspur	IARI	Samba	Durgapura	Mean
1	L 4147 (Ch)	L 24287	1.4	2.3	1.8	2.9	2.1	3.9	1.8	2.3
2	Pant L 11 (Ch)	L 24289	2.7	3.5	3.0	3.0	1.9	4.6	3.0	3.0
3	Pant L 063 (Ch)	L 24291	1.8	2.5	2.2	2.2	2.3	3.7	2.4	2.4
4	PL 411	L 24282	1.4	2.2	1.8	2.8	2.2	3.5	1.8	2.3
5	LL 1805	L 24283	1.7	2.6	2.2	3.0	2.1	2.4	2.4	2.3
6	PLS 25	L 24286	1.5	2.9	2.4	2.8	2.4	3.4	2.6	2.5

Crop: Lentil

Trial : AVT-1 (Small seed)

Zone : NEPZ

Yield (Kg/ha)

S.No.	Entry	Code	CSAU Kanpur	Varanasi	Ayodhya	Shillongani	Sabour	Mohanpur	Ranchi	Dholi	Mean	Freq.
1	IPL 220 (Ch)	L 24285	962	1252	2310	722	1310	1265	955	1962	1342	5/7
2	HUL 57 (Ch)	L 24288	1241	1482	2466	944	1040	1067	970	1830	1380	5/7
3	WBL 77 (Ch)	L 24290	922	1008	1983	569	918	1033	1055	1816	1163	2/7
4	BRL 22-5	L 24281	1083	1315	2410	1014	1390	1128	862	1747	1369	6/7
5	IPL 249	L 24284	1185	1379	2478	979	1197	1173	971	1566	1366	6/7
	CV (%)		10.5	12.7	14.0	6.0	12.0	8.8	7.3	8.7		
	CD at 5 %		176	255	NA	78	220	155	109	243		
	GM		1079	1287	2329	846	1171	1133	963	1784		
	State Av. Yield		1039	1039	1039	758	914	915	855	914		

Crop: Lentil

Trial : AVT-1 (Small seed)

Zone : NEPZ

Days to 50% flowering

S. No.	Entry	Code	CSAU Kanpur	Varanasi	Ayodhya	Shillongani	Sabour	Mohanpur	Ranchi	Dholi	Mean
1	IPL 220 (Ch)	L 24285	71	61	71	79	61	67	62	94	71
2	HUL 57 (Ch)	L 24288	67	65	76	79	67	70	66	94	73
3	WBL 77 (Ch)	L 24290	72	59	53	77	61	64	53	93	67
4	BRL 22-5	L 24281	69	66	75	80	65	62	69	93	72
5	IPL 249	L 24284	70	65	77	80	67	65	72	94	74

Crop: Lentil		Trial : AVT-1 (Small seed)					Zone : NEPZ					Days to maturity	
S.No.	Entry	Code	CSAU Kanpur	Varanasi	Ayodhya	Shillongani	Sabour	Mohanpur	Ranchi	Dholi	Mean		
1	IPL 220 (Ch)	L 24285	128	103	117	120	99	122	105	128	115		
2	HUL 57 (Ch)	L 24288	120	101	126	119	98	125	110	129	116		
3	WBL 77 (Ch)	L 24290	126	101	113	118	97	118	106	130	114		
4	BRL 22-5	L 24281	122	102	122	121	97	117	111	130	115		
5	IPL 249	L 24284	126	103	125	121	99	120	113	131	117		

Crop: Lentil		Trial : AVT-1 (Small seed)					Zone : NEPZ					100 seed wt. (g)	
S.No.	Entry	Code	CSAU Kanpur	Varanasi	Ayodhya	Shillongani	Sabour	Mohanpur	Ranchi	Dholi	Mean		
1	IPL 220 (Ch)	L 24285	2.2	2.8	2.6	2.0	2.4	2.4	3.1	2.6	2.5		
2	HUL 57 (Ch)	L 24288	2.1	2.3	2.1	2.0	1.9	2.1	2.9	2.4	2.2		
3	WBL 77 (Ch)	L 24290	1.7	2.1	2.4	2.8	2.1	2.2	3.2	2.2	2.3		
4	BRL 22-5	L 24281	2.3	1.9	2.2	3.1	1.9	2.3	3.2	2.4	2.4		
5	IPL 249	L 24284	1.9	3.0	2.8	2.1	2.9	2.3	3.2	2.6	2.6		

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Crop: Lentil

Trial: IVT (Small seed)

S. No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rainfed	Net plot fertilizer N:P:K	Date of harvesting
NHZ							
1.	Srinagar	Dr. Ajaj A. Lone	05.11.2024	4.5	-	-	Plot wise
2.	Imphal	Dr. Manoranjan Biswal	30.11.2024	4.05	-	20:40:20	03.04.2025
3.	Almora	Drs. Ashok Kumar & Anuradha Bhartiya	07.11.2024	3.45	-	20:40:00	Plot wise
4.	Agartala	Dr. Bijoya Bhattacharjee	04.12.2024	4.5	-	-	Plot wise
NWPZ							
1.	Pantnagar	Drs. R.K.Panwar & S.K. Verma	26.11.2024	5.4	-	100 Kg DAP	20.04.2025
2.	Ludhiana	Dr. Suruchi Vij	14.11.2024	5.4	2	12.5:40:00	19.04.2025
3.	Samba	Dr Naresh Kumar	25.10.2024	5.0	-	20:100:20	Plot wise
4.	Durgapura	Dr. S.S. Punia	28.11.2024	7.2	-	20:40:20	Plot wise
5.	IARI,New Delhi	Dr. H.K. Dikshit	22.11.2024	7.5	-	100 kg DAP	Plot wise
NEPZ							
1.	Varanasi	Dr. Anil Kumar Singh	06.12.2024	4.5	-	25:40:30	Plot wise
2.	Ayodhya	Dr. Shiva Nath	15.11.2024	3.6	-	20:40:20:20S	24.03.2025
3.	Dholi	Dr. Ravi Kant	20.11.2024	5.4	1	20:40:20	07.04.2025
4.	Ranchi	Dr. C. S. Mahto	05.11.2024	5.4	3	20:40:20	10.03.2025
5.	Shillongani	Dr. Nabajyoti Bhuyan	28.11.2024	5.4	2	2:11:1.5	17.03.2025
6.	Sabour	Dr. Pooja Yadav	12.12.2024	5.4	-	20:40:00	21.04.2025
7.	Mohanpur	Dr. Arpita Das	04.12.2024	6.0	-	20:40:20:20ZnSO ₄	Plot wise

a. Data not considered due to:

- CV (%) less than 5% (irrigated): Agartala
- CV (%) more than 20% (irrigated) :
- GM less than state average :-

Crop : Lentil		Trial : IVT (Small seed)				Zone : NHZ				Yield (Kg/ha)	
S. No.	Entry	Code	Agartala (Rej.)	Srinagar	Imphal	Almora	Mean	Freq.			
1	Pant L 12 (Ch)	L24258	237	944	1758	1198	1300	1/3			
2	VL 126 (Ch)	L24270	201	952	2466	1473	1630	3/3			
3	VL 148 (Ch)	L24275	353	941	1605	1051	1199	1/3			
4	VL 168	L24252	264	904	2511	1507	1641	3/3			
5	RNCL 16-09	L24254	452	848	2027	1691	1522	1/3			
6	PL 455	L24255	250	874	2002	1169	1348	-			
7	IPL 252	L24256	398	800	1891	1643	1445	1/3			
8	BCL 1088	L24259	353	681	763	1565	1003	1/3			
9	PLS 24-1	L24261	572	711	522	1440	891	1/3			
10	BCL 1026	L24262	441	659	989	1507	1052	1/3			
11	PLS 24-2	L24263	761	685	1963	1527	1392	1/3			
12	VL 167	L24264	228	726	1879	1324	1310	-			
13	LL 1835	L24266	489	659	2451	1498	1536	2/3			
14	PDL-17	L24267	424	674	2056	1295	1342	-			
15	IPL 250	L24268	428	700	2329	1401	1477	-			
16	PL 457	L24269	278	704	1637	754	1032	-			
17	BRL 30-4	L24272	874	815	2479	1252	1515	1/3			
18	LL 1831	L24273	483	667	2566	1256	1496	1/3			
19	IPL 251	L24274	306	907	2696	1614	1739	3/3			
20	BRL-26-3	L24276	671	915	1999	1633	1516	2/3			
	CV (%)		4.6	5.4	7.8	11.7					
	CD at 5 %		41	70	248	270					
	GM		423	788	1929	1390					
	State Av. Yield		-	-	-	818					

Crop : Lentil Trial : IVT (Small seed) Zone : NHZ

S. No.	Entry	Code	Days to 50% flowering					Days to maturity					100 seed wt. (g)				
			Agartala (Rej.)	Srinagar	Impthal	Almora	Mean	Agartala (Rej.)	Srinagar	Impthal	Almora	Mean	Agartala (Rej.)	Srinagar	Impthal	Almora	Mean
1	Pant L 12 (Ch)	L24258	55	152	70	87	103	81	196	118	158	157	3.0	1.9	4.0	2.7	2.9
2	VL 126 (Ch)	L24270	60	160	76	100	112	91	197	119	158	158	2.2	1.9	3.0	2.1	2.3
3	VL 148 (Ch)	L24275	56	156	75	85	105	87	197	120	152	156	4.0	2.4	3.1	2.3	2.6
4	VL 168	L24252	67	160	82	106	116	98	194	120	155	156	1.9	2.0	3.0	2.3	2.4
5	RNCL 16-09	L24254	48	154	67	85	102	76	197	107	153	152	1.6	2.1	2.3	1.9	2.1
6	PL 455	L24255	58	155	75	86	105	87	197	117	156	157	2.7	2.2	3.6	2.6	2.8
7	IPL 252	L24256	51	154	68	88	103	76	197	116	158	157	2.4	2.1	2.9	2.3	2.4
8	BCL 1088	L24259	50	154	66	86	102	75	195	108	158	154	2.3	2.0	2.6	1.7	2.1
9	PLS 24-1	L24261	53	151	70	96	106	76	193	108	155	152	3.5	1.9	3.2	3.0	2.7
10	BCL 1026	L24262	46	156	66	86	103	78	194	105	154	151	2.4	2.2	2.1	2.1	2.1
11	PLS 24-2	L24263	45	152	65	83	100	76	195	109	155	153	3.1	2.5	3.0	2.7	2.7
12	VL 167	L24264	50	155	78	95	109	70	196	120	155	157	3.3	1.9	2.8	2.3	2.3
13	LL 1835	L24266	65	155	78	98	110	96	195	120	157	157	2.5	1.8	3.0	2.3	2.4
14	PDL-17	L24267	52	158	73	95	109	77	197	118	155	157	2.3	2.0	3.0	2.0	2.3
15	IPL 250	L24268	64	155	72	96	108	94	197	118	159	158	3.0	2.2	3.4	2.4	2.7
16	PL 457	L24269	53	158	78	97	111	88	197	120	153	157	2.8	2.1	3.2	2.3	2.5
17	BRL 30-4	L24272	56	155	73	95	108	87	196	118	151	155	2.4	2.1	3.0	2.0	2.4
18	LL 1831	L24273	62	154	78	89	107	86	197	118	151	155	2.4	2.2	3.1	2.3	2.5
19	IPL 251	L24274	54	155	70	89	105	81	197	118	154	156	2.5	2.3	3.2	2.4	2.6
20	BRL-26-3	L24276	53	150	70	94	105	75	196	115	150	154	2.1	2.1	2.9	1.9	2.3

Crop : Lentil Trial : IVT (Small seed) Zone : NWPZ Yield (Kg/ha)

S. No.	Entry	Code	Pantnagar	Ludhiana	IARI, New Delhi	Samba	Durgapura	Mean	Freq.
1	LH 17-19 (Ch)	L 24251	1210	2160	1645	1363	2036	1683	-
2	Pant L 11 (Ch)	L 24257	1432	1790	1762	1633	1836	1691	-
3	LL 1655(Ch)	L 24271	1062	2160	1803	2210	2184	1884	2/5
4	VL 168	L 24252	821	1852	1660	1940	935	1442	-
5	RNCL 16-09	L-24254	698	2006	1717	1503	2006	1586	-
6	PL 455	L 24255	1932*	2284	1678	1860	2341	2019	2/5
7	IPL 252	L 24256	1858*	2006	1895	2307	2165	2046	3/5
8	BCL 1088	L 24259	698	1543	1745	1313	1419	1344	-
9	PLS 24-1	L 24261	512	2623*	1934	1680	2341	1818	2/5
10	BCL 1026	L 24262	469	1543	1788	1300	1338	1288	-
11	PLS 24-2	L 24263	1531	2284	2125*	953	2336	1846	1/5
12	VL 167	L 24264	1074	2160	1684	1357	1471	1549	-
13	LL 1835	L 24266	1457	2006	1767	1853	2225	1862	1/5
14	PDL-17	L 24267	944	2407	1785	1853	2403	1878	2/5
15	IPL 250	L 24268	1543	2006	1605	1973	1654	1756	-
16	PL 457	L 24269	1444	1728	1811	2027	1790	1760	-
17	BRL 30-4	L 24272	784	2160	1626	2467	1819	1771	1/5
18	LL 1831	L 24273	1204	2068	1987	2393	2304	1991	2/5
19	IPL 251	L 24274	1278	2068	2623*	1933	2391	2059	2/5
20	BRL-26-3	L 24276	1191	2407	1810	2003	1693	1821	1/5
	CV (%)		12.5	8.0	6.5	11.1	10.1		
	CD at 5 %		241	273	192	331	326		
	GM		1157	2063	1823	1796	1934		
	State Av. Yield		818	772	-	-	1434		

S. No.	Entry	Code	Trial : IVT (Small seed)			Zone : NWPZ			Days to 50% flowering	Mean
			Pantnagar	Ludhiana	Samba	Durgapura				
1	LH 17-19 (Ch)	L 24251	80	89	103	68	85			
2	Pant L 11 (Ch)	L 24257	85	86	99	68	85			
3	LL 1655(Ch)	L 24271	87	94	107	72	90			
4	VL 168	L 24252	79	102	106	72	90			
5	RNCL 16-09	L -24254	81	79	86	54	75			
6	PL 455	L 24255	87	88	100	71	87			
7	IPL 252	L 24256	87	86	98	65	84			
8	BCL 1088	L 24259	81	80	85	55	75			
9	PLS 24-1	L 24261	79	85	95	62	80			
10	BCL 1026	L 24262	83	79	85	56	76			
11	PLS 24-2	L 24263	85	70	84	54	73			
12	VL 167	L 24264	80	92	104	70	86			
13	LL 1835	L 24266	87	95	106	76	91			
14	PDL-17	L 24267	80	89	96	64	82			
15	IPL 250	L 24268	86	94	104	71	89			
16	PL 457	L 24269	86	93	106	66	88			
17	BRL 30-4	L 24272	85	89	99	67	85			
18	LL 1831	L 24273	82	95	107	75	90			
19	IPL 251	L 24274	81	85	96	67	82			
20	BRL-26-3	L 24276	83	86	97	68	84			

Crop : Lentil

Trial : IVT (Small seed)

Zone : NWPZ

Days to maturity

S. No.	Entry	Code	IARI, New Delhi	Pantnagar	Ludhiana	Samba	Durgapura	Mean
1	LH 17-19 (Ch)	L 24251	118	127	135	151	113	129
2	Pant L 11 (Ch)	L 24257	124	130	134	157	116	132
3	LL 1655(Ch)	L 24271	121	134	138	156	111	132
4	VL 168	L 24252	117	126	138	160	116	131
5	RNCL 16-09	L -24254	123	126	137	148	114	130
6	PL 455	L 24255	120	133	136	157	116	132
7	IPL 252	L 24256	118	132	133	152	116	130
8	BCL 1088	L 24259	124	129	132	145	111	128
9	PLS 24-1	L 24261	121	126	132	148	112	128
10	BCL 1026	L 24262	119	128	132	142	112	127
11	PLS 24-2	L 24263	126	133	132	142	115	130
12	VL 167	L 24264	127	127	135	159	115	133
13	LL 1835	L 24266	124	130	138	156	113	132
14	PDL-17	L 24267	127	125	138	156	111	131
15	IPL 250	L 24268	123	129	140	156	111	132
16	PL 457	L 24269	123	132	135	154	111	131
17	BRL 30-4	L 24272	122	132	140	150	113	131
18	LL 1831	L 24273	124	130	135	158	113	132
19	IPL 251	L 24274	127	129	134	150	113	131
20	BRL-26-3	L 24276	119	132	139	157	116	133

S. No.	Entry	Code	Trial : IVT (Small seed)			Zone : NWPZ			100 seed wt. (g)
			IARI, New Delhi	Pantnagar	Ludhiana	Samba	Durgapura	Mean	
1	LH 17-19 (Ch)	L 24251	2.1	2.0	2.4	4.2	2.8	2.7	
2	Pant L 11 (Ch)	L 24257	2.2	2.6	2.8	4.5	3.2	3.1	
3	LL 1655(Ch)	L 24271	2.3	2.0	2.2	4.0	2.6	2.6	
4	VL 168	L 24252	1.8	2.0	2.0	3.9	2.3	2.4	
5	RNCL 16-09	L -24254	2.1	1.3	1.8	3.9	2.1	2.2	
6	PL 455	L 24255	2.2	2.2	2.4	4.3	2.9	2.8	
7	IPL 252	L 24256	2.4	2.0	2.2	3.9	2.5	2.6	
8	BCL 1088	L 24259	2.4	1.1	2.0	3.5	2.2	2.2	
9	PLS 24-1	L 24261	2.1	1.8	3.0	4.5	3.2	2.9	
10	BCL 1026	L 24262	2.0	1.3	1.8	3.6	2.2	2.2	
11	PLS 24-2	L 24263	1.9	2.0	2.6	3.8	2.9	2.6	
12	VL 167	L 24264	1.7	2.0	1.8	3.7	2.1	2.2	
13	LL 1835	L 24266	1.8	1.7	2.0	3.7	2.4	2.3	
14	PDL-17	L 24267	1.6	1.6	2.0	3.6	2.6	2.3	
15	IPL 250	L 24268	1.7	2.3	2.4	4.2	2.8	2.7	
16	PL 457	L 24269	1.8	2.2	2.4	4.1	2.8	2.7	
17	BRL 30-4	L 24272	2.2	1.9	2.4	3.9	2.5	2.6	
18	LL 1831	L 24273	1.7	1.9	2.2	4.1	2.5	2.5	
19	IPL 251	L 24274	2.1	2.1	2.2	4.0	2.8	2.6	
20	BRL-26-3	L 24276	2.1	1.4	2.0	3.6	2.3	2.3	

Crop: Lentil Trial : IVT (Small seed) Zone : NEPZ Yield (Kg/ha)

S. No.	Entry	Code	Varanasi	Ayodhya	Shillongani	Sabour	Mohanpur	Ranchi	Dholi	Mean	Freq.
1	Bidhan Lentil-16 (Ch)	L 24253	804	2037	777	869	1117	861	877	1049	-
2	HUL 57 (Ch)	L 24260	1270	2546	1028	1216	1050	854	1284	1321	2/7
3	IPL 220 (Ch)	L 24265	1589	2407	787	1139	1021	955	1185	1298	4/7
4	VL 168	L 24252	885	1759	1007	886	1010	862	1012	1060	-
5	RNCL 16-09	L 24254	1007	2639	965	991	1202	1004	1160	1281	3/7
6	PL 455	L 24255	1300	2500	913	1035	933	793	1025	1214	1/7
7	IPL 252	L 24256	1296	2639	1280*	1151	1267	1009	1302	1421	5/7
8	BCL 1088	L 24259	441	1713	693	770	1431*	1035	988	1010	2/7
9	PLS 24-1	L 24261	1504	2639	1018	1251	1017	960	1241	1376	4/7
10	BCL 1026	L 24262	700	2454	682	841	1335	1010	1457	1211	4/7
11	PLS 24-2	L 24263	1037	2083	1123	1308	1016	999	1185	1250	2/7
12	VL 167	L 24264	778	2454	560	889	920	1038	1414	1150	2/7
13	LL 1835	L 24266	1089	2778	798	847	903	973	1420	1258	3/7
14	PDL-17	L 24267	1111	2315	735	1291	924	941	1728*	1292	2/7
15	IPL 250	L 24268	1167	2454	881	1293	941	1060	914	1244	3/7
16	PL 457	L 24269	922	2176	1028	1207	954	991	796	1153	2/7
17	BRL 30-4	L 24272	1270	2639	944	1264	1007	985	1383	1356	3/7
18	LL 1831	L 24273	1219	2269	913	888	983	1112	1370	1251	1/7
19	IPL 251	L 24274	1522	2685	819	1265	1021	928	1543	1398	4/7
20	BRL-26-3	L 24276	1496	2315	976	1133	1369*	932	1469	1384	4/7
	CV (%)		12.9	10.2	8.6	11.3	13.0	10.1	15.0		
	CD at 5 %		240	404	128	201	230	161	308		
	GM		1120	2375	896	1077	1071	965	1238		
	State Av. Yield		1039	1039	758	914	915	855	914		

S.No.	Entry	Code	Trial : IVT (Small seed)					Zone : NEPZ					Days to 50% flowering
			Varanasi	Ayodhya	Shillongani	Sabour	Mohanpur	Ranchi	Dholi	Mean			
1	Bidhan Lentil-16 (Ch)	L 24253	59	67	70	62	62	65	92	68			
2	HUL 57 (Ch)	L 24260	65	79	70	68	65	71	93	73			
3	IPL 220 (Ch)	L 24265	59	73	77	61	68	78	93	73			
4	VL 168	L 24252	65	87	89	74	60	78	94	78			
5	RNCL 16-09	L 24254	59	69	70	61	67	66	93	69			
6	PL 455	L 24255	59	76	78	67	68	76	95	74			
7	IPL 252	L 24256	59	74	76	62	61	71	94	71			
8	BCL 1088	L 24259	58	65	69	57	66	56	92	66			
9	PLS 24-1	L 24261	59	75	69	62	66	73	95	71			
10	BCL 1026	L 24262	59	67	69	61	61	61	93	67			
11	PLS 24-2	L 24263	58	64	69	57	69	56	92	66			
12	VL 167	L 24264	68	79	87	71	70	75	94	78			
13	LL 1835	L 24266	67	88	90	74	69	80	95	80			
14	PDL-17	L 24267	61	71	70	62	72	77	93	72			
15	IPL 250	L 24268	68	79	88	66	74	77	93	78			
16	PL 457	L 24269	65	86	88	73	69	80	95	79			
17	BRL 30-4	L 24272	65	74	76	65	68	75	94	74			
18	LL 1831	L 24273	67	87	88	73	71	79	93	80			
19	IPL 251	L 24274	63	76	74	62	66	76	93	73			
20	BRL-26-3	L 24276	65	74	70	65	69	74	94	73			

S.No.	Entry	Code	Zone : NEPZ										Mean
			Varanasi	Ayodhya	Shillongani	Sabour	Mohanpur	Ranchi	Dholi	Days to maturity			
1	Bidhan Lentil-16 (Ch)	L 24253	103	117	112	95	119	112	119	112	112	112	112
2	HUL 57 (Ch)	L 24260	103	123	115	97	122	118	122	118	127	115	115
3	IPL 220 (Ch)	L 24265	103	122	122	99	124	122	124	122	126	117	117
4	VL 168	L 24252	107	128	121	108	117	120	117	120	128	118	118
5	RNCL 16-09	L 24254	103	120	110	97	124	112	124	112	126	113	113
6	PL 455	L 24255	105	126	119	99	125	117	125	117	128	117	117
7	IPL 252	L 24256	105	122	119	98	117	115	117	115	128	115	115
8	BCL 1088	L 24259	103	114	110	97	122	109	122	109	125	111	111
9	PLS 24-1	L 24261	101	122	111	97	123	119	123	119	129	115	115
10	BCL 1026	L 24262	101	115	110	97	118	111	118	111	126	111	111
11	PLS 24-2	L 24263	105	113	111	96	125	110	125	110	125	112	112
12	VL 167	L 24264	105	124	125	107	127	115	127	115	127	119	119
13	LL 1835	L 24266	105	124	121	99	126	123	126	123	128	118	118
14	PDL-17	L 24267	103	123	121	99	129	117	129	117	126	117	117
15	IPL 250	L 24268	103	124	120	98	130	116	130	116	126	117	117
16	PL 457	L 24269	105	123	121	108	126	122	126	122	129	119	119
17	BRL 30-4	L 24272	102	117	118	97	124	116	124	116	128	115	115
18	LL 1831	L 24273	105	125	120	98	128	119	128	119	126	117	117
19	IPL 251	L 24274	103	120	116	98	123	119	123	119	127	115	115
20	BRL-26-3	L 24276	103	116	117	97	125	114	125	114	128	114	114

100 seed wt. (g)

Zone : NEPZ

Trial : IVT (Small seed)

Crop: Lentil

S.No.	Entry	Code	Varanasi	Ayodhya	Shillongani	Sabour	Mohanpur	Ranchi	Dholi	Mean
1	Bidhan (Ch)	L 24253	2.2	2.3	2.1	1.9	2.1	3.2	2.6	2.3
2	HUL 57 (Ch)	L 24260	2.3	1.8	1.1	2.1	2.7	3.2	2.1	2.2
3	IPL 220 (Ch)	L 24265	3.2	2.4	1.3	2.6	2.3	3.3	2.3	2.5
4	VL 168	L 24252	2.1	2.2	1.1	1.8	2.2	3.1	2.0	2.1
5	RNCL 16-09	L 24254	2.1	2.0	2.6	2.1	1.8	3.0	2.3	2.3
6	PL 455	L 24255	2.9	2.6	2.0	2.3	2.7	3.3	2.3	2.6
7	IPL 252	L 24256	2.4	2.2	2.0	2.5	2.5	3.1	2.6	2.5
8	BCL 1088	L 24259	2.3	2.1	2.7	2.1	2.0	3.2	2.7	2.4
9	PLS 24-1	L 24261	3.3	3.0	1.7	3.2	2.5	2.9	2.8	2.8
10	BCL 1026	L 24262	2.9	2.1	1.9	2.1	2.0	3.1	2.2	2.3
11	PLS 24-2	L 24263	2.9	2.7	2.3	2.8	2.8	3.3	2.1	2.7
12	VL 167	L 24264	2.5	1.9	2.2	2.1	2.2	3.1	2.4	2.3
13	LL 1835	L 24266	2.5	2.2	2.2	2.2	2.2	3.3	2.7	2.5
14	PDL-17	L 24267	2.2	2.2	2.6	2.1	2.4	3.0	2.3	2.4
15	IPL 250	L 24268	2.7	2.7	2.5	2.6	2.4	2.9	3.1	2.7
16	PL 457	L 24269	2.4	2.5	2.7	2.6	2.4	3.1	2.4	2.6
17	BRL 30-4	L 24272	2.1	1.9	2.6	2.1	2.3	3.3	2.7	2.4
18	LL 1831	L 24273	2.3	2.3	2.2	2.1	2.1	3.1	2.1	2.3
19	IPL 251	L 24274	2.5	2.5	2.1	2.8	2.5	2.9	2.1	2.5
20	BRL-26-3	L 24276	2.2	2.0	2.3	2.0	1.8	3.2	2.4	2.3

INFORMATION SHEET

Crop: Lentil

Trial: AVT 2+AVT 1 (Large seed)

S.No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rained	Net plot fertilizer N:P:K	Date of harvesting
NHZ (AVT 2+AVT 1)							
1.	Imphal	Dr. Manoranjan Biswal	30.11.2024	7.2	-	20:40:20	02.04.2025
2.	Srinagar	Dr. Ajaj A. Lone	04.11.2024	7.2	-	-	Plot wise
3.	Almora	Drs. Ashok Kumar & Anuradha Bhartiya	07.11.2024	3.45	-	20:40:00	Plot wise
4.	Agartala	Dr. Bijoya Bhattacharjee	06.12.2024	4.5	-	-	Plot wise
CZ (AVT 1)							
1	Kota	Dr. Khajan Singh	14.11.2024	9.6	-	20:40:00	Plot wise
2	Raipur	Dr. Mangala Parikh	24.11.2024	8.0	1	20:50:20	Plot wise
3	Sagar	Dr. Smita Tiwari	9.11.2024	9.6	2	20:40:20	Plot wise
4	Sehore	Dr. A. Nishant Bhanu	10.11.2024	7.2	-	20:50:20	Plot wise
5	Indore	Dr. R.K. Singh	29.11.2024	9.6	1	20:60:20	12.03.2025
6	Jabalpur	Dr. Stuti Sharma	21.11.2024	5.4	1	-	Plot wise
7	Banda	Dr. Kamaluddin	9.11.2024	9.6	1	20:50:20	Plot wise

Data not considered due to: CV (%) more than 20% (irrigated) :

GM less than state average : Indore

Crop: Lentil

Trial : AVT 2+AVT 1 (Large seed)

Zone : NHZ

Yield (Kg/ha)

S. No.	Entry	Code	Agartala	Almora	Srinagar	Imphal	Mean	Freq.
1	Pant L 11 (Ch)	L 24154	813	1486	1123	1538	1240	1/3
2	Shalimar Masoor 2 (Ch)	L 24155	281	1210	1065	1003	890	-
3	VL 514 (Ch)	L 24158	309	1493	1350	1125	1069	1/3
4	PL 420	L 24152	604	1428	1315	1370	1179	1/3
5	LL1809 (AVT-2)	L 24157	840	1428	1278	2025*	1393	3/3
6	LL1798 (AVT-2)	L 24160	883	1457	1213	1604	1289	1/3
	CV (%)		11.7	12.3	5.7	6.7		
	CD at 5 %		134	NA	129	147		
	GM		622	1417	1224	1444		
	State Av. Yield		-	818	-	-		

Crop : Lentil

Trial : AVT 2 (Large seed)

Protein (%)

S. No.	Entry	Code	Raipur	IIPR, Kanpur	Mean
1	Shalimar Masoor 2 (Ch)	LP 2024-103	20.8	20.9	20.8
2	VL 514 (Ch)	LP 2024-104	28.0	28.4	28.2
3	Pant L 11 (Ch)	LP 2024-105	29.8	26.8	28.3
4	LL 1809	LP 2024-101	23.6	23.0	23.3
5	LL 1798	LP 2024-102	29.2	25.5	27.3

Crop: Lentil

Trial : AVT 2+AVT 1 (Large seed)

Zone : NHZ

Days to 50% flowering

S. No.	Entry	Code	Agartala	Almora	Srinagar	Imphal	Mean
1	Pant L 11 (Ch)	L 24154	46	96	156	70	92
2	Shalimar Masoor 2 (Ch)	L 24155	47	97	163	68	94
3	VL 514 (Ch)	L 24158	51	97	161	78	97
4	PL 420	L 24152	46	102	157	77	95
5	LL1809 (AVT-2)	L 24157	43	98	158	76	94
6	LL1798 (AVT-2)	L 24160	46	104	156	78	96

Crop: Lentil

Trial : AVT 2+AVT 1 (Large seed)

Zone : NHZ

Days to maturity

S. No.	Entry	Code	Agartala	Almora	Srinagar	Imphal	Mean
1	Pant L 11 (Ch)	L 24154	75	153	199	119	137
2	Shalimar Masoor 2 (Ch)	L 24155	77	153	198	117	136
3	VL 514 (Ch)	L 24158	78	151	197	120	137
4	PL 420	L 24152	75	151	198	121	136
5	LL1809 (AVT-2)	L 24157	73	155	197	120	136
6	LL1798 (AVT-2)	L 24160	75	151	196	119	135

Crop: Lentil Trial : AVT 2+AVT 1 (Large seed) Zone : NHZ 100 seed wt. (g)

S. No.	Entry	Code	Agartala	Almora	Srinagar	Imphal	Mean
1	Pant L 11 (Ch)	L 24154	3.4	3.0	4.2	4.1	3.7
2	Shalimar Masoor 2 (Ch)	L 24155	4.5	3.6	3.9	4.4	4.1
3	VL 514 (Ch)	L 24158	2.2	2.0	4.3	3.2	2.9
4	PL 420	L 24152	2.4	2.3	4.0	4.0	3.2
5	LL1809 (AVT-2)	L 24157	2.5	2.2	4.4	3.5	3.2
6	LL1798 (AVT-2)	L 24160	2.3	2.1	4.5	3.3	3.1

Crop: Lentil Trial : AVT-1 (Large Seed) Zone : CZ Yield (Kg/ha)

S.No.	Entry	Code	Raipur	Sehore	Sagar	Banda	Kota	Jabalpur	Indore (Rej.)	Mean	Freq.
1	L 4727 (Ch)	L-24153	1269	1911	1408	2220	1472	1154	914	1572	3/5
2	RKL 607-1 (Ch)	L-24156	1123	2141	1184	2179	1647	1245	1301	1587	1/5
3	Kota Masoor 3 (Ch)	L-24159	1345	2173	1491	2193	1886	1369	1419	1743	5/5
4	PL 412	L-24151	504	1406	1229	2226	1356	1467	889	1365	1/5
	CV (%)		12.4	16.5	5.2	5.5	6.5	7.3	25.3		
	CD at 5 %		214	512	112	NA	169	155	NA		
	GM		1060	1908	1328	2205	1590	1309	1131		
	State Av. Yield		400	1145	1145	1039	1434	1145	1145		

Crop: Lentil Trial : AVT-1 (Large Seed) Zone : CZ 50% flowering

S.No.	Entry	Code	Raipur	Sehore	Sagar	Banda	Kota	Jabalpur	Indore (Rej.)	Mean
1	L 4727 (Ch)	L-24153	54	79	68	71	68	62	75	67
2	RKL 607-1 (Ch)	L-24156	54	73	65	64	59	61	78	63
3	Kota Masoor 3 (Ch)	L-24159	51	74	65	69	58	60	79	63
4	PL 412	L-24151	56	80	69	83	74	65	74	71

Crop: Lentil

Trial : AVT-1 (Large Seed) Zone : CZ

S.No.	Entry	Code	Days to maturity							
			Raipur	Sehore	Sagar	Banda	Kota	Jabalpur	Indore (Rej.)	Mean
1	L 4727 (Ch)	L-24153	87	110	115	113	109	106	128	107
2	RKL 607-1 (Ch)	L-24156	88	109	112	114	107	107	128	106
3	Kota Masoor 3 (Ch)	L-24159	87	98	115	114	107	106	129	105
4	PL 412	L-24151	93	114	115	119	109	112	126	110

Crop: Lentil

Trial : AVT-1 (Large Seed) Zone : CZ

S.No.	Entry	Code	100 seed wt. (g)							
			Raipur	Sehore	Sagar	Banda	Kota	Jabalpur	Indore (Rej.)	Mean
1	L 4727 (Ch)	L-24153	3.2	3.2	13.7	2.6	3.3	3.2	3.8	4.9
2	RKL 607-1 (Ch)	L-24156	2.6	2.8	14.5	2.5	2.9	3.0	3.6	4.7
3	Kota Masoor 3 (Ch)	L-24159	2.6	2.7	14.4	2.5	3.0	3.1	3.6	4.7
4	PL 412	L-24151	2.7	2.6	14.7	2.5	2.6	2.7	3.9	4.6

INFORMATION SHEET

Trial: IVT (Large seed)

Crop: Lentil

S. No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rainfed	Net plot fertilizer N:P:K	Date of harvesting
NHZ							
1.	Imphal	Dr. Manoranjan Biswal	30.11.2024	4.05	-	20:40:20	04.04.2025
2.	Almora	Drs. Ashok Kumar & Anuradha Bhartiya	07.11.2024	3.45	-	20:40:00	Plot wise
3.	Agartala	Dr. Bijoya Bhattacharjee	04.12.2024	4.5	-	-	Plot wise
4.	Srinagar	Dr. Ajaj A. Lone	08.11.2024	4.5	-	-	Plot wise
NWPZ							
1.	Pantnagar	Drs. R.K.Panwar & S.K. Verma	26.11.2024	5.4	-	100 Kg DAP	05.04.2025
2.	Ludhiana	Dr. Suruchi Vij	14.11.2024	5.4	2	12.5:40:00	18.04.2025
3.	Durgapura	Dr. S.S. Punia	28.11.2024	7.2	-	20:40:20	Plot wise
4.	Samba	Dr. Naresh Kumar	25.10.2024	5.0	-	20:100:20	Plot wise
5.	Hisar	Dr. Laxmi Choudhary	10.11.2024	4.8	-	20:40:00	Plot wise
6	IARI, New Delhi	Dr. H.K. Dikshit	22.11.2024	7.5	-	100 kg DAP, 25 kg ZnSO ₄	Plot wise
CZ							
1.	Kota	Dr. Khajan Singh	12.11.2024	7.2	-	20:40:00	Plot wise
2.	Raipur	Dr. Mangala Parikh	24.11.2024	6.0	1	20:50:20	Plot wise
3.	Sagar	Dr. Smita Tiwari	9.11.2024	7.2	2	20:40:20	Plot wise
4.	Sehore	Dr. A. Nishant Bhanu	10.11.2024	4.8	-	20:50:20	Plot wise
5.	Indore	Dr. R.K Singh	29.11.2024	4.8	1	20:60:20	12.03.2025
6.	Jabalpur	Dr. Stuti Sharma	21.11.2024	3.6	1	-	Plot wise
7.	Banda	Dr. Kamaluddin	07.11.2024	6.0	1	20:50:20	Plot wise

Data not considered due to:

- CV (%) more than 20% (irrigated) : **Imphal**
- CV (%) less than 5% (irrigated) : **Agartala**
- G.M less than state average : **Sagar**

Yield (Kg/ha)

Zone : NHZ

Trial : IVT (Large seed)

Crop: Lentil

S. No.	Entry	Code	Almora	Srinagar	Agartala (Rej.)	Imphal (Rej.)	Mean	Freq.
1	Shalimar Masoor 2 (Ch)	L 24101	1401	1011	357	1424	1206	-
2	Pant L 11 (Ch)	L24110	1730	456	682	2221	1093	1/2
3	VL 514 (Ch)	L24129	1469	759	336	1685	1114	-
4	PL 456	L24102	1198	1219*	421	2361	1209	1/2
5	PHL-1	L24103	1362	926	501	1186	1144	-
6	RKL 16-401	L24104	1150	719	612	1618	935	-
7	RL 2020-6	L24105	754	644	703	319	699	-
8	RLG 385	L24106	1430	459	401	1454	945	-
9	PLL 24-2	L24111	1179	452	731	1624	816	-
10	PLL 24-1	L24112	1459	496	672	830	978	-
11	IPL356	L24113	1169	659	386	2796	914	-
12	VL 541	L24114	1102	907	318	1672	1005	-
13	PL 448	L24115	937	656	472	2054	797	-
14	IPL357	L24116	1188	700	347	2218	944	-
15	RL 2020-2	L24117	1024	656	993	391	840	-
16	VL 542	L24119	986	952	308	1219	969	-
17	IPL358	L24121	763	885	740	2139	824	-
18	RVL 23-7	L24122	1169	656	621	593	913	-
19	LL 1859	L24123	1730	901	601	2887	1316	1/2
20	RLG 354	L24124	1498	967	439	1547	1233	-
21	RKL 23-316	L24126	1749	689	594	1155	1219	1/2
22	RVL 23-6	L24127	1227	707	537	471	967	-
23	LL 1854	L24130	1440	978	327	2168	1209	-
	CV (%)		10.9	5.2	1.7	31.0		
	CD at 5 %		229	65	18	802		
	GM		1266	759	526	1567		
	State Av. Yield		818	-	-	-		

Zone : NHZ

Trial : IVT (Large seed)

Crop: Lentil

S. No.	Entry	Code	Days to 50% flowering					Days to maturity					100 seed wt. (g)				
			Almora	Srinagar	Agartala (Ref.)	Imphal (Ref.)	Mean	Almora	Srinagar	Agartala (Ref.)	Imphal (Ref.)	Mean	Almora	Srinagar	Agartala (Ref.)	Imphal (Ref.)	Mean
1	Shalimar Masoor 2 (Ch)	L 24101	98	153	49	68	126	154	193	79	119	174	3.6	4.3	4.3	4.3	4.0
2	Pant L 11 (Ch)	L24110	89	153	51	69	121	149	196	81	116	173	2.8	4.5	3.3	3.4	3.7
3	VL 514 (Ch)	L24129	107	157	70	79	132	151	197	100	119	174	1.7	4.4	2.4	2.7	3.1
4	PL 456	L24102	89	154	56	70	122	156	195	83	118	176	4.0	4.2	4.7	4.8	4.1
5	PHL-1	L24103	100	158	66	78	129	155	193	91	116	174	2.9	3.9	3.4	3.2	3.4
6	RKL 16-401	L24104	86	154	56	70	120	151	194	86	109	173	2.8	4.1	3.1	3.4	3.5
7	RL 2020-6	L24105	86	152	55	66	119	152	196	84	106	174	3.1	4.4	3.6	2.8	3.8
8	RLG 385	L24106	93	153	60	67	123	155	195	91	118	175	2.9	3.9	3.3	3.5	3.4
9	PLL 24-2	L24111	82	151	48	65	117	153	197	78	107	175	2.7	4.2	2.9	2.7	3.5
10	PLL 24-1	L24112	86	153	56	67	120	154	196	87	106	175	2.7	4.3	3.3	3.3	3.5
11	IPL356	L24113	95	155	58	75	125	157	195	96	118	176	2.9	4.4	4.5	3.4	3.7
12	VL 541	L24114	110	156	70	76	133	155	196	100	119	176	2.2	4.0	2.4	3.0	3.1
13	PL 448	L24115	87	157	59	71	122	151	197	88	116	174	3.8	4.1	4.4	4.3	4.0
14	IPL357	L24116	93	156	65	72	125	159	195	95	117	177	2.9	4.5	3.8	3.9	3.7
15	RL 2020-2	L24117	83	154	49	66	119	152	196	82	109	174	1.9	4.2	2.6	2.2	3.1
16	VL 542	L24119	108	156	71	82	132	154	197	102	121	176	2.2	4.1	1.8	2.7	3.2
17	IPL358	L24121	98	152	56	72	125	150	194	77	119	172	3.0	4.5	3.6	3.7	3.8
18	RVL 23-7	L24122	85	153	51	67	119	151	195	81	106	173	2.6	4.2	3.5	2.8	3.4
19	LL 1859	L24123	83	155	62	67	119	151	195	92	112	173	3.5	4.1	3.5	4.1	3.8
20	RLG 354	L24124	88	153	51	70	121	155	197	81	114	176	3.0	4.1	3.7	3.2	3.6
21	RKL 23-316	L24126	87	159	55	67	123	151	196	83	110	174	2.9	4.3	3.3	2.9	3.6
22	RVL 23-6	L24127	87	156	51	66	122	157	195	81	108	176	3.4	2.5	4.5	2.6	3.0
23	LL 1854	L24130	96	159	65	75	128	154	196	95	117	175	2.9	3.4	4.2	4.5	3.2

S.No.	Entry	Code	Zone : NWPZ										Yield (Kg/ha)
			Ludhiana	Pantnagar	Samba	IARI, New Delhi	Hisar	Durgapura	Mean	Freq.			
1	LL 1613(Ch)	L 24109	2099	1099	2140	1600	3070	1897	1984	3/6			
2	Pant L-024 (Ch)	L 24118	1852	1401	1350	1684	2698	1845	1805	1/6			
3	LL 1373 (Ch)	L 24128	2315	1228	1803	1596	1539	2333	1802	2/6			
4	PL 456	L 24102	2346	1988*	1787	1725	1785	2032	1944	2/6			
5	PHL-1	L 24103	1728	926	1240	1541	1959	1383	1463	-			
6	RKL 16-401	L 24104	1451	1519	1457	1620	2535	2111	1782	1/6			
7	RL 2020-6	L 24105	1173	475	660	1748	1236	2132	1237	-			
8	RLG 385	L 24106	1543	1278	1733	1809	1814	2139	1719	-			
9	PLL 24-2	L 24111	1296	852	1030	1657	2125	1835	1466	-			
10	PLL 24-1	L 24112	1605	624	1130	1759	1208	1601	1321	-			
11	IPL356	L 24113	2006	1420	2083	1780	2828	1853	1995	2/6			
12	VL 541	L 24114	1111	982	1283	1738	1518	958	1265	-			
13	PL 448	L 24115	2315	1840*	1857	1734	2535	1810	2015	4/6			
14	IPL357	L 24116	2068	1383	1887	1657	2445	1688	1855	3/6			
15	RL 2020-2	L 24117	1080	488	627	1630	1392	1639	1143	-			
16	VL 542	L 24119	1173	1198	1220	1846*	1669	684	1298	-			
17	IPL358	L 24121	1914	1364	1347	2027*	2041	1616	1718	1/6			
18	RVL 23-7	L 24122	1482	574	963	1823	1563	1725	1355	-			
19	LL 1859	L 24123	2346	1809*	2130	1860*	2458	2555	2193	5/6			
20	RLG 354	L 24124	1296	1401	1567	1690	2778	1140	1645	1/6			
21	RKL 23-316	L 24126	1914	506	1653	2044*	2376	1736	1705	2/6			
22	RVL 23-6	L 24127	1728	451	1070	2089*	1764	1649	1459	1/6			
23	LL 1854	L 24130	1543	1253	1280	1668	2318	1088	1525	-			
	CV (%)		11.9	15.4	13.9	5.5	12.7	13.5					
	CD at 5 %		336	287	332	158	736	382					
	GM		1712	1133	1448	1753	2072	1715					
	State Av. Yield		772	818	-	-	860	1434					

Crop : Lentil Trial : IVT (Large seed) Zone : NWPZ Days to 50% flowering

S.No.	Entry	Code	Ludhiana	Pantnagar	Samba	Hisar	Durgapura	Mean
1	LL 1613(Ch)	L 24109	93	85	101	85	73	87
2	Pant L-024 (Ch)	L 24118	85	80	96	78	67	81
3	LL 1373 (Ch)	L 24128	82	81	96	87	58	81
4	PL 456	L 24102	80	81	97	81	64	81
5	PHL-1	L 24103	92	81	101	92	71	87
6	RKL 16-401	L 24104	82	80	86	81	56	77
7	RL 2020-6	L 24105	75	80	84	71	55	73
8	RLG 385	L 24106	83	81	97	85	67	83
9	PLL 24-2	L 24111	70	79	85	73	56	73
10	PLL 24-1	L 24112	79	77	91	80	58	77
11	IPL356	L 24113	92	83	98	85	70	86
12	VL 541	L 24114	96	83	104	95	77	91
13	PL 448	L 24115	85	85	97	78	68	83
14	IPL357	L 24116	85	80	100	81	69	83
15	RL 2020-2	L 24117	73	77	84	69	56	72
16	VL 542	L 24119	100	85	101	95	77	92
17	IPL358	L 24121	90	82	98	87	70	85
18	RVL 23-7	L 24122	80	79	85	76	54	75
19	LL 1859	L 24123	82	83	94	84	61	81
20	RLG 354	L 24124	86	80	98	89	64	83
21	RKL 23-316	L 24126	81	81	89	85	57	79
22	RVL 23-6	L 24127	82	79	86	83	55	77
23	LL 1854	L 24130	94	83	99	95	70	88

Crop : Lentil		Trial : IVT (Large seed)				Zone : NWPZ				Days to maturity	
S.No.	Entry	Code	Ludhiana	Pantnagar	Samba	IARI, New Delhi	Hisar	Durgapura	Mean		
1	LL 1613(Ch)	L 24109	133	124	158	123	132	111	130		
2	Pant L-024 (Ch)	L 24118	133	121	156	117	131	115	129		
3	LL 1373 (Ch)	L 24128	134	120	157	124	136	116	131		
4	PL 456	L 24102	133	124	154	116	131	116	129		
5	PHL-1	L 24103	136	123	157	115	136	115	130		
6	RKL 16-401	L 24104	132	121	149	121	126	113	127		
7	RL 2020-6	L 24105	134	122	145	114	120	112	124		
8	RLG 385	L 24106	135	123	155	115	133	118	130		
9	PLL 24-2	L 24111	135	120	147	124	124	114	127		
10	PLL 24-1	L 24112	133	118	145	124	128	112	127		
11	IPL356	L 24113	136	125	158	119	135	117	132		
12	VL 541	L 24114	137	125	159	121	142	119	134		
13	PL 448	L 24115	138	127	157	119	132	115	131		
14	IPL357	L 24116	136	121	157	118	130	115	130		
15	RL 2020-2	L 24117	134	119	142	124	118	112	125		
16	VL 542	L 24119	136	124	156	121	144	120	134		
17	IPL358	L 24121	135	123	157	124	140	113	132		
18	RVL 23-7	L 24122	136	118	143	123	128	110	126		
19	LL 1859	L 24123	134	125	154	119	135	116	131		
20	RLG 354	L 24124	133	123	155	124	138	114	131		
21	RKL 23-316	L 24126	133	120	144	121	128	114	127		
22	RVL 23-6	L 24127	136	121	144	121	128	113	127		
23	LL 1854	L 24130	139	124	160	123	146	119	135		

Crop : Lentil Trial : IVT (Large seed) Zone : NWPZ 100 seed wt. (g)

S.No.	Entry	Code	Ludhiana	Pantnagar	Samba	IARI, New Delhi	Hisar	Durgapura	Mean
1	LL 1613(Ch)	L 24109	2.0	1.8	3.9	3.2	2.6	2.3	2.6
2	Pant L-024 (Ch)	L 24118	2.0	2.1	3.9	3.5	2.2	2.4	2.7
3	LL 1373 (Ch)	L 24128	3.4	3.0	3.7	3.5	3.7	3.7	3.5
4	PL 456	L 24102	4.0	3.8	5.2	2.7	4.2	4.5	4.1
5	PHL-1	L 24103	3.2	2.7	4.8	2.9	3.2	3.4	3.4
6	RKL 16-401	L 24104	2.8	2.4	4.6	3.1	3.0	3.3	3.2
7	RL 2020-6	L 24105	3.0	1.5	4.5	3.2	3.1	3.0	3.1
8	RLG 385	L 24106	2.8	2.8	4.6	2.5	2.8	3.6	3.2
9	PLL 24-2	L 24111	2.8	1.6	4.1	3.4	2.8	3.2	3.0
10	PLL 24-1	L 24112	2.6	2.2	3.9	3.2	2.5	2.8	2.9
11	IPL356	L 24113	3.0	2.3	4.9	3.4	3.2	3.1	3.3
12	VL 541	L 24114	2.0	2.2	3.9	3.5	3.1	2.4	2.8
13	PL 448	L 24115	3.8	3.9	5.7	3.4	3.9	4.3	4.2
14	IPL357	L 24116	3.0	2.7	4.8	3.1	3.2	3.5	3.4
15	RL 2020-2	L 24117	1.8	2.0	3.5	3.4	2.2	2.0	2.5
16	VL 542	L 24119	2.0	2.3	3.9	3.4	2.3	2.1	2.7
17	IPL358	L 24121	3.0	3.0	5.0	3.2	3.1	3.3	3.4
18	RVL 23-7	L 24122	2.4	1.8	4.0	3.2	2.6	2.5	2.8
19	LL 1859	L 24123	3.4	3.2	5.3	3.1	3.1	3.9	3.7
20	RLG 354	L 24124	2.6	2.7	4.4	3.4	2.9	3.1	3.2
21	RKL 23-316	L 24126	2.6	1.7	4.1	3.3	2.1	3.0	2.8
22	RVL 23-6	L 24127	2.2	1.7	3.9	3.1	2.3	2.7	2.6
23	LL 1854	L 24130	3.6	3.5	5.2	3.1	4.1	3.7	3.9

Crop: Lentil	Trial : IVT (Large Seed)					Zone : CZ					Yield (Kg/ha)		
	S.No.	Entry	Code	Indore	Raipur	Sehore	Sagar (Rej.)	Banda	Kota	Jabalpur	Mean	Freq.	
1	Kota Masoor 4(Ch)	L-24107	1514	931	2009	1522	2344	2410	2585	1966	3/6		
2	L 4727 (Ch)	L-24108	1868	1566	2315	1399	2356	2562	2883	2258	6/6		
3	RKL 607-1 (Ch)	L-24120	1588	1136	2088	1141	2211	2426	2292	1957	2/6		
4	Kota Masoor 3 (Ch)	L-24125	1774	1288	1847	1119	2006	2122	2226	1877	1/6		
5	PL 456	L-24102	1018	201	1405	864	2272	1170	1768	1306	1/6		
6	PHL-1	L-24103	937	296	920	1073	2106	1213	1685	1193	1/6		
7	RKL 16-401	L-24104	1768	1258	2000	1220	2244	2452	2662	2064	4/6		
8	RL 2020-6	L-24105	1170	1366	1926	931	2289	1636	2282	1778	2/6		
9	RLG 385	L-24106	1189	502	1194	1020	2250	1525	1817	1413	1/6		
10	PLL 24-2	L-24111	1544	1056	2111	644	2244	1239	2319	1752	2/6		
11	PLL 24-1	L-24112	1506	772	1972	813	2222	2076	2423	1829	1/6		
12	IPL356	L-24113	1289	651	1648	677	2106	1784	1697	1529	1/6		
13	VL 541	L-24114	508	538	987	658	1017	540	1211	800	-		
14	PL 448	L-24115	774	459	1374	928	2156	1019	1530	1219	1/6		
15	IPL357	L-24116	682	558	1163	766	2333	1377	1782	1316	1/6		
16	RL 2020-2	L-24117	1313	1010	2005	1126	2239	1707	1663	1656	1/6		
17	VL 542	L-24119	706	596	917	657	1172	455	1458	884	-		
18	IPL358	L-24121	959	486	1199	894	2050	1352	1771	1303	-		
19	RVL 23-7	L-24122	1401	1144	1935	1207	2261	1808	1841	1732	1/6		
20	LL 1859	L-24123	1390	401	1773	1339	2233	1048	2143	1498	1/6		
21	RLG 354	L-24124	1131	406	1009	889	2261	1253	1792	1309	1/6		
22	RKL 23-316	L-24126	1361	948	1856	1111	2033	2125	2044	1728	-		
23	RVL 23-6	L-24127	1549	1107	1829	1084	2239	2136	1738	1766	1/6		
24	LL 1854	L-24130	916	406	828	1010	2094	1174	1502	1153	-		
	CV (%)		13.4	17.5	8.5	8.9	7.2	9.4	10.8				
	CD at 5 %		276	229	224	148	251	248	350				
	GM		1244	795	1596	1004	2114	1609	1963				
	State Av. Yield		1145	400	1145	1145	818	1434	1145				

Crop: Lentil

Trial : IVT (Large Seed)

Zone : CZ

Days to 50% flowering

S.No.	Entry	Code	Indore	Raipur	Sehore	Sagar (Rej.)	Banda	Kota	Jabalpur	Mean
1	Kota Masoor 4(Ch)	L-24107	76	56	79	64	72	67	65	69
2	L 4727 (Ch)	L-24108	77	53	80	58	67	67	65	68
3	RKL 607-1 (Ch)	L-24120	78	51	74	62	61	66	62	65
4	Kota Masoor 3 (Ch)	L-24125	71	51	76	62	65	63	63	65
5	PL 456	L-24102	72	56	80	67	76	69	67	70
6	PHL-1	L-24103	74	57	84	68	84	75	70	74
7	RKL 16-401	L-24104	73	52	78	63	71	67	64	68
8	RL 2020-6	L-24105	70	55	79	64	68	65	64	67
9	RLG 385	L-24106	72	54	78	70	77	73	65	70
10	PLL 24-2	L-24111	74	52	70	63	58	53	60	61
11	PLL 24-1	L-24112	75	53	79	58	74	68	62	69
12	IPL356	L-24113	73	53	81	70	82	73	71	72
13	VL 541	L-24114	83	59	85	70	58	76	64	71
14	PL 448	L-24115	82	54	79	68	81	75	70	74
15	IPL357	L-24116	82	56	81	70	79	73	73	74
16	RL 2020-2	L-24117	74	52	76	63	64	64	61	65
17	VL 542	L-24119	81	56	85	71	88	76	69	76
18	IPL358	L-24121	80	60	81	70	82	72	70	74
19	RVL 23-7	L-24122	76	53	76	63	71	65	63	67
20	LL 1859	L-24123	78	55	81	69	69	71	65	70
21	RLG 354	L-24124	77	54	80	71	80	72	70	72
22	RKL 23-316	L-24126	74	52	80	69	67	69	63	68
23	RVL 23-6	L-24127	74	54	78	62	65	66	64	67
24	LL 1854	L-24130	80	58	84	70	83	75	72	75

Crop: Lentil

Trial : IVT (Large Seed)

Zone : CZ

Days to maturity

S.No.	Entry	Code	Indore	Raipur	Sehore	Sagar (Rej.)	Banda	Kota	Jabalpur	Mean
1	Kota Masoor 4(Ch)	L-24107	125	88	111	119	117	118	110	112
2	L 4727 (Ch)	L-24108	120	87	107	119	112	116	109	109
3	RKL 607-1 (Ch)	L-24120	121	88	105	115	116	113	107	108
4	Kota Masoor 3 (Ch)	L-24125	120	90	107	118	116	115	108	109
5	PL 456	L-24102	120	94	117	119	118	119	113	114
6	PHL-1	L-24103	125	94	119	120	122	121	115	116
7	RKL 16-401	L-24104	122	88	109	119	118	117	108	110
8	RL 2020-6	L-24105	124	86	107	116	112	111	108	108
9	RLG 385	L-24106	120	95	115	119	119	118	110	113
10	PLL 24-2	L-24111	123	90	104	118	113	111	105	108
11	PLL 24-1	L-24112	125	91	107	116	115	115	105	110
12	IPL356	L-24113	124	93	114	119	121	123	116	115
13	VL 541	L-24114	122	94	117	120	122	120	110	114
14	PL 448	L-24115	123	94	114	120	118	121	116	114
15	IPL357	L-24116	120	97	117	119	117	124	116	115
16	RL 2020-2	L-24117	125	88	106	120	110	123	106	110
17	VL 542	L-24119	122	91	118	120	122	120	115	115
18	IPL358	L-24121	123	91	115	117	122	122	115	115
19	RVL 23-7	L-24122	120	87	107	116	114	115	108	109
20	LL 1859	L-24123	124	89	108	118	115	121	110	111
21	RLG 354	L-24124	125	91	115	120	119	118	116	114
22	RKL 23-316	L-24126	124	88	107	119	116	114	108	110
23	RVL 23-6	L-24127	123	87	106	119	115	115	107	109
24	LL 1854	L-24130	120	93	117	124	122	121	117	115

100 seed wt. (g)

Zone : CZ

Trial : IVT (Large Seed)

Crop: Lentil

S.No.	Entry	Code	Indore	Raipur	Sehore	Sagar (Rej.)	Banda	Kota	Jabalpur	Mean
1	Kota Masoor 4(Ch)	L-24107	3.4	2.6	2.7	4.6	3.5	2.9	3.1	3.3
2	L 4727 (Ch)	L-24108	2.8	3.4	3.0	4.5	2.4	3.4	3.5	3.3
3	RKL 607-1 (Ch)	L-24120	2.5	2.6	2.8	4.2	3.6	2.6	2.8	3.0
4	Kota Masoor 3 (Ch)	L-24125	2.3	2.8	2.7	4.4	2.5	3.0	3.3	3.0
5	PL 456	L-24102	2.6	3.4	4.0	4.3	4.1	3.5	4.5	3.8
6	PHL-1	L-24103	3.3	3.3	3.3	4.4	3.1	3.2	3.3	3.4
7	RKL 16-401	L-24104	2.7	3.0	2.9	4.5	3.2	3.2	3.2	3.2
8	RL 2020-6	L-24105	2.7	3.2	2.9	4.3	2.7	3.3	3.3	3.2
9	RLG 385	L-24106	2.7	3.2	3.1	4.4	3.5	3.3	3.5	3.4
10	PLL 24-2	L-24111	2.6	3.6	2.7	4.4	3.6	2.6	3.0	3.2
11	PLL 24-1	L-24112	3.5	1.9	2.6	4.3	2.6	2.9	2.8	2.9
12	IPL356	L-24113	3.6	3.3	2.8	4.5	3.6	2.9	3.1	3.4
13	VL 541	L-24114	3.0	1.8	2.4	4.5	3.5	2.2	2.4	2.8
14	PL 448	L-24115	3.6	4.1	3.7	4.5	3.1	4.0	4.1	3.9
15	IPL357	L-24116	3.1	2.8	3.0	4.6	3.2	3.5	3.2	3.3
16	RL 2020-2	L-24117	2.4	2.2	1.9	4.4	2.5	2.0	2.2	2.5
17	VL 542	L-24119	2.4	2.5	2.3	4.3	2.2	2.0	2.6	2.6
18	IPL358	L-24121	4.0	3.2	2.7	4.5	3.3	3.2	3.2	3.4
19	RVL 23-7	L-24122	2.0	2.8	2.5	4.4	3.4	2.7	2.7	2.9
20	LL 1859	L-24123	2.4	3.5	3.5	4.3	2.8	3.5	3.9	3.4
21	RLG 354	L-24124	2.1	3.4	3.0	4.6	2.9	3.1	3.7	3.3
22	RKL 23-316	L-24126	2.3	2.6	2.7	4.5	2.9	2.8	3.4	3.0
23	RVL 23-6	L-24127	2.1	2.5	2.4	4.3	3.1	2.6	2.8	2.8
24	LL 1854	L-24130	2.5	3.5	3.0	4.3	3.1	3.8	3.9	3.4

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Crop: Lentil (Rice Fallow)

Trial: AVT-1

S. No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rainfed	Net plot fertilizer N:P:K	Date of Harvesting
CZ							
1	Raipur	Dr.Mangla Parikh	7.11.2024	8.0	-	20:50:20	Plot wise
2	Jagdarpur	Mr. Rajaram Kanwar	14.11.2024	9.6	2	20:40:20	28.02.2025
3.	Kanker	Dr. J.L. Salam	07.11.2024	6.0	-	20:50:20	Plot wise

Data not considered due to: i. GM less than State average: ii. CV (%) more than 20% (irrigated) :-

Crop: Lentil (Rice Fallow)

Trial: AVT-1

Zone : CZ

Yield (Kg/ha)

S.No.	Entry	Code	Raipur	Jagdarpur	Kanker	Mean	Freq.
1	KLS 218 (Ch)	L 24233	257	904	375	512	-
2	HUL 57 (Ch)	L 24235	531	1121	485	712	1/3
3	Kota Masoor 2 (Ch)	L 24237	826	980	388	731	2/3
4	BCL 10145	L 24231	478	975	570	674	-
5	PLRF 22-1	L 24232	673	850	695	739	1/3
6	PSL-24	L 24234	663	725	379	589	-
7	PLRF 22-2	L 24236	806	976	400	727	1/3
8	PLR 23-1	L 24238	761	1089	443	764	2/3
	CV (%)		13.2	10.2	13.2		
	CD AT 5 %		122	144	91		
	GM		624	953	467		
	State Av. Yield		400	400	400		

Trial: AVT-1 (Rice Fallow) **Zone : CZ**

S. No	Entry	Code	Days to 50% flowering			Days to maturity			100 seed wt. (g)					
			Raipur	Jagdarpur	Kanker	Mean	Raipur	Jagdarpur	Kanker	Mean	Raipur	Jagdarpur	Kanker	Mean
1	KLS 218 (Ch)	L 24233	47	62	57	55	74	100	107	94	1.9	1.7	3.3	2.3
2	HUL 57 (Ch)	L 24235	51	64	52	56	79	99	98	92	1.7	1.9	3.2	2.3
3	Kota Masoor 2 (Ch)	L 24237	49	54	52	52	73	96	98	89	3.1	2.9	3.2	3.1
4	BCL 10145	L 24231	50	59	52	53	83	96	98	92	2.2	2.0	3.5	2.6
5	PLRF 22-1	L 24232	44	53	55	51	79	98	102	93	3.2	2.4	3.7	3.1
6	PSL-24	L 24234	51	55	58	54	83	97	107	96	3.5	3.4	3.2	3.4
7	PLRF 22-2	L 24236	46	53	51	50	81	97	99	92	3.2	2.6	3.2	3.0
8	PLR 23-1	L 24238	50	53	53	52	84	92	98	91	2.6	2.4	3.1	2.7

INFORMATION SHEET Rabi 2024-25

Crop: Lentil (Rice Fallow)

Trial: IVT

S. No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rainfed	Net plot fertilizer N:P:K	Date of Harvesting
NEPZ							
1	Dholi	Dr. Ravi Kant	20.11.2024	5.4	1	20:40:20	04.04.2025
2.	Ranchi	Dr. C.S. Mahto	18.12.2024	5.4	2	20:40:20	15.04.2025
3	Shillongani	Dr. Nabajyoti Bhuyan	12.12.2024	5.4	2	1.1:6.4:0.8	26.03.2025
4	Sabour	Dr. Pooja Yadav	12.12.2024	5.4	-	20:40:00	21.04.2025
5	Mohanpur	Dr. Arpita Das	20.11.2024	6.0	-	20:40:20:20 ZnSO ₄	Plot wise
6	Imphal	Dr. Manoranjan Bilwal	24.12.2024	4.05	-	20:40:20	15.04.2025
CZ							
1	Raipur	Dr.Mangla Parikh	07.11.2024	6.0	-	20:50:20	Plot wise
2	Jagdulpur	Mr. Rajaram Kanwar	12.11.2024	7.2	2	20:40:20	05.03.2025
3.	Kanker	Dr. J.L. Salam	07.11.2024	6.0	-	20:50:20	Plot wise
4.	Balaghat	Drs. Uttam Bisen & Pratibha Bisen	25.11.2024	4.8	1	20:40:20	08.04.2025

Data not considered due to: GM less than State average : Shillongani, Sabour

S. No.	Entry	Code	Trial: IVT (Rice Fallow)				Zone : NEPZ				Yield (Kg/ha)	
			Imphal	Dholi	Sabour (Rej.)	Mohanpur	Ranchi	Shillongani (Rej.)	Mean	Freq.		
1.	HUL 57 (Ch)	L24201	1008	2117	1134	1133	911	963	1292	3/4		
2.	IPL 220 (Ch)	L24210	913	1870	785	1268	904	474	1239	3/4		
3.	WBL 77 (Ch)	L24214	710	2006	847	1377	994	696	1272	2/4		
4.	PL 455	L24203	928	1111	820	1060	878	802	994	1/4		
5.	PLRF 24-1	L24204	882	1840	674	1035	980	593	1184	1/4		
6.	BCL 1028	L24205	923	1241	755	1245	790	578	1050	2/4		
7.	PDL-19	L24206	706	1531	911	938	704	430	970	-		
8.	PL 457	L24207	702	1710	791	907	1097	578	1104	1/4		
9.	RL 2021- 2	L24208	703	1556	611	1027	891	533	1044	-		
10.	IPL 616	L24211	1036	2302	802	1003	859	622	1300	2/4		
11.	PLRF 24-2	L24212	968	1111	772	1105	912	704	1024	2/4		
12.	IPL 614	L24213	844	1346	824	1037	972	1111	1050	1/4		
13.	IPL 615	L24216	791	1815	749	968	933	652	1127	1/4		
14.	BCL 1025	L24217	737	1648	896	1232	728	704	1086	1/4		
	CV (%)		7.0	8.2	11.2	11.8	13.3	8.6				
	CD AT 5 %		100	229	153	218	202	98				
	GM		847	1657	812	1095	897	674				
	State Av. Yield		-	914	914	915	855	758				

Crop: Lentil		Trial: IVT (Rice Fallow)				Zone : NEPZ				Days to 50% flowering	
S. No.	Entry	Code	Imphal	Dholi	Sabour (Rej.)	Mohanpur	Ranchi	Shillongani (Rej.)	Mean		
1.	HUL 57 (Ch)	L24201	68	94	61	68	65	76	74		
2.	IPL 220 (Ch)	L24210	58	93	60	62	66	76	70		
3.	WBL 77 (Ch)	L24214	63	94	60	60	67	64	71		
4.	PL 455	L24203	67	92	65	64	66	77	72		
5.	PLRF 24-1	L24204	65	94	55	57	67	64	71		
6.	BCL 1028	L24205	63	94	60	59	72	76	72		
7.	PDL-19	L24206	67	92	60	67	62	76	72		
8.	PL 457	L24207	70	94	67	63	65	77	73		
9.	RL 2021- 2	L24208	64	93	60	60	64	63	70		
10.	IPL 616	L24211	61	94	64	70	66	75	73		
11.	PLRF 24-2	L24212	61	92	60	61	67	63	70		
12.	IPL 614	L24213	61	93	64	71	68	75	73		
13.	IPL 615	L24216	61	92	60	69	65	75	72		
14.	BCL 1025	L24217	63	94	59	59	67	63	72		

Crop: Lentil Trial: IVT (Rice Fallow) Zone : NEPZ Days to maturity

S. No.	Entry	Code	Imphal	Dholi	Sabour (Rej.)	Mohanpur	Ranchi	Shillongani (Rej.)	Mean
1.	HUL 57 (Ch)	L24201	113	128	94	123	102	106	117
2.	IPL 220 (Ch)	L24210	102	127	95	118	107	109	114
3.	WBL 77 (Ch)	L24214	101	128	95	116	109	105	114
4.	PL 455	L24203	108	126	95	118	103	111	114
5.	PLRF 24-1	L24204	101	128	92	113	103	105	111
6.	BCL 1028	L24205	104	128	95	114	114	106	115
7.	PDL-19	L24206	108	126	95	122	102	112	115
8.	PL 457	L24207	111	128	96	119	105	112	116
9.	RL 2021-2	L24208	106	127	95	117	103	106	113
10.	IPL 616	L24211	105	128	94	126	106	109	116
11.	PLRF 24-2	L24212	102	126	95	117	108	106	113
12.	IPL 614	L24213	101	127	95	127	112	112	117
13.	IPL 615	L24216	103	126	95	124	107	109	115
14.	BCL 1025	L24217	105	128	93	114	108	105	114

Crop: Lentil Trial: IVT (Rice Fallow) Zone : NEPZ 100 seed wt. (g)

S. No.	Entry	Code	Imphal	Dholi	Sabour (Rej.)	Mohanpur	Ranchi	Shillongani (Rej.)	Mean
1.	HUL 57 (Ch)	L24201	3.2	2.4	1.8	2.2	3.0	1.7	2.7
2.	IPL 220 (Ch)	L24210	3.4	2.7	2.4	2.6	2.2	2.0	2.7
3.	WBL 77 (Ch)	L24214	2.8	2.8	2.1	2.2	3.2	1.7	2.8
4.	PL 455	L24203	4.0	2.7	2.4	2.6	2.8	1.8	3.0
5.	PLRF 24-1	L24204	3.7	2.6	3.0	2.8	3.1	2.1	3.1
6.	BCL 1028	L24205	2.8	2.8	2.0	2.2	3.2	2.1	2.8
7.	PDL-19	L24206	3.3	2.9	2.1	2.5	3.1	1.9	3.0
8.	PL 457	L24207	3.2	2.4	2.2	2.4	2.9	2.0	2.7
9.	RL 2021-2	L24208	3.9	2.9	3.1	2.8	3.1	2.4	3.2
10.	IPL 616	L24211	3.6	2.4	2.5	2.7	3.0	2.1	2.9
11.	PLRF 24-2	L24212	4.0	3.0	3.1	3.4	3.1	3.3	3.4
12.	IPL 614	L24213	3.7	2.5	2.5	2.6	3.1	2.0	3.0
13.	IPL 615	L24216	4.0	2.6	1.8	2.7	3.2	1.1	3.1
14.	BCL 1025	L24217	2.8	2.4	2.4	2.2	2.9	1.2	2.6

Crop: Lentil		Trial: IVT (Rice Fallow)				Zone : CZ			Yield (Kg/ha)	
S.No.	Entry	Code	Raipur	Jagdarpur	Balaghat	Kanker	Mean	Freq.		
1	RVL 11-6(Ch)	L24202	807	916	1569	736	1007	2/4		
2	RKL 607-1 (Ch)	L24209	780	1020	1583	378	940	1/4		
3	L 4717 (Ch)	L24215	494	1028	1167	381	768	-		
4	PL 455	L24203	394	515	1069	476	614	-		
5	PLRF 24-1	L24204	786	894	1583	503	942	1/4		
6	BCL 1028	L24205	571	1026	1403	360	840	-		
7	PDL-19	L24206	419	718	986	332	614	-		
8	PL 457	L24207	321	418	819	359	479	-		
9	RL 2021- 2	L24208	1252*	1313*	1715	357	1159	3/4		
10	IPL 616	L24211	360	794	1181	402	684	-		
11	PLRF 24-2	L24212	775	946	1764	582	1017	1/4		
12	IPL 614	L24213	329	676	1042	362	602	-		
13	IPL 615	L24216	589	978	1528	334	857	-		
14	BCL 1025	L24217	686	1268*	1500	468	981	1/4		
	CV (%)		14.3	12.5	9.6	13.5				
	CD AT 5 %		145	189	219	98				
	GM		612	894	1351	431				
	State Av. Yield		400	400	1145	400				

