ICAR

PULSES NEWSLETTER

ICAR-Indian Institute of Pulses Research, Kanpur

VOLUME 36, No. 04 Oct. to Dec., 2025

Workshop on Intellectual Property Rights

ICAR–Indian Institute of Pulses Research Kanpur organized a one-day Workshop on Intellectual Property Rights (IPR) on 22nd December 2025. The workshop aimed to enhance awareness on the protection of research outcomes, understanding of regulatory frameworks, and promotion of commercialization of agricultural innovations. The programme witnessed enthusiastic participation from more than 200 participants, including scientists, researchers, students, start-ups, entrepreneurs, and other stakeholders. Dr Neeru Bhushan, Assistant Director General (IPTM), ICAR, New Delhi, graced the occasion as the Chief Guest. In her address, she emphasized the significance of IPR in safeguarding research outputs, encouraging innovation, and facilitating effective technology transfer from laboratories to farms and industries.

Presiding over the programme, Dr G.P. Dixit, Director, ICAR–IIPR, Kanpur, highlighted the critical role of IPR in protecting newly developed pulse varieties, technologies, products, and processes. He stressed that IPR not only safeguards the rights of scientists and innovators but also plays a vital role in promoting start-ups, strengthening industry–academia linkages and transforming research outputs into tangible socio-economic benefits. He further informed that IIPR is continuously making efforts for effective management and commercialization of the intellectual property generated at the Institute.

On this occasion, the Chief Guest formally released the product *"Dal* Crunch", developed by Little One Agri Innovations, an incubatee of the Pulses Innovation Hub. The keynote address was delivered by Dr K.L. Gurjar, Joint Director, Central Insecticides Board & Registration Committee (CIB&RC), who elaborated on regulatory requirements for registration of bio-pesticides and discussed challenges faced by entrepreneurs in this domain. During the technical sessions, experts delivered insightful lectures on patents, copyrights, trademarks and their practical applications. The programme concluded with a feedback session, and participation certificates were distributed to all attendees.

INSIDE

Technical programme formulation meeting on spring summer and rice fallow mungbean pulses

The Technical Program Formulation Meeting of AICRP on *Kharif* Pulses, focusing on Spring, Summer, and Rice Fallow Mungbean, Urdbean, Cowpea, and *Kharif Rajmash*, was organized on November 12, 2025 in hybrid mode. The meeting was attended by about 20 participants offline including Chairman, Co-Chairman, Project Coordinators (*Kharif* and *Rabi* Pulses), Heads of Divisions of IIPR and invited participants besides >110 online participants. Dr. Sanjeev Gupta was the Chairman while Dr. G.P. Dixit, Director, ICAR-IIPR, Kanpur co-chaired the meeting. In the inaugural session, the Chairman lauded the efforts of the group towards achieving the highest ever production of mungbean during 2024-25, and elaborated the expectations from the newly launched 'National Pulses Mission' and also presented the roadmap to achieve the targets. He mentioned that keeping in view the excess production of mungbean currently, it is high time to go for value addition. He also desired that similar efforts must be undertaken in urdbean also because the declining production is a matter of national concern.

