



**Resilience Reaping Records**

| Year    | Yield (mt) | Weather Icon |
|---------|------------|--------------|
| 2025-26 | 120.66     | Sun          |
| 2024-25 | 117.94     | Sun          |
| 2023-24 | 113.29     | Sun          |
| 2022-23 | 110.55     | Sun          |
| 2021-22 | 107.74     | Cloud        |

**Growth Stages**

**अखिल भारतीय समन्वित गेहूँ एवं जौ अनुसंधान परियोजना**  
**AICRP on Wheat and Barley**  
**भाकृअनुप-भारतीय गेहूँ एवं जौ अनुसंधान संस्थान, करनाल**  
**ICAR-Indian Institute of Wheat and Barley Research, Karnal**

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ICAR-Indian Institute of Wheat and Barley Research

Karnal 132 001 (Haryana)

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# **PROCEEDINGS**

**(Research Review, Recommendations & Plan of Work 2026-27)**

**65<sup>th</sup> All India Wheat & Barley Research Workers' Meet  
held at  
Rajasthan Agriculture Research Institute (RARI – SKNAU)  
Durgapura, Rajasthan  
(August 18-20, 2026)**

**Organized by  
RARI, Durgapura & ICAR-IIWBR, Karnal**

**Issued by  
  
Director  
ICAR-Indian Institute of Wheat and Barley Research  
Karnal - 132 001, Haryana, India**



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## Foreword

The 65<sup>th</sup> All India Wheat and Barley Research Workers' meet held at Rajasthan Agriculture Research Institute (RARI – SKNAU) Durgapura, Rajasthan, during 18-20 August, 2026 was jointly organized by the ICAR-Indian Institute of Wheat and Barley Research, Karnal and SKNAU, Jobner. The meet was inaugurated by Dr. M L Jat, Secretary, DARE & DG ICAR, New Delhi. Prof. (Dr.) P S Chauhan, Vice Chancellor, SKNAU, Jobner and Dr. D K Yadava (DDG(CS), ICAR) also graced the occasion. The meeting reviewed the results of previous year experiments and based on the deliberations, the programme for ensuing crop season 2026-27 was finalized. Apart from this, emerging issues in wheat production were also discussed by eminent speakers during various special sessions.

On behalf of the wheat and barley fraternity, I express my sincere gratitude to Dr. M L Jat, (Secretary DARE & DG ICAR), (CS), ICAR for guidance and continuous support. Thanks, are also due to Dr D K Yadava, DDG(CS), ICAR, for his constant encouragement and approval for organizing this meeting. I also express gratitude to Dr SK Pradhan, ADG(FFC), ICAR for his dedicated support. I would also like to acknowledge Dr Poonam Jasrotia, ADG (PPB) for her advice which will help in further streamlining the system. I also place on record my sincere thanks to Prof. (Dr.) P S Chauhan, Vice Chancellor SKNAU, Jobner for his unfailing help and devoted support.

I pay my sincere gratitude to Chairman, PAMC, Dr. Sanjay Kumar and members Dr Ashok Yadav, Dr S R Verma, Dr Vinod, Dr S C Bhardwaj and Dr Sewa Ram, for critically reviewing the performance of all the centers in pre-workshop meeting. I would also take this opportunity to thanks Dr Ummed Singh, Director Research, SNKAU and all the members of the organizing committee of university for all the hard work in making this programme a grand success. Special thanks are also due, to Dr Surendra Singh RARI, Durgapura for all the support in arranging the logistics for successful organization of this meet.

Efforts made by Dr Ratan Tiwari, former Director ICAR-IIWBR, in organizing the workshop, presenting the overall progress of AICRP and for finalization of work plan 2026-27, is highly acknowledged.

I would also commend all the Principal Investigators and staff of ICAR-IIWBR, for timely preparation of Annual Progress reports and this proceeding. Thanks to the chairmen and rapporteurs of various technical sessions for smooth conduct and recording of proceedings. I appreciate the efforts made by scientific, technical and administrative staff for all their efforts. I wish all the best for the ensuing season.

**-sd-  
(Omvir Singh)**



**Session I- Review of work done by individual AICRP centres during 2025-26**

|                                |                      |                                                                           |
|--------------------------------|----------------------|---------------------------------------------------------------------------|
| August 18, 2026<br>0900 -13.30 | Chairman             | : Dr. Sanjay Kumar, Chairman, PAMC                                        |
|                                | Co-Chairperson       | : Dr. Poonam Jasrotia, ADG (PPB), ICAR, New Delhi                         |
|                                | PAMC Members         | : Dr. Ashok Yadav, Dr. SR Verma, Dr. Vinod, Dr. SC Bhardwaj, Dr. Sewa Ram |
|                                | AICRPW&B Coordinator | : Dr. Ratan Tiwari, Director, ICAR-IIWBR, Karnal                          |
|                                | Rapporteurs          | : Drs. Vikas Gupta & Kiran Gaikwad                                        |

Dr. Ratan Tiwari, Director of ICAR-IIWBR and AICRPW&B Coordinator, welcomed the Chairman, Co-Chairman, PAMC members, and all delegates, inviting the Chairman to open the session. Taking the floor, session Chairman Dr. Sanjay Kumar extended his welcome, congratulated the AICRP wheat and barley teams on achieving record wheat production, and emphasized analyzing strengths, weaknesses, and opportunities to further strengthen the program. Co-Chairman Dr. Poonam Jasrotia also shared her delight over the record yield, urging scientists to keep pushing boundaries in the years ahead. In total, 34 presentations were delivered by zonal coordinators and various centers:

North Western Plains Zone (NWPZ): Dr. VS Sohu led off with updates from PAU, Ludhiana, covering trial management, reporting, seed production, variety releases, pre-breeding, and off-season generation advancement at Keylong. Presentations from Durgapura, Jammu, Hisar, and Pantnagar followed. The leadership highly praised PAU's breeding efforts, prompting Dr. Tiwari to suggest that established hubs like PAU mentor smaller centers by sharing materials and training. The session closed with discussions on budget utilization and vacant positions, with strict directives issued to fully utilize funds and work with university authorities to fill open roles.

North Eastern Plains Zone (NEPZ): Zonal Coordinator Dr. Amit Sharma outlined the zone's progress in variety releases and seed production while highlighting key issues namely vacant positions, budget utilization, and trial rejections. Representatives from Ayodhya, Coochbehar, Kalyani, Kanpur, Ranchi, Sabour, Shillong, and Varanasi presented their updates. The Chairman advised centers to pinpoint and focus on key target traits, while the house emphasized breeding aluminum-tolerant varieties for problem soils in Bengal, Assam, and Manipur.

Central Zone (CZ): Dr. JB Singh presented achievements for the zone and IARI, RS Indore, detailing variety development and seed production, followed by updates from Junagadh, Vijapur, Gwalior, Powarkheda, Sagar, and Udaipur. Leadership urged centers to build strong breeding pipelines, leverage identified donor lines, and focus on heat and drought tolerance while actively sharing materials to maximize resources.

Peninsular Zone (PZ) & Other Centers: Dr. Yashwantha Kumar presented updates for the Peninsular Zone and ARI, Pune, covering achievements from the 2025–26 crop season. The Chair and Co-Chair advised him to submit a dedicated proposal on Khapli wheat to ICAR and other funding agencies. Regarding rainfed (RF) trials, the committee decided against launching new RF trials given the limited acreage and existing irrigated (RI) trial coverage, noting state-level trials could be taken up if necessary. Dr. Sewa Ram recommended raising the yellow pigment target to 10 ppm. Following updates from Dharwad, Niphad, and Mahabaleshwar, Chairman and Co-Chairman called for strengthening the Mahabaleshwar center for stem and leaf rust screening, asking them to submit a formal proposal to ICAR.

Northern Hills Zone (NHZ): Dr. DS Walia shared progress from IARI, RS Shimla, focusing on genetic stock development, publications, and breeder seed indent, alongside using Triticale for powdery mildew resistance. The Co-Chairman stressed integrating new resistance genes to diversify rust resistance. Additional updates came from Palampur (focusing on marker-assisted selection, natural farming, and endophytes), Bajaura, Imphal, and Srinagar (highlighting the need for short-duration, early-maturing varieties suitable for local crop rotations). Concluding the session, it was noted as a general concern over low publication output and urged all centers to step up their scientific publications.

#### Key Outcomes and Action Points:

- Pre-Workshop Meetings: Hold online meetings prior to the workshop to review progress across all AICRP wheat and barley centers.
- Standardized Presentations: Adopt a uniform presentation format highlighting key achievements. Center-level presentations should focus exclusively on their respective zones, while Zonal Coordinators present the annual, overall regional progress.
- Expanded Role for Zonal Coordinators: Coordinators should look beyond organizing and dispatching trials to actively monitoring progress, reviewing performance, and resolving local center challenges.
- Success Stories: Require every center's presentation to feature a past success story to demonstrate tangible impact.
- Target Setting: Zonal Coordinators must set target numbers for breeding crosses based on each center's staff capacity.
- Active IIWBR Oversight: The IIWBR Coordination Unit needs to take a more proactive approach to improve breeding activities, monitor budget utilization, and speed up hiring for vacant university positions.
- Funding & Proposals: Explore Corporate Social Responsibility (CSR) funding. Centers like Pune and Mahabaleshwar should actively submit project proposals to ICAR and other external agencies.
- Core Agricultural Goals: Focus efforts on boosting overall wheat yield, production efficiency, and crop quality.
- Research Output: Every center must aim to improve its scientific publication count.
- Targeted Breeding: Centers in Bengal should place special emphasis on breeding for Wheat Blast resistance.
- Material Sharing: Major centres - such as PAU, IARI, Delhi and Indore, and IIWBR should actively share and exchange pre-bred genetic materials with smaller centers to maximize resource utility.

The Chairman and Co-Chairman concluded the session by thanking the PAMC members and presenters for their efforts, while emphasizing the need for stronger, unified action to tackle future challenges.

**Session 2: Concurrent session on formulation of work plan 2026-27*****Crop Improvement***

**Aug. 25, 2025** **Chairman:** Dr. Sanjay Kumar, Chairman PAMC  
**Co-Chairperson:** Dr. Poonam Jasrotia, ADG (PPB), ICAR, New Delhi  
Dr Ratan Tiwari, Director ICAR-IIWBR  
**Rapporteurs:** Drs. Hanif Khan and Manjeet Kumar

The session covered discussions on the evaluation, testing, advancement and promotion of entries under different NIVT and AVT trials, with particular emphasis on test locations, number of entries and checks, pedigree verification, private-sector entries, disease reaction, irrigation, regional suitability and MABB-derived material. The major points raised during the deliberations are summarized below.

**NIVT-1A – IR-TS-TAS:** Dr. Arun Gupta raised the issue of increasing the number of test locations. **RPCAU, Bihar** and **IARI-RS, Pusa, Bihar** were suggested as suitable additional locations. **Dr. Rajbir Yadav** informed that consent for conducting trials at IARI-RS, Pusa, Bihar, had been obtained.

**NIVT-1B– IR-TS-TAS:** The discussion focused on new test sites, pedigree information and duplication of entries. SKUAST, Jammu and IARI-RS, Pusa, Bihar were suggested as new test sites. Dr. Rajbir Yadav emphasized that all entries should be submitted with complete pedigree and parentage information to avoid duplication of entries contributed by different centres. The possibility of overlap/conflict between entries from public institutes and the private sector was discussed, and the need for an appropriate mechanism to resolve such issues was emphasized. Dr. Sanjay Kumar stressed that resources should not be wasted by testing the same entries submitted by different centres under different names. He emphasized the need for careful verification of entry identity and nomenclature. Dr. Rajbir Yadav suggested that entries from the private sector should be ensured for evaluation, for three years period (NIVTs to AVTs), if fulfil the criteria of promotion to prevent possible misuse of the AICRP testing system by private companies.

**NIVT-2:** Dr. Naresh Kumar suggested that clear criteria and a defined limit should be established for the number of private-sector entries to be tested under AICRP. Dr. Rajbir Yadav emphasized that the number of test locations should be proportional to the area under wheat cultivation in each state. He particularly pointed out that Uttar Pradesh and Bihar have fewer test locations relative to their wheat-growing area. He suggested increasing the number of locations and also proposed additional verification centres, with due credit to the persons involved in verification.

**NIVT-3A:** The entry NW8158 was reported to have an ACI value >20. In view of the disease reaction, the breeder from NDUAT, Ayodhya, agreed to replace the entry. If a suitable replacement is not available from NDUAT, the replacement may be contributed by IARI, New Delhi.

**NIVT-3B:** WH 1383, contributed by CCSHAU, Hisar, was reported to have an ACI value >20. It was agreed that the entry would be replaced by CCSHAU, Hisar.

**NIVT-4 – IR-TS-TDM:** There was a discussion on the continuation of NIVT 4 in NWPZ is required? After detailed discussion, it was decided to discontinue NIVT-4 (IR-TS-TDM). However, the AVT trial for durum wheat will continue to provide adequate testing opportunities to entries promoted from NIVT.

**NIVT-5A:** Dr. Arun Gupta proposed increasing the number of entries from 25 to 36, which was supported by Dr. Sanjay Kumar and the House. Dr. Rajbir

Yadav suggested increasing the number of irrigation treatments to two. Dr. Sanjay stated that this issue would be discussed in the combined session with Agronomy. Dr. Ratan Tiwari suggested the use of district-wise map of soil type available with NBLSSUP, Nagpur to decide the number of irrigation restricted irrigation trial. Dr. Sanjay Kumar further suggested increasing the number of test locations by including NDUAT, Ayodhya, and IARI-RS, Pusa, Bihar.

**NIVT-5B:** Dr. Arun Gupta suggested increasing the number of checks in NIVT 5B because of the large number of promotions in each cycle. IARI Wheat PI and house agreed to reduce the number of IARI entries quota from five to four and increase the number of checks to four, with addition of One bread wheat check entry.

**IVT-RF-TS-TAS:** Dr. Arun Gupta proposed shifting the test site from Gaja to Chakrata. It was agreed that Dr. Jaiswal would discuss the matter further.

**AVT-RF-TS-TAS:** Dr. Navin Gahtyari raised the case of VL 2068 for promotion. He highlighted that the entry has yield performance at par with the checks along with desirable nutritional quality. The suitability of the entry for promotion was discussed, if the entry falls in this category would be promoted on the basis of available guideline.

**AVT-IR-TS-TAS:** The inclusion of HD 3570, an MABB-derived line of HD 3386, was discussed. There was a discussion in the house that the recipient parent has adult plant resistance, and counter argument came that HD 3386 has seedling susceptibility and some centres reported the up to 40S at some centres, which may result in susceptibility being expressed in the future. Dr. Vinod pointed out that the proposed genotype possesses Lr52/Yr47, which could be useful for increasing genetic diversity. Dr. Sanjay Kumar stated that MABB is a short method for variety development, but it can still be useful for creating genetic diversity. He suggested that the Director, IIWBR, should take the final decision after considering all relevant aspects. Dr. Sanjay Kumar further suggested developing clear-cut guidelines for the identification and promotion of MABB-derived entries.

**AVT-IR-LS-TAS:** The promotion of HD 3508 was discussed. It was suggested that the relevant performance data should be checked to determine whether the entry fulfils the criteria for promotion.

**AVT-RI-TS-TAS:** The promotion of HP 1987 was discussed. It was suggested that the relevant trial performance and prescribed criteria should be checked before taking a decision on its promotion.

### ***Resource Management & Social Sciences***

Chairman: Dr. Ashok Yadav, Member PAMC

Co-Chairman: Dr. S. C. Gill, PI, Resource Management, ICAR-IIWBR, Karnal

Convener: Dr. R. S. Chhokar, PS, ICAR-IIWBR

: Dr. Anuj Kumar, ICAR-IIWBR

Rapporteurs: Dr. Bhagat Singh, CCSHAU, Hisar

Dr. Ravindra Singh Shekhawat, ICAR-IIWBR, Karnal

At the outset, the convener Dr. R. S. Chhokar welcomed the chair & co-chair, participants. The chairman Dr. Ashok Yadav in his remarks advised to conduct experiments on nutrient use efficiency, soil health, weed management and tillage options in cropping system perspective and increase production through economic point of view. Dr Yadav also suggested to focus on North east region and plan long term trials on tillage involving DSR followed by Zero tillage in wheat.

Dr R S Chhokar presented the work plan of Resource Management for the year 2026-27. Co-Chairman Dr. Gill told the house that the trials on genotype evaluation will be formulated based on inputs from PI (Crop Improvement). Thereafter, detailed discussions were held to formulate new experiments for addressing the zone-wise issues. Based on the discussions,

the group decided to conclude four special coordinated trials, continue four ongoing trials and formulated three new special trials, the details of which are given below;

#### Co-ordinated trials of wheat and barley

Evaluation of AVT-II-year entries of wheat and barley under different growing conditions (Timely, late, restricted irrigation, salinity, HYPT) in various zones will be conducted as per allotment of the trials from crop improvement programme.

#### Production technologies trials

The group decided to conclude the following four special trials and come out with recommendations:

SPL-3: Comparative performance of nano urea plus and prilled urea in wheat

SPL-5: Evaluation of herbicides for broad-leaved weed control in barley

SPL-7: Efficacy of pre-mix combination of bixlozone + metribuzin against weeds in wheat

SPL-8: Elucidating the effect of heat stress mitigators in terminal heat stress mitigation and yield improvement of wheat

The group decided that the following four special trials will be continued during the 2026-27 crop season:

SPL-1: Effect of tillage, rice residue and microbial consortia management on system productivity, profitability and soil health

SPL-2: Optimizing the application timing and dose of chlormequat chloride for higher productivity in wheat

SPL-4: Improving the productivity of late sown wheat through Gibberellic Acid (GA3) and Absciscic Acid

SPL-6: Optimizing the sowing time and nitrogen dose in hulless barley

Dr. R. S. Chhokar proposed to add one additional treatment of abscisic acid based Biostimulant (Top grain® of Sumitomo) @62.5g/ha + 200 ml/ha surfactant in 400 litres of water at milking stage in SPL-2. After detailed discussion the proposed treatment approved by the house.