Crop: Lentil Trial: IVT (Rice Fallow) Zone : CZ

S. No	Entry	Code	Days to 50% flowering				Days to maturity				100 seed wt.						
			Raipur	Jagdarpur	Balaghat	Kanker	Mean	Raipur	Jagdarpur	Balaghat	Kanker	Mean	Raipur	Jagdarpur	Balaghat	Kanker	Mean
1	RVL 11-6(Ch)	L24202	45	52	52	54	51	86	94	90	97	92	3.0	2.5	3.1	3.1	2.9
2	RKL 607-1 (Ch)	L24209	46	50	50	54	50	82	93	89	101	91	2.9	2.8	3.1	3.0	2.9
3	L 4717 (Ch)	L24215	47	60	56	53	54	86	95	89	100	93	2.1	2.4	2.4	2.9	2.5
4	PL 455	L24203	51	65	59	56	58	85	103	93	99	95	2.5	2.6	2.7	2.4	2.5
5	PLRF 24-1	L24204	45	48	50	54	49	78	92	87	104	90	3.1	2.6	3.1	2.7	2.9
6	BCL 1028	L24205	47	65	57	54	56	87	97	89	105	95	1.8	1.7	2.0	2.8	2.1
7	PDL-19	L24206	46	65	58	51	55	83	102	89	101	94	2.1	2.4	2.3	2.3	2.3
8	PL 457	L24207	53	79	69	52	63	89	104	98	106	99	2.6	2.6	2.6	3.0	2.7
9	RL 2021- 2	L24208	46	56	50	54	52	82	93	86	101	91	3.4	3.0	3.4	2.9	3.2
10	IPL 616	L24211	49	64	58	55	56	84	102	91	101	94	2.5	2.2	2.7	2.9	2.6
11	PLRF 24-2	L24212	45	50	50	52	49	81	93	87	102	91	3.2	3.0	3.2	3.0	3.1
12	IPL 614	L24213	47	69	65	51	58	82	102	97	98	95	2.6	2.6	2.9	2.5	2.7
13	IPL 615	L24216	49	63	56	52	55	87	97	89	103	94	2.8	3.0	3.1	2.5	2.8
14	BCL 1025	L24217	49	64	54	56	56	87	94	87	105	93	2.1	2.2	2.2	2.5	2.3

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Crop: Field pea (Tall)

Trial: AVT 2+AVT-1

S. No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rainfed	Net plot fertilizer N:P:K	Date of harvesting
NHZ (AVT-1)							
1.	Agartala	Dr. Bijoya Bhattacharjee	06.12.2024	4.5	-	-	Plot wise
2.	Srinagar	Dr. Ajaz A. Lone	04.11.2024	7.2	-	-	Plot wise
3.	Imphal	Dr. Manoranjan Biswal	03.12.2024	7.2	-	20:40:20	31.03.2025
NWPZ (AVT2+AVT-1)							
1	Pantnagar	Drs. R.K. Panwar & S.K Verma	09.11.2024	9.6	-	100 Kg DAP	04.03.2025
2	Hisar	Dr. Pawan Kumar	28.11.2024	14.4	-	20:40:00	10.04.2025
3	Ludhiana	Drs. Usha Nara & B.S. Gill & Navjot Kaur Dhillon	27.11.2024	14.4	2	20:40:00	03.04.2025
4	Durgapura	Dr. S.S. Punia	30.11.2024	9.6	-	20:40:20	Plot wise
NEPZ (AVT-1)							
1.	Ayodhya	Dr. Shiva Nath	08.11.2024	10.8	1	20:40:20:20S	18.03.2025
2.	Varanasi	Dr. Anil Kumar Singh	05.12.2024	12.6	2	25:40:30	Plot wise
3.	CSA Kanpur	Dr. Geeta Rai	30.11.2024	7.2	-	20:50:20	23.03.2025
4.	Shillongani	Dr. Nabajyoti Bhuyan	13.11.2024	14.4	1	1.2:6.8:1.0	10.03.2025
5.	Ranchi	Dr. C.S. Mahto	06.11.2024	14.4	3	20:40:20	08.03.2025

a. Data not received :

- b. Data not considered due to (i) GM less than state average:
(ii) CV (%) more than 20% (irrigated) ;
(iii) CV (%) less than 5% (irrigated) ;

Crop: Field pea (Tall)		Trial: AVT-1			Zone: NHZ			Yield (Kg/ha)	
S. No.	Entry	Code No.	Agartala	Imphal	Srinagar	Mean	Freq.		
1	Pant P 42 (Ch)	F-24957	1087	638	1377	1034	-		
2	TRCP 9 (Ch)	F-24965	472	543	1060	692	-		
3	HFP 9426 (Ch)	F-24969	904	872	1111	962	-		
4	IPF 23-19	F-24955	879	996*	1588*	1154	1/3		
5	HUTP 2202	F-24956	975	839	1007	940	-		
6	Pant P 568	F-24958	1344*	1056*	1419	1273	1/3		
7	NDP 22-4	F-24964	1429*	1371*	1303	1368	1/3		
8	RPF 2021-1	F-24967	1041	868	1120	1010	-		
9	HFP 2056	F-24970	1081	891	984	985	-		
10	IPF 23-23	F-24971	770	2159*	984	1304	1/3		
11	Pant P 574	F-24972	1144	1504*	938	1195	-		
	CV (%)		14.8	7.0	5.3				
	CD at 5%		256	108	107				
	GM		1011	1067	1172				

Crop: Field pea (Tall)		Trial: AVT-1			Zone: NHZ					
S. No.	Entry	Code No.	Days to 50% flowering			Days to maturity				
			Agartala	Imphal	Srinagar	Mean	Agartala	Imphal	Srinagar	
1	Pant P 42 (Ch)	F-24957	60	75	166	101	88	122	202	137
2	TRCP 9 (Ch)	F-24965	60	75	160	98	88	123	199	137
3	HFP 9426 (Ch)	F-24969	54	73	160	96	84	121	198	134
4	IPF 23-19	F-24955	57	76	161	98	87	122	199	136
5	HUTP 2202	F-24956	56	75	160	97	86	123	198	136
6	Pant P 568	F-24958	54	72	161	96	84	121	199	135
7	NDP 22-4	F-24964	58	76	161	99	86	122	198	135
8	RPF 2021-1	F-24967	57	74	160	97	87	122	196	135
9	HFP 2056	F-24970	59	73	162	98	86	122	200	136
10	IPF 23-23	F-24971	62	80	166	103	89	125	202	139
11	Pant P 574	F-24972	61	79	167	102	89	123	203	138

Zone: NHZ

Trial: AVT-1

Crop: Field pea (Tall)

S. No.	Entry	Code No.	100 seed wt. (g.)				Plant height (cm)			
			Agartala	Imphal	Srinagar	Mean	Agartala	Imphal	Srinagar	Mean
1	Pant P 42 (Ch)	F-24957	20.1	21.1	20.0	20.4	144	95	101	113
2	TRCP 9 (Ch)	F-24965	24.8	17.3	20.5	20.9	104	88	74	89
3	HFP 9426 (Ch)	F-24969	24.0	20.8	18.6	21.1	122	97	88	103
4	IPF 23-19	F-24955	29.8	24.4	20.2	24.8	130	107	107	115
5	HUTP 2202	F-24956	18.4	15.9	20.5	18.3	141	95	99	112
6	Pant P 568	F-24958	22.2	18.4	19.5	20.0	104	93	85	94
7	NDP 22-4	F-24964	16.7	18.0	19.6	18.1	119	96	74	96
8	RPF 2021-1	F-24967	21.9	18.4	21.5	20.6	133	91	85	103
9	HFP 2056	F-24970	25.5	20.3	19.2	21.7	96	59	48	67
10	IPF 23-23	F-24971	23.4	22.9	20.6	22.3	137	106	63	102
11	Pant P 574	F-24972	28.8	21.6	20.5	23.6	123	99	61	94

Yield (Kg/ha)

Zone: NWPZ

Trial: AVT 2+AVT-1

Crop: Field pea (Tall)

S. No.	Entry	Code No.	Durgapura	Hisar	Ludhiana	Pantnagar	Mean	Freq.
2	HFP 9907 B (Ch)	F - 24968	1919	2192	1006	1753	1718	-
3	Pant P 42 (Ch)	F - 24973	2284	2339	1197	1654	1869	-
4	Pant P 550 (AVT-2)	F - 24952	2375	2013	1420*	2122*	1983	1/4
5	Pant P 554 (AVT-2)	F - 24974	2920	2496	1361*	2237*	2254	3/4
6	IPF 23-23	F - 24954	2401	2241	1373*	2068*	2021	-
7	HFP 2056	F - 24959	2676	2698*	773	1966	2028	1/4
8	Pant P 568	F - 24962	2461	2402	1392*	2122*	2094	1/4
9	Pant P 574	F - 24966	3047*	2693*	1629*	2292*	2415	4/4
	CV (%)		9.8	6.7	7.8	7.6		
	CD at 5%		361	229	144	222		
	GM		2521	2334	1262	2001		

Crop: Field pea (Tall) Trial: AVT 2+AVT-1 Protein (%)

S. No.	Entry	Code	Raipur	ICAR-IIPR, Kanpur	Mean
1	Aman (IPF 5-19) Ch.	FP 2024-103	21.5	22.4	22.0
2	HFP 9907B Ch.	FP 2024-104	24.5	25.7	25.1
3	Pant P 42 Ch.	FP 2024-105	28.5	27.6	28.0
4	Pant P 554	FP 2024-101	25.2	21.9	23.6
5	Pant P 550	FP 2024-102	19.0	28.6	23.8

Crop: Field pea (Tall) Trial: AVT 2+AVT-1 Zone: NWPZ Days to 50% flowering

S. No.	Entry	Code No.	Durgapura	Hisar	Ludhiana	Pantnagar	Mean
1	Aman (IPF 5-19) (Ch)	F - 24963	70	84	79	72	76
2	HFP 9907 B (Ch)	F - 24968	64	75	74	64	69
3	Pant P 42 (Ch)	F - 24973	64	75	74	63	69
4	Pant P 550 (AVT-2)	F - 24952	61	69	69	67	67
5	Pant P 554 (AVT-2)	F - 24974	61	73	73	69	69
6	IPF 23-23	F - 24954	78	86	80	63	77
7	HFP 2056	F - 24959	61	72	71	61	66
8	Pant P 568	F - 24962	60	69	68	64	65
9	Pant P 574	F - 24966	70	83	78	63	74

Crop: Field pea (Tall) Trial: AVT 2+AVT-1 Zone: NWPZ Days to maturity

S. No.	Entry	Code No.	Durgapura	Hisar	Ludhiana	Pantnagar	Mean
1	Aman (IPF 5-19) (Ch)	F - 24963	111	124	121	139	124
2	HFP 9907 B (Ch)	F - 24968	111	126	122	135	124
3	Pant P 42 (Ch)	F - 24973	110	122	121	137	123
4	Pant P 550 (AVT-2)	F - 24952	104	120	119	139	121
5	Pant P 554 (AVT-2)	F - 24974	109	122	120	139	123
6	IPF 23-23	F - 24954	110	123	122	134	122
7	HFP 2056	F - 24959	103	117	116	128	116
8	Pant P 568	F - 24962	108	118	119	136	120
9	Pant P 574	F - 24966	107	126	121	135	122

Crop: Field pea (Tall) Trial: AVT 2+AVT-1 Zone: NWPZ 100 seed wt.

S. No.	Entry	Code No.	Durgapura	Hisar	Ludhiana	Pantnagar	Mean
1	Aman (IPF 5-19) (Ch)	F - 24963	16.8	14.0	16.6	18.3	16.5
2	HFP 9907 B (Ch)	F - 24968	17.9	15.3	19.1	18.3	17.6
3	Pant P 42 (Ch)	F - 24973	18.6	16.1	18.5	16.2	17.3
4	Pant P 550 (AVT-2)	F - 24952	13.2	12.3	13.4	19.2	14.5
5	Pant P 554 (AVT-2)	F - 24974	18.4	16.7	18.7	20.0	18.4
6	IPF 23-23	F - 24954	22.4	19.4	20.5	17.9	20.0
7	HFP 2056	F - 24959	17.2	16.4	19.5	20.7	18.5
8	Pant P 568	F - 24962	17.4	15.4	19.0	20.7	18.1
9	Pant P 574	F - 24966	19.5	18.0	21.6	19.3	19.6

Crop: Field pea (Tall) Trial: AVT 2+AVT-1 Zone: NWPZ Plant height (cm)

S. No.	Entry	Code No.	Hisar	Ludhiana	Pantnagar	Mean
1	Aman (IPF 5-19) (Ch)	F - 24963	144	110	284	179
2	HFP 9907 B (Ch)	F - 24968	151	108	215	158
3	Pant P 42 (Ch)	F - 24973	174	107	245	175
4	Pant P 550 (AVT-2)	F - 24952	156	113	161	143
5	Pant P 554 (AVT-2)	F - 24974	144	116	181	147
6	IPF 23-23	F - 24954	176	112	176	155
7	HFP 2056	F - 24959	98	54	100	84
8	Pant P 568	F - 24962	174	110	231	172
9	Pant P 574	F - 24966	143	99	227	156

Crop: Field pea (Tall) Trial: AVT-1 Zone: NEPZ Yield (Kg/ha)

S. No.	Entry	Code No.	Ayodhya	Ranchi	Varanasi	CSA Kanpur	Shillongani	Mean	Freq.
1	IPF 16-13 (Ch)	F 24953	2280	1159	2037	1933	984	1679	1/5
2	VL 42 (Ch)	F 24960	2326	1558	2543	2313	862	1920	3/5
3	SKNP 04-09 (Ch)	F 24961	2928	1445	1539	1818	574	1661	2/5
4	Pant P 574	F 24951	3102	1465	1555	2545	1089	1951	4/5
	CV (%)		8.1	12.4	12.6	8.5	10.9		
	CD at 5%		349	284	393	296	156		
	GM		2659	1407	1919	2152	877		

Crop: Field pea (Tall) **Trial: AVT-1** **Zone: NEPZ** **Days to 50% flowering**

S. No.	Entry	Code No.	Ayodhya	Ranchi	Varanasi	CSAKanpur	Shillongani	Mean
1	IPF 16-13 (Ch)	F 24953	50	67	57	66	72	62
2	VL 42 (Ch)	F 24960	53	64	58	67	73	63
3	SKNP 04-09 (Ch)	F 24961	61	60	64	67	67	64
4	Pant P 574	F 24951	71	66	68	67	74	69

Crop: Field pea (Tall) **Trial: AVT-1** **Zone: NEPZ** **Days to maturity**

S. No.	Entry	Code No.	Ayodhya	Ranchi	Varanasi	CSA Kanpur	Shillongani	Mean
1	IPF 16-13 (Ch)	F 24953	107	127	103	119	113	114
2	VL 42 (Ch)	F 24960	108	122	104	117	114	113
3	SKNP 04-09 (Ch)	F 24961	112	116	103	119	108	112
4	Pant P 574	F 24951	118	125	104	116	115	116

Crop: Field pea (Tall) **Trial: AVT-1** **Zone: NEPZ** **100 seed wt. (g)**

S. No.	Entry	Code No.	Ayodhya	Ranchi	Varanasi	CSA Kanpur	Shillongani	Mean
1	IPF 16-13 (Ch)	F 24953	22.6	16.3	18.1	14.3	23.5	19.0
2	VL 42 (Ch)	F 24960	19.4	17.5	16.5	15.6	20.1	17.8
3	SKNP 04-09 (Ch)	F 24961	17.7	16.8	15.0	14.3	18.5	16.4
4	Pant P 574	F 24951	24.0	16.4	22.4	16.5	21.5	20.1

Crop: Field pea (Tall) **Trial: AVT-1** **Zone: NEPZ** **Plant height (cm)**

S. No.	Entry	Code No.	Ayodhya	Ranchi	Varanasi	CSA Kanpur	Shillongani	Mean
1	IPF 16-13 (Ch)	F 24953	147	114	99	-	193	138
2	VL 42 (Ch)	F 24960	191	112	103	-	173	145
3	SKNP 04-09 (Ch)	F 24961	77	109	56	-	82	81
4	Pant P 574	F 24951	150	109	110	-	195	141

INFORMATION SHEET

Crop: Field pea (Tall)

Trial:IVT

S.No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rained	Net plot fertilizer N:P:K	Date of harvesting
NHZ							
1.	Agartala	Dr. Bijoja Bhattacharjee	13.12.2024	4.5	-	-	Plot wise
2.	Srinagar	Dr. Ajaz A. Lone	05.11.2024	7.2	-	-	Plot wise
3.	Imphal	Dr. Manoranjan Biswal	04.12.2024	5.4	-	20:40:20	29.03.2025
NWPZ							
1	Pantnagar	Drs. R.K. Panwar & S.K. Verma	09.11.2024	7.2	-	100 Kg DAP	04.03.2025
2	Hisar	Dr. Pawan Kumar	28.11.2024	10.8	-	20:40:00	10.04.2025
3	Durgapura	Dr. S.S.Punia	30.11.2024	7.2	-	20:40:20	Plot wise
4	Ludhiana	Drs. Usha Nara and B.S. Gill & Navjot Kaur Dhillon	27.11.2024	10.8	2	20:40:00	02.04.2025
NEPZ							
1.	Ayodhya	Dr. Shiva Nath	12.11.2024	7.2	1	20:40:20:20S	14.03.2025
2.	Varanasi	Dr. Anil Kumar Singh	04.12.2024	9.0	2	25:40:30	Plot wise
3.	Shillongani	Dr. Nabajyoti Bhuyan	11.11.2024	10.8	1	2.75:16:2.1	Plot wise
4.	Ranchi	Dr. C.S. Mahto	07.11.2024	10.8	3	20:40:20	10.03.2025
CZ							
1.	Kota	Dr. Khajan Singh	13.11.2024	7.2	-	20:40:00	Plot wise
2.	Sagar	Dr. Smita Tiwari					
3.	Sehore	Dr. A. Nishant Bhanu	11.11.2024	4.8	-	20:50:00	Plot wise
4.	Raipur	Dr. Mangala Parikh	24.11.2024	7.2	1	20:50:20	Plot wise
5.	S.K. Nagar	Dr. M.S. Patel	11.11.2024	7.2	8	40:40:00	Plot wise
6	Banda	Dr. D.K. Singh	08.11.2024	7.2	2	40:40:20	Plot wise

a. Data not received/Not conducted :

b. Data not considered due to (i) GM less than state average:

(ii) CV (%) more than 20% (irrigated) :

(iii) CV (%) less than 5% (irrigated) : **Agartala**

Crop: Field pea (Tall)		Trial: IVT		Zone: NHZ			Yield (kg/ha)	
S. No.	Entry	Code No.	Agartala (Rej.)	Imphal	Srinagar	Mean	Freq.	
1	Pant P 42 (Ch)	F-24904	487	549	2148	1349	1/2	
2	HFP 9426 (Ch)	F-24911	1035	772	1523	1148	-	
3	TRCP 9 (Ch)	F-24923	1077	1270	2102	1686	1/2	
4	SKAU-P-26	F-24903	359	967	1907	1437	-	
5	Pant P 612	F-24905	588	788	1884	1336	-	
6	RFP 2020-1	F-24906	742	834	1755	1295	-	
7	IPF 24-15	F-24907	515	1100	2194	1647	1/2	
8	SKAU-P-24	F-24908	703	694	1434	1064	-	
9	HFP 2055	F-24912	375	710	1449	1080	-	
10	Pant P 628	F-24913	1052	757	1731	1244	-	
11	IPF 24-13	F-24914	675	819	1884	1352	-	
12	JM 2413-6	F-24917	829	592	1468	1030	-	
13	RFP 2020-4	F-24918	1459	643	1944	1294	-	
14	IPF 24-18	F-24921	571	342	1542	942	-	
15	HFP 2131	F-24922	525	331	1593	962	-	
16	Pant P 633	F-24925	979	783	2296	1540	1/2	
	CV (%)		3.0	10.5	5.2			
	CD at 5%		49	131	157			
	GM		748	747	1803			

Zone: NHZ

Trial: IVT

Crop: Field pea (Tall)

S. No.	Entry	Code No.	50 % flowering				Days to maturity				100 seed wt.				Plant height (cm)			
			Agartala (Ref.)	Imphal	Srinagar	Mean	Agartala (Ref.)	Imphal	Srinagar	Mean	Agartala (Ref.)	Imphal	Srinagar	Mean	Agartala (Ref.)	Imphal	Srinagar	Mean
1	Pant P 42 (Ch)	F-24904	60	78	167	123	84	126	200	163	21.9	26.3	20.5	23.4	111	101	104	103
2	HFP 9426 (Ch)	F-24911	53	74	164	119	77	125	201	163	20.1	23.3	20.3	21.8	125	94	71	83
3	TRCP 9 (Ch)	F-24923	57	75	166	121	82	122	203	163	17.7	22.0	18.2	20.1	141	90	92	91
4	SKAU-P-26	F-24903	55	75	167	121	80	123	202	163	15.3	23.9	18.7	21.3	161	74	104	89
5	Pant P 612	F-24905	59	75	165	120	85	125	203	164	20.4	23.9	19.5	21.7	132	113	112	113
6	RFP 2020-1	F-24906	60	76	167	122	85	122	204	163	17.1	20.9	20.5	20.7	115	104	86	95
7	IPF 24-15	F-24907	66	80	165	123	91	124	205	165	22.1	25.2	21.2	23.2	110	91	90	91
8	SKAU-P-24	F-24908	54	73	165	119	81	123	200	162	17.2	24.0	19.7	21.9	169	88	58	73
9	HFP 2055	F-24912	59	74	167	121	84	124	202	163	21.7	22.3	20.5	21.4	99	58	47	53
10	Pant P 628	F-24913	59	76	167	122	81	122	202	162	22.1	23.5	21.2	22.4	138	86	66	76
11	IPF 24-13	F-24914	66	81	171	126	91	125	202	164	20.2	26.7	20.6	23.7	156	84	88	86
12	JM 2413-6	F-24917	59	76	166	121	83	123	202	163	22.3	22.8	21.2	22.0	117	98	81	90
13	RFP 2020-4	F-24918	59	74	168	121	83	123	202	163	14.1	22.6	19.7	21.2	128	85	102	94
14	IPF 24-18	F-24921	63	81	169	125	92	125	202	164	24.3	22.5	20.5	21.5	129	95	51	73
15	HFP 2131	F-24922	62	74	167	121	85	120	201	161	22.3	24.8	21.2	23.0	94	55	100	78
16	Pant P 633	F-24925	55	75	167	121	80	121	204	163	20.9	23.0	19.5	21.3	128	84	96	90

Crop: Field pea (Tall)		Trial: IVT			Zone: NWPZ			Yield (kg/ha)	
S. No.	Entry	Code No.	Pantnagar	Hisar	Durgapura	Ludhiana	Mean	Freq.	
1	Pant P 42 (Ch)	F - 24902	1227	1947	2296	1462	1733	-	
2	HFP 9907 B (Ch)	F - 24919	1194	1905	2771	1308	1795	1/4	
3	Aman (IPF 5-19) (Ch)	F - 24924	1602	1869	2805	1278	1889	1/4	
4	SKAU-P-26	F - 24903	1574	1807	2772	1581	1934	1/4	
5	Pant P 612#	F - 24905	2292*	2210	2705	1401	2152	2/4	
6	RFP 2020-1	F - 24906	1278	1771	2365	1359	1693	-	
7	IPF 24-15	F - 24907	1625	2233	2608	1889*	2089	1/4	
8	SKAU-P-24	F - 24908	1431	2102	2732	1563	1957	1/4	
9	HFP 2055##	F - 24912	1616	2855*	3019	1525	2254	2/4	
10	Pant P 628	F - 24913	2259*	2649*	3062	1464	2359	3/4	
11	IPF 24-13	F - 24914	2194*	2784*	3092	1673	2436	4/4	
12	JM 2413-6	F - 24917	968	1514	2251	1127	1465	-	
13	RFP 2020-4	F - 24918	1458	2152	2526	1604	1935	-	
14	IPF 24-18	F - 24921	1528	1566	3088	1275	1864	1/4	
15	HFP 2131	F - 24922	556	2399*	2400	1126	1620	-	
16	Pant P 633	F - 24925	2306*	2459*	2226	1419	2103	1/4	
	CV (%)		7.7	8.9	10.1	11.5			
	CD at 5%		202	320	451	277			
	GM		1569	2139	2670	1441			

Segregation #Dwarf type

Crop: Field pea (Tall)		Trial: IVT		Zone: NWPZ				50% flowering	
S. No.	Entry	Code No.	Pantnagar	Hisar	Durgapura	Ludhiana	Mean		
1	Pant P 42 (Ch)	F - 24902	64	78	65	75	71		
2	HFP 9907 B (Ch)	F - 24919	74	77	64	73	72		
3	Aman (IPF 5-19) (Ch)	F - 24924	67	81	77	80	76		
4	SKAU-P-26	F - 24903	67	70	55	67	65		
5	Pant P 612	F - 24905	68	75	60	70	68		
6	RFP 2020-1	F - 24906	68	75	60	71	69		
7	IPF 24-15	F - 24907	65	86	73	79	76		
8	SKAU-P-24	F - 24908	63	68	56	68	64		
9	HFP 2055	F - 24912	63	75	62	72	68		
10	Pant P 628	F - 24913	69	76	61	73	70		
11	IPF 24-13	F - 24914	64	82	66	78	73		
12	JM 2413-6	F - 24917	63	71	61	70	66		
13	RFP 2020-4	F - 24918	64	72	62	68	67		
14	IPF 24-18	F - 24921	74	82	68	78	76		
15	HFP 2131	F - 24922	72	76	64	72	71		
16	Pant P 633	F - 24925	66	69	59	68	66		

Crop: Field pea (Tall) Trial: IVT Zone: NWPZ

S. No.	Entry	Code No.	Days to maturity				100 seed wt. (g)				Plant height (cm)					
			Pantnagar	Hisar	Durgapura	Ludhiana	Mean	Pantnagar	Hisar	Durgapura	Ludhiana	Mean	Pantnagar	Hisar	Ludhiana	Mean
1	Pant P 42 (Ch)	F - 24902	133	122	113	124	110.6	19.6	20.2	18.6	18.9	19.3	117	149	111	126
2	HFP 9907 B (Ch)	F - 24919	138	131	108	123	114.9	19.9	15.4	18.0	17.8	17.8	89	170	115	125
3	Aman (IPF 5-19) (Ch)	F - 24924	134	127	108	122	123.5	20.0	14.2	19.0	18.9	18.0	241	164	124	176
4	SKAU-P-26	F - 24903	135	123	110	122	115.7	18.8	14.2	15.5	18.1	16.6	199	159	116	158
5	Pant P 612	F - 24905	137	121	109	123	119.5	19.0	15.2	16.7	16.5	16.8	235	195	120	183
6	RFP 2020-1	F - 24906	136	124	110	121	112.4	18.6	12.8	14.6	15.0	15.2	214	155	112	160
7	IPF 24-15	F - 24907	135	131	106	123	112.0	20.2	17.8	22.3	19.0	19.8	266	177	112	185
8	SKAU-P-24	F - 24908	132	122	108	123	107.6	19.8	14.1	15.5	18.2	16.9	214	173	108	165
9	HFP 2055	F - 24912	134	118	110	120	92.5	21.2	15.1	16.5	19.5	18.1	90	115	93	99
10	Pant P 628	F - 24913	137	126	105	123	109.3	19.9	15.1	18.0	18.2	17.8	160	179	109	149
11	IPF 24-13	F - 24914	132	128	104	123	105.7	20.0	18.1	17.3	18.6	18.5	173	170	106	150
12	JM 2413-6	F - 24917	133	123	114	124	116.1	19.4	16.3	15.0	17.4	17.0	178	145	116	146
13	RFP 2020-4	F - 24918	132	123	112	124	112.0	20.0	12.8	15.4	16.8	16.2	267	208	112	196
14	IPF 24-18	F - 24921	137	122	106	122	119.5	20.3	17.9	20.9	21.2	20.1	79	169	120	123
15	HFP 2131	F - 24922	137	119	110	119	61.7	18.6	19.6	22.7	21.1	20.5	161	91	62	105
16	Pant P 633	F - 24925	134	126	110	122	112.7	18.2	16.2	16.1	18.3	17.2	263	179	113	185

Crop: Field pea (Tall)			Trial: IVT			Zone: NEPZ			Yield (Kg/ha)	
S. No.	Entry	Code No.	Ayodhya	Varanasi	Shillongani	Ranchi	Mean	Freq.		
1	SKNP 04-09 (Ch)	F 24910	1690	1167	921	1530	1327	1/4		
2	IPF 16-13 (Ch)	F 24916	1898	2017	1081	1543	1635	1/4		
3	VL 42 (Ch)	F 24920	1991	1998	1023	1339	1588	-		
4	SKAU-P-26	F 24903	1921	2867*	609	1377	1694	-		
5	Pant P 612	F 24905	2454*	1867	1069	1375	1691	1/4		
6	RFP 2020-1	F 24906	1968	1596	515	1393	1368	-		
7	IPF 24-15	F 24907	2523*	1904	651	1241	1580	1/4		
8	SKAU-P-24	F 24908	1852	2041	970	1465	1582	-		
9	HFP 2055	F 24912	1782	1333	1094	1493	1426	-		
10	Pant P 628	F 24913	1829	1133	1375*	1378	1429	1/4		
11	IPF 24-13	F 24914	2269	1826	970	1619	1671	2/4		
12	JM 2413-6	F 24917	1736	1470	680	1219	1276	-		
13	RFP 2020-4	F 24918	2361*	3217*	850	1332	1940	2/4		
14	IPF 24-18	F 24921	2083	1193	507	1658	1360	1/4		
15	HFP 2131	F 24922	1505	1333	860	1436	1284	1/4		
16	Pant P 633	F 24925	2269	1917	1061	1465	1678	2/4		
	CV (%)		10.8	11.5	8.1	10.1				
	CD at 5%		363	348	121	242				
	GM		2008	1805	890	1429				

Crop: Field pea (Tall) Trial: IVT Zone: NEPZ 50% flowering

S. No.	Entry	Code No.	Ayodhya	Varanasi	Shillongani	Ranchi	Mean
1	SKNP 04-09 (Ch)	F 24910	69	61	63	65	65
2	IPF 16-13 (Ch)	F 24916	60	55	65	52	58
3	VL 42 (Ch)	F 24920	66	57	74	63	65
4	SKAU-P-26	F 24903	63	59	70	57	62
5	Pant P 612	F 24905	69	65	64	58	64
6	RFP 2020-1	F 24906	66	61	67	58	63
7	IPF 24-15	F 24907	75	67	70	70	71
8	SKAU-P-24	F 24908	64	57	64	57	61
9	HFP 2055	F 24912	66	60	62	57	61
10	Pant P 628	F 24913	68	61	64	64	64
11	IPF 24-13	F 24914	74	70	66	69	70
12	JM 2413-6	F 24917	67	58	64	64	63
13	RFP 2020-4	F 24918	67	61	70	60	65
14	IPF 24-18	F 24921	75	70	64	62	68
15	HFP 2131	F 24922	66	62	60	56	61
16	Pant P 633	F 24925	67	60	62	62	63

S. No.	Entry	Code No.	Trial: IVT					Zone: NEPZ									
			Days to maturity					100 seed wt. (g)									
			Ayodhya	Varanasi	Shillongani	Ranchi	Mean	Ayodhya	Varanasi	Shillongani	Ranchi	Mean	Ayodhya	Varanasi	Shillongani	Ranchi	Mean
1	SKNP 04-09 (Ch)	F 24910	113	101	121	116	113	18.1	14.5	16.9	16.2	16.4	56	43	58	63	55
2	IPF 16-13 (Ch)	F 24916	103	101	115	103	106	20.9	16.9	18.7	17.6	18.5	132	77	142	116	117
3	VL 42 (Ch)	F 24920	111	102	121	115	112	18.2	15.5	16.7	16.4	16.7	123	98	158	137	129
4	SKAU-P-26	F 24903	114	103	117	108	111	18.6	16.8	19.4	15.5	17.6	132	100	150	104	121
5	Pant P 612	F 24905	116	104	122	109	113	19.5	15.8	17.2	16.8	17.3	173	118	159	115	141
6	RFP 2020-1	F 24906	113	104	126	111	114	16.5	14.6	16.2	17.6	16.2	111	106	132	128	119
7	IPF 24-15	F 24907	116	106	120	117	115	22.3	20.2	18.5	16.9	19.5	122	101	144	101	117
8	SKAU-P-24	F 24908	109	104	118	111	111	19.6	16.3	19.1	16.6	17.9	128	104	121	126	120
9	HFP 2055	F 24912	110	102	121	109	111	19.1	20.9	18.9	17.2	19.0	77	52	65	69	66
10	Pant P 628	F 24913	110	103	118	114	111	19.2	18.5	17.8	16.9	18.1	115	102	122	102	110
11	IPF 24-13	F 24914	114	108	119	116	114	19.8	19.3	16.2	18.8	18.5	118	100	121	100	110
12	JM 2413-6	F 24917	111	101	119	116	112	17.4	16.6	17.8	17.8	17.4	125	85	143	110	116
13	RFP 2020-4	F 24918	108	103	120	113	111	18.2	14.7	18.7	15.8	16.9	129	109	140	131	127
14	IPF 24-18	F 24921	117	105	119	110	113	20.4	19.8	20.0	17.4	19.4	129	98	103	123	113
15	HFP 2131	F 24922	109	102	121	101	108	23.5	22.4	26.8	15.2	22.0	75	42	61	68	62
16	Pant P 633	F 24925	111	103	122	112	112	18.7	16.9	17.7	17.5	17.7	120	91	161	109	120

Yield Kg/ha

Zone: CZ

Trial: IVT

Crop: Fieldpea (Tall)

S. No.	Entry	Code No.	Banda	Kota	Sagar	Raipur	Sehore	S.K. Nagar	Mean	Freq.
1	Adarsh (Ch)	F-24901	2985	2439	1231	786	2188	2130	1960	1/6
2	Ambika (Ch)	F-24909	2588	2502	1200	1427	2027	2963	2118	3/6
3	Pant P 243 (Ch)	F-24915	2383	3539	1645	1333	2575	3009	2414	4/6
4	SKAU-P-26	F-24903	2589	2491	1381	1052	2272	2546	2055	1/6
5	Pant P 612	F-24905	3394*	2570	1757	1112	1899	2685	2236	2/6
6	RFP 2020-1	F-24906	2563	2969	1465	977	1983	2454	2069	-
7	IPF 24-15	F-24907	2400	2831	1737	729	1491	3102	2048	1/6
8	SKAU-P-24	F-24908	2990	2413	2097*	976	2245	2685	2234	2/6
9	HFP 2055	F-24912	2694	2221	2509*	1122	2084	2500	2188	3/6
10	Pant P 628	F-24913	3392*	2703	2400*	1190	2299	3102	2514	4/6
11	IPF 24-13	F-24914	3819*	2547	2180*	970	2004	3195	2453	2/6
12	RFP 2020-4	F-24918	2457*	2472	1390	1379	2048	2963	2118	3/6
13	IPF 24-18	F-24921	2995	1976	1411	843	1410	2870	1918	1/6
14	HFP 2131	F-24922	3227	2049	1839	888	1051	2546	1933	-
15	Pant P 633	F-24925	1601	2900	1839	1069	2203	2986	2100	2/6
16	JM 2413-6	F-24917	2608	2314	2149*	1053	1179	2269	1929	-
	CV (%)		7.3	7.5	7.4	17.9	17.3	11.2		
	CD at 5%		341	321	218	317	561	518		
	GM		2793	2559	1764	1057	1935	2750		

50% flowering

Zone: CZ

Trial: IVT

Crop: Field pea (Tall)

S. No.	Entry	Code No.	Banda	Kota	Sagar	Raipur	Sehore	S.K. Nagar	Mean
1	Adarsh (Ch)	F-24901	71	72	66	51	81	55	66
2	Ambika (Ch)	F-24909	71	67	59	50	74	53	62
3	Pant P 243 (Ch)	F-24915	70	67	57	51	77	55	63
4	SKAU-P-26	F-24903	76	57	57	51	71	50	60
5	Pant P 612	F-24905	74	62	58	52	74	53	62
6	RFP 2020-1	F-24906	75	64	56	51	73	52	62
7	IPF 24-15	F-24907	66	73	66	57	81	62	67
8	SKAU-P-24	F-24908	69	57	51	47	71	50	57
9	HFP 2055	F-24912	75	62	50	49	70	52	60
10	Pant P 628	F-24913	73	67	59	51	73	52	62
11	IPF 24-13	F-24914	71	72	61	54	77	59	66
12	RFP 2020-4	F-24918	67	60	56	50	74	52	60
13	IPF 24-18	F-24921	77	74	62	52	80	59	67
14	HFP 2131	F-24922	77	64	58	50	76	52	63
15	Pant P 633	F-24925	77	57	54	48	70	49	59
16	JM 2413-6	F-24917	71	58	55	52	77	52	61

Crop: Field pea (Tall)

Zone: CZ

Trial: IVT

Days to maturity

S. No.	Entry	Code No.	Banda	Kota	Sagar	Raipur	Sehore	S.K. Nagar	Mean
1	Adarsh (Ch)	F-24901	126	115	113	85	108	108	109
2	Ambika (Ch)	F-24909	122	107	114	85	109	106	107
3	Pant P 243 (Ch)	F-24915	125	108	114	85	105	108	108
4	SKAU-P-26	F-24903	122	109	115	83	107	105	107
5	Pant P 612	F-24905	125	107	114	86	106	106	107
6	RFP 2020-1	F-24906	121	109	113	85	106	105	107
7	IPF 24-15	F-24907	121	108	112	91	106	109	108
8	SKAU-P-24	F-24908	121	108	115	82	108	105	106
9	HFP 2055	F-24912	121	109	115	82	107	107	107
10	Pant P 628	F-24913	119	109	115	85	107	106	107
11	IPF 24-13	F-24914	125	108	115	89	107	109	109
12	RFP 2020-4	F-24918	125	110	115	86	104	106	108
13	IPF 24-18	F-24921	121	109	113	88	109	109	108
14	HFP 2131	F-24922	119	108	115	82	107	106	106
15	Pant P 633	F-24925	124	108	116	84	111	105	108
16	JM 2413-6	F-24917	124	109	116	87	105	105	108

Zone: CZ

Trial: IVT

Crop: Field pea (Tall)

S. N.	Entry	Code No.	100 seed wt. (g)				Plant height (cm)				S.K. Nagar	Mean			
			Banda	Kota	Sagar	Raipur	Sehore	S.K. Nagar	Mean	Raipur			Sehore		
1	Adarsh (Ch)	F-24901	16.7	18.3	16.4	16.5	16.4	17.0	16.9	234	172	102	145	94	149
2	Ambika (Ch)	F-24909	18.3	21.8	14.3	12.7	12.3	13.7	15.5	187	139	103	102	153	137
3	Pant P 243 (Ch)	F-24915	17.3	20.0	16.9	15.4	14.1	15.3	16.5	170	143	98	132	149	138
4	SKAU-P-26	F-24903	24.1	17.8	20.9	17.2	16.2	16.2	18.7	178	143	98	115	102	127
5	Pant P 612	F-24905	21.4	15.8	18.1	17.4	16.9	16.1	17.6	177	176	106	132	183	155
6	RFP 2020-1	F-24906	19.4	25.5	17.4	15.2	15.2	14.7	17.9	169	143	93	133	163	140
7	IPF 24-15	F-24907	20.6	17.8	21.1	18.5	20.9	20.2	19.8	154	161	83	113	152	133
8	SKAU-P-24	F-24908	17.9	16.1	18.4	16.6	17.2	16.5	17.1	177	141	89	139	135	136
9	HFP 2055	F-24912	20.3	17.1	19.2	15.7	16.5	18.7	17.9	114	87	58	83	73	83
10	Pant P 628	F-24913	17.7	18.1	18.2	16.5	15.6	18.5	17.4	164	166	97	108	107	129
11	IPF 24-13	F-24914	18.5	17.7	18.4	17.4	17.5	19.2	18.1	156	151	90	86	133	123
12	RFP 2020-4	F-24918	19.0	19.4	19.8	15.5	15.5	14.5	17.3	240	157	100	154	130	156
13	IPF 24-18	F-24921	18.0	17.6	19.6	18.3	18.2	20.4	18.7	159	146	88	130	141	133
14	HFP 2131	F-24922	18.6	22.6	22.8	21.5	22.3	19.6	21.2	82	86	50	71	112	80
15	Pant P 633	F-24925	18.9	20.9	18.5	17.3	16.2	17.9	18.3	142	138	96	118	137	126
16	JM 2413-6	F-24917	18.6	23.5	19.6	17.4	19.2	17.0	19.2	155	163	101	133	146	139

INFORMATION SHEET

Crop: Field pea (Dwarf)		Trial: AVT 1			Zone-NHZ		
S. No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rainfed	Net plot fertilizer N:P:K	Date of harvesting
1.	Srinagar	Dr. Ajaz A. Lone	04.11.2024	7.2	-	-	Plot wise
2.	Imphal	Dr. Manoranjan Biswal	03.12.2024	7.2	-	20:40:20	29.03.2025
3.	Agartala	Dr. Bijoya Bhattacharjee	06.12.2024	4.5	-	-	Plot wise

Data not considered due to (i) GM less than state average: (ii) CV (%) more than 20% (irrigated) : (iii) CV (%) less than 5% (irrigated) :

Crop: Field pea (Dwarf)		Trial: AVT 1			Zone: NHZ			Yield (kg/ha)	
S. No.	Entry	Code No.	Srinagar	Imphal	Agartala	Mean	Mean	Freq.	
1	Prakash (Ch)	F-24882	1778	1010	1713	1500	1500	1/2	
2	HFP 715(Ch)	F-24883	1975	1204	1271	1483	1483	1/2	
3	HUDP 15 (Ch)	F-24885	1810	881	774	1155	1155	-	
4	Pant P 559	F-24881	1806	1357	774	1312	1312	1/2	
5	HFP 1962	F-24884	1736	1176	520	1144	1144	-	
	CV (%)		7.1	9.8	14.7				
	CD at 5%		NA	172	283				
	GM		1821	1126	1010				

Crop: Field pea (Dwarf)		Zone: NHZ			Trial: AVT 1													
S. No.	Entry	Code No.	Days to 50% flowering			100 seed wt. (g)			Plant height (cm)									
			Srinagar	Imphal	Agartala	Mean	Srinagar	Imphal	Agartala	Mean	Srinagar	Imphal	Agartala	Mean				
1	Prakash (Ch)	F-24882	167	73	59	100	200	122	84	135	21.1	15.9	23.4	20.1	54	53	57	55
2	HFP 715(Ch)	F-24883	168	74	59	100	199	122	89	137	20.5	21.1	20.4	20.7	52	53	56	54
3	HUDP 15 (Ch)	F-24885	169	78	66	104	200	123	95	139	20.4	18.0	15.6	18.0	35	44	50	43
4	Pant P 559	F-24881	166	71	50	96	199	120	80	133	20.2	24.4	25.3	23.3	52	57	58	56
5	HFP 1962	F-24884	168	73	55	99	199	121	85	135	20.2	18.4	24.5	21.0	52.0	55.1	64.7	57.3

INFORMATION SHEET

Crop: Field pea (Dwarf)

Trial:IVT

S.No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rainfed	Net plot fertilizerN:P:K	Date of harvesting
NHZ							
1.	Srinagar	Dr. Ajaz A. Lone	05.11.2024	7.2	-	-	Plot wise
2.	Imphal	Dr. Manoranjan Biswal	04.12.2024	5.4	-	20:40:20	29.03.2025
3.	Agartala	Dr. Bijoya Bhattacharjee	13.12.2024	4.5	-	-	Plot wise
NWPZ							
1.	Pantnagar	Drs. R.K. Panwar & S.K Verma	11.09.2024	7.2	-	100Kg DAP	04.03.2025
2.	Hisar	Dr. Pawan Kumar	28.11.2024	7.2	-	20:40:00	10.04.2025
3	Durgapura	Dr. S.S.Punia	30.11.2024	7.2	-	20:40:20	Plot wise
4.	Ludhiana	Drs. Usha Nara, B.S. Gill & Navjot Kaur Dhillon	27.11.2024	7.2	2	20:40:00	01.04.2025
5.	Samba	Dr. Naresh Kumar	29.10.2024	7.2	-	20:50:20	Plot wise
NEPZ							
1.	Ayodhya	Dr. Shiva Nath	11.11.2024	4.8	1	20:40:20:20S	12.03.2025
2.	Varanasi	Dr. Anil Kumar Singh	03.12.2024	6.0	2	25:40:30	Plot wise
3.	Ranchi	Dr. C.S. Mahto	08.11.2024	7.2	3	20:40:20	30.03.2025
4.	Shillongani	Dr. Nabajyoti Bhuyan	11.11.2024	7.2	1	2.0:11.0:1.5	11.03.2024
CZ							
1.	Kota	Dr. Khajan Singh	13.11.2024	7.2	-	20:40:00	Plot wise
2.	S.K. Nagar	Dr. M.S. Patel	11.11.2024	7.2	8	40:40:00	Plot wise
3.	Segar	Dr. Smita Tiwari	10.11.2024	7.2	2	40:40:20	Plot wise
4.	Sehore	Dr. A. Nishant Bhanu	11.11.2024	4.8	-	20:50:00	Plot wise
5.	Raipur	Dr. Mangala Parikh	24.11.2024	7.2	1	20:50:20	Plot wise
6.	Jabalpur	Dr. Stuti Sharma	21.11.2024	7.2	1	-	Plot wise
7.	Banda	Dr.Dhirendra Kumar Singh	08.11.2024	7.2	2	40:40:20	Plot wise

Data not considered due to (i) GM less than state average : ii) CV(%) more than 20% (Irrigated) :- (iii) CV(%) less than 5% (Irrigated) : Banda

Crop: Field pea (Dwarf)			Trial: IVT			Zone: NHZ			Yield (Kg/ha)						
S. No.	Entry	Code No.	Agartala	Imphal	Srinagar	Mean	Freq.	S. No.	Entry	Code No.	Agartala	Imphal	Srinagar	Mean	Freq.
1	HFP 715(Ch)	F-24854	917	322	1857	1032	-	1	HFP 715(Ch)	F-24854	917	322	1857	1032	-
2	HUDP 15 (Ch)	F-24859	361	469	1880	903	-	2	HUDP 15 (Ch)	F-24859	361	469	1880	903	-
3	Prakash (Ch)	F-24865	304	1238	1773	1105	-	3	Prakash (Ch)	F-24865	304	1238	1773	1105	-
4	Pant P 610	F-24855	1069*	1512*	1854	1478	1/3	4	Pant P 610	F-24855	1069*	1512*	1854	1478	1/3
5	IPFD 24-1	F-24860	436	1143	2107*	1229	1/3	5	IPFD 24-1	F-24860	436	1143	2107*	1229	1/3
6	RNCP 17-05	F-24861	596	1389*	1667	1217	-	6	RNCP 17-05	F-24861	596	1389*	1667	1217	-
7	HFP 2140	F-24866	1074*	462	1588	1041	1/3	7	HFP 2140	F-24866	1074*	462	1588	1041	1/3
8	SKNFP 2202	F-24867	514	877	1326	906	-	8	SKNFP 2202	F-24867	514	877	1326	906	-
9	SPC 103	F-24868	1204*	1751*	1468	1474	2/3	9	SPC 103	F-24868	1204*	1751*	1468	1474	2/3
10	HFP 2160	F-24869	336	1653*	1380	1123	1/3	10	HFP 2160	F-24869	336	1653*	1380	1123	1/3
11	Pant P 592	F-24872	691	1383	1426	1167	-	11	Pant P 592	F-24872	691	1383	1426	1167	-
12	IPFD 24-8	F-24873	462	1158	1875	1165	-	12	IPFD 24-8	F-24873	462	1158	1875	1165	-
13	Pant P 605	F-24874	495	1339	1903	1246	-	13	Pant P 605	F-24874	495	1339	1903	1246	-
14	IPFD 24-7	F-24875	933	1019	2109*	1354	1/3	14	IPFD 24-7	F-24875	933	1019	2109*	1354	1/3
	CV (%)		9.9	7.7	5.1				CV (%)		9.9	7.7	5.1		
	CD at 5%		144	146	149				CD at 5%		144	146	149		
	GM		671	1123	1730				GM		671	1123	1730		

Crop: Field pea (Dwarf)			Trial: IVT			Zone: NHZ			50% flowering				
S. No.	Entry	Code No.	Agartala	Imphal	Srinagar	Mean	S. No.	Entry	Code No.	Agartala	Imphal	Srinagar	Mean
1	HFP 715(Ch)	F-24854	61	79	172	104	1	HFP 715(Ch)	F-24854	61	79	172	104
2	HUDP 15 (Ch)	F-24859	73	90	168	110	2	HUDP 15 (Ch)	F-24859	73	90	168	110
3	Prakash (Ch)	F-24865	59	78	164	100	3	Prakash (Ch)	F-24865	59	78	164	100
4	Pant P 610	F-24855	58	76	164	99	4	Pant P 610	F-24855	58	76	164	99
5	IPFD 24-1	F-24860	63	83	165	104	5	IPFD 24-1	F-24860	63	83	165	104
6	RNCP 17-05	F-24861	53	79	167	100	6	RNCP 17-05	F-24861	53	79	167	100
7	HFP 2140	F-24866	55	78	167	100	7	HFP 2140	F-24866	55	78	167	100
8	SKNFP 2202	F-24867	59	76	164	100	8	SKNFP 2202	F-24867	59	76	164	100
9	SPC 103	F-24868	54	76	166	99	9	SPC 103	F-24868	54	76	166	99
10	HFP 2160	F-24869	54	77	168	99	10	HFP 2160	F-24869	54	77	168	99
11	Pant P 592	F-24872	58	78	167	101	11	Pant P 592	F-24872	58	78	167	101
12	IPFD 24-8	F-24873	61	80	166	102	12	IPFD 24-8	F-24873	61	80	166	102
13	Pant P 605	F-24874	56	79	162	99	13	Pant P 605	F-24874	56	79	162	99
14	IPFD 24-7	F-24875	58	76	167	100	14	IPFD 24-7	F-24875	58	76	167	100

Zone: NHZ

Trial: IVT

Crop: Field pea (Dwarf)

S. No.	Entry	Code No.	Days to maturity			100 seed wt.			Plant height (cm)			Mean		
			Agartala	Srinagar	Imphal	Agartala	Imphal	Srinagar	Agartala	Imphal	Srinagar			
1	HFP 715(Ch)	F-24854	90	201	124	138	20.2	22.5	20.5	21.1	58.5	49.1	48.6	52.1
2	HUDP 15 (Ch)	F-24859	100	201	126	142	27.3	16.6	20.9	21.6	47.5	36.9	23.0	35.8
3	Prakash (Ch)	F-24865	88	201	124	138	16.2	22.3	19.4	19.3	59.0	55.5	45.3	53.3
4	Pant P 610	F-24855	86	199	124	136	17.3	24.0	19.5	20.3	66.0	60.5	51.3	59.3
5	IPFD 24-1	F-24860	93	205	124	141	21.3	30.4	21.4	24.4	59.0	68.9	51.6	59.8
6	RNCP 17-05	F-24861	81	202	124	136	17.6	20.7	18.3	18.9	85.0	65.2	49.3	66.5
7	HFP 2140	F-24866	84	202	123	136	17.3	24.0	20.5	20.6	42.0	56.3	33.0	43.8
8	SKNFP 2202	F-24867	88	203	123	138	16.3	19.4	20.6	18.8	59.0	43.9	36.0	46.3
9	SPC 103	F-24868	84	199	122	135	22.3	21.6	20.7	21.5	48.5	48.7	39.6	45.6
10	HFP 2160	F-24869	84	198	123	135	19.9	20.3	19.9	20.0	59.0	50.2	31.6	46.9
11	Pant P 592	F-24872	87	199	125	137	26.1	23.6	20.5	23.4	93.0	54.6	57.0	68.2
12	IPFD 24-8	F-24873	91	201	124	139	25.1	25.4	21.2	23.9	85.5	60.9	68.3	71.6
13	Pant P 605	F-24874	84	200	124	136	18.3	24.8	20.6	21.2	46.5	59.5	63.6	56.5
14	IPFD 24-7	F-24875	88	203	124	138	22.8	26.2	20.3	23.1	78.5	59.3	64.0	67.3

Crop: Field pea (Dwarf)

Trial: IVT

Zone: NWPZ

Yield (Kg/ha)

S. No.	Entry	Code No.	Durgapura	Samba	Hisar	Pantnagar	Ludhiana	Mean	Freq.	
										1
2	Pant Pea 347(Ch)	F - 24858	2271	1655	3356	2375	2011	2334	3/5	
3	Pant P 250 (Ch)	F - 24864	2438	1282	3190	1718	2486	2223	3/5	
4	HFP 1428 (Ch)	F - 24871	2530	1637	3437	2292	1678	2315	3/5	
5	Pant P 610	F - 24855	2319	1523	3109	2440	1670	2212	3/5	
6	IPFD 24-1	F - 24860	2659	1199	1841	1037	1674	1682	1/5	
7	RNCP 17-05	F - 24861	2244	1884	2469	972	2053	1924	2/5	
8	HFP 2140	F - 24866	2345	1667	2665	815	1987	1896	1/5	
9	SKNFP 2202	F - 24867	1790	1359	3030	1032	2397	1922	2/5	
10	SPC 103	F - 24868	2425	977	3080	1023	2107	1922	3/5	
11	HFP 2160	F - 24869	2573	1208	3310	1866	1586	2109	2/5	
12	Pant P 592	F - 24872	2122	1521	3188	2093	2254	2236	2/5	
13	IPFD 24-8	F - 24873	2420	1074	2117	921	1853	1677	1/5	
14	Pant P 605	F - 24874	2232	1475	2519	2046	1759	2006	1/5	
15	IPFD 24-7	F - 24875	2616	2007*	2858	2051	2417	2390	3/5	
	CV (%)		10.1	10.7	9.1	7.7	11.7			
	CD at 5%		397	264	442	217	393			
	GM		2331	1473	2893	1670	1993			

Crop: Field pea (Dwarf) Trial: IVT Zone: NWPZ 50% flowering

S. No.	Entry	Code No.	Durgapura	Samba	Hisar	Pantnagar	Ludhiana	Mean
1	HFP 529 (Ch.)	F - 24853	56	81	68	59	66	66
2	Pant Pea 347(Ch)	F - 24858	67	84	76	67	72	73
3	Pant P 250 (Ch)	F - 24864	65	85	77	64	72	73
4	HFP 1428 (Ch)	F - 24871	61	84	72	65	68	70
5	Pant P 610	F - 24855	64	85	76	64	71	72
6	IPFD 24-1	F - 24860	71	96	79	68	78	78
7	RNCP 17-05	F - 24861	57	84	67	61	67	67
8	HFP 2140	F - 24866	66	81	72	66	72	71
9	SKNFP 2202	F - 24867	66	86	74	65	68	72
10	SPC 103	F - 24868	60	84	74	65	71	71
11	HFP 2160	F - 24869	59	84	74	64	69	70
12	Pant P 592	F - 24872	67	95	78	63	75	76
13	IPFD 24-8	F - 24873	80	96	86	65	81	82
14	Pant P 605	F - 24874	61	87	76	65	69	72
15	IPFD 24-7	F - 24875	62	84	69	65	69	70

Crop: Field pea (Dwarf) Trial: IVT Zone: NWPZ Days to maturity

S. No.	Entry	Code No.	Durgapura	Samba	Hisar	Pantnagar	Ludhiana	Mean
1	HFP 529 (Ch.)	F - 24853	106	135	120	127	116	121
2	Pant Pea 347(Ch)	F - 24858	106	137	121	129	114	121
3	Pant P 250 (Ch)	F - 24864	107	140	122	125	118	122
4	HFP 1428 (Ch)	F - 24871	107	135	117	126	112	119
5	Pant P 610	F - 24855	107	139	118	129	116	122
6	IPFD 24-1	F - 24860	111	141	118	130	123	125
7	RNCP 17-05	F - 24861	106	137	122	124	118	121
8	HFP 2140	F - 24866	107	137	122	127	116	122
9	SKNFP 2202	F - 24867	108	137	119	126	117	121
10	SPC 103	F - 24868	105	137	120	128	116	121
11	HFP 2160	F - 24869	107	136	120	129	115	121
12	Pant P 592	F - 24872	104	139	124	138	121	125
13	IPFD 24-8	F - 24873	112	139	128	139	124	128
14	Pant P 605	F - 24874	107	142	124	137	117	125
15	IPFD 24-7	F - 24875	106	141	124	136	120	125

100 seed wt.

Zone: NWPZ

Trial: IVT

Crop: Field pea (Dwarf)

S. No.	Entry	Code No.	Durgapura	Samba	Hisar	Pantnagar	Ludhiana	Mean
1	HFP 529 (Ch.)	F - 24853	18.3	18.3	18.2	20.8	19.6	19.0
2	Pant Pea 347(Ch)	F - 24858	16.2	15.3	14.7	20.4	17.4	16.8
3	Pant P 250 (Ch)	F - 24864	17.3	14.1	14.5	18.3	16.0	16.0
4	HFP 1428 (Ch)	F - 24871	18.8	18.2	19.1	21.0	21.3	19.7
5	Pant P 610	F - 24855	17.0	17.2	15.5	20.0	20.0	17.9
6	IPFD 24-1	F - 24860	26.6	30.8	22.8	22.3	27.6	26.0
7	RNCP 17-05	F - 24861	15.7	17.4	15.5	17.3	19.6	17.1
8	HFP 2140	F - 24866	22.9	19.6	16.5	22.8	23.9	21.1
9	SKNFP 2202	F - 24867	15.2	15.6	22.0	18.9	17.9	17.9
10	SPC 103	F - 24868	17.0	14.8	17.5	19.2	18.2	17.3
11	HFP 2160	F - 24869	15.8	17.7	16.4	19.3	18.1	17.4
12	Pant P 592	F - 24872	21.9	18.8	21.0	19.6	20.1	20.3
13	IPFD 24-8	F - 24873	17.0	19.3	17.7	19.7	20.5	18.8
14	Pant P 605	F - 24874	16.2	16.3	17.5	19.7	20.8	18.1
15	IPFD 24-7	F - 24875	22.1	21.0	19.9	20.6	23.9	21.5

Crop: Field pea (Dwarf)

Zone: NWPZ

Trial: IVT

Plant height (cm)

S. No.	Entry	Code No.	Samba	Hisar	Pantnagar	Ludhiana	Mean
1	HFP 529 (Ch.)	F - 24853	72	79	92	70	78
2	Pant Pea 347(Ch)	F - 24858	71	96	101	67	84
3	Pant P 250 (Ch)	F - 24864	90	102	87	96	94
4	HFP 1428 (Ch)	F - 24871	63	87	99	68	79
5	Pant P 610	F - 24855	72	92	91	71	82
6	IPFD 24-1	F - 24860	79	90	157	82	102
7	RNCP 17-05	F - 24861	91	130	82	80	96
8	HFP 2140	F - 24866	67	75	90	61	73
9	SKNFP 2202	F - 24867	56	80	105	54	74
10	SPC 103	F - 24868	64	70	74	64	68
11	HFP 2160	F - 24869	63	90	94	66	78
12	Pant P 592	F - 24872	118	118	189	101	132
13	IPFD 24-8	F - 24873	93	107	190	91	120
14	Pant P 605	F - 24874	75	92	102	68	84
15	IPFD 24-7	F - 24875	92	113	103	78	97

Crop: Field pea (Dwarf) Trial: IVT Zone: NEPZ Yield (Kg/ha)

S.No.	Entry	Code No.	Varanasi	Ayodhya	Shillongani	Ranchi	Mean	Freq
1	Pant Pea 462(Ch)	F 24852	1875	2222	910	1253	1565	-
2	IPFD 19-1 (Ch)	F 24857	3208	2257	887	1432	1946	2/4
3	IPFD 19-3 Arpan(Ch)	F 24863	1986	1632	866	1468	1488	1/4
4	HFP 1426 (Ch)	F 24870	750	-	951	1274	992	-
5	Pant P 610	F 24855	1875	2222	903	1184	1546	-
6	IPFD 24-1	F 24860	1375	2083	803	1411	1418	1/4
7	RNCP 17-05	F 24861	1625	1979	1171*	1467	1561	1/4
8	HFP 2140	F 24866	2416	1597	968	1220	1550	-
9	SKNFP 2202	F 24867	1889	2083	435	1241	1412	-
10	SPC 103	F 24868	1167	1319	1180*	1212	1220	-
11	HFP 2160	F 24869	2083	1667	1560*	1493	1701	2/4
12	Pant P 592	F 24872	2833	2465	764	1207	1817	1/4
13	IPFD 24-8	F 24873	1791	2674*	757	1191	1603	-
14	Pant P 605	F 24874	1917	2257	833	1280	1572	-
15	IPFD 24-7	F 24875	2042	2396	914	1373	1681	2/4
	CV (%)		10.5	11.6	5.3	9.3		
	CD at 5%		340	404	82	206		
	GM		1922	2061	927	1314		

Crop: Field pea (Dwarf) Trial: IVT Zone: NEPZ 50% flowering

S.No.	Entry	Code No.	Varanasi	Ayodhya	Shillongani	Ranchi	Mean
1	Pant Pea 462(Ch)	F 24852	62	68	71	62	66
2	IPFD 19-1 (Ch)	F 24857	71	78	66	72	72
3	IPFD 19-3 Arpan(Ch)	F 24863	59	65	70	59	63
4	HFP 1426 (Ch)	F 24870	67	-	69	70	69
5	Pant P 610	F 24855	59	70	67	59	64
6	IPFD 24-1	F 24860	66	74	64	77	70
7	RNCP 17-05	F 24861	59	64	66	57	62
8	HFP 2140	F 24866	61	67	66	61	64
9	SKNFP 2202	F 24867	60	66	69	66	65
10	SPC 103	F 24868	61	68	66	62	64
11	HFP 2160	F 24869	59	66	66	62	63
12	Pant P 592	F 24872	65	73	72	66	69
13	IPFD 24-8	F 24873	67	79	75	71	73
14	Pant P 605	F 24874	62	72	70	62	67
15	IPFD 24-7	F 24875	60	70	68	59	64

Crop: Field pea (Dwarf) Trial: IVT Zone: NEPZ Days to maturity

S.No.	Entry	Code No.	Varanasi	Ayodhya	Shillongani	Ranchi	Mean
1	Pant Pea 462(Ch)	F 24852	102	108	121	109	110
2	IPFD 19-1 (Ch)	F 24857	107	115	116	116	114
3	IPFD 19-3 Arpan(Ch)	F 24863	104	108	119	105	109
4	HFP 1426 (Ch)	F 24870	104	-	119	114	112
5	Pant P 610	F 24855	103	109	117	104	108
6	IPFD 24-1*	F 24860	105	111	115	120	113
7	RNCP 17-05	F 24861	103	107	115	103	107
8	HFP 2140	F 24866	103	108	117	109	109
9	SKNFP 2202	F 24867	103	106	118	112	110
10	SPC 103	F 24868	103	108	115	110	109
11	HFP 2160	F 24869	104	105	116	109	109
12	Pant P 592	F 24872	105	110	121	112	112
13	IPFD 24-8	F 24873	105	115	123	116	115
14	Pant P 605	F 24874	103	114	119	110	112
15	IPFD 24-7	F 24875	103	109	117	105	109

Crop: Field pea (Dwarf) Trial: IVT Zone: NEPZ 100 seed wt. (g)

S.No.	Entry	Code No.7u	Varanasi	Ayodhya	Shillongani	Ranchi	Mean
1	Pant Pea 462(Ch)	F 24852	15.3	16.7	20.8	18.9	17.9
2	IPFD 19-1 (Ch)	F 24857	17.6	19.3	20.2	17.3	18.6
3	IPFD 19-3 Arpan(Ch)	F 24863	21.6	21.7	23.1	15.6	20.5
4	HFP 1426 (Ch)	F 24870	18.2	-	21.4	15.6	18.4
5	Pant P 610	F 24855	15.9	20.6	21.9	16.4	18.7
6	IPFD 24-1*	F 24860	24.0	27.7	29.6	14.8	24.0
7	RNCP 17-05	F 24861	17.5	19.2	21.1	18.2	19.0
8	HFP 2140	F 24866	23.8	24.7	26.9	16.7	23.0
9	SKNFP 2202	F 24867	17.3	17.3	19.5	18.3	18.1
10	SPC 103	F 24868	16.9	20.4	22.3	18.2	19.5
11	HFP 2160	F 24869	18.1	18.4	24.7	16.2	19.4
12	Pant P 592	F 24872	22.8	21.6	23.0	17.4	21.2
13	IPFD 24-8	F 24873	17.3	20.7	23.8	15.3	19.3
14	Pant P 605	F 24874	19.3	20.2	24.5	15.4	19.9
15	IPFD 24-7	F 24875	18.6	24.7	24.6	16.3	21.0

Crop: Field pea (Dwarf) Trial: IVT Zone: NEPZ Plant height (cm)

S.No.	Entry	Code No.	Varanasi	Ayodhya	Shillongani	Ranchi	Mean
1	Pant Pea 462(Ch)	F 24852	57	80	114	56.8	77
2	IPFD 19-1 (Ch)	F 24857	59	73	88	77.2	74
3	IPFD 19-3 Arpan(Ch)	F 24863	61	70	103	57.0	73
4	HFP 1426 (Ch)	F 24870	49	-	88	50.1	62
5	Pant P 610	F 24855	53	69	120	61.1	76
6	IPFD 24-1	F 24860	68	73	115	65.4	80
7	RNCP 17-05	F 24861	57	68	92	58.0	69
8	HFP 2140	F 24866	50	51	88	51.4	60
9	SKNFP 2202	F 24867	44	60	82	72.5	65
10	SPC 103	F 24868	38	62	80	58.3	60
11	HFP 2160	F 24869	45	68	68	57.6	60
12	Pant P 592	F 24872	103	112	90	68.4	93
13	IPFD 24-8	F 24873	75	100	125	53.9	88
14	Pant P 605	F 24874	60	75	137	66.4	85
15	IPFD 24-7	F 24875	55	81	112	63.4	78

Crop: Field pea (Dwarf) Trial: IVT Zone: CZ Yield (Kg/ha)

S. No.	Entry	Code No.	S.K. Nagar	Banda (Rej.)	Jabalpur	Raipur	Sagar	Kota	Sehore	Mean	Freq.
1	IPFD 14-2 (Ch)	F-24851	3148	1993	2769	1211	2660	2995	2262	2508	4/6
2	IPFD 12-2 (Ch)	F-24856	3009	2501	1363	1292	2652	2851	3074	2374	5/6
3	IPFD 11-5 (Ch)	F-24862	2731	2545	1002	1513	2860	2537	2034	2113	3/6
4	Pant P 610	F-24855	2454	2309	1178	970	2269	2618	2215	1951	-
5	IPFD 24-1	F-24860	1505	2669	944	550	2036	2688	1819	1590	1/6
6	RNCP 17-05	F-24861	2338	1714	1042	1039	2313	2331	1931	1832	-
7	HFP 2140	F-24866	2546	2392	1179	1109	2866	2697	1317	1952	2/6
8	SKNFP 2202	F-24867	2593	3101	891	1183	1929	2539	1353	1748	-
9	SPC 103	F-24868	2454	3632	1356	961	2804	2570	2201	2058	1/6
10	HFP 2160	F-24869	2269	3876	1259	1105	2967	2745	2120	2078	2/6
11	Pant P 592	F-24872	2477	3753	1190	1018	2622	3027	2139	2079	1/6
12	IPFD 24-8	F-24873	1528	2530	1134	778	2029	2359	1990	1636	-
13	Pant P 605	F-24874	2593	2868	895	857	2473	2497	2210	1921	-
14	IPFD 24-7	F-24875	2917	3108	1330	718	2410	2701	1828	1984	2/6
	CV (%)		11.2	3.9	8.9	15.1	7.9	7.7	17.9		
	CD at 5%		465	186	188	260	331	345	616		
	GM		2469	2785	1252	1022	2492	2654	2035		

50% flowering

Zone: CZ

Trial: IVT

Crop: Field pea (Dwarf)

S. No.	Entry	Code No.	S.K. Nagar	Banda (Rej.)	Jabalpur	Raipur	Sagar	Kota	Sehore	Mean
1	IPFD 14-2 (Ch)	F-24851	50	70	59	47	54	58	70	56
2	IPFD 12-2 (Ch)	F-24856	48	71	59	45	53	54	68	55
3	IPFD 11-5 (Ch)	F-24862	53	72	67	51	55	59	74	60
4	Pant P 610	F-24855	56	79	67	50	59	64	74	62
5	IPFD 24-1	F-24860	60	71	68	52	64	74	80	66
6	RNCP 17-05	F-24861	50	72	63	45	52	57	71	56
7	HFP 2140	F-24866	54	71	64	48	55	67	73	60
8	SKNFP 2202	F-24867	55	82	63	49	56	61	73	60
9	SPC 103	F-24868	52	77	63	51	55	61	72	59
10	HFP 2160	F-24869	52	72	64	48	55	61	70	58
11	Pant P 592	F-24872	56	71	70	51	61	70	76	64
12	IPFD 24-8	F-24873	61	80	71	53	61	74	84	67
13	Pant P 605	F-24874	54	78	64	51	60	65	74	61
14	IPFD 24-7	F-24875	52	70	63	50	55	60	74	59

Days to maturity

Zone: CZ

Trial: IVT

Crop: Field pea (Dwarf)

S. No.	Entry	Code No.	S.K. Nagar	Banda (Rej.)	Jabalpur	Raipur	Sagar	Kota	Sehore	Mean
1	IPFD 14-2 (Ch)	F-24851	105	122	104	81	115	105	106	103
2	IPFD 12-2 (Ch)	F-24856	108	121	102	79	113	106	104	102
3	IPFD 11-5 (Ch)	F-24862	105	121	110	84	115	107	106	105
4	Pant P 610	F-24855	106	124	113	83	113	108	104	105
5	IPFD 24-1	F-24860	108	121	111	83	114	111	110	106
6	RNCP 17-05	F-24861	105	120	108	81	116	106	108	104
7	HFP 2140	F-24866	106	120	106	81	114	112	104	104
8	SKNFP 2202	F-24867	107	122	107	81	114	107	107	104
9	SPC 103	F-24868	107	122	110	80	115	108	105	104
10	HFP 2160	F-24869	105	120	109	83	114	110	103	104
11	Pant P 592	F-24872	108	120	116	83	113	111	106	106
12	IPFD 24-8	F-24873	111	122	115	85	113	111	109	107
13	Pant P 605	F-24874	106	125	110	83	114	108	107	105
14	IPFD 24-7	F-24875	105	121	109	84	115	109	104	104

Crop: Field pea (Dwarf) Trial: IVT Zone: CZ 100 seed wt. (g)

S. No.	Entry	Code No.	S.K. Nagar	Banda (Rej.)	Jabalpur	Raipur	Sagar	Kota	Sehore	Mean
1	IPFD 14-2 (Ch)	F-24851	18.9	18.3	18.8	19.1	19.7	17.0	22.2	19.3
2	IPFD 12-2 (Ch)	F-24856	16.5	22.2	16.2	17.1	17.7	18.3	15.9	17.0
3	IPFD 11-5 (Ch)	F-24862	14.0	19.8	17.2	15.1	19.7	18.1	15.9	16.7
4	Pant P 610	F-24855	15.5	20.9	16.8	16.8	20.7	18.5	19.1	17.9
5	IPFD 24-1	F-24860	21.0	21.6	25.5	24.2	28.7	22.6	27.8	25.0
6	RNCP 17-05	F-24861	16.7	25.2	18.3	17.6	19.7	20.1	18.3	18.5
7	HFP 2140	F-24866	19.8	19.1	24.6	22.2	24.7	14.2	22.2	21.3
8	SKNFP 2202	F-24867	14.3	23.1	17.1	17.2	17.7	20.1	23.0	18.2
9	SPC 103	F-24868	15.1	18.2	16.0	18.1	20.7	17.2	36.0	20.5
10	HFP 2160	F-24869	16.4	18.4	16.7	16.4	19.0	19.9	16.3	17.5
11	Pant P 592	F-24872	19.3	20.1	24.7	15.7	22.7	16.4	20.1	19.8
12	IPFD 24-8	F-24873	15.7	19.7	19.3	17.5	22.7	15.3	19.1	18.3
13	Pant P 605	F-24874	15.7	19.9	17.3	16.1	18.7	20.6	18.3	17.8
14	IPFD 24-7	F-24875	18.3	20.3	21.6	20.8	23.7	23.0	21.3	21.5