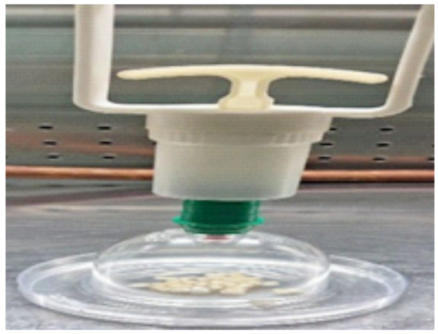
He desired that the reasons behind the non-realization of resistance to major diseases in farmers' fields must be ascertained. Further, mungbean x ricebean introgression must be encouraged to develop durable disease resistance, especially against YMD. The Chairman also emphasized upon the need to address the challenges of emerging diseases and insect-pests, and look into the effect of the herbicides in cropping system research. He mentioned that a focus on mechanization and quality traits is need of the hour, focusing on the development for ideal plant types for machine harvesting, while enhancing protein, iron, and zinc content in seeds is necessary. Dr. GP Dixit also lauded the progress in mungbean while he emphasized the need for similar efforts in pigeonpea and urdbean also. He expressed that keeping in view the expending programme during spring/summer season, microbiology experiments also need to be conducted during this season. He also emphasized upon consolidating the programme and advocated for conducting Frontline Demonstrations (FLDs) in Spring/ Summer and Rice Fallow ecologies. Dr. Aditya Pratap, PC, AICRP on *Kharif* Pulses, presented the annual progress report of the program during the 2025 crop season. He elaborated about the new varieties developed during the last one year and also highlighted the varieties identified with multiple disease resistance as well as those suitable to the specific niches. Later the progress achieved during the past year was presented by the Principal Investigators *viz.*, Dr. Aditya Pratap (Crop Improvement), Dr. Hemen Kalita (Agronomy), Dr. Jay Purwar (Entomology) and Dr. Mallikarjun Kenganal (Plant Pathology), Dr. B. Mondal (FLD and TSP) and Dr. Revanasidda (Breeder Seed). This was followed by technical programme formulation for the year 2026-27 after elaborate discussions within the group. The major recommendations emerging during the meeting included utilization of registered trait-specific accessions in breeding programme, addressing the issues of seed hardiness and fresh seed dormancy, prioritizing programmes to develop niche-specific genotypes/varieties to counter the declining area, production and productivity of urdbean and pigeonpea and development of a collaborative, network-driven, team-based programme to identify the most effective microbial consortia (biopesticides, biofertilizers, and micronutrients) from various location-specific bioagents/ formulations.

Research Highlights

Suction pressure–based agrobacterium-mediated genetic transformation of urdbean and chickpea

Genetic transformation of plant cells or tissues is a technically challenging process and can be achieved through several approaches, including Agrobacterium-mediated transformation, particle bombardment (biolistics), electroporation, polyethylene glycol (PEG)-mediated transformation, *in planta* transformation, nanoparticle-mediated delivery, and floral dip methods. However, each method has its own limitations. Among these, Agrobacterium-mediated genetic transformation is considered the gold standard because it typically results in a lower copy number of T-DNA integration in plants compared to the biolistic method. Enhancement of Agrobacterium-mediated transformation efficiency is commonly achieved through vacuum in filtration. The method described here relies on the application of suction pressure to facilitate the entry of Agrobacterium into wound sites. For this purpose, seeds were soaked for 8 h to overnight, after which the seed coat and one cotyledon were removed. The one whole cotyledon containing the embryo was retained and used as an explant, and wounds (5-6 wounds in germinating embryo) were created by puncturing with a needle. The explants were then placed in aninverted orientation (embryo side is facing bottom of petri-plate) in Petri plate containing medium inoculated with an

Agrobacterium strain carrying the plasmid of interest. Suction pressure was generated using a hijama cupping cup and pump, and the pressure was maintained for 20 min, enabling efficient entry of Agrobacterium into the wound sites. Following this treatment, the explants were incubated on MS medium under dark conditions for 2 days to allow Agrobacterium multiplication and successful T-DNA transfer into plant cells. Subsequently, antibiotic



Suction-pressure using *Hijama* Cupping apparatus

(cefotaxime) treatment was applied for 5 days to eliminate Agrobacterium on explants. Finally, regenerated plants were established using standard shooting and rooting media. This suction pressure-based Agrobacterium-mediated genetic transformation method resulted in higher transformation efficiency (25-30 T-DNA positive plants out of 100 regenerated plants) in urdbean.