The following three new special trials were formulated and proposed to be conducted from the 2027-27 crop season:

#### SPL-3: Enhancing Wheat Productivity and Nitrogen Use Efficiency through Integrated Soil and Foliar Nitrogen Application

Treatments: 12

1. Control + no foliar urea spray
2. Control + foliar urea spray @
3. 6% at 50-55 days after sowing (DAS)
4. Control + foliar urea spray @ 9% at 50-55 DAS
5. Control + foliar urea spray @ 12% at 50-55 DAS
6. 50% RDN + no foliar urea spray
7. 50% RDN + foliar urea spray @ 6% at 50-55 DAS
8. 50% RDN + foliar urea spray @ 9% at 50-55 DAS
9. 50% RDN + foliar urea spray @ 12% at 50-55 DAS
10. 75% RDN + no foliar urea spray
11. 75% RDN + foliar urea spray @ 6% at 50-55 DAS
12. 75% RDN + foliar urea spray @ 9% at 50-55 DAS
13. 75% RDN + foliar urea spray @ 12% at 50-55 DAS
14. 100% RDN + no foliar urea spray
15. 100% RDN + foliar urea spray @ 6% at 50-55 DAS
16. 100% RDN + foliar urea spray @ 9% at 50-55 DAS
17. 100% RDN + foliar urea spray @ 12% at 50-55 DAS

Design: Factorial RBD Replications: 3

Centres: Agra, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar,



PLOT SIZE: Gross: 30 m X 60 m  
FERTILISER: RDF  
Centres: Hisar, Karnal, Ludhiana, Pantnagar, Pune

The Resource Management group after thorough deliberations arrived at the following recommendations:

Recommendations

- ❖ Foliar application of prilled urea @ 6% consistently outperformed nano urea plus spray @ 0.4% in wheat crop across the zones (NWPZ, NEPZ and CZ). Therefore, foliar spray of prilled urea @ 6% may be preferred over nano urea plus spray @ 0.4% for better productivity and profitability in wheat.

Multi-location experiments across NWPZ, NEPZ, and CZ demonstrated that foliar application of either prilled urea @ 6% or nano-urea plus @ 0.4% along with recommended dose of nitrogen (RDN), increased grain yield by 1.34 – 4.05 q/ha over RDN alone. Thus, supplementary foliar nitrogen application can be considered as an effective strategy for enhancing wheat grain yield when used in conjunction with RDN.

- ❖ Based on multi-locational trials across zones (NWPZ, NEPZ and CZ), haloxyfop-methyl + fluroxypyr @ 200.6 (6.1 +194.5) g/ha or metsulfuron + carfentrazone @ 4 + 20 g/ha or tank-mix combination of carfentrazone @ 20 g/ha with 2, 4-D @ 400 g/ha should be applied for effective control of broad-leaved weeds in barley.
- ❖ Based on multi-locational trials in NWPZ, bixlozone + metribuzin @ 750 (625+125) g/ha or clodinafop + metribuzin @ 270 (60+210) g /ha should be applied at 35 days after sowing for effective control of diverse weed flora in wheat.
- ❖ For terminal heat-stress mitigation in NWPZ and NEPZ, foliar application of either sodium nitroprusside (100 µM; i. e. 10.5 g/ha) or 2% KNO<sub>3</sub> (8 kg/ha) using 400 litres of water/ha is recommended to realize higher grain yield of wheat (3.83–4.36 q/ha) over control. In CZ and PZ, foliar application of progesterone (1 µM; i. e. 125 mg/ha) using 400 litres of water/ha is recommended for higher wheat productivity (3.56–4.98 q/ha) over control.

Dr. Ravindra Singh presented the work plan of social sciences for 2026-27. In his presentation, Dr. Shekhawat proposed Frontline Demonstrations (FLDs) on biofortified wheat covering 500 acres area and on barley across 350 acres area.

At the end of the session, Dr. Usha Das, on behalf of the ICAR-IIWBR, Karnal thanks Chairman, Co-Chairman and all the participants for valuable suggestions.

### ***Crop Protection***

|                 |                  |                                                                                                      |
|-----------------|------------------|------------------------------------------------------------------------------------------------------|
| August 18, 2026 | Chairman         | : Dr. SC Bhardwaj, Ex Emeritus Scientist & Principal Scientist, ICAR-IIWBR, Regional Station, Shimla |
|                 | Co-chairperson   | : Dr. Poonam Jasrotia, ADG, (PP & B, ICAR, New Delhi                                                 |
|                 | Rapporteurs      | : Drs PL Kashyap and Pramod Prasad                                                                   |
|                 | Session Convener | : Drs Pradeep Sharma, PI, Crop Protection                                                            |

The Concurrent Session on Formulation of Work Plan 2026-27 (Crop Protection) was chaired (virtual mode) by Dr. SC Bhardwaj, Ex Emeritus Scientist & Principal Scientist, ICAR-IIWBR, Regional Station, Shimla and was attended by the wheat and barley crop protection research workers. The session began with the felicitation of the chair and co-chair by principal investigator Dr. Pradeep Sharma. The chairman and co-chairperson highlighted the importance of the wheat and barley crop protection programme under AICRPW&B. The session convener and principal investigator presented the work plan 2025-26 for wheat and barley crop protection programme, encompassing pathology, entomology and nematology disciplines in both crops. He highlighted several nurseries, on-going and new experiments. The crop protection work plan was discussed thoroughly among the scientists involved in the crop protection programme. The group unanimously agreed to send the samples of AVT entries showing >60S severity of all three rusts to Shimla for pathotype analysis. It was emphasized that such samples should be taken randomly (10-15) and shared with Shimla centre for further analysis. The members discussed the importance of systematic disease surveillance and agreed

that wherever rust samples are encountered, they must be properly collected and sent to Shimla for pathotype analysis. Timely submission of representative samples was emphasized to facilitate effective monitoring of pathogen variability and the emergence of new pathotypes.

During the session, it was decided that the Powdery Mildew Screening Nursery (PMSN) trial at Wellington, Tamil Nadu, should be dropped. It was further decided that the chemical trials at Pantnagar and Jammu should be dropped. In view of emerging crop protection challenges, new experiments were formulated on yield loss assessment due to stem rust and leaf blight, as well as on the effect of nitrogen application on aphid infestation. These studies were considered important for generating location-specific information on yield losses and understanding the interaction between crop nutrition and insect-pest incidence. The termite management trial involving seed treatment was also discussed. It was recommended that the ongoing trial should be completed and concluded so that meaningful results and appropriate recommendations can be generated.

The principal investigator stressed that the MDSN should be conducted seriously and systematically at all designated locations. Proper screening, disease recording, and timely submission of observations were emphasized to ensure reliable identification of resistant sources and accurate assessment of disease reactions across environments.

In his concluding remarks, the Chairman expressed satisfaction with the overall progress of the Crop Protection programme. However, he raised concern regarding instances of faulty rust scoring and emphasized the need for accurate, standardized, and careful disease assessment. He advised the concerned scientists and technical staff to ensure greater precision and consistency in rust scoring and disease observations.

The Co-Chairperson, in her concluding remarks, expressed concern over the alarming situation in the Crop Protection programme, particularly due to the shifting of experienced workers to other crops or locations. She emphasized that the Crop Protection group constitutes a vital component of the AICRP on Wheat and Barley programme and highlighted the need to maintain adequate experienced manpower and technical expertise for effective disease and pest management research.

The session concluded with a vote of thanks proposed by the PI, Crop Protection, who expressed gratitude to the Chair, Co-Chair, participating scientists, and all members for their valuable contributions and guidance.

### ***Quality and Basic Sciences***

**Chairperson:** Dr. Sewa Ram, PAMC Member

**Convener:** Dr. Suni Kumar, PI Quality & Basic Sciences

**Rapporteurs:** Drs. O. P. Gupta & Vanita Pandey

**NIVT and IVT:** NIVT and IVT entries will be analysed for grain appearance score, hectoliter weight, protein content, sedimentation value, iron, and zinc content, in both *aestivum* and durum wheat genotypes. In addition, phenol reaction in bread wheat and yellow berry and yellow pigment in durum wheat will also be analysed.

**AVT:**

AVT samples from all the centres mentioned in NIVTs and IVTs will be analyzed by ICAR-IIWBR, Karnal for various quality parameters including baking evaluation of II<sup>nd</sup> year entries and checks. Grain hardness index of selected centres of AVT will be evaluated at ICAR-IARI, New Delhi.

**QCWBN:** All QCWBN samples will be analyzed at ICAR-IIWBR, Karnal.

**AST:** All AST samples will be analyzed at ICAR-IIWBR, Karnal.

**Dicoccum:** All Dicoccum trial will be analyzed at UAS, Dharwad.

All iron zinc of NIVTs will be analyzed at ICAR-IIWBR, Karnal.

#### Mandatory Instructions:

- For iron and zinc estimation, only hand-threshed samples should be sent separately for AVT, HYPT, QCWBN, Dicocum, and AST trials to ICAR-IIWBR, Karnal.
- For estimation of NIVT/IVT parameters, the samples should be sent to the centres designated for their estimation as given above while for iron and zinc estimation, only hand-threshed samples (approx. 40 g) should be sent separately to ICAR-IIWBR, Karnal.
- All trials should be conducted as per the standard agronomic practices.
- The last dates for supplying the samples by respective centres are finalized as follow:

|             |                             |
|-------------|-----------------------------|
| NHZ         | 15 <sup>th</sup> June 2027  |
| NWPZ & NEPZ | 20 <sup>th</sup> May 2027   |
| CZ          | 15 <sup>th</sup> May 2027   |
| PZ          | 30 <sup>th</sup> April 2027 |
- All the wheat grain samples, duly cleaned, and properly packed in biodegradable polythene bags separately, enclosed in cloth bags should be sent by registered post parcel.
- All the co-operators, who will analyze the wheat samples of various NIVTs should send the data to ICAR-IIWBR, Karnal positively by 15th July, 2027, by e-mail in the format used in annual report.
- The session concluded with a formal vote of thanks proposed by local organizer, RARI, Durgapura.

#### *Barley Improvement*

**Chairman:** Dr. S R Verma, PAMC Member

**Co-Chairman:** Dr. Lakshmi Kant, Director, ICAR-VPKAS, Almora

**Rapporteurs:** Drs. Neha Sharma & Ravindra Kumar

**Convener:** Dr. Chuni Lal, PI, Barley Network

The session was chaired by Dr. S.R. Verma, Member, PAMC, AICRP on Wheat & Barley, and co-chaired by Dr. Lakshmi Kant, Director, VPKAS, Almora. In his opening remarks, the Chairman welcomed all the delegates and expressed satisfaction with the overall progress of barley research and improvement programmes. The Chairman invited Dr. Chuni Lal, PI, Barley Improvement, ICAR-IIWBR, to present the proposed Work Plan for Barley Improvement for 2026–27. Dr. Chuni Lal presented the proposed work plan covering the major disciplines of crop improvement, quality, crop protection and agronomy. Following detailed deliberations, the house made the following recommendations and decisions:

- Banda (Uttar Pradesh) may be dropped as a testing centre for the AVT-Feed Barley-CZ, IVT-Dual Purpose Barley-CZ and AVT-Hulless Barley-CZ trials.
- Under the AVT/IVT-SAL/ALK trials, soil analysis should be carried out at all testing centres, as was followed in earlier years to facilitate better interpretation of the experimental results.
- The discontinued ICARDA nursery should be revived. The matter may be taken up at the appropriate higher level for consideration and necessary action.
- Hisar centre may be dropped from the barley entomology programme, as the centre has reported that entomologist is presently not available with Hisar under this programme.
- No special trials (agronomy) may be allotted to Shimla. In place of Shimla, the proposed special trials may be conducted at Bajaura.

The deliberations focused on strengthening the efficiency, scientific rigour and effectiveness of the barley improvement programme. The recommendations made by the house may be incorporated into the Work Plan for 2026–27 and communicated to the concerned centres for necessary action. The session concluded with a vote of thanks to the Chairman, Co-Chairman, Session Convener and all the delegates for their valuable deliberations, constructive suggestions and active participation.

### Session III: Discussion on Constitution of trial for Nutrient Use Efficiency in Wheat

Chairman: Dr. Ashok Yadav, Member PAMC,  
Co-Chairman: Ratan Tiwari, Director, ICAR-IIWBR  
Convener(s): Dr SC Gill, PI Resource Management; Dr Arun Gupta, PI Crop Improvement  
Rapporteurs: Drs. CN Mishra and RS Chhokar

Dr. S. C. Gill, Convener of the session, welcomed the Chairman and the participants in discussion on the Constitution of trial for Nutrient Use Efficiency in Wheat. Dr. C. N. Mishra presented the proposal for the initiation of a Special Trial on Nutrient Use Efficiency (SPL-NUE) in wheat. He informed the house that nutrient-use efficiency (NUE) has emerged as a critical breeding objective for sustaining wheat productivity while reducing dependence on nitrogen fertilizers and minimizing environmental losses. Recent studies under Indian conditions have demonstrated substantial genotypic variation for NUE and highlighted the potential of genotype-specific nitrogen management to sustain productivity with reduced nutrient inputs. In view of the above, it was considered necessary to initiate a dedicated Special Trial on Nutrient Use Efficiency (SPL-NUE) under (AICRP-WB). The proposed trial will provide a coordinated platform for screening and identifying wheat genotypes capable of maintaining higher productivity under reduced nitrogen input.

Dr. S. C. Gill proposed the constitution of the SPL-NUE trial. It was proposed that the trial would be conducted in a  $4 \times 4$  lattice design with two replications. The test entries will be contributed by IARI, ICAR-IIWBR, PAU Ludhiana and HAU Hisar. The trial will be conducted at nine centres, comprising five centres in the North Western Plains Zone (NWPZ), namely Delhi, ICAR-IIWBR Karnal, PAU Ludhiana, Hisar and CSSRI Karnal, and four centres in the North Eastern Plains Zone (NEPZ), namely Ayodhya, BHU Varanasi, Sabour and Coochbehar. At CSSRI Karnal, additional observations on  $\text{N}_2\text{O}$  emissions and  $\text{NH}_4^+/\text{NO}_3^-$  dynamics will be recorded to complement the varietal evaluation with information on nitrogen transformation and potential nitrogen losses.

Dr. R. S. Chhokar presented the proposed fertilizer treatment and informed the house that the crop would receive 75% of the recommended nitrogen dose (112.5 kg N/ha) along with 60 kg  $\text{P}_2\text{O}_5$  and 40 kg  $\text{K}_2\text{O}$ /ha. Nitrogen will be applied in three equal splits: one-third as basal, one-third at CRI and one-third at booting. Sowing will be undertaken during 1–15 November, using a seed rate of 100 kg/ha, with approximately 5 kg seed required per entry. The Chairman, Dr. Ashok Yadav, invited the opinion of the house on the proposed constitution and conduct of the trial. After detailed discussion, it was unanimously agreed to initiate the SPL-NUE trial from the crop season 2026–27 in both the NWPZ and NEPZ under the proposed reduced nitrogen dose.

It was further decided that, during the 2026–27 crop season, the SPL-NUE trial would be conducted only at those identified sites under the Agronomy or Breeding programmes where suitable experimental fields with low and relatively uniform residual soil nitrogen are available. This is essential to minimize the influence of residual nitrogen and ensure reliable assessment of genotypic differences for nitrogen-use efficiency. From the subsequent crop season onwards, it was proposed that designated experimental fields should be systematically developed and maintained at the respective centres for conducting both Agronomy and Breeding trials on NUE. The fields should preferably have a documented history of no application of nitrogenous fertilizer to the preceding crop, relatively uniform soil fertility and adequate baseline soil characterization. Regular soil testing for available N, P, K, organic carbon and other relevant soil parameters should be undertaken before initiation of experimentation.

The development of such dedicated experimental fields will provide a standardized and scientifically robust platform for long-term evaluation of NUE, enabling better comparison of genotypes across years and locations. All concerned centres were therefore requested to identify suitable fields during 2026–27 and initiate their development and management so that dedicated NUE experimental fields are available for both Agronomy and Breeding trials from the subsequent crop season onwards.

In his concluding remarks, the Chairman observed that the SPL-NUE trial would help identify wheat genotypes with superior performance under reduced nitrogen input, generate multi-location evidence on grain yield and nutrient-use efficiency, and facilitate the incorporation of NUE as an important trait in future wheat breeding programmes.

The trial is also expected to provide a scientific basis for identifying wheat varieties capable of contributing to lower fertilizer requirements, reduced production costs, improved nitrogen recovery and mitigation of  $\text{N}_2\text{O}$  emissions, thereby supporting sustainable, resource-efficient and climate-smart wheat production.

**Session IV - SPECIAL SESSION**  
**Varietal Identification Committee Meeting**

**August 18, 2026 Chairman:**

**Dr. D K Yadava, DDG (CS), ICAR**

**Member Secretary:**

**Dr. Ratan Tiwari, Director, IIWBR**

**Venue: Committee Room, Entomology Deptt., RARI, Durgapura, Raj.**

The meeting of Varietal Identification Committee of Wheat & Barley was held on 18 August 2026 under the Chairmanship of Dr. D K Yadava, DDG (CC), ICAR. The meeting was held in hybrid mode from the Committee Room, Entomology Department, RARI, Durgapura, Raj. and following members participated in the meeting:

1. Dr. D K Yadava, DDG (CS), ICAR, Krishi Bhawan New Delhi (*Chairman*)
2. Dr. Poonam Jasrotia, ADG (PPB), ICAR, Krishi Bhawan New Delhi
3. Dr. P R Choudhary, ADG (Seeds - Acting), ICAR, Krishi Bhawan New Delhi
4. Dr. P K Singh, Agriculture Commissioner, GOI, MOAFW (*joined online*)
5. Dr. Sanjay Kumar, Ex-Director, ICAR-IISS, Mau Nath Bhanjan
6. Dr. M S Saharan, Head, Division of Pathology ICAR-IARI, New Delhi
7. Dr. Pankaj Tyagi, GM (Production), NSC (*joined online*)
8. Dr. Umeed Singh, Director Research, SKNAU, Durgapura, Rajasthan
9. Dr. M C Gupta, Director, R&D, Rasi Seeds Pvt. Ltd.
10. Dr. U S Singh, Pr. Scientist, Nuziveedu Seeds Pvt. Ltd.
11. Dr. Ratan Tiwari, Director, ICAR-IIWBR, Karnal (*Member Secretary*)

All Principal Investigators (PI) from IIWBR, Karnal also attended as Non-Voting members.

At total of 39 wheat and 13 barley entries were in the final year of testing during 2025-26. Out of these, 36 wheat and 13 barley proposals were received for the consideration by the committee. The proposals were examined during this meeting. After detailed deliberations, during the meeting, the following recommendations unanimously, as indicated against each proposal were made:

**WHEAT**

*North Western Plains Zone (Punjab, Haryana, Delhi, Rajasthan (except Kota and Udaipur divisions) and Western UP (except Jhansi division), parts of J&K (Jammu and Kathua distt.) and parts of HP (Una dist. and Paonta valley) and Uttarakhand (Tarai region)*

1. *DBW465*: This wheat genotype under restricted irrigated timely sown conditions of NWPZ, had no yield advantage in breeding and agronomy evaluation, and hence **was not-identified**.
2. *DBW466*: This wheat genotype under restricted irrigated timely sown conditions of NWPZ, had significant yield superiority and better rust resistance, and **was identified**.
3. *DBW467*: This wheat genotype under restricted irrigated timely sown conditions of NWPZ, was at par in yield, and was susceptible to brown rust, and hence **was not-identified**.