Crop: Field pea (Dwarf) Trial: IVT Zone: CZ Plant height (cm)

S. No.	Entry	Code No.	S.K. Nagar	Banda (Rej.)	Jabalpur	Raipur	Sagar	Sehore	Mean
1	IPFD 14-2 (Ch)	F-24851	54	93	76	52	95	73	70
2	IPFD 12-2 (Ch)	F-24856	69	111	70	55	98	82	75
3	IPFD 11-5 (Ch)	F-24862	69	78	62	52	105	80	74
4	Pant P 610	F-24855	52	97	65	55	96	68	67
5	IPFD 24-1	F-24860	80	79	58	58	95	89	76
6	RNCP 17-05	F-24861	53	87	59	54	101	94	72
7	HFP 2140	F-24866	54	77	56	49	83	69	62
8	SKNFP 2202	F-24867	68	81	62	51	75	63	64
9	SPC 103	F-24868	62	127	68	50	86	80	69
10	HFP 2160	F-24869	63	88	63	51	87	67	66
11	Pant P 592	F-24872	98	111	69	100	116	108	98
12	IPFD 24-8	F-24873	102	113	65	66	106	100	88
13	Pant P 605	F-24874	71	89	64	53	99	83	74
14	IPFD 24-7	F-24875	100	85	66	59	96	92	83

INFORMATION SHEET

Field pea Rice Fallow

Trial: AVT-1

S. No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rained	Net plot fertilizer N:P:K	Date of harvesting
NEPZ							
1	Mohanpur	Dr. Arpita Das	20.11.2024	9.6	-	20:40:20:20ZNSO4	Plot wise
2	Ranchi	Dr. C.S. Mahto	13.12.2024	9.6	1	20:40:20	08.04.2025
3	Shillongani	Dr. Nabajyoti Bhuyan	13.12.2024	9.6	2	0.8:4.5:0.6	19.03.2025
4	Dholi	Dr. Ravi Kant	06.12.2024	9.6	1	20:40:20	14.04.2025
5	Sabour	Dr. Kanak Saxena	12.12.2024	12.2	-	30:40:00	Plot wise

Data not considered due to (i) GM less than state average: (ii) CV (%) more than 20% (irrigated) :

Crop: Field pea (Rice Fallow)

Zone : NEPZ

Trial: AVT-1

Yield (Kg/ha)

S. No.	Entry	Code	Mohanpur	Dholi	Sabour	Ranchi	Shillongani	Mean	Freq.
1	SKNP 04-09 (Ch)	F-24821	1081	651	980	1472	1039	1045	1/5
2	HUDP 15 (Ch)	F-24823	1134	2070	890	1212	794	1220	1/5
3	IPF 16-13(Ch)	F-24824	1205	1589	1057	1325	1125	1260	3/5
4	Pant P 568	F-24822	1373	2175	1258*	1031	1254	1418	4/5
	CV (%)		9.9	9.6	9.0	12.2	7.7		
	CD at 5%		194	253	153	250	132		
	GM		1198	1621	1046	1260	1053		

Crop: Field pea (Rice Fallow)

Zone : NEPZ

Trial: AVT-1

50% flowering

S. No.	Entry	Code	Mohanpur	Dholi	Sabour	Ranchi	Shillongani	Mean
1	SKNP 04-09 (Ch)	F-24821	68	99	73	64	67	74
2	HUDP 15 (Ch)	F-24823	72	95	64	65	70	73
3	IPF 16-13(Ch)	F-24824	61	94	65	66	61	69
4	Pant P 568	F-24822	65	93	60	63	61	68

Crop: Field pea (Rice Fallow) Zone : NEPZ Trial: AVT-1 Days to maturity

S. No.	Entry	Code	Mohanpur	Dholi	Sabour	Ranchi	Shillongani	Mean
1	SKNP 04-09 (Ch)	F-24821	119	134	112	118	98	112
2	HUDP 15 (Ch)	F-24823	123	118	110	120	100	113
3	IPF 16-13(Ch)	F-24824	110	129	110	121	100	110
4	Pant P 568	F-24822	114	122	109	117	101	110

Crop: Field pea (Rice Fallow) Zone : NEPZ Trial: AVT-1 100 seed wt. (g)

S. No.	Entry	Code	Mohanpur	Dholi	Sabour	Ranchi	Shillongani	Mean
1	SKNP 04-09 (Ch)	F-24821	17.2	20.9	17.0	16.9	16.0	16.8
2	HUDP 15 (Ch)	F-24823	19.2	23.2	17.2	15.8	15.5	16.9
3	IPF 16-13(Ch)	F-24824	19.7	22.54	20.9	16.1	18.3	18.8
4	Pant P 568	F-24822	19.5	17.0	18.5	15.1	14.1	16.8

Crop: Field pea (Rice Fallow) Zone : NEPZ Trial: AVT-1 Plant height (cm)

S. No.	Entry	Code	Mohanpur	Sabour	Ranchi	Shillongani	Mean
1	SKNP 04-09 (Ch)	F-24821	53	35	64	44	49
2	HUDP 15 (Ch)	F-24823	44	34	49	44	43
3	IPF 16-13(Ch)	F-24824	98	71	63	114	87
4	Pant P 568	F-24822	107	71	58	107	86

INFORMATION SHEET

Field pea Rice Fallow 2024-25

Trial: IVT

S. No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rainfed	Net plot fertilizer N:P:K	Date of harvesting
NEPZ							
1	Ranchi	Dr. C.S. Mahto	13.12.2024	7.2	1	20:40:20	25.03.2025
2	Shillongani	Dr. Nabajyoti Bhuyan	13.12.2024	7.2	2	1.3:7.5:1.0	18.03.2025
3	Dholi	Dr. Ravi Kant	27.11.2024	7.2	1	20:40:20	04.04.2025
4	Sabour	Dr. Kanak Saxena	12.12.2024	6.0	-	20:40:00	Plot wise
5.	Imphal	Dr. Manoranjan Biswal	24.12.2024	5.4	-	-	Plot wise
CZ							
1	Raipur	Dr. Mangla Parikh	07.11.2024	7.2	-	20:50:20	Plot wise
2	Kanker	Dr. J.L. Salam	07.11.2024	6.0	-	20:50:20	Plot wise
3	Jagdarpur	Mr. Rajaram Kanwar	12.11.2024	7.2	2	20:40:20	25.02.2025
4.	Balaghat	Drs. Uttam Bisen & Pratibha Bisen	25.11.2024	4.8	1	20:40:20	10.04.2025

Data not considered due to (i) GM less than state average: (ii) CV (%) more than 20% (irrigated) :

Crop: Field pea (Rice Fallow) Zone : NEPZ Trial: IVT Yield (kg/ha)

S. No.	Entry	Code	Imphal	Dholi	Sabour	Ranchi	Shillongani	Mean	Freq.
1	IPF 16-13 (Ch)	F-24806	850	1259	1385	1454	1259	1241	4/5
2	SKNP 04-09 (Ch)	F-24813	698	975	817	1190	954	927	-
3	HUDDP 15 (Ch)	F-24814	609	1139	811	1480	870	982	1/5
4	Pant P 628	F-24801	833	1671*	1295	1307	1157	1253	3/5
5	Pant P 633	F-24803	864	1162	1056	1199	1324	1121	2/5
6	IPF 24-11	F-24804	846	1218	1267	1174	1287	1158	3/5
7	Pant P 605	F-24807	854	935	912	1317	1157	1035	2/5
8	IPF 21-16	F-24808	874	634	867	1347	1130	970	2/5
9	IPFD 24-3	F-24810	690	815	841	1402	1139	977	1/5
10	RFP 2020-6	F-24811	802	583	842	1282	954	893	2/5
11	Pant P 592	F-24812	806	1301	913	1074	1287	1076	2/5
12	IPFD 24-2	F-24815	782	2144*	853	1251	898	1186	3/5
	CV (%)		8.3	9.5	11.1	10.4	5.2		
	CD at 5%		111	186	187	229	98		
	GM		792	1153	988	1290	1118		

Crop: Field pea (Rice Fallow) Zone : NEPZ Trial: IVT 50% flowering

S. No.	Entry	Code	Imphal	Dholi	Sabour	Ranchi	Shillongani	Mean
1	IPF 16-13 (Ch)	F-24806	58	73	68	60	61	64
2	SKNP 04-09 (Ch)	F-24813	61	80	64	68	61	67
3	HUDDP 15 (Ch)	F-24814	64	78	75	66	69	70
4	Pant P 628	F-24801	58	79	68	69	61	67
5	Pant P 633	F-24803	57	76	64	63	61	64
6	IPF 24-11	F-24804	59	73	66	61	65	65
7	Pant P 605	F-24807	59	75	71	65	62	66
8	IPF 21-16	F-24808	60	82	67	61	67	67
9	IPFD 24-3	F-24810	63	80	64	72	69	70
10	RFP 2020-6	F-24811	56	78	66	70	62	66
11	Pant P 592	F-24812	63	73	72	66	65	68
12	IPFD 24-2	F-24815	57	78	69	62	61	65

Crop: Field pea (Rice Fallow)		Zone : NEPZ				Trial: IVT			Days to maturity	
S. No.	Entry	Code	Imphal	Dholi	Sabour	Ranchi	Shillongani	Mean		
1	IPF 16-13 (Ch)	F-24806	100	114	110	112	97	107		
2	SKNP 04-09 (Ch)	F-24813	101	120	106	120	98	109		
3	HUDP 15 (Ch)	F-24814	105	119	116	121	103	113		
4	Pant P 628	F-24801	102	119	110	122	96	110		
5	Pant P 633	F-24803	99	117	109	118	97	108		
6	IPF 24-11	F-24804	102	114	108	113	98	107		
7	Pant P 605	F-24807	100	116	111	119	97	109		
8	IPF 21-16	F-24808	102	123	108	112	103	110		
9	IPFD 24-3	F-24810	104	121	109	123	98	111		
10	RFP 2020-6	F-24811	98	118	108	120	98	108		
11	Pant P 592	F-24812	104	113	114	118	97	109		
12	IPFD 24-2	F-24815	99	119	111	110	97	107		

Crop: Field pea (Rice Fallow)		Zone : NEPZ				Trial: IVT			100 seed wt. (g)	
S. No.	Entry	Code	Imphal	Dholi	Sabour	Ranchi	Shillongani	Mean		
1	IPF 16-13 (Ch)	F-24806	18.2	21.7	18.0	14.8	15.3	17.6		
2	SKNP 04-09 (Ch)	F-24813	16.8	20.0	15.8	16.1	12.4	16.2		
3	HUDP 15 (Ch)	F-24814	15.8	20.4	14.1	15.4	15.0	16.1		
4	Pant P 628	F-24801	17.9	19.4	18.0	16.2	10.2	16.3		
5	Pant P 633	F-24803	17.6	20.0	18.8	14.3	11.4	16.4		
6	IPF 24-11	F-24804	17.8	19.4	16.2	15.9	15.7	17.0		
7	Pant P 605	F-24807	18.4	21.3	15.2	16.1	13.3	16.9		
8	IPF 21-16	F-24808	19.3	18.9	17.4	15.3	11.3	16.4		
9	IPFD 24-3	F-24810	16.2	20.7	17.9	16.4	14.9	17.2		
10	RFP 2020-6	F-24811	15.2	21.0	16.6	15.1	8.9	15.4		
11	Pant P 592	F-24812	19.5	21.5	19.6	15.7	13.8	18.0		
12	IPFD 24-2	F-24815	18.8	19.5	15.7	15.9	15.5	17.1		

Crop: Field pea (Rice Fallow) Zone : NEPZ Trial: IVT Plant height (cm)

S. No.	Entry	Code	Imphal	Sabour	Ranchi	Shillongani	Mean
1	IPF 16-13 (Ch)	F-24806	55	74	75	39	61
2	SKNP 04-09 (Ch)	F-24813	31	37	55	120	61
3	HUDP 15 (Ch)	F-24814	32	35	46	40	38
4	Pant P 628	F-24801	52	97	91	111	88
5	Pant P 633	F-24803	57	80	85	115	84
6	IPF 24-11	F-24804	48	89	90	100	82
7	Pant P 605	F-24807	37	48	56	83	56
8	IPF 21-16	F-24808	68	117	103	139	107
9	IPFD 24-3	F-24810	41	59	57	77	59
10	RFP 2020-6	F-24811	56	78	85	138	89
11	Pant P 592	F-24812	55	68	83	142	87
12	IPFD 24-2	F-24815	34	45	48	41	42

Crop: Field pea (Rice Fallow) Zone : CZ Trial: IVT Yield (kg/ha)

S. No.	Entry	Code	Balaghat	Raipur	Kanker	Jagdulpur	Mean	Freq.
1	IPFD 14-2 (Ch)	F-24802	1208	809	986	1046	1012	2/4
2	IPFD 12-2 (Ch)	F-24805	1667	554	477	1419	1029	1/4
3	IPFD 11-5 (Ch)	F-24809	1917	888	507	1341	1163	2/4
4	Pant P 628	F-24801	1174	679	777	565	799	-
5	Pant P 633	F-24803	1708	820	524	1019	1018	1/4
6	IPF 24-11	F-24804	1389	782	488	1395	1014	1/4
7	Pant P 605	F-24807	1417	575	574	1015	895	-
8	IPF 21-16	F-24808	1264	613	365	1305	887	-
9	IPFD 24-3	F-24810	1347	655	375	1171	887	-
10	RFP 2020-6	F-24811	1708	823	559	1248	1085	2/4
11	Pant P 592	F-24812	1347	561	619	1188	929	-
12	IPFD 24-2	F-24815	1264	645	573	1594	1019	1/4
	CV (%)		10.1	13.4	13.1	8.7		
	CD at 5%		249	160	127	176		
	GM		1451	700	569	1192		

Crop: Field pea (Rice Fallow) Zone : CZ Trial: IVT 50% flowering

S. No.	Entry	Code	Balaghat	Raipur	Kanker	Jagdarpur	Mean
1	IPFD 14-2 (Ch)	F-24802	51	45	46	55	49
2	IPFD 12-2 (Ch)	F-24805	50	47	48	53	50
3	IPFD 11-5 (Ch)	F-24809	50	43	47	50	48
4	Pant P 628	F-24801	51	48	47	57	51
5	Pant P 633	F-24803	50	44	45	55	49
6	IPF 24-11	F-24804	52	49	49	61	53
7	Pant P 605	F-24807	52	51	48	59	52
8	IPF 21-16	F-24808	58	45	49	64	54
9	IPFD 24-3	F-24810	52	45	47	60	51
10	RFP 2020-6	F-24811	51	46	45	57	50
11	Pant P 592	F-24812	50	44	45	59	50
12	IPFD 24-2	F-24815	53	49	49	56	52

Crop: Field pea (Rice Fallow) Zone : CZ Trial: IVT Days to maturity

S. No.	Entry	Code	Balaghat	Raipur	Kanker	Jagdarpur	Mean
1	IPFD 14-2 (Ch)	F-24802	88	78	78	96	85
2	IPFD 12-2 (Ch)	F-24805	87	78	84	93	85
3	IPFD 11-5 (Ch)	F-24809	89	84	82	98	88
4	Pant P 628	F-24801	92	81	81	101	89
5	Pant P 633	F-24803	92	79	79	98	87
6	IPF 24-11	F-24804	92	77	83	97	87
7	Pant P 605	F-24807	90	82	84	97	88
8	IPF 21-16	F-24808	91	86	85	99	90
9	IPFD 24-3	F-24810	91	84	79	96	88
10	RFP 2020-6	F-24811	89	84	77	100	87
11	Pant P 592	F-24812	91	86	76	99	88
12	IPFD 24-2	F-24815	91	87	83	96	89

Crop: Field pea (Rice Fallow) Zone : CZ Trial: IVT 100 seed wt. (g)

S. No.	Entry	Code	Balaghat	Raipur	Kanker	Jagdulpur	Mean
1	IPFD 14-2 (Ch)	F-24802	19.8	20.4	19.2	23.8	20.8
2	IPFD 12-2 (Ch)	F-24805	17.0	15.3	16.5	17.2	16.5
3	IPFD 11-5 (Ch)	F-24809	17.1	17.0	17.4	20.5	18.0
4	Pant P 628	F-24801	17.1	18.2	17.9	21.6	18.7
5	Pant P 633	F-24803	19.6	17.5	17.7	18.9	18.4
6	IPF 24-11	F-24804	20.2	17.0	18.3	18.9	18.6
7	Pant P 605	F-24807	19.2	17.4	19.0	19.5	18.8
8	IPF 21-16	F-24808	18.0	18.6	10.8	19.4	16.7
9	IPFD 24-3	F-24810	19.5	18.4	17.4	21.0	19.1
10	RFP 2020-6	F-24811	17.3	16.3	18.8	20.2	18.1
11	Pant P 592	F-24812	19.9	17.7	20.6	22.6	20.2
12	IPFD 24-2	F-24815	16.9	16.8	18.6	18.3	17.7

Crop: Field pea (Rice Fallow) Zone : CZ Trial: IVT Plant height (cm)

S. No.	Entry	Code	Raipur	Jagdulpur	Mean
1	IPFD 14-2 (Ch)	F-24802	63	52	57
2	IPFD 12-2 (Ch)	F-24805	52	57	55
3	IPFD 11-5 (Ch)	F-24809	46	66	56
4	Pant P 628	F-24801	101	120	111
5	Pant P 633	F-24803	103	115	109
6	IPF 24-11	F-24804	89	115	102
7	Pant P 605	F-24807	50	66	58
8	IPF 21-16	F-24808	80	127	103
9	IPFD 24-3	F-24810	55	64	60
10	RFP 2020-6	F-24811	74	131	102
11	Pant P 592	F-24812	76	122	99
12	IPFD 24-2	F-24815	40	64	52

INFORMATION SHEET

Lathyrus 2024-2025

Trial: IVT

S. No.	Location	Reporting Scientist	Date of sowing	Net plot size (M ²)	No. of irr./rained	Net plot fertilizer N:P:K	Date of harvesting
NEPZ							
1	Mohanpur	Dr. Arpita Das	05.12.2024	7.2	-	20:40:20:20 ZnSO ₄	Plot wise
2	Ranchi	Dr. C.S. Mahto	06.11.2024	7.2	3	20:40:20	04.04.2025
3	Shillongani	Dr. Nabajyoti Bhuyan	29.11.2024	7.2	2	1.0:5.7:0.8	27.03.2025
4	Dholi	Dr. Ravi Kant	27.11.2024	7.2	1	20:40:20	10.04.2025
5	Sabour	Dr. Anand Kumar	20.11.2024	4.8	-	20:40:00	29.03.2025
CZ							
1	Raipur	Dr. Mangla Parikh	24.11.2024	7.2	1	20:50:20	Plot wise
2	Kanker	Dr. J.L. Salam	07.11.2024	6.0	-	20:50:20	Plot wise
3	Jagdaldpur	Dr. Rajaram Kanwar	14.11.2024	7.2	2	20:40:20	27.02.2025

Data not considered due to (i) GM less than state average: (ii) CV less than 5% :

Crop: Lathyrus

Zone : NEPZ

Trial: IVT

Yield (Kg/ha)

S.No.	Entry	Code No.	Mohanpur	Ranchi	Sabour	Dholi	Shillongani	Mean	Freq.
1	Mahateora (Ch)	LH-24101	1276	1514	1309	2134	872	1421	2/5
4	Prateek (Ch)	LH-24104	1098	1379	1640	875	1270	1252	2/5
8	Bidhan Khesari 1 (Ch)	LH-24108	1360	1470	1060	1514	689	1219	2/5
2	RLS-2022-2	LH-24102	1239	1171	1585	1917	820	1346	-
3	RLS 3004-2	LH-24103	1262	1116	1690	1046	737	1170	1/5
5	BCK-23-167	LH-24105	1483	1337	1558	1500	1391	1454	3/5
6	RLS-2022-4	LH-24106	1392	1412	1601	1750	1065	1444	2/5
7	BRLa 09	LH-24107	1174	1313	2002*	2440*	985	1583	3/5
9	BCK-24-3	LH-24109	1386	1286	1160	1486	969	1257	2/5
	CV (%)		9.9	10.2	10.3	6.8	9.5		
	CD at 5%		224	238	272	192	161		
	GM		1297	1333	1512	1629	978		

Crop: Lathyrus

(ODAP) Estimation

S.N.	Code		Entry Name	ODAP (Raipur)		ODAP (Amalaha)		Average
	A	B		A	B	A	B	
1	L2	L13	Mahateora (Ch)	0.15	0.07	0.06	0.10	0.10
2	L3	L15	Prateek (Ch)	0.14	0.11	0.11	0.13	0.12
3	L6	L16	BidhanKhesari (Ch)	0.17	0.10	0.07	0.09	0.11
4	L10	L12	Mahateora (Ch)	0.07	0.12	0.09	0.07	0.09
5	L1	L14	RLS 2022-2	0.11	0.15	0.13	0.11	0.13
6	L4	L19	RLS 2022-4	0.17	0.14	0.13	0.14	0.15
7	L5	L17	BCK 24-3	0.10	0.07	0.10	0.10	0.09
8	L7	L18	BCK 23-167	0.07	0.15	0.10	0.11	0.11
9	L8	L20	BRLA 09	0.16	0.17	0.10	0.11	0.14
10	L9	L11	RLS 3004-2	0.10	0.09	0.09	0.08	0.09
11	L21	L22	RLS 2022-2	0.13	0.15	0.14	0.10	0.13

Crop: Lathyrus

Zone : NEPZ

Trial: IVT

50% flowering

S.No.	Entry	Code No.	Mohanpur	Ranchi	Sabour	Dholi	Shillongani	Mean
1	Mahateora (Ch)	LH-24101	64	58	82	86	69	72
2	Prateek (Ch)	LH-24104	73	60	80	87	71	74
3	Bidhan Khesari.1 (Ch)	LH-24108	68	59	79	86	72	73
4	RLS-2022-2	LH-24102	71	61	81	86	71	74
5	RLS 3004-2	LH-24103	70	69	78	87	71	75
6	BCK-23-167	LH-24105	65	60	82	86	64	71
7	RLS-2022-4	LH-24106	72	60	80	86	72	74
8	BRLa 09	LH-24107	74	55	77	86	73	73
9	BCK-24-3	LH-24109	69	64	81	86	72	74

Crop: Lathyrus

Zone : NEPZ

Trial: IVT

Days to maturity

S.No.	Entry	Code No.	Mohanpur	Ranchi	Sabour	Dholi	Shillongani	Mean
1	Mahateora (Ch)	LH-24101	125	108	111	132	120	119
2	Prateek (Ch)	LH-24104	134	111	110	133	119	121
3	BidhanKhesari 1 (Ch)	LH-24108	127	110	114	132	120	121
4	RLS-2022-2	LH-24102	132	112	113	132	121	122
5	RLS 3004-2	LH-24103	130	115	112	133	120	122
6	BCK-23-167	LH-24105	125	112	112	132	119	120
7	RLS-2022-4	LH-24106	132	110	111	132	125	122
8	BRLa 09	LH-24107	133	107	109	132	125	121
9	BCK-24-3	LH-24109	129	113	116	132	120	122

100 seed wt. (g)

Trial: IVT

Zone : NEPZ

Crop: Lathyrus

S.No.	Entry	Code No.	Mohanpur	Ranchi	Sabour	Dholi	Shillongani	Mean
1	Mahateora (Ch)	LH-24101	6.9	8.1	8.4	9.2	5.9	7.7
2	RLS-2022-2	LH-24102	7.5	7.2	8.6	8.1	4.8	7.3
3	RLS 3004-2	LH-24103	7.8	7.5	8.0	10.9	5.9	8.0
4	Prateek (Ch)	LH-24104	7.2	6.4	7.9	8.7	4.3	6.9
5	BCK-23-167	LH-24105	7.4	7.5	9.0	8.9	5.6	7.7
6	RLS-2022-4	LH-24106	7.6	8.0	9.4	8.2	6.2	7.9
7	BRLa 09	LH-24107	8.2	9.1	9.7	9.3	5.7	8.4
8	Bidhan Khesari 1 (Ch)	LH-24108	6.6	7.3	7.4	9.0	6.3	7.3
9	BCK-24-3	LH-24109	7.7	8.1	8.3	10.0	6.2	8.1

Crop: Lathyrus		Zone : CZ		Trial: IVT		Yield (Kg/ha)	
S.No.	Entry	Code No.	Raipur	Jagdarpur	Kanker	Mean	Freq.
1	Mahateora (Ch)	LH-24101	2070	957	523	1183	2/3
2	Prateek (Ch)	LH-24104	1832	744	527	1034	1/3
3	BidhanKhesari 1 (Ch)	LH-24108	1385	497	252	711	-
4	RLS-2022-2	LH-24102	1750	912	312	991	2/3
5	RLS 3004-2	LH-24103	2063	1045	585	1231	3/3
6	BCK-23-167	LH-24105	1977	1020	673*	1223	3/3
7	RLS-2022-4	LH-24106	1541	794	336	890	-
8	BRLa 09	LH-24107	1717	633	427	926	1/3
9	BCK-24-3	LH-24109	1371	519	417	769	
	CV (%)		12.7	10.5	12.2		
	CD at 5%		386	146	96		
	GM		1745	791	450		

Crop: Lathyrus		Zone : CZ		Trial: IVT		Yield (Kg/ha)								
S. No.	Entry	Code No.	50% flowering			Days to maturity			100 seed wt. (g)					
			Raipur	Jagdarpur	Kanker	Mean	Raipur	Jagdarpur	Kanker	Mean	Raipur	Jagdarpur	Kanker	Mean
1	Mahateora (Ch)	LH-24101	51	42	57	50	88	89	86	88	7.3	6.9	8.0	7.4
2	Prateek (Ch)	LH-24104	51	43	52	49	90	93	83	89	6.8	8.2	6.7	7.2
3	Bidhan Khesari 1 (Ch)	LH-24108	51	45	53	50	90	96	82	90	7.8	7.1	8.1	7.7
4	RLS-2022-2	LH-24102	54	44	55	51	89	95	86	90	7.9	7.9	6.5	7.4
5	RLS 3004-2	LH-24103	53	47	52	51	91	97	82	90	8.6	7.9	6.0	7.5
6	BCK-23-167	LH-24105	51	45	55	50	88	88	86	87	7.7	8.1	8.0	7.9
7	RLS-2022-4	LH-24106	54	43	53	50	93	98	84	91	8.6	8.1	7.0	7.9
8	BRLa 09	LH-24107	51	42	52	48	93	97	84	91	9.4	8.2	8.2	8.6
9	BCK-24-3	LH-24109	52	53	49	51	92	99	80	90	6.7	8.4	7.6	7.6

GENETIC RESOURCE AND BREEDER SEED PRODUCTION

2.1 Plant Genetic Resources

2.1.1 Highlights: Maintenance of germplasm accessions

- During Rabi 2024-25, total 12365 germplasm accessions of lentil (7492), Field pea (1625), and lathyrus (3248) were maintained at different centers across India.
- A Field pea germplasm day was organized at ICAR-NBPGR, New Delhi on 20th March 2025 where all the germplasm accessions with centres of AICRP Rabi Pulses were grown.
- Three germplasm of lentil were registered as genetic stocks with ICAR-NBPGR, New Delhi.

Table 2.1.1 Germplasm stocks registered with ICAR-NBPGR

Crop	National identity	Botanical Name	Year	Developing institute	Novel unique features
Lentil	INGR25013	<i>Lens culinaris</i>	2025	BCKV, Mohanpur	High grain Fe content (116 mg/kg)
Lentil	INGR25014	<i>Lens culinaris</i>	2025	ICAR-IIPR, Kanpur	Resistant to Fusarium wilt
Lentil	INGR25015	<i>Lens culinaris</i>	2025	ICAR-IIPR, Kanpur	Resistant to Fusarium wilt

2.1.1.1 Lentil

A total of 7492 accessions of lentil germplasm were maintained by 17AICRP centres: BCKV, Mohanpur; RVSKVV, Sehore; ICAR-IARI, New Delhi; RPCAU, Dholi; ARS, Kota; IIPR, Kanpur; IGKVV, Raipur; PAU, Ludhiana; JNKVV, Sagar; ANDUAT, Ayodhya; BAU, Ranchi; HAU Hisar; ICAR-VPKAS, Almora; Durgapura, Imphal, Shillongani, and BHU, Varanasi (Table 2.1.1.1).

Table 2.1.1.1 Germplasm accessions of lentil maintained by different AICRP centres

S.N.	Centre	Accessions
1.	BCKV, Mohanpur	1200
2.	RVSKVV, Sehore	1165
3.	IARI, New Delhi	248
4.	RPCAU, Dholi	410
5.	ARS, Kota	120
6.	IIPR, Kanpur	2394
7.	IGKVV, Raipur	104
8.	PAU, Ludhiana	200
9.	JNKVV, Sagar	115
10.	ANDUAT, Ayodhya	905
11.	BAU, Ranchi	74
12.	HAU, Hisar	250
13.	ICAR-VPKAS, Almora	70
14.	Durgapura	100
15.	Imphal	37
16.	Shillongani	10
17.	BHU, Varanasi	90
	Total	7492

2.1.1.2 Field pea

Twelve AICRP centres, ICAR-IIPR, Kanpur; IGKV, Raipur; CCSHAU, Hisar; ANDUAT, Ayodhya; PAU, Ludhiana; JNKVV, Sagar; SDAU, SK Nagar; ARS, Kota; BAU, Ranchi; CAU, Imphal; Shillongani, and Varanasi, maintained a total of 1966 accessions of field pea (Table 2.1.1.2).

Table 2.1.1.2 Germplasm accessions of field pea maintained by different AICRP centres

S.N.	Centre	No. of accessions maintained
1.	IIPR, Kanpur	409
2.	IGKV, Raipur	64
3.	CCSHAU, Hisar	332
4.	ANDUAT, Ayodhya	150
5.	PAU, Ludhiana	120
6.	JNKVV, Sagar	52
7.	SDAU, SK Nagar	63
8.	ARS, Kota	60
9.	BAU, Ranchi	62
10.	CAU, Imphal	46
11.	Shillongani	42
12.	Varanasi	225
	Total	1625

2.1.1.3 Lathyrus

A total of 3248 accessions of lathyrus were maintained by four centres *viz.*, IGKV, Raipur; IIPR Regional station, Bhopal; BCKV, Mohanpur and RPCAU, Dholi (Table 2.1.1.3).

Table 2.1.1.3 Germplasm accessions of Lathyrus maintained by different AICRP centres

S.N.	Centre	No. of accessions maintained
1.	IGKV, Raipur	1964
2.	IIPR RS, Bhopal	993
3.	BCKV, Mohanpur	255
4.	RPCAU, Dholi	36
	Total	3248

2.1.2 Germplasm maintenance, evaluation and pre-breeding

2.1.2.1 Lentil

ICAR-IIPR, Kanpur

During 2024-25, 2394 accessions of germplasm and 206 accessions of active germplasm were rejuvenated. A total of 93 accessions (*L. orientalis*: 71, *L. tomentosus*: 5, *L. odemensis*: 7, *L. ervoides*: 7, *L. nigricans*: 3) of wild species were maintained. Two wide crosses were attempted for generating the pre-breeding materials.

S.N.	Cross	Target traits
1.	IPL 23-132 / ILWL 132	Pre breeding pod/plant
2.	IPL 23-132 / ILWL 92	Pre breeding pod/plant

BCKV, Mohanpur

BCKV, Mohanpur centre grown and evaluated 685 indigenous and exotic accessions for field tolerance against collar rot, blight complex, etc. This centre is maintaining more than 1200 germplasm of lentil.

S. No.	Donor	Traits
1.	IC241447, IC317520, IC0095660	Collar rot (<i>Sclerotium rolfsii</i>)
2.	EC0213199-A, EC0267545-A	Blight complex (<i>Stemphylium botryosum</i> , <i>Alternaria alternata</i>)
3.	EC955432, BCL-1025, IC 201568	Earliness
4.	IC201684, IC73121	Terminal heat stress

ANDUAT, Ayodhya

Nine hundred five accessions/genotypes were procured from different Research Institutes and were evaluated. The range of variability for some of the important traits is given here:

Characters	Range
Days to 50% flowering	55-73
Days to maturity	112-125
Plant height (cm)	28-55
Pods per plant	30-110
Number of seeds per pod	1-2
100-seed weight (g)	1.655-3.241
Seed yield plant (g)	0.582-4.221

IGKVV, Raipur: Total 104 Accessions- Seed multiplied and conserved.

CCSHAU, Hisar: A set of 250 germplasm lines were maintained.

ICAR-IARI, New Delhi: Two hundred and forty-eight germplasm accessions were evaluated.

AU, Kota: One hundred twenty germplasm lines of lentil were maintained.

PAU, Ludhiana: Two hundred germplasm lines of lentil were maintained.

BAU, Ranchi: Altogether 74 accessions from previous year's coordinated trials, advance breeding lines & local collection were evaluated for different growth habit traits, flowering, maturity and podding traits were recorded along with biotic and abiotic stress behaviour of the accessions.

JNKVV, Sagar: Total 115 lentil germplasm accessions were evaluated for the traits 50% flowering, maturity, plant height, pods/plant, seeds/pod, branches/plant, 100 seed wt. and disease response.

ICAR-VPKAS, Almora: 70 black seeded lentils were evaluated for their adaptability and yield. Black seeded lentil exhibited variability for days to 50% flowering (100-109 days), maturity days (155-167 days), plant height (24-36 cm), 100-seed weight (1.07-2.41g) and grain yield (217-1812 kg/ha). Lentil lines IC 145280 (1812 kg/ha), IC 201752 (1594 kg/ha) and IC 201727 (1522 kg/ha) were found promising based on their yield performance over the best check VL Masoor 148 (1346 kg/ha).

RARI, Durgapura: A set of 100 germplasm accessions were evaluated.

CAU, Imphal: Total 37 germplasm accessions were evaluated.

RAKCoA, Sehore: A total of 1165 germplasm accessions were evaluated.

AAU, Shillongani: A total of 10 germplasm accessions were evaluated.

BHU, Varanasi: A total of 90 germplasm accessions were evaluated.

RPCA Dholi: Screening of 410 improved lentil genotypes (including checks) under university-funded project entitled “Agro-morphological and Molecular characterization of lentil germplasm and improved genotypes under rice fallow condition”. Design: Augmented; Check: IPL-220

2.1.2.2 Field pea

ICAR-IIPR, Kanpur

Germplasm rejuvenation and evaluation:

Total 409 accessions of field pea were planted for rejuvenation and evaluation. These accessions were evaluated for different traits like growth habit, anthocyanin, leaf size, foliage colour, leaf axil colour, pod no./axil, stipule type, petal colour, pod curvature, pod shape, pod colour, days to flowering, maturity, first pod bearing node, last pod bearing node, blank node, reproductive period, and 100-seed weight. Ample amount of variability exists in the studied materials (Fig 1).

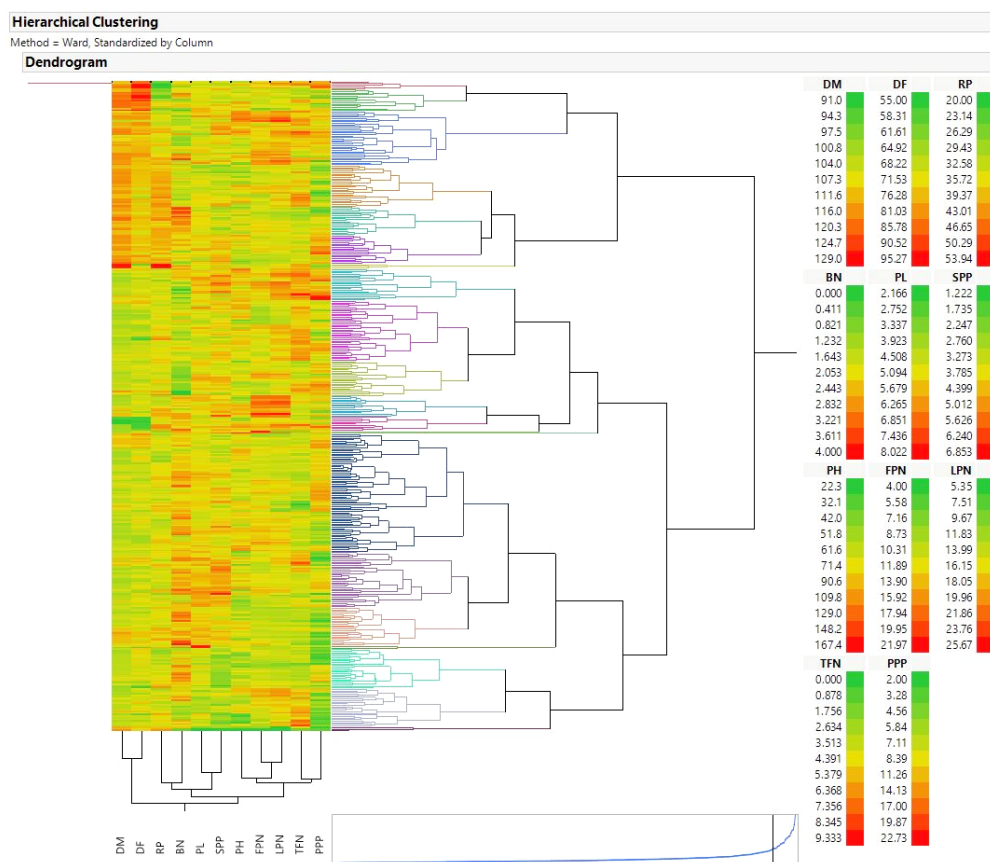


Fig 1 Two way hierarchal clustering

Identification of trait specific donors

Based on 409 accessions evaluation results for different traits some of the trait specific donors have been identified for important traits. The trait specific donors are mentioned in below table.

Trait	Value	Accessions
DF	<60	IC-27926, EC-595963, EC-598596, EC-598649, EC-598517, P-1038, EC-398612, EC-305843
DM	<100	EC-398612, EC-305843, EC-598660, EC-598665, IC-27926, EC-595963, EC-598596, EC-598649, EC-598511
FPBN	<8	ET-5107(4), P-1703(4), EC-598669, IC-469158, EC-959260, IC-399804, KSP-15, PANT P-5, PS-6, IP2K-115
LPBN	>22	EC-598628, IC-42711, ET-45186, IC-109303, KPMR--70-I, EC-598593, IC-469146, IC-469137, EC-598525
BN	nil	EC-564804, IP2K-98, EC-8257, IP2K-92, IP2K-120, EC-389377, IP2K-56
PL	>10	EC-598511, IC-106905
RP	<21	IP2K-88, ET-45190, ET-45191
RP	>45	P-999, P-1297-97, ET-45171, EC-322144, EC-8495, IP2K-120, IP2K-95

ANDUAT, Ayodhya

One hundred fifty accessions/genotypes procured from different Research Institutes and were evaluated. The range of variability for some of the important traits is given here under:

Characters	Range
Days to 50% flowering	45-75
Days to maturity	110-128
Plant height (cm)	45-175
Pods per plant	15-60
Number of seeds/pod	3-8
100-seed weight (g)	15.442-27.124
Seed yield per plant (g)	6.210-29.320

AU, Kota: Sixty germplasm lines of field pea were evaluated & maintained.

IGKV, Raipur: Total 64 Accessions - Seed multiplied and conserved.

BAU, Ranchi: Total 62 accessions including 7 local collection of Field pea were raised along with 3 checks (Dantiwada FP-1, SKNP 04-09 and Birsa Matar-1). All the accessions were evaluated for different traits like growth habit, leaf shape & size, foliage colour, leaf axil colour, stipulate type, petal colour, pod shape, pod colour, days to flowering, maturity, 100-seed wt. and seed yield per plant.

CCSHAU, Hisar: A set of 332 germplasm lines was grown in Augmented design along with two checks (HFP 9907B and HFP 1428) for maintenance.

PAU, Ludhiana: A set 120 germplasm accessions of field pea were evaluated.

JNKVV, Sagar: Total 52 field pea germplasm accessions were evaluated for the traits 50% flowering, maturity, plant height, pods/plant, seeds/pod, branches/plant, 100 seed weight, and disease response.

CAU, Imphal: Total 46 germplasm accessions were evaluated.

SDAU, S.K. Nagar: Sixty-three germplasm accessions of crop field pea were evaluated.

AAU, Shillongani: Forty-two germplasm accessions of crop field pea were evaluated.

BHU Varanasi: Two hundred twenty-five germplasm accessions of crop field pea were evaluated.

2.1.2.3 Lathyrus

BCKV, Mohanpur

During 2024-25 BCKV, Mohanpur centre evaluated 255 indigenous and exotic accessions of lathyrus regarding high biomass, salinity, heat stress and field tolerance against aphid. This centre is maintaining more than 675 germplasm of lathyrus.

S. No.	Donors	Traits
1.	BCK 19-42, BCK 19-46, IC 0634662, BCK 23-162	Salt stress
2.	BCK 19-42, I -0634669, BCK 19-07, BCK 19-49	Terminal heat stress
3	BCK 19-23, BCK 19-31	Aphid tolerance

IGKV, Raipur: Seed of 1964 accessions multiplied and conserved.

ICAR-IIPR RRS, Bhopal

Germplasm maintenance and pre-breeding

Total 993 germplasm lines were maintained at ICAR-IIPR RS, Bhopal, including 05 wild accessions belonging to *L. cicera*, *L. Aphaca* and *L. odoratus*. However, seed setting was very poor (3-4 seeds) in *L. cicera*. A set of 90 landraces was characterized and wide range of variability was observed for important agro-economic traits (qualitative and quantitative traits). Unique genotypes were identified for number of leaflets per leaves (3-7), red and purple pods, red pod wings, green seeds, narrow leaves, broad leaves and high biomass. These traits are under validation. However, two major diseases, powdery mildew and black aphids and insect infestation causes damage to the yield.

Character	Range	Mean
Days to 50% flowering	45 - 68	54.05 ± 0.36
Days to maturity	108 - 131	119.50 ± 0.41
Plant Height (cm)	39.6 - 65.3	52.70 ± 0.44
No of Branches Plant	2 - 4	3.11 ± 0.048
No of Pods/ Plant	17 - 110	51.68 ± 1.42
No of seeds /Pod	2 - 4	2.59 ± 0.03
100 seed weight (g)	5.9 - 13.7	8.673 ± 0.12
Yield/Plant (g)	8.4 - 81.5	34.42 ± 1.13

Pre-breeding

- F1 raised (interspecific cross with *L. cicera* and low ODAP genotypes)
- Wide crosses attempted using var. Mahateora and Prateek as agronomic base and, *L. cicera* and low ODAP landraces (IPLa 92 and IPLa 62).
- Variability for seed size, shape and colour was noticed (globular shape and colour very similar to pigeonpea and field pea).

Generation advancement

Different generations (F2, F3, F4) were advanced and 624 single plants selections were made [F2 (83), F3 (349) and F4 (192)].

Mutation breeding

- Total 139 M8 grasspea lines were maintained.
- Electron beam-derived 203 M3 families and Gamma-derived 450 M4 families evaluated and SPS (679) were selected for different traits (plant type, leaf, flower, pod and seed variants).
- Five unique low ODAP lines (0.00079-0.00845 %) were identified, followed by 328 low ODAP lines (0.01061-0.09935 %) as compared to the control check variety Mahateora (0.04931-0.06000 %). These lines are under validation.

S.N.	Crosses made (2024-25)	
	Agronomic base	Donor (low ODAP)
1	Mahateora	<i>L. cicera</i> (EC 697503)
2	Prateek	<i>L. cicera</i> (EC 697503)
3	Prateek	IPLa 92
4	Prateek	GML 5
5	Prateek	<i>L. Cicera</i> (EC 297504)

S.N.	No. of low ODAP lines	Family name	ODAP content (%) (2023-24)
1	1	GML 2020 - 499	0.00079
2	4	GML 2020 - 1001 GML 2020 - 264 GML 2020 - 709 GML 2020 - 112	0.00629 0.00649 0.00727 0.00845
3	328	GML 2020 - 682 - GML 2020 - 486	0.01061-0.09935
4	6	GML 2020 - 622 to GML 2020 - 689	0.10043-0.18750
5		Mahateora (Control)	0.04931-0.06000

RPCAU Dholi: Total 36 Accessions - Seed multiplied and conserved.

2.1.3 CRP on Agrobiodiversity

During rabi 2024-25, under this project, evaluation of lentil germplasm for wilt, and root rot was carried out at RAK Sehore, ICAR-IIPR, Kanpur, BCKV, Kalyani, and ICAR-IARI, New Delhi, to identify novel genetic resources and their further validation of identified resistant sources in previous years.

Centre wise Traits and Activities

S. No	Traits	Name of Centres	Activities
1.	Wilt	RAK CoA, Sehore	Evaluation of lentil accessions against <i>Fusarium wilt</i> under sick plot conditions
		ICAR-IIPR, Kanpur	Screening of lentil germplasm under natural epiphytotic conditions for <i>Fusarium wilt</i> resistance
2	Rot	BCKV, Kalyani	Evaluation of lentil accessions for collar rot resistance under natural infection using disease rating scale
		ICAR-IARI, New Delhi	Screening of lentil germplasm against dry root rot (<i>Macrophomina phaseolina</i>) using sick pot method

Checks used

Name of Centres	Checks
RAK College of Agriculture, Sehore	L9-12, DPL-62, Sehore-74-3
ICAR-IIPR, Kanpur	L9-12, K-75, Sehore-74-3
BCKV, Kalyani	HUL-57 (Susceptible check)
ICAR-IARI, New Delhi	Precoz

2.1.3.1 RAK College, Sehore

Field phenotyping of NBPGR lentil accessions was done for wilt resistance in established *Fusarium* wilt-sick plot at R.A.K. College of Agriculture, Sehore (M.P.). Total 500 lentil accessions were sown on 25.10.2024, each with single row of 1.5 m length with a three wilt susceptible checks (L9-12, DPL-62, and Sehore-74-3) after ten rows of the accessions, under augmented design. The objective of the experiment was to evaluate the accessions against wilt. Out of the 500 lentil accessions five viz. IC282828, IC241601, IC240972, IC241454 and IC241023 were wilt resistant, having wilt incidence < 10 % wilt incidence.

Seven lentil accessions exhibiting resistance to wilt during 2022-23 and 2023-24 were also evaluated during 2024-25 for confirmation of wilt resistance. These accessions were shown in three replications and wilt incidence was recorded at fortnightly intervals. All the accessions were found resistant to wilt, confirming wilt resistance over the years (Table 2.1.3.1).

Table 2.1.3.1: Confirmation of wilt resistance/tolerance to *Fusarium* wilt in the previous years lentil accessions

S.No.	Accession Name	Average wilt incidence (%)		
		2022-23	2023-24	2024-25
1	IC0241340	7.14	16.23	7.24
2	IC955430	0.00	2.04	0.00
3	IC0145266	5.05	19.83	0.97
4	IC0139857	0.00	6.96	0.53
5	IC241053	0.00	19.79	1.23
6	IC0201723	8.33	4.84	0.00
7	IC0201742	4.76	18.83	2.33

*Mean of three replications

2.1.3.2 ICAR-IIPR-Kanpur

Five hundred genotypes of lentil received from NBPGR, New Delhi were screened under natural epiphytotic conditions maintained in lentil wilt sick plot at ICAR-IIPR, Kanpur during rabi 2024-25. Plant mortality was recorded and finally the disease incidence was worked out for all the test genotypes. Disease reaction of test genotypes was worked out based on disease (wilt) incidence. Following groups of disease reactions were categorized: R=Resistant (0-10%), MR=Moderately resistant (>10-30%), S=Susceptible (>30-50%), HS=Highly susceptible (>50%).

Based on the % wilt incidence, only 16 genotypes viz., EC927583, EC927605, EC795546, EC927580, EC795518, EC241476, EC795544, IC201757, EC795513, IC201549, EC795529, EC927541, IC145274, EC795510, EC927535 and EC795535 were phenotyped as resistant based on the plant mortality caused by wilt which was in the range of $\leq 10\%$.

Of the 13 genotypes found resistant during 2023-24 season were screened again during 2024-25 season. Of them nine genotypes (IC 384444, IC 267659, EC 78408, IC 263312, IC 412932, IC 266839, IC 383379, IC 393196, IC 347168) continued to show resistant reaction with wilt incidence $\leq 10\%$

2.1.3.3 BCKV, Kalyani

The Consortium Research Project on lentil under component-II was initiated at the BCKV, Mohanpur centre during 2021–22 with the primary objective of evaluating lentil germplasm accessions for resistance against collar rot, a soil-borne disease incited by *Sclerotium rolfsii*. The field evaluations were conducted annually at the District Seed Farm, Kalyani (latitude: 22099' N; longitude: 88042' E and 11 m above mean sea level), located in the Gangetic Alluvial Zone, where lentil is cultivated under rice-fallow niche. This region experiences a subtropical humid climate with clay loam soil texture, having neutral in reaction (pH 6.88). During the crop growth period, soil temperatures ranged from 15°C to 35°C. Germplasm screening was carried out using an Augmented Block Design with HUL 57 as the susceptible check, and sowing was consistently done during the second fortnight of November, every year. Over the last four years (2021–2025), a total of 1,993 lentil accessions were evaluated under field conditions at Kalyani. Among these, only three accessions (IC241447, IC0095660, and IC317520) exhibited resistant reaction. A subset of 20 accessions showing promising and differential disease reactions was shared with ICAR-NBPGR along with the *S. rolfsii* isolate. Notably, one accession, IC0095660, demonstrated stable resistance across the locations. In addition to IC0095660, accessions such as IC0078506, IC0223199-B, L-4594, IC241447, and IC317520 exhibited resistant to moderately resistant reactions under both locations. To validate these findings, a multi-location trial was conducted across lentil-growing regions of West Bengal using the 20 selected accessions. The results confirmed that only three accessions viz., IC241447, IC317520, and IC0095660, shown resistant to moderately resistant response across the testing locations. Efforts have been initiated to develop mapping populations and introgress the identified resistance gene into elite agronomic backgrounds for future resilient cultivar development in lentil.

2.1.3.4 ICAR-IARI, New Delhi

One thousand five hundred lentil genotypes (500 genotypes every year-2022-23, 2023-24 and 2024-25) received from National gene bank, ICAR-NBPGR, New Delhi were screened for dry root rot (caused by *Macrophomina phaseolina*) resistance at seedling stage using sick pot method. After confirmation of the pathogenicity, *Macrophomina phaseolina* culture was multiplied on sorghum grains for 14 days at 28 °C in a BOD (Biological Oxygen Demand) incubator (Thermo Fishers Scientific Inc., Germany). 10 g of the sorghum grains as inoculum was mixed with 1 kg of sterilized soil (treated with 4%

formalin and left covered with polythene sheet for 10 days). Inoculated soil mixture was transferred to 6 inches diameter pots. Ten seeds of each genotype were sown in sick pots in 2 replications. After 21 days of sowing, the soil was re-inoculated by mixing sorghum grains as inoculum. After 21 days of re-inoculation, percent disease incidence (PDI) was calculated by the formula, $PDI = \frac{\text{Total number of DRR symptomatic plants}}{\text{Total number of plants}} \times 100$ (Cooke, 2006). Based on the range of PDI, the test genotypes were categorized as highly resistant (free from DRR), resistant ($\leq 10.0\%$ incidence), moderately resistant (10.1–20.0% incidence), moderately susceptible (20.1–30%), susceptible (30.1–50.0% incidence), and highly susceptible ($> 50\%$ incidence). Genotypes IC241152, IC241429, IC283423, IC299645, IC 355616, IC331597, IC334474, IC336427, EC267665, IC201541 and IC553082 were identified as resistant with $PDI \leq 10\%$. Further, the genotypes which exhibited resistance were validated in the lab following paper towel method to confirm the resistance. Three genotypes *viz.* IC 241429, IC 241152, IC 355616 were found resistant in repeated experiment, with < 10 PDI. The identified genotypes could be useful in breeding programs to develop dry root rot-resistant lentil varieties.

2.2 Breeder Seed Production

Highlights

2.2.1 Lentil

- In lentil, the total breeder seed production was 963.66 q against the DAC indent of 702.33 q from 36 varieties of lentil. The state-cum-centre wise and variety-wise breeder seed production 2024-25 is given in table 2.2.1 and table 2.2.2, respectively.

Table 2.2.1 State-cum-centre wise breeder seed production of lentil during rabi 2024-25 for the indent of 2025-26

S.N.	Centre	Variety (Lentil)	DAC Indent (q)	Allocation (q)	Production (q)	Surplus/Deficit (q)
1	West Bengal					
1.a	BCKV, Mohanpur	Bidhan Lentil 16	1.31	1.50	4.50	+3.19
1.b	PORS, Berhampore (WB)	Moitree (WBL-77)	0.96	1.50	3.00	+2.04
		Total/ State Total	2.27	3.00	7.50	5.23
2	Uttar Pradesh					
2.a	CSAUA&T, Kanpur	Shekhar-5 (KLS 122)	27.80	31.00	5.10	-22.70
		Shekhar-4	5.00	5.50	19.05	+14.05
		Krish (KLS 09-3)	22.08	25.00	23.40	+1.32
		Sub total	54.88	61.50	47.55	-7.33
2.b	ICAR-IIPR, Kanpur	IPL 225	10.40	12.00	5.00	-5.40
		IPL 329	7.00	8.00	8.10	+1.10
		IPL 321	5.04	6.00	5.40	+0.36
		IPL 315	4.20	5.00	9.90	+5.70
		IPL 220	17.80	20.00	21.00	+3.20
		IPL 526	5.00	6.00	6.20	+1.20
		IPL 230	10.40	11.00	4.00	-6.40
		Sub total	59.84	68.00	59.60	-0.24
	State Total	114.72	129.50	107.15	-7.57	

3	Delhi					
	IARI, New Delhi	L 4729	7.00	8.00	15.50	+8.50
		PSL-9	37.00	41.00	49.86	+12.86
		PDL-1	5.00	6.00	13.50	+8.50
		L 4727	5.00	6.00	16.50	+11.50
		L 4717 (Pusa Ageti Masoor)	25.79	29.00	33.50	+7.71
		PSL-19	3.50	4.00	4.00	+0.50
		Total/ State Total	83.29	94	85.5	2.21
4	Madhya Pradesh					
4.a	RAKCoA, Sehore (RVSKVV, Gwalior)	RVL 13-5 (Raj Vijay Lentil 13-5)	17.20	19.00	39.60	+22.40
		RVL 13-7 (Raj Vijay Lentil 13-7)	18.70	21.00	56.60	+37.90
		RVL 11-6	10.00	11.00	11.50	+1.50
		RVL -31			4.90	+4.90
		Sub total	45.9	51.00	112.6	66.70
4.b	JNKVV, Jabalpur	L 4717	11.90	14.00	16.20	+4.30
		L 4727	14.00	16.00	23.54	+9.54
		JL 3	0.60	0.80	-	-0.60
		Sub total	26.5	30.8	39.74	13.24
4.c	IIPR RC, Bhopal	IPL-316	0.52	1.00	0.55	-0.02
		IPL 534	11.47	18.00	18.50	-0.27
		Sub total	11.99	19.00	19.05	7.06
		State Total	84.39	100.80	171.39	87.00
5	Uttarakhand					
5.a	GBPUAT, Pantnagar	Pant Lentil 9	36.26	40.00	20.49	-15.77
		Pant Lentil 8	0.21	0.50	8.45	+8.24
		Pant Lentil 11	4.72	6.00	26.97	+22.25
		Sub total	41.19	46.50	55.91	14.72
5.b	VPKAS, Almora	VL 148	1.00	1.50	1.20	+0.20
		State Total	42.19	48.00	57.11	14.92
6	Rajasthan					
	ARS, Kota (AU, Kota)	Kota Masoor 4	98.96	110.00	112.00	+13.04
		Kota Masoor 3	83.00	92.00	111.36	+28.36
		Kota Masoor 1	13.00	15.00	22.40	+9.40
		Kota Masoor 2	9.00	10.00	14.24	+5.24
		Total/ State Total	203.96	227.00	260.00	56.04
7	Chhattisgarh					
	IGKVV, Raipur	Chhattisgarh Masoor-1	3.50	4.00	3.82	+0.32
		Total/ State Total	3.50	4.00	3.82	+0.32
8	Bihar					
	TCA, Dholi	IPL 220	21.85	24.00	24.00	+2.15
		IPL 526	15.44	17.00	18.00	+2.56
		Total/ State Total	37.29	41.00	42.00	4.71

9	Punjab					
	PAU, Ludhiana	LL 1613	0.40	0.50	1.40	+1.00
		LL 1373	0.60	0.80	2.00	+1.40
		Total/ State Total	1.00	1.30	3.40	2.40
10	Others					
	NSC, New Delhi	IPL 220	25.37	28.00	22.00	-3.37
		L 4717	15.00	17.00	36.80	+21.80
		L 4727	19.20	22.00	35.82	+16.62
		L4729	23.40	26.00	19.75	-3.65
		IPL 329	8.40	10.00	11.82	+3.42
		IPL 225	11.20	13.00	8.00	-3.20
		IPL 321	8.20	10.00	8.00	-0.20
		IPL 534	5.00	7.00	11.07	+6.07
		IPL 315	5.77	7.00	10.00	+4.23
		IPL 526	8.18	10.00	15.17	+6.99
		Sub total	129.72	150.00	178.43	48.71
		Grand Total	702.33	798.60	963.66	261.33

Table 2.2.2 Variety-wise breeder seed production of lentil during rabi 2024-25 for the indent of 2025-26

S. No.	Variety (Lentil BSP)	DAC Indent(q)	Allocation (q)	Production (q)	Surplus/ Deficit(q)
1	Bidhan Lentil 16	1.31	1.50	4.50	+3.19
2	Chhattisgarh Masoor-1	3.50	4.00	3.82	+0.32
3	IPL 220	65.02	72.00	67.00	+1.98
4	IPL 225	21.6	25.00	13.00	-8.6
5	IPL 230	10.40	11.00	4.00	-6.40
6	IPL 315	9.97	12.00	19.9	9.93
7	IPL 316	0.52	1.00	0.55	-0.02
8	IPL 321	13.24	16.00	13.40	0.16
9	IPL 329	15.4	18.00	19.92	4.52
10	IPL 526	28.62	33.00	39.37	10.75
11	IPL 534	16.47	25.00	29.57	12.56
12	JL-3	0.60	0.80	-	-0.60
13	Kota Masoor 1	13.00	15.00	22.40	+9.40
14	Kota Masoor 2	9.00	10.00	14.24	+5.24
15	Kota Masoor 3	83.00	92.00	111.36	+28.36
16	Kota Masoor 4	98.96	110.00	112.00	+13.04
17	Krish (KLS 09-3)	22.08	25.00	23.40	+1.32
18	L 4717 (Pusa Ageti)	52.69	60.00	86.50	33.81
19	L 4727	38.20	44.00	75.86	37.66
20	L 4729	30.40	34.00	35.25	4.85
21	LL 1613	0.40	0.50	1.40	+1.00
22	LL 1373	0.60	0.80	2.00	+1.40
23	Moitree (WBL-77)	0.96	1.50	3.00	+2.04
24	Pant Lentil 11	4.72	6.00	26.97	+22.25

25	Pant Lentil 8	0.21	0.50	8.45	+8.24
26	Pant Lentil 9	36.26	40.00	20.49	-15.77
27	PDL-1	5.00	6.00	13.50	+8.50
28	PSL-9	37.00	41.00	49.86	+12.86
29	PSL-19	3.50	4.00	4.00	+0.50
30	RVL 11-6	10.00	11.00	11.50	+1.50
31	RVL 13-5 (Raj Vijay Lentil 13-5)	17.20	19.00	39.60	+22.40
32	RVL 13-7 (Raj Vijay Lentil 13-7)	18.70	21.00	56.60	+37.90
33	RVL -31			4.90	+4.90
34	Shekhar 5 (KLS 122)	27.80	31.00	5.10	-22.70
35	Shekhar 4	5.00	5.50	19.05	+14.05
36	VL 148	1.00	1.50	1.20	+0.20
	Total	702.33	798.60	963.66	261.33

2.2.2 Field pea

In Field pea, the total breeder seed production was 749.44 q. against the indent of 630.18 q from 26 field pea varieties. The state-cum-centre wise and variety-wise breeder seed production of 2024-25 is given in Table 2.2.2.1 and Table 2.2.2.2, respectively.

Table 2.2.2.1 State-cum-centre wise breeder seed production of fieldpea rabi 2024-25 for the indent of 2025-26

S.N.	Centre	Variety	DAC Indent (q)	Allocation (q)	Production (q)	Surplus/ Deficit (q)
1	Haryana					
	HAU, Hisar	HFP 1428	77.40	82.00	85.50	+8.10
		HFP 529	2.00	2.50	4.50	+2.50
		HFP 1426	16.00	18.00	14.00	-2.00
		Total/ State Total	95.40	102.50	104.00	8.60
2	Chhattisgarh					
	IGKV, Raipur	Indira Matar-1 (RFP 2009-1)	11.00	13.00	4.40	-6.60
		Total/ State Total	11.00	13.00	4.40	-6.60
3	Uttar Pradesh					
	IIPR, Kanpur	IPF16-13 (Harit)	20.00	23.00	43.07	+23.07
		IPFD 13-2(Anant)	9.00	10.00	9.50	+0.50
		IPFD 9-2	20.00	22.00	22.00	+2.00
		IPFD 19-1(SHIKHAR)	19.00	20.00	50.60	+31.60
		Aman (IPF 5-19)	8.00	10.00	8.50	+0.50
		IPFD 16-3	9.00	10.00	15.06	+6.06
		IPFD 19-3(ARPAN)	18.00	20.00	30.70	+12.70
		IPFD 6-3	10.00	11.00	10.60	+0.60
	Total/ State Total	113.00	126	190.03	77.03	
4	Madhya Pradesh					

	IIPR-RRS Bhopal	IPFD 2014-2	16.00	18.00	34.00	+18.00
		IPFD 12-2	45.00	48.00	46.00	+1.00
		IPFD 11-5	13.00	15.00	21.00	+8.00
		IPFD 10-12	20.00	23.00	25.00	+5.00
		Total/ State Total	94.00	104.00	126.00	32.00
5	Gujarat					
	S.K. Nagar	SKNP 04-09 (GDGF 1)	10.00	12.00	7.40	-2.60
		Total/ State Total	10.00	12.00	7.40	-2.60
6	Uttarakhand					
	GBPUA&T, Pantnagar	Pant P 347	52.50	55.00	17.25	-35.25
		Pant P 243	22.00	25.00	12.09	-9.91
		Pant P 462	20.00	22.00	-	-20.00
		Pant P 250	25.90	31.00	13.77	-12.13
		Total/ State Total	120.4	133	43.11	-77.29
7	Tripura					
	ICAR-NEH, Tripura	TRCP-8(GOMATI)	1.00	1.20	1.00	0.00
		Total/ State Total	1.00	1.20	1.00	0.00
8	Assam					
	Shillongani	AAU SPC 101	3.00	5.00	7.50	+4.50
		Total/ State Total	3.00	5.00	7.50	+4.50

9.	Rajasthan					
	AU, Kota	Kota Matar 1	0.30	1.00	3.30	+3.00
		Total/ State Total	0.30	1.00	3.30	+3.00
10.	Others					
	NSC, New Delhi	IPFD 16-3	16.00	18.00	10.00	-6.00
		IPFD16-13 (Harit)	23.50	26.00	20.00	-3.50
		ARPAN (IPFD 19-3)	7.00	8.00	14.00	+7.00
		IPFD 12-8 (Aakash)	25.00	30.00	24.0	-1.00
		IPFD 13-2(Anant)	25.00	28.00	35.50	+10.50
		IPFD 9-2	20.00	25.00	28.00	+8.00
		IPFD 2014-2	15.00	20.00	53.20	+38.20
		IPFD 12-2	18.08	20.00	46.00	+27.92
		IPFD 11-5	15.20	18.00	16.00	+0.80
		IPFD 10-12	17.30	20.00	16.00	-1.30
		Subtotal	182.08	213.00	262.70	80.62
		G. Total	630.18	710.70	749.44	119.26

Table 2.2.2.2 Variety-wise Breeder Seed Production of field pea during rabi 2024-25 for the indent of 2025-26

S. N.	Variety	DAC Indent (q)	Allocation (q)	Production (q)	Surplus/ Deficit (q)
1	Aman (IPF 5-19)	8.00	10.00	8.50	+0.50
2	ARPAN (IPFD 19-3)	18.00	20.00	30.70	+12.70
3	IPFD 11-5	28.20	33.00	37.00	8.80
4	IPFD 12-2	63.08	68.00	92.00	28.92
5	IPFD 2014-2	31.00	38.00	87.20	56.20
6	HFP 1428	77.40	82.00	85.50	+8.10
7	HFP 529	2.00	2.50	4.50	+2.50
8	HFP 1426	16.00	18.00	14.00	-2.00
9	Indira Matar-1 (RFP 2009-1)	11.00	13.00	4.40	-6.60
10	IPF16-13 (Harit)	43.50	49.00	63.07	19.57
11	IPFD 10-12	37.30	43.00	41.00	3.70
12	IPFD 12-8 (Aakash)	25.00	30.00	24.0	-1.00
13	IPFD 13-2(Anant)	34.00	38.00	45.00	11.00
14	IPFD 16-3	25.00	28.00	25.06	0.06
15	IPFD 19-1(SHIKHAR)	19.00	20.00	50.60	+31.60
16	IPFD 19-3(ARPAN)	7.00	8.00	14.00	+7.00
17	IPFD 6-3	10.00	11.00	10.60	+0.60
18	IPFD 9-2	40.00	47.00	50.00	10.00
19	Pant P 243	22.00	25.00	12.09	-9.91
20	Pant P 250	25.90	31.00	13.77	-12.13
21	Pant P 347	52.50	55.00	17.25	-35.25
22	Pant P 462	20.00	22.00	-	-20.00
23	TRCP-8(GOMATI)	1.00	1.20	1.00	0.00
24	SKNP 04-09 (GDGF 1)	10.00	12.00	7.40	-2.60
25	AAU SPC 101	3.00	5.00	7.50	+4.50
26	Kota Matar 1	0.30	1.00	3.30	+3.00
	TOTAL	630.18	710.70	749.44	119.26

2.2.3 Lathyrus

In Lathyrus, the total breeder seed production was 100.15q against the indent of 107.58q from four varieties. The state-cum-centre wise and variety-wise breeder seed production of 2024-25 is given in Table 2.2.3.1 and Table 2.2.3.2, respectively.

Table 2.2.3.1 State-cum centre-wise Breeder Seed production of lathyrus during rabi 2024-25 for the indent of 2025-26

S. N.	Centre	Variety	DAC Indent (q)	Allocation (q)	Production (q)	Surplus/Deficit(q)
1	Chhattisgarh					
	IGKV,Raipur	Mahateora	77.03	79.00	87.00	+9.97
		Prateek	10.59	12.00	2.40	-8.19
		Total	87.62	91.00	89.40	1.78
2	West Bengal					
	BCKV,Kalyani	Bidhan Khesari-1 BK-14-1 (LAT15-6)	8.96	10.00	10.25	+1.29
	PORS, Berhampore	Hazari	11.00	12.00	0.50	-10.50
		Total	19.96	22.00	10.75	- 9.21
		Grand Total	107.58	113.00	100.15	-7.43

Table 2.2.3.2 Variety-wise Breeder Seed Production of Lathyrus during rabi 2024-25 for the indent of 2025-26

S.N.	Variety	DAC Indent (q)	Allocation (q)	Production (q)	Surplus/Deficit (q)
1	Mahateora	77.03	79.00	87.00	+9.97
2	Prateek	10.59	12.00	2.40	-8.19
3	Bidhan Khesari-1 BK-14-1 (LAT15-6)	8.96	10.00	10.25	+1.29
4	Hazari	11.00	12.00	0.50	-10.50
	Grand Total	107.58	113.00	100.15	-7.43

AGRONOMY

3.1 Highlights

3.1.1. Lentil, Field pea and Lathyrus

- The studies on organic cultivation of lentil and field pea across multiple locations revealed that foliar application of Biophos and Biozinc significantly enhanced yields under organic systems. Although overall yields and economic returns remained lower than inorganic practices, treatments with 100% FYM plus Biophos and Biozinc produced comparable results, notably at Srinagar, where organic management recorded the highest net return and B:C ratio. Additionally, organic cultivation consistently improved soil health indicators, supporting its potential for long-term sustainability.
- The study on conservation agriculture highlighted that while rice yield was higher under puddled transplanting, lentil yield and soil health significantly improved with 20 cm rice residue retention across systems. At Shillongani, the ZT-DSR-ZT lentil system with residue showed the highest productivity and profitability, emphasizing the benefits of conservation agriculture. However, results from S.K. Nagar indicated that field pea performs better under conventional tillage without residue, suggesting that tillage response may vary with crop and location.
- The studies on lentil and field pea across multiple locations demonstrated that the recommended practice consistently produced the highest yields, economic returns, and input use efficiencies. In contrast, natural farming resulted in significantly lower yields – 17.6% less for lentil and 30% less for field pea. However, both natural and organic systems contributed to improved soil health and microbial activity, highlighting a trade-off between immediate productivity and long-term sustainability.
- The study on weed management in lentil revealed that no herbicide treatment consistently matched the weed-free check for lentil yield across all locations in NWPZ, except at Samba. However, herbicide combinations such as Pendimethalin 750 g a.i./ha + Quizalofop-p-ethyl 100 g a.i./ha (pre+post), Oxyfluorfen 150 g a.i./ha + Propaquizafop 100 g a.i./ha (pre+post), and Imazethapyr 50 g a.i./ha (post) consistently improved lentil yield, weed control efficiency, and economic returns at several locations.
- The study on weed management in field pea concluded that the combination of Pendimethalin 1000 g a.i./ha followed by Quizalofop-p-ethyl 100 g a.i./ha at 20 DAS (pre+post) consistently resulted in field pea yields comparable to the weed-free check across NHZ, NWPZ, NEPZ, and CZ. Similarly, Oxyfluorfen 150 g a.i./ha followed by Propaquizafop 100 g a.i./ha also showed competitive performance in terms of yield, weed control efficiency, and economic returns.
- AVT-2 Rabi pulses genotypes performance:
 - + The evaluation of AVT-2 large-seeded lentil genotypes LL 1809 and LL 1798 at Srinagar and Imphal revealed that neither genotype outperformed the check varieties at either location, indicating no yield advantage under the tested conditions.
 - + The evaluation of AVT-2 tall field pea genotypes Pant P 554 and Pant P 550 across four locations in the NWPZ showed that neither genotype exhibited yield superiority over the check varieties at any site. Although Pant P 550 recorded the highest yield at Durgapura, the difference was not statistically significant.

Recommendations

- 1. Organic Cultivation:** Use of 100% FYM with foliar application of Biophos and Biozinc is recommended in organic lentil and field pea systems to enhance yield and soil health. Though yields are generally lower than inorganic systems, long-term sustainability benefits are notable.
- 2. Conservation Agriculture:** Retaining 20 cm rice residue, especially in ZT-DSR followed by ZT lentil, is recommended to boost yield, soil health, and profitability. However, field pea may perform better under conventional tillage in certain locations like S.K. Nagar.
- 3. Natural Farming:** Recommended practices offer the highest yield and economic returns for lentil and field pea. Natural and organic systems improve soil health but yield 17–30% less, indicating a trade-off between productivity and sustainability.
- 4. Lentil Weed Management:** Pendimethalin + Quizalofop-p-ethyl, Oxyfluorfen + Propaquizafop (pre+post), or Imazethapyr (post) are effective options for weed control, improving yield and profitability in NWPZ.
- 5. Field pea Weed Management:** Pendimethalin + Quizalofop-p-ethyl or Oxyfluorfen + Propaquizafop (pre+post) are recommended for effective weed control and high yields in NHZ, NWPZ, NEPZ, and CZ.

3.2 Weather and soil

The data on total seasonal rainfall and the number of rainy days at different centers are presented in Table 1, while the physiographic and soil characteristics of these locations are detailed in Table 2.

In the Northern Hill Zone (NHZ), Srinagar recorded 348 mm of rainfall over 28 rainy days. In the North-Western Plain Zone (NWPZ), seasonal rainfall ranged from 12.1 mm at Sriganganagar to 46.99 mm at Samba, with the number of rainy days varying from 3 to 30. In the North-Eastern Plain Zone (NEPZ), rainfall during the crop season ranged from 39 mm at Kalyani (4 rainy days) to 516.5 mm at Ranchi (20 rainy days). Notably, Dholi did not receive any rainfall during the season.