Shanmugavadivel P.S

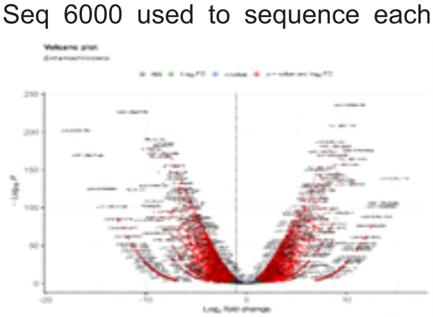
KASP markers development for MYMIV resistance in *Vigna* species

The present investigation pertains to the development of two Kompetitive Allele Specific PCR (KASP) markers for the Tobacco Mosaic virus (TMV) resistance gene and F-box/LRR resistance gene, respectively. These markers enabled reliable identification of resistant and susceptible urdbean and mungbean genotypes. In the case of highly MYMIV-resistant genotypes, resistance alleles for both the genes were found, and in the rest of the cases, either of these two resistance alleles was present, which further broadens the scope of marker-assisted pyramiding of these resistance alleles in susceptible or moderately resistant genotypes to elevate their genetic resistance level. In the case of urdbeans, most of the tested resistant genotypes carried the resistance allele (G) for TMV gene, and only two out of them were also carrying the resistance allele (T) for the F-box/LRR gene (IPU 11-02 and PU 31). In mungbeans, the abundance of the resistance allele (G) for the TMV gene was not that prominent among the tested materials, and many of the genotypes also had the susceptible allele (T) for the TMV gene. These markers were also validated in six additional *Vigna* species besides mungbean and urdbean. These two sets of KASP markers will be helpful in marker-assisted introgression of MYMIV resistance alleles in mungbean and urdbean breeding programmes.

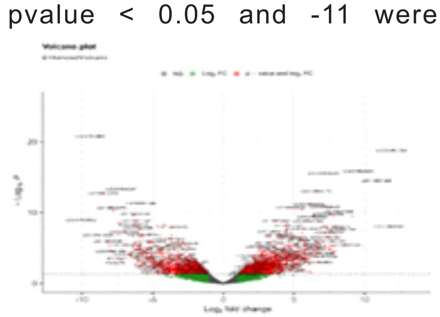
D.S. Gupta, Sachin Kumar, Jitendra Kumar, Shivam Kumar, S.P. Das, A.K. Parihar, Sarbani Banik & J. Souframanien

Identification of heat-tolerance related genes in common bean through transcriptomics and RT-PCR analysis

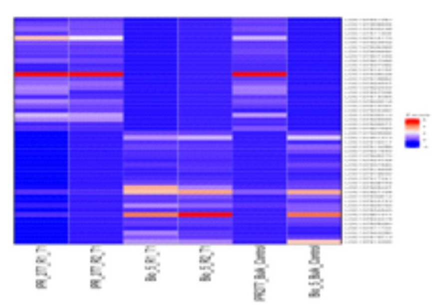
Common bean is more sensitive to heat stress than other legumes. A transcriptome analysis was designed using two heat-tolerant accessions: Bio-5 and IPR-277, each with two biological replications under heat-stress and normal condition. Nova-Seq 6000 used to sequence each



samples and on average 10 GB data per sample was generated, total reads generated: 352,248,584 with average read length of 151. Raw reads were checked for base quality and adapter content using FastQC (v0.12.1). Fastp (0.23.2) was used to remove adapter content and trim low-quality bases. Hisat2 (v2.2.1) was used to map reads on the *Phaseolus vulgaris* https://www.ncbi.nlm.nih.gov/datasets/genome/GCF_000499845.2/) reference genome. Differential gene expression was carried out using edgeR. Genes with pvalue < 0.05 and -11 were



considered differentially expressed (DE). Heatmaps were made using the R package Complex Heatmap (v2.25.2). Interacti Venny was used to generate venn diagrammes. gProfiler2 was used to perform Gene ontology and KEGG Pathway enrichment analysis. A set of seven transcripts was identified (SWR1-complex protein 4, probable plastid-lipid-associated protein, cell number regulator 6-like, WEB family protein At 2g 38370-like, Protein Kinase and one Uncharacterized protein) and validated using RT-q PCR analysis.



Volcano plots and Heat-map based on top fifty differentially expressing transcripts in heat-tolerant common bean genotypes under heat-stress condition.