*North Eastern Plains Zone (Eastern Uttar Pradesh, Bihar, Jharkhand, Orissa, West Bengal, Assam and plains of other North Eastern states)*

4. *HP1983*: This wheat genotype under irrigated late sown conditions of NEPZ, had yield advantage and was resistance to stripe rust, hence **was identified** by the committee.
5. *SVPL22-02*: This wheat genotype under irrigated late sown conditions of NEPZ, had yield superiority and desired resistance to rusts, and **was identified** by the committee.
6. *DBW458*: This wheat genotype under irrigated late sown conditions of NEPZ, was at par in yield and had superior disease resistance along with good grain quality attributes, hence **was identified** by the committee.
7. *UP3145*: This wheat genotype under irrigated late sown conditions of NEPZ, was at par in yield, however it had rust resistance and superior grain quality, hence **was identified** by the committee.

*Central Zone (Madhya Pradesh, Chhattisgarh, Gujarat, Rajasthan (Kota and Udaipur Divisions), and Jhansi Division of Uttar Pradesh)*

*Peninsular Zone (Maharashtra, Karnataka & Plains of Tamil Nadu)*

8. *MP1401*: This wheat genotype under irrigated timely sown conditions of CZ, had yield advantage and superior grain quality and **was identified** by the committee.
9. *DBW509*: This wheat genotype under irrigated timely sown conditions of CZ, had yield advantage, and superior grain quality attributes, hence **was identified**.
10. *NIAW4621*: This genotype proposed for irrigated late sown conditions of CZ & PZ, had no yield advantage and hence **was not-identified**.
11. *MACS6854*: This genotype proposed for irrigated late sown conditions of CZ & PZ, had superior yield and disease resistance, along with good grain quality, hence **was identified** for both the zones.
12. *MP3598*: This genotype proposed for irrigated late sown conditions of CZ & PZ, had no yield advantage and hence **was not-identified**.
13. *H11700*: This wheat genotype proposed for restricted irrigated timely sown conditions of CZ & PZ. Based on its high yield advantage and rust resistance, it **was identified** for both the zones.
14. *NIAW4533*: This wheat genotype proposed for restricted irrigated timely sown conditions of CZ, **was identified** based on its yield superiority, rust resistance and superior grain quality.
15. *MACS4146(d)*: This wheat genotype proposed for irrigated timely sown conditions of PZ, had no yield advantage and hence **was not-identified**.
16. *MACS4147(d)*: This wheat genotype proposed for irrigated timely sown conditions of PZ, had no yield advantage and hence **was not-identified**.
17. *GW1369(d)*: This wheat genotype proposed for irrigated timely sown conditions of PZ, had no yield advantage and hence **was not-identified**.
18. *GW1370(d)*: This wheat genotype proposed for irrigated timely sown conditions of PZ, had no yield advantage and was susceptible to black rust and hence **was not-identified**.

19. *PDW367(d)*: This wheat genotype proposed for irrigated timely sown conditions of PZ, had no yield advantage and was susceptible to black rust and hence **was not-identified**.
20. *HI8853(d)*: This wheat genotype proposed for irrigated timely sown conditions of PZ, had no yield advantage and hence **was not-identified**.
21. *HI8854(d)*: This wheat genotype proposed for irrigated timely sown conditions of PZ, had no yield advantage and hence **was not-identified**.
22. *HI8855(d)*: This wheat genotype proposed for irrigated timely sown conditions of PZ, had no yield advantage and hence **was not-identified**.
23. *HI8858(d)*: This wheat genotype proposed for irrigated timely sown conditions of PZ, had yield advantage along with rust resistance and grain quality, and hence **was identified**.
24. *UAS485(d)*: This wheat genotype proposed for irrigated timely sown conditions of PZ, had no yield advantage and hence **was not-identified**.
25. *NAW4624*: The wheat genotype, proposed for irrigated late sown conditions of PZ had no yield advantage and was **not-identified**.
26. *HI1696*: The wheat genotype, proposed for irrigated late sown conditions of PZ had superior grain yield along with rust resistance & grain quality, hence **was identified**.
27. *HI1697*: The wheat genotype, proposed for irrigated late sown conditions of PZ had no significant yield gain, hence **was not-identified**.
28. *HI1699*: The wheat genotype, proposed for irrigated late sown conditions of PZ had no yield gain, hence **was not-identified**.
29. *VL2064*: The MABB derived wheat genotype, proposed for rainfed timely sown conditions of NHZ had no significant yield gain over its recipient parent, hence **was not-identified**.
30. *VL3040*: The MABB derived wheat genotype, proposed for restricted late sown conditions of NHZ had yield gain over its recipient parent, and better rust resistance hence **was identified**.
31. *HD3515*: The MABB derived wheat genotype, proposed for irrigated timely sown conditions of NEPZ had yield gain over its recipient parent, along with rust resistance, hence **was identified**.
32. *HD3495*: The MABB derived wheat genotype, proposed for irrigated late sown conditions of NWPZ had yield gain over its recipient parent, along with rust resistance, hence **was identified**.

### **BARLEY**

*North Western Plains Zone (Punjab, Haryana, Delhi, Rajasthan (except Kota and Udaipur divisions) and Western UP (except Jhansi division), parts of J&K (Jammu and Kathua distt.) and parts of HP (Una dist. and Paonta valley) and Uttarakhand (Tarai region)*

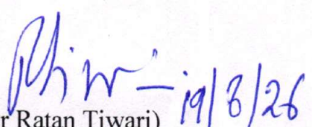
*North Eastern Plains Zone (Eastern Uttar Pradesh, Bihar, Jharkhand, Orissa, West Bengal, Assam and plains of other North Eastern states)*

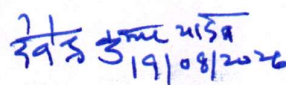
*Central Zone (Madhya Pradesh, Chhattisgarh, Gujarat, Rajasthan (Kota and Udaipur Divisions), and Jhansi Division of Uttar Pradesh)*

33. *DWRB2312*: This malt barley genotype, proposed for irrigated timely sown conditions of NWPZ had yield advantage, superior malting score thus **was identified**.

34. *RD3102*: This barley genotype, proposed for irrigated timely sown saline/alkaline conditions of NWPZ & NEPZ had a high yield advantage, thus **was identified**.
35. *RD3109*: This barley genotype, proposed for irrigated timely sown saline/alkaline conditions of NWPZ & NEPZ had a high yield advantage, thus **was identified**.
36. *RD3089*: This hulless barley genotype, proposed for irrigated timely sown conditions of NWPZ & CZ had a high yield advantage along with grain protein, hence **was identified** for both the zones.
37. *RD3090*: This hulless barley genotype, proposed for irrigated timely sown conditions of NWPZ had no yield advantage, hence **was not-identified**.
38. *UPB1121*: This hulless barley genotype, proposed for irrigated timely sown conditions of NEPZ had a high yield advantage along with superior grain quality, hence **was identified**.
39. *RD3088*: This hulless barley genotype, proposed for irrigated timely sown conditions of CZ had a high yield advantage along with superior glycemic index, hence **was identified**.
40. *BHS502*: This dual-purpose barley genotype, proposed for rainfed timely sown conditions of NHZ had a high yield advantage for both grain and fodder, hence **was identified**.
41. *BHS498*: This dual-purpose barley genotype, proposed for rainfed timely sown conditions of NHZ had no yield advantage, hence **was not-identified**.
42. *BHS500*: This hulless barley genotype, proposed for rainfed timely sown conditions of NHZ had a high yield advantage, hence **was identified**.
43. *PL955*: This feed barley genotype, proposed for irrigated timely sown conditions of NEPZ had a high yield advantage, hence **was identified**.
44. *DWRB2318*: This dual-purpose barley genotype, proposed for timely sown irrigated conditions of NWPZ had yield advantage, hence **was identified**.

The Meeting ended with a formal vote of thanks to the Chairman and members of the committee.

  
 (Dr Ratan Tiwari)  
 (Member Secretary)

  
 (Dr D K Yadava)  
 (Chairman)

## Session V (Inaugural Session)

|                    |                             |   |                                                                                                                         |
|--------------------|-----------------------------|---|-------------------------------------------------------------------------------------------------------------------------|
| August<br>19, 2026 | Chief Guest and<br>Chairman | : | Dr. ML Jat, Secretary DARE & DG, ICAR, New Delhi                                                                        |
|                    | Co-Chairman                 | : | Dr. DK Yadava, DDG (CS), ICAR, New Delhi<br>Prof. Puspendra Singh Chauhan, Vice Chancellor, SNKAU,<br>Jobner, Rajasthan |
|                    | Rapporteurs                 | : | Dr. Kavita Bhadu (Assistant Professor, RARI, Durgapura) &<br>Dr. Charu Lata (Scientist, ICAR-IIWBR, Karnal)             |
|                    | Session Convener            | : | Drs. Anuj Kumar (Principal Scientist, ICAR-IIWBR, Karnal) &<br>Usha Das (Scientist - ICAR-IIWBR, Karnal)                |

The inaugural session of the 64th All India Wheat & Barley Research Workers' Meet was chaired by ML Jat, Secretary DARE & DG, ICAR, New Delhi and jointly Co-chaired by Dr. DK Yadava, DDG (CS), ICAR, New Delhi and Prof. Puspendra Singh Chauhan, Vice Chancellor, SNKAU, Jobner, Raj. The session commenced with the traditional lighting of the lamp before Goddess Saraswati, followed by the singing of Vande Mataram.

Dr. Ratan Tiwari, Director IIWBR, Karnal, welcomed all guests & participants and presented the Director's Report. He summarized key achievements in yield enhancement, disease management, resource efficiencies and quality improvement. He highlighted the record production of wheat (120.66 million metric tonnes, with a national average productivity 35.91 quintal per hectare) and barley (1.80 million metric tonnes, with a national average productivity 31.71 quintal per hectare) in 2025–26 *Rabi* season. Dr. Tiwari highlighted the relevance of the All India Coordinated Research Project (AICRP) on Wheat and Barley and emphasized the key pillars of AICRP, including a strong and well-coordinated breeding network, systematic surveys, surveillance and monitoring of emerging threats, efficient utilization of nutrient and other resources, and coordinated research and technology development. He also underscored the critical role of AICRP in strengthening national wheat and barley improvement programmes through coordinated multi-location testing, germplasm evaluation, disease and pest surveillance, resource-use efficiency, and timely dissemination of technologies to farmers and other stakeholders.

Dr. Poonam Jasrotia, ADG (PPB), ICAR emphasized the need to strengthen the barley research and development programme, particularly in view of the currently low acreage and production of barley and the considerable scope for varietal replacement, value addition, and expansion of the barley programme. She highlighted the importance of timeline-bound research, stronger pre-breeding programmes, and enhanced research capacity and availability of quality breeding material at research centres. She further recommended focusing on multi-stress resilience, including biotic and abiotic stress. Regarding crop diversification, she recommended greater promotion of pulses, oilseeds, fodder crops and short-duration varieties, along with deployment of more plant protection scientists and development of robust, timely and location-specific advisories for farmers.

Prof. Pushpendra Singh Chauhan, Vice Chancellor, SKNAU, Jobner, Rajasthan, highlighted the significant achievements of the University and Regional Agricultural Research Institute (RARI), Durgapura, in crop improvement and agricultural research. He emphasized that Rajasthan is the heartland of barley production in India, despite facing several challenges, including terminal heat stress, climate variability, limited irrigation facilities, declining soil fertility and disease pressure. He described the researchers of the University as “beacons of hope” for farmers, highlighting their notable contributions to wheat and barley improvement through the development of several landmark varieties. These include Lal Bahadur in wheat, and RDB 1, a renowned nutrient-rich barley variety; Raj Kiran, a disease-resistant barley variety; and RD 2715, the first dual-purpose barley variety. He emphasized that these achievements reflect the strong research capabilities of the University and RARI, Durgapura, and their continued commitment to developing farmer-oriented and climate-resilient technologies.

Dr. RK Yadava, DDD (CS), ICAR recognized AICRP on Wheat and Barley as the second-largest AICRP programme and emphasized the need to shift the focus from mere area expansion towards enhancing productivity. He stressed the importance of establishing a well-structured national pre-breeding programme and developing demand-driven, climate-resilient varieties to address emerging challenges. He highlighted that nearly 80% of the existing varieties are climate-resilient and around 40% are biofortified, reflecting significant progress in

varietal development. He recommended strengthening the national pre-breeding programme through greater utilization of indigenous germplasm and reducing dependence on breeding materials sourced from CIMMYT and ICARDA. He also highlighted the launch of the SEHAT initiative for bio-fortified wheat and emphasized the need for re-evaluation of the existing zonalization system to ensure more effective targeting of research, breeding and varietal deployment.

Shri VS Mathur Memorial Award was conferred upon Dr. ML Jat, Secretary DARE & DG, ICAR, New Delhi, by the SAWBAR Society and delivered the Shri VS Mathur Memorial Lecture. Dr. Jat congratulated Durgapura for being designated as the Zonal Coordinated Research Centre for Barley Research. He emphasized the need to assess barley productivity on a per-day basis to better understand its productivity potential and identify avenues for further improvement. He recommended broadening the focus of wheat research beyond grain yield, particularly as India is largely self-sufficient in wheat production, by giving greater attention to the “other half” of wheat, including value-added products, fodder, by-products, processing and diverse end uses. He also called for redefining wheat Mega Environments (MEs) from fixed geographical zones to dynamic, management- and product-profile-based environments, taking into account soil properties and changing climatic conditions. He stressed that wheat research strategies must account for increasing climate variability and uncertainty and advocated greater emphasis on predictive breeding, pre-breeding and agronomy-targeted selection for developing varieties and technologies suited to future environments. He further highlighted the need to develop climate-resilient wheat production systems, with agronomy placed at the centre of varietal development, crop management and adaptation strategies. He proposed building a sustainable future for wheat around three key enablers: robust food systems, system-based approaches and trained human capital. He also emphasized strengthening indigenous and national breeding programmes to enhance domestic breeding capacity, reduce dependence on external genetic resources and develop locally adapted solutions. Finally, he advocated a systems approach integrating breeding × agronomy × environment, wherein genetics, agronomy, soil, climate and end-use requirements are considered together rather than as independent components.

At the end of session, a special superannuation felicitation was held for Dr. Ratan Tiwari, acknowledging his dedicated service. The session concluded with a vote of thanks delivered by Dr. Ummed Singh, followed by the National Anthem.

## **Session VI: Special Session: Firming up Strategic Partnership with International Collaborators for Global Advantage & Stakeholders**

Chairman: Dr. D. K. Yadav, DDG (CS), ICAR, New Delhi

Co-Chairman: Dr. Flavio Breseghello, Global Wheat Program Director, CIMMYT

Coordinator: Dr. Ratan Tiwari, Director, ICAR-IIWBR, Karnal

Rapporteurs: Dr. O. P. Gangwar & Dr. R. R. Choudhary

The special session was convened to address critical challenges in global cereal production by fostering strategic international collaborations. Held on the second day of the meet, the session focused on driving technological innovation, accelerating breeding pipelines, enhancing resource-use efficiency, and fortifying crop protection against emerging global disease threats. The session was chaired by Dr. D. K. Yadav, Deputy Director General (Crop Science), ICAR, New Delhi, and co-chaired by Dr. Flavio Breseghello, Global Wheat Program Director at CIMMYT. Dr. Ratan Tiwari, Director, ICAR-IIWBR, Karnal, served as the session coordinator, with Dr. O. P. Gangwar and Dr. R. R. Choudhary carrying out rapporteur duties. The deliberations underscored the absolute necessity of integrating advanced genomic tools, smart farming systems, biological innovations, and purpose-driven breeding to safeguard national and global food security.

Dr. Flavio Breseghello delivered a comprehensive lecture on enhancing agricultural productivity through targeted technology and continuous innovation. He stressed that broadening the genetic base and employing rigorous phenotypic screening are fundamental to building climate-resilient wheat cultivars. A key avenue involves exploring novel dwarfing genes capable of providing favourable plant architecture alongside longer coleoptiles, which are vital for establishing strong crops under dryland farming conditions. Furthermore, Indian agricultural datasets are actively contributing to predictive models that utilize Genomic Estimated Breeding Values (GEBVs) to identify superior lines and parental material. Artificial Intelligence (AI) was highlighted as a transformative tool that can synthesize complex multi-source data to elevate overall breeding efficiency. Turning to crop architecture, Dr. Breseghello identified hybrid wheat development as a critical frontier, urging breeding programs to run parallel streams for both high-performing inbred varieties and hybrids. He advocated for the BLA two-line system as a promising pathway for commercial hybrid wheat production while reiterating that all emerging technologies must remain practical and aligned directly with farmer needs.

Focusing on eco-friendly inputs and nitrogen management, Dr. Tadashi Yoshihashii from JIRCAS (Japan) presented the pivotal role of Biological Nitrification Inhibition (BNI) in sustainable agriculture. BNI technology offers a natural mechanism to improve nitrogen recovery by crops, suppress soil nitrification, reduce nitrate leaching, and significantly lower nitrous oxide emissions without compromising end-use grain quality. The BNI-enabled wheat genotype DBW187 was highlighted as a notable breakthrough demonstrating the real-world application of this approach. Complementing biological management, Dr. Saurav Pandey from CSIR-CSIO, Chandigarh, presented on digital and smart agriculture tools designed to maximize resource-use efficiency across water, nitrogen, and pesticide applications. His presentation demonstrated the operational impact of Kisan and Didi drones alongside precision sensor technologies. Novel sensor applications spanning diverse agricultural domains—such as caffeine-specific filtration for decaffeinated tea, dye-based sensors for egg freshness, and capsaicin detection in chillies—illustrate the expanding potential of smart automation in precision agriculture.

Dr. P. K. Singh from CIMMYT delivered a crucial update on global wheat disease dynamics, drawing urgent attention to destructive pathogens like wheat blast and Fusarium head blight (FHB). Wheat blast remains a major threat across South Asia, Latin America, and sub-Saharan Africa. Following its introduction into Bangladesh in 2016, proactive surveillance

and strict biosecurity preparedness are vital to prevent its entry into India. Similarly, FHB has emerged as an expanding threat with recent epidemics in Indonesia and growing concern across South Asia. Dr. Singh highlighted CIMMYT's germplasm reserves containing 2NS translocation and *Rmg* resistance genes as valuable assets for breeding programs, emphasizing the need for sustained global collaboration, active pre-breeding, and disease monitoring. Expanding on climate mitigation, Dr. Velu Govindan stressed genetic strategies to combat terminal heat stress, noting that temperatures exceeding normal levels by 5–8°C during early March cause severe yield losses. He detailed the deployment of training and testing populations in genomic selection to cull low-GEV lines early, while also reinforcing the strategic importance of BLA-based systems for hybrid wheat development.