In the Central Zone (CZ), the highest rainfall was recorded at Badnapur (128.7 mm in 6 rainy days), followed by Junagarh (88.5 mm in 7 rainy days), whereas S.K. Nagar received no rainfall.

Overall, the Central Zone experienced the least rainfall, while the North-Eastern Plain Zone recorded the highest seasonal rainfall.

Table 1. Physiography and seasonal rainfall at different AICRP locations across India

Zone	Centre	Latitude	Longitude	Altitude (m above MSL)	Season Rainfall (mm)	Rainy days
NHZ	Srinagar	34°03'N	74°48'E	1605	348	28
NWPZ	Sriganganagar	23°66'N	75°53'E	175.6	12.1	3
	Ludhiana	30°56'N	75°52'E	247.0	43.0	5
	Durgapura	26°51'N	75°47'E	390.0	24	3
	Samba	32°34'N	70°83'E	400.0	46.99	30
	Pantnagar	29°02'N	79°49'E	232.8	32.6	5
	Hisar	29°10'N	75°68'E	211.0	52.9	5

NEPZ	Dholi	25°39'N	85°40'E	52.20	0.0	0
	Shillongani	26°21'N	92°38'E	50.20	380.2	25
	Imphal	24°76'N	94°05'E	790.0	131.5	15
	Ranchi	23°43'N	85°31'E	615	516.5	20
	Mohanpur	22°58'N	88°25'E	9.75	38.0	4
	Kalyani	22°57'N	88°20'E	9.80	39	4
CZ	Badnapur	19°50'N	47°43'E	520.0	128.7	6
	Junagarh	21°30'N	70°27'E	107.0	88.5	7
	Sehore	27°12'N	77°05'E	948.8	NA	NA
	Kota	25°18'N	77°23'E	271.0	33.9	4
	Raipur	21°40'N	81°39'E	298.0	2.6	1
	S.K. Nagar	26°09'N	72°19'E	154.52	0	0

The physical and chemical characteristics of soils across different AICRP network locations show considerable variation based on agro-climatic zones:

- **Northern Hill Zone (NHZ):** At Srinagar, the soil is sandy clay loam with a pH of 6.9 and relatively high soil organic carbon (SOC) content of 1.1%.
- **North Western Plain Zone (NWPZ):** Soils vary from sandy loam (Hisar) to loamy sand (Ludhiana, Durgapura, and Samba), and silty clay loam at Pantnagar. The pH ranges between 7.1 and 8.01, with generally low SOC levels. However, phosphorus (P) and potassium (K) status ranges from medium to high.
- **North Eastern Plain Zone (NEPZ):** Soils range from sandy loam to clay loam across Dholi, Imphal, Shillongani, and Kalyani. The soil pH varies widely from 5.20 to 8.25. SOC content is low, ranging from 0.36% at Dholi to 0.75% at Shillongani, while P and K levels are mostly in the medium category.
- **Central Zone (CZ):** Most experimental sites have heavy soils (clay loam to clay), except for S.K. Nagar, which has loamy sand. The pH ranges from 7.26 (Raipur) to 8.05 (S.K. Nagar), and SOC content is generally low to medium. The P and K content varies from medium to high.

Table 2. Soil characteristics of different AICRP locations across India

Zone	Centre	Soil type	pH	SOC (%)	Available Nutrient (kg/ha)		
					N	P ₂ O ₅	K ₂ O
NHZ	Srinagar	Sandy clay loam	6.9	1.1	495	18	250
NWPZ	Sriganganagar	Sandy loam	8.0	0.23	120	41	327
	Ludhiana	Loamy sand	7.30	0.37	-	19.3	180
	Durgapura	Loamy sand	7.7	0.21	-	40.8	263
	Samba	Loamy sand	7.1	0.23	158.46	22.53	233.5
	Pantnagar	Silty clay loam	7.6	0.95		10.5	162
NEPZ	Hisar	Sandy loam	8.01	0.46	132	14	288
	Dholi	Sandy loam	8.25	0.36	190	20.7	97
	Shillongani	Sandy clay loam	5.7	0.87	301.8	19.5	210
	Imphal	Clay loam	5.2	1.9	234.7	18.2	236.8
	Ranchi	Clay loam	5.64	4.6	225.9	19.87	188.7
	Mohanpur	Clay loam	6.8	0.502	274.5	33.0	150.9

	Kalyani	Clay loam	6.6	0.53	282	36	154
CZ	Badnapur	Clay loam	7.3	0.6	120	13	230
	Junagarh	Clay loam	7.78	0.66	195	28.45	224
	Sehore	Clay loam	7.80	0.40	238.0	15.8	515.0
	Kota	Clay loam	7.76	0.52	212	324	19.2
	Raipur	Clay	7.26	0.57	238	14.2	364.8
	S.K. Nagar	Loamy sand	8.05	0.25	174	61	205

3.3 Salient results of agronomic experiments

A1: Response of lentil/pea inclusive cropping system to organic cultivation

This experiment is started in 2019-20 keeping in view of its importance. The details of treatment/organic vis-à-vis inorganic package is as under

Item/Operation	Organic package	Inorganic package
Seed treatment	Biofertilizers (<i>Rhizobium</i>)	Biofertilizers (<i>Rhizobium</i>)
Sowing method	Flat planted	Flat planted
Date of sowing	Normal Date	Normal Date
Chickpea RDF MYR	Chickpea:100% P thr' FYM 100% FYM+foliar (Biophos+Biozinc)	Chickpea: 100% RDF-NPK 100% RDF+ Foliar (DAP+ZnSO ₄)
Weeding	Manual weeding twice	Pendimethalin @ 0.75 kg/ha fb manual weed control
Pesticides	<i>Neem kabach</i> (5ml/litre) once at pod development, if req.	Indoxacarb (1 ml/litre) once at pod development, if req.
Harvesting	Normal date	Normal date
Other practices	Following organic practice	Following inorganic / recommended practice

During succeeding *khari*f season following *rabi*, crop should be grown under exclusively organic/inorganic package of practices as per treatment involved.

Note: In general, FYM contains 0.5% N, 0.25%P and 0.4%K; 16 t/ha FYM required on basis of P-dose which will supply 80 kg of N and 64 kg of K.

Locations: Crop-wise

Zone	Lentil	Fieldpea
NHZ	Srinagar	Srinagar
NWPZ	Ludhiana	Ludhiana
NEPZ	Ranchi, Shillongani	Dholi, Ranchi
CZ	Raipur, Kota	Sehore, S.K. Nagar

Results

1. Lentil

An organic cultivation study on lentil was conducted at five locations across the North Hill Zone (NHZ), North-West Plain Zone (NWPZ), North-East Plain Zone (NEPZ), and Central Zone (CZ). The application of *Biophos* and *Biozinc* in the organic production system significantly improved lentil yields at all locations (Table 1.1).

Overall, lentil yields under organic cultivation were lower than those under inorganic cultivation. However, the treatment comprising 100% farmyard manure (FYM) along with foliar application of *Biophos* and *Biozinc* produced yields comparable to those under 100% recommended dose of fertilizers (RDF) in inorganic systems. A similar trend was observed for net returns and benefit-cost (B:C) ratio, with inorganic cultivation generally yielding higher economic returns. An exception was observed at Srinagar, where the organic treatment (100% FYM + foliar *Biophos* + *Biozinc*) resulted in the highest net return (Rs. 30,785/ha) and B:C ratio (1.70) (Tables 1.2 and 1.3).

Soil health data from three locations – Srinagar, Kota, and Raipur – indicated notable improvement in parameters such as soil organic carbon (SOC) and available NPKS under organic cultivation compared to inorganic practices (Tables 1.4 to 1.6). These enhancements in soil health are likely attributed to increased microbial activity resulting from the application of organic amendments and the absence of synthetic agrochemicals.

Table 1.1. Grain yield of lentil (kg/ha) under organic cultivation

Treatment	NHZ	NWPZ	NEPZ	CZ		Mean
	Srinagar	Ludhiana	Ranchi	Raipur	Kota	
Organic Block						
RDF-100 % NPK through FYM	1037	1000		775	1415	1095
MYR- 100% FYM+foliar (Biophos+Biozinc)	1051	1093	790	848	1490	1169
Inorganic Block						
RDF 100 % RDF -NPK	1190	1148	761	922	1530	1226
MYR- 100% RDF + Foliar (DAP+ZnSO ₄)	1205	1216	-	967	1565	1266
SEm±	45	41	-	-	--	
CD (p=0.05)	142	132	-	-	--	

Table 1.2. Net return (Rs/ha) of lentil under organic cultivation

Treatment	NHZ	NWPZ	CZ		Mean
	Srinagar	Ludhiana	Raipur	Kota	
Organic Block					
RDF-100 % NPK through FYM	25435	37200	14335	51705	32169
MYR- 100% FYM+foliar (Biophos+Biozinc)	30785	43552	18416	54730	36871
Inorganic Block					
RDF 100 % RDF -NPK	24350	50375	39744	67230	45425
MYR- 100% RDF + Foliar (DAP+ZnSO ₄)	24981	54584	41334	69055	47489
SEm±	1113	3049			
CD (p=0.05)	3542	9892			

Table 1.3. B:C ratio of lentil under organic cultivation

Treatment	NHZ	NWPZ	CZ		Mean
	Srinagar	Ludhiana	Raipur	Kota	
Organic Block					
RDF-100 % NPK through FYM	1.45	2.01	1.37	2.20	1.76
MYR- 100% FYM+foliar (Biophos+Biozinc)	1.70	2.17	1.46	2.21	1.89
Inorganic Block					
RDF 100 % RDF -NPK	1.40	2.46	2.69	2.91	2.37
MYR- 100% RDF + Foliar (DAP+ZnSO ₄)	1.42	2.54	2.65	2.93	2.39
SEm _±	0.03	0.08			
CD (p=0.05)	0.09	0.27			

Table 1.4. Changes in soil properties under organic and inorganic practices at Srinagar

Treatment	pH	SOC (%)	N (kg/ha)	P (kg/ha)	K (kg/ha)	S (kg/ha)
Organic Block						
RDF-100 % NPK through FYM	6.7	1.23	505	19	255	9.8
MYR- 100% FYM+foliar (Biophos+Biozinc)	6.7	1.32	515	23	262	11.8
Inorganic Block						
RDF 100 % RDF -NPK	6.5	1.01	508	21	249	12.1
MYR- 100% RDF + Foliar (DAP+ZnSO ₄)	6.5	1.18	517	24	251	12.9
SEm _±	0.04	0.045	3.71	0.76	3.28	0.43
CD (p=0.05)	0.13	0.143	11.82	2.42	10.45	1.37

Table 1.5. Changes in soil properties under organic and inorganic practices at Kota

Treatment	pH	SOC (%)	N (kg/ha)	P (kg/ha)	K (kg/ha)	S (kg/ha)
Organic Block						
RDF-100 % NPK through FYM	7.61	0.571	225.8	23.9	335.4	20.1
MYR- 100% FYM+foliar (Biophos+Biozinc)	7.63	0.575	227.4	24.7	336.0	20.3
Inorganic Block						
RDF 100 % RDF -NPK	7.72	0.561	220.2	22.8	329.0	21.9
MYR- 100% RDF + Foliar (DAP+ZnSO ₄)	7.73	0.565	221.5	23.6	329.5	22.5

Table 1.6. Changes in soil properties under organic and inorganic practices at Raipur

Treatment	pH	SOC (%)	N (kg/ha)	P (kg/ha)	K (kg/ha)	S (kg/ha)
Organic Block						
RDF-100 % NPK through FYM	6.94	0.75	230.0	14.60	386.3	18.6
MYR- 100% FYM+foliar (Biophos+Biozinc)	6.96	0.76	231.7	15.15	389.1	18.8
Inorganic Block						
RDF 100 % RDF -NPK	7.10	0.70	224.4	13.95	377.4	20.4
MYR- 100% RDF + Foliar (DAP+ZnSO ₄)	7.13	0.74	225.7	14.45	378.0	20.9

2. Field pea

The study on organic cultivation of field pea was conducted at three centres: Srinagar (NHZ), Ranchi (NEPZ), and S.K. Nagar (Central Sub-zone). As observed in lentil, field pea yields were generally lower under organic practices compared to inorganic cultivation. However, the foliar application of *Biophos* and *Biozinc* within the organic system resulted in increased yields across all locations (Table 1.7).

Economic analysis was reported only from the Srinagar centre. Here, contrary to the general trend, the organic treatment showed higher net return and benefit-cost (B:C) ratio than the inorganic practice (Table 1.8).

Soil health data from Srinagar revealed improvements in soil organic carbon (SOC) and available potassium (K) under organic cultivation. In contrast, the inorganic system led to higher levels of available boron (B), phosphorus (P), and sulfur (S) (Table 1.9).

Table 1.7. Grain yield of pea (kg/ha) under organic cultivation

Treatment	NHZ	NEPZ	CZ	Mean
	Srinagar	Ranchi	S.K. Nagar	
Organic Block				
RDF-100 % NPK through FYM	1026			1026
MYR- 100% FYM+foliar (Biophos+Biozinc)	1036	1179	1719	1311
Inorganic Block				
RDF 100 % RDF -NPK	1172	2118		1645
MYR- 100% RDF + Foliar (DAP+ZnSO ₄)	1187		1796	1492
SEm±	43	--	74	
CD (p=0.05)	131	--	105	

Table 1.8. Net return (Rs/ha) and B:C ratio of pea under organic cultivation at Srinagar

Treatment	Srinagar	
	Net return (Rs/ha)	B:C ratio
Organic Block		
RDF-100 % NPK through FYM	24350	1.40
MYR- 100% FYM+foliar (Biophos+Biozinc)	24981	1.42
Inorganic Block		
RDF 100 % RDF -NPK	25435	1.45
MYR- 100% RDF + Foliar (DAP+ZnSO ₄)	30785	1.70
SEm±	1439	0.07
CD (p=0.05)	4578	0.22

Table 1.9. Changes in soil properties under organic and inorganic practices at Srinagar

Treatment	pH	SOC (%)	N (kg/ha)	P (kg/ha)	K (kg/ha)	S (kg/ha)
Organic Block						
RDF-100 % NPK through FYM	6.8	1.25	510	21	265	11.5
MYR- 100% FYM+foliar (Biophos+Biozinc)	6.8	1.35	519	24	270	13.0
Inorganic Block						
RDF 100 % RDF -NPK	6.7	1.05	515	23	255	12.5
MYR- 100% RDF + Foliar (DAP+ZnSO ₄)	6.7	1.20	525	26	260	14.0
SEm±	0.02	0.06	3.22	1.04	3.2	0.52
CD (p=0.05)	0.09	0.20	10.26	3.31	10.3	1.65

A2. Enhancing lentil/pea productivity and resources-use-efficiency in prevailing cropping systems through conservation agriculture practices

Objectives

1. To monitor the crop growth, productivity and profitability in rice-lentil and maize/sorghum/pearl millet-pea cropping systems under conservation agriculture.
2. To evaluate effect of conservation agriculture in rice-lentil and maize/sorghum/pearl millet-pea cropping systems cropping system on soil physico-chemical and biological properties.

Treatments: Lentil

1. Puddled transplanted rice – conventional tilled lentil (without residues)
2. Puddled transplanted rice – zero tilled lentil (20 cm stubble)
3. ZT direct seeded rice – zero tilled lentil (20 cm stubble)
4. Conventional tilled direct seeded rice – conventional tilled lentil (without residues)
5. Conventional tilled direct seeded rice – zero tilled lentil (20 cm stubble)

Treatments: Field pea

1. Conventional maize/sorghum/pearl millet– conventional tilled pea (without residues)
2. Conventional maize/sorghum/pearl millet – zero tilled pea (20-25 cm standing stubble of kharif crop retained in pea)
3. Minimum Tillage (MT) maize/sorghum/pearl millet- zero tilled pea (20-25 cm standing stubble of kharif crop retained in pea)
4. ZT maize/sorghum/pearl millet – zero tilled pea (20-25 cm standing stubble of kharif crop retained in pea)
5. ZT maize/sorghum/pearl millet – conventional tilled pea (without residues)

Weed management: Application of herbicides as per recommendation for different crops

Observation to be recorded: Periodical weed density and dry weight, Crop growth, Yield attributing character and yield, Soil chemical properties (SOC, N, P and K), Soil biological properties (SMBC, dehydrogenase activities, microbial population etc.)

Design: RBD; Replication: 4; Treatment = 20

Locations: Crop-wise

Zone	Lentil	Fieldpea
NHZ	Srinagar	
NWPZ		Ludihana
NEPZ	Dholi, Mohanpur, Shillongani	Ranchi
CZ	Raipur, Sehore	S.K. Nagar, Kota

Results

A. Lentil

Rice yield was higher under puddled transplanted conditions compared to direct-seeded rice (DSR) under both zero tillage (ZT) and conventional tillage (CT) (Table 2.1). However, lentil yield improved significantly with rice residue retention (20 cm stubble), irrespective of the rice establishment method or tillage practice.

At **Mohanpur** (Table 2.2), residue retention under both transplanted rice and DSR (under CT or ZT) enhanced soil health indicators, including soil organic carbon (SOC), available NPK, and soil microbial biomass carbon (SMBC).

At **Shillongani** (Table 2.3), the highest system productivity (lentil equivalent yield), net return, and benefit-cost (B:C) ratio were observed under the ZT-DSR followed by ZT chickpea with 20 cm residue retention. This system significantly reduced production costs and increased profitability. Additionally, SOC, available NPK, and microbial populations (fungal and bacterial) improved under 20 cm rice stubble retention across both puddled transplanted rice and ZT-DSR systems.

Table 2.1. Grain yield (kg/ha) of paddy and lentil under CA practices

Treatment	Mohanpur		Shillongani	
	Rice	Lentil	Rice	Lentil
Puddle transplanted rice - conservational tilled lentil (without residue)	4891	901	5107	1023
Puddle transplanted rice - zero tilled lentil (20 cm stubble)	5016	1115	5485	965
ZT direct seeded rice - zero tilled lentil (20 cm stubble)	3892	1247	5464	1067
Conventional tilled direct seeded rice - conventional tilled lentil (without residue)	4160	989	4770	1029
Conventional tilled direct seeded rice - zero tilled lentil (20 cm stubble)	4344	1265	4811	1058
SEm±	162	35	185	32
CD (p=0.05)	499	109	576	99

Table 2.2. Soil properties under different CA practices in rice-lentil system at Mohanpur

Treatment	Soil parameters				
	SOC (%)	N (kg/ha)	P (kg/ha)	K (kg/ha)	SMBC (mgC/kg)
Puddle transplanted rice - conservational tilled lentil (without residue)	0.50	278.2	33.8	152.1	381.6
Puddle transplanted rice - zero tilled lentil (20 cm stubble)	0.53	301.3	36.2	161.4	390.5
ZT direct seeded rice - zero tilled lentil (20 cm stubble)	0.56	294.2	34.9	156.9	408.4
Conventional tilled direct seeded rice - conventional tilled lentil (without residue)	0.52	285.4	33.0	151.6	394.7
Conventional tilled direct seeded rice - zero tilled lentil (20 cm stubble)	0.54	297.6	35.3	158.5	403.1
SEm±	0.01	4.74	0.66	3.72	4.06
CD (p=0.05)	0.02	14.61	2.04	NS	12.5

Table 2.3. LEY, economics and soil properties under different CA practices in rice-lentil system at Shillongani

Treatment	LEY of rice-lentil system (kg/ha)	Economics		Soil parameters at the end of experiments (after lentil harvest)					
		Net return (INR/ha)	B:C ratio	SOC (%)	N (kg/ha)	P (kg/ha)	K (kg/ha)	Fungus populations (x10 ⁵ cfu/g soil)	Bacteria populations (x10 ⁶ cfu/g soil)
Puddle transplanted rice - conservational tilled lentil (without residue)	2851	99965	2.20	0.87	306.20	18.70	214.18	43.38	55.59
Puddle transplanted rice - zero tilled lentil (20 cm stubble)	2929	108784	2.37	0.91	316.50	19.50	223.78	48.71	65.45
ZT direct seeded rice - zero tilled lentil (20 cm stubble)	3023	132312	3.14	0.90	314.20	20.70	222.66	49.38	67.27
Conventional tilled direct seeded rice - conventional tilled lentil (without residue)	2736	107079	2.56	0.88	308.40	19.40	216.58	44.41	56.42
Conventional tilled direct seeded rice - zero tilled lentil (20 cm stubble)	2780	113725	2.75	0.92	318.50	21.20	224.47	51.77	69.39
SEm±	72	4764	0.07	0.01	0.66	0.68	0.39	1.27	1.39
CD (p=0.05)	225	14880	0.22	0.03	2.14	2.19	1.30	3.96	4.30

Initial Soil pH: 5.7, SOC: 0.87, N: 302.6 kg/ha, P: 18.6 kg/ha, K: 210 kg/ha

Initial fungus population: 36.36 (x10⁵ cfu/g soil) & bacterial population: 48.45 (x10⁶ cfu/g soil) before experimentation but after rice harvest

B. Field pea

In the conservation agriculture (CA) trial at S.K. Nagar, the highest kharif season maize fodder yield (33,256 kg/ha) and rabi season field pea grain yield (1,418 kg/ha) were recorded under the conventional maize/sorghum/pearl millet–conventionally tilled pea system without residue retention (Table 2.4). These results indicate that field pea performs better under conventional tillage compared to zero tillage.

Table 2.4. Grain/fodder yield (kg/ha) of kharif crop and pea under CA practices

Treatment	S.K. Nagar	
	Maize fodder	Pea
Conventional maize fodder- conventional tilled pea (without residues)	33256	1418
Conventional maize fodder - zero tilled pea (20-25 cm standing stubble of kharif crop retained in pea)	29321	1337
Minimum tillage (MT) maize fodder - zero tilled pea (20-25 cm standing stubble of kharif crop retained in pea)	28935	1388
ZT maize fodder - zero tilled pea (20-25 cm standing stubble of kharif crop retained in pea)	27700	1251
ZT maize fodder - conventional tilled pea (without residues)	28318	1307

A3: Performance of lentil/pea based cropping systems under natural farming

Objectives:

- To study the productivity, profitability, sustainability, quality and input use-efficiencies of different chickpea inclusive cropping systems under natural farming

Treatments:

Treatment	Kharif	Rabi	Summer
Natural farming	Beejamrit+Ghanjeevamrit @ 250 kg/ha + Jeevamrit @ 500 l/ha with irrigation twice in a month+straw mulch @5 t/ha +Whapasa (irrigation in alternate furrows at noon)	Beejamrit+Ghanjeevamrit @ 250 kg/ha + Jeevamrit @ 500 l/ha with irrigation twice in a month+straw mulch @ 5 t/ha +Whapasa (irrigation in alternate furrows at noon)	Mixed cropping for ground covering
Organic farming	FYM/VC/NC/Rock phosphate as per the recommendation of location	FYM/VC/NC/Rock phosphate as per the recommendation of location	
Recommended practice	Use of chemical fertilizers (RDF), herbicides, pesticides	Use of chemical fertilizers (RDF), herbicides, pesticides	

Cropping systems: Lentil/pea inclusive best cropping systems of location

Design: RBD Replication: 4

Note:

- Plot size should be of about 100 m² and each plot should be separated by at least 1.0 m
- Pest management will be done by using neemaster, agniaster, brahmaster and dashparni ark inputs in natural farming treatments

Observations to be recorded: Physico-chemical and biological properties of soil (initial and at the end of each crop year), weed parameters (Species wise population at 30 DAS & 60 DAS), Plant growth, yield parameters, yield and economics

Locations: Crop-wise

Zone	Lentil	Field pea
NHZ	Srinagar	
NWPZ	Hisar, Pantnager, Durgapura	Ludihana
NEPZ	Dholi, Mohanpur,	Ranchi
CZ	Raipur, Sehore	S.K. Nagar, Kota

Results

A. Lentil

Across all six locations (Table 3.1), the lowest lentil yield was consistently recorded under natural farming, while the highest was observed under the recommended practice. On average, lentil yield under natural farming was 17.6% lower than under the recommended practice.

At **Srinagar** (Table 3.2), the recommended practice provided the highest net return (Rs. 29,500/ha) and benefit-cost (B:C) ratio (1.61). However, both natural and organic farming practices led to significant improvements in soil organic carbon (SOC) and soil microbial biomass carbon (SMBC), whereas available NPK levels were higher under the recommended practice.

At **Hisar**, similar patterns emerged (Table 3.3). The recommended practice recorded the highest net return (Rs. 60,789/ha) and B:C ratio (1.80). Organic farming increased SOC, available nitrogen, and fungal populations, while natural farming led to higher levels of available phosphorus and potassium, along with greater bacterial populations.

At **Mohanpur** (Table 3.4), SOC did not vary significantly among the treatments. However, both natural and organic farming enhanced other soil health parameters such as available NPK and SMBC, with organic farming showing the most improvement.

At **Shillongani** (Table 3.5), the recommended practice again yielded the highest net return (Rs. 25,067/ha) and B:C ratio (1.58). Organic farming significantly improved available phosphorus and potassium, while natural farming resulted in higher SOC and microbial (fungal and bacterial) populations compared to the recommended practice.

Table 3.1. Grain yield of lentil (kg/ha) under different practices

Treatment	NHZ	NWPZ		NEPZ		CZ	Overall mean
	Srinagar	Hisar	Pantnagar	Mohanpur	Shillongani	Junagarh	
Natural farming	1044	1205	450	880	1050	1008	940
Organic farming	1041	1208	283	1134	1055	1160	980
Recommended practice	1173	1407	873	1207	1068	1115	1141
SEm±	6	58	38	41	19	56	
CD (p=0.05)	19	180	130	142	NS	NS	

Table 3.2. Economics and change in soil properties under different practices in lentil at Srinagar

Treatment	Economics		Soil parameters				
	Net return (INR/ha)	B:C ratio	SOC (%)	N (kg/ha)	P (kg/ha)	K (kg/ha)	SMBC (mgC/kg)
Natural farming	28480	1.60	1.19	385	20.60	219	450
Organic farming	28300	1.58	1.20	366	20.65	216	475
Recommended practice	29500	1.61	1.16	445	26.60	232	210
SEm±	504	0.78	0.02	9	0.82	5	13
CD (p=0.05)	1849	6.61	0.05	28	2.60	15	40

Table 3.3. Economics and change in soil properties under different practices in lentil at Hisar

Treatment	Economics		Soil parameters				Soil microbial diversity	
	Net return (INR/ha)	B:C ratio	SOC (%)	N (kg/ha)	P (kg/ha)	K (kg/ha)	Fungi (Cfu/g)	Bacteria (Cfu/g)
Natural farming	43188	1.2	0.54	73.8	22.8	694	5.9 × 10 ⁴	3.9 × 10 ⁷
Organic farming	47141	1.4	0.60	82.4	20.8	660	8.8 × 10 ⁴	3.4 × 10 ⁷
Recommended practice	60789	1.8	0.55	79.4	21.1	646	8.3 × 10 ⁴	3.1 × 10 ⁷
CD (p=0.05)	NS							

Table 3.4. Change in soil properties under different practices in lentil at Mohanpur

Treatment	Soil parameters				
	SOC (%)	N (kg/ha)	P (kg/ha)	K (kg/ha)	SMBC
Natural farming	0.560	294.6	33.9	163.80	413.9
Organic farming	0.555	303.4	34.3	153.43	421.5
Recommended practice	0.547	269.1	32.1	146.70	387.0
SEm±	0.01	5.29	0.69	3.42	5.97
CD (p=0.05)	NS	18.29	2.38	11.83	20.67

Table 3.5. Economics and change in soil properties under different practices in lentil at Shillongani

Treatment	Economics		Soil parameters at the end of experiments (after lentil harvest)					
	Net return (INR/ha)	B:C ratio	SOC (%)	N (kg/ha)	P (kg/ha)	K (kg/ha)	Fungus populations (×10 ⁵ cfu/g soil)	Bacteria populations (×10 ⁶ cfu/g soil)
Natural farming	23147	1.52	0.91	316.62	18.96	223.38	55.70	69.77
Organic farming	23350	1.53	0.89	323.14	20.88	236.14	51.64	65.68
Recommended practice	25067	1.58	0.87	318.29	19.20	225.45	44.69	55.02
SEm±	563	0.02	0.01	4.54	0.47	3.04	1.31	1.32
CD (p=0.05)	1745	NS	0.04	NS	1.46	9.46	4.09	4.12

● Initial Soil pH: 5.7, SOC: 0.87, N: 308.8 kg/ha, P: 18.8 kg/ha, K: 218 kg/ha

● Initial fungus population: 39.24(×10⁵ cfu/g soil) & bacterial population: 50.36(×10⁶ cfu/g soil) before experimentation but after rice harvest

B. Field pea

Similar to other pulse crops, the highest field pea yield was recorded under the recommended practice across all three locations (Table 3.6). On average, yield under natural farming was 30% lower than that under the recommended practice.

At **Kota**, the recommended practice resulted in significantly higher net returns (Rs. 70,830/ha) and a benefit-cost (B:C) ratio of 1.98, outperforming both natural and organic farming systems (Table 3.7). While organic farming produced lower yields and economic returns, it consistently showed superior performance in all soil health parameters.

At **Ranchi** (Table 3.8), field pea seeds grown under the recommended practice had higher protein and iron content. Moreover, all input use efficiency indices – including nutrient, water, and energy use efficiencies – were also highest under the recommended practice compared to natural and organic systems.

Table 3.6. Grain yield of pea (kg/ha) under different practices

Treatment	Ranchi	S.K. Nagar	Kota	Mean
Natural farming	1333	1396	1307	1345
Organic farming	1781	1383	1338	1501
Recommended practice	2567	1627	1591	1928
SEm±	120	86.6	55	
CD (p=0.05)	423	NS	190	

Table 3.7. Economics and change in soil properties under different practices in pea at Kota

Treatment	Economics		Soil parameters				
	Net return (INR/ha)	B:C ratio	SOC (%)	N (kg/ha)	P (kg/ha)	K (kg/ha)	SMBC
Natural farming	52291	1.48	0.56	218.5	20.5	321.5	180.5
Organic farming	46535	1.08	0.58	227.8	22.5	326.7	186.9
Recommended practice	70830	1.98	0.57	221.9	22.1	320.3	179.1
SEm±	3680	0.09	0.01	3.27	0.55	5.76	2.00
CD (p=0.05)	12733	0.33	NS	NS	NS	NS	NS

Table 3.8. Grain quality and input use efficiency under different treatments in fieldpea - finger millet system at Ranchi

Treatments	Seed quality				Input use efficiency		
	Protein content (g/100g)	Iron content (mg/100g)	Protein content (g/100g)	Iron content (mg/100g)	Nitrogen use efficiency (kg/ha)	Water use efficiency (kg/ha-mm)	Labour use efficiency (kg/man/day)
	Crop I (Field pea)		Crop II (Finger millet)				
Natural Farming	20.24	18.43	9.63	3.24	-	0.79	22.72
Organic Farming	22.63	14.76	6.87	3.93	40.70	1.07	34.29
Recommended Practice (Inorganic)	24.87	23.63	4.17	3.87	129.73	1.69	54.07

A4: Efficient weed management in lentil through new generation herbicides

Treatments

- 1 Pendimethalin 750 g ai/ha (pre)
- 2 Imazethapyr 50 g ai/ha (pre)
- 3 Pendimethalin 750 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post)
- 4 Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post)
- 5 Imazethapyr 50 g ai/ha at 20 DAS (post)
- 6 Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (post)
- 7 Imazethapyr 75 g ai/ha at 20 DAS (post)
- 8 Unweeded control
- 9 Weed free check (two hand weeding)

Design: RBD; Replication : 3

Observation to be recorded:

Toxicity on weeds and crop plants, weed density and biomass, weed control efficiency (WCE), yield attributes, biomass, grain yield, harvest index, soil fertility status (initial and at the end of experiment), nutrient uptake, economics

Locations:

NWPZ :Ludihana, Durgapura, Pantnagar

NEPZ : Dholi, Mohanpur, Imphal

CZ : Raipur, Sehore

Results

In NWPZ, none of the herbicide treatments performed at par lentil grain yield with weed free treatment, except at Samba (Table 4.1). At Ludhiana, Imazethapyr 50 g ai/ha at 20 DAS (post) gave highest grain yield of lentil (1167 kg/ha) which was significantly higher than remaining herbicide treatment. At Durgapura, Pendimethalin 750 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post) resulted in higher lentil yield (1827 kg/ha) and whereas at Pantnagar, Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (post) produce highest lentil yield (1030 kg/ha). However, at Samba, Imazethapyr 50 g ai/ha (pre), Pendimethalin 750 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post), Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post), and Imazethapyr 50 g ai/ha at 20 DAS (post) gave at par yield of lentil and higher than other treatments. Similar was true in case of Imphal where Imazethapyr 75 g ai/ha (post) also gave at par grain yield of lentil. At mohanpur, Imazethapyr 50 g ai/ha at 20 DAS (post) resulted in higher yield of lentil (1215 kg/ha). At Raipur, Pendimethalin 750 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post) and Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post) resulted in higher yield of lentil among herbicide treatments. **Overall, Pendimethalin 750 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post), Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post) and Imazethapyr 50 g ai/ha at 20 DAS (post) performed better than other treatments in improvement in grain yield of lentil.**

Weed control efficiency (WCE) data was given by Ludhiana and Samba (Table 4.2). At Ludhiana, maximum WCE (79.7%) was recorded in Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post), whereas at Samba, WCE was at par in Pendimethalin 750 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post), Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post), and Imazethapyr 50 g ai/ha at 20 DAS (post).

Economics data on net return (Table 4.2) and B:C ratio presented in Table (Table 4.3) also showed similar trend as in case of grain yield. The differential response at different locations was mainly due to prevailing weed flora of the region, which is presented in Table 4.4.

Thus, location specific herbicide recommendations can be given [Imazethapyr 50 g ai/ha (pre), Pendimethalin 750 g ai/ha - quizalofop-p-ethyl 00 g ai/ha at 20 DAS (pre+post), Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post), and Imazethapyr 50 g ai/ha at 20 DAS (post) and Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (post)] for higher yield and economic return in lentil.

Table 4.1. Effect of different weed management practices on lentil yield (kg/ha)

Treatment	NWPZ						NEPZ			CZ		Overall mean
	Ludihana	Durgapura	Pantnagar	Samba	Mohanpur	Imphal	Raipur					
Pendimethalin 750 g ai/ha (pre)	748	1606	633	743	852	981	862	918				
Imazethapyr 50 g ai/ha (pre)	863	1390	666	761	1186	933	851	950				
Pendimethalin 750 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post)	906	1827	746	798	871	1079	908	1019				
Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post)	922	1476	726	809	1050	1080	983	1007				
Imazethapyr 50 g ai/ha at 20 DAS (post)	1167	1379	655	789	1215	1064	775	1006				
Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (post)	774	1706	1030	651	734	967	746	944				
Imazethapyr 75 g ai/ha at 20 DAS (post)	826	535	--	776	763	1072	803	796				
Unweeded control	665	797	487	454	549	889	585	632				
Weed free check (two hand weeding)	1333	2037	1947	836	1348	1257	1021	1397				
SE _m ±	21	65	72	47	38	17	45					
CD (p=0.05)	135	199	220	142	114	51	134					

Table 4.2. Weed control efficiency (%) and net return (Rs/ha) under different weed management practices in lentil

Treatment	WCE (%)			Net return (Rs./ha)							
	Ludhiana	Samba	Mean	Ludhiana	Durgapura	Samba	Mohanpur	Imphal	Raipur	Mean	
Pendimethalin 750 g ai/ha (pre)	47.0	65	56.0	12913	84522	33559	17928	69746	34372	42173	
Imazethapyr 50 g ai/ha (pre)	54.1	68	61.1	21806	69437	34187	41273	64113	34047	44144	
Pendimethalin 750 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post)	74.4	78	76.2	20285	97185	37288	15561	79770	34255	47391	
Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post)	79.7	77	78.4	23627	73996	37981	29238	79552	41975	47728	
Imazethapyr 50 g ai/ha at 20 DAS (post)	68.5	77	72.8	41654	68747	34385	43216	79873	28788	49444	
Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (post)	76.4	45	60.7	15450	90397	27395	8069	67564	24424	38883	
Imazethapyr 75 g ai/ha at 20 DAS (post)	40.2	71	55.6	16450	8053	35814	12572	80290	30294	30579	
Unweeded control	0.0	0	0.0	9830	28980	16896	514	61596	17284	22517	
Weed free check (two hand weeding)	86.0	87	86.5	44120	106750	39790	43647	98994	38467	61961	
SEm±	-	11		13529		34187	-	2028	3056		
CD (p=0.05)	-	32				9522	-	6067	9163		

Table 4.3. B:C ratio under different weed management practices in lentil

Treatment	NWPZ			NEPZ			CZ	Overall mean
	Ludihana	Durgapura	Samba	Mohanpur	Imphal	Raipur		
Pendimethalin 750 g ai/ha (pre)	1.35	2.84	2.07	1.46	1.46	2.39	1.93	
Imazethapyr 50 g ai/ha (pre)	1.61	2.38	2.03	2.08	1.34	2.40	1.97	
Pendimethalin 750 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post)	1.50	2.96	2.30	1.36	1.60	2.22	1.99	
Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post)	1.62	2.39	2.34	1.71	1.59	2.65	2.05	
Imazethapyr 50 g ai/ha at 20 DAS (post)	2.14	2.35	1.86	2.13	1.67	2.18	2.06	
Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (post)	1.42	2.93	1.69	1.20	1.39	1.91	1.76	
Imazethapyr 75 g ai/ha at 20 DAS (post)	1.42	0.27	2.21	1.33	1.66	2.22	1.52	
Unweeded control	1.28	1.05	1.25	1.01	1.37	1.76	1.29	
Weed free check (two hand weeding)	1.98	2.81	2.46	1.94	1.91	2.22	2.22	
SEM _t	0.35		0.19	-	0.04	0.12		
CD (p=0.05)			0.58	-	0.12	0.37		

Table 4.4. Prevailing weed flora in lentil at different locations

Location	Grassy	Broad leaved	Sedges
Imphal	Cynodandactylon, Dactylocteniumaegyptium, Eleusineindica	Chenopodium album, Phylanthusniruri., Eclipta alba	Cyperusrotundus
Ludhiana	<i>Phalaris minor</i>	Oenotheralaciniata, Coronopusdidymus, Rumexdentatus, Medicagodenticulata	Cyperusrotundus
Samba	<i>Phalaris minor, Cynodondactylon</i>	Chenopodium album, Euphorbia spp., Melilotusindica, Fumeriaparviflora, Anagalisarvensis	Cyperusrotundus
Mohanpur	<i>Sporobolusdiander,</i> <i>Digitariasanguinalis,</i> <i>Eleusineindica, Cynodondactylon,</i>	Viciahirsuta, Ageratum houstonianum, Amaranthusviridis, Fumariaparviflora, Chenopodium album, Gnaphaliumindicum	Cyperusrotundus
Raipur	<i>Echinochloacolona</i>	Medicago denticulate, Cichoriumintybus, Chenopodium album, Physalis minima, Chrozophorarottleri, Melilotusindica	--

A5: Efficient weed management in field pea through new generation herbicides**Treatments:**

- 1 Pendimethalin 1000 g ai/ha (pre)
- 2 Imazethapyr 100 g ai/ha (pre)
- 3 Pendimethalin 1000 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post)
- 4 Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post)
- 5 Imazethapyr 50 g ai/ha at 20 DAS (post)
- 6 Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (post)
- 7 Carfentrazone-p-ethyl 15 g ai/ha (post)
- 8 Unweeded control
- 9 Weed free check (two hand weeding)

Design: RBD; Replication :3

Observation to be recorded:

Toxicity on weeds and crop plants, weed density and biomass, weed control efficiency (WCE), yield attributes, biomass, grain yield, harvest index, soil fertility status (initial and at the end of experiment), nutrient uptake, economics

Locations:

NHZ : Srinagar

NWPZ: Hisar, Ludihana, Pantnagar, Samba

NEPZ : Ranchi

CZ : S.K. Nagar, Kota

Results

Among the herbicide treatments, the combination of Pendimethalin 1000 g ai/ha followed by Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post) gave consistent results across NHZ, NWPZ, and NEPZ in terms of field pea grain yield and was statistically at par with the weed-free treatment at all locations (Table 5.1). Similarly, Oxyfluorfen 150 g ai/ha followed by Propaquizafop 100 g ai/ha at 20 DAS (pre+post) also resulted in field pea yields comparable to the weed-free check. In the Central Zone (CZ), both Pendimethalin 1000 g ai/ha - Quizalofop-p-ethyl 100 g ai/ha (pre+post) and Oxyfluorfen 150 g ai/ha - Propaquizafop 100 g ai/ha (pre+post) produced yields that were at par with the weed-free treatment and significantly higher than other herbicide treatments (Table 5.1). Weed control efficiency (WCE) data, available from three locations (Table 5.2), also supported the yield findings. At Samba and S.K. Nagar, WCE was higher with Oxyfluorfen 150 g ai/ha - Propaquizafop 100 g ai/ha (pre+post), whereas at Ranchi, higher WCE was recorded with Pendimethalin 1000 g ai/ha - Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post).

Net return (Table 5.3) and benefit-cost (B:C) ratio (Table 5.4) followed a trend similar to that of grain yield of pea. Among the herbicide treatments, the highest net return and B:C ratio at Srinagar, Ranchi, and Kota were recorded with the application of Pendimethalin 1000 g ai/ha followed by Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post). However, at Samba, the treatment Oxyfluorfen 150 g ai/ha followed by Propaquizafop 100 g ai/ha at 20 DAS (pre+post) resulted in the highest net return and B:C ratio, which was closely followed by the same treatment, indicating consistency in its economic performance at this location. At S.K. Nagar, the highest net return and B:C ratio were recorded under Imazethapyr 100 g ai/ha (pre). The variation in economic performance across locations can be attributed to the diversity in dominant weed flora, details of which are presented in Table 5.5.

Table 5.1. Effect of different weed management practices on field pea yield (kg/ha)

Treatment	NHZ	NWPZ			NEPZ	CZ		Overall mean
	Srinagar	Hisar	Samba	Pantnagar	Ranchi	S.K. Nagar	Kota	
Pendimethalin 1000 g ai/ha (pre)	1188	2919	833	1604	1258	1789	2135	1675
Imazethapyr 100 g ai/ha (pre)	1153	3070	852	1894	1137	2066	1874	1721
Pendimethalin 1000 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post)	1326	3260	1010	1731	1465	1864	2474	1876
Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post)	1233	2923	1017	1836	1387	2082	2384	1837
Imazethapyr 50 g ai/ha at 20 DAS (post)	1098	2898	967	1742	1294	1832	1889	1674
Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (post)	1187	2665	940	1735	1188	1876	2014	1658
Carfentrazone-p-ethyl 15 g ai/ha (post)	1097	2773	967	1744	1014	1691	1918	1601
Unweeded control	723	1714	730	1593	887	1598	1438	1240
Weed free check (two hand weeding)	1387	3481	1156	2133	1616	2154	2500	2061
SEm±	49	110	67	114	83	107	88	
CD (p=0.05)	155	332	202	339	252	319	263	

Table 5.2. Weed control efficiency (%) under different weed management practices in lentil

Treatment	NWPZ	NEPZ	CZ	Overall mean
	Samba	Ranchi	S.K. Nagar	
Pendimethalin 1000 g ai/ha (pre)	13.3	65.45	33.4	37.38
Imazethapyr 100 g ai/ha (pre)	17.1	73.33	56.7	49.04
Pendimethalin 1000 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post)	38.6	86.67	45.5	56.92
Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post)	40.4	81.22	61.1	60.91
Imazethapyr 50 g ai/ha at 20 DAS (post)	32.2	71.51	44.4	49.37
Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (post)	30.2	43.64	39.2	37.68
Carfentrazone-p-ethyl 15 g ai/ha (post)	34.4	29.09	17.0	26.83
Unweeded control	0.0	0.0	0.0	0.00
Weed free check (two hand weeding)	59.8	96.05	92.0	82.62
SEm±	8.44	-	-	
CD (p=0.05)	25.30	-	-	

Table 5.3. Effect of different weed management practices on net returns (Rs/ha) of fieldpea Pendimethalin 1000 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post)

Treatment	NHZ	NWPZ	NEPZ	CZ		Overall mean
	Srinagar	Samba	Ranchi	S.K. Nagar	Kota	
Pendimethalin 1000 g ai/ha (pre)	30930	33793	14814	59897	52694	38426
Imazethapyr 100 g ai/ha (pre)	29060	34313	9732	73526	43241	37974
Pendimethalin 1000 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post)	38960	44427	22942	62331	62841	46300
Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post)	33475	44800	19652	71408	60741	46015
Imazethapyr 50 g ai/ha at 20 DAS (post)	25450	41800	16312	63083	44278	38185
Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (post)	30970	40200	11294	65233	47669	39073
Carfentrazone-p-ethyl 15 g ai/ha (post)	25498	39500	4540	56560	45228	34265
Unweeded control	3380	30280	1692	53041	27209	23120
Weed free check (two hand weeding)	37220	53133	17608	73377	59707	48209
SEm±	-	3335	3511	-	3504	
CD (p=0.05)	-	9996	10616	-	10505	

Table 5.4. Effect of different weed management practices on B:C ratio of field pea

Treatment	NHZ	NWPZ	NEPZ	CZ		Overall mean
	Srinagar	Samba	Ranchi	S.K. Nagar	Kota	
Pendimethalin 1000 g ai/ha (pre)	2.02	2.1	1.39	2.81	1.61	1.99
Imazethapyr 100 g ai/ha (pre)	1.96	2.0	1.26	3.23	1.36	1.96
Pendimethalin 1000 g ai/ha - quizalofop-p-ethyl 100 g ai/ha at 20 DAS (pre+post)	2.27	2.7	1.60	2.78	1.74	2.22
Oxyfluorfen 150 g ai/ha - propaquizafop 100 g ai/ha at 20 DAS (pre+post)	2.10	2.8	1.51	2.96	1.76	2.23
Imazethapyr 50 g ai/ha at 20 DAS (post)	1.84	2.6	1.43	2.96	1.41	2.05
Quizalofop-p-ethyl 100 g ai/ha at 20 DAS (post)	2.02	2.5	1.29	3.00	1.45	2.05
Carfentrazone-p-ethyl 15 g ai/ha (post)	1.84	2.1	1.12	2.77	1.44	1.85
Unweeded control	1.11	2.2	1.05	2.74	0.90	1.60
Weed free check (two hand weeding)	2.03	3.3	1.35	2.95	1.48	2.22
SEm±	0.02	0.1	0.09	-	0.10	
CD (p=0.05)	0.05	0.3	0.27	-	0.31	

Table 5.5. Prevailing weed flora in field pea at different locations

Location	Grassy	Broad leaved	Sedges
Hisar	Nil	<i>Fumariaparviflora</i> , <i>Chenopodium album</i> , <i>Coronopusdidymus</i> , <i>Trigonallapolygonata</i> , <i>Euphorbia serrata</i>	<i>Anagalisarvensis</i> , <i>RumaxDentatus</i> , <i>Melilotusindicus</i> , <i>Cirsiumarvense</i> , <i>Cyprus rotundus</i>
Kota	<i>Avenafatua</i> , <i>Asphodelustenufolius</i> , <i>Phalaris minor</i>	<i>Melilotus alba</i> , <i>Chenopodium album</i> , <i>Chenopodiummurale</i> , <i>arvensis</i> , <i>Fumariaparviflora</i> , <i>Coronopusdidymus</i> , <i>Spergullaarvensis</i> , <i>Lathyrusaphaca</i>	<i>Melilotusindica</i> , <i>Convolvulus album</i> , <i>Anagallisarvensis</i> , <i>Malvaparviflora</i> , <i>Rumex spp.</i> , <i>Vicia sativa</i> , <i>Cyprusrotundus</i>
Samba	<i>Phalaris minor</i> , <i>Cynodondactylon</i>	<i>Chenopodium album</i> , <i>Melilotusindica</i> , <i>Anagalisarvensis</i>	<i>Euphorbia spp.</i> , <i>Fumeriaparviflora</i> , <i>Cyperusrotundus</i>

A6: Agronomic evaluation of AVT-2 lentil/pea genotypes**A6.1 Lentil AVT-2 (Large Seed) - NHZ**

AVT-2 lentil (large seed) genotypes, LL 1809 and LL 1798, were evaluated for yield performance at two locations (Srinagar and Imphal) in North-hill zone. None of the test genotype outperformed over any check varieties at any location.

Table 6.1. Grain yield (kg/ha) of lentil (large seed) in NHZ

Genotype/ check	Srinagar	Imphal
VL 514 (Ch)	1012	1330
VL 507 (Ch)	916	--
Pant L 11 (Ch)	1097	1166
LL 1809	880	1218
LL 1798	838	938
SEm±	47	70
CD (p=0.05)	131	222

*Tripura centre recorded very poor pod setting (5-10%) and yield due to climatic variability.

A 6.2. Field pea (Tall) AVT -2 - NWPZ

Two AVT-2 test genotypes of field pea (tall), Pant P 554 and Pant P 550, were evaluated at four locations in North-West Plain Zone. The Ludhiana, none of the genotype outperformed over check variety Aman (IPF 5-19). A similar trend was observed at Samba, where the test genotypes did not yield significantly higher than any of the three check varieties (Aman, HFP 9907B and Pant P 42). At Durgapura, the highest grain yield was recorded under Pant P 550; however, it was not significantly superior to any check variety. At Hisar, none of the test genotypes outperformed any check.

Table 6.2. Grain yield (kg/ha) of AVT-2 genotypes of field pea (tall) in NWPZ

Genotype/ check	Ludhiana	Durgapura	Hisar	Samba
Aman (IPF 5-19) (Ch)	2317	2531	2200	1207
HFP 9907B (Ch)	-	2285	2953	1587
Pant P 42 (Ch)	2033	2667	2725	1628
Pant P 554	2450	-	2440	1394
Pant P 550	2142	2917	2685	1233
SEm±	89	212	159	64
CD (p=0.05)	284	NS	490	207

MICROBIOLOGY

4.1 Highlights

- Rice fallow soil samples were received from BCKV, Mohanpur and endophytic bacteria isolated at ICAR-IIPR, Kanpur.
- Four AVT 2 lentil genotypes including 2 checks were tested for symbiotic efficiency at Sehore and Ludhiana. Higher leghemoglobin content was observed in test entry LL 1809 at both locations.

4.2 Salient Findings

Lentil

4.2.1 LM-1: Identification of beneficial endophytic bacteria for improving symbiosis and growth of lentil in rice fallow ecology (New 2024-25)

At Kanpur centre, lentil cv IPL 220 was grown using two rice-fallow soil samples received from BCKV, Mohanpur, West Bengal. A total of 15 bacterial colonies that appeared predominantly on Nutrient Agar were further purified and characterized (Table 1). Of these, 3 isolates belong to *Rhizobium* sp. and their nodulation potential was confirmed. Other non-rhizobial nodule endophytic bacteria and rhizobacterial isolates were characterized for plant growth promoting traits (Fig.1).

Table 1: Plant growth promoting potential of lentil associated bacteria

Culture ID	Rice Fallow Soil	Plant Growth Promoting Traits				
		IAA Production	Phosphate Solubilization	ACC Deaminase	EPS Production	PEG Assay
LR-K-2024-1	Soil ID1	+	-	-	-	-
LR-K-2024-2	Soil ID1	+	+	-	-	-
LR-K-2024-3	Soil ID1	-	-	+	-	-
LR-K-2024-4*	Soil ID1	-	-	-	++	-
LR-K-2024-5	Soil ID1	+	-	-	-	-
LR-K-2024-6	Soil ID2	+	-	-	-	-
LR-K-2024-7	Soil ID2	-	-	-	-	-
LR-K-2024-8	Soil ID2	-	-	-	++	-
LR-K-2024-9	Soil ID2	-	+	-	-	-
LR-K-2024-10*	Soil ID2	-	-	-	-	-
LR-K-2024-11	Soil ID2	-	-	-	-	-
LR-K-2024-12	Soil ID2	-	-	-	-	-
LR-K-2024-13*	Soil ID2	-	-	-	-	-
LR-K-2024-14	Soil ID2	-	++	-	-	-
LR-K-2024-15	Soil ID2	+	-	-	-	-

* Bacterial isolates are identified as *Rhizobium* sp.

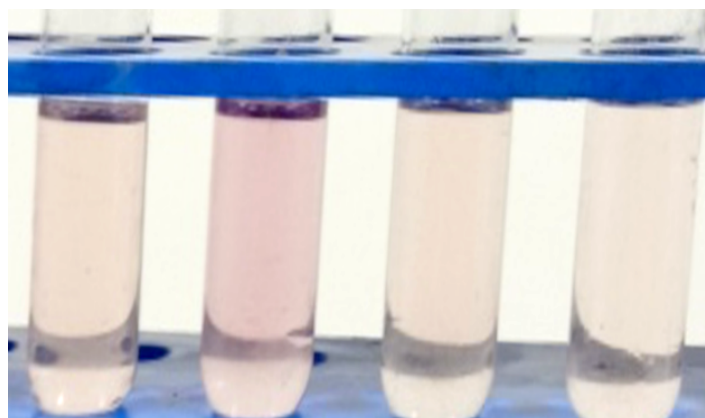


Fig. 1 Screening lentil associated bacteria for IAA production

4.2.2 LM II: Screening of AVT-II entries of lentil for symbiotic efficiency with native soil rhizobia

Four lentil genotypes (2 check and 2 test entries) were tested for symbiotic efficiency with native soil rhizobia at Ludhiana and Sehore centres. Observations on nodulation, leghaemoglobin content and dehydrogenase activity in the rhizosphere soil was recorded at 50% flowering stage. At Ludhiana, Highest nodule number (16.2 nodules/plant), nodule dry weight (21.62 mg/plant), root dry weight (0.21 g/plant) and shoot dry weight (2.86g/plant) was observed in check variety PantL11. Leghemoglobin content was found highest (2.08 mg/g of nodule fresh weight - NFW) in test variety LL1809. No significant variation was observed with respect to dehydrogenase activity (Table 2, Fig. 2).



Fig. 2 An overview of field screening of AVT-II lentil entries for symbiotic efficiency with native *rhizobium* at Ludhiana

Table 2. Evaluation of AVT-II lentil entries for symbiotic efficiency with native *rhizobium* at Ludhiana during 50% flowering stage

Lentil genotypes	NNO/ Plant	Nodule dry weight (mg/plant)	Leghemoglobin content (mg/g NFW)	Root dry weight (g/plant)	Shoot dry weight (g/plant)	Dehydrogenase activity ($\mu\text{g TPF/g soil/day}$)
VL514 (check)	10.7	17.3	1.6	0.20	2.6	36.1
Pant L11 (check)	16.2	21.6	1.7	0.21	2.9	36.2
LL1809	14.3	21.3	2.1	0.17	2.5	35.3
LL1798	13.7	19.5	1.8	0.16	1.9	32.1
SE (m)	1.31	0.8	0.1	0.02	0.1	1.1
CD	NS	2.7	0.23	NS	0.26	NS

At Sehore centre, among tested entries LL1809 and Pant 11 (check) recorded comparatively better nodulation, shoot dry weight, leghaemoglobin content and dehydrogenase activity in rhizosphere soil (Table 3).

Table 3. Evaluation of AVT-II lentil entries for symbiotic efficiency with native *rhizobium* at Sehore during 50% flowering stage

Lentil genotypes	NNO/ Plant	Nodule dry weight (mg/plant)	Leghemoglobin content (mg/g NFW)	Root dry weight (g/plant)	Shoot dry weight (g/plant)	Dehydrogenase activity ($\mu\text{g TPF/g soil/day}$)
VL514 (check)	5.0	7.2	1.6	0.08	0.37	2.7
PantL11(check)	5.3	7.4	1.9	0.13	0.53	2.9
LL1809	8.3	6.7	1.7	0.10	0.56	3.0
LL1798	2.6	4.0	1.4	0.14	0.47	2.8

*Non-replicated trial with single-line evaluation; observations represent the mean of five plants

Field pea

Screening of AVT-II entries of field pea for symbiotic efficiency with native soil rhizobia

Five field pea genotypes (3 check and 2 test entries) were tested for symbiotic efficiency with native soil rhizobia at Ludhiana and Sehore centres. Observations on nodulation, leghaemoglobin content and dehydrogenase activity in the rhizosphere soil was recorded at 50% flowering stage. At Ludhiana, the highest nodule number (52.2 nodules/plant), nodule dry weight (42.89 mg/plant) and leghemoglobin content (2.88 mg/g of NFW) was observed in Pant P 42 (ch). Root dry weight (0.72 g/plant) and shoot dry weight (5.19 g/plant) was highest in Aman (IPF5-19) (ch). Dehydrogenase activity in rhizosphere soil was non-significant (Table 1, Fig. 1).

At Sehore centre, HFP 9907 B (ch) showed comparatively better nodulation while test entries Pant P554, Pant P42 (ch) and Aman (IPF 5-19) ch showed comparatively better leghaemoglobin content. Pant P 42 (ch), Pant P 554 and Pant P 550 showed comparatively higher dehydrogenase activity in the rhizosphere soils, and entry Pant P554 and check Pant P 42 showed comparatively better shoot dry weight per plant at 50% flowering stage (Table 2).



Fig. 1 An overview of field screening of AVT-II field pea entries for symbiotic efficiency with native rhizobium at Ludhiana

Table 1. Evaluation of AVT-II field pea entries for symbiotic efficiency with native *rhizobium* at Ludhiana during 50% flowering stage

Field pea genotypes	NNO/Plant	Nodule dry weight (mg/plant)	Leghemoglobin content (mg/g NFW)	Root dry weight (g/plant)	Shoot dry weight (g/plant)	Dehydrogenase activity ($\mu\text{g TPF/g soil/day}$)
Aman(IPF 5-19) ch	49.9	40.2	2.2	0.7	5.2	23.0
HFP 9907 B ch	50.2	41.3	2.4	0.7	4.3	25.7
Pant P 42 Ch	52.2	42.9	2.9	0.5	5.0	28.8
Pant P 554	39.2	36.9	1.9	0.6	4.8	27.8
Pant P 550	44.0	39.5	2.5	0.6	4.4	26.0
SE (m)	1.4	0.8	0.2	0.05	0.2	1.7
CD	4.63	2.7	0.6	NS	0.65	NS

Table 2. Evaluation of AVT-II field pea entries for symbiotic efficiency with native *rhizobium* at Sehore during 50% flowering stage

Field pea genotypes	NNO/Plant	Nodule dry weight (mg/plant)	Leghemoglobin content (mg/g NFW)	Root dry weight (g/plant)	Shoot dry weight (g/plant)	Dehydrogenase activity ($\mu\text{g TPF/g soil/day}$)
Aman(IPF 5-19) check	5.0	9.0	2.12	0.28	2.50	2.37
HFP 9907 B check	6.0	13.0	2.04	0.27	2.47	2.70
Pant P 42 check	3.3	7.0	2.12	0.32	2.70	6.88
Pant P 554	5.6	12.0	2.22	0.37	3.27	3.84
Pant P 550	1.6	3.2	1.90	0.30	2.60	3.33

*Non-replicated trial with single-line evaluation; observations represent the mean of five plants

PLANT PATHOLOGY

5.1. Highlights

5.1.1 Lentil

- Entries PL 4, Kota Masoor 2, and Kota Masoor 4 found resistant to rust, whereas the entry IPL356 resistant to wilt.
- Pant bio-agent-3 (*Trichoderma sperilum* + *Pseudomonas fluorescense*) was found highly effective for reducing the disease incidence of wilt and increasing the yield.

5.1.2. Field pea

- The entries IPF 23-23 and IPF 24-15 showed multiple resistance to rust and powdery mildew.

5.2 Salient Results

5.2.1 Lentil

The work on lentil pathology was carried out with following objectives to evaluate host plant resistance and to develop module for management of prevalent diseases of lentil. The results are being discussed below:

5.2.1.1 Host plant resistance

Eighty-seven entries of lentil comprising advanced breeding material (IVT and AVT) were evaluated against rust (*Uromyces viciae fabae*) at Ayodhya, Ludhiana, Pantnagar and Shillongani whereas against wilt (*Fusarium oxysporum* f. sp. *lentis*) at Dholi, Ayodhya, Pantnagar, Shillongani, Ranchi, Sehore and Sagar.

Rust: The entries PL 4, Kota Masoor 2 (Ch), and Kota Masoor 4 (Ch) showed resistant to moderately resistant reaction (disease score ≤ 3) at all test locations. However, the entries LL 1805 (**AVT-1 Small seed**); VL 167, BRL 30-4, BRL-26-3 and PL 455 (**IVT Small seed**); PL 412 (**AVT-2+1 Large seed**), LL 1854, IPL357, and LL 1859 (**IVT-Large seed**), PL 455 (**IVT Rice Fallow**); and Check entries VL 148 (Ch), Pant L-024 (Ch), VL 514 (Ch), Pant L 12 (Ch), and LL 1373 (Ch) were found resistant to moderately resistant (disease score ≤ 3) at three locations but susceptible at one location (**Table 5.2.1.1a**).

Table 5.2.1.1a: Reaction of advanced breeding material of lentil to Rust (*Uromyces viciae fabae*) at various locations (2024-25)

1. Lentil AVT-1 (Small seed)

S. No.	Entry Name	Entry code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
1	BRL 22-5	PL 24604	5	3	7	7
2	PLS 25	PL 24605	7	1	5	5
3	PL 411	PL 24606	1	3	5	3
4	LL 1805	PL 24607	7	3	3	3
5	IPL 249	PL 24608	9	5	5	5

2. Lentil IVT (Small seed)

S. No.	Entry Name	Entry code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
6	RNCL 16-09	PL 24501	5	0	9	7
7	VL 167	PL 24502	5	3	3	3
8	BCL 1026	PL 24503	7	1	7	7
9	LL 1831	PL 24504	5	0	5	5
10	BCL 1088	PL 24505	7	1	9	7
11	VL 168	PL 24506	7	3	5	5
12	PDL-17	PL 24507	3	3	5	3
13	PL 455	PL 24508	7	1	3	3
14	IPL 252	PL 24509	7	1	5	5
15	PLS 24-2	PL 24510	9	1	7	7
16	LL 1835	PL 24511	7	5	3	3
17	BRL 30-4	PL 24512	3	1	5	3
18	PLS 24-1	PL 24513	7	3	7	7
19	PL 457	PL 24514	7	3	5	3
20	IPL 251	PL 24515	7	3	5	5
21	BRL-26-3	PL 24516	1	3	5	3
22	IPL 250	PL 24517	7	1	3	5

3. Lentil AVT- 2+1 (Large Seed)

S. No.	Entry Name	Entry code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
23	LL1809 (AVT-2)	PL 24575	5	1	3	5
24	PL 412	PL 24576	7	0	3	3
25	LL1798 (AVT-2)	PL 24577	7	1	5	3
26	PL 420	PL 24578	5	1	7	3

4. Lentil IVT (Large seed)

S. No.	Entry Name	Entry code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
27	PLL 24-2	PL 24551	7	1	7	7
28	RL 2020-6	PL 24552	1	3	7	7
29	PL 456	PL 24553	5	5	3	3
30	RLG 385	PL 24554	7	5	5	3
31	IPL356	PL 24555	9	3	3	5
32	RKL 23-316	PL 24556	3	3	7	9
33	LL 1854	PL 24557	9	3	3	3
34	RL 2020-2	PL 24558	7	1	9	9

35	PLL 24-1	PL 24559	9	1	7	3
36	PL 448	PL 24560	7	1	3	5
37	VL 541	PL 24561	7	3	5	3
38	RVL 23-6	PL 24562	9	5	7	7
39	IPL357	PL 24563	7	3	3	3
40	PHL-1	PL 24564	7	3	7	7
41	RKL 16-401	PL 24565	7	3	7	9
42	LL 1859	PL 24566	7	1	3	3
43	LL 1859	PL 24567	7	1	5	3
44	IPL358	PL 24568	5	1	5	3
45	RLG 354	PL 24569	7	1	3	5
46	RVL 23-7	PL 24570	5	1	9	7

5. Lentil AVT-1 (Rice Fallow)

S. No.	Entry Name	Entry code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
47	PLRF 22-1	PL 24701	7	3	7	5
48	PLR 23-1	PL 24702	7	5	9	3
49	PSL-24	PL 24703	7	5	7	3
50	PLRF 22-2	PL 24704	1	3	7	7
51	BCL 10145	PL 24705	7	1	7	5

6. Lentil IVT (Rice Fallow)

S. No.	Entry Name	Entry code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
52	RL 2021- 2	PL 24721	1	1	7	7
53	IPL 616	PL 24722	7	1	5	5
54	PL 455	PL 24723	7	3	3	3
55	PLRF 24-2	PL 24724	1	1	7	7
56	PLRF 24-1	PL 27725	7	1	3	7
57	IPL 614	PL 24726	7	3	5	3
58	BCL 1025	PL 24727	7	3	9	5
59	PL 457	PL 24728	7	3	5	1
60	BCL 1028	PL 24729	5	1	7	7
61	PDL-19	PL 24730	7	3	5	3
62	IPL 615	PL 24731	7	1	5	5

7. Checks

S. No.	Entry Name	Entry code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
63	Bidhan Lentil-16 (Ch)	PL 24579	7	3	7	7
64	Kota Masoor 2 (Ch)	PL 24580	1	3	3	3
65	Sehore 74-3	PL 24581	7	3	7	7
66	VL 148 (Ch)	PL 24582	7	3	3	3
67	HUL 57 (Ch)	PL 24583	7	3	7	7
68	Kota Masoor 3 (Ch)	PL 24584	7	5	9	3
69	Pant L 063 (Ch)	PL 24585	7	3	3	5
70	Pant L-024 (Ch)	PL 24586	7	1	3	3
71	VL 126 (Ch)	PL 24587	7	1	5	5
72	LH 17-19 (Ch)	PL 24588	7	5	5	3
73	Pant L 11 (Ch)	PL 24589	7	3	5	3
74	WBL 77 (Ch)	PL 24590	9	3	7	7
75	PL 4	PL 24591	1	1	3	3
76	IPL 220 (Ch)	PL 24592	5	3	3	5
77	Kota Masoor 4(Ch)	PL 24593	1	3	3	3
78	L 4727 (Ch)	PL 24594	7	3	5	3
79	VL 514 (Ch)	PL 24595	7	3	3	3
80	Pant L 12 (Ch)	PL 24596	9	3	3	3
81	LL 1373 (Ch)	PL 24597	7	3	3	3
82	LL 1655(Ch)	PL 24598	7	1	5	3
83	KLS 218 (Ch)	PL 24599	7	1	7	3
84	VL Masoor 540	PL 24600	7	3	7	1
85	RVL 11-6(Ch)	PL 24601	7	3	5	3
86	RKL 607-1 (Ch)	PL 24602	7	5	7	9
87	LL 1613(Ch)	PL 24603	7	5	3	3

Wilt: The disease development was excellent at all test locations. One entry IPL356 (**IVT-Large seed**), showed resistant to moderately resistant at five locations, however the entries IPL 249 (**AVT-1 Small seed**), IPL 250 (**IVT Small seed**), PL 456 (**IVT-Large seed**), PLR 23-1 (**AVT-1 Rice Fallow**), PL 457 (**IVT Rice Fallow**) and check entry LL1613 showed resistant to moderately resistant at four locations (disease incidence $\leq 20\%$) out of seven test locations but were susceptible to highly susceptible at remaining locations. (**Table 5.2.1.1b**).