D.S. Gupta, J.C. Rana, Jitendra Kumar, Shivam Kumar, & A.K. Parihar

Control of mungbean foliar fungal diseases through new fungicides

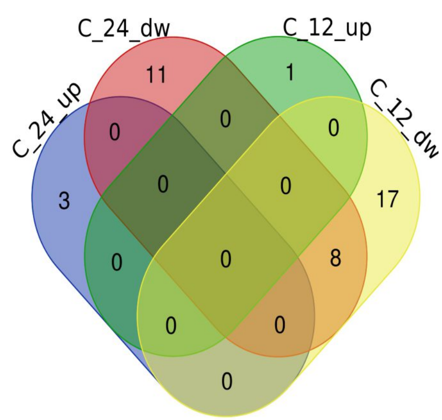
Mungbean (*Vigna radiata* L.) is extensively cultivated worldwide for its high nutritional value; however, productivity is severely constrained by foliar diseases such as powdery mildew, anthracnose leaf spot and Cercospora leaf spot diseases. To address these issues, field experiments were conducted at ICAR–Indian Institute of Pulses Research, Regional Station, Dharwad, Karnataka, during *kharif* 2021–22 to 2024–25 using the popular mungbean variety IPM 2-14 (Shreya). Fungicidal efficacy trials demonstrated that all fungicidal treatments significantly reduced disease severity and enhanced seed yield compared to the untreated control. Among them, tebuconazole 50% + trifloxystrobin 25% and azoxystrobin 18.2% + difenoconazole 11.4% at 0.05 per cent concentration consistently recorded the lowest per cent disease index values for powdery mildew, anthracnose, and Cercospora leaf spot, with disease reduction between 85 and 90% for powdery mildew and 65–77% for anthracnose and Cercospora leaf spot diseases. These treatments also produced the highest seed yield (1107–1136 kg/ha). Economic analysis further confirmed the superiority of these combination fungicides, recording the highest pooled net returns (₹ 52,443– ₹ 52,954/ha) and benefit–cost ratios (2.35–2.36). Overall, the study highlights that the timely application of new-generation strobilurin– triazole combination fungicides is essential for effective disease management, yield protection, and enhance profitability under Southern Indian conditions.

Field view of tebuconazole50% + trifloxystrobin25% WG (a) and un-treated control (b)

Saabale PR, Kodandaram MH, Manu B, Revanappa SB, Veeresh P and SL Patil

Deep sequencing reveals role of LncRNA in herbicide tolerance in field pea (*Pisum sativum* L.)

Weeds constitute a serious threat to field pea cultivation, emphasizing the urgent need for the development of herbicide tolerant varieties. However, a thorough understanding of genetics governing herbicide tolerance is a priority step to design herbicide tolerant varieties. The rapid advancement in sequencing technologies have facilitated the identification and characterization of long non-coding RNA (lncRNAs) that play an important role in overall growth and development of plants, as well as in their response to biotic and abiotic stresses. Present study, firstly utilizes paired-end sequencing and modern bioinformatic analysis pipeline in fieldpea that led to the identification of a total of 1985 lncRNAs and 2123 neighbouring genes against post-emergence herbicide (Metribuzin).



Interactions of these mined lncRNAs with the neighbouring genes also resulted in identification of 2815 interactions. The identified lncRNAs were distributed across all seven chromosomes, in which 2269 were intergenic and 546 were genic. Differential expression of these lncRNAs showed their role in regulating plant growth, development and in response to herbicide treatments through targeting protein-coding genes. These genes were directly associated with plant metabolism and defence system. Notably, few putative candidate genes including Insulin-induced protein family, SANT/Myb protein, ornithine decarboxylase, RNASe gene, CCR4-NOT transcription complex subunit 1, Early light-induced protein, RNaseT2-like, Formin/Phosphatase like, UBP1-associated protein and NAC domain-containing protein which exhibited functional role in herbicide tolerance were identified. Potential roles of Lnc RNAs for herbicides tolerance in field pea were elucidated.