Dr. Lakshmi Kant presented a comprehensive, market-driven barley breeding philosophy tailored to high yield, environmental stability, and purpose-specific end uses. He advocated for developing hulless barley cultivars packed with complete nutritional profiles—including elevated protein, zinc, iron, enhanced  $\beta$ -glucan content, and a low glycemic index. Addressing crop protection, he identified leaf blight as an emerging Barley disease requiring immediate research focus. Additionally, Dr. Kant called for the development of specialized barley harvesting and threshing machinery, explaining that standard wheat threshers often damage barley seed and degrade quality. Closing the presentation series, Dr. Sandeep Kumar from ICAR-NBPGR outlined the progress of the Indian Wheat Genomics Initiative. By mining India's National Genebank, the initiative has successfully built predictive genomic models for resistance against all three major wheat rusts and uncovered 20 novel QTLs associated with leaf rust resistance, providing powerful tools for future breeding programs.

The presentation phase was followed by an engaging discussion session, during which participants raised key queries regarding disease management priorities and economic feasibility. Dr. Rajbir Yadav from IARI raised questions regarding the status of dedicated research on Karnal bunt and sought clarification on the anticipated increase in seed costs resulting from heterosis and hybrid wheat production. Addressing the query on disease management, Dr. P. K. Singh confirmed that CIMMYT maintains active, ongoing research programs focused on identifying and incorporating Karnal bunt resistance. In response to the economic query, Dr. Flavio Breseghello clarified that while hybrid wheat technology incurs higher development and seed production costs, the adoption of commercial hybrids is expected to raise seed prices moderately by approximately 10 to 15 percent, a cost factor that is anticipated to be offset by enhanced yield performance and overall farm profitability.

## Session VII: Presentation of significant achievements of work done during 2025-26

|                    |                         |   |                                                                                     |
|--------------------|-------------------------|---|-------------------------------------------------------------------------------------|
| August<br>19, 2026 | Chairman                | : | Dr. D K Yadava DDG (CS), ICAR, New Delhi                                            |
|                    | Co-Chairperson          | : | Dr. Sanjay Kumar, Chairman, PAMC<br>Dr. Poonam Jasrotia, ADG (PPB), ICAR, New Delhi |
|                    | AICRPW&B<br>Coordinator | : | Dr. Ratan Tiwari – Director, ICAR-IIWBR, Karnal                                     |
|                    | Rapporteurs             | : | Drs Satish Kumar (IIWBR) & Satinder Singh (PAU)                                     |

The session featured a series of presentations by all the Principal Investigators of ICAR–IIWBR, Karnal, along with the In-Charge of the ICAR–IIWBR Regional Station, Flowerdale, Shimla.

In the first presentation, Dr. Arun Gupta (PI, Crop Improvement) highlighted the significant achievements of AICRP breeding trials and variety releases. The overall conduct of the trials was good. However, some trials were rejected due to low site mean and observations by the monitoring team regarding poor plant stand, rat damage, and bird damage. DDG Sir emphasized that such negligence in trial conduct will not be tolerated. Repeated lapses should lead to discontinuation of the centre. The checks should preferably remain consistent throughout the three years of testing but explanation provided for inclusion of new check. Dr. Sundeep requested an additional quota which was not accepted. DDG Sir advised to put the entry through collaboration with an ICAR centre. The segregating material should also be shared with the minor centres for further evaluation and utilization. A separate presentation should be included for PGR activities, to adequate utilization of genetic resources and guidelines for registration of genetic stocks. Greater emphasis should be given to PPV&FRA registration. Salinity entry can be prompted considering potential advantages in terms of improved salinity tolerance and disease resistance. A 10-year trial rejection data should be compiled. Centres that regularly fail to conduct trials properly should be identified... inform to VC and monitor them properly... if problem persist centre can be closed. For EDVs comparison should not be restricted to the recurrent parent alone. Mechanized sowing may be encouraged wherever feasible to improve uniformity and precision.

Dr. S. C. Gill (PI, Resource Management) presented the achievements of agronomy trials under AICRPW&B during 2025-26. Observation on yield discrepancy between breeding and agronomy trials: The breeder and agronomist should jointly assess and take appropriate decisions. The recommendations on Package of Practices made during the last five years should be compiled. From these recommendations that are in use/adopted should be provided with documentary proof. A systematic mechanism should be developed to facilitate the adoption/ dissemination of recommendations. The economic value/benefit of each recommendation should be recorded.

Dr. Pradeep Sharma (PI, Crop Protection) reported the achievements of disease and pest nurseries, evaluation of new chemicals, and crop health surveillance/advisories during 2025-26. The monitoring team must visit IPPSN and PPSN with particular emphasis on hotspot locations. Breeder should also be a member of the monitoring team. During the recording of virulence data, observations should be made on a plot/line basis rather than on one or two individual plants. If data from particular location is susceptible, its inclusion or exclusion. Should be discussed in a separate meeting including breeders and pathologists, a pre meeting should be conducted. Dr. Pramod Prasad (In-Charge, Regional Station, Flowerdale, Shimla) presented the station's major achievements, including analysis of wheat and barley rust samples, gene postulation, rust disease surveillance across the subcontinent, and molecular genotyping of pathogens and wheat varieties. A new pathotype, 52-6\* was identified and found to be virulent on Lr24 and Lr39, careful monitoring of lines carrying these resistance genes.

Dr. Sunil Kumar (PI, Quality & Basic Sciences) shared findings on quality parameters of wheat and barley entries from coordinated trials. Issues on breeding for

soft wheat may be discussed. The issue of defining fixed benchmark values for quality traits was discussed. It was noted that the expression of several quality parameters can be influenced by environmental, soil conditions so benchmark values may not always be appropriate across locations and seasons.

Dr. Chuni Lal (PI, Barley Improvement) presented the achievements of coordinated barley trials conducted in 2025-26. Dr Omvir Singh, emphasized that, malt barley entries should be promoted primarily on the basis of quality parameters, but the point was not considered by the Co-chair as the Council has already prescribed guidelines for the promotion of entries.

Dr. Anuj Kumar (PI, Social Sciences) presented key achievements of Front-Line Demonstrations (FLDs) and the implementation of government plan schemes during the year. Varietal demonstrations should be integrated with NRM technology demonstrations. If funding is a constraint, a small proportion (10–20%) from varietal demonstrations may be considered for supporting NRM technologies. Technology demonstration must be there in all zones, some AICRP centres from every zone can be considered for inclusion in demonstration from every zone.

Finally, Dr A K Sharma (Seed), made a presentation on breeder seed production and allocation. The issue of deficit breeder seed production by some centres was discussed. The concerned centres should review their production targets, identify the reasons for the deficit, and take corrective measures. Issues related to the SATHI Portal were discussed. The major issues should be communicated in writing to the DDG (CS), ICAR, New Delhi.

The session ended with vote of thanks to the Chairman and Co-Chairperson.

**Session VIII: Finalization and presentation of work plan for 2026-27**

|                        |                        |                                                                                                        |
|------------------------|------------------------|--------------------------------------------------------------------------------------------------------|
| <b>August 20, 2026</b> | <b>Chairperson</b>     | <b>Dr Sajay Kumar, Chairman PAMC, ICAR-IIWBR, Karnal</b>                                               |
|                        | <b>Co- Chairperson</b> | <b>Dr Poonam Jasrotia, ADG (PPB), ICAR New Delhi<br/>Dr Ratan Tiwari, Director, ICAR-IIWBR, Karnal</b> |
| <b>09.00 - 11.00</b>   | <b>Rapporteurs</b>     | <b>Drs Charan Singh and Neeraj Kumar</b>                                                               |

The session on finalization of work plan was held under the chairmanship of Dr Sajay Kumar, Chairman PAMC, ICAR-IIWBR, Karnal and co-chaired by Dr Poonam Jasrotia, ADG (PPB), ICAR, New Delhi and Dr Ratan Tiwari, Director, ICAR-IIWBR, Karnal. Dr Arun Gupta, PI, Crop Improvement, IIWBR, Karnal presented the work plan 2026-27 of the Crop Improvement programme.

Dr Gupta informed the house that trial size of NIVT-5A under restricted irrigation would be increased from 25 to 36 entries and NIVT 4 to be discontinued in NWPZ from the crop season 2026-27. Further, a new SPL-NUE trial to be initiated to identify and evaluate genotypes possessing superior nutrient-use efficiency (NUE) during coming crop season. He also informed the house that Jammu location is included for evaluation of NIVT-1B trial. One entry of durum from Jhansi centre is included in the NIVT-4 for evaluation in the 2026-27.

The one entry of private seed company may be included in the AVT-IR-TS which was not included last year due to non-availability of seed. The chairman suggested that in AVT-IR- LS-TAS trial, Gaja centre may be considered after holding in-person meeting with vice chancellor of VCSG Uttarakhand University of Horticulture & Forestry, Bharsar. Dr Ratan Tiwari restated the remarks of Dr DK Yadava DDG (CS) and mentioned that all those centres, where trial conduction or rejection have been a problem, will give undertaking for successful conduction of trial and proper reporting of trial data. He also informed the house that the seed of all the promoted entries should be ensured by the contributor. If there is any problem regarding seed, etc it needs to be informed timely to the Director, ICAR-IIWBR, Karnal. He also appreciated all the cooperators for timely and proper data reporting. He also mentioned to be careful for data recording and reporting to the IIWBR as data may be used for AI based predictions.

Dr SC Gill, PI, Resource Management program presented the work plan of Resource Management. He informed the house that four new special trials may be conducted during upcoming crop season such as SPL-3 for enhancing wheat productivity and nitrogen use efficiency through integrated soil and foliar nitrogen application; SPL-5 for influence of tillage and residue management on herbicide efficacy and wheat productivity under rice-wheat system; SPL-7 for optimizing the seed rate and spacing of hulless barley and SPL-8 for optimizing the sowing time and nitrogen dose of dual purpose barley. He also informed the house that, Bajaura and Khudwani centres may be included for barley trials testing sites. Dr (Mrs.) Madhu Patial from IARI, Shimla centre requested not to allot special agronomical trials, while Dr (Mrs.) Neha Sharma from Bajaura centre asked to allot barley SPL trial to the Bajaura centre. Dr Omvir Singh informed the house that newly identified genotypes need to be replaced with the old checks in hulless barley trial. Dr RPS Verma, Member, PAMC highlighted that centres engaged in SPL trials should adopt recommended package of practices to protect the crop from disease/weed infestation. Chairman of the session suggested to avoid the single centre in a zone for hulless barley trial. He along with Dr. Poonam Jasrotia, ADG (PPB) suggested to have in-house discussion with barley group for finalization of barley checks. It was also highlighted that zone-wise variety should be considered for barley SPL trials

Dr Pradeep Sharma, PI, Crop Protection presented the work plan of Crop Protection. He informed the house that brown rust pathotypes 77-1 will be replaced with 52-4 for APR studies. He also mentioned that monitoring of pathological nurseries should be carried out every year especially at hot-spots locations. Dr CN Mishra asked to replace DBW 386 for leaf blight assessment as this genotype was not identified for the NEPZ. Chairman of the session informed the house that IPPSN data may not be considered for NEPZ for promotional criteria. Dr SC Bhardwaj informed the house regarding the incidences of yellow rust in NEPZ in the past and suggested pre-workshop meeting may be conducted before the workshop and valuable germplasm should not lose. He also informed the house that PI, CP should prepare the pictorial chart for disease and if any issues regarding recording of disease data, may be raised in time. Dr Arun Gupta informed the house that some trials are rejected due to low site mean. If some-one nominated highly susceptible line in the trial, the mean of the trial low and trial is rejected.

Dr. Rajbir Yadav raised the issue and informed the house that

20ACI may be considered for NIVT-1A & NIVT-1B; while, 25ACI may be considered for the AVT. Chairman of the session instructed to constitute a separate committee to revisit the promotional criteria in respect of yellow rust in NEPZ.

Dr Sunil Kumar, PI, Quality and Basic Sciences presented the work plan of Quality & Basic Sciences and requested to send hand threshed cleaned samples for Zn and Fe analysis to the IIWBR, Karnal as per due date mentioned. Dr Omvir Singh suggested that work plan of barley quality may be presented along with work plan of wheat quality by PI (Quality and Basic Sciences) The chairperson suggested that regular reminders should be sent to centres one month before the last date for receiving the samples.

Dr Chuni Lal, PI, Barley presented work plan of Barley. House is informed to replace the newly identified check with the old checks in the barley trials. Dr Omvir Singh and Dr Dinesh Kumar raised the issue that if any test entry has yield at par but quality better than the best check, it may be considered for promotion. Dr Poonam Jasrotia, ADG (PPB) suggested to revisit the criteria for promotion of entries based on superior quality. The house discussed regarding promotion of entries with better malt quality and lower yield. PAMC Chairman suggested that the barley group may organize an online meeting to thresh out the promotion criteria in IVT malt barley trials, in consultation with ICAR.

The session ended with vote of thanks to the chair and all the participants.

*The work plan 2026-27, as per suggestions arising out of these discussions were modified and are presented below, discipline wise:*

## Work Plan - Crop Improvement

National Initial Varietal Trial  
NIVT-1A-IR-TS-TAS, 2026-27

### Conducting centres

| Zone  | No. | Centres                                                                                           |
|-------|-----|---------------------------------------------------------------------------------------------------|
| NWPZ  | 10  | Delhi, Ludhiana, Gurdaspur, Hisar, Karnal, Pantnagar, Modipuram, Sriganaganagar, Durgapura, Jammu |
| NEPZ  | 7   | Kanpur, Ayodhya, Varanasi, Sabour, Ranchi, Coochbehar, IARI- Pusa                                 |
| Total | 17  |                                                                                                   |

### Details of trial entries

| SN  | Contributing Centres | No. of Entries | Name of entries                             |
|-----|----------------------|----------------|---------------------------------------------|
| 1.  | IARI, Delhi          | 5              | HD3545, HD3546, HD3547, HD3548, HD3549      |
| 2.  | IIWBR, Karnal        | 5              | DBW540, DBW541, DBW542, DBW543, DBW544      |
| 3.  | Ludhiana             | 5              | PBW1020, PBW1021, PBW1022, PBW1023, PBW1024 |
| 4.  | Pantnagar            | 3              | UP 3184, UP 3185, UP 3186                   |
| 5.  | Durgapura            | 3              | Raj 4608, Raj 4609, Raj 4610                |
| 6.  | Hisar                | 2              | WH 1373, WH 1374                            |
| 7.  | Ayodhya              | 1              | NW8149                                      |
| 8.  | Kanpur               | 1              | K 2601                                      |
| 9.  | Varanasi             | 1              | HUW870                                      |
| 10. | CSSRI, Karnal        | 1              | KRL 2511                                    |
| 11. | Jammu                | 1              | JAUW748                                     |
| 12. | Modipuram            | 1              | SVPWL25-01                                  |
| 13. | Sabour               | 1              | BRW4016                                     |
| 14. | Private Seed Co.     | 2              | KGW27, IFSA Wheat 01 (IFSA 552)             |
|     |                      |                |                                             |
|     | <b>Checks</b>        | <b>4</b>       | <b>DBW 222, DBW386, PBW826, HD3386</b>      |
|     | <b>Total</b>         | <b>36</b>      |                                             |

### Experimental details

|                         |   |                    |
|-------------------------|---|--------------------|
| Design                  | : | Simple Lattice     |
| Replication             | : | Two                |
| Plot size               | : | 6 x 1.20m (6 rows) |
| Fertilizer dose (kg/ha) | : | 150:60:40 (n:p:k)  |
| Time of sowing          | : | November 1-15      |
| Seed requirement        | : | 7.0 kg per entry   |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director.*

National Initial Varietal Trial  
NIVT-1B-IR-TS-TAS, 2026-27

Conducting centres

| Zone  | No. | Centres                                                                                   |
|-------|-----|-------------------------------------------------------------------------------------------|
| NWPZ  | 8   | Delhi, Ludhiana, Gurdaspur, Hisar, Karnal, Bulandshahr, Sriganaganagar, Durgapura         |
| NEPZ  | 10  | Kanpur, Ayodhya, Varanasi, Sabour, Prayagraj, Ranchi, Kalyani, Coochbehar, IARI-Pusa, Mau |
| Total | 18  |                                                                                           |

Details of trial entries

| SN | Contributing centres | No. of Entries | Name of entries                                  |
|----|----------------------|----------------|--------------------------------------------------|
| 1  | IARI, Delhi          | 5              | HD3550, HP1989, HD3551, HD3552, HD3553           |
| 2  | IWBR, Karnal         | 5              | DBW545, DBW546, DBW547, DBW548, DBW549           |
| 3  | Ludhiana             | 5              | PBW 1025, PBW 1026, PBW 1027, PBW 1028, PBW 1029 |
| 4  | Pantnagar            | 2              | UP 3187, UP 3188                                 |
| 5  | Ayodhya              | 2              | NW8150, NW8152                                   |
| 6  | Hisar                | 2              | WH 1375, WH 1376                                 |
| 7  | Kanpur               | 2              | K 2603, K 2604                                   |
| 8  | Sabour               | 2              | BRW4023, BRW4031                                 |
| 9  | Durgapura            | 1              | Raj 4611                                         |
| 10 | Varanasi             | 1              | HUW871                                           |
| 11 | Kalyani              | 1              | BCW 67                                           |
| 12 | Modipuram            | 1              | SVPWL25-02                                       |
| 13 | Coochbehar           | 1              | UBW 30                                           |
| 14 | Pvt. Seed Co.        | 3              | AAPL111, SAW2505, RW19-02 (Rasi Sartaj)          |
|    |                      |                |                                                  |
|    | <b>Checks</b>        | <b>3</b>       | <b>DBW222, DBW187, PBW826</b>                    |
|    | <b>Total</b>         | <b>36</b>      |                                                  |

Experimental details

|                         |   |                    |
|-------------------------|---|--------------------|
| Design                  | : | Simple Lattice     |
| Replication             | : | Two                |
| Plot size               | : | 6 x 1.20m (6 rows) |
| Fertilizer dose (kg/ha) | : | 150:60:40 (n:P:K)  |
| Time of sowing          | : | November 1-15      |
| Seed requirement        | : | 7.0 kg per entry   |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

National Initial Varietal Trial  
NIVT-2-IR-TS-TAS, 2026-27

Conducting centres

| Zone  | No. | Centres                                                                                            |
|-------|-----|----------------------------------------------------------------------------------------------------|
| CZ    | 11  | Indore, Powarkheda, Jabalpur, Sagar, Gwalior, Bilaspur, Junagadh, Vijapur, SK Nagar, Udaipur, Kota |
| PZ    | 7   | Niphad, Pune, Akola, Dhule, Parbhani, Dharwad, Nippani                                             |
| Total | 18  |                                                                                                    |