Table 5.2.1.1b: Reaction of advanced breeding material of lentil to wilt (*Fusarium oxysporum lentis*) at various locations (2024-25)

1. Lentil AVT-1 (Small seed)

S. No.	Entry	Code	Reaction to Wilt (%)						
			Shillongani	Ayodhya	Dholi	Ranchi	Sehore	Sagar	Pantnagar
1	BRL 22-5	PL 24604	84.78	15	27.02	50.3	49.52	21.0	43.28
2	PLS 25	PL 24605	76.21	25	46.43	44.3	34.20	16.5	52.38
3	PL 411	PL 24606	75.91	20	33.34	46.4	22.50	12.5	42.37
4	LL 1805	PL 24607	72.45	20	27.34	5.6	35.39	10.0	46.72
5	IPL 249	PL 24608	68.96	15	21.75	12.3	9.05	4.5	26.44

2. Lentil IVT (Small seed)

S. No.	Entry	Code	Reaction to Wilt (%)						
			Shillongani	Ayodhya	Dholi	Ranchi	Sehore	Sagar	Pantnagar
6	RNCL 16-09	PL 24501	80.51	40	41.36	17.9	7.41	26.5	47.26
7	VL 167	PL 24502	77.27	10	58.48	33.9	27.08	17.0	52.04
8	BCL 1026	PL 24503	81.22	40	71.76	30.3	40.36	20.0	80.21
9	LL 1831	PL 24504	77.16	05	23.94	37.9	33.02	23.5	47.92
10	BCL 1088	PL 24505	83.94	20	14.78	44.2	38.04	43.5	32.34
11	VL 168	PL 24506	63.53	15	46.06	43.2	26.60	14.5	28.26
12	PDL-17	PL 24507	80.13	30	27.14	43.7	27.70	29.0	73.18
13	PL 455	PL 24508	78.41	40	32.76	7.5	34.69	9.0	41.38
14	IPL 252	PL 24509	78.33	35	37.08	40.2	39.64	13.5	48.51
15	PLS 24-2	PL 24510	81.54	40	25.95	40.3	21.69	26.5	32.56
16	LL 1835	PL 24511	77.05	10	28.81	42.7	31.56	15.0	54.49
17	BRL 30-4	PL 24512	77.69	45	47.30	46.9	32.80	24.5	25.93
18	PLS 24-1	PL 24513	79.95	20	43.45	51.3	27.25	17.0	27.42
19	PL 457	PL 24514	76.72	25	22.78	45.5	28.51	9.0	43.85
20	IPL 251	PL 24515	78.48	20	30.43	35.9	33.70	29.0	48.92
21	BRL-26-3	PL 24516	83.44	20	22.78	30.6	34.50	22.5	55.62
22	IPL 250	PL 24517	77.60	20	18.88	18.2	27.71	16.5	41.07

3. Lentil AVT- 2+1 (Large Seed)

S. No.	Entry	Code	Reaction to Wilt (%)						
			Shillongani	Ayodhya	Dholi	Ranchi	Sehore	Sagar	Pantnagar
23	LL1809 (AVT-2)	PL 24575	75.89	40	11.38	34.8	28.81	32.5	44.80
24	PL 412	PL 24576	84.16	45	26.77	36.4	38.30	9.0	55.12
25	LL1798 (AVT-2)	PL 24577	83.15	35	27.73	39.6	27.64	8.0	66.74
26	PL 420	PL 24578	83.37	30	16.50	44.4	23.54	6.5	45.22

4. Lentil IVT (Large seed)

S. No.	Entry	Code	Reaction to Wilt (%)						
			Shillongani	Ayodhya	Dholi	Ranchi	Sehore	Sagar	Pantnagar
27	PLL 24-2	PL 24551	80.85	35	10.28	24.1	9.77	30.0	54.99
28	RL 2020-6	PL 24552	81.65	30	17.50	6.7	34.30	34.0	39.64
29	PL 456	PL 24553	75.05	20	15.52	10.1	32.28	15.0	25.85
30	RLG 385	PL 24554	80.78	20	26.34	7.0	62.69	8.0	57.32
31	IPL356	PL 24555	75.27	15	11.48	10.6	9.04	11.0	46.29
32	RKL 23-316	PL 24556	85.14	10	24.01	21.8	15.74	19.0	55.63
33	LL 1854	PL 24557	78.38	10	25.45	43.8	29.62	13.5	57.60
34	RL 2020-2	PL 24558	83.93	40	42.79	35.4	45.44	35.0	53.25
35	PLL 24-1	PL 24559	80.89	30	74.00	45.7	37.00	33.0	71.38
36	PL 448	PL 24560	71.29	20	28.26	35.3	62.06	12.0	25.26
37	VL 541	PL 24561	77.73	10	28.75	44.4	31.56	35.0	69.74
38	RVL 23-6	PL 24562	74.83	10	NG	35.7	35.02	19.0	36.92
39	IPL357	PL 24563	73.52	05	29.38	48.6	47.51	4.5	48.51
40	PHL-1	PL 24564	67.20	05	29.25	30.9	38.50	22.5	23.16
41	RKL 16-401	PL 24565	74.76	10	27.75	47.9	59.04	27.5	29.39
42	LL 1859	PL 24566	73.51	25	19.26	25.1	60.44	42.5	53.37
43	LL 1859	PL 24567	80.97	25	23.28	29.8	30.14	16.0	42.24
44	IPL358	PL 24568	71.08	40	21.24	52.2	26.04	5.0	29.75
45	RLG 354	PL 24569	72.25	35	24.28	37.9	29.35	11.0	47.37
46	RVL 23-7	PL 24570	78.32	40	50.86	18.3	33.03	19.0	47.37

5. Lentil AVT-1 (Rice Fallow)

S. No.	Entry	Code	Reaction to Wilt (%)						
			Shillongani	Ayodhya	Dholi	Ranchi	Sehore	Sagar	Pantnagar
47	PLRF 22-1	PL 24701	72.61	20	30.69	44.3	41.86	19.0	61.96
48	PLR 23-1	PL 24702	75.98	10	11.96	20.0	35.07	10.0	26.79
49	PSL-24	PL 24703	75.90	10	11.87	15.8	29.17	22.0	53.80
50	PLRF 22-2	PL 24704	91.61	15	31.78	46.4	23.11	17.0	36.09
51	BCL 10145	PL 24705	78.56	25	22.80	48.9	31.71	59.0	49.06

6. Lentil IVT (Rice Fallow)

S. No.	Entry	Code	Reaction to Wilt (%)						
			Shillongani	Ayodhya	Dholi	Ranchi	Sehore	Sagar	Pantnagar
52	RL 2021- 2	PL 24721	89.82	30	8.50	11.9	32.96	67.5	46.20
53	IPL 616	PL 24722	74.37	25	31.63	39.0	40.39	23.5	68.64
54	PL 455	PL 24723	73.47	15	40.00	29.9	28.13	9.0	33.94
55	PLRF 24-2	PL 24724	96.22	20	19.25	23.4	16.06	41.0	63.92
56	PLRF 24-1	PL 27725	82.19	35	39.22	11.0	16.26	16.5	26.38

57	IPL 614	PL 24726	74.99	05	43.75	33.6	28.95	5.5	25.74
58	BCL 1025	PL 24727	77.18	20	29.40	23.8	59.64	24.5	30.25
59	PL 457	PL 24728	49.12	10	17.62	8.0	28.89	4.5	28.13
60	BCL 1028	PL 24729	71.96	25	-	15.3	7.27	5.5	61.79
61	PDL-19	PL 24730	75.68	05	37.86	12.5	29.27	14.5	60.12
62	IPL 615	PL 24731	78.15	15	42.43	20.5	40.99	9.0	24.38

7. Checks

S. No.	Entry	Code	Reaction to Wilt (%)						
			Shillongani	Ayodhya	Dholi	Ranchi	Sehore	Sagar	Pantnagar
63	Bidhan Lentil-16 (Ch)	PL 24579	84.76	25	14.62	34.2	43.25	20.0	50.00
64	Kota Masoor 2 (Ch)	PL 24580	77.71	20	27.62	9.3	45.24	39.0	38.60
65	Sehore 74-3	PL 24581	74.94	30	25.01	29.2	38.78	5.5	30.33
66	VL 148 (Ch)	PL 24582	70.68	25	51.53	7.9	37.87	15.5	79.10
67	HUL 57 (Ch)	PL 24583	68.65	20	29.88	45.4	25.83	24.5	23.36
68	Kota Masoor 3 (Ch)	PL 24584	71.88	15	26.52	40.7	33.97	32.5	39.38
69	Pant L 063 (Ch)	PL 24585	75.72	20	13.50	55.4	34.93	12.5	59.76
70	Pant L-024 (Ch)	PL 24586	72.72	20	31.96	29.5	23.89	26.5	38.72
71	VL 126 (Ch)	PL 24587	71.43	20	33.72	22.6	61.61	12.0	16.30
72	LH 17-19 (Ch)	PL 24588	89.91	15	43.91	44.1	44.31	34.5	54.51
73	Pant L 11 (Ch)	PL 24589	73.30	25	32.39	36.7	39.17	26.5	42.57
74	WBL 77 (Ch)	PL 24590	84.30	25	29.57	49.4	28.82	36.0	45.88
75	PL 4	PL 24591	83.37	30	43.55	26.5	36.11	12.0	57.92
76	IPL 220 (Ch)	PL 24592	79.04	05	31.15	12.5	33.33	15.0	41.64
77	Kota Masoor 4(Ch)	PL 24593	75.61	05	19.86	31.7	42.15	17.0	55.92
78	L 4727 (Ch)	PL 24594	71.73	10	23.30	12.0	31.92	13.0	40.20
79	VL 514 (Ch)	PL 24595	75.76	05	20.03	47.2	19.01	6.0	49.47
80	Pant L 12 (Ch)	PL 24596	76.33	05	42.74	23.0	23.13	9.0	43.90
81	LL 1373 (Ch)	PL 24597	77.18	05	15.01	47.4	39.58	20.0	42.75
82	LL 1655(Ch)	PL 24598	84.23	05	27.45	9.1	37.76	17.0	54.78
83	KLS 218 (Ch)	PL 24599	74.28	10	49.11	26.1	22.91	32.0	32.02
84	VL Masoor 540	PL 24600	70.65	15	29.94	51.4	21.95	25.0	73.40

85	RVL 11-6(Ch)	PL 24601	74.35	20	15.45	45.3	69.08	13.5	38.71
86	RKL 607-1 (Ch)	PL 24602	73.29	10	23.25	7.6	62.14	9.0	65.21
87	LL 1613(Ch)	PL 24603	82.25	10	10.55	9.3	35.28	16.0	64.84

5.2.1.2 Biological management of wilt of lentil

Field trials were conducted for the management of lentil wilt at Shillongani, Pantnagar, Sehore, Ranchi and Ayodhya using local susceptible cultivars. The experiment was planted in RBD with three replications. The seeds were treated with measured quantity of bio-agents and fungicide with required quantity of water to make a slurry treatment and further dried under shade before sowing. Percent disease incidence (percent mortality of plant) and yield data recorded and are presented in Table 5.2.1.2a, & b respectively. It was observed that the all the treatments at the test locations, resulted in significant reduction in wilt incidence and increase in yield over check. The significantly low disease incidence and high yield recorded in case of Vita-vax Power at all test locations. Among the bioagents, Pant bio-agent-3 (*Trichoderma sperilum* + *Pseudomonas fluorescence*) was found the best at Shillongani and Pantnagar, they reported that the significantly low disease incidence 28.61 and 29.35% and high yield 5.87 and 10.49 q/ha respectively. However, the bioagents Bio-mix (Parbhani) perform better at Sehore and Ayodhya they reported minimum disease incidence 12.79 and 22.90 % and maximum yield 5.67 and 8.05 q/ha respectively. The bioagent Dalhanderma found better at Ranchi where minimum disease incidence 26.8% and maximum yield 6.81q/ha recorded. The performance of the all 5 bioagents were at par to each other in terms of yield tested at Sehore, Ayodhya and Ranchi. Shillongani, Pantnagar, Sehore, Ayodhya and Ranchi centers reported significantly high disease incidence 66.85, 65.47, 70.45, 45.16 and 54.1% and low yield 3.12, 6.23, 2.19, 4.20 and 5.91 q/ha respectively in untreated check (Table 5.2.1.2a & b).

Table 5.2.1.2a: Effect of different bioagents on disease incidence of lentil wilt at various locations (2024-25)

Sl. No.	Bio-agent formulations*/ Treatments	Dose (g/kg seed)	Disease incidence of lentil wilt (%)				
			Ranchi	Shillongani	Pantnagar	Sehore	Ayodhya
1	Pant bio-agent-3 (<i>Trichoderma sperilum</i> + <i>Pseudomonas fluorescence</i>) (Pantnagar)	10	34.07 (35.63)*	28.61 (32.28)	29.35 (32.76)	24.40 (29.6)	26.12 (30.73)
2	Dalhanderma (IIPR Kanpur)	10	26.8 (31.11)	31.25 (33.94)	33.50 (35.34)	15.74 (23.38)	24.51 (29.67)
3	<i>Trichoderma viride</i> (Coimbatore)	10	30.95 (33.66)	30.11 (33.25)	36.67 (37.23)	20.45 (26.89)	29.03 (32.60)
4	BThr-29 (<i>Trichoderma harzianum</i>), (Jhansi)	10	41.03 (39.77)	30.01 (33.19)	35.97 (36.81)	25.55 (30.36)	27.41 (31.57)
5	Bio-mix (Parbhani)	10	34.1 (35.71)	30.08 (33.24)	39.56 (38.95)	12.79 (20.95)	22.90 (28.59)
6	Vitavax Power (Carboxin 37.5% + Thiram 37.5%)	02	24.34 (29.53)	24.54 (29.67)	14.52 (22.21)	9.86 (18.3)	21.29 (27.47)
7	Control	-	54.1 (47.34)	66.85 (54.82)	65.47 (54.04)	70.45 (57.07)	45.16 (42.22)
	CD at 5%		4.83	3.13	4.25	2.63	1.90
	CV (%)		7.43	4.86	6.43	6.02	4.79

*Figures in parenthesis are angular transformed value.

Table 5.2.1.2b: Effect of different bioagents on yield of lentil at various locations (2024-25)

Sl. No.	Bio-agent formulations*/ Treatments	Yield q/ha				
		Ranchi	Shillongani	Pantnagar	Sehore	Ayodhya
1	Pant bio-agent-3 (<i>Trichoderma sperilum</i> + <i>Pseudomonas fluorescence</i>)	6.53	5.87	10.49	4.80	7.70
2	Dalhanderma (IIPR Kanpur)	6.81	5.07	9.30	5.32	7.90
3	<i>Trichoderma viride</i> (Coimbatore)	6.59	5.35	8.83	5.24	7.30
4	BThr-29 (<i>Trichoderma harzianum</i>), (Jhansi)	6.23	5.31	9.51	4.59	7.60
5	Bio-mix (Parbhani)	6.42	5.30	8.01	5.67	8.05
6	Vitavax Power (Carboxin 37.5% + Thiram 37.5%)	8.69	6.22	13.23	5.96	8.20
7	Control	5.91	3.12	6.23	2.19	4.20
	CD at 5%	1.53	0.63	2.20	0.07	2.25
	CV (%)	12.76	6.83	13.06	0.01	6.75

5.2.2 Field pea

During the cropping season 2024-25, sixty-five entries were evaluated against rust and powdery mildew diseases and results are summarized as under:

Rust: The entries were evaluated against rust at four hot spot locations i. e. Ayodhya, Pantnagar, Ludhiana and Shillongani. The results are presented in Table 5.2.2a. The disease development was good at all locations and none of these entries observed resistant or moderately resistant at all test locations. However, the **AVT-2 (Tall)** entry Pant P 550 and **AVT-1** entry IPF 23-23 **IVT (Tall)** entry IPF 24-15 were found moderately resistant at three locations but susceptible at Shillongani.

Table 5.2.2a: Reaction to rust in AVT and IVT entries of field pea at different locations during rabi 2024-25

1. Field pea AVT 2+1 (Tall)

S. No.	Variety Name	Code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
1	Pant P 550 (AVT-2)	FP 24722	9	3	3	3
2	IPF 23-19	FP 24724	9	2	7	3
3	HUTP 12202	FP 24725	7	3	5	3
4	Pant P 574	FP 24726	7	3	5	3
5	Pant P 554 (AVT-2)	FP 24728	9	3	5	3
6	NDP 22-4	FP 24730	9	2	5	3
7	IPF 23-23	FP 24732	9	2	3	3
8	Pant P 568	FP 24733	9	2	7	5
9	HFP 2056	FP 24734	9	3	9	3
10	RPF 2021-1	FP 24735	7	1	5	5

2. Field pea IVT (Tall)

S. No.	Variety Name	Code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
11	Pant P 612	FP 24741	9	1	7	3
12	Pant P 633	FP 24742	9	2	7	3
13	RFP 2020-1	FP 24743	9	2	7	5
14	SKAU-P-26	FP 24744	9	1	7	3
15	IPF 24-15	FP 24745	9	3	3	3
16	JM 2413-6	FP 24746	9	4	7	3
17	SKAU-P-24	FP 24747	9	3	7	5
18	Pant P 628	FP 24748	9	2	5	3
19	HFP 2131	FP 24749	9	4	9	3
20	IPF 24-18	FP 24750	9	2	7	3
21	RFP 2020-4	FP 24751	9	2	5	3
22	IPF 24-13	FP 24752	7	3	5	3
23	HFP 2055	FP 24753	9	1	9	3

3. Field pea AVT 1 (Dwarf)

S. No.	Variety Name	Code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
24	HFP 1962	FP 24703	9	1	7	3
25	Pant P 559	FP 24708	9	3	5	3

4. Field pea IVT (Dwarf)

S. No.	Variety Name	Code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
26	HFP 2160	FP 24701	9	1	5	5
27	Pant P 605	FP 24702	7	2	5	5
28	SKNFP 2202	FP 24704	7	3	9	3
29	RNCP 17-05	FP 24705	9	1	7	3
30	IPFD 24-1*	FP 24706	9	3	7	3
31	SPC 103	FP 24707	9	3	9	5
32	HFP 2140	FP 24709	9	4	9	3
33	Pant P 592	FP 24710	9	4	3	3
34	IPFD 24-7	FP 24711	7	1	7	3
35	IPFD 24-8	FP 24712	9	2	5	3
36	Pant P 610	FP 24713	9	2	7	3

*Bold seeded

5. Field pea IVT (Rice Fallow)

S. No.	Variety Name	Code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
37	IPF 24-11	FP 24761	9	3	5	3
38	IPFD 24-3	FP 24762	9	4	5	5
39	RFP 2020-6	FP 24764	9	3	5	3
40	IPFD 24-2	FP 24767	9	4	5	3

6. Checks

S. No.	Variety Name	Code	Reaction to Rust (1-9 Scale)			
			Shillongani	Ayodhya	Pantnagar	Ludhiana
41	Aman (IPF5-19) (Ch)	FP 24881	9	1	5	3
42	HFP 1428 (Ch)	FP 24882	9	3	9	3
43	HFP 9426 (Ch)	FP 24883	9	5	9	3
44	IPF 16-13 (Ch)	FP 24884	9	1	7	3
45	Adarsh (Ch)	FP 24885	7	1	9	3
46	IPFD 14-2 (Ch)	FP 24886	9	3	9	3
47	IPFD19-3 Arpan (Ch)	FP 24887	9	3	7	3
48	Pant P 42 (Ch)	FP 24888	9	1	7	5
49	Prakash (Ch)	FP 24889	9	3	7	3
50	IPFD 19-1 (Ch)	FP 24890	7	1	5	5
51	VL 42 (Ch)	FP 24891	9	3	7	3
52	Pant Pea 462(Ch)	FP 24892	9	3	7	3
53	Ambika (Ch)	FP 24893	9	5	7	3
54	HFP 9907 B (Ch)	FP 24894	9	3	9	5
55	IPFD 12-2 (Ch)	FP 24895	9	3	9	3
56	SKNP 04-09 (Ch)	FP 24896	9	1	7	3
57	Pant P 243 (Ch)	FP 24897	9	1	5	5
58	Pant Pea 347(Ch)	FP 24898	9	1	9	3
59	IPFD 11-5 (Ch)	FP 24899	9	3	7	3
60	HFP 1426 (Ch)	FP 24902	9	1	7	3
61	Pant P 250 (Ch)	FP 24903	9	1	7	3
62	HFP 529 (Ch)	FP 24904	9	3	9	3
63	HFP 715(Ch)	FP 24905	9	3	9	3
64	Arkel	FP 24906	9	3	9	3
65	HFP 4 (Ch)	FP 24907	9	1	7	3

Powdery mildew: The entries were evaluated at five locations Ayodhya, Pantnagar, Raipur, S K Nagar, and Sagar. The results are given in Table 5.2.2b. The entries NDP 22-4 (**AVT 2+1 Tall**) and HFP 715(Ch) found resistant to moderately resistant at all test locations. The **AVT 2+1 (Tall)** entries; Pant P 554 and IPF 23-23; **IVT (Tall)** entries Pant P 633, RFP 2020-1, SKAU-P-26, IPF 24-15, JM 2413-

6, Pant P 628 and HFP 2055; **AVT 1 (Dwarf)** entries HFP 1962 and Pant P 559; **IVT (Dwarf)** entries RNCP 17-05, SPC 103, IPFD 24-8 and Pant P 610 and **Check** entries HFP 9426 (Ch), HFP 9907 B (Ch) and IPFD 12-2 (Ch) showed resistant to moderately resistant reaction against the disease at four locations but susceptible at one location.

Table 5.2.2b: Reaction to powdery mildew in AVT and IVT entries of field peas at different locations during rabi 2024-25

1. Fieldpea AVT 2+1 (Tall)

S. No.	Variety Name	Code	Reaction to powdery mildew (0-5 Scale)				
			Sagar	Ayodhya	S K Nagar	Pantnagar	Ludhiana
1	Pant P 550 (AVT-2)	FP 24722	3	3	3	0	2
2	IPF 23-19	FP 24724	3	2	4	1	0
3	HUTP 12202	FP 24725	3	3	3	1	2
4	Pant P 574	FP 24726	2	3	3	0	0
5	Pant P 554 (AVT-2)	FP 24728	2	3	2	0	0
6	NDP 22-4	FP 24730	1	2	2	1	0
7	IPF 23-23	FP 24732	3	2	2	1	0
8	Pant P 568	FP 24733	4	2	2	1	3
9	HFP 2056	FP 24734	4	3	3	0	0
10	RPF 2021-1	FP 24735	3	1	3	0	3

2. Field pea IVT (Tall)

S. No.	Variety Name	Code	Reaction to powdery mildew (0-5 Scale)				
			Sagar	Ayodhya	S K Nagar	Pantnagar	Ludhiana
11	Pant P 612	FP 24741	2	1	4	0	2
12	Pant P 633	FP 24742	0	2	2	0	3
13	RFP 2020-1	FP 24743	1	2	3	0	0
14	SKAU-P-26	FP 24744	0	1	3	1	0
15	IPF 24-15	FP 24745	2	3	2	0	0
16	JM 2413-6	FP 24746	1	4	2	0	0
17	SKAU-P-24	FP 24747	3	3	4	0	0
18	Pant P 628	FP 24748	5	2	2	1	0
19	HFP 2131	FP 24749	3	4	3	0	3
20	IPF 24-18	FP 24750	3	2	4	1	3
21	RFP 2020-4	FP 24751	4	2	2	0	3
22	IPF 24-13	FP 24752	1	3	3	0	0
23	HFP 2055	FP 24753	1	1	3	0	0

3. Field pea AVT 1 (Dwarf)

S. No.	Variety Name	Code	Reaction to powdery mildew (0-5 Scale)				
			Sagar	Ayodhya	S K Nagar	Pantnagar	Ludhiana
24	HFP 1962	FP 24703	3	1	2	0	0
25	Pant P 559	FP 24708	1	3	2	0	0

4. Field pea IVT (Dwarf)

S. No.	Variety Name	Code	Reaction to powdery mildew (0-5 Scale)				
			Sagar	Ayodhya	S K Nagar	Pantnagar	Ludhiana
26	HFP 2160	FP 24701	3	1	3	0	0
27	Pant P 605	FP 24702	3	2	3	1	0
28	SKNFP 2202	FP 24704	0	3	3	0	1
29	RNCP 17-05	FP 24705	4	1	2	0	1
30	IPFD 24-1*	FP 24706	4	3	1	0	1
31	SPC 103	FP 24707	1	3	2	0	2
32	HFP 2140	FP 24709	2	4	4	0	3
33	Pant P 592	FP 24710	1	4	3	1	1
34	IPFD 24-7	FP 24711	3	1	3	0	1
35	IPFD 24-8	FP 24712	1	2	4	0	1
36	Pant P 610	FP 24713	4	2	2	0	1

*Bold seeded

5. Field pea IVT (Rice Fallow)

S. No.	Variety Name	Code	Reaction to powdery mildew (0-5 Scale)				
			Sagar	Ayodhya	S K Nagar	Pantnagar	Ludhiana
37	IPF 24-11	FP 24761	3	3	2	1	0
38	IPFD 24-3	FP 24762	3	4	3	0	0
39	RFP 2020-6	FP 24764	2	3	3	0	0
40	IPFD 24-2	FP 24767	1	4	4	1	0

6. Checks

S. No.	Variety Name	Code	Reaction to powdery mildew (0-5 Scale)				
			Sagar	Ayodhya	S K Nagar	Pantnagar	Ludhiana*
41	Aman (IPF5-19) (Ch)	FP 24881	3	3	3	1	0
42	HFP 1428 (Ch)	FP 24882	3	2	3	1	0
43	HFP 9426 (Ch)	FP 24883	4	1	2	1	0
44	IPF 16-13 (Ch)	FP 24884	3	3	3	0	0
45	Adarsh (Ch)	FP 24885	2	3	3	0	0
46	IPFD 14-2 (Ch)	FP 24886	3	2	4	0	0
47	IPFD19-3 Arpan (Ch)	FP 24887	3	3	4	0	0
48	Pant P 42 (Ch)	FP 24888	3	2	3	0	3
49	Prakash (Ch)	FP 24889	3	2	4	0	3
50	IPFD 19-1 (Ch)	FP 24890	2	3	4	1	0
51	VL 42 (Ch)	FP 24891	3	3	5	0	0
52	Pant Pea 462(Ch)	FP 24892	1	3	5	0	0
53	Ambika (Ch)	FP 24893	3	2	3	1	0
54	HFP 9907 B (Ch)	FP 24894	1	2	4	0	0
55	IPFD 12-2 (Ch)	FP 24895	1	2	5	0	0

56	SKNP 04-09 (Ch)	FP 24896	2	3	3	0	3
57	Pant P 243 (Ch)	FP 24897	1	3	4	1	0
58	Pant Pea 347(Ch)	FP 24898	0	3	4	1	0
59	IPFD 11-5 (Ch)	FP 24899	1	3	5	1	0
60	HFP 1426 (Ch)	FP 24902	2	4	4	0	0
61	Pant P 250 (Ch)	FP 24903	2	4	4	0	0
62	HFP 529 (Ch)	FP 24904	3	2	4	0	0
63	HFP 715(Ch)	FP 24905	1	2	2	0	0
64	Arkel (Ch)	FP 24906	1	2	3	3	5
65	HFP 4 (Ch)	FP 24907	2	3	3	2	0

Note: Raipur Centre reported that the powdery mildew of pea appears in trace in the trial.

*Reported additionally

5.2.3 Lathyrus

During the cropping season 2024-25, seven entries of lathyrus were evaluated at four locations (Raipur, Shillongani, Dholi and Akola) against powdery mildew disease. The data received from all the locations but the disease did not appear in any of the test entries as well as in check at any of the location (Table 5.2.3).

Table 5.2.3: Reaction to powdery mildew in AVT and IVT entries of lathyrus at different locations during Rabi 2024-25

S. No.	Variety Name	Code	Reaction to powdery mildew (0-5 Scale)			
			Raipur	Shillongani	Dholi	Akola
1	RLS-2022-4	LP 24912	0	0	0	0
2	BCK-24-3	LP 24914	0	0	0	0
3	RLS 3004-2	LP 24915	0	0	0	0
4	BidhanKhesari 1 (Ch)	LP 24916	0	0	0	0
5	BCK-23-167	LP 24917	0	0	0	0
6	RLS-2022-2	LP 24918	0	0	0	0
7	BRLa 09	LP 24919	0	0	0	0

DISEASE RATING SCALES

1. Disease rating scale (0-9) for Rust, Ascochyta blight, Stemphylium blight in Lentil and Fieldpea

Grade	Description	Reaction
0	No visible symptoms	Free (F)
1	0.1-10.0 % leaf area covered with symptoms	Resistant (R)
3	10.1-20.0 % leaf area covered with symptoms	Moderately resistant (MR)
5	20.1-30.0 % leaf area covered with symptoms	Moderately susceptible (MS)
7	30.1-50.0 % leaf area covered with symptoms	Susceptible (S)
9	> 50 % leaf area covered with symptoms	Highly Susceptible (HS)

2. Disease rating scale (%) for Wilt in Lentil and Field pea

Description	Reaction
0.1-10.0 % infected/wilted plants	Resistant (R)
10.1-20.0 % infected/wilted plants	Moderately resistant (MR)
20.1-50.0 % infected/wilted plants	Susceptible (S)
Above 50 % infected/wilted plants	Highly Susceptible (HS)

3. Disease rating scale (0-5) for Powdery mildew in Lentil, Field pea and Lathyrus

Grade	Description	Reaction
0	Plants free from infection	Free (F)
1	Plants showing traces to 10% infection on leaves, stems free from the disease	Resistant (R)
2	Slight infection with thin coating of powdery growth on leaves covering 10.1-20% leaf area, slight infection on the stem and pods usually free	Moderately resistant (MR)
3	Dense powdery coating on leaves covering 20.1-30% leaf area, moderate infection on pods	Moderately susceptible (MS)
4	Dense powdery coating covering 30.1 -50% leaf area, stems heavily and pods moderately infected. Infected portion turns grayish.	Susceptible (S)
5	Sever infection with dense powdery growth covering 50% area of the whole plant including pods, stems etc. resulting in premature defoliation and drying.	Highly Susceptible (HS)

ENTOMOLOGY

6.1 Highlights

6.1.1 Lentil

- A total 95 test entries of lentil evaluated in field against major insect-pests viz., aphids and pod borer at five locations across the country during *rabi* 2024-25. Pant L 11 and IPL 220 were found to be promising against aphids at Dholi and Pantnagar centre. At Pantnagar centre two entries (PLS 24-2 and RVL 23-6) were found promising (pod damage up to 5%) against the pod borer.
- Among sixteen promising entries of lentil evaluated for understanding the morphological and biochemical basis of resistance to aphids, Pant L 409 was found to be promising.
- Studies on the seasonal abundance and population dynamics of key insect-pests and natural enemies revealed that the maximum incidence of aphid (22.4 aphids/10 cm shoot) was observed at Mohanpur, and was significantly positively correlated with maximum & minimum temperature, sunshine hours and rainfall. Maximum peak infestation of pod borer (4.6 larvae/plant) was recorded at Dholi during *rabi* 2024-25.

6.1.2 Field pea

- Among the 62 test entries of field pea evaluated in the field against major insect-pests, four entries of field pea at Mohanpur and nineteen entries at Shillongani were found to be promising against the pod borer (with pod damage up to 2%). Pant P 569 were found to be promising against the pod borer at both Mohanpur and Shillongani while HFP 2055, Pant P 559, HFP 9426, RPF 2021-1, IPF 16-13 were found promising against aphids at Pantnagar and Dholi.
- Evaluation of the bio-intensive IPM module (BIPM) against major insect pests of field pea revealed that the BIPM module was more effective as compared to the farmers' practice.
- The highest incidence of pod borer (5.3 larvae per plant), aphid (35.50 per 10 cm shoot) & leaf mine (37.66 % leave damage) was recorded at Varanasi center.

6.1.3 Lathyrus

- Among seven lathyrus entries two entries viz., RLS-2022-4 and BCK-23-167 were found to be promising against aphids at Mohanpur centre.
- *Lecanicilliumlecanii*@ 7.5 g/l was found to be superior for the management of aphids in lathyrus at Mohanpur centre.

Important insect-pests recorded in lentil, field pea and lathyrus

S.No.	Crop	Insect-pest(s) observed
1.	Lentil	Black aphid, <i>Aphis craccivora</i>
		Green aphid, <i>Acyrtosiphon pisum</i>
		Lentil pod borer, <i>Etiellazinckenella</i>
2.	Fieldpea	Pod borer, <i>Helicoverpaarmigera</i>
		Black aphid, <i>Aphis craccivora</i>
		Green aphid, <i>Acyrtosiphonpisum</i>
		Leaf miner, <i>Phytomyzahorticola</i>
		Jassid, <i>Emposasca</i> sp.
3.	Lathyrus	Black aphid, <i>Aphis craccivora</i>
		Green aphid, <i>Acyrtosiphon pisum</i>
		Pod borer, <i>Helicoverpaarmigera</i>
		Lentil pod borer, <i>Etiellazinckenella</i>

Salient Results**6.2 Lentil****6.2.1 Field evaluation of germplasm against major insect pests of Lentil**

Locations (5): Ludhiana, Shillongani, Pantnagar, Dholi and Mohanpur

Results: A total of 92 test entries of lentil along with local checks were evaluated against major insect pests of lentil, *viz.* Aphid and pod borer at five locations across the country during *rabi*2024-25. The summary of lentil entries identified to be promising against the major insect-pests at different locations is given in Table 6.2.1.1.

Table 6.2.1.1. Summary of lentil entries found promising against insect-pests during 2024-25

S.N.	Parameter(s)		Location(s)
1.	Aphids (upto 5 aphids per 10 cm shoot)	Pant L 11, PLS 25, IPL 251, Kota Masoor-4, LL 1859, BCL 1028, PLL 24-1, IPL 220, BRL-26-3, PL 455	Dholi
		PL 412, Kota Masoor 3, Pant L 11, IPL 220, L 4727, PL 420, HUL 57, RL 2020-2, PL 456	Pantnagar
		Pant L 11, IPL 220	Dholi&Pantnagar
2.	Pod borer (upto 5% pod damage)	PLS 24-2, RVL 23-6	Pantnagar

(i) **Aphid:** Out of the five locations, the incidence of aphid on lentil test entries was observed at three locations, *viz.* Pantnagar, Dholi and Mohanpur (Table 6.2.1.2). The overall aphid incidence at these locations ranged from 0.0-34.83 aphids/10 cm terminal shoot. Incidence of aphid ranged from 1.67-26.33, 3.17-34.83 and 1.47-10.93 at Dholi, Pantnagar and Mohanpur, respectively. Ten entries at Dholi and nine at Pantnagar were found to promising against aphids.

(ii) **Pod borer:** Pod borer was the major insect-pest at four locations, *viz.* Ludhiana, Shillongani, Pantnagar and Dholi (Table 6.2.1.3). The overall pod damage due to pod borer at these four locations ranged from 1.3-16.00 percent. Among these locations, Pantnagar recorded the highest

incidence of pod borer. Pod damage at Ludhiana, Dholi, Pantnagar and Shillongani ranged from 2.22-4.75%, 1.30-6.67%, 2.67-16.00% and 5.42-13.61%, respectively.

(iii) **Yield:** At four locations, *viz.* Ludhiana, Pantnagar, Dholi and Mohanpur, the yield of different lentil test entries ranged from 75-2150 kg/ha (Table 6.2.1.3). The yield at Ludhiana and Pantnagar ranged from 75-2150 kg/ha and 105.5-1221.7 kg/ha, respectively. The yield levels at Dholi and Mohanpur ranged from 625.5-905.5 kg/ha and 75-2150 kg/ha, respectively.

Table 6.2.1.2. Field evaluation of lentil entries against aphid during 2024-25

Sl. No.	Entry	Entry Code	Mohanpur		Pantnagar		Dholi	
			No. of aphids/ 10 cm top shoot	Aphid damage rating #	No. of aphids/ 10 cm top shoot	Aphid damage rating #	No. of aphids/ 10 cm top shoot	Aphid damage rating #
1	VL 126	E-24121	8.67 (3.03)*	2	12.17	2	22.33	3
2	Pant L 12	E-24122	6.60 (2.66)	2	11.33	2	21.67	3
3	PLS 24-2	E-24123	4.40 (2.21)	1	26.50	3	11.67	2
4	IPL 252	E-24124	1.73 (1.49)	1	20.33	3	5.33	2
5	VL 148	E-24125	5.40 (2.43)	2	22.83	3	15.67	2
6	LL 1835	E-24126	3.67 (2.04)	1	34.83	3	12.33	2
7	BCL 1026	E-24127	3.60 (2.02)	1	7.17	2	23.3	3
8	BCL 1088	E-24128	1.47 (1.40)	1	10.00	2	7.33	2
9	Pant L 11	E-24129	5.67 (2.48)	2	8.17	2	1.67	1
10	LH 17-19	E-24130	4.13 (2.15)	1	6.83	2	23.33	3
11	VL 168	E-24131	6.07 (2.56)	2	11.00	2	24.33	3
12	RNCL 16-09	E-24132	2.13 (1.62)	1	14.00	2	6.67	2
13	LL 1655	E-24133	5.47 (2.44)	2	9.33	2	5.67	2
14	PLS 24-1	E-24134	6.73 (2.69)	2	15.83	2	10.33	2
15	IPL 250	E-24135	5.33 (2.42)	2	23.00	3	15.33	2
16	LL 1831	E-24136	6.00 (2.55)	2	10.17	2	24.67	3
17	BRL-26-3	E-24137	4.07 (2.14)	1	9.83	2	4.67	1
18	HUL 57	E-24138	3.53 (2.01)	1	8.33	2	7.33	2
19	Bidhan Lentil-16	E-24139	2.33 (1.68)	1	9.83	2	8.67	2
20	BRL -30-4	E-24140	5.67 (2.48)	2	6.67	2	6.33	2
21	VL 167	E-24141	6.00 (2.55)	2	7.67	2	7.67	2
22	PDL -17	E-24142	5.33 (2.42)	2	10.67	2	6.67	2
23	IPL 220	E-24143	6.13 (2.58)	2	8.00	2	5.33	2
24	PL 457	E-24144	8.27 (2.96)	2	9.67	2	6.33	2
25	IPL 251	E-24145	5.13 (2.37)	2	7.50	2	2.33	1
26	PL 455	E-24146	8.47 (2.99)	2	5.50	2	4.67	1
27	LL 1798	E-24152	6.80 (2.70)	2	5.67	2	11.33	2
28	PL 420	E-24153	8.53 (3.01)	2	4.67	1	22.67	3
29	VL 514	E-24154	9.60 (3.18)	2	6.17	2	7.67	2
30	L 4727	E-24155	10.27 (3.28)	2	4.50	1	25.33	3
31	Kota Masoor 3	E-24156	7.47 (2.82)	2	3.50	1	6.33	2
32	PL 412	E-24157	4.07 (2.14)	1	3.17	1	21.67	3

33	Pant L 11	E-24158	6.87 (2.71)	2	3.83	1	20.33	3
34	RKL 607-1	E-24159	6.47 (2.64)	2	5.83	2	26.33	3
35	LL 1809	E-24160	5.93 (2.54)	2	5.50	2	12.67	2
36	LL 1805	E-24172	9.80 (3.21)	2	13.17	2	6.67	2
37	PL 411	E-24173	9.07 (3.09)	2	7.17	2	21.33	3
38	Pant L 063	E-24174	8.47 (2.99)	2	6.50	2	11.67	2
39	PLS 25	E-24175	8.13 (2.94)	2	8.67	2	1.67	1
40	BRL 22-5	E-24177	9.20 (3.11)	2	6.83	2	12.33	2
41	HUL 57	E-24178	8.07 (2.93)	2	5.33	2	8.33	2
42	IPL 220	E-24179	7.00 (2.74)	2	3.83	1	10.67	2
43	IPL 249	E-24181	6.20 (2.59)	2	8.50	2	9.33	2
44	HUL 57	E-24191	5.93 (2.54)	2	8.83	2	6.67	2
45	PSL-24	E-24192	7.00 (2.74)	2	11.00	2	9.33	2
46	BCL 10145	E-24193	6.33 (2.61)	2	5.33	2	6.67	2
47	Kota Masoor2	E-24194	5.07 (2.36)	2	11.67	2	8.33	2
48	PLRF 22-1	E-24195	4.07 (2.14)	1	24.17	3	12.33	2
49	PLR 23-1	E-24196	4.40 (2.21)	1	6.67	2	15.67	2
50	KLS 218	E-24197	4.60 (2.26)	1	7.00	2	22.67	3
51	PLRF 22-2	E-24198	5.33 (2.42)	2	6.17	2	10.33	2
52	Kota Masoor-4	E-24202	5.00 (2.35)	2	6.00	2	3.67	1
53	RKL 607-1	E-24203	6.27 (2.60)	2	7.33	2	7.67	2
54	VL 541	E-24204	4.73 (2.29)	1	10.33	2	6.33	2
55	RVL 23-6	E-24205	8.07 (2.93)	2	5.33	2	7.67	2
56	RLG 354	E-24206	5.20 (2.39)	2	10.83	2	6.67	2
57	PHL-1	E-24207	10.33 (3.29)	2	27.83	3	8.33	2
58	IPL 356	E-24208	8.13 (2.94)	2	12.00	2	8.67	2
59	Kota Masoor3	E-24209	9.33 (3.14)	2	12.83	2	6.33	2
60	L 4727	E-24210	4.73 (2.29)	1	22.00	3	6.67	2
61	RKL 23-316	E-24211	6.13 (2.58)	2	8.17	2	24.67	3
62	LL 1854	E-24212	10.80 (3.36)	2	11.67	2	16.33	2
63	RL 2020-6	E-24213	9.60 (3.18)	2	5.83	2	22.33	3
64	PLL 24-1	E-24214	9.07 (3.09)	2	9.67	2	4.33	1
65	LL 1613	E-24215	4.40 (2.21)	1	6.00	2	6.33	2
66	LL 1373	E-24216	10.40 (3.30)	2	5.67	2	8.33	2
67	Pant L 11	E-24217	7.73 (2.87)	2	6.33	2	7.67	2
68	IPL 357	E-24218	10.87 (3.37)	2	6.33	2	6.67	2
69	RKL 16-401	E-24219	9.93 (3.23)	2	6.17	2	9.33	2
70	RL 2020-2	E-24220	5.67 (2.48)	2	5.00	2	12.33	2
71	RLG 385	E-24221	8.93 (3.07)	2	5.17	2	8.33	2
72	PL 456	E-24222	10.93 (3.38)	2	5.00	2	15.67	2
73	PLL 24-2	E-24223	7.13 (2.76)	2	7.67	2	13.33	2
74	VL 542	E-24224	9.00 (3.08)	2	6.33	2	6.33	2
75	LL 1859	E-24225	7.53 (2.83)	2	5.83	2	3.67	1
76	Pant L-024	E-24226	7.80 (2.88)	2	7.17	2	8.67	2

77	VL 514	E-24227	10.00 (3.24)	2	9.00	2	6.67	2
78	RVL 23-7	E-24228	10.80 (3.36)	2	6.67	2	10.33	2
79	PL 448	E-24229	5.60 (2.47)	2	7.17	2	7.67	2
80	IPL 358	E-24230	9.00 (3.08)	2	5.50	2	23.67	3
81	BCL 1028	E-24251	3.47 (1.99)	1	6.67	2	3.67	1
82	IPL 220	E-24252	3.47 (1.99)	1	6.33	2	4.33	1
83	RVL 11-6	E-24253	4.47 (2.23)	1	9.67	2	20.33	3
84	PL 455	E-24254	6.07 (2.56)	2	7.33	2	8.33	2
85	RL 2021-2	E-24255	6.07 (2.56)	2	7.33	2	7.33	2
86	HUL 57	E-24256	5.60 (2.47)	2	4.83	1	6.67	2
87	IPL 614	E-24257	5.67 (2.48)	2	7.50	2	9.33	2
88	PL 457	E-24258	6.40 (2.63)	2	26.67	3	6.67	2
89	PDL 19	E-24259	8.00 (2.92)	2	9.50	2	8.33	2
90	IPL 615	E-24262	7.27 (2.79)	2	5.67	2	8.67	2
91	PLRF 24-1	E-24263	5.93 (2.54)	2	11.50	2	20.33	3
92	PLRF 24-2	E-24264	3.53 (2.01)	1	17.00	2	23.33	3
93	RKL 607-1	E-24265	7.87 (2.89)	2	9.00	2	21.67	3
94	IPL 616	E-24266	5.87 (2.52)	2	6.50	2	8.33	2
95	BCL 1025	E-24267	7.27 (2.79)	2	16.67	2	6.33	2
96	IPL 220		4.60 (2.26)	1	0.00		6.67	2
	PL09				4.98	1		
S.Em.±			0.21		5.24			
CD(0.05)			0.58		29.19			

*Figures in parentheses are the square root transformed values LC: Local check #Aphid score based on a 5-point score:0 [0: No aphid (very highly resistant),1: 1-5 aphids (highly resistant),

2: 5-20 aphids (moderately resistant), 3: 20-100 aphids (moderately susceptible), 4: 100-500 aphids (susceptible), 5: more than 500 aphids (highly susceptible)]

Table 6.2.1.3. Field evaluation of lentil entries against pod borer during 2024-25

Sl. No.	Entry	Entry Code	Percent pod damage				Yield (kg/ha)			
			Shillongani	Pantnagar	Ludhiana	Dholi	Mohanpur	Pantnagar	Ludhiana	Dholi
1	VL 126	E-24121	10.72	8.00	3.9	3.25	275	277.67	750	683.5
2	Pant L 12	E-24122	10.07	10.67	2.85	5.25	900	341.53	745	676.5
3	PLS 24-2	E-24123	9.63	2.67	3.55	2.89	1250	211.03	713	715.5
4	IPL 252	E-24124	5.78	8.00	3.6	3.67	2150	444.27	972	725.5
5	VL 148	E-24125	9.71	10.67	2.35	4.25	700	310.99	874	682
6	LL 1835	E-24126	8.37	8.00	4.45	3.3	1575	299.88	957	723.5
7	BCL 1026	E-24127	9.90	10.67	3.39	5.67	1500	280.44	869	645.5
8	BCL 1088	E-24128	11.85	10.67	4.15	2.67	1925	261.01	759	736.5

9	Pant L 11	E-24129	7.71	10.67	3.55	1.3	1250	499.80	729	885.5
10	LH 17-19	E-24130	8.37	8.00	2.65	4	1600	419.28	744	675.5
11	VL 168	E-24131	9.83	10.67	3.1	3.67	700	105.51	776	668.5
12	RNCL 16-09	E-24132	9.77	8.00	2.95	4.3	2125	408.17	418	692.5
13	LL 1655	E-24133	13.11	10.67	3.74	4.1	850	466.48	752	724.5
14	PLS 24-1	E-24134	5.83	10.67	2.5	3.67	1200	269.34	709	745.5
15	IPL 250	E-24135	11.48	10.67	4.05	3.3	825	613.64	750	685.2
16	LL 1831	E-24136	7.00	10.67	3.95	4.3	750	455.37	746	674.5
17	BRL-26-3	E-24137	8.65	8.00	2.99	1.67	1650	549.78	777	896.5
18	HUL 57	E-24138	8.84	8.00	4.07	5.67	1650	652.52	749	725.5
19	Bidhan Lentil-16	E-24139	8.69	10.67	4.4	4.3	1750	410.95	427	712.2
20	BRL -30-4	E-24140	8.30	10.67	3.38	2.68	1000	422.05	427	723.5
21	VL 167	E-24141	6.39	8.00	4.05	3.67	500	391.51	734	714.6
22	PDL -17	E-24142	6.58	10.67	3.74	3.3	775	399.84	871	702.5
23	IPL 220	E-24143	5.59	10.67	3.3	2.75	1000	527.57	422	745.5
24	PL 457	E-24144	7.91	8.00	3.43	4.65	400	544.23	466	832.5
25	IPL 251	E-24145	13.61	10.67	3.57	2.67	1000	663.62	419	878
26	PL 455	E-24146	7.71	8.00	3.36	2.3	300	882.98	763	876
27	LL 1798	E-24152	10.16	10.67	3.42	4.67	850	1066.24	734	685.2
28	PL 420	E-24153	10.34	10.67	3.97	3.3	450	755.25	777	672.5
29	VL 514	E-24154	11.80	13.33	4.43	3.67	250	422.05	839	685.6
30	L 4727	E-24155	13.28	10.67	2.22	4.12	175	480.36	1009	635.5
31	Kota Masoor 3	E-24156	7.02	13.33	3.05	5.12	500	569.22	893	724.2
32	PL 412	E-24157	8.34	8.00	3.72	5.3	1325	816.34	955	665.5
33	Pant L 11	E-24158	9.18	8.00	3.55	5.67	500	485.92	909	672.5
34	RKL 607-1	E-24159	6.94	8.00	3.08	4.15	500	644.19	1045	636.2
35	LL 1809	E-24160	6.28	10.67	3.35	3.67	875	708.05	1079	671.5
36	LL 1805	E-24172	13.32	8.00	4.02	3.3	225	1010.71	975	742.5
37	PL 411	E-24173	10.76	10.67	3.67	5.67	325	705.27	715	668.5
38	Pant L 063	E-24174	10.86	10.67	4.05	4.3	500	774.69	814	685.5
39	PLS 25	E-24175	12.44	8.00	3.95	1.67	450	1221.73	1012	874.5
40	BRL 22-5	E-24177	10.58	10.67	3.67	3.67	450	741.37	750	665.5
41	HUL 57	E-24178	13.38	8.00	3.85	4.25	500	827.45	745	714.5
42	IPL 220	E-24179	11.39	10.67	4.25	3.65	525	771.91	888	695.2
43	IPL 249	E-24181	11.79	16.00	4.07	3.3	1000	585.88	893	684.3
44	HUL 57	E-24191	9.30	8.00	3.85	4.15	950	1007.93	695	825.5
45	PSL-24	E-24192	9.92	13.33	3.72	2.67	750	441.49	879	785.5
46	BCL 10145	E-24193	10.51	13.33	4.2	3.3	750	474.81	745	765.2
47	Kota Masoor2	E-24194	7.17	10.67	2.92	4.67	1250	574.77	809	766.5
48	PLRF 22-1	E-24195	6.76	13.33	4.5	4.75	1250	274.89	718	645.5

49	PLR 23-1	E-24196	9.57	8.00	4.55	3.67	1050	796.90	755	632.5
50	KLS 218	E-24197	8.51	8.00	3.9	4.67	1125	616.42	777	665
51	PLRF 22-2	E-24198	9.63	10.67	4.75	3.3	1125	402.62	639	647.5
52	Kota Masoor4	E-24202	11.85	8.00	4.05	4.3	1250	599.76	848	896
53	RKL 607-1	E-24203	8.75	13.33	3.35	1.3	750	388.73	764	711.2
54	VL 541	E-24204	12.40	5.33	3.7	4	1000	166.60	726	765.6
55	RVL 23-6	E-24205	11.69	2.67	3.5	3.3	375	341.53	833	736.5
56	RLG 354	E-24206	7.65	8.00	3.12	5.12	1350	327.65	660	714.2
57	PHL-1	E-24207	10.94	10.67	4.35	4.67	200	161.05	722	698.2
58	IPL 356	E-24208	11.74	10.67	3.95	3.67	375	249.90	1010	702.5
59	Kota Masoor3	E-24209	9.29	10.67	3.6	3.3	250	286.00	779	746.5
60	L 4727	E-24210	9.19	8.00	3.75	3.67	750	205.47	1097	748.6
61	RKL 23-316	E-24211	13.57	10.67	3.99	5.3	675	280.44	1012	652.5
62	LL 1854	E-24212	9.00	13.33	3.55	4.12	200	147.16	750	641.2
63	RL 2020-6	E-24213	12.53	10.67	4.02	4.56	200	294.33	755	634.5
64	PLL 24-1	E-24214	9.72	10.67	2.65	1.75	150	286.00	810	846.5
65	LL 1613	E-24215	10.01	8.00	3.55	3.67	1000	630.30	733	748.5
66	LL 1373	E-24216	10.87	10.67	3.7	3.3	225	202.70	980	712.4
67	Pant L 11	E-24217	8.88	8.00	3.75	4.36	450	272.11	764	772.4
68	IPL 357	E-24218	11.51	10.67	4.55	3.3	225	288.77	1138	746.5
69	RKL 16-401	E-24219	9.96	8.00	3.18	4.67	175	327.65	750	686.5
70	RL 2020-2	E-24220	10.05	8.00	3.05	3	1000	377.63	713	715.5
71	RLG 385	E-24221	13.40	10.67	4.15	2.89	250	466.48	745	765.5
72	PL 456	E-24222	11.01	8.00	2.72	3.67	100	402.62	1109	688.5
73	PLL 24-2	E-24223	6.94	10.67	3.36	3.3	575	410.95	914	674.8
74	VL 542	E-24224	11.83	8.00	4.65	5.15	200	869.10	881	743.2
75	LL 1859	E-24225	12.14	10.67	4.4	2.75	500	305.43	755	882.5
76	Pant L-024	E-24226	9.23	10.67	4.55	4.5	550	874.65	893	745.5
77	VL 514	E-24227	11.91	8.00	3.27	3.3	250	505.35	674	714.2
78	RVL 23-7	E-24228	7.74	10.67	4.62	5.3	75	458.15	895	685.5
79	PL 448	E-24229	10.88	10.67	4.2	3.67	1050	358.19	888	765.4
80	IPL 358	E-24230	9.29	10.67	4.25	4.15	275	466.48	893	635.2
81	BCL 1028	E-24251	11.17	8.00	4.55	2.3	1425	805.23	895	905.5
82	IPL 220	E-24252	13.57	8.00	4.35	2.75	1500	821.89	879	883.5
83	RVL 11-6	E-24253	9.22	10.67	3.5	6.67	750	366.52	910	628
84	PL 455	E-24254	10.26	8.00	4.05	3.67	900	538.67	999	748.2
85	RL 2021-2	E-24255	9.72	10.67	3.35	4.15	800	319.32	990	765.5
86	HUL 57	E-24256	9.90	8.00	4.02	3.3	900	819.12	974	788.2
87	IPL 614	E-24257	9.99	8.00	3.67	3.67	1000	441.49	816	678.5
88	PL 457	E-24258	10.51	8.00	4.05	4.15	650	580.32	858	741.5

89	PDL 19	E-24259	9.84	8.00	3.95	5.12	600	474.81	965	685.5
90	IPL 615	E-24262	9.43	10.67	3.67	3.15	600	455.37	848	657.2
91	PLRF 24-1	E-24263	11.66	10.67	3.85	4.3	850	405.39	710	625.5
92	PLRF 24-2	E-24264	9.18	10.67	4.25	5.3	1000	613.64	662	645.2
93	RKL 607-1	E-24265	9.99	8.00	4.07	3.33	750	402.62	596	645.5
94	IPL 616	E-24266	5.42	8.00	3.85	4.67	750	341.53	660	735.3
95	BCL 1025	E-24267	9.09	8.00	3.72	4.12	500	291.55	565	758.2
96	IPL 220		10.00			3.67	1175			735.5
	PL09			4.44				447.04		
	LL 1373 (Ch)				3.67				1265	
	LL 931 (Ch)				4.05				1150	
	Infester				8.5				-	
SEm±							9.81	77.35		
CD(0.05)					NS	0.341	27.36	215.74	135	

*Figures in parentheses are the transformed arc sine values LC: Local check

6.2.2: Biochemical and morphological basis of resistance to aphid in promising genotypes of lentil

Data on aphid population revealed that Pant L 409 showed better tolerance against aphids among other promising entries of lentil at Mohanpur and Pantnagar centre (Table 6.2.2.1).

Among the crop morphological traits studied in the present experiment, both non-grandular and grandular trichome density on leaf revealed significant positive correlations with the mean aphid population. On the other hand all the plant biochemical characters revealed significant correlations with the aphid population. Amongst them, total soluble sugar showed significant positive correlation while the rest of the characters viz. Chlorophyll a, Chlorophyll b, total Chlorophyll and total Phenol showed significant negative correlations with the mean aphid population (Table 6.2.2.a-c).

Table 6.2.2 .1: Field evaluation of selected genotypes against aphids of lentil

Sl. No.	Genotypes	Mohanpur		Pantnagar	
		No. of aphids/ 10 cm top shoot	Aphid damage rating #	No. of aphids/ 10 cm top shoot	Aphid damage rating #
1.	L4147	2.00 (2.27)	1	7.33 (2.78)	2
2.	BRL 22-1	3.28 (1.95)	1	5.67 (2.48)	2
3.	IPL220	6.89 (2.72)	2	6.67 (2.62)	2
4.	Pant L 11	2.53 (1.74)	1	6.00 (2.55)	2
5.	PL 404	1.68 (1.47)	1	10.00 (3.24)	2
6.	HUL 57	3.18 (1.92)	1	7.00 (2.71)	2
7.	LL 1764	6.57 (2.66)	2	5.00 (2.32)	1
8.	NDL 22-5	7.51 (2.83)	2	10.67 (3.34)	2
9.	IPL 249	7.23 (2.83)	2	8.67 (3.01)	2
10.	Pant L 409	1.87 (1.54)	1	4.00 (2.03)	1
11.	DPL 15	3.67 (2.04)	1	13.67 (3.75)	2

12.	Pant L 24	3.87 (2.07)	1	10.00 (3.24)	2
13.	IPL 355	1.61 (1.45)	1	10.00 (3.24)	2
14.	LL 1841	3.89 (2.06)	1	8.67 (3.01)	2
15.	IPL 354	2.88 (1.84)	1	6.00 (2.55)	2
16.	BCL 101	4.72 (2.28)	1	9.00 (3.07)	2
17.	IPL 610 (SC)	9.79 (3.21)	2	8.00 (2.88)	2
18.	PSL 24 (PE)	1.26 (1.33)*	1		
	PL 09	-	-	5.67 (2.48)	2
SE_M (+/-)		0.04	-	1.33 (0.24)	
CD		0.20	-	3.85 (0.69)	

PE= Promising Entry; SC = Susceptible Check*Figures in parentheses are $\sqrt{(x+0.5)}$ transformed values

Table:6.2.2.2a: Correlation between plant morphological characters and mean aphid population on selected lentil genotypes during 2024-25 at BCKV, Mohanpur

Plant Morphological characters	Correlation coefficient (r) considering overall mean pest population	Plant Biochemical characters	Correlation coefficient (r) considering overall mean pest population
Non-grandulartrichome density on leaf (no./mm ²)	-0.974(S)	Chlorophyll a (mg/g FW)	-0.891(S)
Grandulartrichome density on leaf (no./mm ²)	-0.823(S)	Chlorophyll b (mg/g FW)	-0.877(S)
Trichome density on shoot (no./mm ²)	-0.386 (NS)	Total chlorophyll (mg/g FW)	-0.973(S)
Trichome length (µm)	-0.325 (NS)	Total soluble sugar (mg/g FW)	0.889(S)
Primary Branches/plant	0.071 (NS)	Total phenol (mg/g DW)	-0.970(S)
Plant height(cm)	0.357(NS)		
Pod/plant	0.043(NS)		

Table 6.2.2.2b: Morphological parameters in lentil varieties during 2024-25 at BCKV, Mohanpur

S. N.	Lentil genotypes	Morphological Parameters						
		Plant Height at Maturity (cm)	No. of Pods/ Plant	No. of Primary Branches/ Plant	Trichrome Density on leaf (Grandular)/ mm ²	Trichrome Density on leaf (Non-Grandular)/ mm ²	Trichrome Density on shoot/ 5 cm surface length	Trichrome Length (µm)
1.	PSL 24 (PE)	40.50±1.54	50.00±0.53	3.67±0.02	9.94±1.48	19.02±1.60	37.55±1.09	308.65±5.68
2.	L4147	42.83±2.17	45.00±0.26	4.33±0.08	5.06±1.50	14.33±1.51	30.52±0.70	190.76±0.86
3.	BRL 22-1	39.47±1.54	46.33±1.01	3.33±0.08	6.38±0.83	15.55±0.95	32.40±0.79	165.88±4.64
4.	IPL 220	34.27±2.31	55.33±1.41	3.00±0.04	3.10±1.15	12.38±1.15	38.66±0.99	256.78±10.88
5.	Pant L 11	33.63±2.24	61.33±1.73	3.67±0.04	6.94±1.08	16.22±1.08	38.15±1.07	177.99±4.01
6.	PL 404	31.63±1.46	40.00±0.41	5.33±0.04	7.94±0.41	17.21±0.41	23.20±0.03	278.90±11.56
7.	HUL 57	34.17±2.08	34.00±0.33	4.67±0.10	7.08±1.22	16.36±1.22	32.35±0.52	165.88±2.99
8.	LL 1764	40.13±0.94	35.63±0.04	5.33±0.15	3.91±0.37	13.19±0.37	23.48±0.36	156.44±1.97

9.	NDL 22-5	38.53±2.36	46.33±0.15	4.00±0.07	2.87±1.05	12.15±1.75	22.71±0.48	180.68±5.86
10.	IPL 249	44.43±1.94	61.67±1.26	4.33±0.09	1.94±1.08	11.22±1.08	26.01±0.20	290.54±7.07
11.	Pant L 409	37.23±0.85	34.33±0.79	5.33±0.04	7.60±1.78	16.88±1.78	27.34±0.24	273.40±9.36
12.	DPL 15	43.07±1.22	40.67±0.73	2.67±0.05	5.71±0.36	14.99±0.36	34.74±0.20	237.50±4.92
13.	Pant L 24	32.87±0.85	66.33±0.85	3.33±0.04	5.06±1.50	14.34±1.50	30.75±0.24	278.22±10.53
14.	IPL 355	32.77±1.22	38.33±0.08	3.00±0.01	8.60±1.48	17.88±1.48	29.43±0.12	230.88±0.96
15.	LL 1841	31.70±1.38	43.00±0.85	3.33±0.08	5.13±0.40	14.41±0.40	32.56±0.56	156.87±0.28
16.	IPL 354	33.70±2.23	36.00±0.39	3.00±0.05	7.27±1.42	16.55±1.42	29.19±0.06	156.89±6.22
17.	BCL 101	38.40±2.17	38.67±0.17	3.33±0.09	4.13±0.53	13.41±0.53	34.08±0.72	196.78±5.14
18.	IPL 610 (SC)	37.13±1.66	29.67±0.40	4.33±0.13	1.59±0.61	10.89±1.87	21.17±0.51	150.99±5.44

Table 6.2.2c: Biochemical parameters in different lentil varieties during 2024-25 at BCKV, Mohanpur

S.N.	Lentilgenotypes	Biochemical Parameters				
		Chlorophyll a (mg/g of FW)	Chlorophyll b (mg/g of FW)	Total Chlorophyll (mg/g of FW)	Total Phenol (mg GAE/ 100 g of FW)	Total Soluble Sugar (mg GE/g of FW)
1.	PSL 24 (PE)	0.29±0.01	0.14±0.00	0.42±0.01	22.22±0.50	8.20±0.18
2.	L4147	0.21±0.02	0.11±0.01	0.32±0.03	16.70±0.74	13.70±0.25
3.	BRL 22-1	0.22±0.02	0.13±0.01	0.35±0.03	18.19±0.67	11.60±0.31
4.	IPL 220	0.21±0.01	0.10±0.02	0.31±0.03	15.93±0.03	14.32±0.10
5.	Pant L 11	0.25±0.01	0.11±0.01	0.36±0.01	18.74±0.04	11.20±0.20
6.	PL 404	0.24±0.02	0.16±0.00	0.40±0.02	21.04±0.05	9.12±0.09
7.	HUL 57	0.24±0.01	0.12±0.01	0.36±0.01	18.44±0.71	11.52±0.15
8.	LL 1764	0.22±0.01	0.11±0.00	0.33±0.01	16.41±0.04	13.52±0.26
9.	NDL 22-5	0.20±0.01	0.10±0.01	0.30±0.00	14.74±0.04	11.32±0.29
10.	IPL 249	0.19±0.01	0.09±0.01	0.28±0.01	13.70±0.31	16.12±0.02
11.	Pant L 409	0.23±0.01	0.15±0.01	0.38±0.00	19.59±0.16	10.40±0.20
12.	DPL 15	0.22±0.00	0.13±0.01	0.35±0.01	18.07±0.02	12.88±0.25
13.	Pant L 24	0.21±0.00	0.12±0.00	0.34±0.00	17.37±0.03	12.72±0.32
14.	IPL 355	0.25±0.01	0.17±0.01	0.41±0.00	21.67±0.04	8.60±0.26
15.	LL 1841	0.23±0.01	0.12±0.01	0.35±0.01	18.00±0.05	12.20±0.31
16.	IPL 354	0.23±0.01	0.13±0.01	0.36±0.00	18.70±0.62	11.00±0.35
17.	BCL 101	0.20±0.01	0.13±0.01	0.33±0.01	16.48±0.04	13.80±0.03
18.	IPL 610 (SC)	0.17±0.01	0.09±0.01	0.26±0.00	13.00±0.03	17.20±0.04

Table 6.2.2d: Study of biochemical parameters in selected lentil genotypes during 2024-25 at ICAR-IIPR, Kanpur

Sample Name	Total Phenols (mg GAE/g seed) \pm SD	Total Flavonoids (mg CE/g seed) \pm SD	Total Soluble Sugars (g/100g seeds) \pm SD	Reducing Sugars (g/100g seeds) \pm SD	Non-reducing sugars (g/100 g seeds) \pm SD	POX activity (Δ OD/min/mg protein) \pm S.D.
L 4147	2.88 \pm 0.18	0.73 \pm 0.10	2.90 \pm 0.05	0.50 \pm 0.02	2.40 \pm 0.06	8.77 \pm 0.12
BRL 22-1	7.12 \pm 0.10	0.59 \pm 0.05	3.10 \pm 0.03	0.50 \pm 0.01	2.60 \pm 0.06	7.76 \pm 0.10
IPL 220	4.09 \pm 0.08	0.37 \pm 0.05	3.52 \pm 0.01	0.54 \pm 0.02	2.98 \pm 0.10	21.55 \pm 0.31
Pant L 11	1.81 \pm 0.02	0.42 \pm 0.03	2.80 \pm 0.02	0.50 \pm 0.01	2.30 \pm 0.11	9.81 \pm 0.08
PL 404	2.90 \pm 0.18	0.67 \pm 0.05	2.71 \pm 0.03	0.52 \pm 0.01	2.20 \pm 0.05	7.76 \pm 0.13
HUL 57	4.28 \pm 0.30	0.69 \pm 0.04	2.62 \pm 0.03	0.53 \pm 0.01	2.09 \pm 0.02	9.64 \pm 0.13
LL1764	5.37 \pm 0.12	1.10 \pm 0.02	2.68 \pm 0.02	0.59 \pm 0.01	2.09 \pm 0.01	14.01 \pm 0.07
NDL 22-5	5.95 \pm 0.07	0.76 \pm 0.06	2.32 \pm 0.01	0.52 \pm 0.02	1.80 \pm 0.04	12.07 \pm 0.09
IPL 249	3.25 \pm 0.15	0.89 \pm 0.02	2.52 \pm 0.01	0.65 \pm 0.01	1.87 \pm 0.01	9.21 \pm 0.10
Pant L 409	3.37 \pm 0.20	0.72 \pm 0.07	3.07 \pm 0.03	0.50 \pm 0.01	2.58 \pm 0.01	10.43 \pm 0.22
DPL 15	2.96 \pm 0.20	0.64 \pm 0.01	1.95 \pm 0.02	0.57 \pm 0.01	1.38 \pm 0.01	8.94 \pm 0.14
Pant L 24	3.12 \pm 0.24	0.86 \pm 0.01	2.42 \pm 0.06	0.65 \pm 0.01	1.77 \pm 0.03	15.06 \pm 0.10
IPL 355	1.93 \pm 0.13	0.34 \pm 0.02	2.37 \pm 0.03	0.54 \pm 0.01	1.83 \pm 0.01	7.65 \pm 0.13
LL 1841	2.69 \pm 0.23	0.71 \pm 0.06	2.44 \pm 0.03	0.60 \pm 0.02	1.84 \pm 0.02	13.41 \pm 0.15
IPL 354	5.05 \pm 0.05	0.96 \pm 0.05	2.85 \pm 0.00	0.50 \pm 0.01	2.35 \pm 0.08	13.31 \pm 0.28
BCL 1001	4.21 \pm 0.31	0.69 \pm 0.02	3.01 \pm 0.04	0.45 \pm 0.02	2.55 \pm 0.04	(Sample didn't germinate)
IPL 610 (Susceptible entry)	3.98 \pm 0.10	0.43 \pm 0.02	3.06 \pm 0.04	0.49 \pm 0.02	2.58 \pm 0.05	10.65 \pm 0.23

The total phenolic content was estimated using the Folin-Ciocalteu method with slight modifications as suggested by Xu and Chang (2007). The phenolic content of lentil varieties investigated for aphid resistance ranged from 1.81 \pm 0.02 mg gallic acid equivalent (GAE)/g seed in the variety L4147 to 7.12 \pm 0.1 mg GAE/g seed in BRL 22-1. Likewise, the total flavonoids were quantified using the aluminium chloride assay as described by Kim *et al.* (2003). Flavonoid content in lentil varieties varied from 0.34 \pm 0.02mg catechin equivalent(CE)/g seed in the variety IPL 355 to 1.10 \pm 0.02mgCE/g seed in the variety LL1764.

The total soluble sugars (TSS) were extracted with 80% ethanol, and the method of Dubois *et al.* (1956) was followed. The TSS value ranged from 1.95 \pm 0.02g/100g seeds in DPL 15 to 3.52 \pm 0.01g/100g seeds in IPL 220. The reducing sugar content ranged from 0.45 \pm 0.02g/100g seeds in BCL 1001 to 0.65 \pm 0.01g/100g seeds in the varieties IPL 249 and Pant L 24. The non-reducing sugar content of the investigated lentil varieties ranged from 1.38 \pm 0.01g/100g seeds in DPL 15 to 2.98 \pm 0.1g/100g seeds in IPL 220. The POX activity ranged from 7.65 (IPL 355) to 21.55(IPL 220). Total 7 genotypes (BRL 22-1,NDL 22-5, LL1764, IPL 354,HUL 57, BCL 1001 and IPL 220) has recorded higher phenol content than susceptible genotype (IPL 610) can be further validated. As per the Zafeiriou *et al.* (2022) lentil aphid infestation will led to increased accumulation of phenolics, fatty acids and saponins as defense

mechanism. Further they concluded aphid interaction with lentil is governed by interplay of ROS and hormone signalling for defence response and secondary metabolites.

6.2.3 Seasonal abundance and population dynamics of key insect-pests and natural enemies in lentil

Locations (5): Ludhiana, Shillongani, Pantnagar, Dholi & Mohanpur

The experiment was conducted at all the four locations. Pod borer was the major insect-pests at three locations, *viz.* Moahnpur, Dholi, Pantnagar and Ludhiana. Location-wise observations on incidence of insect-pests in lentil and the weather parameters are described below (Tables 6.2.3.1-6.2.3.4):

Dholi: The incidence of aphids was observed during 2nd SW as 0.67 numbers per 10 cm of twigs and continued up to 10th SW. The highest number of aphid per 10 cm of twigs were observed during the 6th SW (6.67). The incidence of pod borer was noticed during the 6th SW and continued up to harvesting of the crop. The highest number of larvae per plant were observed during the 8th SW (4.67). The populations of natural enemies were found to be more or less fluctuating throughout the cropping season except during the heavy winter. The maximum and minimum temperature have highly significant with aphid population in lentil throughout the experiment, respectively. In case of natural enemy population (Spiders, Ladybird beetles and Ants), all the abiotic components have no significance except relative humidity recorded at 14.00 hrs upon ladybird beetle population, had significant effect (Table 6.2.3.1a&b).

Mohanpur: Among the insect pests, the incidence of pulse aphid (*Aphis craccivora*) was recorded both at vegetative and reproductive stage of the crop. Aphid appeared in the field (1.2 per 10 cm top shoot) for the first time on 30.12.24 i.e. during 52ndSMW and continued till harvest i.e. upto 10.03.25 at 10thSMW (Table 1). The aphid population reached its peak (22.4 per 10 cm top shoot) on 03.03.25 during 9thSMW. The population of natural enemy (both spiders and coccinellid beetles) was recorded from 30.12.24 (52ndSMW) to 10.03.25 (10th SMW) in the field. Among the meteorological parameters taken into consideration, both maximum temperature and minimum temperature had significant positive correlation with both aphid and natural enemy population (Table 6.2.3.2).

Pantnagar: Aphid identified as key sucking pest in lentil during the crop season at Pantnagar. Aphids appeared in field in 2nd SMW and continued upto harvesting. The aphid population reached its peak (8.4 aphids/10cm twig) at 5thSMW (Table 6.2.3.3a). Correlation study indicated that all weather parameters except maximum & minimum relative humidity and wind velocity showed negative correlation with aphid population infesting lentil. However, correlation between weather parameters and aphid population except for minimum temperature and maximum relative humidity was found non-significant at P=0.05 (Table 6.2.3.3b). Maximum & minimum relative humidity and wind velocity had positive correlation with natural enemies' population in lentil crop during *rabi*2024-25 at Pantnagar.

Ludhiana: Pod borer (*E. zinckenella*) incidence was very low in the crop. Pod borer incidence started from 7th SMW and continued up to 12th SMW, coinciding with the peak flowering and pod formation stages of the crop (Table 6.2.3.4a). The mean peak incidence of pod borer (1.50 larvae/plant) was observed in 10th SMW. The population of natural enemies (lady bird beetle) appeared for the first time during the 8th SMW on lentil crop and continued up to 13th SMW. The highest mean number of natural enemies was recorded to be 1.80/plant during 10th SMW. A lower pod damage of 4.17 percent was also recorded. The correlation of weather parameters with pod borer population has been depicted in Table 6.2.3.4b. The results indicated that there was a negative correlation between

pod borer population and maximum, minimum & mean temperature, and RH. However, the pod borer population was positively correlated with total rainfall, number of rainy days, pan evaporation and sunshine hours. Likewise, there was a negative correlation between natural enemy population and maximum, minimum & mean temperature, and RH and positive correlation with total rainfall, number of rainy days, pan evaporation and sunshine hours. Overall, there was a non-significant correlation between the insect-pest population and weather parameters.