AK Parihar, DS Gupta, J, Kumar, KR Soren, CP Nath, KK Hazra and GP Dixit

Oil emulsion–based formulations for improved shelf life and efficacy of *Trichoderma*

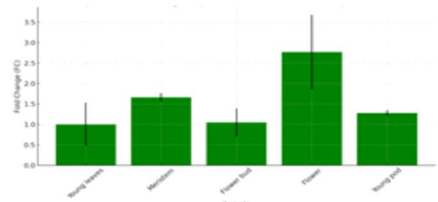
Two emulsion-based bioformulations of *Trichoderma asperellum* are developed with increased shelf life and evaluated for disease management of pulse crops. The fungus was mass-produced on sorghum seed by using a solid-state fermentation process, ensuring high propagule density and uniform quality. To simplify application and extend the shelf life of the formulations, edible oils (sunflower and olive oil) were incorporated as carrier, along with Tween 20 as a non-ionic emulsifier to stabilize the emulsion. The resulting emulsion formulations showed increased shelf life upto 8 months (1.7 $\times 10^7$ cfu/ml). These oil-based formulations aim to improve spore viability, plant growth promotion, and disease management. Thus, provide an eco-friendly alternative to conventional chemical pesticides.

Sun flower oil-based emulsion Formulation | **Olive oil-based emulsion Formulation**

R.K. Mishra, Sonika Pandey and Shailesh Dixit

Expression of the *Ln* locus in chickpea

The *Ln* locus affects leaf morphology, influences photosynthetic efficiency, biomass accumulation, and seed development. Understanding *Ln* gene across tissues and developmental stages provides valuable insights into its functional role in yield enhancement. Expression profiling of the *Ln* locus in young leaves, shoot apical meristem, flower bud, flower and young pod collected across critical developmental stages based on qPCR analysis indicate distinct tissue-specific and stage-specific expression patterns of the *Ln* gene, with upregulation at flowering stage, underpinning its potential involvement in reproductive development and seed formation.

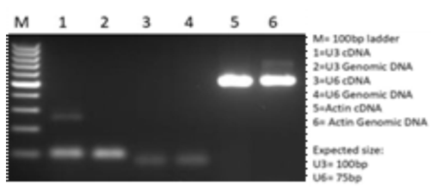


Relative expression level (qPCR) of *Ln* gene in different tissues

Jamal Ansari and Alok Das

Characterization of endogenous U3 and U6 promoters in chickpea

In silico genome-wide analysis identified a total of 13 U3 snoRNAs and 30 U6 snRNAs in draft chickpea genome. Promoters from two candidate U3 and U6 genes with conserved promoter motifs essential for RNA Polymerase III (Pol III) activity were identified. RT-PCR–based expression analysis confirmed that these endogenous promoters actively drive small RNA transcription. The use of native U3 and U6 promoters is expected to improve the efficiency and reliability of CRISPR-Cas mediated gene editing.



RT-PCR amplification of chickpea U3 and U6 transcripts

Noopur Singh and Alok Das

Positive response of summer mungbean to nano urea foliar spray under deficit water conditions

Nano formulations of fertilizers are increasingly recommended for improving the efficiency of foliar-applied nutrients. To assess their efficacy, a study was conducted to compare nano-formulated urea with conventional urea in the mungbean cultivar 'Virat.' The results demonstrated that nano urea (IFFCO nano urea), applied at 4 ml per litre during the early pod development stage, achieved a grain yield of 1,963 kg/ha, which was 14.5% higher than that obtained using *neem*-coated prilled urea under deficit water conditions (induced by withholding irrigation after early pod development). Remarkably, the nano urea foliar spray maintained yield levels comparable to those achieved under irrigated conditions. This yield enhancement with nano urea application was attributed to improved seed weight. These findings highlight the need for systematic studies to elucidate the mechanistic processes driving the superior performance of nano urea in mungbean and other legume crops.

K.K. Hazra, N. Kumar, C.P. Nath and Md. Hashim

Deeper sowing benefits field pea under rainfed conditions

Field experiments conducted at the ICAR-IIPR main farm over two consecutive crop seasons revealed significant yield benefits in field pea (*cv.*Aman) with deep sowing under rainfed conditions. Two sowing depths, normal (~5 cm) and deep (~8 cm), were evaluated in sandy-loam soil under both irrigated and rainfed conditions. Under rainfed conditions, deeper sowing resulted in a 23.5% to 200% yield increase compared to normal sowing ($p < 0.05$). While yield increments were also observed under irrigated conditions, the benefits were marginal. The yield improvement with deep sowing was associated with early biomass accumulation and enhanced seed development, reflected in a higher number of grains per pod. However, nodulation showed slight reductions under deep sowing conditions.