Details of trial entries

| SN  | Contributing Centres | No. of Entries | Name of entries                       |
|-----|----------------------|----------------|---------------------------------------|
| 1.  | IARI, Delhi          | 4              | HI1728, HI1729, HI1730, HD3554        |
| 2.  | Pune                 | 3              | MACS 6929, MACS 6931, MACS 6923       |
| 3.  | Vijapur              | 3              | GW 586, GW 587, GW 588                |
| 4.  | IIWBR, Karnal        | 2              | DBW550, DBW551                        |
| 5.  | Dharwad              | 2              | UAS 3045, UAS 3047                    |
| 6.  | Jabalpur             | 2              | JWJ 3644, JWJ 3663                    |
| 7.  | Niphad               | 2              | NAIW 4912, NIAW 4927                  |
| 8.  | Powarkheda           | 2              | MP 1421, MP1422                       |
| 9.  | Junagadh             | 2              | GJW 1115, GJW 1116                    |
| 10. | Udaipur              | 2              | PWU 54, PWU 153                       |
| 11. | Ludhiana             | 1              | PBW 1030                              |
| 12. | Durgapura            | 1              | Raj 4612                              |
| 13. | Bilaspur             | 1              | CG 1061                               |
| 14. | Akola                | 2              | AKAW-4764, AKAW-4981                  |
| 15. | Hisar                | 1              | WH 1377                               |
| 16. | BARC, Mumbai         | 1              | DTAW-2501                             |
| 17. | Pvt. Seed Co.        | 1              | SAW2503                               |
|     |                      |                |                                       |
|     | <b>Checks</b>        | <b>4</b>       | <b>GW322, MACS6222, GW555, MP1378</b> |
|     | <b>Total</b>         | <b>36</b>      |                                       |

Experimental Details

|                         |   |                    |
|-------------------------|---|--------------------|
| Design                  | : | Simple Lattice     |
| Replication             | : | Two                |
| Plot size               | : | 6 x 1.20m (6 rows) |
| Fertilizer dose (kg/ha) | : | 120:60:40 (n:P:K)  |
| Time of sowing          | : | November 5-15      |
| Seed requirement        | : | 7.0 kg per entry   |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

National Initial Varietal Trial  
NIVT-3A-IR-LS-TAS, 2026-27

Conducting centres

| Zone  | No. | Centres                                                                                          |
|-------|-----|--------------------------------------------------------------------------------------------------|
| nwpz  | 9   | Delhi, Jammu, Ludhiana, Gurdaspur, Hisar, Karnal, Pantnagar, Durgapura, Modipuram                |
| nepz  | 10  | Kanpur, Ayodhya, Varanasi, Sabour, RPCAU-Pusa, Ranchi, Kalyani, Coochbehar, Burdwan, Shillongani |
| Total | 19  |                                                                                                  |

Details of trial entries

| SN           | Contributing centres | No. of Entries | Name of entries                                  |
|--------------|----------------------|----------------|--------------------------------------------------|
| 1            | IARI, Delhi          | 4              | HD3555, HD3556, HD3557, HD3558                   |
| 2            | IIWBR, Karnal        | 5              | DBW552, DBW553, DBW554, DBW555, DBW556           |
| 3            | Ludhiana             | 5              | PBW 1031, PBW 1032, PBW 1033, PBW 1034, PBW 1035 |
| 4            | Hisar                | 3              | WH 1380, WH 1381, WH 1382                        |
| 5            | Kanpur               | 2              | K 2606, K 2607                                   |
| 6            | Durgapura            | 2              | Raj 4613, Raj 4614                               |
| 7            | Ayodhya              | 2              | NW 8155, NW 8163                                 |
| 8            | Pantnagar            | 2              | UP 3189, UP 3190                                 |
| 9            | Coochbehar           | 1              | UBW 29                                           |
| 10           | Sabour               | 1              | BRW4015                                          |
| 11           | Varanasi             | 1              | HUW872                                           |
| 12           | Kalyani              | 1              | BCW 70                                           |
| 13           | Modipuram            | 1              | SVPWL25-10                                       |
| 14           | Banda                | 1              | BUBW-8                                           |
| 15           | Pvt Seed             | 1              | DW110                                            |
|              |                      |                |                                                  |
|              | <b>Checks</b>        | <b>4</b>       | <b>PBW771, HD3428, PBW833, HI1621</b>            |
| <b>Total</b> |                      | <b>36</b>      |                                                  |

Experimental Details

|                         |                      |
|-------------------------|----------------------|
| Design                  | : Simple Lattice     |
| Replication             | : Two                |
| Plot size               | : 6 x 1.08m (6 rows) |
| Fertilizer dose (kg/ha) | : 120:60:40 (n:P:K)  |
| Time of sowing          | : December 5-15      |
| Seed requirement        | : 7.0 kg per entry   |

*Note: Change in test sites, date of sowing, trial entries, etc. will be invalid if not approved by the Director*

National Initial Varietal Trial  
NIVT-3B-IR-LS-TAS, 2026-27

Conducting centres

| Zone  | No. | Centres                                                                                  |
|-------|-----|------------------------------------------------------------------------------------------|
| CZ    | 9   | Indore, Powarkheda, Jabalpur, Gwalior, Bilaspur, Junagadh, Vijapur, SK Nagar, Lok-Bharti |
| PZ    | 8   | Dharwad, Niphad, Akola, Pune, Bagalkot, Dhule, Nippani, Parbhani                         |
| Total | 17  |                                                                                          |

Details of trial entries

| SN           | Contributing centres | No. of Entries | Name of entries                     |
|--------------|----------------------|----------------|-------------------------------------|
| 1.           | IARI, Delhi          | 4              | HI1731, HI1732, HD3559, HD3560      |
| 2.           | IIWBR, Karnal        | 2              | DBW552, DBW557                      |
| 3.           | Dharwad              | 2              | UAS 3048, UAS 3049                  |
| 4.           | Jabalpur             | 2              | JWJ 3646, JWJ 3649                  |
| 5.           | Niphad               | 2              | NIAW 4937, NIAW 5045                |
| 6.           | Pune                 | 2              | MACS 6941, MACS 6940                |
| 7.           | Vijapur              | 1              | GW 589                              |
| 8.           | Akola                | 1              | AKAW-5576                           |
| 9.           | Bilaspur             | 1              | CG1062                              |
| 10           | Hisar                | 1              | WH1383                              |
| 11           | Junagadh             | 1              | GJW 1117                            |
| 12           | Lok Bharti           | 1              | Lok-88                              |
| 13           | Ludhiana             | 1              | PBW 1036                            |
| 14           | Powarkheda           | 1              | MP 1423                             |
|              |                      |                |                                     |
|              | <b>Checks</b>        | <b>3</b>       | <b>HD2932, HI1674(I), HI1687(I)</b> |
| <b>Total</b> |                      | <b>25</b>      |                                     |

Experimental Details

|                         |                      |
|-------------------------|----------------------|
| Design                  | : Simple Lattice     |
| Replication             | : Two                |
| Plot size               | : 6 x 1.08m (6 rows) |
| Fertilizer dose (kg/ha) | : 90:60:40 (n:P:K)   |
| Time of sowing          | : December 5-15      |
| Seed requirement        | : 7.0 kg per entry   |

*Note: Change in test sites, date of sowing, trial entries, etc. will be invalid if not approved by the Director*

National Initial Varietal Trial  
NIVT-4-IR-TS-TDM, 2026-27

Conducting Centres

| Zone  | No. | Centres                                                 |
|-------|-----|---------------------------------------------------------|
| CZ    | 6   | Powarkheda, Indore, Junagadh, Gwalior, Vijapur, Udaipur |
| PZ    | 6   | Dharwad, Bagalkot, Nippani, Niphad, Pune, Akola         |
| Total | 12  |                                                         |

Details of trial entries

| SN           | Contributing Centres | No. of Entries | Name of entries                       |
|--------------|----------------------|----------------|---------------------------------------|
| 1            | IARI, Delhi          | 3              | HI8872, HI8873, HI8874                |
| 2            | IIWBR, Karnal        | 1              | DDW74                                 |
| 3            | Niphad               | 2              | NIDW 1597, NIDW 1603                  |
| 4            | Dharwad              | 2              | UAS 494, UAS 495                      |
| 5            | Ludhiana             | 2              | PDW 373, PDW 374                      |
| 6            | Powarkheda           | 2              | MPO 1424, MPO 1425                    |
| 7            | Pune                 | 2              | MACS4172, MACS4171                    |
| 8            | Vijapur              | 2              | GW 1380, GW 1381                      |
| 9            | Hisar                | 1              | WHD 972                               |
| 10           | Udaipur              | 1              | PWU 116                               |
| 11           | Junagadh             | 1              | GJW 2223                              |
| 12           | Parbhani             | 1              | PBND 0833                             |
| 13           | Akola                | 1              | AKDW-5550                             |
| 14           | Jhansi               | 1              | RLBD9                                 |
|              |                      |                |                                       |
|              | <b>Checks</b>        | <b>3</b>       | <b>MACS4135(I), HI8849(I), HI8850</b> |
| <b>Total</b> |                      | <b>25</b>      |                                       |

Experimental Details

|                         |   |                    |
|-------------------------|---|--------------------|
| Design                  | : | Simple Lattice     |
| Replication             | : | Two                |
| Plot size               | : | 6 x 1.20m (6 rows) |
| Fertilizer dose (kg/ha) | : | 120:60:40 (n:P:K)  |
| Time of sowing          | : | November 5-15      |
| Seed requirement        | : | 7.0 kg per entry   |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

National Initial Varietal Trial  
NIVT-5A-RI-TS-TAS, 2026-27

Conducting centres

| Zone  | No. | Centres                                                                                            |
|-------|-----|----------------------------------------------------------------------------------------------------|
| NWPZ  | 10  | Delhi, Jammu, Gurdaspur, Ludhiana, Hisar, Karnal, Sriganganagar, Modipuram, Bulandshahr, Durgapura |
| NEPZ  | 9   | Kanpur, RPCAU-Pusa, Varanasi, Sabour, Ranchi, Kalyani, Coochbehar, Burdwan, Shillongani            |
| Total | 19  |                                                                                                    |

Details of trial entries

| SN           | Contributing Centres | No. of Entries | Name of entries                         |
|--------------|----------------------|----------------|-----------------------------------------|
| 1.           | IARI, Delhi          | 4              | HD3561, HD3562, HD3563, HD3564          |
| 2.           | IIWBR                | 4              | DBW558, DBW559, DBW560, DBW561          |
| 3.           | Ludhiana             | 4              | PBW 1037, PBW 1038, PBW 1039, PBW 1040  |
| 4.           | Pantnagar            | 1              | UP 3191                                 |
| 5.           | Hisar                | 2              | WH 1384, WH 1385                        |
| 6.           | Kanpur               | 1              | K 2610                                  |
| 7.           | Ayodhya              | 2              | NW 8161, NW8164                         |
| 8.           | Varanasi             | 2              | HUW873, HUW874                          |
| 9.           | Sabour               | 2              | BRW4037, BRW4019                        |
| 10.          | Jammu                | 1              | JAUW752                                 |
| 11.          | Modipuram            | 1              | SVPWL25-03                              |
| 12.          | Coochbehar           | 2              | UBW31, UBW32                            |
| 13.          | Kalyani              | 2              | BCW68, BCW 66                           |
| 14.          | RPCAU Pusa           | 2              | RAUW136, RAUW146                        |
| 15.          | BARC, Mum.           | 2              | TAW407, DTAW-2505                       |
|              |                      |                |                                         |
|              | <b>Checks</b>        | <b>4</b>       | <b>HI1612, HD3293, HI1653, NIAW3170</b> |
| <b>Total</b> |                      | <b>36</b>      |                                         |

Experimental Details

|                         |   |                                                |
|-------------------------|---|------------------------------------------------|
| Design                  | : | Simple Lattice                                 |
| Replication             | : | Two                                            |
| Plot size               | : | 6 x 1.20m (6 rows)                             |
| Irrigations             | : | Two (pre-sowing & one irrigation at 45-50 DAS) |
| Fertilizer dose (kg/ha) | : | 90:60:40(n:P:K)                                |
| Time of sowing          | : | Oct. 25 - Nov. 5                               |
| Seed requirement        | : | 7.0 kg per entry                               |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

National Initial Varietal Trial  
NIVT-5B-RI-TS-TAD, 2026-27

Conducting centres

| Zone  | No. | Centres                                                                                        |
|-------|-----|------------------------------------------------------------------------------------------------|
| CZ    | 10  | Indore, Sagar, Jabalpur, Bilaspur, Udaipur, Vijapur, SK Nagar, Junagadh, Dhandhuka, Powarkheda |
| PZ    | 7   | Dharwad, Nippani, Niphad, Pune, Dhule, Akola, Parbhani                                         |
| Total | 17  |                                                                                                |

Details of trial entries

| SN           | Contributing Centres | No. of Entries | Name of entries                                    |
|--------------|----------------------|----------------|----------------------------------------------------|
| 1            | Delhi                | 4              | HI1733, HI8875(d), HI8876(d), HI1734,              |
| 2            | IIWBR, Karnal        | 2              | DBW559, DBW561                                     |
| 3            | Dharwad              | 2              | UAS 496(d), UAS 3050                               |
| 4            | Niphad               | 2              | NIAW 4925, NIAW 4935                               |
| 5            | Vijapur              | 2              | GW 590, GW 1382(d)                                 |
| 6            | Akola                | 1              | AKAW-5559                                          |
| 7            | Bilaspur             | 1              | CG1063                                             |
| 8            | Jabalpur             | 1              | JWJ 3647                                           |
| 9            | Sagar                | 1              | JWS 1707                                           |
| 10           | Powarkheda           | 1              | MP 1426                                            |
| 11           | Pune                 | 2              | MACS 6930, MACS 6946                               |
| 12           | Parbhani             | 1              | PBN 0169                                           |
| 13           | Banda                | 1              | BUDW-6 (d)                                         |
|              |                      |                |                                                    |
|              | <b>Checks</b>        | <b>4</b>       | <b>DBW359, NIAW4267, HI8851(D)(I), NIDW1149(D)</b> |
| <b>Total</b> |                      | <b>25</b>      |                                                    |

Experimental Details

|                         |   |                                                                                         |
|-------------------------|---|-----------------------------------------------------------------------------------------|
| Design                  | : | Simple Lattice                                                                          |
| Replication             | : | Two                                                                                     |
| Plot size               | : | 6 x 1.20m (6 rows)                                                                      |
| Irrigations             | : | Two (1 pre-sowing & one irrigation at 40-45 DAS)<br>(Limit of 3 irrigations in Gujarat) |
| Fertilizer dose (kg/ha) | : | 90:60:40(n:P:K)                                                                         |
| Time of sowing          | : | Oct. 25 – Nov.05                                                                        |
| Seed requirement        | : | 7.0 kg per entry                                                                        |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

National Initial Varietal Trial  
NIVT-6-ES-IR-NWPZ/CZ, 2026-27

Trial conducting centres

| Zone  | No. | Centres                                                                  |
|-------|-----|--------------------------------------------------------------------------|
| NWPZ  | 7   | Delhi, Ludhiana, Ladowal, Hisar, Karnal, Bulandshahr, Sriganganagar      |
| CZ    | 7   | Indore, Powarkheda, Jabalpur, BISA-Jabalpur, Bilaspur, Junagadh, Vijapur |
| Total | 14  |                                                                          |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                                  |
|----------------------|----------------|--------------------------------------------------|
| Delhi                | 4              | HD3566, HD3567, HD3568, HI1735                   |
| Ludhiana             | 5              | PBW 1015, PBW 1016, PBW 1017, PBW 1018, PBW 1019 |
| IIWBR-Karnal         | 5              | DBW562, DBW563, DBW564, DBW565, DBW566           |
| Hisar                | 2              | WH 1378, WH 1379                                 |
| Pantnagar            | 1              | UP 3192                                          |
| Vijapur              | 1              | GW 591                                           |
| Junagadh             | 1              | GJW 1118                                         |
| Powarkheda           | 1              | MP 1427                                          |
| Bilaspur             | 1              | CG1064                                           |
| Pvt. Seed. Co.       | 1              | IFSA Wheat 02 (Gaurav)                           |
|                      |                |                                                  |
| <b>Checks</b>        | <b>3</b>       | <b>DBW327, PBW872, HD3463(I)</b>                 |
| <b>Total</b>         | <b>25</b>      |                                                  |

Experimental details

|                         |   |                                          |
|-------------------------|---|------------------------------------------|
| Design                  | : | Simple Lattice (5x5)                     |
| Replications            | : | Two                                      |
| Plot size               | : | 6 x 1.20m (6 rows)                       |
| Fertilizer dose (kg/ha) | : | 150% RFD+ FYM15 t/ha+ Growth Regulators* |
| Time of sowing          | : | NWPZ: Oct. 25 – Nov.5; CZ: Nov 1-10      |
| Seed requirement        | : | 6 Kg per entry                           |

\* Note: Two sprays as tank mix-Chlormequat chloride @ 0.2%+ tebuconazole @ 0.1% of commercial product dose at First Node and Flag leaf (Tank mix application). Use 400 l/ha of water for spraying.