Table 6.2.2.1a Seasonal abundance and population dynamics of key insect pests and natural enemies of Lentil at Dholi during 2024-25

Month/ Year	Standard week	No. of aphid/ 10 cm twig	No. of larvae/ 3plant	Spider	Lady bird beetle	Ant	Weather Parameters				
							Temp. °C		RH (%)		Rain fall (mm)
							Max.	Min.	7 Hrs.	14 Hrs.	
Dec 2024	51(18-24)	0.00	0.0	0.0	0.0	0.0	25.5	11.2	74.2	65.2	-
	52(25-31)	0.00	0.0	0.0	0.0	0.0	22.4	10.6	80.5	70.8	-
Jan, 2025	01(01-07)	0.00	0.0	0.0	0.0	0.0	17.5	8.2	85.2	80.0	-
	02(08-14)	0.67	0.0	0.2	0.5	0.1	14.2	8.1	92.5	85.2	-
	03(15-21)	2.30	0.00	0.4	1.3	0.5	16.2	9.5	90.5	80.2	-
	04(22-28)	3.67	0.00	1.2	1.5	1.3	18.5	10.3	85.6	75.0	-
	05(29-04)	4.30	0.00	1.0	2.3	2.4	21.7	11.5	80.5	72.0	-
Feb, 2025	06(05-11)	6.67	1.33	1.2	2.5	1.4	22.5	12.8	78.8	70.0	-
	07(12-18)	4.00	2.63	1.2	3.67	1.3	23.4	14.0	74.5	68.2	-
	08(19-25)	2.67	4.67	0.5	2.30	1.0	26.4	15.7	72.6	65.2	-
	09(26-03)	1.30	3.65	0.3	2.12	0.5	25.9	17.7	70.2	64.2	-
Mar. 2025	10(04-10)	0.84	2.33	0.2	1.30	0.0	27.7	18.0	68.4	58.5	-
	11(11-17)	0.0	1.30	0.0	0.40	0.0	28.6	18.1	65.7	56.2	-
	12(18-24)	0.00	.065	0.0	0.20	0.0	29.2	19.3	65.4	54.3	-

Table 6.2.3.1b- Correlation of insects/pest with weather parameters in Lentil at Dholi

Weather parameters	No. of aphid/10 cm twig	No. of larvae/plant	Spider	Lady bird beetle	Ant
MaxT.	-0.45*	0.63**	0.07 ^{NS}	0.43 ^{NS}	-0.04 ^{NS}
MinT.	-0.41*	0.52 ^{NS}	-0.04 ^{NS}	0.34 ^{NS}	-0.08 ^{NS}
7hr RH.	N/A	N/A	N/A	N/A	N/A
14hr RH.	0.45 ^{NS}	-0.74**	0.04 ^{NS}	-0.53*	0.17 ^{NS}

* - Highly significant; * - Significant; ^{NS} - Non-significant

Table 6.2.3.2: Weekly data on aphid and natural enemy population on lentil along with meteorological parameters during 2024-25 at BCKV, Mohanpur

Date of observation	SMW	No. of aphids/10 cm	No. of natural enemy/plant	Meteorological parameters					
				Temperature (°C)		RH (%)		Bright Sunshine Hour	Rainfall
				Max.	Min.	Max.	Min.		
23.12.24	51	0.0	0.0	25.32	13.13	95.33	54.00	5.25	1.7
30.12.24	52	1.2	0.2	27.26	13.70	95.00	48.00	6.80	0
06.01.25	1	0.6	0.2	23.26	12.51	95.57	61.14	4.79	0
13.01.25	2	5.4	1.0	24.31	11.01	95.43	50.71	6.36	0
20.01.25	3	10.2	3.8	25.44	12.01	95.71	50.43	5.90	0
27.01.25	4	0.8	1.6	25.06	12.40	97.86	56.86	5.21	0
03.02.25	5	1.2	0.4	27.10	14.86	96.71	62.00	2.41	0
10.02.25	6	1.8	1.2	28.25	13.87	95.57	37.17	8.55	0
17.02.25	7	9.6	4.0	30.23	15.13	93.29	36.17	8.15	0
24.02.25	8	15.8	6.2	29.50	18.24	95.29	65.00	4.55	20.1
03.03.25	9	22.4	6.6	31.45	18.43	95.57	45.50	7.20	0
10.03.25	10	17.2	4.8	31.33	16.91	90.43	36.33	8.97	0
Corr. coefficient values (aphid)				0.761	0.766	-0.483	-0.286	0.379	0.327
Corr. coefficient values (natural enemy)				0.753	0.768	-0.377	-0.226	0.328	0.451

Table 6.2.3.3a. Correlation between aphid population on lentil and corresponding metrological parameters during *rabi* 2024-25 at Pantnagar

Insect pest	Temp (°C)		RH		Rainfall	Sun shine hour	Wind velocity
	Max	Min	Max	Min			
Aphid	-0.36ns	-0.64*	0.63*	0.23ns	-0.17ns	-0.14ns	0.164ns
Natural enemies	-0.29ns	-0.64*	0.57ns	0.14ns	-0.19ns	-0.02ns	0.21ns

Table 6.2.3.3b: Weekly insect population in lentil during 2024-25 at Pantnagar

Std Week	Aphid/10 twig	Natural enemies/plant	Max Temp (°C)	Min Temp (°C)	Max RH (%)	Min RH (%)	Rainfall (mm)	sun shine hrs	Wind velocity (Km/hr)
2	2.1	0.8	18.6	7.5	90.9	58.3	0.0	2.7	3.2
3	2.8	1.1	20.7	8.9	95.4	65.6	2.8	4.4	4.0
4	7.1	3.2	20.9	6.9	94.7	60.0	1.4	4.8	3.8
5	8.4	3.5	24.2	7.2	92.7	42.4	0.0	4.6	1.4
6	7.6	4.0	23.5	6.8	94.0	49.3	0.0	8.0	2.5
7	7.3	4.1	24.5	6.9	91.6	40.6	0.0	7.9	4.4
8	5.2	2.2	25.8	9.3	92.0	43.4	0.0	8.4	4.2
9	5.0	2.0	25.1	12.1	89.3	58.6	2.0	7.7	2.5
10	4.5	1.9	26.3	10.7	88.9	40.6	14.0	5.2	2.3
11	3.3	1.5	30.9	13.9	81.7	33.9	0.0	9.1	2.9
12	2.7	1.5	30.5	11.8	84.4	30.4	6.4	8.7	1.8
13	1.2	0.5	33.2	12.2	77.6	22.7	0.0	10.2	1.4

Table- 6.2.3.4a. Incidence of insect-pests and natural enemies in lentil at Ludhiana

Month	Standard Week (SMW)	Pod borer larvae per plant	Natural enemies/ plant (lady bird beetles)	PD (%)	Temperature (°C)			RH (%)	Total rainfall (mm)	Rainy days	Pan evaporation (mm)	Sunshine Hours
					Max.	Min.	Mean					
November 2024	45	0.00	0.00	4.17%	29.1	17.9	23.5	71	0.0	-	10.8	0.4
	46	0.00	0.00		23.1	15.6	19.4	81	0.0	-	7.8	1.0
	47	0.00	0.00		26.7	10.9	18.8	64	0.0	-	10.7	5.8
	48	0.00	0.00		26.9	14.0	20.5	69	0.0	-	50.0	3.7
December 2024	49	0.00	0.00		25.6	9.8	17.7	64	0.0	-	12.2	7.7
	50	0.00	0.00		23.7	8.1	15.9	57	0.0	-	15.6	8.4
	51	0.00	0.00		21.0	4.1	12.6	60	0.0	-	15.2	8.6
	52	0.00	0.00		20.5	5.8	13.2	69	2.6	1	7.5	3.8
January 2025	1	0.00	0.00		15.2	8.6	11.9	86	1.0	-	4.8	1.9
	2	0.00	0.00		17.1	7.3	12.2	79	5.8	1	4.7	5.0
	3	0.00	0.00		19.4	8.2	13.8	73	0.0	-	7.4	4.3
	4	0.00	0.00		21.7	5.8	13.8	67	0.0	-	12.7	9.2
February 2025	5	0.00	0.00		20.0	9.6	14.8	79	1.2	-	8.2	2.6
	6	0.00	0.00		22.9	7.7	15.3	63	0.0	-	16.2	8.7
	7	0.30	0.60		23.7	9.2	16.5	48	0.0	-	17.2	8.3
	8	0.50	1.10		22.9	10.7	16.8	70	17.6	-	17.0	6.8
March 2025	9	0.80	1.60		22.9	13.2	18.1	74	12.2	-	18.2	5.6
	10	1.50	1.80	26.6	11.0	18.7	63	0.0	-	23.9	9.2	
	11	0.60	1.00	27.5	13.4	20.5	66	2.6	-	21.5	8.5	
	12	0.60	0.40	31.4	13.9	22.6	57	0.0	-	36.2	10.7	
April 2025	13	0.00	0.30	26.5	13.8	22.4	45	0.0	-	47.9	10.6	
	14	0.00	0.00	35.8	16.9	26.3	42	0.0	-	41.6	10.7	
	15	0.00	0.00	36.6	21.8	29.2	44	0.0	-	51.2	8.9	
	16	0.00	0.00	38.5	24.0	31.2	37	2.2	-	57.6	7.8	
	17	0.00	0.00	37.5	20.8	29.1	37	2.2	-	233.0	9.6	

Table 6.2.3.4b. Correlation between weather parameters and insect-pest and natural enemy population on lentil during 2024-25 at Ludhiana

Parameter	Correlation coefficient (r)*	
	Pod borer larvae	Natural enemies
Maximum temperature	-0.18	-0.22
Minimum temperature	-0.16	-0.21
Mean temperature	-0.13	-0.18
R.H. (%)	-0.10	-0.02
Total rainfall(mm)	0.12	0.23
No. of rainy days	0.07	0.03
Pan evaporation(mm)	0.10	0.09
Sunshine hours	0.26	0.21

ns -Non significant ,*5% Level of significance

6.3 FIELD PEA

6.3.1 Field evaluation of germplasm against major insect pests of Field pea

Locations (7): Shillongani, Ranchi, Pantnagar, Varanasi, SK Nagar, Mohanpur, Varanasi & Dholi

A total of sixty-two (62) test entries of field pea along with local checks were evaluated major insect pests of field pea, *viz.* aphid, pod borer and leaf miner at seven locations across the country during *rabi*2024-25. The summary of field pea entries promising against the major insect-pests at different locations is given in Table 6.3.1.1.

Aphid: Out of the total of seven locations, the incidence of aphid on field pea test entries was observed at three locations, *viz.*, Pantnagar, Varanasi & Dholi (Table 6.3.1.2). The overall aphid incidence at these five locations remained low and ranged from 0.37-46.89 aphids/10 cm terminal shoot. Incidence of aphid ranged from 0.37-33.09, 2.67-14.33 & 1.78-13.00 aphids/10 cm terminal shoot, was reported from Pantnagar, Dholi& Varanasi, respectively. Total 25 entries at Pantnagar and seven at Dholi were found to be promising against aphids.

Leaf miner: Out of the total of seven locations, the incidence of leaf miner on field pea test entries was observed at Pantnagar and Varanasi (Table 6.3.1.2). The overall leaf miner infestation at Pantnagar ranged from 1.0-7.0 percent, whereas at Varanasi, it ranged from 13.83-46.89 percent.

Pod borer: Pod borer was the major insect-pest at seven locations, *viz.* Dholi, Mohanpur, Ranchi, SK Nagar, Varanasi, Shillongani and Pantnagar (Table 6.3.1.3). The overall pod damage due to pod borer at these seven locations ranged from 0.00-31.14%. Pod damage at Ranchi was the lowest (0.00-6.6%). At Mohanpur, Pantnagar and Shillongani, the pod damage ranged from 1.2-12.67%, 2.67-8.00% and 0.0-31.14%, respectively.

Yield: At seven locations, *viz.* Shillongani, Ranchi, Pantnagar, SK Nagar, Mohanpur, Varanasi and Dholi, the yield of different field pea test entries ranged from 78 -2542 kg/ha (Table 6.3.1.4). Higher yields were recorded at SK Nagar with yield ranging from 539-3203kg/ha. The yield levels at Mohanpur, SK Nagar, Varanasi, and Ranchi ranged from 155-2257 kg/ha, 546-2300 kg/ha, 583-2542 kg/ha&1047-2052kg/ha, respectively.

Table 6.3.1.1. Summary of fieldpea entries found promising against insect-pests during *Rabi* 2024-25

SN	Parameter(s)	Promising entries	Location(s)
1.	Pod borer (0-2% pod damage)	IPF 24-13, Pant P 559, IPFD 24-3, IPFD 24-7	Mohanpur
		HFP 2056, Pant P 568, NDP 22-4, VL 42, Pant P 574, Pant P 554, HFP 2055, Pant P 243, Pant P 633, Pant P 559, HFP 715, IPFD 24-2, IPFD 24-8, HFP 2140, Pant P 610, Pant Pea 347, IPFD 19-3 Arpan, HFP 529, SKNFP 2202 (19)	Shillongani
		Pant P 569	Mohanpur& Shillongani
2.	Aphid (0-5 aphids/10 cm shoot)	HFP 2160, RPF 2021-1, IPF 16-13 (Ch), HFP 715(Ch), IPF 24-11, HFP 2055, Pant P 42 (Ch), Pant P 612,SKNFP 2202, Pant P 243 (Ch), HFP 1962, IPF 23-23, Pant P 633, HFP 1426 (Ch), SKAU-P-26, IPF 23-19,Pant P 628, RFP 2020-4, HFP 9426 (Ch), Pant P 574, Pant P 592, SKAU-P-24, SPC 103, Pant P 559, HFP 1428 (25 entries)	Pantnagar
		HFP 9426, IPFD 14-2,RPF 2021-1, Pant P 559, HFP 2055, IPF 16-13, IPFD 12-2 (07 entries)	Dholi
		HFP 2055, Pant P 559, HFP 9426, RPF 2021-1, IPF 16-13	Pantnagar and Dholi

Table 6.3.1.2: Field evaluation of field pea germplasm against aphids and other insect pests during 2024-25

Sl. No.	Entry	Code	Dholi		Varanasi		Pantnagar		Varanasi	Pantnagar
			Aphids/10 cm	Score	Aphids/10 cm	Score	Aphids/10 cm	Score	Leaf miner (%)	
1	HUTP 2202	E-24801	6.67	2	5.33 (3.38)	2	7.69	1	16.17 (4.13)	1.67
2	HFP 9426 (Ch)	E-24802	2.67	1	9.11 (3.02)	2	3.66	1	19.12 (4.47)	3.67
3	IPF 23-19	E-24803	8.67	2	9.33 (3.80)	1	3.42	3	15.78 (4.09)	2.67
4	HFP 2056	E-24804	7.33	2	4.44 (2.19)	2	25.40	2	16.37 (4.15)	3.00
5	Pant P 568	E-24806	6.67	2	6.44 (3.71)	1	17.34	2	15.77 (4.08)	4.33
6	RPF 2021-1	E-24807	3.37	1	4.44 (4.14)	2	0.37	2	14.28 (3.90)	3.33
7	NDP 22-4	E-24808	8.67	2	10.89 (3.01)	1	9.40	1	15.86 (4.09)	4.00
8	Pant P 42 (Ch)	E-24809	9.67	2	4.44 (5.25)	2	1.59	2	15.82 (4.09)	1.33
9	VL 42 (Ch)	E-24814	10.33	2	5.44 (4.86)	2	13.06	1	16.25 (4.14)	3.33
10	IPF 23-23	E-24815	8.33	2	6.11 (2.82)	1	2.81	2	15.39 (4.03)	3.00
11	SKNP 04-09 (Ch)	E-24816	7.67	2	2.22 (3.02)	2	8.18	2	17.65 (4.31)	3.00
12	HFP 9907 B (Ch)	E-24818	6.67	2	5.56 (4.30)	2	9.40	2	17.09 (4.24)	3.33
13	IPF 16-13 (Ch)	E-24819	4.33	1	7.11 (2.98)	1	0.49	2	15.63 (4.07)	3.00
14	Pant P 550 (AVT-2)	E-24820	9.67	2	2.78 (2.75)	2	16.97	2	14.97 (3.99)	1.00
15	Aman (IPF 5-19)(Ch)	E-24821	6.67	2	11.89 (2.97)	2	6.35	1	35.58 (5.91)	1.67
16	Pant P 574	E-24822	8.67	2	8.56 (4.40)	1	3.91	2	16.65 (4.19)	3.00
17	Pant P 554 (AVT-2)	E-24823	9.33	2	2.44 (3.07)	1	10.50	2	14.85 (3.97)	3.33
18	HFP 2131	E-24832	10.33	2	3.00 (6.26)	2	12.33	1	16.61 (4.9)	4.00
19	Pant P 628	E-24833	6.67	2	7.67 (3.81)	1	3.54	2	16.70 (4.20)	2.00
20	RFP 2020-1	E-24837	8.67	2	2.67 (5.23)	1	6.72	1	17.89 (4.33)	1.67
21	Pant P 612	E-24838	6.33	2	2.22 (2.46)	1	1.59	2	15.47 (4.05)	2.33
22	Adarsh (Ch)	E-24839	13.67	2	3.78 (3.62)	2	7.33	1	16.96 (4.23)	3.00
23	HFP 2055	E-24842	3.67	1	6.78 (3.36)	1	1.10	1	18.09 (4.36)	3.00
24	SKAU-P-26	E-24843	10.33	2	4.00 (3.96)	2	3.30	2	17.33 (4.27)	3.00
25	IPF 24-18	E-24844	12.33	2	13.00 (3.64)	2	12.45	1	28.09 (5.32)	3.33
26	RFP 2020-4	E-24845	6.67	2	5.89 (4.17)	2	3.54	1	16.41 (4.16)	2.33
27	Pant P 243 (Ch)	E-24846	8.33	2	11.78 (3.41)	1	2.56	3	18.38 (4.40)	7.00
28	IPF 24-15	E-24847	11.67	2	3.11 (2.95)	2	23.20	3	17.12 (4.25)	3.00
29	IPF 24-13	E-24851	6.67	2	5.33 (2.52)	1	33.09	2	22.01 (4.75)	4.33
30	JM 2413-6	E-24852	8.33	2	3.44 (4.38)	2	8.79	1	22.34 (4.76)	4.00
31	Pant P 633	E-24853	10.33	2	5.11 (2.66)	1	2.81	1	18.33 (4.34)	4.33
32	SKAU-P-24	E-24854	8.33	2	4.11 (3.49)	2	4.03	1	20.27 (4.57)	4.33
33	Pant P 559	E-24862	3.37	1	5.78 (3.72)	1	4.40	1	22.66 (4.76)	2.00
34	HFP 715(Ch)	E-24863	10.67	2	3.56 (3.52)	1	0.85	2	46.66 (6.88)	3.00
35	Prakash (Ch)	E-24864	8.33	2	2.67 (4.12)	1	10.87	1	21.12 (4.65)	4.33
36	HFP 1962	E-24865	7.67	2	3.33 (3.13)	2	2.69	1	20.70 (4.62)	3.00
37	IPF 24-11	E-24881	6.67	2	8.00 (3.66)	1	0.85	2	17.56 (4.29)	6.67
38	IPFD 24-2	E-24882	10.33	2	3.89 (2.61)	1	5.62	2	13.83 (3.84)	3.00
39	IPFD 24-3	E-24886	10.67	2	4.89 (5.76)	1	6.96	2	36.45 (5.99)	3.00
40	RFP 2020-6	E-24888	8.33	2	4.11 (3.14)	1	5.25	2	17.81 (4.31)	4.00
41	IPFD 24-1*	E-24901	12.33	2	3.33 (3.73)	2	17.09	2	42.37 (6.55)	4.00
42	RNCP 17-05	E-24902	10.33	2	7.22 (4.82)	2	11.84	2	17.47 (4.28)	6.33

43	IPFD 14-2 (Ch)	E-24903	2.67	1	6.00 (2.48)	2	12.21	2	16.15 (4.12)	4.33
44	IPFD 19-1 (Ch)	E-24904	14.33	2	5.56 (3.26)	1	19.78	1	40.92 (6.46)	2.00
45	HFP 1428 (Ch)	E-24906	6.78	2	3.67 (3.59)	2	4.40	2	16.80 (4.21)	2.67
46	IPFD 24-8	E-24907	8.33	2	10.89 (4.44)	1	6.47	2	17.74 (4.33)	3.67
47	HFP 2140	E-24908	10.33	2	3.00 (3.41)	1	17.46	2	17.88 (4.33)	2.00
48	Pant P 610	E-24909	7.87	2	4.44 (3.54)	2	8.67	2	17.77 (4.32)	2.00
49	Pant Pea 462(Ch)	E-24910	6.33	2	7.67 (4.53)	1	6.35	2	15.60 (4.07)	3.33
50	IPFD 12-2 (Ch)	E-24911	4.67	1	1.78 (4.05)	1	6.11	3	46.89 (6.89)	2.00
51	Pant P 250 (Ch)	E-24912	7.33	2	4.11 (5.40)	1	32.60	3	15.68 (4.05)	3.00
52	HFP 2160	E-24914	9.33	2	4.00 (5.11)	2	0.12	1	18.25 (4.34)	3.33
53	SPC 103	E-24915	10.33	2	6.78 (5.79)	1	4.03	1	19.56 (4.52)	3.33
54	HFP 1426 (Ch)	E-24916	6.87	2	3.56 (5.58)	1	3.17	2	15.31 (4.03)	4.33
55	IPFD 11-5 (Ch)	E-24917	8.67	2	3.89 (5.14)	2	7.57	2	15.91 (4.10)	3.00
56	Pant Pea 347(Ch)	E-24918	10.33	2	7.22 (5.55)	2	15.38	1	18.03 (4.35)	5.00
57	Pant P 592	E-24920	7.67	2	5.78 (6.33)	2	3.91	2	15.18 (4.02)	6.00
58	IPFD 24-7	E-24921	10.33	2	9.78 (5.40)	2	12.21	2	17.37 (4.28)	5.67
59	IPFD 19-3 Arpan(Ch)	E-24922	8.67	2	8.44 (5.11)	2	9.89	3	18.21 (4.37)	4.33
60	HFP 529 (Ch.)	E-24923	11.67	2	11.22 (5.79)	2	20.15	2	17.14 (4.25)	3.33
61	Pant P 605	E-24924	6.67	2	10.89 (5.58)	2	7.33	1	15.93 (4.11)	1.33
62	SKNFP 2202	E-24925	8.33	FP	9.44 (5.14)	#N/A	2.44	1	16.55 (4.18)	5.00
		HDUP-1802			10.67 (5.55)				15.62 (4.07)	
		PM 13					10.11		49.55 (7.08)	3.94
		SKNP 4-09)								
S.Em.							2.03			0.62
CD(0.05)			0.89	-	0.62		6.53		0.83	1.75

*Figures in parentheses are the square root transformed values NS: Non-significant LC: Local check # Green aphid, *Acyrtosyphonpisum*

Table 6.3.1.3: Field evaluation of field pea germplasm against Pod borer during 2024-25

Sl. No.	Entry	Code	Per cent Pod damage						
			SK Nagar	Mohanpur	Dholi	Varanasi	Pantnagar	Shillongani	Ranchi
1	HUTP 2202	E-24801	1.00 (5.73)	2.47 (9.04)*	7.89	2.33 (1.74)	4.00	17.48	0.00 (0.00)
2	HFP 9426 (Ch)	E-24802	3.00 (9.97)	7.80 (16.22)	3.3	3.33 (2.06)	5.33	14.75	0.00 (0.00)
3	IPF 23-19	E-24803	NG	10.80 (19.19)	8.12	4.00 (2.21)	5.33	14.05	2.93 (9.82)
4	HFP 2056	E-24804	5.50 (13.54)	6.33 (14.58)	8.33	3.00 (1.98)	5.33	0	2.23 (8.58)
5	Pant P 568	E-24806	5.50 (13.54)	4.00 (11.54)	8.3	3.00 (1.98)	5.33	0	1.33 (6.61)
6	RPF 2021-1	E-24807	4.50 (12.22)	7.47 (15.86)	4.33	3.00 (1.97)	6.67	13.87	0.00 (0.00)
7	NDP 22-4	E-24808	5.00 (12.91)	4.20 (11.83)	9.3	3.33 (2.06)	4.00	0	1.30 (6.52)
8	Pant P 42 (Ch)	E-24809	3.00 (9.97)	11.60 (19.91)	8.67	4.67 (2.35)	4.00	19.07	0.00 (0.00)
9	VL 42 (Ch)	E-24814	7.00 (15.20)	8.80 (17.26)	8.3	1.67 (1.57)	8.00	0	2.47 (9.03)
10	IPF 23-23	E-24815	3.00 (9.97)	3.53 (10.83)	10.67	3.33 (2.06)	5.33	12.91	1.23 (6.36)
11	SKNP 04-09 (Ch)	E-24816	0.00 (0.00)	6.67 (14.96)	8.3	5.00 (2.44)	6.67	12.35	4.27 (11.91)
12	HFP 9907 B (Ch)	E-24818	0.00 (0.00)	6.87 (15.19)	7.67	2.00 (1.73)	5.33	12.64	3.60 (10.92)

13	IPF 16-13 (Ch)	E-24819	4.50 (12.22)	3.33 (10.52)	6.33	4.67 (2.37)	4.00	24.08	0.00 (0.00)
14	Pant P 550 (AVT-2)	E-24820	0.50 (2.86)	3.13 (10.20)	12.67	5.67 (2.54)	2.67	8.84	1.30 (6.54)
15	Aman (IPF 5-19) (Ch)	E-24821	5.50 (13.54)	6.20 (14.42)	10.3	2.33 (1.80)	4.00	14.11	3.70 (11.08)
16	Pant P 574	E-24822	5.00 (12.85)	4.13 (11.73)	14.5	2.00 (1.71)	2.67	0	0.00 (0.00)
17	Pant P 554 (AVT-2)	E-24823	0.00 (0.00)	11.13 (19.49)	12.67	4.67 (2.33)	2.67	0	3.00 (9.94)
18	HFP 2131	E-24832	2.00 (8.12)	4.80 (12.66)	14.67	3.00 (1.95)	2.67	6.58	0.00 (0.00)
19	Pant P 628	E-24833	2.50 (9.05)	11.07 (19.43)	8.67	2.00 (1.71)	4.00	14.11	0.00 (0.00)
20	RFP 2020-1	E-24837	3.50 (10.75)	6.87 (15.19)	7.3	3.00 (1.97)	5.33	8.55	1.03 (5.80)
21	Pant P 612	E-24838	3.50 (10.75)	4.40 (12.11)	11.3	3.00 (1.98)	4.00	8.37	0.00 (0.00)
22	Adarsh (Ch)	E-24839	5.00 (12.85)	3.73 (11.14)	15.3	2.33 (1.82)	4.00	12.05	5.77 (13.85)
23	HFP 2055	E-24842	1.50 (4.98)	12.40 (20.62)	5.3	5.33 (2.50)	4.00	0	0.97 (5.65)
24	SKAU-P-26	E-24843	3.50 (10.75)	5.53 (13.61)	10.3	4.33 (2.29)	4.00	8.61	0.00 (0.00)
25	IPF 24-18	E-24844	3.00 (9.83)	6.13 (14.34)	11.5	2.33 (1.82)	4.00	23.18	0.00 (0.00)
26	RFP 2020-4	E-24845	4.00 (11.15)	5.93 (14.10)	14.3	1.67 (1.62)	4.00	11	0.00 (0.00)
27	Pant P 243 (Ch)	E-24846	5.00 (12.91)	11.20 (19.55)	10.67	2.33 (1.82)	4.00	0	1.37 (6.71)
28	IPF 24-15	E-24847	1.50 (4.98)	2.33 (8.79)	14.67	3.00 (1.96)	4.00	14.46	1.27 (6.46)
29	IPF 24-13	E-24851	2.50 (9.04)	1.20 (6.29)	12.3	2.33 (1.80)	4.00	14.52	0.00 (0.00)
30	JM 2413-6	E-24852	0.00 (0.00)	9.67 (18.11)	10.33	6.33 (2.69)	4.00	19.53	0.00 (0.00)
31	Pant P 633	E-24853	2.00 (5.76)	6.07 (14.26)	12.3	2.33 (1.82)	4.00	0	0.00 (0.00)
32	SKAU-P-24	E-24854	2.50(9.04)	3.20 (10.30)	12.67	3.67 (2.13)	6.67	12.88	0.00 (0.00)
33	Pant P 559	E-24862	0.00(0.00)	1.33 (6.63)	5.67	2.67 (1.90)	5.33	0	1.83 (7.76)
34	HFP 715(Ch)	E-24863	4.50(12.22)	9.33 (17.79)	9.6	5.33 (2.45)	4.00	0	1.67 (7.42)
35	Prakash (Ch)	E-24864	3.00(9.97)	10.13 (18.56)	8.67	2.33 (1.82)	4.00	11.69	0.00 (0.00)
36	HFP 1962	E-24865	2.00(8.13)	12.67 (20.85)	15.6	1.33 (1.48)	6.67	18.56	0.37 (3.49)
37	IPF 24-11	E-24881	2.00(8.13)	4.87 (12.74)	14.67	2.33 (1.82)	2.67	16.77	1.10 (3.49)
38	IPFD 24-2	E-24882	0.50(2.86)	4.80 (12.66)	16.5	3.00 (1.98)	2.67	0	2.73 (9.50)
39	IPFD 24-3	E-24886	8.50(16.93)	1.33 (6.63)	8.67	2.67 (1.90)	4.00	31.14	5.63 (13.71)
40	RFP 2020-6	E-24888	3.50(10.75)	3.07 (10.09)	7.3	3.67 (2.13)	2.67	20.91	1.03 (5.82)
41	IPFD 24-1*	E-24901	1.00(4.06)	11.13 (19.49)	6.9	1.00 (1.38)	4.00	15.85	3.20 (10.29)
42	RNCP 17-05	E-24902	2.50(9.05)	9.60 (18.05)	10.3	1.33 (1.48)	4.00	16.04	0.00 (0.00)
43	IPFD 14-2 (Ch)	E-24903	1.00(5.73)	5.00 (12.92)	4.67	3.00 (1.98)	2.67	20.91	0.00 (0.00)
44	IPFD 19-1 (Ch)	E-24904	1.00(5.73)	2.67 (9.40)	14.5	3.00 (1.98)	4.00	11.85	0.00 (0.00)
45	HFP 1428 (Ch)	E-24906	0.00(0.00)	7.33 (15.71)	13.5	3.00 (1.98)	4.00	21.43	6.47 (14.72)
46	IPFD 24-8	E-24907	0.00(0.00)	3.47 (10.73)	6.9	5.67 (2.56)	4.00	0	1.07 (5.93)
47	HFP 2140	E-24908	0.00(0.00)	3.80 (11.24)	8.85	2.67 (1.90)	2.67	0	5.93 (14.08)
48	Pant P 610	E-24909	0.00(0.00)	3.67 (11.04)	7.3	3.33 (2.06)	2.67	0	1.33 (6.62)
49	Pant Pea 462(Ch)	E-24910	0.00(0.00)	2.07 (8.27)	7.67	2.67 (2.74)	6.67	12.16	4.10 (11.67)
50	IPFD 12-2 (Ch)	E-24911	1.50(6.93)	3.20 (10.30)	6.5	6.67 (2.12)	2.67	16.22	1.30 (6.54)
51	Pant P 250 (Ch)	E-24912	0.00(0.00)	2.80 (9.63)	10.3	3.67 (2.29)	2.67	6.98	0.00 (0.00)
52	HFP 2160	E-24914	1.50(6.93)	10.40 (18.81)	12.67	4.67 (2.62)	2.67	21.19	0.00 (0.00)
53	SPC 103	E-24915	0.00(0.00)	3.33 (10.52)	14.5	6.00 (2.64)	4.00	16.2	3.13 (10.18)
54	HFP 1426 (Ch)	E-24916	0.00(0.00)	3.87 (11.34)	10.3	6.00 (2.75)	4.00	11.69	6.60 (14.87)

55	IPFD 11-5 (Ch)	E-24917	0.00(0.00)	5.80 (13.94)	12.67	6.67 (2.29)	5.33	13.03	2.60 (9.27)
56	Pant Pea 347(Ch)	E-24918	0.00(0.00)	5.07 (13.01)	8.67	4.67 (2.37)	5.33	0	1.60 (7.28)
57	Pant P 592	E-24920	0.00(0.00)	2.73 (9.52)	9.3	4.67 (2.27)	2.67	15.21	0.00 (0.00)
58	IPFD 24-7	E-24921	0.50(2.86)	1.80 (7.71)	10.67	4.33 (2.49)	2.67	25.14	2.23 (8.58)
59	IPFD Arpan(Ch) ¹⁹⁻³	E-24922	1.50(6.93)	7.20 (15.56)	8.45	5.33 (2.49)	4.00	0	0.00 (0.00)
60	HFP 529 (Ch.)	E-24923	1.50(6.93)	10.93 (19.31)	7.33	5.33 (2.49)	2.67	0	1.10 (6.01)
61	Pant P 605	E-24924	2.00(8.12)	9.13 (17.59)	7.67	3.33 (2.03)	2.67	19.35	1.07 (5.93)
62	SKNFP 2202	E-24925	0.50(2.86)	2.27 (8.66)	10.3	3.33 (2.06)	4.00	0	0.00 (0.00)
		Aman							4.33 (9.41)
		Dantawara							1.83 (6.35)
		HDUP-1802				5.33 (2.42)			
		PM 13					2.22		
		SKNP 04-09)		5.20 (13.18)					
S.Em.				1.1				1.3	0.81
CD(0.05)			0.46	3.09	0.27	0.61		3.6	2.28

Figures in parentheses are the transformed arc sine values

LC: Local check

Table 6.3.1.4. Yield (kg/ha) of field pea entries at different locations during 2024-25

S. N.	Entry	Code	Mohanpur	Dholi	SK Nagar	Varanasi	Pantnagar	Shillongani	Ranchi
1	HUTP 2202	E-24801	1388.3	746.5	979	1680.56	494.25	654.7	1515
2	HFP 9426 (Ch)	E-24802	611.7	892.5	1110	1875	630.30	357.7	1580
3	IPF 23-19	E-24803	223.3	724.6	-	1902.78	677.51	556	1324
4	HFP 2056	E-24804	776.7	732.8	1121	1333.33	261.01	1074	1311
5	Pant P 568	E-24806	833.3	735.5	1158	2263.89	794.13	407	1691
6	RPF 2021-1	E-24807	655	854.5	937	2194.44	544.23	481.3	1746
7	NDP 22-4	E-24808	833.3	723.5	894	1763.89	660.85	568.3	1511
8	Pant P 42 (Ch)	E-24809	311.7	711.5	1639	1694.44	705.27	704	1978
9	VL 42 (Ch)	E-24814	555	730.5	1160	1791.67	857.99	642.3	1946
10	IPF 23-23	E-24815	1055	630.5	1094	2236.11	699.72	506.3	1047
11	SKNP 04-09 (Ch)	E-24816	633.3	725.5	1004	930.56	383.18	531	1969
12	HFP 9907 B (Ch)	E-24818	720	675.5	1150	1611.11	355.41	765.7	1380
13	IPF 16-13 (Ch)	E-24819	1200	836.5	892	1486.11	352.64	950.7	2082
14	Pant P 550 (AVT-2)	E-24820	1500	612	1131	1986.11	377.63	642.3	1964
15	Aman (IPF 5-19)	E-24821	778.3	680.5	1423	2013.89	205.47	432	1791
16	Pant P 574	E-24822	833.3	605	1275	2541.67	452.60	605.3	1258
17	Pant P 554	E-24823	276.7	618.5	1312	2291.67	397.06	778	1233
18	HFP 2131	E-24832	945	609.5	546	2000	380.40	444.3	1800
19	Pant P 628	E-24833	333.3	648.5	887	1722.22	424.83	333	1431
20	RFP 2020-1	E-24837	723.3	656	798	1875	238.79	501.3	1109
21	Pant P 612	E-24838	811.7	625.5	1310	2250	477.59	543.3	1724

22	Adarsh (Ch)	E-24839	1166.7	608.5	1148	1847.22	324.87	345.3	1589
23	HFP 2055	E-24842	155	868	1131	888.89	116.62	404.7	1513
24	SKAU-P-26	E-24843	611.7	624.5	1162	1611.11	549.78	689	1502
25	IPF 24-18	E-24844	643.3	730.5	1298	1486.11	360.97	506	1613
26	RFP 2020-4	E-24845	888.3	706.5	889	1319.44	555.33	662	1304
27	Pant P 243 (Ch)	E-24846	333.3	678.5	1008	2138.89	266.56	474	1218
28	IPF 24-15	E-24847	1945	635.5	944	1944.44	230.46	283.7	1580
29	IPF 24-13	E-24851	2256.7	667.8	1341	1805.56	388.73	593	1353
30	JM 2413-6	E-24852	445	645.5	1156	791.67	208.25	568.3	1120
31	Pant P 633	E-24853	666.7	680.5	1116	1097.22	349.86	1000	1104
32	SKAU-P-24	E-24854	1556.7	690.5	1596	1402.78	341.53	531	1918
33	Pant P 559	E-24862	2111.7	846	889	1125	77.75	852	1826
34	HFP 715(Ch)	E-24863	555	715.5	919	875	302.66	518.7	1367
35	Prakash (Ch)	E-24864	555	646.5	1104	1708.33	252.68	543.7	1347
36	HFP 1962	E-24865	223.3	602.5	1943	1250	102.74	926	1587
37	IPF 24-11	E-24881	945	608.5	1296	1916.67	585.88	815	1284
38	IPFD 24-2	E-24882	888.3	698.5	798	1138.89	338.75	580.7	1329
39	IPFD 24-3	E-24886	2221.7	678.5	956	1597.22	391.51	320.7	2009
40	RFP 2020-6	E-24888	1388.3	665	1589	1791.67	455.37	926	1498
41	IPFD 24-1*	E-24901	278.3	645.5	719	1055.56	216.58	913.7	1262
42	RNCP 17-05	E-24902	500	632.5	1312	1611.11	472.03	593	1598
43	IPFD 14-2 (Ch)	E-24903	855	875.5	1585	1083.33	455.37	518.7	1580
44	IPFD 19-1 (Ch)	E-24904	1610	604.5	1212	1402.78	249.90	802.7	1511
45	HFP 1428 (Ch)	E-24906	721.7	624	1329	944.44	308.21	481.3	1935
46	IPFD 24-8	E-24907	1055	647.6	754	1652.78	186.04	555.7	1795
47	HFP 2140	E-24908	1111.7	623.5	998	880.56	158.27	617.7	1804
48	Pant P 610	E-24909	1166.7	645.5	1321	916.67	149.94	691.7	1220
49	Pant Pea 462(Ch)	E-24910	1945	665.5	1414	1194.44	158.27	301.3	1269
50	IPFD 12-2 (Ch)	E-24911	1278.3	825.5	1539	977.78	305.43	333	1515
51	Pant P 250 (Ch)	E-24912	1555	611.5	1998	1083.33	410.95	518.3	1373
52	HFP 2160	E-24914	555	614.5	1808	888.89	394.29	469	1724
53	SPC 103	E-24915	1000	605.5	967	1152.78	394.29	1407	1531
54	HFP 1426 (Ch)	E-24916	1000	635.5	2300	583.33	233.24	580.7	1311
55	IPFD 11-5 (Ch)	E-24917	945	620.5	892	791.67	227.69	580.3	1733
56	Pant Pea 347(Ch)	E-24918	988.3	720	1260	736.11	574.77	468.7	1467
57	Pant P 592	E-24920	1666.7	712.5	1144	1208.33	688.61	691.7	1580
58	IPFD 24-7	E-24921	2166.7	625.5	1141	1000	721.93	654.7	1551
59	IPFD 19-3 Arpan (Ch)	E-24922	666.7	656.5	1010	819.44	485.92	827.3	1593
60	HFP 529 (Ch.)	E-24923	300	632.5	1339	666.67	646.96	543.3	1553
61	Pant P 605	E-24924	556.7	645.5	935	1166.67	438.71	1099	1578

62	SKNFP 2202	E-24925	1888.3	612	931	1041.67	255.45	469	1251
	Aman								1604
	Dantawara								1802
63	(SKNP 04-09)		833.3			972.22			
	PL 13						459.54		
	HDUP-1802					833.33			
S.Em.			8						
			22.38	34.8	736.59				

LC: Local check

6.3.2 Development and evaluation of bio-intensive IPM (BIPM) modules against major insect-pests of field pea

Locations (7): Shillongani, Ranchi, Pantnagar, SK Nagar, Mohanpur, Varanasi and Dholi

1. Treatment-I (BIPM)
2. Variety: Popular variety of zone
3. Application of neem cake @125 kg/ha in furrow to protect against soil pests/early pests
4. Intercrop: Pea +Mustard (6:2)
5. Monitoring with yellow sticky trap (YST) @ 50/ha
6. Foliar spray of Azdirachtin 1000 ppm @1.5 ml/litre water on appearance of sucking insects on YST and repeat again 15 day after first spray.
7. Monitoring with pheromone trap @ 10 per ha from flowering initiation stage (*H. armigera*)
8. Apply first spray of *Bacillus thuringiensis* var.*kurstaki* @ 2 g/l appearance of *Helicoverpa* pheromone traps followed by second spray of *HaNPV* (2×10^9 POBs/ ml) @ 250 LE/ha @ 250 LE/ha after 10 days of first spray.

Treatment II (T2): Farmers' practice (FP) of the zone

Treatment III (T3): Untreated control (no insecticide use)

Results: The results of five locations revealed that the BIPM module resulted in reducing the population of the sucking pests (aphid, leaf miner, etc.) and pod borer, and as well as pod damage due to the pod borer. The BIPM module gave higher yield as compared to the farmers' practice. A higher benefit-cost ratio was also recorded in the BIPM module as compared to the farmers' practice field pea (Tables 6.3.2.1 to 6.3.2.5).

Ranchi: In general incidence of insect pests was very low during crop season except termite. However, low incidence of insect pests and higher grain yield were recorded in BIPM modules as compared to farmers' practices and control. The low percent pod damage (0.5%) recorded in BIPM against (1.3%) in farmers practices and (4.1%) in control. Similarly low incidence of termite (0.5%) recorded in BIPM against (4.3%) and (5.4%) in farmers practice and control respectively. The incidences of stem fly and pea aphid were negligible. By adopting BIPM practices yield increased 7.58 percent against 2.29% in farmer's practices. Farmers usually applied Monocrotophos 36 EC @ 2ml/l of water. The yield increased mainly due to the application of neem cake in BIPM plots as it provide extra nutrients to crops beside control of termite. Yield advantage (129kg/ha) was recorded

by adopting BIPM which resulted 1:1.09 cost benefits while it was 39kg/ha with cost benefit ratio of 1:1.67 by adopting farmer's practices. The finding indicates the importance of adopting BIPM modules in pest management of field pea (Table-6.3.2.1a&b).

Pantnagar: The per cent pea leaf miner, mean aphid population and per cent pod damage were significantly lower in module I (BIPM) than module II (farmers' practice) and untreated control. Yield data also confirms the results. Yield in module I, module II and untreated plots were 826 kg/ha, 533 kg/ha and 495.00 kg/ha, respectively. The B: C ratios were calculated as 1:1.17 and 1:1.03 in module I and Module II, respectively. Therefore, module I was better than farmers' practice in terms of cost benefit ratio and lower infestation of major insect pests (Table 6.3.2.2).

SK Nagar: Pod borer, *H. Armigera* damage was lower (3.50%) in BIPM modules with higher yield (522.5 kg/ha) as compared to farmers' practices (7.00% and 340 kg/ha). The ICBR value was also higher (1:9.75) in BIPM module in comparison to FP (1:7.53)(Table 6.3.2.3a&b).

Varanasi: The lowest percentage of pod damage was noticed in IPM Module 1 (8.75 % pod damage), followed by IPM Module 2 (28 % pod damage). The highest pod damage was observed in IPM Module 3 (42.00 % pod damage). The maximum grain yield of field pea was observed in IPM Module 1 (2348.65 kg/ha), followed by IPM Module 2 (1867.45 kg/ha). The minimum grain yield of field pea was observed in IPM Module 3 (1208.25 kg/ha). The maximum net return over control and cost-benefit ratio was noticed in IPM Module 1, followed by IPM Module 2 (Table 6.3.2.4).

Table 6.3.2.1: Development of IPM Modules for management of major insect pests of field pea *rabi* (2024-25) at Ranchi

Practices	Leaf miner (%)	Stem fly (%)	No.of aphids/10 cm shoots	Pod borer (%)	Termite (%)
Treatment I (BIPM)	0.1	0.1	0.0	0.5	0.5
Treatment II (Farmers' practices)	0.3	0.2	0.2	1.3	4.3
Treatment III (Control)	0.4	0.3	0.4	4.1	5.4

Table 6.3.2.1a: Development of IPM Modules for management of major insect pests of field pea *rabi* 2024-25 at Ranchi

Practices	Yield (kg/ha)	Yield (kg/ha) intercrop	Equivalent Yield (kg/ha)	Total Yield (kg/ha)	Yield increase (kg/ha)	Monitory Gain (Rs)	Cost of protection (Rs)	Yield increase (%)	C:B
Treatment 1 (BIPM)	1795	70	74	1869	129	6882	6299	7.58	1:1.09
Treatment II Farmers practices	1740	-	-	1740	39	2080	1240	2.2.9	1:1.67
Treatment III Control	1701			1701					

Cost of Field pea Rs 5335/q; Cost of Mustard Rs (5650/q)

Table 6.3.2.2: Development of IPM Modules for management of major insect pests of field pea *rabi* 2024-25 at Pantnagar

SN	Treatment	Mean per cent pea leaf miner	Mean no of Aphid /10 cm twig	Per cent Pod Damage	Yield (Kg/ha)	Yield of intercrop (q/ha)	Equivalent yield of mustard (q/ha)	Yield (kg/ha)	Increase over control	B: C ratio
1	Module I	1.35	4.32	14.33	825	1.23	0.93	825.93	330.93	1:1.17
2	Module II	3.11	6.20	15.67	-	-	-	533.00	38.00	1:1.03
3	Module III	3.75	6.93	18.00	-	-	-	495.00	-	-

Table 6.3.2.3: Reaction of insect pests in different modules of field pea at SK Nagar

Sr. No.	Module	<i>H. armigera</i> /plant	Pod borer (<i>H. armigera</i>) damage(%)	Yield (kg/ha)	Yield of intercrop (kg/ha)	Equivalent yield (kg/ha)	Total yield (kg/ha)	Increase in yield over T3
1	BIPM	0.25	3.50	460	60 kg	62.5	522.5	382.5
2	FP	0.55	7.00	240	-	-	240.0	100.0
3.	Untreated control	0.95	9.00	140	-	-	140.0	0

Table 6.3.2.3b: Economics of different modules of field pea at SK Nagar

Sr. No.	Modules	Treatments	Cost of treatments (Rs/ha)	Gross return over control	Net return over control	ICBR
1	BIPM	Neem cake@125kg/ha	1250	-		-
		Yellow sticky trap@50/ha	410	-		
		Azad 1500 ppm@0.75 L/ha	543	-		-
		Pheromone trap@10/ha	500	-		-
		<i>Bt k</i> @1.0kg/ha	675	-		-
		<i>HaNPV</i> @250LE	0	-		
		Total	1943	20900	18957	1:9.75
2	FP	Profenophos 50%EC @ 2ml/L	1125	9600	12475	1:7.53
3.	Untreated control		-	5600	-	-

Table 6.3.2.4- Development and evaluation of bio-intensive IPM (BIPM) modules against major insect pests of field pea at Varanasi during 2024-25

IPM Module	Leaf miner (% leaf damage)			Aphid (aphids/10 cm twig)			Pod borer (larvae/plant)		
	PTC	7 DAS	15DAS	PTC	7 DAS	15DAS	PTC	7 DAS	15DAS
T1	35.80 (5.89)	18.55 (4.20)	5.65 (2.02)	30.50 (4.85)	18.45 (3.80)	7.12 (2.65)	2.33 (1.77)	1.94 (1.87)	0.70 (1.31)
T2	38.40 (6.05)	20.15 (4.85)	9.45 (3.30)	35.25 (5.52)	25.00 (5.02)	9.60 (3.30)	3.35 (2.02)	2.25 (1.95)	0.75 (1.32)
T3	41.50 (7.32)	44.45 (8.20)	35.40 (7.00)	48.30 (8.02)	50.40 (9.20)	42.50 (7.26)	6.50 (3.73)	8.50 (3.38)	4.45 (2.71)
CD 5%	NS	0.53	0.62	NS	0.72	0.69	NS	0.43	0.51

The figure in parentheses is the square root of the transformed values, PTC- Pre Treatment Count, DAS: Day after spray

Table 6.3.2.4a- Development and evaluation of bio-intensive IPM (BIPM) modules against major insect pests of field pea at Varanasi during 2024-25

IPM Module	% pod damage	Yield (kg/ha)	Cost of plant protection	Gross returns over control	Net return over control	Cost-benefit ratio
T1	8.75	2348.65	12800	57658.62	44858.62	1:4.50
T2	28.00	2067.45	11180	33329.15	22149.15	1:2.98
T3	42.00	1608.25	00	00	00	-

[Cost of treatments- Neem cake- 40 Rs/kg, yellow sticky trap- 15 Rs/trap, Azadirachtin 1000 PPM- 2640 Rs/lit, Pheromone trap- 30 Rs/trap, *Bacillus thuringiensis* Var. *kurstaki*- 525 Rs/kg, HaNPV- 3754 Rs/lit, No. of skilled labour required per spray- Two, Wage of labour per day- Rs500, No. of sprays-Two, Sprayer charge- Rs. 200/Day and market rate of field pea- 50.56 Rs/kg.]

Table 6.3.2.5. Evaluation of BIPM module against major insect pests of field pea at Shillongani

Models	No. of aphids/10cm twig			No. of pod borer larvae/plant			% PD due to PB	Yield (kg/ha)
	1DBS	7DAS	15DAS	1DBS	7DAS	15DAS	At harvest	
T ₁ (BIPM)	4.2	2.1	2.7	2.3	0.9	0.23	4.39	789(F)+153(M)
T ₂ (FP)	3.1	8.9	13.1	2.1	2.9	4.9	12.83	811
T ₃ Control	5.9	14.6	16.3	2.5	3.7	6.9	23.28	6.08

Table 6.3.2.5a. Estimation of cost-benefit ratio BIPM module against major insect pests of field pea at Shillongani

Modules	Yield of fieldpea (q/ha)	Yield of mustard (q/ha)	Eqv. yield of mustard (q/ha)	Total yield (q/ha)	Yield over control (q/ha)	Gross return (Rs/ha)	Cost (Rs/ha)	Benefit (Rs/ha)	B:C
T ₁ (BIPM)	7.89	1.53	1.80	9.69	3.61	53295	17500	35795	2.05
T ₂ (FP)	8.11	-	-	8.11	2.03	44605	16800	27808	1.65
T ₃ Control	6.08	-	-	6.08	0	33440	14000	19440	1.38

6.3.3 Seasonal abundance and population dynamics of key insect-pests and natural enemies of field pea

Locations (6): Shillongani, Pantnagar, Varanasi, SK Nagar, Dholi, Mohanpur (WB)

Results: The experiment was conducted at five locations. Pod borer incidence was observed at Pantnagar, SK Nagar, Mohanpur, Dholi and Varanasi. The location-wise observations on the incidence of insect-pests in field pea are described below (Table 6.3.3.1 to 6.3.3.5):

Pantnagar: Maximum incidence of pea leaf miner appeared in 08th standard metrological week (1.65%). Aphids were noticed in the vegetative stage of the crop and remained in the crop upto end of March. Peak infestation of aphid (3.5 aphids/10cm twig) was recorded at 9th SMW. (Table 6.3.3.1). All the weather parameters have non-significant positive correlation with aphid. In case of leaf miner all the weather parameters except maximum & minimum temperature, rainfall had positive correlation. (Table 6.3.3.1a)

SK Nagar: The *H. armigera* larval population commenced from third week of December and continued till first week of February with a peak (0.85/plant) in first week of February. The natural enemies population was almost nil due to very low population of sucking pests. The larval population had a significant negative influence with maximum temperature. (Table 6.3.3.2)

Dholi: The incidence of aphids was observed during 2nd SMW as 0.67 numbers per 10 cm of twigs and continued up to 10th SMW. The highest number of aphid per 10 cm of twigs were observed during the 6th SW as 6.6.7 However, the incidence of pod borer was noticed during the 6th SW and continued up to harvesting of the crop. The highest number of larva per plant were observed during the 8th SW as 4.67. The populations of natural enemies were found to be more or less fluctuating throughout the cropping season except during the heavy winter. In case of natural enemy population (Spiders, Ladybird beetles and Ants), all the abiotic components have no significance except relative humidity recorded at 14.00 hrs upon ladybird beetle population, having significant effect (Table 6.3.3.3& a).

Mohanpur: Among the insect pests, gram pod borer (*H. armigera*) was observed in the experimental plots and its incidence was recorded starting from flowering stage till the harvest of the crop whereas, the incidence of aphid (*Aphis craccivora*) was negligible. The pod borer population reached its peak (9.4 per plant) on 8th SMW (Table 6.3.3.4). The population of natural enemy (both spiders and coccinellid beetles) was recorded from 50thSMW to 8thSMW in the field. Among the meteorological parameters taken into consideration, maximum temperature, minimum temperature, maximum relative humidity, bright sunshine hour and rainfall had positive correlation whereas, minimum relative humidity had negative correlation with both of the pod borer and natural enemy population. However, all the parameters show non-significant association not only with the pest population but also with the natural enemy population.

Varanasi: The first incidence of leaf miners was noticed in the 4th SMW (2.33 % damaged leaves), and the population of leaf miners gradually increased up to the 7th SMW (37.66% damaged leaves, peak) after gradually decreasing the leaf miner population. The first incidence of aphids was noticed in the 3rd SW (0.8 aphid/10 cm shoot) and gradually increased the aphid population up to the 7th SW (35.50 aphids/10 cm shoot), after which gradually decreasing the aphid population. The first incidence of pod borer larvae was noticed in the 5th SW (0.67 larvae/10 plants) and gradually increased the larval population up to the 7th SW (5.33 larvae/10 plants), after gradually decreasing the larval population (Table 6.3.3.5).

Table 6.3.3.1. Weekly insect population in field pea during rabi 2024-25 at Pantnagar

Std Week	Pea leaf miner (%)	Aphid/10 cm twig	Max Temp (°C)	Min Temp (°C)	Max RH (%)	Min RH (%)	Rainfall (mm)	sun shine hrs	Wind velocity (km/hr)
2	0.86	1.66	18.6	7.5	90.9	58.3	0.0	2.7	3.2
3	0.96	1.46	20.7	8.9	95.4	65.6	2.8	4.4	4.0
4	1.13	1.33	20.9	6.9	94.7	60.0	1.4	4.8	3.8
5	1.23	2.26	24.2	7.2	92.7	42.4	0.0	4.6	1.4
6	2.5	2.66	23.5	6.8	94.0	49.3	0.0	8.0	2.5
7	3	3.01	24.5	6.9	91.6	40.6	0.0	7.9	4.4
8	1.65	3.15	25.8	9.3	92.0	43.4	0.0	8.4	4.2
9	1.52	3.5	25.1	12.1	89.3	58.6	2.0	7.7	2.5
10	1.23	2.75	26.3	10.7	88.9	40.6	14.0	5.2	2.3
11	1.03	2.11	30.9	13.9	81.7	33.9	0.0	9.1	2.9
12	1.1	1.97	30.5	11.8	84.4	30.4	6.4	8.7	1.8
13	0.5	1.2	33.2	12.2	77.6	22.7	0.0	10.2	1.4
14	0.86	1.66	18.6	7.5	90.9	58.3	0.0	2.7	3.2
15	0.96	1.46	20.7	8.9	95.4	65.6	2.8	4.4	4.0

Table 6.3.3.1a: Correlation between insect pests infesting field pea and metrological parameters during *rabi* 2024-25 at Pantnagar

Insect pest	Temp (°C)		RH		Rainfall	Sun shine hour	Wind velocity
	Max	Min	Max	Min			
Aphid/plant	0.012ns	0.024 ns	0.215ns	0.026ns	0.116ns	0.244ns	0.151ns
Leaf miner (%)	-0.206ns	-0.476ns	0.440ns	0.082ns	-0.168ns	0.195ns	0.409ns

*5% Level of significance

ns -Non significant

Table 6.3.3.2. Population dynamics of insect pests of field pea and its correlation with weather parameters at SK Nagar during 2024-25

SMW	<i>H. armigera larva/plant</i>	Temperature		R.H. (%)	
		Max	Min	Max	Min
47	0	30.5	12.2	83	22
48	0	30.5	12.5	82	23
49	0	29.2	11.2	81	25
50	0	26.1	6.3	85	25
51	0.01	27.6	11.8	74	36
52	0.05	24.6	11.8	85	46
1	0.02	28.2	10.4	82	32
2	0.5	26.4	7.8	86	34
3	0.85	26.4	11	84	39
4	0.3	27.6	10.5	85	28
5	0.15	28.5	11.3	82	29
6	0	29	9	80	41
		-0.471*	-0.182 ^{NS}	0.380 ^{NS}	0.365 ^{NS}

Table 6.3.3.3: Seasonal abundance and population dynamics of key insect-pests and natural enemies of field pea during 2024-25 at Dholi

Month /Year	Standard week	No. of aphid/ 10 cm twig	No. of larvae/ 3plant	Spider	Lady bird beetle	Ant	Weather Parameters				
							Temp. °C		RH (%)		Rain fall (mm)
							Max.	Min.	7 hrs	14 hrs	
Dec-24	51	0	0	0	0	0	25.5	11.2	74.2	65.2	-
	52	0	0	0	0	0	22.4	10.6	80.5	70.8	-
Jan, 2025	1	0	0	0	0	0	17.5	8.2	85.2	80	-
	2	0.67	0	0.2	0.5	0.1	14.2	8.1	92.5	85.2	-
	3	2.3	0	0.4	1.3	0.5	16.2	9.5	90.5	80.2	-
	4	3.67	0	1.2	1.5	1.3	18.5	10.3	85.6	75	-
	5	4.3	0	1	2.3	2.4	21.7	11.5	80.5	72	-

Feb, 2025	6	6.67	1.33	1.2	2.5	1.4	22.5	12.8	78.8	70	-
	7	4	2.63	1.2	3.67	1.3	23.4	14	74.5	68.2	-
	8	2.67	4.67	0.5	2.3	1	26.4	15.7	72.6	65.2	-
	9	1.3	3.65	0.3	2.12	0.5	25.9	17.7	70.2	64.2	-
Mar. 2025	10	0.84	2.33	0.2	1.3	0	27.7	18	68.4	58.5	-
	11	0	1.3	0	0.4	0	28.6	18.1	65.7	56.2	-
	12	0	0.065	0	0.2	0	29.2	19.3	65.4	54.3	-

Table 6.3.3.3a: Correlation of insects and pest with the weather parameters at Dholi

Weather parameters	No. of aphid/10 cm twig	No. of larvae/plant	Spider	Lady bird beetle	Ant
MaxT.	-0.45*	0.63**	0.07 ^{NS}	0.43 ^{NS}	-0.04 ^{NS}
MinT.	-0.41*	0.52 ^{NS}	-0.04 ^{NS}	0.34 ^{NS}	-0.08 ^{NS}
7hr RH.	N/A	N/A	N/A	N/A	N/A
14hr RH.	0.45 ^{NS}	-0.74**	0.04 ^{NS}	-0.53*	0.17 ^{NS}

* - Highly significant; * - Significant; ^{NS} - Non-significant

Table 6.3.3.4. Weekly data on pod borer and natural enemy population on field pea along with meteorological parameters during 2024-25 at BCKV, Mohanpur

Date of observation	SMW	No. of pod borer/plant	No. of natural enemy/plant	Meteorological parameters					
				Temperature (°C)		RH (%)		Bright Sunshine Hour \$	Rainfall #
				Max.	Min.	Max.	Min.		
23.12.24	51	0.0	0.0	25.32	13.13	95.33	54.00	5.25	1.7
30.12.24	52	0.0	0.0	27.26	13.70	95.00	48.00	6.80	0
06.01.25	1	0.4	0.0	23.26	12.51	95.57	61.14	4.79	0
13.01.25	2	1.0	0.6	24.31	11.01	95.43	50.71	6.36	0
20.01.25	3	0.6	1.0	25.44	12.01	95.71	50.43	5.90	0
27.01.25	4	1.8	0.8	25.06	12.40	97.86	56.86	5.21	0
03.02.25	5	2.0	1.2	27.10	14.86	96.71	62.00	2.41	0
10.02.25	6	1.0	2.8	28.25	13.87	95.57	37.17	8.55	0
17.02.25	7	3.4	1.4	30.23	15.13	93.29	36.17	8.15	0
24.02.25	8	1.0	2.0	29.50	18.24	95.29	65.00	4.55	20.1
03.03.25	9	1.6	1.2	31.45	18.43	95.57	45.50	7.20	0
10.03.25	10	1.4	0.8	31.33	16.91	90.43	36.33	8.97	0
Corr. co-efficient values (pod borer)				0.484	0.320	-0.151	-0.314	0.160	-0.094
Corr. co-efficient values (natural enemy)				0.498	0.409	0.023	-0.259	0.238	0.352

\$ Mean of previous seven days # Sum of previous seven days

\$ Mean of previous seven days, # Sum of previous seven days, * Significant at 5% level

Table 6.3.3.5. Seasonal abundance and population dynamics of key insect pests and natural enemies of field pea at Varanasi during 2024-25

Standard weeks	Date of observation	Leaf miner	Aphid population (10 cm shoot)	Pod borer (Larvae/10 plants)
		(% damage leaves)		
3 rd	23-Jan	0	0.8	0
4 th	27-Jan	2.33	1.2	0
5 th	3-Feb	12.66	4.81	0.67
6 th	10-Feb	25.66	12.3	2.33
7 th	17-Feb	37.66	35.5	5.33
8 th	24-Feb	29.66	28.48	3.67
9 th	4-Mar	17.66	14.06	1.67
10 th	11-Mar	6.66	4.84	0.33

6.3.4 Survey and surveillance of key and emerging insect-pests of field pea at farmers' fields

Locations (6): Shillongani, Ranchi, Pantnagar, Varanasi, SK Nagar & Dholi

Shillongani: Field visit, survey, recording observations (as per the information mentioned below) and interaction with the local farmers were carried out at 15 days interval.

Pertinent information:

1. Specific site: Rupahi & Laokhowa, Nagaon.
2. No. of fields specifically examined: 5
3. Soil type, previous crop: Clay loam to sandy loam
4. Variety and area cultivated: Rachna.
5. Date of sowing: October to mid-November
6. Stage of the crop during the visit: 2.12.24; 17-12-24; 2-2-2025 (Vegetative/Reproductive stage)
7. Major insect-pests recorded: Selected at least 10 random spots in the field representing the whole area and recorded the following observations at each site:
 - a) Aphids: 40-53 aphids/10 cm twig (Mean of 10 plants)
 - b) Pod borer: 2-7 Number of larvae/plant (Mean of 10 plants)
 - c) Natural enemies encountered: Coccinellids 1.29/plant (Mean of 10 plants)

Table 6.3.4.1: Survey and surveillance of key emerging insect pests of field pea at farmer's field Ranchi

Name of village	Date of visit	Soil type	Previous crop	Variety and area cultivated	Date of sowing	Stage of crop	Insect pests incidence	Natural enemies	Plant protection applied
Khakhoriishri Block: Burmu, Ranchi	10.2.25 25.2.2025	Upland acidic	Maize	Dantiwara, 0.5 acare	30.11.2024	Pod formation	1. Aphid: 0.1 No/10 cm 2. Leaf minor: 0.5% 3. Pod borer larvae: nil Pod damage: 3-4% by Helicoverpa	Coccinellidae: 0.1 No./plant Spider: 0.5 No/plant	Monocrotophos one spray
Kudlong, Block Nagri, Ranchi	17.2.2025 03.3.2025	Upland acidic	Millet	Vegetable pea 0.25 acare	7.12.2024	Pod formation stage	Pod borer: 7-10%	Coccinellidae: 0.1 No./plant Spider: 0.8 No/plant	Dimethoate 30% EC one spray

Table 6.3.4.2: Survey and surveillance of key emerging insect pests of field pea at farmer's field Dholi

Date	Name of Village and District	Stage of the crop	No. of aphids /10 cm twigs	No. of pod borer larvae / plant	Natural enemies		Remarks
					Spider	Lady bird beetle	
12.01.25	Rulahi /W Champaran	Vegetative stage	6.67	-	-	√	Farmer has taken up a spray with Imidacloprid 17.8% SL @ 1.0ml /2 litre of water
17.01.25	Gora Semra/W Champaran	Vegetative stage	11.33	1.33	-	√	
28.02.25	Awharseikh / WChamparan	Flowering stage	13.67	2.43	√	√	
10.03.25	PakriDayal /W Champaran	Pod formation stage	5.67	3.67	√	-	
16.03.25	Ramna E Champaran	Podding stage	-	4.3	√	-	
21.03.25	Jhakra/ EChamparan	Podding stage	-	3.67	-	-	

Table 6.3.4.4 Survey and surveillance of key emerging insect pests of field pea at farmer's field at Pantnagar

Surifarm Nainital	12.03.25	-	Local	15.11.24	Pod initiation	Aphids: 3.65 aphids/10 plants Leaf miner: 1.6% damage	Coccinellids: 0.67/plant
Lohali	12.03.25	-	Local	25.11.24	Pod initiation	Aphid: 5.33/10 cm shoots	Coccinellid and spider
Jawaharnagar	01.04.25	-	PL 13	30.11.24	Podding	Aphids: 2.3 aphids/10 cm shoot	Coccinellids: 1.25/plants

Table 6.3.4.5: Survey and surveillance of key and emerging insect pests of field pea at farmers' fields Varanasi.

Village	Leaf miner (% leaf damage)			Aphid (aphids/10 cm twig)			Pod borer (number of larvae/plant)		
	Survey I	Survey II	Survey III	Survey I	Survey II	Survey III	Survey I	Survey II	Survey III
Narottampur Kala	20.80	38.55	15.65	22.50	45.45	32.12	3.56	7.94	10.70
Manduwadiah	30.40	45.15	19.45	30.25	52.00	35.60	5.35	10.25	12.75
Nuawn	32.50	55.45	25.40	39.30	38.40	25.50	4.50	12.50	10.45

6.4 LATHYRUS

6.4.1. Field evaluation of germplasm against major insect pests of lathyrus

The mean aphid population (per 10 cm top shoot) varied from 1.20 to 7.87 at Mohanpur centre. Two entries viz. RLS-2022-4 and BCK-23-167 with less incidence of aphid (less than 2 per 10 cm top shoot) were found most promising, Grain yield ranged from 867.0 kg/ha (BCK-24-3) to 1777.7 kg/ha (RLS 3004-2).

Table 6.4.1.1: Field evaluation of germplasms against major insect pests of lathyrus at Mohanpur

Sl. No.	Entry	Code	No. of aphids/ 10 cm top shoot	Aphid damage rating #	Yield (kg/ha)
1.	Bidhan Khesari 1 (Ch)	E-24102	4.20 (2.17)*	1	1111.0
2.	RLS-2022-4	E-24103	1.47 (1.40)	1	1555.7
3.	BCK-23-167	E-24104	1.20 (1.30)	1	1777.7
4.	RLS 3004-2	E-24105	6.20 (2.59)	2	1000.0
5.	RLS-2022-2	E-24107	5.67 (2.48)	2	1056.0
6.	BCK-24-3	E-24108	7.87 (2.89)	2	867.0
7.	BRLa 09	E-24109	4.07 (2.14)	1	1389.0
8.	Bidhan Khesari 1 (Local Check)		4.73 (2.29)	1	1333.0
S.Em.			0.14		7.88
CD(0.05)			0.42		23.89

*Figures in parentheses are $\sqrt{(x+0.5)}$ transformed values#Souleyman *et al.*(2013) with slight modification

6.4.2: Assessment of crop losses due to insect-pests through chemical protection method

Mohanpur: Five days after first spraying the highest aphid population was recorded in unprotected plot (12.29 per 10 cm of terminal shoot) which was significantly higher than protected plot (1.43 per 10 cm of terminal shoot). Similarly, at 5 days after second spraying the highest aphid population was recorded in unprotected plot (15.97 per 10 cm of terminal shoot) which was significantly higher than protected plot (1.06 per 10 cm of terminal shoot). The grain yield was recorded significantly higher in protected plot (1441.85 kg/ ha) than unprotected plot (896.92 kg/ ha). The yield loss as calculated was 37.79% due to aphids.

Table 6.4.2.1: Assessment of crop losses due to insect-pests of Lathyrus at BCKV, Mohanpur

Sl. No.	Treatments	No. of aphids per 10 cm of terminal shoot						Yield (kg/ha)	Per cent yield loss (%)
		First spray			Second spray				
		1 DBS	3 DAS	5 DAS	1 DBS	3 DAS	5 DAS		
T1	Protected conditions	9.72 (3.19)	2.91 (1.84)	1.43 (1.38)	3.42 (1.97)	2.18 (1.63)	1.06 (1.23)	1441.85	37.79
T2	Unprotected conditions	9.60 (3.17)	10.74 (3.35)	12.29 (3.57)	13.69 (3.76)	14.71 (3.89)	15.97 (4.05)	896.92	-
S.Em.		NS	0.03	0.07	0.04	0.07	0.07	9.17	
CD(0.05)			0.10	0.22	0.12	0.20	0.23	28.24	

[DBS = Day Before Spraying; DAS = Day (s) After Spraying]

6.4.3: Management of aphid in lathyrus

Mohanpur: The results as shown in Table 6.4.3.1 revealed that amongst all treatments, spraying of *Lecanicilliumlecanii*@ 7.5 g/litre (T_4) was found significantly superior over rest of the treatments in terms of reduction of aphid population both at 1 day after treatment (6.67 per plant), 3 DAT (3.47 per plant) and 7 DAT (0.47 per plant) The next best treatment was Afidopyropen 50 DC @ 50 g ai/ha (T_7) which recorded aphid population of 10.53, 8.73, 4.73 and 2.33 per plant at 1DBT, 1DAT, 3 DAT and 7 DAT, respectively. Table 6.4.1.1a reveals that both at 1, 3 and 7 DAT, all the treatments used were statistically at par in terms of reducing predatory spider and coccinellid beetle population with the control treatment. No phytotoxicity symptoms viz. leaf injury, wilting, vein clearing, necrosis, hyponasty and epinasty at different time intervals (1, 3 and 7 days after treatment) have been observed on lathyrus due to application of different treatments at prescribed doses. Significantly highest yield was achieved from T_4 (1505.83 kg/ha) followed by T_7 (1452.50 kg/ha). The highest gross return (GR), net return (NR), Benefit Cost Ratio (BCR) and Incremental Benefit Cost Ratio (IBCR) was recorded in T_4 (GR of Rs. 60233.33 per ha, NR of Rs. 43584.33 per ha, BCR of 3.62 and IBCR of 3.80) followed by T_7 (GR of Rs. 58100.00 per ha, NR of Rs. 36451.00 per ha, BCR of 2.68 and IBCR of 3.01).

Table 6.4.3.1. Efficacy of some biorationals against aphid and natural enemies in *Lathyrus* during 2024-25 at BCKV, Mohanpur

S. N.	Treatments	Mean aphid population top 10 cm twig/ plant				Mean spider population/ plant				Mean Coccinellid beetle population/ plant			
		Before spray	1 DAT	3 DAT	7 DAT	Before spray	1 DAT	3 DAT	7 DAT	BS	1 DAT	3 DAT	7 DAT
T ₁	Neem seed kernel extract @ 5% (detergent as emulsifier @ 30 g/100 litres of water)	*10.53 (3.32)	9.00 (3.08)	5.07 (2.36)	2.47 (1.72)	*1.07 (1.24)	0.73 (1.11)	0.80 (1.14)	1.67 (1.47)	*1.93 (1.55)	1.53 (1.42)	1.73 (1.48)	2.47 (1.72)
T ₂	Commercial azadirachtin 1500 ppm @ 1.5 ml/litre	10.60 (3.33)	9.47 (3.16)	5.93 (2.53)	3.33 (1.96)	1.13 (1.27)	0.67 (1.07)	0.87 (1.16)	1.53 (1.42)	1.80 (1.52)	1.47 (1.40)	1.80 (1.52)	2.33 (1.68)
T ₃	<i>Lecanicilliumlecanii</i> @ 5 g/litre	10.87 (3.37)	9.87 (3.22)	6.60 (2.66)	4.07 (2.13)	1.00 (1.22)	0.73 (1.10)	0.93 (1.18)	1.60 (1.44)	2.00 (1.58)	1.60 (1.45)	1.80 (1.51)	2.33 (1.68)
T ₄	<i>Lecanicilliumlecanii</i> @ 7.5 g/litre	10.80 (3.36)	6.67 (2.68)	3.47 (1.99)	0.47 (0.98)	1.07 (1.24)	0.80 (1.13)	1.00 (1.21)	1.53 (1.42)	1.87 (1.53)	1.53 (1.43)	1.87 (1.54)	2.33 (1.68)
T ₅	Salicylic acid @ 0.5 mM	10.67 (3.34)	10.07 (3.24)	7.60 (2.84)	5.40 (2.43)	1.00 (1.21)	0.67 (1.06)	0.93 (1.18)	1.67 (1.47)	2.00 (1.58)	1.60 (1.45)	1.73 (1.49)	2.27 (1.66)
T ₆	Salicylic acid @ 1.0 mM	10.73 (3.35)	9.93 (3.23)	6.93 (2.72)	4.40 (2.21)	1.13 (1.26)	0.80 (1.13)	0.87 (1.17)	1.60 (1.45)	1.93 (1.56)	1.53 (1.42)	1.80 (1.51)	2.40 (1.70)
T ₇	Afidopyropen 50 DC @ 50 g ai/ha (400 ml/ acre)	10.53 (3.32)	8.73 (3.04)	4.73 (2.29)	2.33 (1.68)	1.20 (1.29)	0.73 (1.10)	1.00 (1.22)	1.53 (1.42)	1.80 (1.5)	1.47 (1.39)	1.73 (1.49)	2.07 (1.60)
T ₈	Untreated control	10.73 (3.35)	12.47 (3.60)	14.33 (3.85)	18.27 (4.33)	1.07 (1.24)	1.33 (1.34)	1.73 (1.49)	2.27 (1.66)	1.87 (1.54)	2.13 (1.62)	2.53 (1.74)	3.00 (1.87)
CD (0.05)		NS	0.29	0.27	0.27	NS	NS	NS	NS	NS	NS	NS	NS

DAT = Days After Treatment

*Figures in parentheses are $\sqrt{(x+0.5)}$ transformed values

Table 6.4.3.2: Phytotoxicity effect of treatments applied along with economics of treatments BCKV, Mohanpur

Sl. No.	Treatments	Phytotoxicity Rating as per given Rating Scale					Grain yield (kg/ha)	Gross returns (Rs/ha)	Net returns (Rs/ha)	BCR	IBCR
		BS	1 DAT	3 DAT	7 DAT	Mean					
T ₁	Neem seed kernel extract @ 5% (detergent as emulsifier @ 30 g/100 litres of water)	0	0	0	0	0.0	1181.67	47266.67	29117.67	2.60	2.21
T ₂	Commercial azadirachtin 1500 ppm @ 1.5 ml/litre	0	0	0	0	0.0	1126.67	45066.67	27030.17	2.50	1.98
T ₃	<i>Lecanicilliumlecanii</i> @ 5 g/litre	0	0	0	0	0.0	1072.50	42900.00	26251.00	2.58	1.89
T ₄	<i>Lecanicilliumlecanii</i> @ 7.5 g/litre	0	0	0	0	0.0	1505.83	60233.33	43584.33	3.62	3.80
T ₅	Salicylic acid @ 0.5 mM	0	0	0	0	0.0	990.83	39633.33	22919.09	2.37	1.52
T ₆	Salicylic acid @ 1.0 mM	0	0	0	0	0.0	1024.17	40966.67	24187.19	2.44	1.66
T ₇	Afidopyropen 50 DC @ 50 g ai/ha (400 ml/acre)	0	0	0	0	0.0	1452.50	58100.00	36451.00	2.68	3.01
T ₈	Untreated control	0	0	0	0	0.0	643.33	25733.33	9084.33	1.55	-
CD (0.05)		-	-	-	-	-	28.85	-	-	-	-

DAT = Days After Treatment, N.B. Cost for cultivation (variable costs other than treatments) – Rs. 16,249 per ha; NSKE – Rs. 140/ 250 ml; Detergent – Rs. 100 per ha, Azadirachtin 1500 ppm – Rs. 185/ 100 ml; Salicylic Acid – Rs. 932/ 500 g; Sefina (Afidopyropen 50 DC) – Rs. 500/ 100 ml; Labour cost – Rs. 400 per ha; Lathyrus price – Rs. 40 per kg

NEMATOTOLOGY

Seventeen entries of field pea and 28 entries of lentil and were received from AICRP on Rabi Pulses and were screened against root knot nematode *Meloidogyne javanica*. The categorization of entries based on screening data was carried out based on 1-5 scale of gall index as follows. The results are given in the following Table 7.1 and 7.2.