These experimental results underline the potential of deeper sowing to enhance yield in field pea, especially in rainfed systems. Validation of these findings across diverse soil types and hydrological regimes is essential. Additionally, appropriate modifications to sowing machinery will be critical for effective implementation at the farm level.

K K Hazra, C P Nath, N Kumar and Md. Hashim

प्रौद्योगिकी हस्तांतरण

Activities conducted under IIPR-NER Sub-Plan

A total of 41 Farmers' Training Programmes (Capacity building/Skill development programme) were conducted on Pulse Production Technologies under the 'promotion of pulses in NE region. Over 245 numbers of demonstrations of pulse production technologies and 10 numbers of awareness programmes were conducted aiming for the promotion of pulse crops in the north eastern region of India, under the IIPR NER sub-plan. Apart from these, 217.67 q quality seeds of different pulse crops were also distributed to the farmers. Fertilizers, including bio-fertilizers, FYM and vermicompost were distributed to the tune of 522.88 q whereas plant protection chemicals of 5.71 q were distributed for combating insect-pests and diseases in the region. In addition, 976 units of various petty equipment were distributed to the farmers aiding small agricultural operations in pulses cultivation. These programmes were conducted in collaboration with local ICAR centres, CAUs, SAUs, and State Agricultural Departments, covering farmers across various districts of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. A part from these, different regions of South Tripura district were visited during November 2025 and monitored for the activities carried out under the programme. During the visit, an input distribution (seeds for *Rabi* Pulses) and a training programme was also conducted at Uttar Sonaichhari, Tripura.

Anup Chandra, DP Patel and GP Dixit

Newly admitted start-up profiles under Pulses Innovation Hub, ABIC ICAR-IIPR, Kanpur

Four new start-ups have been admitted under the Pulses Innovation Hub, ABIC, ICAR-IIPR, Kanpur, on 16th oct. 2025, focusing on pulse milling and value addition, bio-fertilizer production, and quality seed production of pulses.

Uldan Agriculture Producing Company: Seed production of pulses

Vegman Foods Agri. Marketing: Seed production of pulses

Little One Agri-Innovations: 'Protocols of milling of pulses in IIPR mini *dal* mill and Utilizing the pulses milling by products for manufacturing of pulse cookies'

Saral Bio-Fertilizer: Mass Production of Bio-Fertilizer

New Licensee Under Institute Technology Management Unit (ITMU)

A new licensee, Greenday, a Lucknow-based company, has been admitted under the Institute Technology Management Unit (ITMU) for the commercialization of the bio-fortified lentil variety IPL-220 on December 20, 2025.

Schedule Caste-Sub Plan

Under Schedule Caste Sub-Plan, following activities were conducted:

- Farmer's Training, Kanpur Dehat, Auraiya, Unnao, Fatehpur, Raibareili Barabanki and Jalaun districts in U.P. : 07 Nos.
- Quality seed Distribution of Field pea, Chickpea and Lentil seeds, ICAR-IIPR, Kanpur : 233.07 q.
- Distribution of Knapsack sprayers, ICAR-IIPR, Kanpur : 74 Nos.
- Distribution of Storage bins, ICAR-IIPR, Kanpur : 65 Nos.
- Distribution of Agricultural tool kits, ICAR-IIPR, Kanpur : 28 Nos.
- Distribution of Biofertilizer –Rhizobium, ICAR-IIPR, Kanpur : 548 Nos.