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Northern Hills Zone  
Initial Varietal Trial, 2026-27  
IVT-RF-TS-TAS

Trial conducting centres

| State            | Centres | Name of the centres    |
|------------------|---------|------------------------|
| Himachal Pradesh | 3       | Malan, Shimla, Bajaura |
| Uttarakhand      | 3       | Almora, Majhera, Gaja  |
| J&K              | 2       | Khudwani, Wadura       |
| Manipur          | 1       | Imphal                 |
| Total            | 9       |                        |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                                      |
|----------------------|----------------|------------------------------------------------------|
| IARI, Shimla         | 6              | HS725, HS726, HS727, HS728, HS729, HS730             |
| CSKHPKV, Malan       | 6              | HPW 525, HPW 526, HPW 527, HPW 528, HPW 529, HPW 530 |
| VPKAS, Almora        | 6              | VL 2073, VL 2074, VL 2075, VL 2076, VL 2077, VL 2078 |
| GBPUA&T, Pantnagar   | 2              | UP 3193, UP 3194                                     |
|                      |                |                                                      |
| <b>Checks</b>        | <b>3</b>       | <b>HS507, HS562, VL907</b>                           |
| <b>Total</b>         | <b>23</b>      |                                                      |

Experimental details

|                         |   |                      |
|-------------------------|---|----------------------|
| Design                  | : | R.B.D.               |
| Replications            | : | Four                 |
| Plot size               | : | 3.5 x 1.20m (6 rows) |
| Fertilizer dose (kg/ha) | : | 60:30:20 (N:P:K)     |
| Time of sowing          | : | Oct. 15-31           |
| Seed rate (kg/ha)       | : | 100                  |
| Seed requirement        | : | 5 kg per entry       |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Northern Hills Zone  
Advance Varietal Trial, 2026-27  
AVT-RF-TS-TAS

Trial conducting centres

| State            | Centres | Name of the centres    |
|------------------|---------|------------------------|
| Himachal Pradesh | 3       | Malan, Shimla, Bajaura |
| Uttarakhand      | 3       | Almora, Majhera, Gaja  |
| J&K              | 2       | Khudwani, Wadura       |
| Manipur          | 1       | Imphal                 |
| Total            | 9       |                        |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                    |
|----------------------|----------------|------------------------------------|
| VPKAS, Almora        | 3              | VL2061*, VL2063*, VL2067           |
| Shimla               | 1              | HS719                              |
| CSKHPKV, Malan       | 3              | HPW514, HPW515, HPW519             |
|                      |                |                                    |
| <b>Checks</b>        | <b>4</b>       | <b>HS507, HS562, VL907, VL2041</b> |
| <b>Total</b>         | <b>11</b>      |                                    |

Experimental details

|                         |   |                      |
|-------------------------|---|----------------------|
| Design                  | : | R.B.D.               |
| Replications            | : | Four                 |
| Plot size               | : | 3.5 x 1.20m (6 rows) |
| Fertilizer dose (kg/ha) | : | 60:30:20 (N:P:K)     |
| Time of sowing          | : | October 15-31        |
| Seed rate (kg/ha)       | : | 100                  |
| Seed requirement        | : | 5 kg per entry       |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Northern Hills Zone  
Advance Varietal Trial, 2026-27  
IVT/AVT-RI-LS-TAS

Conducting centres

| State            | Centres | Name of the centres            |
|------------------|---------|--------------------------------|
| Himachal Pradesh | 3       | Shimla, Malan, Bajaura         |
| Uttarakhand      | 3       | Almora, Majhera, Gaja/Chakrata |
| Manipur          | 1       | CAU-Imphal                     |
| Total            | 7       |                                |

Details of test entries

| Contributing Centres | No. of entries | Name of entries             |
|----------------------|----------------|-----------------------------|
| CSKPHKV, Malan       | 3              | HPW 531, HPW 532, HPW 533   |
| IARI, RS, Shimla     | 3              | HS731, HS732, HS733         |
| VPKAS, Almora        | 3              | VL 3044, VL 3045, VL 3046   |
|                      |                |                             |
| <b>Checks</b>        | <b>3</b>       | <b>VL892, HS490, VL3040</b> |
| <b>Total</b>         | <b>12</b>      |                             |

Experimental details

|                         |   |                      |
|-------------------------|---|----------------------|
| Design                  | : | R.B.D.               |
| Replications            | : | Four                 |
| Plot size               | : | 3.5 x 1.08m (6 rows) |
| Fertilizer dose (kg/ha) | : | 90:60:40 (N:P:K)     |
| Time of sowing          | : | December 1-15        |
| Seed rate (kg/ha)       | : | 125                  |
| Seed requirement        | : | 4 kg per entry       |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Northern Hills Zone  
Advance Varietal Trial, 2026-27  
IVT-VHA-RF-TS-TAS

Trial conducting centres

| State            | Centres  | Name of the centres       |
|------------------|----------|---------------------------|
| Himachal Pradesh | 2        | Dalang- Maidan, Kukumseri |
| Ladakh (UT)      | 2        | Leh, Kargil               |
| <b>Total</b>     | <b>4</b> |                           |

Details of test entries

| Contributing Centres | No. of entries | Name of entries     |
|----------------------|----------------|---------------------|
| IARI, RS, Shimla     | 2              | HS734, HS735        |
| VPKAS, Almora        | 2              | VL 2075, VL 3046    |
| CSKPHKV, Malan       | 2              | HPW534, HPW535      |
|                      |                |                     |
| <b>Checks</b>        | <b>2</b>       | <b>HS375, HS490</b> |
| <b>Total</b>         | <b>8</b>       |                     |

*\*may include any promoted entry*

Experimental details

|                         |   |                      |
|-------------------------|---|----------------------|
| Design                  | : | R.B.D.               |
| Replications            | : | Six                  |
| Plot size               | : | 3.5 x 1.08m (6 rows) |
| Fertilizer dose (kg/ha) | : | 60:30:20 (N:P:K)     |
| Time of sowing          | : | April-May, 2026      |
| Seed rate (kg/ha)       | : | 100                  |
| Seed requirement        | : | 4 kg per entry       |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

North Western Plains Zone  
Advance Varietal Trial, 2026-27  
AVT-IR-TS-TAS

Trial conducting centres

| State         | No. | Centres                        |
|---------------|-----|--------------------------------|
| Punjab        | 2   | Ludhiana, Gurdaspur            |
| Haryana       | 3   | Hisar, Karnal, Bawal           |
| Rajasthan     | 2   | Sri ganganagar, Durgapura      |
| Uttar Pradesh | 3   | Bulandshahr, Modipuram, Nagina |
| Uttarakhand   | 1   | Pantnagar                      |
| J & K         | 1   | Jammu                          |
| Delhi         | 1   | Delhi                          |
| Total         | 13  |                                |

Details of test entries

| Contributing Centres | No. of entries | Name of entries               |
|----------------------|----------------|-------------------------------|
| IIWBR, Karnal        | 1              | DBW513                        |
| IARI, Delhi          | 1              | HD3570 <sup>M</sup>           |
| BIOSEED              | 1              | BW20R105*                     |
| BAU, Sabour          | 1              | BRW4000 <sup>Q</sup>          |
| PAU, Ludhiana        | 3              | PBW992, PBW995, PBW997        |
| CSAUA&T, Kanpur      | 1              | K2503                         |
|                      |                |                               |
| <b>Checks</b>        | <b>3</b>       | <b>DBW222, PBW826, HD3386</b> |
| <b>Total</b>         | <b>11</b>      |                               |

<sup>M</sup> MABB entry, <sup>Q</sup>: Superior grain quality

Experimental details

|                         |   |                     |
|-------------------------|---|---------------------|
| Design                  | : | R.B.D.              |
| Replications            | : | Four                |
| Plot size               | : | 6 x 2.40m (12 rows) |
| Fertilizer dose (kg/ha) | : | 150:60:40 (N:P:K)   |
| Time of sowing          | : | November 1-15       |
| Seed rate (kg/ha)       | : | 100                 |
| Seed requirement        | : | 16 kg per entry     |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

North Western Plains Zone  
Advance Varietal Trial, 2026-27  
AVT-IR-LS-TAS

Trial conducting centres

| State         | No. | Centres                        |
|---------------|-----|--------------------------------|
| Punjab        | 2   | Ludhiana, Gurdaspur            |
| Haryana       | 2   | Hisar, Karnal                  |
| Rajasthan     | 1   | Durgapura                      |
| Uttar Pradesh | 3   | Nagina, Bulandshahr, Modipuram |
| Uttarakhand   | 1   | Pantnagar                      |
| J & K         | 1   | Jammu                          |
| Delhi         | 1   | Delhi                          |
| Total         | 11  |                                |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                                                                             |
|----------------------|----------------|---------------------------------------------------------------------------------------------|
| IARI, Delhi          | 6              | HD3505*, HD3507*, HD3508* <sup>Q</sup> , HD3529, HD3542* <sup>M</sup> , HD3569 <sup>M</sup> |
| PAU, Ludhiana        | 3              | PBW979*, PBW980*, PBW1005                                                                   |
| IIWBR, Karnal        | 2              | DBW495*, DBW524                                                                             |
| CCSHAU, Hisar        | 3              | WH1353*, WH1355*, WH1368                                                                    |
| CSAUA&T, Kanpur      | 1              | K2507                                                                                       |
|                      |                |                                                                                             |
| <b>Checks</b>        | <b>6</b>       | <b>PBW771, HD3428, HI1621, DBW173, JKW261, HD3059</b>                                       |
| <b>Total</b>         | <b>21</b>      |                                                                                             |

\* denotes final year entry, <sup>Q</sup>: Superior grain quality <sup>M</sup>MABB entry

Experimental details

|                         |   |                     |
|-------------------------|---|---------------------|
| Design                  | : | R.B.D.              |
| Replications            | : | Four                |
| Plot size               | : | 6 x 2.16m (12 rows) |
| Fertilizer dose (kg/ha) | : | 120:60:40 (N:P:K)   |
| Time of sowing          | : | December 5-15       |
| Seed rate (kg/ha)       | : | 125                 |
| Seed requirement        | : | 16 kg per entry     |

*Note: Change in test sites, date of sowing, trial entries etc. Will be invalid if not approved by the Director*

North Western Plains Zone  
Advance Varietal Trial, 2026-27  
AVT-IR-TS-TDM

Conducting centres

| State         | No. | Centres                        |
|---------------|-----|--------------------------------|
| Punjab        | 2   | Ludhiana, Gurdaspur            |
| Haryana       | 2   | Hisar, Karnal,                 |
| Rajasthan     | 2   | Sriganganagar, Durgapura       |
| Uttar Pradesh | 3   | Bulandshahr, Modipuram, Nagina |
| Uttarakhand   | 1   | Pantnagar                      |
| Delhi         | 1   | Delhi                          |
| Total         | 11  |                                |

Details of trial entries

| Contributing Centres | No. of entries | Name of entries                               |
|----------------------|----------------|-----------------------------------------------|
| IARI, Indore         | 1              | HI8859*(d)                                    |
|                      |                |                                               |
| <b>Checks</b>        | <b>4</b>       | <b>PDW314, PDW291, WHD943, HD3386 (aest.)</b> |
| <b>Total</b>         | <b>5</b>       |                                               |

\* denotes final year entry

Experimental details

|                         |   |                     |
|-------------------------|---|---------------------|
| Design                  | : | R.B.D.              |
| Replications            | : | Four                |
| Plot size               | : | 6 x 2.40m (12 rows) |
| Fertilizer dose (kg/ha) | : | 150:60:40 (N:P:K)   |
| Time of sowing          | : | November 1-15       |
| Seed rate (kg/ha)       | : | 100                 |
| Seed requirement        | : | 16 kg per entry     |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

North Western Plains Zone  
Advance Varietal Trial, 2026-27  
AVT-RI-TS-TAS

Conducting centres

| State         | No.       | Centres                        |
|---------------|-----------|--------------------------------|
| Punjab        | 2         | Ludhiana, Gurdaspur            |
| Haryana       | 3         | Hisar, Karnal, Bawal           |
| Uttar Pradesh | 3         | Modipuram, Nagina, Bulandshahr |
| Rajasthan     | 2         | Sriganganagar, Durgapura       |
| Uttarakhand   | 1         | Pantnagar                      |
| J&K           | 1         | Jammu                          |
| Delhi         | 1         | Delhi                          |
| <b>Total</b>  | <b>13</b> |                                |

Details of trial entries

| Contributing Centres | No. of entries | Name of entries                         |
|----------------------|----------------|-----------------------------------------|
| SKUAST, Jammu        | 1              | JAUW742                                 |
| SVPUA&T, Meerut      | 1              | SVPWL2409                               |
| BHU, Varanasi        | 1              | HUW868                                  |
| IIWBR, Karnal        | 1              | DBW530                                  |
|                      |                |                                         |
| <b>Checks</b>        | <b>4</b>       | <b>PBW644, NIAW3170, DBW296, HI1653</b> |
| <b>Total</b>         | <b>8</b>       |                                         |

Experimental details

|                         |   |                                                |
|-------------------------|---|------------------------------------------------|
| Design                  | : | R.B.D.                                         |
| Replications            | : | Four                                           |
| Plot size               | : | 6 x 2.40m (12 rows)                            |
| Irrigations             | : | Two (pre-sowing & one irrigation at 45-50 DAS) |
| Fertilizer dose (kg/ha) | : | 90:60:40 (N:P:K)                               |
| Time of sowing          | : | Oct. 25 – Nov. 5                               |
| Seed rate (kg/ha)       | : | 100                                            |
| Seed requirement        | : | 18 kg per entry                                |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

North Western Plains Zone  
Advance Varietal Trial, 2026-27  
AVT-IR-ES-TAS

Conducting centres

| States        | No. | Centres           |
|---------------|-----|-------------------|
| Delhi         | 1   | Delhi,            |
| Punjab        | 2   | Ludhiana, Ladowal |
| Haryana       | 2   | Hisar, Karnal     |
| Uttar Pradesh | 1   | Modipuram         |
| Rajasthan     | 1   | Sriganganagar     |
| Total         | 7   |                   |

Details of trial entries

| Contributing Centres | No. of entries | Name of entries                        |
|----------------------|----------------|----------------------------------------|
| IIWBR, Karnal        | 1              | DBW538                                 |
|                      |                |                                        |
| <b>Checks</b>        | <b>4</b>       | <b>DBW187, DBW327, DBW372, PBW 872</b> |
| <b>Total</b>         | <b>5</b>       |                                        |

Experimental details

|                         |   |                                          |
|-------------------------|---|------------------------------------------|
| Design                  | : | R.B.D.                                   |
| Replications            | : | Four                                     |
| Plot size               | : | 6 x 2.40m (12 rows)                      |
| Fertilizer dose (kg/ha) | : | 150% RFD+ FYM15 t/ha+ Growth Regulators* |
| Time of sowing          | : | Oct. 25 – Nov. 5                         |
| Seed rate (kg/ha)       | : | 100                                      |
| Seed requirement        | : | 12 kg per entry                          |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

*\* Note: Two sprays as tank mix-Chlormequat chloride @ 0.2%+ tebuconazole @ 0.1% of commercial product dose at First Node and Flag leaf (Tank mix application). Use 400L/ha of water for spraying*

North Eastern Plains Zone  
Advance Varietal Trial, 2026-27  
AVT-IR-TS-TAS

Trial conducting centres

| State         | No.       | Centres                                   |
|---------------|-----------|-------------------------------------------|
| Uttar Pradesh | 5         | Kanpur, Prayagraj, Ayodhya, Varanasi, Mau |
| Bihar         | 3         | Sabour, RPCAU-Pusa, Gaya                  |
| West Bengal   | 3         | Coochbehar, Kalyani, Burdwan              |
| Jharkhand     | 1         | Ranchi                                    |
| Assam         | 1         | Shillongani                               |
| <b>Total</b>  | <b>13</b> |                                           |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                       |
|----------------------|----------------|---------------------------------------|
| BAU, Sabour          | 1              | BRW4000                               |
| UBKV, Coochbehar     | 1              | UBW27 <sup>Q</sup>                    |
|                      |                |                                       |
| <b>Checks</b>        | <b>4</b>       | <b>DBW187, DBW386, PBW826, PBW915</b> |
| <b>Total</b>         | <b>6</b>       |                                       |

<sup>Q</sup>: Superior grain quality

Experimental details

|                                                                                                                       |                       |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------|
| Design                                                                                                                | : R.B.D.              |
| Replications                                                                                                          | : Four                |
| Plot size                                                                                                             | : 6 x 2.40m (12 rows) |
| Fertilizer dose (kg/ha)                                                                                               | : 150:60:40 (N:P:K)   |
| Time of sowing                                                                                                        | : November 1-15       |
| Seed rate (kg/ha)                                                                                                     | : 100                 |
| Seed requirement                                                                                                      | : 18 kg per entry     |
| <i>Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director</i> |                       |

North Eastern Plains Zone  
Advance Varietal Trial, 2026-27  
AVT-IR-LS-TAS

Trial conducting centres

| State         | No.       | Centres                                   |
|---------------|-----------|-------------------------------------------|
| Uttar Pradesh | 5         | Kanpur, Prayagraj, Ayodhya, Varanasi, Mau |
| Bihar         | 3         | Sabour, RPCAU-Pusa, Gaya                  |
| West Bengal   | 4         | Coochbehar, Kalyani, Burdwan, Manikchak   |
| Jharkhand     | 1         | Ranchi                                    |
| Assam         | 1         | Shillongani                               |
| <b>Total</b>  | <b>14</b> |                                           |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                       |
|----------------------|----------------|---------------------------------------|
| IARI, Delhi          | 1              | HD3505*                               |
| IIWBR, Karnal        | 2              | DBW491*, DBW522                       |
| BAU, Sabour          | 1              | BRW4009                               |
| UBKV, Coochbehar     | 1              | UBW28                                 |
| BAU, Ranchi          | 1              | JKW337                                |
| PAU, Ludhiana        | 1              | PBW1003                               |
|                      |                |                                       |
| <b>Checks</b>        | <b>4</b>       | <b>HI1563, HD3118, HI1621, PBW833</b> |
| <b>Total</b>         | <b>11</b>      |                                       |

\* denotes final year entry

Experimental details

|                         |   |                     |
|-------------------------|---|---------------------|
| Design                  | : | R.B.D.              |
| Replications            | : | Four                |
| Plot size               | : | 6 x 2.16m (12 rows) |
| Fertilizer dose (kg/ha) | : | 120:60:40 (N:P:K)   |
| Time of sowing          | : | December 5-15       |
| Seed rate (kg/ha)       | : | 125                 |
| Seed requirement        | : | 22 kg per entry     |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

North Eastern Plains Zone  
Advance Varietal Trial, 2026-27  
AVT-RI-TS-TAS

Trial conducting centres

| State         | No.       | Centres                              |
|---------------|-----------|--------------------------------------|
| Uttar Pradesh | 4         | Kanpur, Prayagraj, Ayodhya, Varanasi |
| Bihar         | 2         | Sabour, RPCAU-Pusa                   |
| West Bengal   | 2         | Coochbehar, Kalyani                  |
| Jharkhand     | 1         | Ranchi                               |
| Assam         | 1         | Shillongani                          |
| <b>Total</b>  | <b>10</b> |                                      |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                                      |
|----------------------|----------------|------------------------------------------------------|
| IIWBR, Karnal        | 1              | DBW499*                                              |
| IARI, New Delhi      | 1              | HP1987*                                              |
| <b>Checks</b>        | <b>6</b>       | <b>HI1612, HI1653, HD3171, K1317, HD3293, DBW252</b> |
| <b>Total</b>         | <b>8 (2+6)</b> |                                                      |

\* denotes final year entry

Experimental details

|                         |                                                  |
|-------------------------|--------------------------------------------------|
| Design                  | : R.B.D.                                         |
| Replications            | : Four                                           |
| Plot size               | : 6 x 2.40m (12 rows)                            |
| Irrigation              | : Two (pre-sowing & one irrigation at 45-50 DAS) |
| Fertilizer dose (kg/ha) | : 90:60:40 (N:P: K)                              |
| Time of sowing          | : Oct. 25 – Nov.5                                |
| Seed rate (kg/ha)       | : 100                                            |
| Seed requirement        | : 15 kg per entry                                |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Central Zone  
Advance Varietal Trial, 2026-27  
AVT-IR-TS-TAS