Root Knot Index proposed by AICRP on Nematodes

Observation	Gall Index (GI)	Host reaction
0 No of galls	1	Highly Resistant (HR)
1-10 No of galls	2	Resistant (R)
11-30 No of galls	3	Moderately Resistant (MR)
31-100 No of galls	4	Susceptible (S)
101 No of galls and above	5	Highly Susceptible (HS)

No entries of field pea and lentil showed resistant to *M. javanica*.

Table 7.1: Evaluation of field pea entries against root knot nematode, *Meloidogyne javanica*

S.No.	Entry	Gall Index	Host Reaction
1	RFP 2021-1	4.0	S
2	Pant P 550	3.0	MR
3	Pant P 568	4.0	S
4	Pant P 554	4.0	S
5	Pant P 42	3.0	MR
6	Pant P 574	5.0	HS
7	Pant P 559	5.0	HS
8	HFP 1902	3.0	MR
9	HFP 9907 B (Ch)	4.0	S
10	HFP 715 (Ch)	3.0	MR
11	HFP 9456 (Ch)	5.0	HS
12	HFP 2056	4.0	S
13	IPF 23-19	3.0	MR
14	IPF 23-23	5.0	HS
15	NDP 22-4	3.0	MR
16	HUTP 2202	4.0	S
17	HFP 1962	4.0	S

Table 7.2: Evaluation of lentil entries against root knot nematode, *Meloidogyne javanica*

S.No.	Entry	Gall Index	Host reaction
1	RLG 354	3.0	MR
2	RLG 385	4.0	S
3	VL 514	4.0	S
4	PLRF 22-2	3.0	MR
5	PLL 24-1	4.0	S
6	PLR 24-2	5.0	HS
7	PLL 24-2	3.0	MR
8	PLS 24-1	3.0	MR
9	PLS 24-2	4.0	S
10	PLR 24-1	5.0	HS
11	PLR 23-1	4.0	S
12	PLRF 22-1	4.0	S
13	IPL 220	5.0	HS
14	IPL 249	5.0	HS
15	PLS 25	3.0	MR
16	PL 063	5.0	HS
17	PL 455	4.0	S
18	PL 457	5.0	HS
19	PL 412	4.0	S
20	PL 11	3.0	MR
21	PL 411	5.0	HS
22	PL 420	4.0	S
23	LL 1798	4.0	S
24	LL 1809	3.0	MR
25	LL 1805	3.0	MR
26	BRL 22-5	4.0	S
27	BCL 10145	5.0	HS
28	PLS 24	4.0	S

FRONT LINE DEMONSTRATIONS

8.1 Highlights

Lentil

- During the *rabi* season of 2024-25, a total of 210 frontline demonstrations of lentil were allocated to 18 centres across four zones.
- One hundred seventy-one demonstrations were conducted on package technology. The average yield achieved using package technology was 1376 kg/ha, compared to 996 kg/ha under farmers practices, resulting in an increase of 38.1% with mean cost benefit ratio (C: B ratio) of 3.17.
- Fifty demonstrations were conducted on package technology in rice fallow, where the average yield recorded was 885 kg/ha compared to 671 kg/ha in farmer practices. This represented a yield increase of 31.9% with a C: B ratio of 2.51.
- Under the Tribal Sub Plan (TSP), a total of 190 demonstrations were conducted in tribal areas. The average yield achieved with improved practices was 1101 kg/ha, compared to 819 kg/ha with farmers practices. This demonstrated a yield advantage of 34.4%.

8.1.1 Salient results

During *rabi* 2024-25, under AICRP *rabi* pulses, 210 front line demonstrations (FLDs) of lentil were allotted to eighteen centres across the country. Total 221 FLDs were conducted out of which 171 FLDs were conducted under full package technology and 50 FLDs were conducted under rice fallow situation. The number of demonstrations allotted and conducted by each centre is presented in Table 8.1 a.

Full package technology comprised of improved varieties, weed management, inoculation with *Rhizobium culture* with PSB, fertilizer and insect management and management of wilt disease. The details of package components which were given to various centers are elaborated below:

Improved Varieties	: Recommended varieties
Date of Sowing	: As per appropriate time for different states
Seed Treatment	: Inoculation of <i>Rhizobium culture</i> with PSB
Weed Management	: Pre-emergence application of 0.75 kg/ha Pendimethalin + one hand weeding at 45 DAS or interculture
Fertilizer Management	: 18:46:20 N, P ₂ O ₅ , K ₂ O /ha +20kg S /ha
Insect management	: The IPM technology adopted as per the recommendation in different agro-climatic zones
Management of wilt disease	: Farmers' practice Seed treatment with 4g/kg <i>Trichoderma</i> + 1g vitavax / kg

8.1.1.1: Results of frontline demonstrations with full package technology

Results of lentil FLDs with full package practices conducted during *rabi* 2024-25 are presented in Table 8.1 b. Details of the locations of the FLDs conducted are provided in the appendix. In NEPZ, lentil FLDs with full package practices were conducted in Bihar (TCA, Dholi), West Bengal (BCKV,

Mohanpur), Jharkhand (BAU, Ranchi) and Uttar Pradesh (ANDUA&T, Kumarganj, and ICAR-IIPR, Kanpur). TCA, Dholi conducted 10 FLDs on the full package technology with bio-fortified lentil variety IPL 220. The mean yield with improved practices was 1026 kg/ha and 677 kg/ha with farmers practices. The yield increment of 51.6% was recorded over the farmers practices. BCKV, Mohanpur conducted 10 FLDs with full package technology with IPL 220 and Bidhan Lentil 16 varieties. The average yield of 761 kg/ha was obtained in demonstration plots (which was below state average yield), while the yield of local practice was 609 kg/ha. The yield increase of 24.9% was registered in demonstration plots with a cost : benefit ratio (C: B ratio) of 2.34. Likewise, BAU, Ranchi laid out 6 demonstrations of variety IPL 220 with the full package of technology in which an average yield in the demonstration plot was 961 kg/ha, which was 42.1% higher than farmers practice (676 kg/ha). ANDUA&T, Kumarganj, conducted 10 FLDs with full package practices with a variety IPL 315. The mean yield of the FLDs with full package was 1513 kg/ha, which recorded a 72.9 % increase over the yield under farmers practices (875 kg/ha). ICAR-IIPR, Kanpur, laid out 10 FLDs of variety IPL 315 with the full package of technology. The FLDs recorded a mean yield of 1319 kg/ha, which was 53.7% superior to the yield under farmer's practices (858 kg/ha).

Table 8.1 a: Zone and center wise Lentil FLDs allotted and conducted during rabi 2024-25

S. No.	AICRP Centres	Component	FLDs	
			Allotted (ha.)	Conducted (ha.)
NEPZ				
1	Shillongani	RF	5*	9*
2	TCA, Dholi	FP + RF	20 (10+10*)	20 (10+10*)
3	BCKV, Mohanpur	FP + RF	20 (10+10*)	20 (10+10*)
4	BAU, Ranchi	FP + RF	10 (5+ 5*)	10 (6+ 4*)
5	ICAR-IIPR, Kanpur	FP	10	10
6	NDUAT, Kumarganj	FP	10	10
7	Biozone, Gorakhpur	RF	5*	12*
Total FLDs in NEPZ			80	91
CZ				
8	ICAR-IIPR, RRS, Bhopal	FP	15	15
9	RVSQVV, Sehore	FP	20	20
10	JNKVV, Sagar	FP	15	15
11	JNKVV, Jabalpur	FP	20	20
12	IGKVV, Raipur	FP + RF	10 (5 + 5*)	10 (5 + 5*)
13	RLBCAU, Jhansi	FP	15	15
14	ARS, Kota	FP	15	15
Total FLDs in CZ			110	110
NHZ				
15	CAU, Imphal	FP	5	5
Total FLDs in NHZ			5	5
NWPZ				
16	Pantnagar	FP	5	5
17	ACAES, Amity University, Noida	FP	5	5
18	RARI, Durgapura	FP	5	5
Total FLDs in NWPZ			15	15
TOTAL		FP + RF	210 (170 + 40*)	221 (171 + 50*)

FP : Full Package, RF: Rice Fallow, *Rice Fallow

In the central zone, lentil FLDs with full package practices were conducted in Madhya Pradesh (ICAR-IIPR, RRS, Bhopal; JNKVV, Jabalpur; RVSKVV, Sehore and JNKVV, Sagar), UP (RLBCAU, Jhansi), Rajasthan (ARS, Kota), and Chhattisgarh (IGKVV, Raipur). ICAR-IIPR, RRS, Bhopal conducted 15 FLDs with the full package with lentil variety IPL 534, the mean yield of the FLDs was 1115 kg/ha, which recorded 25.7% increase over the yield under the farmers practice with a C: B ratio of 2.21. RVSKVV, Sehore, conducted 20 FLDs with the lentil variety RVL 13-5, the mean yield of the FLDs was 1138 kg/ha, 34.8% yield over farmer's practice with a C: B ratio of 3.56. RARS, Sagar conducted 15 FLDs with RVL 13-5 and recorded an average yield of 1578 kg/ha, which was 15.3% superior to the yield under the farmers practice (1369 kg/ha). JNKVV, Jabalpur conducted 20 FLD with lentil variety L 4717. The average yield of the FLDs was 1959 kg/ha, which recorded an 85.5 % increase over the yield under the farmers practice with a C: B ratio of 3.13. RLBCAU, Jhansi, carried out 15 demonstrations with improved variety L 4727. The average yield by adopting package technology was 1284 kg/ha, while in farmer practices 979 kg/ha yield was obtained. Thus, the yield increment was 31.2% by applying package technology. ARS Kota conducted 15 FLDs with improved variety Kota Masoor 3. An average yield of 1715 kg/ha was recorded by using full package technology, which showed 18.4% higher yield over the farmer's practice (1449 kg/ha) with C: B ratio of 3.78. IGKVV, Raipur, conducted 5 FLDs with lentil variety IPL 220. The average yield of the FLDs was 726 kg/ha, which recorded 29.2% increase over yield under farmer's practice with a C: B ratio of 3.03.

In NWPZ, FLDs were conducted in Uttarakhand (GBPUA&T, Pantnagar), UP (ACAES, Amity University, Noida), and Rajasthan (RARI, Durgapura). GBPUAT, Pantnagar, conducted 5 FLDs with the lentil variety Pant L14. The average yield under improved practices was 1414 kg/ha, which was 21.4% superior to the yield under farmer's practice. ACAES, Amity University, Noida, carried out 5 demonstrations with improved varieties IPL 315 and L 4727. The average yield by adopting package technology was 1190 kg/ha, while in farmer practices 785 kg/ha was obtained. Thus, the yield increment was 51.6% by applying package technology. RARI, Durgapura, conducted 5 FLDs with a variety RLG 5 and recorded mean yield of 1630 kg/ha with a superiority of 12.4 % (C: B ratio 3.13) over the farmer's practices.

In NHZ, 5 FLDs of lentil with full package technology using variety IPL 220, were conducted by CAU, Imphal. The FLDs had a mean yield of 995 kg/ha, which was 22.2 % higher than the yield under the farmers practice (814 kg/ha).

8.1.1.2: Results of frontline demonstrations under the rice fallow situation

A total of 50 lentil FLDs under rice fallow were conducted during *rabi* 2024-25 (Table 8.1 c). Details of the locations of the FLDs conducted are provided in the appendix. Rice fallow FLDs were conducted by 5 centres of NEPZ, namely BCKV Mohanpur (10), Shillongani (9), BAU Ranchi (4), TCA Dholi (10) and Biozone, Gorakhpur (12). In CZ, FLDs of lentil under rice fallow situation were conducted by IGKVV, Raipur (5). BCKV Mohanpur conducted 10 FLDs under rice fallow with lentil variety IPL 220. The mean yield recorded was 716 kg/ha, which was 27.4% higher than the yield under the farmers practice with a C: B ratio of 2.30. ARS Shillongani conducted 9 rice fallow FLDs with lentil variety IPL 220. The mean yield in the FLDs recorded was 1005 kg/ha, which exceeded the yield under the farmers practice by 22.3% with a C: B ratio of 2.05. BAU, Ranchi, conducted 4 rice fallow FLDs with lentil variety IPL 220. A mean yield of 984 kg/ha was recorded with 44.3 % superiority over the farmers practice. TCA, Dholi conducted 10 FLDs in rice fallow, with lentil variety IPL 220. The mean yield recorded was 947 kg/ha, with an increase of 55.5% over the farmers practice. Biozone, Gorakhpur, carried out 12 rice fallow FLDs with improved variety IPL 220. The average

yield by adopting package technology was 959 kg/ha, while in the farmer practices 772 kg/ha yield was obtained. Thus, the yield increment was 24.2% by applying package technology. In CZ, IGKVV, Raipur, conducted 5 FLDs rice fallow conditions with lentil variety IPL 220, and the mean yield obtained was 627 kg/ha, which was 27.2% more than under the farmers practice (493 kg/ha).

Table 8.1 b: Frontline demonstrations with full package technology in lentil during *rabi* 2024-25

States	Centres	Variety	FLD (ha.)	Grain yield (kg/ha) IP	Grain yield (kg/ha) FP	% Increase	Cost of Cultivation (Rs)	Gross Returns (Rs)	C:B Ratio
Chhattisgarh	Raipur	IPL 220	5	726	562	29.2	16000	48613	3.03
W Bengal	BCKV Mohanpur	IPL 220/ Bidhan Lentil 16	10*	761*	609*	24.9*	21711*	51009*	2.34*
Jharkhand	Ranchi	IPL 220	6	961	676	42.1	22517	81695	3.62
Manipur	Imphal	IPL 220	5	995	814	22.2	40550	79600	1.96
Madhya Pradesh	IIPR RRS Bhopal	IPL 534	15	1115	887	25.7	33800	74727	2.21
	CoA Sehore	RVL 13-5	20	1138	844	34.8	16285	58013	3.56
	RARS, Sagar	RVL 13-5	15	1578	1369	15.3	22000	105693	4.80
	JNKVV, Jabalpur	L 4727	20	1959	1056	85.5	40265	125846	3.13
State total/ Mean			70	1462	1026	42.4	28088	91070	3.24
Rajasthan	ARS Kota	Kota Masoor 3	15	1715	1449	18.4	30400	114898	3.78
	RARI, Durgapura	RLG 5	5	1630	1450	12.4	33213	103994	3.13
State total/ Mean			20	1693	1449	16.8	31806	109446	3.44
Uttarakhand	Pantnagar	Pant L 14	5	1414	1164	21.4			
Bihar	TCA Dholi	IPL 220	10	1026	677	51.6	27500	87196	3.17
Uttar Pradesh	Kumarganj	IPL 315	10	1513	875	72.9	25200	83215	3.30
	IIPR Kanpur	IPL 315	10	1319	858	53.7	20354	79159	3.89
	RLBCAU Jhansi	L 4727	15	1284	979	31.2	27359	59313	2.17
	ACAES, AMITY, Noida	IPL 315/ L4727	5	1190	785	51.6	23500	79782	3.39
State total/ Mean			40	1338	899	48.8	24103	75367	3.13
Total/mean			171	1376	996	38.1	26499	84115	3.17

IP = Improved package of practices; FP = Farmers' practice; * = Data not considered due to below state average

Table 8.1 c: Frontline demonstrations under rice fallow situation in lentil during rabi 2024-25

States	Centres	Variety	FLD (ha.)	Grain yield (kg/ha) IP	Grain yield (kg/ha) FP	% Increase	Cost of Cultivation (Rs)	Gross Returns (Rs)	C:B Ratio
West Bengal	BCKV Mohanpur	IPL 220	10	716	562	27.4	20796	47996	2.30
Assam	Shillongani	IPL 220	9	1005	822	22.3	31420	64543	2.05
Chhattisgarh	IGKV Raipur	IPL 220	5	627	493	27.2	16000	42020	2.63
Jharkhand	BAU Ranchi	IPL 220	4	984	682	44.3	22800	83680	3.67
Bihar	TCA, Dholi	IPL 220	10	947	609	55.5	27500	80470	2.92
Uttar Pradesh	Biozone Gorakhpur	IPL 220	12	959	772	24.2	8494	16450	1.93
Total/mean			50	885	671	31.9	20777	52155	2.51

IP = Improved package of practice; FP = Farmers' practice

8.1.2 Lentil Demonstrations under TSP-FLD

During *rabi* 2024-25, 190 FLD-TSP demonstrations with Full Package Technology/under rice fallow conditions were conducted under the Tribal Sub-Plan across 12 centres in 9 states (Table 8.1 d). Mean yield of FLD-TSPs conducted was 1101 kg/ha, with mean superiority of 34.43% over the mean yield under the farmers practice (819 kg/ha). Mean C: B ratio recorded in the FLDs was 2.76 (Table 8.1 e). The details of the locations are provided in the annexure.

Table 8.1 d: Lentil demonstrations with Full Package Technology planned and conducted under Tribal Sub-Plan during *rabi* 2024-25

S. No.	Centres	No. of FLD's	
		Allotted	Conducted
North Western Plain Zone			
1.	Pantnagar	5	5
Total FLD under TSP		5	5
North East Plain Zone			
1.	BAU, Ranchi	15	15
2.	CAU, Imphal	10	10
3.	RPCAU, Dholi	15	15
4.	Shillongani	20	20
Total FLD under TSP		60	60
Central Zone			
1.	IGKV, Raipur	20	20
2.	SGCOARS, IGKV, Jagdalpur (Bastar)	15	10
3.	JNKVV, Sagar	20	20
4.	JNKVV, Jabalpur	20	20
5.	IIPR RS Bhopal	15	15
6.	CAU, Jhansi	15	15
7.	AU, Kota	25	25
Total FLD under TSP		130	125
G.TOTAL		195	190

In NWPZ, 5 FLD-TSPs were conducted by GBPUAT, Pantnagar, with a variety of PL 4. The average yield by adopting improved practice was 1034 kg/ha, while in farmer practices, 814 kg/ha yield was obtained. Thus, a yield increment of 27% was recorded.

In NEPZ, FLD-TSPs were conducted in Jharkhand (BAU, Ranchi), Manipur (CAU Imphal), Bihar (RPCAU, Dholi), and Assam (Shillongani). BAU, Ranchi conducted 15 FLD-TSPs with lentil varieties IPL 220 and L4717. A mean yield of 927 kg/ha was recorded with 31.7 % superiority over the farmer's practice (704 kg/ha). CAU, Imphal, laid out 10 FLD-TSPs of variety IPL 220 and recorded a mean yield of 962 kg/ha, which was 24.3% superior to the yield under the farmers practices (774 kg/ha). RPCAU, Dholi, conducted 15 FLD-TSPs, with lentil variety IPL 220. The mean yield recorded was 992 kg/ha, with an increase of 83.36% over the farmers practice. ARS, Shillongani, carried out 20 demonstrations with improved variety IPL 220. The average yield was 918 kg/ha, while in farmer practices 798 kg/ha yield was obtained. Thus, yield increment of 22.3% was recorded.

One hundred twenty five FLD-TSPs were conducted by various centres of CZ, namely, IGKVV, Raipur (20 FLDs, mean yield 652kg/ha with 30.1% superiority over the farmers practice); ARS, Jagdalpur (10FLDs, mean yield 654 kg/ha with 132.7% superiority over the farmers practice); RARS, Sagar (20 FLDs with mean yield of 1338 kg/ha and 15.7% superiority over the farmers practice); JNKVV, Jabalpur (20 FLDs with mean yield 1600 kg/ha with 86.9 % superiority); ICAR-IIPR, RRS, Bhopal (15 FLDs, mean yield 1197 kg/ha with 28.7% superiority over yield under the farmers practices); RLBCAU, Jhansi (15 FLDs, mean yield 544 kg/ha with 39.5% superiority); and AU, Kota (25 FLDs, mean yield 1714 kg/ha with 17.9% superiority).

Table 8.1 e: Sate and variety wise lentil demonstrations under Full Package Technology planned and conducted under Tribal Sub-Plan during rabi 2024-25

States	Centres	Variety	No. of FLD's	Grain yield (kg/ha)		% Increase	Returns (Rs)		C:B Ratio
				IP	FP		Cost of Cultivation	Gross Returns	
Assam	Shillongani	IPL 220	20	918	798	22.3	15003	23525	2.50
Bihar	RPCAU, Dholi	IPL 220	15	992	541	83.4	27500	84258	3.06
Chhattisgarh	ARS, Jagdalpur	RVL 31	10	654	281	132.7	16000	39240	2.45
	IGKV, Raipur	IPL 220	20	652	501	30.1	16000	43662	2.73
	State Total/Mean		30	653	428	52.5	16000	41451	2.59
Jharkhand	BAU, Ranchi	IPL220/ L 4717	15	927	704	31.7	23679	69552	2.93
Madhya Pradesh	IIPR RS, Bhopal	IPL 534	15	1197	930	28.7	33800	80177	2.37
	JNKVV, Jabalpur	L 4727	20	1600	856	86.9	39700	102808	2.59
	RARS, Sagar	RVL 13-5	20	1338	1156	15.7	22000	89629	4.07
	State Total/Mean		55	1395	985	41.6	31833	90871	2.85
Rajasthan	AU, Kota	Kota Masoor 3	25	1714	1454	17.9	30400	114825	3.78
Uttarakhand	GBPUAT Pantnagar	PL4	5	1034	814	27.0	27800	41478	1.49
Uttar Pradesh	CAU, Jhansi	KLB-345	15	544	390	39.5	14935	25030	1.68
Manipur	CAU, Imphal	IPL 220	10	962	774	24.3	40550	76950	1.90
Overall Total/Mean			190	1101	819	34.4	25354	70093	2.76

IP: Improved Practice, FP: Farmers Practice

8.2: Field pea

Highlights

- During rabi season 2024-25, total 60 frontline demonstrations of field pea were allocated to 10 centres in three zones.
- Forty-five demonstrations were conducted on package technology. The average yield was obtained 1611 kg/ha through package technology against 1117 kg/ha by farmers practices with an increase of 44.2%.
- Eighteen demonstrations were conducted on package technology in rice fallow, wherein the average yield was recorded 1068 kg/ha as compare to 840 kg/ha in farmer practices. The percent increase in grain yield was 27.1.
- Under the Tribal Sub Plan (TSP) total of 95 demonstrations were conducted in tribal areas. The average yield with improved practices was recorded 1532 kg/ha against 1116 kg/ha in farmer practices. The yield advantage with improved practices was 38%.

8.2.1 Salient Results

Total 60 front-line demonstrations were allotted to 10 centres of AICRP in different zones. All the centres organised total 63 demonstrations out of which 45 were on full package technology, and 18 FLDs under rice fallow conditions. The numbers of demonstrations allotted and conducted by different centres are given in Table 8.2 a. The results of front-line demonstrations organized on different aspects are discussed below.

Table 8.2 a: Zone and centre-wise field pea FLDs allotted and conducted during rabi 2024-25

S. No.	AICRP Centres	Component	FLDs	
			Allotted (ha.)	Conducted (ha.)
NEPZ (20 ha.)				
1	Shillongani	RF	5*	10*
2	BAU, Ranchi	RF	5*	3*
3	ICAR-IIPR, Kanpur	FP	10	10
Total FLDs in NEPZ			20	23
CZ (25 ha.)				
4	ICAR-IIPR, RRS, Bhopal	FP	5	5
5	JNKVV, Jabalpur	FP	5	5
6	IGKVV, Raipur	FP+RF	10 (5+ 5*)	10 (5+ 5*)
7	RLBCAU, Jhansi	FP	5	5
Total FLDs in CZ			25	25
NWPZ (15 ha.)				
8	PRS, Samba	FP	5	5
9	Pantnagar	FP	5	5
10	ACAES, Amity University, Noida	FP	5	5
Total FLDs in NWPZ			15	15
TOTAL		FP+RF	60 (45+15*)	63 (45+18*)

FP: Full Package, RF: Rice Fallow, * Rice Fallow

8.2.1.1 Demonstrations on package technology

During *rabi* season 2024-25 a total of 45 frontline demonstrations of field pea were organised by 8 centres in 5 different states on package technology. An overall average yield of 1611 kg/ha was obtained by adopting package technology, while in the farmer practice, the yield was 1117 kg/ha. The yield advantage by using package technology was 44.2% (Table 8.2 b). In Chhattisgarh, IGKVV Raipur, organised 5 demonstrations with a variety IPFD 9-2 in which the average yield with package technology was 905 kg/ha, which was 25% higher than the farmers practice (724 kg/ha). In Jammu & Kashmir, PRS Samba centre conducted 5 demonstrations on package technology with IPFD 9-2 variety. The mean yield with improved practices was 1224 kg/ha and 788 kg/ha with the farmers practices where package technology was not adopted. The percent grain yield increase was 55.3% when improved practices were adopted. In Madhya Pradesh, 10 demonstrations were laid out by two centres i.e. IIPR RRS Bhopal, and JNKVV Jabalpur. The average yield of state demonstration with improved technologies was 1695 kg/ha, which was 37.6% higher than the yield of farmers practices (1227 kg/ha). IIPR RRS Bhopal conducted 5 demonstrations of variety IPFD 12-2 with full package technology. An average yield of 1382 kg/ha was found in the demonstration plot against 1100 kg/ha in farmers plot with 25.6% yield advantage. JNKVV Jabalpur conducted 5 demonstrations of variety IPFD 12-02. The average yield with improved technologies was 2008 kg/ha, which was 74.2% higher than the yield of the farmers practices (1153 kg/ha).

In Uttarakhand, GBPUAT, Pantnagar, conducted 5 FLDs on package technology with PP 501 variety. The mean yield recorded was 1484 kg/ha, which was 21.4% higher than the yield under the farmers practice (1222 kg/ha). In Uttar Pradesh, total 20 demonstrations were conducted using the full package of technologies by three centres i.e. IIPR Kanpur, ACAES AMITY Noida, and RLBCAU Jhansi. The average yield of the state demonstration was 1868 kg/ha and 1252 kg/ha in the case of farmers practice. The percent increase in grain yield with improved practices was 49.2%. IIPR Kanpur, laid out 10 demonstrations with improved variety IPFD 12-02. The improved practices gave a mean yield of 2020 kg/ha, which was 47% higher than farmers practice (1374 kg/ha). ACAES AMITY Noida, laid out 5 demonstrations with improved varieties IPFD 12-02 and VL 42. The improved practices gave a mean yield of 1847 kg/ha, which was 54.3% higher than farmers practice (1197 kg/ha). RLBCAU Jhansi organized 5 demonstrations with IPFD 10-12 variety on the full package technology. The yield increment was 49.8% with improved practices (1586 kg/ha) over the farmers practice (1064 kg/ha).

8.2.1.2 Package technology in rice fallows

Eighteen FLDs were conducted in rice fallow in two states of NEPZ (Assam, and Jharkhand) and in one state of CZ (Chhattisgarh) during the *rabi* 2024-25 to demonstrate the production potential of package technology in rice fallow conditions. An overall average yield of 1068 kg/ha was achieved with improved practices as compared to 840 kg/ha obtained in plots where farmer practices were adopted. Thus, a yield increment of 27.1% was found by applying improved practices (Table 8.2 c). In Assam, RARS, Shillongani conducted 10 demonstrations with improved variety HFP 715 and the full package under rice fallow conditions. The average yield obtained was 1109 kg/ha in demonstration plots and 870 kg/ha through the farmers practices. There was an increase of 27.5% in yield. In Jharkhand, 3 demonstrations were conducted by BAU Ranchi, with improved variety DFT 1. The average yield achieved through full package in rice fallow was 1361 kg/ha and 1076 kg/ha in the case of farmers practices. Thus, an increase of 26.5% was found. In Chhattisgarh, IGKVV Raipur, conducted 5 demonstrations with improved varieties IPFD 9-02 and Indira Matar 1 with full

package under rice fallow conditions. The average yield obtained was 811 kg/ha in demonstration plots and 639 kg/ha through the farmers practices. There was an increase of 26.9% in yield.

Table 8.2 b: Frontline demonstrations with full package technology in field pea during rabi 2024-25

States	Centres	Variety	FLD (ha.)	Grain yield (kg/ha) IP	Grain yield (kg/ha) FP	% Increase	Cost of Cultivation (Rs)	Gross Returns (Rs)	C:B Ratio
Chhatisgadh	Raipur	IPFD 9-2	5	905	724	25.0	17500	54315	3.10
Jammu & Kashmir	Samba	IPFD 9-2	5	1224	788	55.3	39000	73448	1.88
Madhya Pradesh	IIPR RRS Bhopal	IPFD 12-02	5	1382	1100	25.6	30800	62190	2.01
	JNKVV, Jabalpur	IPFD 12-02	5	2008	1153	74.2	42500	122500	2.88
State total/ Mean			10	1695	1227	37.6	36650	92345	2.51
Uttarakhand	Pantnagar	PP 501	5	1484	1222	21.4			
Uttar Pradesh	IIPR Kanpur	IPFD 12-02	10	2020	1374	47.0	18904	70691	3.74
	ACAES, AMITY, Noida	IPFD 12-02/ VL 42	5	1847	1197	54.3	27500	101613	3.70
	RLBCAU, Jhansi	IPFD 10-12	5*	1586*	1064*	49.8*	25743*	67657*	2.63*
State total/ Mean			20	1868	1252	49.2	24049	79987	3.32
Total/mean			45	1611	1117	44.2	27872	79378	2.84

IP = Improved package of practices; FP = Farmers' practice; *= Data not considered due to below state average

Table 8.2 c: Frontline demonstrations under rice fallow situation in field pea during rabi 2024-25

States	Centres	Variety	FLD (ha.)	Grain yield (kg/ha) IP	Grain yield (kg/ha) FP	% Increase	Cost of Cultivation (Rs)	Gross Returns (Rs)	C:B Ratio
Assam	Shillongani	HFP 715	10	1109	870	27.5	32338	66516	2.06
Jharkhand	BAU Ranchi	DFT 1	3	1361	1076	26.5	26072	68039	2.61
Chhattisgarh	IGKV Raipur	IPFD 9-02/ Indira Matar 1	5	811	639	26.9	17500	48669	2.78
Total/mean			18	1068	840	27.1	27172	61812	2.30

IP = Improved package of practice; FP = Farmers' practice

8.2.2 Demonstrations under TSP

During rabi 2024-25, a total of 95 demonstrations were organised by 11 centres of 9 states in districts where a substantial tribal population available (Table 8.2 a). The mean yield achieved in demonstration plots with improved package of practice was 1532 kg/ha, which was 38% higher than the local practices (1116 kg/ha) (Table 8.2 b). In Assam, RARS, Shillongani conducted 5 demonstrations with improved variety SPC 101 on full package and practices. The average yield obtained was 998 kg/ha in demonstration plots and 860 kg/ha through the farmers practices. There

was an increase of 16% in yield. In Chhattisgarh, 20 demonstrations were laid out by two centres i.e. ARS Jagdalpur, and IGKV Raipur. The average yield of state demonstration with improved technologies was 1069 kg/ha which was 78.7% higher than the yield of farmers practices (598 kg/ha). ARS, Jagdalpur conducted 10 demonstrations with a variety IPFD 2014-2 and the average yield with full package was 1397 kg/ha, which was 126.8 % higher than the local practices (616 kg/ha). IGKVV, Raipur, conducted 10 demonstrations with the variety Indira Matar 1 for the tribal people with full package of practices. Mean yield in the demonstration plot was 740 kg/ha as against 580 kg/ha obtained by following local practice. Thus, an increase of 27.6% was found with the adoption of full package technology. In Jammu & Kashmir, Srinagar, organised 10 FLDs with improved variety Shalimar Matar 1 on improved technologies. The average yield with improved technologies was 1179 kg/ha, which was 35.8% higher than the yield of the farmers practices (868 kg/ha). In Jharkhand, BAU, Ranchi, conducted 8 FLDs with field pea varieties DFP1 and Aman. The average yield with improved technologies was 1326 kg/ha, which was 43.5% higher than the yield of farmers' practices (964 kg/ha). In Madhya Pradesh, 20 demonstrations were laid out by two centres i.e. ICAR-IIPR, RRS Bhopal, and JNKVV Jabalpur. The average yield of state demonstration with improved technologies was 1951 kg/ha, which was 53.5% higher than the yield of farmers practices (1271 kg/ha). ICAR-IIPR, RRS Bhopal conducted 10 demonstrations of varieties IPFD 12-2 and IPFD 10-12 with full package technology. An average yield of 1538 kg/ha was found in the demonstration plot against 1263 kg/ha in farmers plot with 21.8% yield advantage. JNKVV Jabalpur conducted 10 demonstrations of the variety IPFD 12-02. The average yield with improved technologies was 2363 kg/ha which was 84.8% higher than the yield of farmers' practices (1279 kg/ha). In Rajasthan, AU, Kota conducted 10 demonstrations of variety IPFD 12-02 with improved technologies. The average yield obtained with improved technologies was 2637 kg/ha, while 2250 kg/ha yield was recorded with local practices. The increase in yield was 17.2% with improved practice. In Tripura, ICAR-RC NEH Region, Lembucherra, laid out 6 demonstrations of variety TRCP-9 on improved package of practice. The average yield recorded was 2066 kg/ha in demonstration plots with an increment of 25.9% over farmers practice (1641 kg/ha). In Manipur, CAU, Imphal, organised 11 FLDs with improved variety HFP 1428 on improved package of practice. The average yield with improved technologies was 1044 kg/ha, which was 20.4% higher than the yield of farmers' practices (867 kg/ha). In Uttarakhand, GBPUAT, Pantnagar, conducted 5 FLDs on package technology with Pant Pea 501 variety. The mean yield recorded was 1504 kg/ha., which was 23.9% higher than the yield under farmers practice (1214 kg/ha).

Table 8.2 a: Field pea demonstrations planned and conducted under TSP during rabi 2024-25

S. No.	Centres	No. of FLD's	
		Allotted	Conducted
North Western Plain Zone			
1.	Pantnagar	5	5
Total FLD under TSP		5	5
NHZ			
2.	Srinagar	20	10
3.	ICAR RC NEH Region, Lembucherra	10	6
4.	CAU, Imphal	10	11
Total FLD under TSP		40	27

NEPZ			
5.	RARS, Shillongani	5	5
6.	BAU, Ranchi	10	8
Total FLD under TSP		15	13
CZ			
7.	IGKV, Raipur	10	10
8.	SGCOARS, IGKV, Jagdalpur (Bastar)	10	10
9.	JNKVV, Jabalpur	10	10
10.	ICAR-IIPR RS Bhopal	10	10
11.	AU, Kota	10	10
Total FLD under TSP		50	50
G.TOTAL		110	95

Table 8.2 b: State and variety wise field pea demonstrations with Full Package Technology/ under Rice Fallow planned and conducted under Tribal Sub-Plan during rabi 2024-25

States	Centres	Variety	No. of FLD's	Grain yield (kg/ha)		% Increase	Returns (Rs)		C:B Ratio
				IP	FP		Cost of Cultivation	Gross Returns	
Assam	Shillongai	SPC 101	5	998	860	16.0	25500	59880	2.35
Chhattisgarh	ARS, Jagdalpur	IPFD 2014-2	10	1397	616	126.8	22000	69850	3.18
	IGKV, Raipur	Indira Matar 1	10	740	580	27.6	17500	44426	2.54
State Total/Mean			20	1069	598	78.7	19750	57138	2.89
Jammu & Kashmir	Srinagar	Shalimar Matar 1	10	1179	868	35.8	42700	117875	2.76
Jharkhand	BAU, Ranchi	DFP 1/ Aman	8	1326	964	43.5	30124	59691	1.98
Madhya Pradesh	IIPR RS, Bhopal	IPFD 12-02/ IPFD10-12	10	1538	1263	21.8	36250	84563	2.33
	JNKVV, Jabalpur	IPFD 12-02	10	2363	1279	84.8	52500	77979	1.49
State Total/Mean			20	1951	1271	53.5	44375	81271	1.83
Rajasthan	AU, Kota	IPFD 12-02	10	2637	2250	17.2	35800	105472	2.95
Tripura	Lembucherra	TRCP-9	6	2066	1641	25.9	29117	53133	1.82
Manipur	CAU, Imphal	HFP 1428	11	1044	867	20.4	45685	83556	1.83
Uttarakhand	GBPUAT, Pantnagar	Pant Pea 501	5	1504	1214	23.9	31700	51020	1.61
Overall Total/Mean			95	1532	1116	38.0	34439	76543	2.22

IP: Improved Practice, FP: Farmers Practice

MONITORING REPORTS

The summary of monitoring report of team alongwith date of visit is given below:

S. N.	Scientist	Location and Date of visit	Remarks
1.	Team (A) Dr. S. S. Dodake (Rahuri) Dr. Archana W. Thorat (Akola) Dr. P.S. Kadam (Akola)	Durgapura (01.03.2025)	Overall condition of all breeding trials was good. In IVT (Late sown) trial entry C-24232 was mixture. In the trial AVT (MH) entries C-24563 and C-24567 showed lodging. In lentil trial AVT-1(Small seeded) entry L-24286 was poor germination.
		Jodhpur (03.03.2025)	Lentil AVT (Small seeded) breeding trials was good. The Best Entries ; - L-24287, L-24289 & L-24286.
		Hisar (05.03.2025)	Chickpea 350 germplasm were maintained. In Chickpea trial IVT(Desi) entries C-24131,C-24101,C-24152,C-24138 & C-24134 and IVT(MH) trial entries C-24514, C-24515, C-24518 & C-24550 were observed wilt susceptible genotype. In IVT (Rainfed) trial entries C-24307,C-24312,C-24315, C-24328&C-24348 were observed wilt susceptible genotype. In AVT-1 (LS) trial entries C-24253, C-24257, and C-24255 best performance. Fieldpea 350 germplasm lines were maintained. In AVT-2+1(Tall) two entries F-24954 & F-24963 best performance and two entries F-24954 & F-24963 were late. In IVT (Tall) entries F-24907, F-24912, F-24914 & F-24925 were best performance and entries F-24907, F-24924, F-24925 & F-24921 were late. In IVT (Dwarf) trial F-24907, F-24924, F-24925 & F-24921 better performing entries and entry F-24813 was late. Overall condition fall breeding trials was good.
		New Delhi (05.03.2025)	Lentil 650 germplasm line maintained and pre breeding 6 crosses were evaluated. Crop condition was good.
2.	Team (B) Dr.A. Ramkrishna Rao (Nandyal) Dr.S.Neelima (Nandyal) Dr. Mallikarjun Kenganal (Kalaburgi) Dr. Laxuman, (Kalaburgi)	Srinagar (18.03.2025)	The plant stand were satisfactory in all trials. Germplasm were maintained lentil(51) and Fieldpea (14).
		Samba (21.03.2025)	Chickpea (152) germplasm were maintained. Overall performance of the all trials were very good crop condition.
		Ludhiana (23.03.2025)	Overall performance of the all lentil trials were very good crop condition. The plant stand were satisfactory in all trials. In Fieldpea trial AVT2+1(Tall) entry F-24963 was tendrill type and IVT(Tall) F-24922, F-24912 dwarf type, F-24924 tendrill type and F-24907 bold pods. In IVT(Dwarf) trial entry F-24868 yellow seeds, F-24860, F-24873 bold pods and F- 24872 late tall. Chickpea new collections made during last one year: 1330 germplasm. In chickpea IVT(Desi) trial multiple diseases observed in C-24122, C-24143, C-24104 and C-24117. In IVT (MH) trial multiple diseases observed in C-24541 and two entries segregation C-24514, C-24529. In IVT(LS) entry C-24222 and C-24224 showed segregation/mixture.

3.	Team (C) Dr. Vijay Prakash (Sriganganagar) Dr. Md. Hedayetullah (Kalyani) Dr. Amitava Banerjee (Mohanpur) Dr. Arpita Das (Mohanpur)	Ranchi (18.03.2025)	Chickpea 284 germplasm were maintained. Chickpea IVT (Desi) trial entry C-24140 was poor plant stand and IVT (Late sown) trial two entries C-24214, C-24238 were poor germination. In lentil trial IVT (Small seed) entry L-24263 susceptible to wilt. Overall the trials field conditions were good and trials well maintained.
		Dholi (19.03.2025)	Chickpea 194 germplasm were maintained. Overall the trials field conditions were good and trials well maintained. In lentil IVT (Small Seeded) two entries L-24263 and L-24264 blight incidence was observed. In Fieldpea trial IVT (Dwarf) two entries F- 24869 and F-24870 were poor plant stand.
		Sabour (20.03.2025)	Chickpea 225 germplasm were maintained. Chickpea IVT (Desi) trial entry C-24155 was poor plant stand and entry C-24123 and IVT (MH) trial two entries C-24512, C-24527 was late. In IVT (Late sown) two entries C-24201, C-24216 was poor germination. Lentil 220 germplasm were maintained. Lentil trial IVT (Small Seed) entry L-24272 very late and AVT-1 (Small Seed) entry L-24290 poor was plant stand. Fieldpea trial IVT (Rice Fallow) entry F-24814 was late. Overall the trials field conditions were good and trials well maintained.
4.	Team (E) Dr. Kiran Jadhav (Badnapur) Dr. D.K. Patil (Badnapur) Prof. P.L. Sontakke (Badnapur)	Kalyani(13.02.2025)	Chickpea 450 germplasm were maintained. Overall field conditions were good and trials well maintained. In lentil trial IVT(Rice Fallow) entry L-24204 and IVT (Small Seed) entry L-24274 susceptible to blight.
		Mohanpur (13.02.2025)	Lentil 1200 germplasm were maintained and 685 new collections germplasm last one year. Lathyrus 675 germplasm were maintained and 59new collections germplasm last one year. Lathyrus IVT trial LH-24101 susceptible to Downey mildew and Fusarium wilt. All trials were good crop condition.
		Shillongani (15.02.2025)	Overall the trials were good crop condition but Chickpea IVT(Desi) trial entry C-24140 was mixture and entry C-24155 was very low germination.
5.	Team (F) Dr. S.K. Jain (Durgapura) Dr. S.S. Punia (Durgapura)	Kota (03.02.2025)	In lentil trial IVT (Large Seed) entry L-24108 shows wilt resistance. In Fieldpea IVT (Dwarf) trial entry F-24860 is afila type & has bold pods. Entry F-24856 is afila type and entry F-24851 is pink flowered.Entries F-24861 and F-24872 are tall types. Overall the trials were good crop condition.

6.	Team (G) Dr S.K. Verma (Pantnagar) Dr. K. P. S. Kushwaha (Pantnagar) Dr. Meena Agnihotri (Pantnagar) Dr. Anju Arora (Pantnagar) Dr. S. K. Shukla (Pantnagar)	Indore (05.02.2025)	All trials crop condition were good. Chickpea trial IVT (Desi) entries C- 24122, C-24136, C-24143, C-24144 C-24150 and C-24153 showed phenotypic superiority. Entries C-24121, C-24123 were affected by dry root rot or wilt.
		Sehore (05.02.2025)	Chickpea IVT (Desi) trial entries C-24106, C-24110, C-24115 and C-24150 showed phenotypic superiority. In IVT (MH) trial entries C-24511, C-24517, C-24528 and C-24533 showed phenotypic superiority. In IVT (K+ELSK) trial entries C-24403, C-24409 showed phenotypic superiority and IVT (RF) trial entries C-24309, C-24315, C-24334 and C-24342 showed phenotypic superiority. In Fieldpea trial IVT (Tall) entries F-24903, F- 24913 and F-24914 showed phenotypic superiority and IVT (Dwarf) trial F-24855, F-24862, F- 24866, F-24867, F-24874 showed phenotypic superiority. In Lentil trial IVT(Large Seed) entry L-24111 and L-24115 showed phenotypic superiority. All trials crop condition were good.
		Sagar (06.02.2025)	Fieldpea IVT(Dwarf) trial entries F-24855, F-24856, F-24867, F-24 862, F-24866, F-24867, F-24869, F-24872, F-24874 were phenotypically good. In IVT (Tall) trial entries F-24903, F-24905, F-24906, F-24907, F-24913, F-24914, F-24921, F-24922 were phenotypically good and F-24925 had good podding and no disease pest incidence F-24918 highest number of pods. In Lentil trial IVT (large seed) entries L-24107, L-2415, L-24107, L-24130, L-24120, L-24105 and L-24103 were phenotypically good. All trials crop condition were good.
		Jhansi (07.02.2025)	Chickpea 612 germplasm were maintained. In IVT (Desi) trial entries C-24107, C-24108, C-24110, C-24124, C-24128, C-24146 and C-24152 were phenotypically superior. In IVT (RF) trial entries C-24301, C-24304, C-24305, C-24317, C-24319, C-24327, C-24331 were phenotypically superior and IVT (K+ELSK) trial C-24401, C-24402, C-24403, C-24404, C-24415 and C-24421 were phenotypically superior. In AVT (K+ELSK) trial entries C-24443, C-24447 and C-24450 were phenotypically superior. All trials crop condition were good.
		Banda (08.02.2025)	IVT (Desi) trial was good. Entries C-24107, C-24110, C-24124, C-24128, C-24146 and C-24152 were phenotypically superior. Chickpea 102 germplasm were maintained. Fieldpea 48 germplasm were maintained. In IVT(Tall) trial entries F-24914, F-24913 and F-24903 were phenotypically superior and F-24903 was early. In IVT (Dwarf) trial entries F-24862, F-24866, F-24867, F-24874 showed phenotypic superiority. Lentil 52 germplasm were maintained. In AVT 2+1 (Large seed) trial entry L-24156 was phenotypically superior and IVT (Large seed) entry L-24111 and L-24115 showed phenotypic superiority.

7.	Team (I) Dr. Inderjit Singh (Ludhiana) Dr. Upasana Rani(Ludhiana) Prof. Brij Nandan (Samba) Dr. Shayla Bindra (Ludhiana)	Raipur (01.02.2025)	Germplasm were maintained Chickpea:230, Lentil: 205, Fieldpea: 191 and Lathyrus: 1964. In Chickpea AVT 2+1(Desi) and IVT(MH) trial was good crop condition. In IVT(Desi) trial Plant stand was an issue in the trial due to the incidence of wilt & collar rot and IVT (late sown) trial plant stand was an issue in the trial due to the incidence of wilt and collar rot. Overall the trials were good crop condition.
		Jagdarpur (02.02.2025)	All the trials were good crop condition.
		Kanker (03.02.2025)	Chickpea trial AVT-1 over all 65% PS of trial. In IVT(Desi) trial Over all 45% PS of trial due to water logging with only 2 replications (6 rows/entry) trial may be rejected and IVT (late sown) trial Overall 75% PS of the trial with only 2 replications.Lentil trial AVT-1 was good and IVT overall 60% PS.All trial were average/good crop condition.
		Jabalpur (04.02.2025)	Germplasm were maintained Chickpea:1152, Lentil: 205, Fieldpea: 191 and Lathyrus: 1964. Chickpea trial IVT (Desi) and IVT(MH) Plant stand was an issue in the trial due to the incidence of collar rot. Overall the trials were average crop condition.
8.	Team (J) Dr. D.R. Saxena (Sehore) Dr. Shiva Nath (Ayodhya) Dr. Pankaj Kumar (Ayodhya) Dr. Subhash Chandra (Ayodhya)	Coimbatore (20.01.2025)	In plant breeding all the allotted four experiments were conducted. Good plant stand was observed in all the experiments, except one entry C-24128 was poorly germinated in IVT (RF). In AVT (Desi) entry C-24174 was early. Good promising entries against DRR were observed in elite trial. Entries coded as P-24902, P-24905, P-24909, P-24910, P-24927, P-24928 and P-24114 were promising. Good sickness of DRR was seen in susceptible check L 550. This center can be a hot spot of DRR screening, advised to maintain proper DRR sickness by adding the inoculum.
		Lam (22.01.2025)	This center has conducted one Advance Varietal Trial on desi chickpea. The experiment was sown on 28.10.2024 under rainfed conditions in four replications. Entries C-24364 and C-24365 were early and C-24361 was tall. In C-24362 and C-24364 entries wilt incidence was noticed.

	<p>Nandyal (23.01.2025)</p>	<p>In AVT 1 Desi, sown on 25.10.24, five entries were evaluated; except entry C-24173 all the other entries were tall, C-24172 was promising and entries C-24173 and C-24175 were late flowering. In AVT 2+1 (Rainfed) C-24363 was good and tall, poor plant stand was noted in C-24364. In AVT 2+1 (K+ELSK), out of four entries C-24441, C-24446 and C-24462 were good and C-24451 and C-24455 were late flowering. In IVT desi many good tall entries were observed, however, some were late, which include C-24150, C-24104, C-24124, C-24111, C-24120, C-24108, C-24107 and C-24129. In IVT (Rainfed) 45 entries were tested, out of these C-24351, C-24330, C-24324, C-24315, C-24325, C-24302 and C-24326 were promising. In IVT (K+ELSK) entries C-24415, C-24418 and C-24426 were late flowering, whereas, C-24401, C-24402, C-24403, C-24405 and C-24422 were good. In IVT (MH) C-24518 was good, and C-24508, C-24512, C-24519, C-24526 and C-24529 were late flowering. In biofortification nursery, poor plant stand was found in C-24583, while C-24596 was good performing. RARS Nandyal has maintained 942 germplasm lines and evaluated 174 kabuli lines and taken up national, as well as, institute crossing programme; attempted 8 and 2 crosses, respectively.</p>
	<p>Kalaburagi (24.01.2025)</p>	<p>In AVT E+ELSK phenotypic superiority was observed in C- 24441, C-24446, C-24457 and C-24460 over other 10 entries. In AVT 1 desi slight wilt incidence was found in C-24172, C-24173. C-24175 was superior. In AVT2 +1 (RF) C-24361, C-24363 and C- 24365 were better.</p> <p>In IVT desi, mixture was noted in C-24120, C-24139 and C-24125, wilting was observed in C-24153, C-24104, C-24144, C-24135 and C-24134. The entries C-24142, C 24152, C 24121, C 24131 and C 24128 were good. In IVT (RF) mixture was found in C-24304, C-24305, C-24313, C-24315, C-24328 and C-24343. Wilting was there in C-24307 and C-24348. C-24346 was late flowering. Other entries were good. In IVT MH mixture was observed in C-24505 and C-24517. Entry C-24512 was late flowering. Good wilt incidence was observed in wilt sick plot. In evaluation of IVT and AVT entries against wilt, considerable level of resistance/tolerance was found in some entries. In elite plant pathological nursery (EPPSN) promising entries were P-24909, P-24915, P-24939, P-24942, P-24944 and P-24952 at the time of visit.</p>

		Vijayapur (25.01.2025)	In IVT (RF) segregation was seen in C-24337 and C-24305 was late. In AVT 2+1 (RF) C-24362 was early and C-24364 was promising. In AVT (MH) C-24501 was not having suitable height for MH, C-24171 and C-24172 were promising. In IVT (MH) C-24501 was suitable for MH, segregation was observed in C-24337. In IVT (K+ELSK) C-24420 was not germinated, poor germination was found in 8 entries. In AVT 2+1 (K+ELSK) poor plant stand was observed in C-24449, C-24455, C-24452 and C-24455 was late flowering. Poor germination was observed in P-24187, P-24224, P-24227, P-24228, P-24401, P-24402 and P-24437. Seed treatment with Thiophanate Methyl 45% + Pyraclostrobin 5% FS 2ml/kg was promising in managing DRR.
9.	PC Unit Dr. Shailesh Tripathi Dr. Ashok K. Parihar	Hisar (26.03.2025)	Overall the trials were good except IVT Desi(Rainfed) in which plant population was very poor and wilt incidence was also observed hence rejected. Few entries in IVT (Late sown) showed segregation C-24211, C-24224 and C-24232. The Inoculum load in wilt sick plot was very less hence almost no wilt incidence was seen on the AICRP entries. Other rabi pulses trials were nicely conducted . In fieldpea AVT2+1 trial (Tall) entry F-24974 showed segregation. In IVT (Tall) two entries were dwarf type F-24912 and F-24922.
		Ludhiana (27.03.2025)	All trials were nicely conducted as per plan. The AB and BGM screening was good. In fieldpea IVT (Tall) two entries were dwarf type F-24912 and F-24922.

Annexure 1

A. Details of locations of Frontline demonstrations of Lentil conducted during Rabi 2024-25

State	Center	District, Taluka/ Tehseel/ Block	Villages/ Locations	Latitude (ref.)	Longitude (ref.)
Manipur	CAU, Imphal	Thoubal	Lamding Cherapur, Yairipok, Charangpat		
		Kakching	Kakching Khunou		
		Imphal East	Khewa Phurju, Yaripok Changamdabi Makha Leikai, MoirangPurel		
Uttarakhand	GBPUA&T, Pantnagar				
West Bengal	BCKV, Mohanpur	Purulia	Jajlang, Brindabanpur, Jiling, Sareng, Bhitpani, Talakdhar, Bhitpani, Kudna	23.092100 to 23.458145	85.951529 to 86.134330
Bihar	TCA, Dholi	West Champaran	Lal Saraiya, Bakharia, Senuriya, Nawka Tola Bakhariya, Jhargarna, Ratan Mala,		
Jharkhand	BAU, Ranchi	Ranchi	Gagiya, Kochbong, Chatakpur, Kuttetoli, Ithe, Hardag		
Uttar Pradesh	ICAR-IIPR, Kanpur	Jalaun	Sarsela, Bairai		
		Hamirpur	Kushmara, Kanauta Danda, Kushmara, Gimuha Danda,		
	ANDUAT, Ayodhya	Amethi	Alinagar		
		Ayodhya	Hardoiya, Purekarbar, Charera, Devra Rautawan		
	RLBCAU, Jhansi	Jhansi	Bhadarvara, Dhaypura, Aari	25.229908° to 25.549158°	78.606692° to 79.253396°
ACAES- AMITY, Noida	GB Nagar	Dhansiya, Khandera Kalonda	28.162479	77.65526	
Madhya Pradesh	ICAR- IIPR, RRS, Bhopal	Sehore	Dhaboti, Bamuliya, Raipur Nyakheda		
		Bhopal	Bhaisonda		
		Raisen	Bamhori Bardha		
	JNKVV, Jabalpur	Jabalpur	Badkhera, Bandhi, Maijgnwa, Rithori, Panagar, Rithori, Lakhnwara, Dharhar		
	RVSKVV, Sehore	Sehore	Dhabori, Jamuniya, Sevaniya, Naplahedi, Mahodiya, Bijori, Shahpur, Sehore, Mungawali		
	JNKVV, Sagar	Sagar	Ghureta, ChaukaPathari, Badona, Berkhedi, Semra Charkhara, Mahua Kheda Kala, Rajahua, Madh Pipariya		

Rajasthan	ARS, Kota (AAU)	Bundi	Fathegarh, Goradhapura, Fathegarh, Falaida, Gokulpura, Falaida		
		Kota	Mandana, Shakarda, Aktasa, Dhakadkhedi, Sangod		
	RARI, Durgapura	Bharatpur	Chaukipura		
Chhatisgadh	Raipur	Raipur	Chataud, Birejhar, Darba, Birejhar	20.971861 to 21.342821	81.714415 To 81.802799

B. Rice Fallow (Lentil)

State	Centre	District	Village	Lat (°N)	Long (°E)
Assam	Shillongani	Morigaon	Dandua, Patuakata, Tarajan, Barma, Borbheti	26.31° N to 26.40° N	92.41° E to 92.79° E
Bihar	RP CAU, Dholi	Darbhanga	Datth, Talibpur, Jagarnathpur, Koyalajan, Nunukala		
		Samastipur	Manda Bhibhutipur, Khanpur, Damodarpur, Surauli, Shivanagar, Bargamma, Somnaha, Bakhtiyapur, Dhogamma, Kusiari		
		Jamuai	Gopal Maran, Kenuhar, Nagway, Mohanpur, Sahaiya, Dauha, Khuranda, Lilavaran, Simultala, Kehar, Jhajha, Jamuai, Bangawaon, Kanaudi		
		Lakhisarai	Barare		
		Vaishali	Belsar		
		Muzaffarpur	Rasulpur Maniyari, Titra		
Jharkhand	Ranchi	Lohardaga	Gagiya		
		Ranchi	Tarhatand, Tatkundo, Senjusereng, Devgain, Chene Madhuwati, Garu		
West Bengal	BCKV, Mohanpur	Purulia	Jhalda II, Baghmundi		
Chhatisgadh	Raipur	Raipur	Chataud,	21.341208 to 21.343247	81.805640 to 81.806692
Uttar Pradesh	Biozone, Gorakhpur	Deoria	Ratanpura, Baraipur, Harpur, Madirapali, Lala Rampur		

C. Details of locations of Frontline demonstrations of Field pea conducted during rabi 2024-25

State	Center	District, Taluka/ Tehseel/ Block	Villages/ Locations	Latitude (ref.)	Longitude (ref.)
Jammu & Kashmir	Samba	Samba	Nantar, Nai Kali, Mananu, AmlikainkRehian, Rehian, Rajouri, Reasi, Udampur	32.57°N to 33.37°N	74.31°E to 75.12°E
Uttarakhand	GBPUA&T, Pantnagar	Nainital	BajuniahalduKaladungi		
Uttar Pradesh	ICAR-IIPR, Kanpur	Hamirpur	Kushmara, Kanauta, Danda	25.957906 to 26.966659	80.059504 to 80.076609
		Kanpur Dehat	Silehra,Kandhi, Silehra	26.338497 to 26.3482	79.076504 to 79.739348
		Jalaun	Bairai	26.136682	79.65595
	RLBCAU, Jhansi	Jhansi	Aari	25.2632473° to 25.530737°	79.1576303° to 79.315078°
	ACAES- AMITY, Noida	GB Nagar	BulandkhedaTalda Bilaspur, Kalonda Dhujana	28.386996 to 28.548916	77.619733 to 77.677413°
Madhya Pradesh	ICAR- IIPR, RRS, Bhopal	Raisen	Amapani Kalan, Bardha Bambori		
	JNKVV, Jabalpur	Jabalpur	Badkhera		
Chhatisgadh	Raipur	Narayanpur	Narmadapara	23.132651 to	83.04971 to
		Surguja	Fatehpur	23.193136	83.273616

D. Rice Fallow (Fieldpea)

State	Centre	District	Village	Lat (°N)	Long (°E)
Assam	Shillongani	Morigaon	Borsokabaha, Tarajan, Kolmobar, Tarajan	26.25° N to 26.31° N	92.34° E to 92.42° E
Jharkhand	BAU, Ranchi	Ranchi	Chutio, Chanho		
Chhatisgadh	Raipur	Surguja	Fatehpur, Bagdongri	23.129630 to 19.671628	81.261031 to 83.046371

E. Details of locations of TSP- Frontline demonstrations of Lentil conducted during rabi 2024-25

State	Centre	District	Village	Lat (°N)	Long (°E)
Bihar	TCA, Dholi	Pashchim Champaran	Gobarahiya Don, Bankata Don, Don, Lakshmipur Don. Gadi, Chulahiya Chek, Bhigdahawa		
Jharkhand	BAU, Ranchi	Gumla	Bharno		
		Ranchi	Mandar, Nagri, Kudlong		
Madhya Pradesh	ICAR, IIPR-RS, Bhopal	Sehore	Imlikheda, Anvlikheda, Khari, Lasudiya Parihar		
	JNKVV, Sagar	Sagar	Bhaeriya Gond, Hiranpur (Padrai)	24.022671	78.490644
	JNKVV, Jabalpur	Dindori	Suniyamar, Shivri, Sunpuri	22°50'21.6'' to 22°51'20.6''	081°14'05.9'' to 081°18'51.9''
Uttar Pradesh	RLBCAU, Jhansi	Lalitpur	Rajawan, Jakhlaun, Khiriamishra, Jiron	24.5500 N to 24.635508 N	78.3145 E to 78.369429 E
Rajasthan	ARS, Kota	Baran	Gordhanpur, Bhawarghad, Gudhamal, Kelwada		
Chhatisgarh	IGKVV, Raipur	Dhamtari	Guhannala	20.443192 to 20.455801	81.861734 to 81.889216
	SGCOARS, Jagdalpur	Bastar	Chhapar Bhanpuri, Belar, Tahakapal		
Manipur	CAU, Imphal	Kangpokpi	Nungkot, Konsa Khul village, Mapao Zingsho, Momsothang Koireng, Utonglok		
Uttarakhand	GBPUAT, Pantnagar		Kotabagh		
Assam	AAU, Shillongani	Nagaon	Karchung Satra, Raidongia Phulaguri, GoroimariPathar, Karchung Satra, Raidongia, Borigaon	25.940 N to 26.38° N	92039/03/ E to 93.01° E
		Hojai	No. 2 Kaki Narayanpur		
		Morigaon	Lochanabori		

F. Details of locations of TSP- Frontline demonstrations of field pea conducted during *rabi* 2024-25

State	Centre	District	Village	Lat (°N)	Long (°E)
Assam	AAU, Shillongani	Nagaon	Raidongia Phulaguri, Aibheti Satra, Baselimaripathar	26.38° N	92.59° E
Jharkhand	BAU, Ranchi	Ranchi	Loyo		
Madhya Pradesh	ICAR, IIPR-RS, Bhopal	Sehore	Kalakhedi, Imlikheda, Anvlikheda, Amammay, Hingoni		
	JNKVV, Jabalpur	Panna	Palthara	24.818588 to 24.818588	80.311873 to 80.321873
Rajasthan	ARS, Kota		Bhawarghad, Gordhanpur, Bhawarghad, Kelwada		
Chhattisgarh	IGKVV, Raipur	Narayanpur	Bagdongri	74.74555°	74.74555°
		Surguja	Belgaon, Kokodi		
	SGCOARS, Jagdalpur	Bastar	Belar, Tahakapal, Chhapar Bhanpuri		
Jammu & Kashmir	SKUAST, Srinagar	Anantnag	Khiram	33.66728° to 33.89975°	74.78289° to 74.74555°
		Budgam	Naagbal, Rakhai		
		Verinag	(Kapran) Qamar		
Manipur	CAU, Imphal	Kangpokpi	Nungkot, Konsa Khul village, Utonglok		
Tripura	ICAR-RC, Lembucherra	Tripura	Kalashi, Daspara, Jolaibari, Kalashi		
Uttarakhand	GBPUAT, Pantnagar		Kotabagh		

Weather Data (2024-25)

Jabalpur

Month	Standard week	Temp (°C)			RH (%)	Total rainfall (mm)	No. of rainy days	Pan evaporation (mm)	Sunshine hours
		Max.	Min	Mean					
November	46	29.5	12.3	20.9	62.3	0.0	0	2.3	7.0
	47	27.1	9.5	18.3	62.9	0.0	0	1.9	5.5
	48	25.9	7.9	16.9	64.4	0.0	0	1.9	5.8
December	49	28.0	11.7	19.9	64.1	0.0	0	2.1	6.8
	50	23.7	3.4	13.6	53.6	0.0	0	2.0	8.1
	51	25.2	6.1	15.6	63.9	0.0	0	1.7	6.2
	52	25.4	13.3	19.3	80.9	66.9	2	1.7	3.5
Jan. 2025	1	22.9	7.5	15.2	68.1	0.0	0	1.6	7.1
	2	22.4	6.8	14.6	67.0	0.0	0	1.5	6.2
	3	23.9	7.7	15.8	68.0	0.0	0	1.7	6.6
	4	25.8	8.4	17.1	62.2	0.0	0	2.0	8.7
	5	27.7	10.1	18.9	63.0	0.0	0	2.5	9.8
February	6	27.4	10.3	18.8	61.8	0.0	0	2.8	8.8
	7	29.8	10.2	20.0	61.7	0.0	0	2.9	9.8
	8	29.3	11.5	20.4	59.6	0.0	0	3.4	9.4
	9	31.2	13.4	22.3	57.9	0.0	0	3.6	8.2
March	10	31.0	9.4	20.2	43.7	0.0	0	4.6	9.5
	11	36.3	16.8	26.5	49.1	0.0	0	4.6	8.9
	12	33.7	14.7	24.2	55.6	1.0	0	4.4	7.6
	13	35.8	13.7	24.7	45.1	0.0	0	5.0	9.2
April	14	35.8	17.9	26.8	44.7	0.0	0	4.5	5.9
	15	38.4	20.5	29.5	42.4	0.0	0	6.6	8.6
	16	39.7	21.4	30.5	40.6	0.0	0	7.0	10.3
	17	39.9	19.4	29.6	40.0	7.2	1	6.3	7.6

Kanker

Wk No.	Date	Max. Temp. (°C)	Min. Temp (°C)	Rainfall (mm)	Rainy days	Relative Humidity (%)		Vapour Pressure (mm of Hg)		Wind Velocity (Kmph)	Evapo-ration (mm)	Sun Shine (hrs)
						I	II	I	II			
45	Nov 05-11	31.7	19.4	0.0	0.0	84.9	40.6	15.3	13.4	1.8	3.1	5.9
46	12-18	30.7	15.6	0.0	0.0	86.3	29.4	13.1	9.2	2.4	3.6	7.4
47	19-25	28.4	12.7	0.0	0.0	86.7	29.6	10.4	8.3	2.0	2.8	5.4
48	26-02	26.6	15.0	0.0	0.0	84.9	48.7	11.8	11.6	4.5	2.6	4.3
49	Dec03-9	29.8	19.1	0.0	0.0	82.4	46.1	14.5	14.5	3.4	2.6	3.2
50	10-16	27.7	9.6	0.0	0.0	86.7	27.0	8.1	7.2	2.8	2.9	6.3
51	17-23	27.9	13.5	0.0	0.0	87.9	42.0	11.5	11.6	2.7	2.7	5.1
52	24-31	28.8	17.3	0.0	0.0	86.0	50.7	13.4	14.6	3.4	2.4	3.3
1	Jan 01-07	28.6	9.9	0.0	0.0	87.9	25.0	8.4	7.2	1.8	3.2	7.7
2	08-14	27.8	10.7	0.0	0.0	85.4	32.1	8.8	8.6	2.3	3.1	5.0
3	15-21	28.7	12.2	0.0	0.0	81.3	27.3	9.4	7.8	2.9	3.4	4.1
4	22-28	31.7	13.0	0.0	0.0	85.4	31.3	10.2	10.6	1.8	3.6	6.5
5	29-04	33.1	17.4	0.0	0.0	86.3	36.7	13.3	13.9	2.3	3.4	2.7
6	Feb 05-11	33.0	15.9	0.0	0.0	73.1	25.6	10.6	9.5	2.6	4.4	3.1
7	12-18	32.9	14.8	0.0	0.0	74.7	22.7	10.4	8.3	3.0	4.8	6.9
8	19-25	33.5	17.3	0.0	0.0	74.3	24.9	11.6	9.4	3.1	4.9	8.6
9	26-04	35.2	16.6	0.0	0.0	77.4	23.6	11.9	10.0	3.0	5.8	8.7
10	Mar 05-11	35.3	15.2	0.0	0.0	63.6	15.3	9.6	6.4	3.3	6.2	8.7
11	12-18	39.0	20.3	0.0	0.0	58.6	18.0	11.7	9.4	4.2	7.3	7.4
12	19-25	36.7	22.2	0.0	0.0	70.9	26.6	15.5	11.9	4.0	5.7	6.2
13	26-01	39.5	20.8	0.0	0.0	54.1	12.4	11.6	6.5	2.9	7.4	8.5
TOTAL				0.0	0.0							

Keonjhar

Date	Max. Temp	Min. Temp	R.H.I (%)	R.H.II (%)	Rainfall (mm)	Rainy Days	BSH
01-Oct-24 to 07-Oct-24	32	24	83	59	4	0	3.9
08-Oct-24 to 14-Oct-24	31	23	85	60	0	0	2.5
15-Oct-24 to 21-Oct-24	31	22	90	64	0	0	3.4
22-Oct-24 to 28-Oct-24	26	20	94	80	8	0	1.9
29-Oct-24 to 04-Nov-24	30	20	91	66	0	0	5.0
05-Nov-24 to 11-Nov-24	29	17	83	60	0	0	5.8
12-Nov-24 to 18-Nov-24	28	15	78	57	0	0	4.3
19-Nov-24 to 25-Nov-24	26	13	72	56	0	0	0.7
26-Nov-24 to 02-Dec-24	24	13	81	56	2	0	0.6
03-Dec-24 to 09-Dec-24	27	16	72	50	0	0	0.3
10-Dec-24 to 16-Dec-24	25	10	74	50	0	0	3.9
17-Dec-24 to 23-Dec-24	25	13	80	56	2	0	2.8
24-Dec-24 to 30-Dec-24	25	15	80	56	0	0	2.5
31-Dec-24 to 06-Jan-25	25	10	72	41	0	0	4.2
07-Jan-25 to 13-Jan-25	26	9	68	44	0	0	4.8
14-Jan-25 to 20-Jan-25	25	10	67	38	0	0	5.4
21-Jan-25 to 27-Jan-25	30	12	70	45	0	0	6.9
28-Jan-25 to 03-Feb-25	29	15	81	46	0	0	6.6
04-Feb-25 to 10-Feb-25	31	14	72	46	0	0	8.5
11-Feb-25 to 17-Feb-25	31	14	70	46	0	0	8.2
18-Feb-25 to 24-Feb-25	30	16	85	49	2	0	4.6
25-Feb-25 to 03-Mar-25	32	17	76	48	0	0	6.4
04-Mar-25 to 10-Mar-25	33	14	70	40	0	0	8.6
11-Mar-25 to 17-Mar-25	36	19	69	33	0	0	8.0
18-Mar-25 to 24-Mar-25	33	18	76	43	2	0	4.2
25-Mar-25 to 31-Mar-25	35	19	63	31	0	0	7.8
01-Apr-25 to 07-Apr-25	35	20	72	38	4	0	5.1
08-Apr-25 to 14-Apr-25	35	19	68	41	5	0	7.2
15-Apr-25 to 21-Apr-25	34	21	72	47	4	0	6.6
22-Apr-25 to 28-Apr-25	37	23	70	41	2	0	6.9
29-Apr-25 to 05-May-25	33	19	67	46	9	0	8.2
06-May-25 to 12-May-25	35	24	72	43	0	0	7.1

Raipur

Wk No.	Date	Max. Temp. (°C)	Min. Temp (°C)	Rain-fall (mm)	Rainy days	Relative Humidity (%)		Vapour Pressure (mm of Hg)		Wind Velocity (Kmph)	Evapo-ration (mm)	Sun Shine (hrs)
						I	II	I	II			
45	Nov 05-11	31.7	19.4	0.0	0.0	84.9	40.6	15.3	13.4	1.8	3.1	5.9
46	12-18	30.7	15.6	0.0	0.0	86.3	29.4	13.1	9.2	2.4	3.6	7.4
47	19-25	28.4	12.7	0.0	0.0	86.7	29.6	10.4	8.3	2.0	2.8	5.4
48	26-02	26.6	15.0	0.0	0.0	84.9	48.7	11.8	11.6	4.5	2.6	4.3
49	Dec03-9	29.8	19.1	0.0	0.0	82.4	46.1	14.5	14.5	3.4	2.6	3.2
50	10-16	27.7	9.6	0.0	0.0	86.7	27.0	8.1	7.2	2.8	2.9	6.3
51	17-23	27.9	13.5	0.0	0.0	87.9	42.0	11.5	11.6	2.7	2.7	5.1
52	24-31	28.8	17.3	0.0	0.0	86.0	50.7	13.4	14.6	3.4	2.4	3.3
1	Jan 01-07	28.6	9.9	0.0	0.0	87.9	25.0	8.4	7.2	1.8	3.2	7.7
2	08-14	27.8	10.7	0.0	0.0	85.4	32.1	8.8	8.6	2.3	3.1	5.0
3	15-21	28.7	12.2	0.0	0.0	81.3	27.3	9.4	7.8	2.9	3.4	4.1
4	22-28	31.7	13.0	0.0	0.0	85.4	31.3	10.2	10.6	1.8	3.6	6.5
5	29-04	33.1	17.4	0.0	0.0	86.3	36.7	13.3	13.9	2.3	3.4	2.7
6	Feb 05-11	33.0	15.9	0.0	0.0	73.1	25.6	10.6	9.5	2.6	4.4	3.1
7	12-18	32.9	14.8	0.0	0.0	74.7	22.7	10.4	8.3	3.0	4.8	6.9
8	19-25	33.5	17.3	0.0	0.0	74.3	24.9	11.6	9.4	3.1	4.9	8.6
9	26-04	35.2	16.6	0.0	0.0	77.4	23.6	11.9	10.0	3.0	5.8	8.7
10	Mar 05-11	35.3	15.2	0.0	0.0	63.6	15.3	9.6	6.4	3.3	6.2	8.7
11	12-18	39.0	20.3	0.0	0.0	58.6	18.0	11.7	9.4	4.2	7.3	7.4
12	19-25	36.7	22.2	0.0	0.0	70.9	26.6	15.5	11.9	4.0	5.7	6.2
13	26-01	39.5	20.8	0.0	0.0	54.1	12.4	11.6	6.5	2.9	7.4	8.5
TOTAL				0.0	0.0							