PERSONNEL

Appointments, Promotions, Transfers, *etc.*

Appointments

Sl.	Name	Post	Date of joining
1.	Dr. Anwesha Dey	Scientist	27.10.2025
2.	Dr. Ranjitha MR	Scientist	27.10.2025

Transfers

Sl.	Name	Designation	From	To	Date
1	Dr. Bandi Sanjay Maruti	Sr. Scientist	ICAR-IIPR, Kanpur	ICAR-CCARI, Goa	01.10.2025
2.	Sh. Pavan Kumar Meena	Assistant	ICAR-IIPR, Kanpur	ICAR-NRIIPM, New Delhi	14.11.2025
3.	Sh. Kunal Kalra	CF&AO	ICAR-IIPR, Kanpur	ICAR-CAZRI, Jodhpur	04.12.2025

Retirements:

Sl.	Name	Post held	Date of retirement
1.	Sh. R.K.S. Yadav	STO (T-6)	31.12.2025
2.	Sh. Yashwant Singh	LDC	31.12.2025

Director's Desk

Dear Readers,

Pulses cultivation in India spans the identified agroecological zones across the nation and includes the North East and West Plain Zones, Central zone, Southern Zone and the North East and West Himalayan or Hill zones. Adapting to rainfall patterns (rainfed *vs.* irrigated) and soil types, major production of pulses is concentrated in the Central, North-Western, and Eastern plains of India. Research experiments, developed package of practices, demonstrations and outreach programmes have largely catered to the major production areas, obviously as required for enhanced and sustainable pulse production. Many of the pulses cultivated nationally are also grown in microclimatic zones falling under the North eastern Hill agroecological areas and interestingly, about a decade ago, it is documented that the average productivity of some pulses was higher than the then national productivity documented.

North-east India is endowed with abundant rainfall, fertile yet acidic soils, and exceptional biodiversity. These natural assets provide immense potential for diverse agricultural systems, including pulses, horticulture, and niche crops. Despite these advantages, farming in the region remains predominantly subsistence-based, with limited integration into modern markets. The key challenges for enhanced production included existing traditional orientation to farming practices wherein largely conventional, with minimal adoption of improved varieties, fertilizers, or scientific crop management was practised; Small and fragmented holdings; Infrastructure limitations in terms of poor connectivity, inadequate irrigation, and insufficient storage and processing facilities and ecological fragility including shifting cultivation, climatic aberrations, soil erosion, deforestation, etc. Other than this, the region had been overlooked in national agricultural planning, resulting in weak institutional support.

These challenges had direct implication on crop production resulting in lower yields and poor quality that also caused market

isolation. As such farmers were unaware of any existing larger value chains and were thus limited to local markets. Even though NEH bubbles with genetic diversity, it was not harnessed for crop improvement and diversification. Limited opportunities in agriculture fuelled migration and reduced generational continuity in farming.

Aware of these challenges and opportunities, ICAR took strong strides and once NEH came under its umbrella, IIPR took initiatives to strengthen pulses adoption, cultivation, improvement and preservation by linking it in with ongoing research and outreach programmes. In the recent past, the Institutes NEH outreach programme has enlightened thousands of farmers with production technologies and shared resources in terms of quality seed, fertilizers, pesticides, essential field instruments, *etc*. The institute has made significant efforts towards bolstering knowledge, skills and imbibing awareness through trainings, capacity building programmes and awareness cum exposure visits of farmers to exemplary pulse production hubs. Demonstrating complete farming practises has witnessed better and improved yield in a number of cases. Consistent visits by the Institute in the region are manoeuvring the activities in an efficient way. Further research opportunities for pulses improvement lies in utilizing rice and maize fallow regions with short duration legumes; tailoring small-scale machinery for fragmented holdings to enhance efficiency; Establish storage, milling, and value-addition units to strengthen local economies, establish community-based seed banks so that resilient varieties can improve adoption and sustainability and combine indigenous knowledge with modern science in attempt to boost productivity while preserving ecosystems.

In light of this, ICAR-IIPR has rolled out its activities in collaboration with various ICAR centres, State Agricultural Departments, Central and State Universities in the North-east to foster pulse production and heading towards self-sufficiency.

The North-east can emerge as the Nation's new frontier for pulses and sustainable agriculture. By bridging tradition with innovation, subsistence with commercialization, and local ecosystems with national priorities, the region can transform its agricultural landscape and contribute significantly to food and nutritional security and IIPR is committed to help that happen.

(Girish Prasad Dixit)

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