Trial conducting centres

| State          | No.       | Centres                                              |
|----------------|-----------|------------------------------------------------------|
| Gujarat        | 3         | Vijapur, SK Nagar, Junagadh                          |
| Madhya Pradesh | 6         | Jabalpur, Sagar, Gwalior, Powarkheda, Indore, Jhansi |
| Chhattisgarh   | 2         | Bilaspur, Raipur                                     |
| Rajasthan      | 2         | Udaipur, Kota                                        |
| UP             | 1         | Banda                                                |
| <b>Total</b>   | <b>14</b> |                                                      |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                  |
|----------------------|----------------|----------------------------------|
| ARS, Niphad          | 1              | NIAW4828 <sup>Q</sup>            |
| IARI, Delhi          | 1              | HD3571                           |
| IARI, Indore         | 1              | HI1716                           |
| SDAU, Vijapur        | 1              | GW569*                           |
| PAU, Ludhiana        | 1              | PBW1001 <sup>Q</sup>             |
| Lok Bharti           | 1              | LOK86 <sup>Q</sup>               |
|                      |                |                                  |
| <b>Checks</b>        | <b>3</b>       | <b>GW322, MACS6768, GW555(I)</b> |
| <b>Total</b>         | <b>9</b>       |                                  |

\* denotes final year entry <sup>Q</sup>: Superior grain quality

Experimental details

|                         |   |                     |
|-------------------------|---|---------------------|
| Design                  | : | R.B.D.              |
| Replications            | : | Four                |
| Plot size               | : | 6 x 2.40m (12 rows) |
| Fertilizer dose (kg/ha) | : | 120:60:40 (N:P:K)   |
| Time of sowing          | : | November5-15        |
| Seed rate (kg/ha)       | : | 100                 |
| Seed requirement        | : | 18 kg per entry     |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Central Zone  
Advance Varietal Trial, 2026-27  
AVT-IR-TS-TDM

Trial conducting centres

| State          | No.       | Centres                                              |
|----------------|-----------|------------------------------------------------------|
| Gujarat        | 3         | Vijapur, SK Nagar, Junagadh                          |
| Madhya Pradesh | 6         | Jabalpur, Sagar, Gwalior, Powarkheda, Indore, Jhansi |
| Chhattisgarh   | 2         | Bilaspur, Raipur                                     |
| Rajasthan      | 2         | Udaipur, Kota                                        |
| UP             | 1         | Banda                                                |
| <b>Total</b>   | <b>14</b> |                                                      |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                                                                   |
|----------------------|----------------|-----------------------------------------------------------------------------------|
| ARI, Pune            | 2              | MACS4163(d), MACS4167(d)                                                          |
| ARS, Niphad          | 2              | NIDW1585(d), NIDW1590(d) <sup>Q</sup>                                             |
| IARI, Indore         | 6              | HI8859(d)*, HI8861(d)*, HI8865*(d) <sup>Q</sup> , HI8866(d), HI8867(d), HI8868(d) |
| SDAU, Vijapur        | 2              | GW1377(d), GW1378(d)                                                              |
| JAU, Junagadh        | 1              | GJW2222 (d)                                                                       |
| Parbhani             | 1              | PBND0833(d)                                                                       |
| JNKVV, Powerkheda    | 1              | MPO1417(d)                                                                        |
| MPUAT, Udaipur       | 1              | PWU87(d)                                                                          |
| Dharwad              | 1              | UAS491(d)                                                                         |
| Jhansi               | 1              | RLBDW03(d) <sup>Q</sup>                                                           |
|                      |                |                                                                                   |
| <b>Checks</b>        | <b>3</b>       | <b>HI8713(d), HI8737(d), MACS4135(d)</b>                                          |
| <b>Total</b>         | <b>21</b>      |                                                                                   |

\* denotes final year entry <sup>Q</sup>: Superior grain quality

Experimental details

|                         |   |                     |
|-------------------------|---|---------------------|
| Design                  | : | R.B.D.              |
| Replications            | : | Four                |
| Plot size               | : | 6 x 2.40m (12 rows) |
| Fertilizer dose (kg/ha) | : | 120:60:40 (N:P:K)   |
| Time of sowing          | : | November 5-15       |
| Seed rate (kg/ha)       | : | 100                 |
| Seed requirement        | : | 18 kg per entry     |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Central Zone  
Advance Varietal Trial, 2026-27  
AVT-IR-LS-TAS

Trial conducting centres

| State          | No.       | Centres                                 |
|----------------|-----------|-----------------------------------------|
| Gujarat        | 4         | Vijapur, SK Nagar, Junagadh, Lok-Bharti |
| Madhya Pradesh | 4         | Jabalpur, Gwalior, Powarkheda, Indore   |
| Chhattisgarh   | 2         | Bilaspur, Raipur                        |
| Rajasthan      | 1         | Udaipur                                 |
| UP             | 1         | Banda                                   |
| <b>Total</b>   | <b>12</b> |                                         |

Details of test entries

| Contributing Centres | No. of entries | Name of entries              |
|----------------------|----------------|------------------------------|
| IARI, Indore         | 2              | HI1719, HI1720 <sup>Q</sup>  |
| SDAU, Vijapur        | 1              | GW583                        |
| IIWBR, Karnal        | 1              | DBW527 <sup>Q</sup>          |
| JAU, Junagadh        | 1              | GJW1113                      |
| UAS, Dharwad         | 1              | UAS3042 <sup>Q</sup>         |
|                      |                |                              |
| <b>Checks</b>        | <b>3</b>       | <b>HD2932, GW556, HI1674</b> |
| <b>Total</b>         | <b>9</b>       |                              |

\* denotes final year entry <sup>Q</sup>: Superior grain quality

Experimental details

|                         |   |                      |
|-------------------------|---|----------------------|
| Design                  | : | R.B.D.               |
| Replications            | : | Four                 |
| Plot size               | : | 6m x 2.16m (12 rows) |
| Fertilizer dose (kg/ha) | : | 90:60:40 (N:P:K)     |
| Time of sowing          | : | Dec. 5-15            |
| Seed rate (kg/ha)       | : | 125                  |
| Seed requirement        | : | 15 kg per entry      |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Central Zone  
Advance Varietal Trial, 2026-27  
AVT-RI-TS-TAD

Trial conducting centres

| State          | No.       | Centres                                     |
|----------------|-----------|---------------------------------------------|
| Gujarat        | 4         | Vijapur, SK Nagar, Dhandhuka, Junagadh      |
| Madhya Pradesh | 5         | Powarkheda, Jabalpur, Sagar, Indore, Jhansi |
| Chhattisgarh   | 2         | Bilaspur, Raipur                            |
| Rajasthan      | 1         | Udaipur                                     |
| UP             | 1         | Banda                                       |
| <b>Total</b>   | <b>13</b> |                                             |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                                                       |
|----------------------|----------------|-----------------------------------------------------------------------|
| VNMKV, Parbhani      | 1              | PBN0169,                                                              |
| PDKV, Akola          | 1              | AKAW5561 <sup>Q</sup>                                                 |
| JNKV, Jabalpur       | 1              | JWJ3640                                                               |
| IGKV, Bilaspur       | 1              | CG1059 <sup>Q</sup>                                                   |
| ARS, Niphad          | 2              | NIAW4812 <sup>Q</sup> , NIAW4895                                      |
| IARI, Indore         | 3              | HI8870(d) <sup>Q</sup> , HI8869(d) <sup>Q</sup> , HI1723 <sup>Q</sup> |
| ARI, Pune            | 1              | MACS6898                                                              |
| SDAU, Vijapur        | 2              | GW573*, GW584                                                         |
|                      |                |                                                                       |
| <b>Checks</b>        | <b>6</b>       | <b>DBW110, CG1040, DBW359, HI8851(d), HI8627(d), HI8823(d)</b>        |
| <b>Total</b>         | <b>18</b>      |                                                                       |

\* denotes final year entry Q: Superior grain quality

Experimental details

|                         |   |                                                                                 |
|-------------------------|---|---------------------------------------------------------------------------------|
| Design                  | : | R.B.D.                                                                          |
| Replications            | : | Four                                                                            |
| Plot size               | : | 6 x 2.40m (12 rows)                                                             |
| Irrigations             | : | Two (pre-sowing & one irrigation at 40-45 DAS<br>(Limit of 3 Irrig. in Gujarat) |
| Fertilizer dose (kg/ha) | : | 90:60:40 (N:P:K)                                                                |
| Time of sowing          | : | Oct. 25 – Nov. 05                                                               |
| Seed rate (kg/ha)       | : | 100                                                                             |
| Seed requirement        | : | 18 kg per entry                                                                 |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Central Zone  
Advance Varietal Trial, 2026-27  
AVT-ES-HF-TAS

Conducting centres

| States         | No. | Centres                                           |
|----------------|-----|---------------------------------------------------|
| Gujarat        | 2   | Junagadh, Vijapur                                 |
| Madhya Pradesh | 4   | Indore, Powarkheda, BISA-Jabalpur, JNKVV-Jabalpur |
| Chhattisgarh   | 1   | Bilaspur                                          |
| Total          | 7   |                                                   |

Details of trial entries

| Contributing Centres | No. of entries | Name of entries                             |
|----------------------|----------------|---------------------------------------------|
| IIWBR, Karnal        | 1              | DBW538 <sup>Q</sup>                         |
|                      |                |                                             |
| <b>Checks</b>        | <b>4</b>       | <b>DBW327, MP1399, DBW445(I), HD3463(I)</b> |
| <b>Total</b>         | <b>5</b>       |                                             |

Experimental details

|                         |   |                                          |
|-------------------------|---|------------------------------------------|
| Design                  | : | R.B.D.                                   |
| Replications            | : | Four                                     |
| Plot size               | : | 6 x 2.40m (12 rows)                      |
| Fertilizer dose (kg/ha) | : | 150% RFD+ FYM15 t/ha+ Growth Regulators* |
| Time of sowing          | : | 1-10 November                            |
| Seed rate (kg/ha)       | : | 100                                      |
| Seed requirement        | : | 8 kg per entry                           |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

*\* Note: Two sprays as tank mix-Chlormequat chloride @ 0.2%+ tebuconazole @ 0.1% of commercial product dose at First Node and Flag leaf (Tank mix application).*

Peninsular Zone  
Advance Varietal Trial, 2026-27  
AVT-IR-TS-TAD

Trial conducting centres

| State        | No.       | Centres                                             |
|--------------|-----------|-----------------------------------------------------|
| Maharashtra  | 7         | Niphad, Pune, Dhule, Akola, Parbhani, Nashik, Karad |
| Karnataka    | 4         | Dharwad, Ugar-Khurd, Kalloli, Nippani               |
| <b>Total</b> | <b>11</b> |                                                     |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                                                     |
|----------------------|----------------|---------------------------------------------------------------------|
| IARI, Delhi          | 2              | HD3543* <sup>Q</sup> , HD3571                                       |
| ARI, Pune            | 1              | MACS6899                                                            |
| IARI, Indore         | 4              | HI1717 <sup>Q</sup> , HI8866(d), HI8867(d), HI1726                  |
| UAS, Dharwad         | 1              | UAS3044* <sup>M</sup>                                               |
| MPUAT, Udaipur       | 1              | PWU07 <sup>Q</sup>                                                  |
|                      |                |                                                                     |
| <b>Checks</b>        | <b>6</b>       | <b>GW322, MACS6222, DWR162, HI8849(d), MACS4135(d), MACS3949(d)</b> |
| <b>Total</b>         | <b>15</b>      |                                                                     |

\* denotes final year entry <sup>Q</sup>: Superior grain quality

Experimental details

|                         |                       |
|-------------------------|-----------------------|
| Design                  | : R.B.D.              |
| Replications            | : Four                |
| Plot size               | : 6 x 2.40m (12 rows) |
| Fertilizer dose (kg/ha) | : 120:60:40 (N:P:K)   |
| Time of sowing          | : November 5-15       |
| Seed rate (kg/ha)       | : 100 kg/ha           |
| Seed requirement        | : 15kg per entry      |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Peninsular Zone  
Advance Varietal Trial, 2026-27  
AVT-IR-LS-TAS

Trial conducting centres

| State       | No. | Centres                                             |
|-------------|-----|-----------------------------------------------------|
| Maharashtra | 7   | Niphad, Pune, Nashik, Akola, Dhule, Karad, Parbhani |
| Karnataka   | 5   | Dharwad, Ugar-Khurd, Bagalkot, Kalloli, Nippani     |
| Total       | 12  |                                                     |

Details of test entries

| Contributing Centres | No. of entries | Name of entries               |
|----------------------|----------------|-------------------------------|
| JAU, Junagadh        | 1              | GJW1113                       |
| JNKV, Jabalpur       | 1              | JWJ3629 <sup>Q</sup>          |
| IIWBR, Karnal        | 1              | DBW527                        |
| ARI, Pune            | 1              | MACS6901                      |
| ARS, Niphad          | 1              | NIAW4884                      |
| UAS, Dharwad         | 1              | UAS3042                       |
|                      |                |                               |
| <b>Checks</b>        | <b>3</b>       | <b>HD2932, HI1687, DBW426</b> |
| <b>Total</b>         | <b>9</b>       |                               |

\* denotes final year entry <sup>Q</sup>: Superior grain quality

Experimental details

|                         |   |                      |
|-------------------------|---|----------------------|
| Design                  | : | R.B.D.               |
| Replications            | : | Four                 |
| Plot size               | : | 6m x 2.16m (12 rows) |
| Fertilizer dose (kg/ha) | : | 90:60:40 (N:P:K)     |
| Time of sowing          | : | Dec.5-15             |
| Seed rate (kg/ha)       | : | 125                  |
| Seed requirement        | : | 15 kg per entry      |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Peninsular Zone  
Advance Varietal Trial, 2026-27  
AVT-RI-TS-TAD

Trial conducting centres

| State        | No.       | Centres                                      |
|--------------|-----------|----------------------------------------------|
| Maharashtra  | 6         | Akola, Pune, Niphad, Nashik, Parbhani, Karad |
| Karnataka    | 4         | Dharwad, Nippani, Bagalkot, Kalloli          |
| <b>Total</b> | <b>10</b> |                                              |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                                                      |
|----------------------|----------------|----------------------------------------------------------------------|
| ARS, Niphad          | 2              | NIAW4649*, NIAW4812 <sup>Q</sup>                                     |
| ARI, Pune            | 1              | MACS6898                                                             |
| BUAT, Banda          | 1              | BUDW5(d)                                                             |
| IGKV, Bilaspur       | 1              | CG1059 <sup>Q</sup>                                                  |
| IARI, Indore         | 3              | HI8862(d)*, HI8869(d), HI8870(d)                                     |
| IIWBR, Karnal        | 1              | DBW503*                                                              |
| UAS, Dharwad         | 2              | UAS3038* <sup>Q</sup> , UAS493                                       |
|                      |                |                                                                      |
| <b>Checks</b>        | <b>6</b>       | <b>HI1605, NIAW3170, NIAW4267, NIDW1149(d), UAS478(d), UAS446(d)</b> |
| <b>Total</b>         | <b>17</b>      |                                                                      |

Experimental details

|                         |   |                                                |
|-------------------------|---|------------------------------------------------|
| Design                  | : | R.B.D.                                         |
| Replications            | : | Four                                           |
| Plot size               | : | 6 x 2.40m (12 rows)                            |
| Irrigations             | : | Two (pre-sowing & one irrigation at 40-45 DAS) |
| Fertilizer dose (kg/ha) | : | 90:60:40 (N:P:K)                               |
| Time of sowing          | : | Oct. 25 – Nov. 5                               |
| Seed rate (kg/ha)       | : | 100                                            |
| Seed requirement        | : | 15kg per entry                                 |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Special Trial (NUE), 2026-27  
IR-TS-TAS-NW/NE

Conducting centres

| Zone  | No. | Centres                                             |
|-------|-----|-----------------------------------------------------|
| NWPZ  | 5   | Delhi, IIWBR Karnal, Ludhiana, Hisar, CSSRI Karnal* |
| NEPZ  | 4   | Ayodhya, BHU Varanasi, Sabour, Coochbehar           |
| Total | 9   |                                                     |

\*CSSRI: N<sub>2</sub>O Emission; NH<sub>4</sub><sup>+</sup>/NO<sub>3</sub><sup>-</sup> Forms

Details of trial entries

| Contributing Centers | No. of entries | Name of entries                                |
|----------------------|----------------|------------------------------------------------|
| IARI, Delhi          | 3              | HD3573, HD3574, HD3575                         |
| IIWBR, Karnal        | 6              | DBW567, DBW568, DBW569, DBW570, DBW571, DBW572 |
| Ludhiana             | 1              | PBW1041                                        |
| Hisar                | 1              | WH1386                                         |
|                      |                |                                                |
| <b>Checks</b>        | <b>5</b>       | <b>HD3086, DBW371, HD3369, DBW222, DBW303</b>  |
| <b>Total</b>         | <b>16</b>      |                                                |

Experimental details

|                                             |   |                                                                                                                                    |
|---------------------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------|
| Design                                      | : | Simple Lattice (4*4)                                                                                                               |
| Replications                                | : | Two                                                                                                                                |
| Plot size                                   | : | Gross: 6 x 2.40m (12 Rows)                                                                                                         |
| Fertilizer dose (kg/ha) Time of Application | : | 75% Rec. N(112.5N); P:K (60:40)<br>3 Split Doses (1/3 <sup>rd</sup> Basal: 1/3 <sup>rd</sup> CRI and 1/3 <sup>rd</sup> at Booting) |
| Time of sowing                              | : | Nov. 1-15                                                                                                                          |
| Seed rate (kg/ha)                           | : | 100                                                                                                                                |
| Seed requirement                            | : | 6 kg per entry                                                                                                                     |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

SPL –Trial (Dicoccum), 2026-27  
SPL-DIC-IR-TS-PZ

Conducting centres

| Zone  | No. | Centres                                                                               |
|-------|-----|---------------------------------------------------------------------------------------|
| PZ    | 10  | Pune, Karad, Niphad, Washim, Dharwad, Ugar Khurd, Kalloli, Mudhol, Mandya, Wellington |
| Total | 10  |                                                                                       |

Details of trial entries

| Contributing Centers | No. of entries | Name of entries                         |
|----------------------|----------------|-----------------------------------------|
| ARI, Pune            | 3              | MACS5069, MACS5070, MACS5071            |
| IARI RS Wellington   | 3              | HW5310, HW5311, HW5312                  |
| UAS Dharwad          | 2              | DDK1073, DDK1074                        |
|                      |                |                                         |
| <b>Checks</b>        | <b>3</b>       | <b>HW1098, DDK1029, MACS6222(aest.)</b> |
| <b>Total</b>         | <b>11</b>      |                                         |