Jagdalpur

Month	Standard week	Temp (°C)			Total rainfall (mm)	No. of rainy days	Pan evaporation (mm)	Sunshine hours
		Max.	Min.	Mean				
October, 2024	1 Oct -7 Oct	32.9	22.1	27.5	0.0	0	4.1	7.0
	8 Oct -14 Oct	32.5	21.3	26.9	1.3	0	4.1	8.9
	15 Oct -21 Oct	32.3	21.0	26.7	21.7	2	4.0	7.6
	22 Oct -28 Oct	30.7	19.5	25.1	0.0	0	3.0	5.1
	29 Oct-4 Nov	31.6	19.4	25.5	9.2	3	2.9	4.4
November	5 Nov -11 Nov	30.8	15.9	23.4	0.0	0	3.3	7.3
	12 Nov -18 Nov	30.5	14.6	22.6	0.0	0	3.5	7.6
	19 Nov -25 Nov	28.1	10.8	19.5	0.0	0	2.7	6.9
	26 Nov-2 Dec	27.6	13.8	20.7	0.0	0	2.5	3.6
December	3 Dec -9 Dec	29.6	19.8	24.7	15.8	3	2.6	3.0
	10 Dec -16 Dec	28.2	9.9	19.1	0.0	0	2.5	7.1
	17 Dec -23 Dec	28.5	12.5	20.5	0.0	0	2.1	5.1
	24 Dec -31 Dec	27.4	16.4	21.9	34.8	2	1.9	5.6
Jan. 2025	1Jan-7Jan	28.4	9.2	18.8	0.0	0	2.7	8.2
	8Jan-14 Jan	27.6	9.6	18.6	0.0	0	3.2	8.1
	15 Jan-21 Jan	28.1	9.0	18.6	0.0	0	3.1	7.2
	22 Jan-28 Jan	31.6	11.3	21.5	0.0	0	3.6	8.7
February	29 Jan-4 Feb	32.0	14.5	23.3	0.0	0	4.0	6.8
	5 Feb - 11 Feb	32.8	13.8	23.3	0.0	0	4.3	8.2
	12 Feb - 18 Feb	33.0	13.3	23.2	0.0	0	4.3	8.3
	19 Feb - 25 Feb	33.0	14.3	23.7	0.0	0	4.6	8.4
March	26 Feb - 4 March	33.9	15.1	24.5	0.0	0	4.9	9.1
	5 Mar - 11 Mar	33.7	11.2	22.5	0.0	0	5.1	9.6
	12 Mar - 18 Mar	36.7	17.4	27.1	0.0	0	6.1	7.5
	19 Mar - 25 Mar	35.5	18.2	26.9	0.6	0	6.4	7.3
April	26 Mar - 1 April	37.6	20.8	29.2	0.0	0	6.2	6.0
	2 April - 8 April	36.4	19.8	28.1	3.8	1	6.4	5.1
	9 April -15 April	36.9	19.9	28.4	18.6	1	6.8	4.3
	16 April -22 April	34.8	21.5	28.2	21.1	2	6.6	6.3
	23 April -29 April	35.8	21.4	28.6	0.3	1	7.0	6.5

Imphal

Month	Stand-ard week	Temp (°C)			RH (%)		Total rainfall (mm)	No. of rainy days	Sun-shine hours
		Max.	Min.	Mean	700h	1300h			
Oct.01-07,2024	40	27.34	21.64	24.49	96.86	81.71	58.20	6	1.90
Oct.08-14,2024	41	28.44	20.07	24.26	94.57	68.00	31.00	4	5.09
Oct.15-21,2024	42	27.69	18.64	23.16	94.71	63.14	21.10	2	4.56
Oct.22-28,2024	43	27.93	19.21	23.57	94.57	66.71	23.80	4	4.54
Oct.29-04 -Nov.2024	44	28.61	17.50	23.06	94.43	60.71	0.00	0	6.74
Nov.05-11 Nov,2024	45	26.39	15.29	20.84	93.71	59.00	0.10	1	6.34
Nov.12-18 Nov,2024	46	27.37	12.90	20.14	94.29	50.86	0.00	0	9.71
Nov19-25 Nov,2024	47	24.74	13.36	19.05	96.43	60.14	51.80	6	7.36
Nov26-02 Dec,2024	48	24.97	12.83	18.90	94.71	53.00	0.00	0	8.74
Dec.03-09 Dec,2024	49	23.46	9.43	16.44	90.00	55.29	0.00	0	7.41
Dec 10-16 Dec,2024	50	22.57	8.14	15.36	92.86	49.43	0.00	0	6.50
Dec17-23 Dec,2024	51	22.87	9.50	16.19	94.14	55.29	0.00	0	5.50
Dec 24-31 Dec,2024	52	24.43	8.50	16.46	93.57	46.29	0.00	0	6.23
Jan01-07,2025	53	23.31	7.93	15.62	93.86	44.14	0.00	0	7.17
Jan08-14,2025	54	22.36	7.71	15.04	91.86	45.57	2.00	1	7.66
Jan15-21,2025	55	24.20	6.93	15.56	90.43	42.43	0.00	0	9.31
Jan 22-28,2025	56	23.60	7.57	15.59	90.14	38.00	0.00	0	7.83
Jan 29-04 Feb,2025	57	22.49	8.71	15.60	90.57	44.86	1.10	2	5.93
Feb 05-11,2025	58	24.61	7.63	16.12	87.71	35.43	0.00	0	8.47
Feb12-18,2025	59	24.44	9.64	17.04	89.43	32.86	10.50	3	8.31
Feb 19-25,2025	60	25.71	10.04	17.88	89.86	34.43	7.60	3	7.27
Feb 26-4 March, 2025	61	26.04	11.77	18.91	85.57	38.00	17.80	2	7.31
March 5-11,2025	62	26.77	10.23	18.50	84.57	29.86	0.00	0	8.36
March 12-18,2025	11	27.26	15.56	21.41	88.43	49.00	40.60	4	5.80
March 19-25,2025	12	28.03	14.14	21.09	80.29	37.29	0.00	0	6.46
March26-1 April, 2025	13	29.84	14.31	22.08	85.29	36.00	0.10	1	7.81
April 02-08,2025	14	30.49	16.97	23.73	81.00	35.86	9.80	1	6.50
April 09-15,2025	15	30.70	17.76	24.23	84.43	45.71	3.70	1	6.61
April 16-22,2025	16	27.67	18.39	23.03	18.39	82.29	9.70	4	3.69
April 23-29,2025	17	28.94	20.33	24.64	20.33	78.57	32.50	5	4.77

Kalyani

Standard week after sowing	Total rainfall (mm)	Mean Temperature (°C)		Rainy days	Sunshine Hours	Relative Humidity (%)
		Max	Min			
45 (05-11-24 to 11-11-24)	0	31.43	21.67	0	7.81	92.14
46 (12-11-24 to 18-11-24)	3.1	29.64	17.76	0	7.69	95.0
47 (19-11-24 to 25-11-24)	0	27.97	15.91	0	5.81	95.14
48 (26-11-24 to 02-12-24)	10.40	26.80	16.77	2	4.49	94.00
49 (03-12-24 to 09-12-24)	0	27.61	13.2	0	8.01	94.29
50 (10-12-24 to 16-12-24)	0	24.73	11.23	0	7.29	95.57
51 (17-12-24 to 23-12-24)	1.7	25.37	13.14	0	5.43	95.00
52 (24-12-24 to 31-12-24)	0	26.44	13.9	0	6.16	94.57
01 (01-01-25 to 07-01-25)	0	23.73	11.76	0	5.10	96.43
02 (08-01-25 to 14-01-25)	0	24.01	11.24	0	5.3	95.00
03 (15-01-25 to 21-01-25)	0	25.69	11.26	1	7.57	96.29
04 (22-01-25 to 28-01-25)	0	25.11	12.5	0	5.24	97.29
05 (29-01-25 to 04-02-25)	0	28.01	16.59	0	2.10	97.57
06 (05-02-25 to 11-02-25)	0	28.44	13.39	0	8.79	94.57
07 (12-02-25 to 18-02-25)	0	30.01	16	0	7.53	94.00
08 (19-02-25 to 25-02-25)	20.10	29.53	18.33	1	5.5	94.71
09 (26-02-25 to 04-03-25)	0	31.87	18.8	0	7.3	94.43
10 (05-03-25 to 11-03-25)	0	31.89	16.91	0	9.04	89.29
11 (12-03-25 to 18-03-25)	0	35.63	22.69	0	8.13	89.43
12 (19-03-25 to 26-03-25)	6.8	31.41	20.34	1	5.76	90.86

Kumarganj

Month	Standard week	Temp (oC)		RH (%)	Total rainfall (mm)	No. of rainy days	Pan evaporation (mm)	Sunshine hours
		Max.	Min.					
1-7 October, 24	40	33.1	24.2	72.0	0.0	0.0	4.6	7.6
8-14 October	41	32.6	22.2	74.7	0.0	0.0	4.4	6.3
15-21 October	42	32.6	19.5	71.3	0.0	0.0	4.6	7.4
22-28 October	43	32.0	19.9	72.9	0.0	0.0	4.1	6.5
29 Oct.-4 Nov	44	32.2	18.0	69.7	0.0	0.0	3.7	7.5
5-11 Nov.	45	30.0	17.2	67.0	0.0	0.0	3.3	6.7
12-18 Nov.	46	28.8	14.3	67.6	0.0	0.0	3.1	6.7
19-25 Nov.	47	26.4	10.5	66.4	0.0	0.0	2.3	6.1
26 Nov-2 Dec.	48	26.1	9.2	62.1	0.0	0.0	2.6	8.0
3-9 Dec.	49	26.7	7.7	62.6	0.0	0.0	3.3	8.7
10-16 Dec.	50	23.1	4.0	63.4	0.0	0.0	3.0	8.1
17-23 Dec.	51	24.6	6.2	62.8	0.0	0.0	3.0	7.8
24-31 Dec.	52	20.8	11.0	70.8	0.0	0.0	2.9	3.0
1-7Jan. 2025	1	15.5	7.1	80.4	0.0	0.0	2.6	0.5
8-14	2	19.1	6.7	73.2	2.0	1	2.9	4.2
15-21	3	20.2	8.8	70.8	0.0	0.0	3.2	5.3
22-28	4	22.6	7.0	69.8	0.0	0.0	2.9	7.1
29 Jan-4 Feb.	5	23.7	7.5	64.6	0.0	0.0	3.1	8.2
5-11 Feb.	6	25.3	7.6	58.7	0.0	0.0	3.6	9.3
12-18 Feb.	7	26.7	9.4	54.9	0.0	0.0	4.9	9.7
19-25 Feb.	8	27.1	10.7	53.7	0.0	0.0	3.8	9.7
26Feb.-4March	9	27.6	12.5	59.8	0.0	0.0	3.7	8.7
5-11	10	28.9	12.0	63.4	0.0	0.0	5.0	9.6
12-18	11	35.0	14.5	68.3	0.0	0.0	6.2	9.0
19-25	12	34.9	15.0	64.0	0.0	0.0	6.3	9.3
26 March-1 April	13	35.5	14.8	63.6	0.0	0.0	5.9	9.5
2-8 April	14	37.9	16.7	64.5	0.0	0.0	6.9	8.7
9-15 April	15	34.1	21.2	67.7	30.6	2	6.0	8.0
16-22 April	16	37.1	22.7	60.5	0.0	0.0	6.1	10.0
23-29 April	17	39.6	20.6	57.9	0.0	0.0	7.4	9.4

Sabour

Weeks	Period	Temperature (°C)		Rainfall (mm)	Number of		Relative humidity	
		Min.	Max.		Rainy days	Sunshine hours	Min.	Max.
47	Nov. 18 - Nov. 24	14.29	28.14	0		3.04	78	85.86
48	Nov. 25 - Dec.01	12.57	26.79	0		2.59	83.57	87.14
49	Dec.02 - Dec.08	10.43	25.86	0		2.21	78.71	85.86
50	Dec. 09 - Dec.15	8.43	22.29	0		1.36	82.71	89.71
51	Dec.16 - Dec. 22	8.79	25.43	0		2.01	79.71	85.14
52	Dec. 23 - Dec.29	10.17	23.89	0		1.22	81.89	88.22
1	Dec. 30 - Jan.05	7.93	18.86	0		1.61	77.14	86.57
2	Jan.06 - Jan. 12	8.86	21.5	0		2.41	76.71	86.57
3	Jan.13 - Jan. 19	10.5	20.71	0		2.6	80.5	88.57
4	Jan. 20 - Jan. 26	9.43	20.14	0		0.61	78.86	86.29
5	Jan.27 - Feb. 02	8.57	25.21	0		4.43	75.43	86.86
6	Feb. 03 - Feb.09	9.57	24.93	0		4.94	75.57	84.29
7	Feb.10 - Feb.16	9.79	26.93	0		5.79	76.86	84.00
8	Feb.17 - Feb.23	13.36	28.14	1.43		4.87	73.43	86.00
9	Feb.24 - Mar.02	13.75	28.5	0		5.33	73.17	84.33
10	Mar. 03 - Mar.09	11.5	28.14	0		1	73.57	84.29
11	Mar. 10 - Mar 16	17.57	31.79	0		4.43	69.29	82.71
12	Mar. 17 - Mar. 23	18.93	29.93	0		5.91	60.43	79.43
13	Mar. 24 - Mar. 30	20.29	35	0		7.2	69.29	82.43
14	Mar.31 - Apr.06	17.06	35.93	0		7.16	59.00	74.43

Dholi

Weeks	Temperature (°C)		Rainfall (mm.)
	Max.	Min.	
40	34	26	0.3
41	34	25	0.7
42	34	24	0.0
43	33	23	3.0
44	34	22	0.1
45	31	23	0.1
46	31	18	0.0
47	29	15	0.0
48	28	15	0.0
49	27	12	0.0
50	24	11	0.0
51	26	13	2.8
52	26	11	0.0
1	14	9	0.0
2	25	10	0.0
3	23	12	0.0
4	24	12	0.0
5	28	12	0.0
6	29	13	0.0
7	30	14	0.0
8	30	17	0.2
9	30	17	0.0
10	31	17	0.0
11	36	20	0.4
12	35	20	0.0
13	39	21	0.0
14	39	22	0.0
15	35	21	0.0
16	41	22	0.0
17	43	23	2.1
18	35	22	6.5

Ranchi

Month	Standard week	Temp (°C)			Total rainfall (mm)
		Max.	Min.	Mean	
October	42	29.0	18.9	23.95	2.0
	43	28.8	18.1	23.45	0.0
November	44	28.2	16.7	22.45	2.0
	45	27.1	15.8	21.45	0.0
	46	26.5	14.5	20.5	0.0
	47	25.1	13.2	19.15	0.0
December	48	24.5	12.8	18.65	0.0
	49	25.0	15.6	20.3	38.8
	50	22.5	5.9	14.2	0.0
	51	21.7	3.9	12.8	0.0
	52	24.0	4.9	14.45	0.0
January	1	24.2	5.3	14.75	3.0
	2	23.6	5.1	14.35	0.0
	3	21.4	4.4	12.9	0.0
	4	21.6	4.0	12.8	0.0
February	5	25.6	8.8	17.2	10.4
	6	25.0	8.4	16.7	0.0
	7	26.0	11.6	18.8	30.6
	8	27.8	13.2	20.5	0.0
March	9	25.9	13.6	19.75	20.6
	10	25.3	13.4	19.35	2.0
	11	28.5	14.8	21.65	6.2
	12	26.0	14.1	20.05	96.8
April	13	31.0	16.6	23.8	0.0
	14	36.2	17.0	26.6	0.0
	15	33.4	15.6	24.5	0.0
	16	38.4	21.0	29.7	0.0
	17	38.3	23.8	31.05	0.0
May	18	39.0	25.3	32.15	0.0

Shillongani

Month	Standard week	Temp (°C)			RH (%)	Total rainfall (mm)	No. of rainy days	Pan evaporation (mm)	Sunshine hours
		Max.	Min.	Mean					
October, 2024	40 (01-07 Oct)	29.4	23.4	26.4	91	131.2	5	11.8	
	41 (08-14 Oct)	30.3	21.7	26.0	88	33.8	3	15.0	
	42 (15-21 Oct)	29.9	21.6	25.7	86	4.0	1	15.2	
	43 (22-28 Oct)	29.0	20.9	24.9	87	13.2	1	13.2	
November	44 (29-04 Nov)	29.9	21.0	25.4	88	23.8	2	14.4	
	45 (05-11 Nov)	29.9	19.0	24.4	84	0.0	0	15.1	
	46 (12-18 Nov)	30.8	18.1	24.5	78	0.0	0	16.3	
	47 (19-25 Nov)	29.0	16.4	22.7	78	6.0	1	15.9	
	48 (26-02 Dec)	27.3	14.5	20.9	78	0.0	0	16.9	
December	49 (03-09 Dec)	26.6	13.8	20.2	77	0.0	0	16.6	
	50 (10-16 Dec)	23.9	13.4	18.7	80	0.0	0	15.8	
	51 (17-23 Dec)	25.7	12.9	19.3	77	0.0	0	16.8	
	52 (24-31 Dec)	24.6	11.8	18.2	73	0.0	0	17.3	
Jan. 2025	1 (01-07 Jan)	24.9	12.8	18.8	74	0.0	0	17.4	
	2 (08-14 Jan)	23.3	12.8	18.0	79	24.0	1	15.4	
	3 (15-21 Jan)	25.4	12.0	18.7	72	0.0	0	16.7	
	4 (22-28 Jan)	23.6	12.3	17.9	77	0.0	0	16.1	
February	5 (29-04 Feb)	23.6	13.9	18.8	79	0.0	0	15.9	
	6 (05-11 Feb)	25.1	14.4	19.8	73	0.0	0	16.3	
	7 (12-18 Feb)	23.9	13.4	18.7	69	3.6	1	16.9	
	8 (19-25 Feb)	26.4	14.9	20.6	72	10.0	2	17.4	
March	9 (26-04 Mar)	27.5	14.9	21.2	68	9.6	1	18.1	
	10 (05-11 Mar)	28.1	16.0	22.1	65	0.0	0	19.1	
	11 (12-18 Mar)	27.5	17.0	22.3	71	33.0	2	16.5	
	12 (19-25 Mar)	25.9	16.9	21.4	70	0.0	0	17.8	
April	13 (26-01 Apr)	31.6	17.2	24.4	68	0.0	0	18.3	

Durgapura

Month	Standard Week	Date	Temp (°C)			RH I (%)	RH II (%)	WS (Kmph)	Total Rain fall	Rainy days
			Max.	Min.	Mean					
October	44	29.10.24 to 04.11.24	30.7	13.9	22.3	55.3	29.0	3.4	0	0
November	45	05.11.24 to 11.11.24	30.4	13.0	21.7	67.7	28.9	2.7	0	0
	46	12.11.24 to 18.11.24	27.7	11.1	19.4	71.9	21.3	2.2	0.0	0
	47	19.11.24 to 25.11.24	28.0	11.6	19.8	79.3	59.3	1.7	0	0
	48	26.11.24 to 02.12.24	27.9	10.8	19.3	71.4	64.6	2.4	0	0
December	49	03.12.24 to 09.12.24	26.5	8.7	17.6	75.0	69.9	3.3	0	0
	50	10.12.24 to 16.12.24	22.6	3.8	13.2	73.3	64.3	3.3	0	0
	51	17.12.24 to 23.12.24	25.1	7.9	16.5	77.4	67.3	2.6	0	0
	52	24.12.24 to 31.12.24	21.0	8.6	14.8	80.4	69.0	5.2	7.5	2
Jan. 2024	1	01.01.25 to 07.01.25	23.1	6.7	14.9	73.1	63.3	1.8	0	0
	2	08.01.25 to 14.01.25	18.3	6.4	12.3	85.9	78.6	4.0	5	0
	3	15.01.25 to 21.01.25	19.5	7.7	13.6	90.4	78.1	2.7	10.5	2
	4	22.02.25 to 28.01.25	24.5	7.2	15.9	82.4	50.6	2.5	0	0
February	5	29.01.25 to 04.02.25	24.9	7.3	16.1	88.7	43.1	3.3	0	0
	6	05.02.25 to 11.02.25	25.5	6.1	15.8	85.7	57.3	3.0	0	0
	7	12.02.25 to 18.02.25	29.4	11.3	20.4	76.1	57.4	3.4	1	0
	8	19.02.25 to 25.02.25	27.3	12.6	20.0	73.9	58.9	4.3	0	0
March	9	26.02.25 to 04.03.25	29.1	14.7	21.9	76.9	69.7	3.7	0	0
	10	05.03.25 to 11.03.25	31.3	12.2	21.8	71.1	58.4	5.3	0	0
	11	12.03.25 to 18.03.25	33.7	15.6	24.7	78.3	69.3	4.6	0	0
	12	19.03.25 to 25.03.25	33.4	14.3	23.9	70.9	54.1	3.7	0	0
April	13	26.03.25 to 01.04.25	36.8	18.3	27.6	61.3	48.0	5.3	0	0

Hisar

Month	Stand-ard week	Temp (°C)			RH (%)	Total rainfall (mm)	No. of rainy days	Pan evaporation (mm)	Sun-shine hours
		Max.	Min.	Mean					
October	40	37.1	23	30.05	89.8	0	0	4.6	7.9
	41	34.5	18.8	26.65	88.6	0	0	4.4	7.9
	42	35.9	17.7	26.8	83.6	0	0	4	7.6
	43	34.1	18	26.05	89.3	0	0	3.3	6
	44	34.4	17.4	25.9	87.9	0	0	3.1	6
November	45	31.7	17.5	24.6	90.8	0	0	2.3	2.3
	46	27.5	13.4	20.45	100	0	0	1.6	1.4
	47	27.5	10.3	18.9	93.5	0	0	1.9	5.1
	48	26.2	9.1	17.65	92.6	0	0	1.6	5.7
December	49	25.1	7.4	16.25	83.9	0	0	2	7.2
	50	21.5	2.7	12.1	98.1	0	0	2.2	7
	51	21.1	5	13.05	98.3	2.4	0	1.3	2.4
	52	16.3	8.4	12.35	98.4	23.8	3	1.1	1.2
January	1	15.2	7.0	11.1	99	0	0	0.9	1.8
	2	16.9	6.1	11.5	97	12.8	1	1.1	3.5
	3	18.0	7.3	12.65	98	0	0	0.8	3.1
	4	22.5	4.5	13.5	94	0	0	2.0	7.8
February	5	21.5	8.7	15.1	99	0	0	1.7	4.8
	6	23.7	5.5	14.6	97	0	0	2.3	7.0
	7	25.5	7.9	16.7	91	0	0	2.5	8.0
	8	24.7	8.9	16.8	96	0	0	2.7	6.6
March	9	25.4	12.5	18.95	88	13.1	1	2.8	5.5
	10	28.5	11.2	19.85	84	0	0	3.2	7.4
	11	29.0	12.6	20.8	88	0.8	0	4.0	7.3
	12	32.2	12.4	22.3	79	0	0	4.1	8.4
April	13	32.5	10.7	21.6	72	0	0	5.4	8.3
	14	37.7	16.9	27.3	57	0	0	6.0	8.1
	15	37.9	20.7	29.3	61	6.4	1	6.5	7.7
	16	40.3	21.6	30.95	49	0	0	8.5	8.6
	17	40.0	20.4	30.2	43	0	0	7.2	8.5
May	18	39.0	23.0	31	71	26.2	1	7.8	8.1

Ludhiana

Month	Standard week	Temp (°C)			RH (%)	Total rainfall (mm)	No. of rainy days	Pan evaporation (mm)	Sunshine hours
		Max.	Min.	Mean					
November	45	29.1	17.9	23.5	71	0.0	-	10.8	0.4
	46	23.1	15.6	19.4	81	0.0	-	7.8	1.0
	47	26.7	10.9	18.8	64	0.0	-	10.7	5.8
	48	26.9	14.0	20.5	69	0.0	-	50.0	3.7
December	49	25.6	9.8	17.7	64	0.0	-	12.2	7.7
	50	23.7	8.1	15.9	57	0.0	-	15.6	8.4
	51	21.0	4.1	12.6	60	0.0	-	15.2	8.6
	52	20.5	5.8	13.2	69	2.6	1	7.5	3.8
January	1	15.2	8.6	11.9	86	1.0	-	4.8	1.9
	2	17.1	7.3	12.2	79	5.8	1	4.7	5.0
	3	19.4	8.2	13.8	73	0.0	-	7.4	4.3
	4	21.7	5.8	13.8	67	0.0	-	12.7	9.2
February	5	20.0	9.6	14.8	79	1.2	-	8.2	2.6
	6	22.9	7.7	15.3	63	0.0	-	16.2	8.7
	7	23.7	9.2	16.5	48	0.0	-	17.2	8.3
	8	22.9	10.7	16.8	70	17.6	-	17.0	6.8
March	9	22.9	13.2	18.1	74	12.2	-	18.2	5.6
	10	26.6	11.0	18.7	63	0.0	-	23.9	9.2
	11	27.5	13.4	20.5	66	2.6	-	21.5	8.5
	12	31.4	13.9	22.6	57	0.0	-	36.2	10.7
April	13	26.5	13.8	22.4	45	0.0	-	47.9	10.6
	14	35.8	16.9	26.3	42	0.0	-	41.6	10.7
	15	36.6	21.8	29.2	44	0.0	-	51.2	8.9
	16	38.5	24.0	31.2	37	2.2	-	57.6	7.8
	17	37.5	20.8	29.1	37	2.2	-	233.0	9.6

Samba

Month	Standard Week	Temp (°C)			RH(%)		Total Rainfall (mm)	No.of Rainy Days
		Max	Min.	Mean	RH1	RH2		
15-Oct-2024 to 21-Oct-2024	42	31.07	18.40	24.74	76.71	51.71	0.00	0.00
22-Oct-2024 to 28-Oct-2024	43	29.76	19.60	24.68	77.29	46.14	0.00	0.00
29-Oct-2024 to 04-Nov-2024	44	30.84	16.53	23.69	76.57	43.86	0.00	0.00
5-Nov-2024 to 11-Nov-2024	45	29.24	16.16	22.70	76.14	50.86	0.00	0.00
12-Nov-2024 to 18-Nov-2024	46	25.96	13.66	19.81	81.57	47.71	0.00	0.00
19-Nov-2024 to 25-Nov-2024	47	25.21	10.31	17.76	79.29	43.29	0.00	0.00
26-Nov-2024 to 02-Dec-2024	48	24.70	10.64	17.67	81.14	47.14	0.00	0.00
03-Dec-2024 to 09-Dec-2024	49	23.61	8.97	16.29	79.14	46.14	0.00	0.00
10-Dec-2024 to 16-Dec-2024	50	21.09	6.94	14.01	83.71	47.86	0.00	0.00
17-Dec-2024 to 23-Dec-2024	51	20.20	5.19	12.69	85.00	53.43	0.00	0.00
24-Dec-2024 to 31-Dec-2024	52	18.53	5.51	12.02	87.57	58.00	27.80	1.00
01-Jan-2025 to 07-Jan-2025	1	17.93	7.26	12.59	87.71	62.57	5.40	1.00
08-Jan-2025 to 14-Jan-2025	2	18.54	6.61	12.58	84.86	59.86	0.00	0.00
15-Jan-2025 to 21-Jan-2025	3	19.67	7.33	13.50	86.14	52.57	0.00	0.00
22-Jan-2025 to 28-Jan-2025	4	21.90	6.27	14.09	83.71	48.57	0.00	0.00
29-Jan-2025 to 04-Feb-2025	5	22.40	8.00	15.20	81.43	49.57	0.00	0.00
05-Feb-2025 to 11-Feb-2025	6	22.27	6.28	14.28	80.43	47.57	0.00	0.00
12-Feb-2025 to 18-Feb-2025	7	24.26	7.97	16.11	75.71	41.00	0.00	0.00
19-Feb-2025 to 25-Feb-2025	8	23.26	9.80	16.53	84.29	53.00	20.20	3.00
26-Feb-2025 to 04-Mar-2025	9	21.19	10.74	15.96	81.00	55.00	37.80	3.00
05-Feb-2025 to 11-Mar-2025	10	24.69	9.99	17.34	78.71	56.14	0.00	0.00
12-Mar-2025 to 18-Mar-2025	11	27.60	13.63	20.61	77.43	48.86	2.90	1.00
19-Mar-2025 to 25-Mar-2025	12	28.6	13.00	20.80	74.00	45.00	0.00	0.00
26-Mar-2025 to 01-Apr-2025	13	31.00	16.80	23.90	72.00	48.00	0.00	0.00
02-Apr-2025 to 08-Apr-2025	14	33.3	17.1	25.20	70.00	34.00	0.00	0.00

Sriganganagar

Std. Week	Rainfall (mm)	Temperature °C		Std. Week	Rainfall (mm)	Temperature °C	
		Max.	Min.			Max.	Min.
44	0.00	33.50	21.21	6	0.00	24.23	6.67
45	0.00	32.81	18.86	7	0.00	26.89	8.03
46	0.00	26.67	17.86	8	3.20	23.81	8.51
47	0.00	27.90	18.01	9	1.40	22.53	9.31
48	0.00	27.96	16.10	10	0.00	27.86	11.36
49	0.00	25.44	12.94	11	3.00	29.00	12.30
50	0.00	22.37	9.77	12	0.00	33.36	14.66
51	0.00	21.13	8.20	13	0.00	31.57	15.51
52	0.00	18.15	6.58	14	0.00	36.96	15.76
1	0.00	15.10	4.84	15	0.00	42.97	22.21
2	0.00	20.41	5.96	16	0.00	42.79	23.90
3	0.00	17.46	5.80	17	0.00	42.93	25.09
4	0.00	23.00	6.27	18	9.4	40.66	24.07
5	0.00	23.26	6.34				

Akola

Year 2024-25	Rain Fall (mm)	Rainy days (Nos)	Temperature (°C)			Relative humidity		
			Min	Max	Av	Morn.	Even.	Av
1-7 Oct	25.3	1.2	21.2	33.6	27.4	82	48	65
8-14	14.5	0.7	19.9	33.8	26.85	79	41	60
15-21	7.5	0.5	18.1	33.3	25.7	78	37	58
22-28	5.9	0.4	16.3	33.0	24.65	74	33	54
29-4 Nov	1.9	0.2	15.8	32.6	24.2	74	32	53
5-11	3.2	0.3	15.3	32.2	23.75	72	33	53
12-18	7.1	0.3	14.5	31.4	22.95	74	33	54
19-25	4.5	0.2	13.0	30.8	21.9	72	29	51
26-2 Dec	3.8	0.3	12.5	30.7	21.6	70	30	50
3-9	2.1	0.3	11.6	30.2	20.9	70	30	50
10-16	2.0	0.3	11.0	29.7	20.35	71	29	50
17-23	2.0	0.3	10.6	29.5	20.05	70	28	49
24-31	4.5	0.5	10.8	29.0	19.9	72	31	52
1-7 Jan	3.1	0.2	11.0	28.7	19.85	74	32	53
8-14	4.4	0.3	11.7	29.1	20.4	74	32	53
15-21	0.5	0.1	12.2	30.0	21.1	70	29	50
22-28	0.2	0.1	11.9	30.8	21.35	66	26	46

29-4 Feb	3.7	0.3	12.5	31.1	21.8	63	25	44
5-11	3.3	0.3	12.8	31.6	22.2	60	23	42
12-18	0.1	0.0	14.4	32.7	23.55	57	22	40
19-25	2.0	0.2	14.1	33.3	23.7	54	21	38
26-4 Mar	4.9	0.3	15.5	34.9	25.2	51	19	35
5-11	6.0	0.3	17.1	35.9	26.5	48	20	34
12-18	2.9	0.3	18.0	36.8	27.4	48	19	34
19-25	0.8	0.1	19.1	38.1	28.6	42	16	29
26-1 Apr	1.5	0.2	20.1	38.7	29.4	39	16	28

Arnej

Std. Week No.	Rainfall (mm)	Temperature °C		Std. Week No.	Rainfall (mm)	Temperature °C	
		Max.	Min.			Max.	Min.
41(Oct-2024)	6.0	32.5	25.6	01(Jan-2025)	0.0	29.3	11.6
42	0.0	33.9	25.8	02	0.0	27.1	10.4
43	3.4	34.3	23.3	03	0.0	27.5	13.1
44	0.0	35.1	21.7	04	0.0	28.9	12.6
45	0.0	35.1	20.2	05	0.0	29.0	11.2
46	0.0	34.6	17.7	06	0.0	29.2	11.8
47	0.0	31.0	14.8	07	0.0	31.9	13.5
48	0.0	30.4	13.7	08	0.0	33.5	15.5
49	0.0	30.9	14.8	09	0.0	34.9	17.3
50	0.0	27.5	9.9	10	0.0	35.0	14.7
51	0.0	29.4	11.1	11	0.0	38.4	17.5
52	0.0	23.4	12.0	12	0.0	36.9	17.0
Total Rainfall- 1183.9 mm		-	-	13	0.0	0.0	36.9

Badnapur

Year 2024	Std. Met. Week	Rainfall (mm)	Rainy Days (No.)	Temp Max	Temp Min.	RH 1	RH 2
1-7 Jan.	1	4.3	1	29.3	15.1	97	71
8-14 Jan.	2	23.6	2	28.6	16.0	96	81
15-21 Jan.	3	--	-	29.8	13.4	94	58
22-28 Jan.	4	-	-	28.5	13.9	80	53
29 Jan.-4 Feb.	5	--	-	30.5	14.4	84	49
5-11 Feb.	6	-	-	32.5	15.4	78	36
12-18 Feb.	7	--	-	32.4	14.1	57	21
19-25 Feb.	8	-	-	33.2	14.1	57	21
26 Feb.-4 Mar.	9	8.4	1	33.9	18.2	76	44

5-11 March	10	--	-	33.5	16.3	49	29
12-18 March	11	-	-	37	18.0	49	27
19-25 March	12	--	-	36.6	17.2	40	19
26 Mar.-1 Apr.	13	-	-	39	22.0	45	30
2-8 April	14	--	-	39.2	21.2	35	19
9-15 April	15	-	-	37.2	22.1	70	33
16-22 April	16	6.4	1	40.1	23.8	54	26
23-29 April	17	--	-	39.2	23.6	53	36
30 April-6 May	18	-	-	41.3	23	28	17
7-13 May	19	--	-	40.3	24.8	61	43
14-20 May	20	-	-	39.2	24.9	63	43
21-27 May	21	--	-	42.4	28	53	29
28 May-3 June	22	17.5	1	41.4	27.1	57	27
4-10 June	23	68.0	1	37.5	24.4	76	51
11-17 June	24	45.5	3	33.8	23.9	86	70
18-24 June	25	2.1	-	34.3	24.7	84	66
25 Jun-1 July	26	18.6	2	33.9	24.2	89	76
2-8 July	27	2.2	-	32.7	24.4	90	72
9-15 July	28	90.8	3	31.1	23.4	97	89
16-22 July	29	30.3	2	30.2	23.5	99	89
23-29 July	30	2.2	-	27.4	23.3	100	95
30 July - 5 Aug.	31	36.4	3	30.5	23	100	93
6-12 Aug.	32	--	-	30.5	22.6	98	90
13-19 August	33	43.5	3	32.4	23.3	97	79
20-26 August	34	110.4	5	31.7	22.7	99	93
27Aug.-2 Sept.	35	100.4	2	30.2	21.9	98	93
3-9 Sept.	36	8.6	2	30.2	22.2	99	93
10-16 Sept.	37	--	-	31.0	21.2	96	87
17-23 Sept.	38	-	-	32.7	22.6	93	82
24-30 Sept.	39	42.8	4	31.9	23	99	93
1-7 Octo.	40			34.4	22.9	96	84
8-14 Octo.	41	32.8	2	33.4	22.9	95	81
15-21 Octo.	42	79.7	3	33.2	22.6	96	85
22-28 Octo.	43	--	-	32.7	20.1	95	79
29 Oct.- 4 Nov.	44	-	-	34.1	19.4	91	72
5-11 Nov	45	--	-	32.6	17.2	91	65
12-18 Nov	46	-	-	31.9	15.5	85	65
19-25 Nov	47	--	-	29.7	13.1	91	65
26 Nov.- 2 Dec.	48	-	-	28.8	12.9	90	64
3-9 Dec.	49	16.2	1	27.6	12.4	91	63

10-16 Dec	50	--	-	26.9	11.8	89	62
17-23 Dec	51	-	-	25.1	11.1	88	62
24-31 Dec	52	--	-	24.3	10.9	89	61
Total		790.7	42				

Total annual rainfall during from Jan.24 to Dec.24 = 790.7 mm in 42 rainy days

1 June 2024 to 30 September 2024 (Monsoon Season) total rainfall = 619.3 mm in 31 rainy days

Indore

Month	Standard week	Temp (°C)			RH (%)	Total rainfall (mm)	No. of rainy days	Pan evaporation (mm)	Sunshine hours
		Max.	Min.	Mean					
October, 2024	40	31.79	23.14	27.5	89.4	0			
	41	30.43	22.14	26.3	85.1	44.1	3		
	42	30.57	20.86	25.7	86.2	37.7	3		
	43	30.71	17.86	24.3	85.4	4.2	1		
	44	32.14	17.57	24.9	84.5	0			
November	45	31.07	15.29	23.2	82.4	0			
	46	29.64	12.93	21.3	85.7	0			
	47	28.21	12.14	20.2	79.0	0			
	48	26.14	11.29	18.7	81.8	0			
December	49	28.54	12.57	20.6	80.4	0			
	50	24.71	9.64	17.2	77.9	0			
	51	27.04	10.21	18.6	79.2	0			
	52	24.72	10.94	17.8	85.4	0			
Jan. 2025	1	25.85	10.57	18.2	85.14	0.00			
	2	24.36	10.29	17.3	85.34	0.00			
	3	26.86	11.93	19.4	83.02	0.00			
	4	27.5	11.07	19.3	86.57	0.00			
February	5	30.35	12.14	21.2	85.66	0.00			
	6	31.29	12.86	22.1	81.06	0.00			
	7	31.21	12.93	22.1	85.04	0.00			
	8	30.57	14.93	22.8	75.17	0.00			
March	9	32.14	17.21	24.7	74.59	0.00			
	10	32.36	13.79	23.1	79.18	0.00			
	11	35.50	18.85	27.2	80.09	0.00			
	12	35.43	17.86	26.6	78.66	0.00			
April	13	35.79	20.21	28.0	79.40	0.00			

Jhansi

Month / Date	Std. Met. week	Temp.			Rainfall (mm)
		Max	Min	Mean	
Sept 2024	27/08/24 -02/09/24	35.0	24.2	47.1	33.4
	03/09/24-09-09-24	34.6	25.1	47.2	14.2
	10/09/2024-16/09/2024	30.2	23.7	42.1	199.8
	17/09/24-23/09/24	31.8	57.3	60.5	59.8
	24/09/24-30/9/24	33.8	25.3	46.5	26.0
Oct 2024	01/10/2024-7/10/2024	35.3	23.5	47.1	0.0
	08/10/2024-14/10/24	33.9	22.7	45.3	0.6
	15/10/2024-21/10/24	35.5	18.8	44.9	0.0
	22/10/2024-28/10/24	34.7	17.3	43.4	0.0
	29/10/2024-4/11/24	35.8	16.9	44.3	0.0
Nov 2024	05/11/2024-11/11/24	33.3	15.3	41.0	0.0
	12/11/2024-18/11/24	32.6	13.5	39.4	0.0
	19/11/2024-25/11/24	28.3	9.9	33.3	0.0
	26/11/2024-2/12/24	27.8	8.6	32.1	0.0
Dec 2024	03/12/2024-9/12/24	28.2	8.2	32.3	0.0
	10/12/2024-16/12/24	24.5	3.4	26.2	0.0
	17/12/2024-23/12/24	25.1	4.5	27.4	0.0
	24/12/2024-31/12/24	22.1	12.1	28.2	13.0
Jan 2025	01/01/2025-7/1/25	21.4	6.6	24.7	0.0
	08/01/2025-14/1/25	21.7	5.4	24.4	1.4
	15/01/2025-21/1/25	20.3	7.6	24.1	0.2
	22/01/2025-28/1/25	25.9	6.9	29.4	0.0
Feb 2025	29/01/2025-4/2/25	27.1	8.3	31.3	0.0
	05/02/2025-11/2/25	24.4	17.6	33.2	0.0
	12/02/2025-18/2/25	29.3	9.8	34.2	0.0
	19/02/2025-25/2/25	28.0	10.1	33.1	0.8
March 2025	26/02/2025-4/3/25	31.2	13.1	37.8	0.0
	05/03/2025-11/3/25	30.9	9.2	35.5	0.0
	12/03/2025-18/03/25	35.2	14.4	42.4	0.0
	19/03/2025-25/3/25	34.0	11.1	39.6	0.0
	26/03/2025-1/4/25	36.8	12.5	43.1	0.0
April 2025	02/04/2025-8/4/25	38.7	15.7	46.6	0.0
	09/04/2025-15/4/2025	39.8	19.2	49.4	0.0

Junagadh

Meteo. Std. Week	Rainfall (mm)/ (Rainy days)	Temperature °C		Meteo.Std. Week	Rainfall (mm)/ (Rainy days)	Temperature (°C)	
		Max.	Min.			Max.	Min.
43	17.5 (2)	34.7	22.4	1	0.0 (0)	28.6	14.4
44	0.0 (0)	36.0	20.0	2	0.0 (0)	27.9	12.3
45	0.0 (0)	35.2	19.8	3	0.0 (0)	28.2	13.6
46	0.0 (0)	33.8	17.0	4	0.0 (0)	28.8	14.3
47	0.0 (0)	19.4	31.5	5	0.0 (0)	29.2	13.8
48	0.0 (0)	30.7	13.6	6	0.0 (0)	30.6	13.7
49	0.0 (0)	31.1	17.3	7	0.0 (0)	32.7	15.6
50	0.0 (0)	28.4	12.8	8	0.0 (0)	34.4	17.0
51	0.0 (0)	27.6	12.1	9	0.0 (0)	35.8	19.4
52	0.0 (0)	26.1	12.5	10	0.0 (0)	36.9	18.1

Kota

SMW	St. week period	Temperature		RH (%)		BSS (hr)	Rain (mm)	Evap. (mm)	Rainy days
		Max	Min	Mor.	Eve.				
40	01 Oct - 07 Oct	36.2	25.4	78.3	56.9	10.1	0.0	4.7	-
41	08 Oct - 14 Oct	33.6	23.8	86.4	65.7	3.7	16.0	2.1	2.0
42	15 Oct - 21 Oct	34.8	21.6	71.6	45.4	8.6	0.0	4.6	-
43	22 Oct - 28 Oct	35.8	21.3	67.6	48.4	10.0	0.0	5.8	-
44	29 Oct - 04 Nov	36.4	20.7	59.9	39.3	10.5	0.0	6.1	-
45	05 Nov - 11 Nov	35.0	18.9	70.6	41.3	9.2	0.0	5.3	-
46	12 Nov - 18 Nov	33.1	16.0	76.9	55.0	8.8	0.0	4.2	-
47	19 Nov - 25 Nov	28.1	11.8	84.3	60.6	7.6	0.0	2.4	-
48	26 Nov - 02 Dec	28.1	11.7	82.4	58.4	7.6	0.0	2.5	-
49	03 Dec - 09 Dec	28.7	10.0	89.6	54.9	8.0	0.0	2.6	-
50	10 Dec -16 Dec	23.5	5.6	94.4	59.7	7.1	0.0	2.1	-
51	17 Dec -23 Dec	23.4	6.4	93.3	72.6	6.4	0.0	1.7	-
52	24 Dec -31 Dec	21.9	11.1	95.3	88.5	1.5	13.8	0.6	1.0
1	01 Jan - 07 Jan	19.9	8.2	95.0	85.1	4.4	0.0		-
2	08 Jan -14 Jan	19.8	8.0	96.4	86.6	5.6	0.0		-
3	15 Jan - 21 Jan	19.6	9.1	97.3	89.9	3.5	4.1		1.0
4	22 Jan - 28 Jan	24.3	9.0	90.6	66.6	7.0	0.0		-
5	29 Jan - 04 Feb	26.0	12.5	85.6	63.4	9.7	0.0		-
6	05 Feb - 11 Feb	24.7	9.9	90.7	70.6	9.0	0.0		-
7	12 Feb - 18 Feb	29.5	14.0	80.7	49.3	9.6	0.0		-
8	19 Feb - 25 Feb	28.4	14.2	78.5	41.5	8.7	0.0		-

9	26 Feb - 04 Mar	31.3	17.6	69.7	39.6	7.6	0.0		-
10	05 Mar - 11 Mar	32.0	14.4	74.7	26.4	9.3	0.0		-
11	12 Mar - 18 Mar	36.1	16.0	66.1	22.7	9.4	0.0		-
12	19 Mar - 25 Mar	35.5	15.9	67.9	21.3	10.2	0.0		-
13	26 Mar - 01 Apr	36.8	18.1	48.0	13.3	10.2	0.0		-

Navasari

Month	Standard week	Temp (°C)			RH (%)	Total rainfall (mm)	No. of rainy days	Pan evaporation (mm)	Sunshine hours
		Max.	Min.	Mean					
Nov., 2024	45	35.4	18.9	27.2	93	0.0	0	3.8	8.9
	46	34.3	18.5	26.4	81	0.0	0	4.0	7.9
	47	33.0	16.9	25.0	78	0.0	0	4.0	7.5
	48	30.8	15.8	23.3	69	0.0	0	3.6	7.7
Dec., 2024	49	32.8	18.1	25.5	81	0.0	0	4.0	6.1
	50	29.8	13.5	21.7	63	0.0	0	3.9	8.2
	51	31.6	13.0	22.3	90	0.0	0	3.5	5.9
	52	29.3	15.9	22.6	90	0.0	0	3.6	1.2
Jan. 2025	1	32.3	14.4	23.4	81	0.0	0	4.5	6.9
	2	30.1	14.1	22.1	79	0.0	0	3.7	4.7
	3	31.4	15.7	23.6	82	0.0	0	4.0	2.6
	4	32.6	14.3	23.5	87	0.0	0	4.0	8.1
	5	32.4	12.9	22.7	92	0.0	0	4.0	8.9
Feb., 2025	6	32.7	14.4	23.6	75	0.0	0	4.2	8.6
	7	34.0	13.7	23.9	84	0.0	0	4.3	9.7
	8	35.3	14.8	25.1	74	0.0	0	4.4	9.3
	9	35.9	16.3	26.1	75	0.0	0	5.0	9.0
March, 2025	10	36.5	15.9	26.2	69	0.0	0	5.4	9.6
	11	37.0	17.9	27.5	87	0.0	0	4.6	8.5
	12	36.6	17.9	27.3	86	0.0	0	5.1	9.2
	13	36.9	18.9	27.9	82	0.0	0	5.9	7.1
	14	37.3	20.6	29.0	92	0.0	0	4.4	7.7

Rahuri

Month/ Date	Week No.	Temperature			Relative Humidity %		Total Rainfall (mm)	Rainy Days	Pan Evapora- tion (mm)	Sun shine (hrs.)
		Max	Min.	Mean	Morn- ing-I	Evening- II				
Oct 1-7	40	32.5	21.7	27.1	82.7	50.3	0.0	0.0	6.5	8.1
Oct 8-14	41	30.1	21.8	26.0	87.7	66.3	16.2	3.0	5.6	6.4
Oct 15-21	42	31.1	22.1	26.6	88.1	64.3	8.0	1.0	5.9	6.2
Oct 22-28	43	30.7	19.6	25.2	79.4	55.0	6.4	1.0	5.5	7.5
Oct 29-4	44	31.5	17.8	24.7	81.9	45.7	0.0	0.0	5.4	9.1
Nov 5-11	45	31.1	15.2	23.2	81.6	34.6	0.0	0.0	5.0	7.7
Nov 12-18	46	30.6	15.9	23.3	79.6	41.7	0.0	0.0	5.0	7.4
Nov 19-25	47	29.2	11.6	20.4	79.6	34.7	0.0	0.0	4.5	8.3
Nov 26-2	48	28.0	10.0	19.0	78.0	36.7	0.0	0.0	3.9	7.6
Dec 3-9	49	30.1	12.3	21.2	87.3	56.0	9.6	1.0	5.0	5.2
Dec 10-16	50	27.7	9.2	18.5	79.7	37.6	0.0	0.0	4.5	9.1
Dec 17-23	51	28.5	9.2	18.9	81.6	34.7	0.0	0.0	4.2	8.3
Dec 24-31	52	28.5	16.9	22.7	86.5	52.4	0.0	0.0	4.7	5.2
Jan 1-7	1	29.4	10.3	19.9	62.0	43.6	0.0	0.0	4.7	8.4
Jan 8-14	2	26.9	8.0	17.5	62.0	47.7	0.0	0.0	4.5	5.5
Jan 15-21	3	29.3	11.8	20.6	79.9	36.9	0.0	0.0	5.1	7.0
Jan 22-28	4	30.8	12.2	21.5	80.3	41.7	0.0	0.0	5.3	8.7
Jan 29-4	5	33.0	14.8	23.9	71.0	32.0	0.0	0.0	5.8	8.7
Feb 5-11	6	32.5	14.4	23.5	71.7	37.9	0.0	0.0	5.6	8.3
Feb 12-18	7	31.8	13.3	22.6	72.6	27.1	0.0	0.0	5.8	10.0
Feb 19-25	8	33.1	13.9	23.5	73.9	23.1	0.0	0.0	6.2	10.7
Feb 26-4	9	33.6	14.9	24.3	60.6	30.4	0.0	0.0	6.6	10.5
March 5-11	10	33.2	12.6	22.9	54.6	23.3	0.0	0.0	6.6	10.1
March 12-18	11	36.6	15.4	26.0	61.4	26.0	0.0	0.0	8.2	9.2
March 19-25	12	36.3	15.9	26.1	60.4	27.0	0.0	0.0	7.9	9.3
March 26-01	13	36.9	17.9	27.4	67.9	34.4	0.0	0.0	8.3	7.5
April 2-8	14	33.6	18.3	25.9	76.0	35.0	5.8	1.0	7.7	6.8
						Total	46.0	7.0		

SK Nagar

Standard Week	Temperature (°C)			No. of Rainy days	Precipitation (mm)
	Max	Min	Mean		
44 (Nov.)	37.2	19.0	28.1	0	0.0
45	35.9	17.6	26.8	0	0.0
46	33.9	15.8	24.9	0	0.0
47	30.5	12.2	21.4	0	0.0
48 (Dec.)	30.5	12.5	21.5	0	0.0
49	29.2	11.2	20.2	0	0.0
50	26.1	6.3	16.2	0	0.0
51	27.6	11.8	19.7	0	0.0
52	24.6	11.8	18.2	0	0.0
1	28.2	10.4	19.3	0	0.0
2	26.4	7.8	17.1	0	0.0
3	26.4	11.0	18.7	0	0.0
4	27.6	10.5	19.1	0	0.0
5	28.5	11.3	19.9	0	0.0
6	29.0	9.0	19.0	0	0.0
7	32.0	12.8	22.4	0	0.0
8	32.8	15.0	23.9	0	0.0
9	33.1	16.1	24.6	0	0.0
10	34.6	13.1	23.9	0	0.0
Total Rainfall				29	668

Sehore

S. No.	IWW No.	Date	Temperature (°C)		Rainfall [mm]	Rainy days
			Max	Min		
1	40	1-7 Oct, 2024	33.64	22	0	0
2	41	8-14 Oct, 2024	32.21	21.38	12.3	2
3	42	15-21 Oct, 2024	32.35	20	0	0
4	43	22-28 Oct, 2024	32.88	16.35	0	0
5	44	29-4 Nov, 2024	33.95	16.14	0	0
6	45	5-11 Nov 2024	32	14.18	0	0
7	46	12-18 Nov, 2024	30.4	12.6	0	0
8	47	19-25 Nov, 2024	27.47	9.27	0	0
9	48	26-02 Dec, 2024	25.92	8.3	0	0
10	49	03-09 Dec, 2024	27.41	11.42	0	0
11	50	10-16 DEC, 2024	22.62	3.61	0	0

12	51	17-23 Dec, 2024	26.44	7.41	0	0
13	52	24-31 Dec, 2024	24.95	13.51	7.8	1
14	1	01-07 Jan, 2025	24.71	7.08	0	0
15	2	08-14 Jan, 2025	23.71	6.54	0	0
16	3	15-21 Jan, 2025	24.51	8.82	0	0
17	4	22-28 Jan, 2025	26.21	8.28	0	0
18	5	29- 04 Feb, 2025	28.81	9.1	0	0
19	6	05-11 Feb, 2025	27.88	9.77	0	0
20	7	12-18 Feb, 2025	30.52	9.44	0	0
21	8	19-25 Feb, 2025	30.87	10.9	0	0
22	9	26-04 March, 2025	32.97	13.25	0	0
23	10	05-11 March, 2025	32.5	11.8	0	0
24	11	12-18 March, 2025	36.9	18.04	0	0
25	12	19-25 March, 2025	35.5	16.6	0.5	1
26	13	26- 01 April, 2025	37.4	17.1	0.5	1
27	14	02-08 April, 2025	38.7	19.7	1.2	1
28	15	09-15 April, 2025	40.5	23.01	1.5	1
29	16	16-22 April, 2025	35.5	23.41	0	0
30	17	23- 29April, 2025	39.5	22.5	0	0

Coimbatore

Date	Tmax (°C)	Tmin (°C)	Relative Humidity (%)		W.S (kmph)	Rainfall (mm)
			7.22	14.22		
1-Jun-2024 to 7-Jun-2024	33.4	24.6	87.4	66.9	3.4	0.5
8-Jun-2024 to 14-Jun-2024	31.9	24.6	76.0	56.6	10.0	0.2
15-Jun-2024 to 21-Jun-2024	33.4	24.2	81.6	54.3	8.5	0.1
22-Jun-2024 to 28-Jun-2024	30.4	23.8	82.7	64.7	11.2	3.0
29-Jun-2024 to 5-Jul-2024	31.7	24.0	87.6	53.7	7.2	0.1
6-Jul-2024 to 12-Jul-2024	31.9	23.4	92.1	56.6	8.1	1.5
13-Jul-2024 to 19-Jul-2024	29.1	23.1	83.4	78.3	13.2	7.1
20-Jul-2024 to 26-Jul-2024	30.0	24.0	79.1	64.0	16.2	1.7
27-Jul-2024 to 2-Aug-2024	30.4	23.6	83.0	58.7	11.0	2.8
3-Aug-2024 to 9-Aug-2024	30.9	23.2	90.6	62.3	4.6	0.0
10-Aug-2024 to 16-Aug-2024	32.6	24.5	93.1	56.3	4.3	2.3
17-Aug-2024 to 23-Aug-2024	32.5	24.3	86.0	56.4	5.6	1.7
24-Aug-2024 to 30-Aug-2024	31.4	23.6	77.7	53.4	10.6	0.1
31-Aug-2024 to 6-Sep-2024	32.6	23.8	83.0	51.3	8.6	0.1
7-Sep-2024 to 13-Sep-2024	32.2	24.0	82.6	61.6	11.3	0.0
14-Sep-2024 to 20-Sep-2024	33.6	23.2	88.7	54.0	6.3	0.0

21-Sep-2024 to 27-Sep-2024	33.1	23.4	80.1	54.7	7.6	0.0
28-Sep-2024 to 4-Oct-2024	33.5	24.4	85.3	60.6	4.1	1.9
5-Oct-2024 to 11-Oct-2024	31.6	23.2	92.6	59.9	3.3	8.1
12-Oct-2024 to 18-Oct-2024	28.1	22.5	92.9	75.4	3.6	28.1
19-Oct-2024 to 25-Oct-2024	30.6	22.6	94.4	72.7	2.8	11.3
26-Oct-2024 to 1-Nov-2024	31.6	21.1	92.7	63.6	2.5	6.4
2-Nov-2024 to 8-Nov-2024	29.9	22.1	91.7	62.7	2.9	1.5
9-Nov-2024 to 15-Nov-2024	30.6	22.4	91.7	56.3	3.5	1.3
16-Nov-2024 to 22-Nov-2024	28.9	22.6	90.0	63.6	5.2	4.8
23-Nov-2024 to 29-Nov-2024	29.5	21.3	91.3	55.9	3.3	0.1
30-Nov-2024 to 6-Dec-2024	29.3	22.6	93.9	67.3	3.3	1.7
7-Dec-2024 to 13-Dec-2024	29.9	21.4	91.1	66.1	4.6	0.8
14-Dec-2024 to 20-Dec-2024	28.6	19.6	93.3	55.0	3.5	2.4
21-Dec-2024 to 27-Dec-2024	31.2	20.3	92.7	53.1	2.5	0.6
28-Dec-2024 to 03-01-2025	29.4	20.8	86.7	51.1	7.3	0.0
04-01-2025 to 10-01-2025	28.9	19.0	90.9	54.6	5.1	0.0
11-01-2025 to 17-01-2025	28.8	21.4	88.6	57.9	7.2	0.1
18-01-2025 to 24-01-2025	29.4	19.9	87.4	47.4	6.4	0.3
25-01-2025 to 31-01-2025	31.2	19.1	84.7	37.6	6.2	0.0
01-02-2025 to 07-02-2025	32.3	18.9	83.6	31.0	5.6	0.0
08-02-2025 to 14-02-2025	32.2	18.1	80.7	27.9	6.0	0.0
15-02-2025 to 21-02-2025	33.7	18.4	86.7	37.3	5.0	0.0
22-02-2025 to 24-02-2025	34.0	20.8	87.7	41.3	6.9	0.0

Kalaburagi

Month	Standard week	Temp (°C)			RHI (%)	RHII (%)	Total rainfall (mm)	No. of rainy days
		Max.	Min.	Mean				
Sept. 17-23	38	34.50	24.00	29.25	90.24	76.61	21.00	4
Sept.24-30	39	33.14	23.50	28.32	91.67	80.43	45.40	4
Oct. 1-7	40	34.21	23.93	29.07	90.19	60.30	17.60	2
Oct. 8-14	41	31.93	23.93	27.93	89.37	81.07	17.60	2
Oct. 15-21	42	31.64	23.36	27.50	87.37	82.04	24.00	4
Oct. 22-28	43	32.93	21.71	27.32	77.67	80.77	0.00	0
Oct. 29-04	44	33.14	22.21	27.68	86.61	87.46	0.00	0
Nov. 05-11	45	32.71	21.29	27.00	79.43	84.24	0.00	0
Nov. 12-18	46	32.43	20.64	26.54	68.10	84.96	0.00	0
Nov. 19-25	47	31.64	18.36	25.00	80.91	75.30	0.00	0

Nov. 26-02	48	30.79	18.36	24.58	73.30	76.03	0.00	0
Dec. 03-09	49	33.29	22.93	28.11	89.87	78.13	0.00	0
Dec. 10-16	50	32.50	23.29	27.90	87.26	71.54	0.00	0
Dec. 17-23	51	30.71	18.86	24.79	84.04	80.27	2.00	1
Dec. 24-31	52	31.36	18.07	24.72	81.34	73.89	0.00	0
Jan. 01-07	1	31.71	14.64	23.18	67.59	71.56	0.00	0
Jan. 08-14	2	30.50	18.14	24.32	76.06	70.27	0.00	0
Jan. 15-21	3	31.93	18.14	25.04	75.44	67.53	0.00	0
Jan. 22-28	4	33.64	17.43	25.54	67.26	69.99	0.00	0
Jan. 29-04	5	34.79	17.57	26.18	75.03	67.59	0.00	0
Feb. 05-11	6	35.57	19.36	27.47	75.04	62.77	0.00	0
Feb. 12-18	7	36.43	21.21	28.82	72.90	63.09	0.00	0
Feb. 19-25	8	36.50	21.64	29.07	64.40	63.06	0.00	0

Nandyal

Month	Standard week	Temp (°C)		RH (%)		Total rainfall (mm)	Pan evaporation (mm)	Sunshine hours
		Max.	Min.	8.30	17.30			
October	40	33.8	25.1	81.0	52.0	0.0	4.6	5.5
	41	35.7	25.0	75.0	41.0	0.0	5.7	8.0
	42	35.3	23.8	75.0	39.0	0.0	6.0	8.6
	43	34.8	21.9	69.0	37.0	0.0	5.6	9.5
	44	34.0	24.6	82.0	50.0	0.0	5.2	7.0
November	45	33.5	24.2	85.0	55.0	0.0	4.7	6.8
	46	33.0	22.6	83.0	52.0	0.0	4.7	6.3
	47	32.5	23.4	82.0	60.0	0.6	4.2	5.0
	48	32.5	22.8	84.0	55.0	0.0	4.5	6.5
December	49	30.8	22.8	84.0	61.0	2.0	2.6	3.4
	50	31.8	19.3	83.0	44.0	0.0	2.7	6.5
	51	30.5	19.3	88.0	48.0	0.0	1.1	4.8
	52	31.3	20.1	92.0	60.0	0.0	2.6	9.6
January	1	31.1	18.5	90.0	48.0	0.0	2.9	7.9
	2	31.0	19.2	87.0	47.0	0.0	3.2	7.5
	3	31.5	19.7	83.0	45.0	0.0	3.2	5.7
	4	33.0	17.7	90.0	37.0	0.0	3.9	9.8
February	5	34.1	17.9	87.0	32.0	0.0	4.2	10.0
	6	35.5	19.4	82.0	28.0	0.0	5.7	9.4
	7	36.2	19.9	79.0	25.0	0.0	5.7	9.6
	8	36.2	21.6	86.0	30.0	0.0	6.0	9.4

March	9	36.4	20.5	81.0	30.0	0.0	6.4	8.5
	10	38.1	20.0	76.0	23.0	0.0	8.1	8.6
	11	39.5	21.8	84.0	21.0	0.0	9.3	8.9
	12	39.16	24.00	80	26	0.0	9.34	8.7
	13	39.8	24.2	71	23	0.0	9.8	8.8

Lam

Standard week after sowing	Period	Rainfall (mm)	Rainy days	Temperature (°C)	
				Max.	Min.
41	08-14	29.0	4	31.9	25.4
42	15-21	82.2	5	29.9	25.1
43	22-28	4.0	1	33.1	24.6
44	29-04 NOV	0.0	0	33.3	23.6
45	05-11	0.0	0	33.7	23.1
46	12-18	1.2	0	31.6	23.0
47	19-25	0.0	0	30.9	20.4
48	26-02 DEC	7.4	1	29.4	20.0
49	03-09	2.6	1	30.9	21.3
50	10-16	0.0	0	31.3	20.1
51	17-23	1.2	0	29.6	19.6
52	24-31	11.6	1	29.6	19.5
1	01-07 JAN	0.0	0	30.3	19.0
2	08-14	0.0	0	30.7	19.2
3	15-21	0.0	0	31.3	19.0
4	22-28	0.0	0	32.1	19.1
5	29-04 FEB	0.0	0	33.4	19.3
6	05-11	0.0	0	34.6	20.1
7	12-18	0.0	0	35.3	19.7
8	19-25	0.0	0	34.9	21.6

Vijayapur

Month	Standard week	Temp (°C)			RH (%)	Total rainfall (mm)	No. of rainy days	Pan evaporation (mm)	Sunshine hours
		Max.	Min.	Mean					
October, 2024	40	32.4	18.6	31.0	93.0	94.2	2.0	3.8	8.0
	41	30.6	18.6	29.0	94.0	21.8	3.0	4.0	7.0
	42	29.4	19.6	28.0	96.0	34.4	0.0	2.9	4.8
	43	31.0	17.3	30.0	85.0	0.0	0.0	3.4	7.5
	44	31.5	18.5	30.0	90.0	1.2	0.0	3.5	7.8
November-2024	45	30.7	15.0	29.0	86.0	0.0	0.0	3.8	8.6
	46	30.0	18.1	29.0	88.0	0.2	0.0	3.2	6.1
	47	28.9	12.7	27.0	87.0	0.0	0.0	3.3	8.7
	48	28.4	14.8	27.0	78.0	0.0	0.0	3.3	7.1
December-2024	49	30.1	19.9	29.0	95.0	8.0	1.0	2.7	4.5
	50	29.0	13.8	28.0	80.0	0.0	0.0	3.3	7.8
	51	29.9	13.6	28.0	80.0	0.0	0.0	2.9	7.8
	52	29.4	16.2	28.0	90.0	0.0	0.0	3.3	6.1
Jan. 2025	1	30.1	11.3	29.0	85.0	0.0	0.0	4.8	9.0
	2	29.3	14.1	28.0	88.0	0.0	0.0	3.5	7.1
	3	29.8	15.2	28.0	82.0	0.0	0.0	4.6	8.0
	4	32.9	12.9	31.0	77.0	0.0	0.0	5.2	10.2
February 2025	5	33.4	14.2	32.0	71.0	0.0	0.0	4.9	9.6
	6	33.7	16.9	32.0	68.0	0.0	0.0	5.8	9.6
	7	34.2	16.1	33.0	59.0	0.0	0.0	5.9	9.7
	8	35.0	18.4	34.0	59.0	0.0	0.0	5.9	9.4
March 2025	9	34.5	17.8	33.0	59.0	0.0	0.0	7.1	9.8
	10	35.8	17.3	34.0	49.0	0.0	0.0	8.1	9.7
	11	37.3	19.0	36.0	59.0	0.0	0.0	8.0	9.3
	12	37.1	22.5	36.0	54.0	0.0	0.0	8.0	8.9
	13	37.6	23.4	36.0	64.0	0.8	0.0	8.2	7.9

Banda

Weeks	Period	Temperature (°C)		Rainfall (mm)	Number of rainy days	Relative humidity	
		Min.	Max.			Min.	Max.
1	Nov.9-Nov.15	27	33.5	0	0	59	71.5
2	Nov.16-Nov.22	20.5	31	0	0	59.5	82
3	Nov.23- Nov.29	22.5	30	0	0	61	86
4	Nov.30-Dec.6	23	29	0	0	58	74.5
5	Dec.7-Dec.13	17.5	26	0	0	57.5	88
6	Dec. 14 - Dec. 20	19.5	23	0	0	67.5	79.5
7	Dec. 21 - Dec. 27	18.5	26.75	0	0	69.5	88
8	Dec. 28- Jan. 3	14	23.23.5	0	0	88	94.5
9	Jan. 4 - Jan. 10	12	18	0	0	90.5	100
10	Jan. 11 - Jan. 17	13.5	18.5	2.4	1	92	97
11	Jan. 18 - Jan. 24	15.5	24.75	0	0	67	94.5
12	Jan. 25 - Jan. 31	19.5	26	0	0	65	84
13	Feb. 1 - Feb. 7	21.5	25.75	0	0	66.5	81.5
14	Feb. 8 - Feb. 14	22	24.75	0	0	63.5	86.5
15	Feb. 15 - Feb. 21	23	27	0	0	68	84
16	Feb. 22- Feb. 28	24	30	0	0	63	81
17	Mar. 1 - Mar. 7	17.25	29.75	0	0	37	81.5
18	Mar. 8 - Mar. 14	20.75	36.5	0	0	69	75
19	Mar. 15 - Mar. 21	21.5	34.5	0	0	59.5	79.5
20	Mar. 22 - Mar. 28	23	39	0	0	66.5	82

Sagar

Month	Stand-ard week	Temp (°C)			RH (%)	Total rainfall (mm)	No. of rainy days	Pan evapor-ration (mm)	Sun-shine hours
		Max.	Min.	Mean					
November-24		32.0	17.8	24.9	65	-	-		
		30.0	16.6	23.3	70	-	-		
		29.0	15.0	22	68	-	-		
		24.9	10.2	17.55	67				
December-24		24.2	15.4	19.8	75				
		26.3	10.5	18.4	70	-	-		
		25.1	9.2	17.15	65	-	-		
		27.0	11.2	19.1	70	-	-		

Jan. 2025		19.7	8.0	13.85	75				
		25.2	11.6	18.4	74				
		30.1	10.2	20.15	70				
		26.3	10.5	18.4	72				
Feb. 2025		24.4	10.0	17.2	59				
		20.0	11.4	15.7	55				
		24.2	12.9	18.55	50				
		34.0	11.5	22.75	57				
Mar. 2025		26.0	11.0	18.5	48				
		30.0	16.4	23.2	45				
		35.8	17.0	26.4	42				
		39.0	22.6	30.8	47				
Apr. 2025		37.8	20.0	28.9	42				
		35.7	18.8	27.25	45				
		42.0	22.1	32.05	40				
		39.7	22.7	31.2	37	-	-		

Varanasi

Week No.	Month & Date 2024	Rainfall mm	Temperature °C		R.H. %		Wind Speed km/hr	Sunshine hours	Evaporation mm
			MAX	MIN	Morn.	Even			
45	Nov 05-11	0.0	30.7	19.7	89	55	1.0	2.2	1.9
46	12-18	0.0	30.2	16.2	84	50	1.7	5.3	2.0
47	19-25	0.0	26.1	12.4	94	47	1.4	2.8	1.7
48	26-02	0.0	25.8	11.5	96	46	0.9	2.9	1.3
49	Dec 03-09	0.0	25.4	10.8	82	49	2.0	6.6	1.6
50	10-16	0.0	22.2	7.7	77	44	2.4	6.4	1.6
51	17-23	0.0	22.9	8.9	93	49	1.1	1.4	1.0
52	24-31	1.0	22.2	13.1	86	65	3.0	0.1	1.3

Week No.	Month & Date 2025	Rainfall mm	Temperature °C		R.H. %		Wind Speed km/hr	Sunshine hours	Evaporation mm
			MAX	MIN	Morn.	Even			
1	Jan 1-7	0.0	16.4	8.7	91	61	3.5	0.3	1.0
2	8-14	1.4	16.1	7.4	74	55	1.4	1.4	1.1
3	15-21	0.0	16.5	8.6	76	62	3.2	2.9	1.1
4	22-28	0.0	23.1	9.2	79	50	2.6	8.2	1.8
5	29-04	0.0	21.4	8.1	78	38	1.2	6.7	1.7
6	Feb 05-11	0.0	23.9	10.9	80	53	4.1	8.9	2.5
7	12-18	0.0	26.9	13.4	64	44	3.7	9.3	2.9
8	19-25	0.0	28.1	15.5	87	44	1.9	8.2	2.3
9	26-04	0.0	28.8	16.4	75	54	2.8	5.9	2.8
10	March 05-11	0.0	28.9	14.3	67	48	4.2	9.4	3.9
11	12-18	0.0	33.7	19.3	68	41	2.8	9.0	4.6
12	19-25	1.0	32.5	18.5	72	32	2.9	7.9	4.2
13	26-01	0.0	36.1	19.2	45	28	4.3	9.7	5.8
14	April 02-08	0.0	36.0	23.5	62	37	2.6	6.3	4.4
15	09-15	4.2	3	22.5	69	46	6.1	6.2	5.2
16	16-22	0.0	38.2	24.3	64	35	5.2	9.6	6.5
17	23-29	0.0	40.0	22.5	45	20	5.0	8.9	7.8
18	30-06	3.8	38.2	23.3	60	34	6.2	9.3	7.0
19	May 07-13	2.6	39.8	25.4	60	31	4.0	8.8	6.8
20	14-20	0.0	39.8	26.5	54	37	5.3	9.9	7.4
21	21-27	0.0	36.3	26.8	72	51	6.0	6.0	6.9