Experimental details

|                         |   |                     |
|-------------------------|---|---------------------|
| Design                  | : | R.B.D.              |
| Replications            | : | Four                |
| Plot size               | : | 6 x 2.40m (12 rows) |
| Fertilizer dose (kg/ha) | : | 120:60:40 (N:P:K)   |
| Time of sowing          | : | 1-15 November       |
| Seed rate (kg/ha)       | : | 100                 |
| Seed requirement        | : | 16 Kg per entry     |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

SPL–AST, 2026-27  
(IR-TS-TAS-All Zones)

Trial conducting centres

| State   | No. | Centres                                    |
|---------|-----|--------------------------------------------|
| Haryana | 2   | ICAR-CSSRI - Karnal, CCSHAU Hisar          |
| Punjab  | 2   | Muktsar, Bhatinda                          |
| UP      | 3   | ICAR-CSSRI - Lucknow, Dilip Nagar, Ayodhya |
| Gujarat | 2   | ICAR-CSSRI, Bharuch; Pali                  |
| Total   | 9   |                                            |

Details of test entries

| Contributing Centres | No. of entries | Name of entries                    |
|----------------------|----------------|------------------------------------|
| CSSRI, Karnal        | 1              | KRL 2402                           |
|                      |                |                                    |
| <b>Checks</b>        | <b>3</b>       | <b>Kharchia 65, KRL210, KRL 19</b> |
| <b>Total</b>         | <b>4</b>       |                                    |

Experimental details

|                         |   |                                                |
|-------------------------|---|------------------------------------------------|
| Design                  | : | R.B.D.                                         |
| Replications            | : | Six                                            |
| Plot size               | : | 6 x 2.40m (12 rows)                            |
| Fertilizer dose (kg/ha) | : | 120:60:40 (N:P:K) +10 Kg Zinc sulphate         |
| Time of sowing          | : | Har. Punjab: Nov 5-20; UP/ Guj/ Raj.:10-25 Nov |
| Seed rate (kg/ha)       | : | 100                                            |
| Seed requirement        | : | 12 Kg per entry                                |

*Note: Change in test sites, date of sowing, trial entries etc. will be invalid if not approved by the Director*

Physiological Trial/ Nursery  
Heat & Drought Tolerance Screening Trial (HDTST), 2026-27

Conducting centres

| Zone  | No. | Centres                 |
|-------|-----|-------------------------|
| NWPZ  | 3   | Hisar, Karnal, Ludhiana |
| NEPZ  | 3   | Ranchi, Sabour, Ayodhya |
| CZ    | 2   | Junagadh, Vijapur       |
| PZ    | 3   | Pune, Dharwad, Niphad   |
| Total | 11  |                         |

Details of test entries

| SN            | Contributing centres          | No. of Entries | Name of entries                                                                                   |
|---------------|-------------------------------|----------------|---------------------------------------------------------------------------------------------------|
| 1             | <b>AVT final year entries</b> |                |                                                                                                   |
|               | Checks                        | 11             | CG1040, DBW359, GW322, HD3386, HI1605, HI8737(d), HI8849(d), MACS3949(d), NIAW3170, PBW826, VL907 |
| Total entries |                               |                |                                                                                                   |

Experimental details

|                         |   |                                                                                                                                                                                                                                                          |
|-------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Design                  | : | Simple lattice                                                                                                                                                                                                                                           |
| Replications            | : | Two                                                                                                                                                                                                                                                      |
| Plot size               | : | 6 rows of 3m length spaced 20cm apart (3.6m <sup>2</sup> )                                                                                                                                                                                               |
| Treatments              | : | 3 (timely and late sown with minimum 21 days and maximum 1 month difference between the two sowings and one rainfed condition)                                                                                                                           |
| Time of sowing          | : | NWPZ&NEPZ:TS: Nov.1-15 LS: Minimum 21 days and maximum 1 month difference between two sowings, RF-Oct.25-Nov.5 <sup>th</sup><br>CZ&PZ:TS: Nov.5-15 LS: Minimum 21 days and maximum 1 month difference between two sowings, RF-Oct.25-Nov.5 <sup>th</sup> |
| Fertilizer dose (Kg/ha) | : | As per the recommendation of the zones                                                                                                                                                                                                                   |
| Seed rate (kg/ha)       | : | TS:100, LS:125, RF:125                                                                                                                                                                                                                                   |
| Seed requirement        | : | 5kg. per entry                                                                                                                                                                                                                                           |

*Observations to be recorded:* Germination%, Days to heading, Days to anthesis, Days to maturity, Plant height (cm), Total biomass of each net plot at harvest (g), Productive tillers of one full row length, Grain yield of each gross plot (g), 1000-grains weight (g), Grain number per spike, Grain weight per spike. Two recordings of NDVI at 15 days after sowing and again at 21 days after anthesis. Canopy temperature at 15 days and 21 days after anthesis, Chlorophyll content at 15 days and 21 days after anthesis

## NATIONAL GENETIC STOCK NURSERY (NGSN) [Suggested Crossing Block]

### Conducting centres

| Zone  | No. | Centres                                                                                        |
|-------|-----|------------------------------------------------------------------------------------------------|
| NHZ   | 2   | Malan, Khudwani                                                                                |
| NWPZ  | 8   | IIWBR-Karnal, CSSRI-Karnal, Jammu, Hisar, Pantnagar, Ludhiana, Durgapura, Gurdaspur            |
| NEPZ  | 7   | Ayodhya, Kanpur, Sabour, RPCAU-Pusa, Ranchi, Coochbehar, Kalyani                               |
| CZ    | 10  | Indore, Gwalior, Jabalpur, Udaipur, Vijapur, Bilaspur, Junagadh, Lok-Bharti, Powarkheda, Sagar |
| PZ    | 6   | Pune, Dharwad, Akola, Niphad, Parbhani, BARC                                                   |
| Total | 33  |                                                                                                |

### Details of test entries

|                                                                                                                                                                                           |                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| NGSN consists latest released/identified varieties, genetic stocks, confirmed elite lines from national nurseries, proven elite lines (with 3 years testing and/or published information) |                                                                                           |
| Contributing Centres                                                                                                                                                                      | IARI Delhi, NBPGR, Delhi, IIWBR-Karnal, PAU-Ludhiana, CCS-HAU, Hisar, Vijapur, Pantnagar, |
| Checks                                                                                                                                                                                    |                                                                                           |
| Total                                                                                                                                                                                     | 100                                                                                       |

### Experimental details

|                         |                                                                         |
|-------------------------|-------------------------------------------------------------------------|
| Design                  | : Augmented Block Design                                                |
| Plot size               | : 02 row plot of 2.5m length spaced at 20cm apart (1.0 m <sup>2</sup> ) |
| Fertilizer dose (kg/ha) | : As recommended                                                        |
| Time of sowing          | : NWPZ/NEPZ: November 1-15; CZ / PZ: November 5-20                      |
| Seed requirement        | : 750g seed each entry; 2.0 kg check varieties                          |

Observations: Grain yield/plot (g), days to heading, days to maturity, plant height, tillers/m row, 1000 grains weight, rusts, leaf blight, powdery mildew, loose smut, other diseases (artificial epiphytotic conditions)

Utilization report: 1. As donor in hybridization 2. Direct selection 3. Germplasm enrichment (trait)

### 30<sup>th</sup> SEGREGATING STOCK NURSERY (SSN)

#### Conducting centres

| Zone  | No. | Centres                                                                          |
|-------|-----|----------------------------------------------------------------------------------|
| NHZ   | 2   | Khudwani, Wadura                                                                 |
| NWPZ  | 4   | Jammu, Hisar, Pantnagar, Durgapura                                               |
| NEPZ  | 5   | Ayodhya, Kalyani, Ranchi, Sabour, Burdwan                                        |
| CZ    | 8   | Bilaspur, Durgapura, Jabalpur, Udaipur, Lok-Bharati, Junagadh, Powarkheda, Sagar |
| PZ    | 5   | Akola, Parbhani, Pune, Dharwad, Niphad                                           |
| Total | 24  |                                                                                  |

#### Details of test entries

| Contributing Centres | No. of crosses | Priority trait(s)                                               |
|----------------------|----------------|-----------------------------------------------------------------|
| IWBR Karnal          | 20             | Yellow rust, spot blotch, quality, abiotic stress, pre-breeding |
| IARI, Delhi          | 20             | Yield, adaptation, pre-breeding, quality, leaf rust, stem rust  |
| Ludhiana             | 20             | Yellow rust, quality, adaptation, KB, pre-breeding              |
| Hisar                | 20             | Leaf rust, drought, heat, adaptation                            |
| Pantnagar            | 10             | Yellow rust, leaf rust, heat, KB, quality                       |
| Almora               | 20             | Winter x spring                                                 |
| Pune                 | 10             | Stem rust, quality, heat, drought, pre-breeding                 |
| Vijapur              | 10             | Heat, short duration, bold grain, quality                       |
| Total                | 130            |                                                                 |

#### Experimental details

|                         |   |                                                             |
|-------------------------|---|-------------------------------------------------------------|
| Design                  | : | Augmented Block Design                                      |
| Plot size               | : | 4 row plot of 2.5 m length spaced at 20cm apart             |
| Fertilizer dose (kg/ha) | : | As recommended for the centre                               |
| Time of sowing          | : | NHZ / NWPZ / NEPZ (November 1-15); CZ / PZ (November 5-20); |
| Seed requirement        | : | 250g seed for each cross combination                        |

Utilization Report: No. of cross combinations / plants selected (Selected / preferred traits).

Drought and Heat Tolerance Screening Nursery (DHTSN), 2026-27

Trial conducting centres

| Zone  | No. | Centres                       |
|-------|-----|-------------------------------|
| NWPZ  | 2   | Hisar, Karnal                 |
| NEPZ  | 3   | Sabour, Kanpur, Ayodhya       |
| CZ    | 2   | Junagadh, Sagar               |
| PZ    | 4   | Pune, Dharwad, Niphad, Rahuri |
| Total | 11  |                               |

Contributing Centres: Indore, Niphad, Vijapur, Dharwad, Pune, IARI, Hisar, Ludhiana, Karnal

No. of Entries: 5 to 7 promising entries/ centre

Checks: DBW187, GW322, NIAW3170, DDW55(d), NIDW1149(d)

Registered Genetic Stocks: WH730, RW5

Experimental details

Design: Augmented/Alpha lattice

Plot size: 1.5m length x 3rows (spaced 20cm apart)

Agronomy: As per the package of practices

Seed requirement: 1.5 Kg per entry

*Observations to be recorded:*

Agro-morphological observations: Germination percentage, Days to heading, Days to anthesis, Days to maturity, Plant height (cm), Total biomass at harvest (g), Productive tillers of one full row length, Grain yield / plot (g), 1000-grain weight (g), Grain number/spike, Grain weight/spike.

Physiological parameters: Two recordings of NDVI (one month after sowing & 21 days after anthesis), Canopy temperature, Chlorophyll fluorescence and Chlorophyll content (15 days & 21 days after anthesis), respectively.

Salinity/Alkalinity Tolerance Screening Nursery 2026-27

Conducting centres

| States  | Number of Centres | Conducting Centres                            |
|---------|-------------------|-----------------------------------------------|
| Haryana | 2                 | ICAR-CSSRI Karnal, ICAR-IIWBR Hisar/HAU Hisar |
| Punjab  | 2                 | Muktsar, Bathinda                             |
| UP      | 3                 | ICAR-CSSRI Lucknow, Daleep Nagar, Ayodhya     |
| Gujarat | 2                 | ICAR-CSSRI Bharuch, Pali                      |
| Total   | 9                 |                                               |

*\*These centers are tentative and all possibilities will be explored for trial conductance*

Details of test entries

| SN | Cooperating Centre | Entries                    |
|----|--------------------|----------------------------|
| 1  | CSSRI Karnal       | 10                         |
| 2  | IIWBR Karnal       | 6                          |
| 3  | CCSHAU Hisar       | 2                          |
| 4  | PAU Ludhiana       | 2                          |
| 5  | CSAUAT Kanpur      | 2                          |
| 6  | NDUAT Faizabad     | 3                          |
|    | Checks             | 3 (Kh65, KRL210, KRL19)    |
|    | Total              | 28 (25 entries + 3 checks) |

Experimental details

|                         |   |                                         |
|-------------------------|---|-----------------------------------------|
| Design                  | : | Augmented Design                        |
| Replication/Sets        | : | Two                                     |
| Plot size               | : | 5 x 0.60m (3 rows): (3m <sup>2</sup> )  |
| Fertilizer dose (kg/ha) | : | 120:60:40 (n:p:k) +Zinc sulphar@10kg/ha |
| Time of sowing          | : | HAR/PUN: Nov. 5-20; UP/GUJ: 10-25 Nov   |
| Seed requirement        | : | Entries: 900 gm<br>Checks: 3Kg          |

## Quality Component Wheat Biofortification Nursery

### Nursery Conducting Centers

| Zone  | Number | Centers                                       |
|-------|--------|-----------------------------------------------|
| NWPZ  | 5      | Ludhiana, Karnal, New Delhi, Hisar, Pantnagar |
| NEPZ  | 3      | Kanpur, Varanasi and Ranchi                   |
| CZ    | 4      | Indore, Vijapur, Powarkheda and Junagadh      |
| PZ    | 3      | Dharwad, Pune and Niphad                      |
| Total | 15     |                                               |

### Details of test entries

| Contributing Center | No. of Entries | Name of Entries                                                         |
|---------------------|----------------|-------------------------------------------------------------------------|
| IARI Delhi          | 4              |                                                                         |
| IIWBR Karnal        | 4              |                                                                         |
| PAU Ludhiana        | 4              |                                                                         |
| Hisar               | 3              |                                                                         |
| Pantnagar           | 2              |                                                                         |
| Kanpur              | 2              |                                                                         |
| Varanasi            | 2              |                                                                         |
| IARI Indore         | 3              |                                                                         |
| Vijapur             | 3              |                                                                         |
| Powarkheda          | 2              |                                                                         |
| Junagadh            | 2              |                                                                         |
| Dharwad             | 3              |                                                                         |
| Niphad              | 3              |                                                                         |
| Pune                | 2              |                                                                         |
| Udaipur             | 1              |                                                                         |
| Ranchi              | 1              |                                                                         |
| Checks              | 8              | DBW 187, DBW327, GW322, DBW443, UAS484(d), HI8237(d), MACS 6222, DBW509 |
| Total               | 41+8           |                                                                         |

### Experimental details

|                         |   |                                              |
|-------------------------|---|----------------------------------------------|
| Design                  | : | Simple Lattice (6x6)                         |
| Replications            | : | 2                                            |
| Plot size               | : | Gross: 4X0.8(4 rows)                         |
| Fertilizer dose (kg/ha) | : | NW/NE: 150:60:40 (N:P:K)<br>CZ/PZ: 120:60:40 |
| Time of Sowing          | : | 05-20 Nov                                    |
| Seed rate               | : | 100kg/ha                                     |
| Seed requirement        | : | 2.500 Kg                                     |

Samples will be analyzed at ICAR-IIWBR, Karnal for grain appearance score, test weight, protein content, grain hardness index, sedimentation value, Fe and Zn content. Hand threshed samples using cloth should be provided for Fe and Zn analysis separately.

### Distribution of International Nurseries/Trials 2026

| Shipment ID | City          | 47TH<br>ESWYT | 34TH<br>HRW<br>YT | 25TH<br>HTWY<br>T | 4TH<br>SAWY<br>T-EM | 34TH<br>SAW<br>YT-<br>NM | 14TH<br>WYCYT | 14TH<br>WYCY<br>T*Ligh<br>t | 16TH<br>SATY<br>N-<br>HEA<br>T | 16TH<br>SATY<br>N-<br>HEAT*<br>Light | 59TH<br>IBWS<br>N | 37TH<br>HRWS<br>N | 44TH<br>SAW<br>SN | 21ST<br>STE<br>MRR<br>SN | 28TH<br>FHBSN | 36TH<br>ISEPTON | 18TH<br>HLBSN | TOTAL |
|-------------|---------------|---------------|-------------------|-------------------|---------------------|--------------------------|---------------|-----------------------------|--------------------------------|--------------------------------------|-------------------|-------------------|-------------------|--------------------------|---------------|-----------------|---------------|-------|
| 15          | Ludhiana      | 1             | 0                 | 1                 | 1                   | 1                        | 1             | 0                           | 1                              | 0                                    | 1                 | 0                 | 1                 | 0                        | 0             | 0               | 0             | 8     |
| 15          | Pune          | 0             | 0                 | 1                 | 1                   | 0                        | 0             | 0                           | 0                              | 0                                    | 0                 | 0                 | 1                 | 0                        | 0             | 0               | 0             | 3     |
| 15          | Hisar         | 1             | 0                 | 1                 | 1                   | 1                        | 0             | 0                           | 0                              | 0                                    | 1                 | 0                 | 1                 | 0                        | 0             | 0               | 0             | 6     |
| 15          | Indore        | 1             | 0                 | 1                 | 0                   | 1                        | 0             | 0                           | 0                              | 0                                    | 1                 | 0                 | 0                 | 0                        | 0             | 0               | 0             | 4     |
| 15          | Pantnagar     | 1             | 0                 | 0                 | 1                   | 1                        | 1             | 0                           | 0                              | 0                                    | 1                 | 0                 | 0                 | 0                        | 0             | 0               | 0             | 5     |
| 15          | Karnal        | 0             | 0                 | 0                 | 0                   | 1                        | 0             | 0                           | 0                              | 0                                    | 1                 | 0                 | 0                 | 0                        | 0             | 0               | 0             | 2     |
| 15          | Jabalpur      | 0             | 0                 | 1                 | 0                   | 0                        | 0             | 0                           | 0                              | 0                                    | 1                 | 0                 | 1                 | 0                        | 0             | 0               | 0             | 3     |
| 15          | Malan         | 1             | 0                 | 0                 | 1                   | 0                        | 0             | 0                           | 0                              | 0                                    | 1                 | 0                 | 0                 | 0                        | 0             | 0               | 0             | 3     |
| 15          | Jammu         | 0             | 0                 | 0                 | 0                   | 1                        | 0             | 0                           | 0                              | 0                                    | 1                 | 0                 | 1                 | 0                        | 0             | 0               | 0             | 3     |
| 15          | Gujarat       | 1             | 0                 | 1                 | 0                   | 1                        | 0             | 0                           | 0                              | 0                                    | 1                 | 0                 | 1                 | 0                        | 0             | 0               | 0             | 5     |
| 15          | Powarkheda    | 1             | 0                 | 1                 | 0                   | 1                        | 0             | 0                           | 0                              | 0                                    | 0                 | 0                 | 1                 | 0                        | 0             | 0               | 0             | 4     |
| 15          | Junagarh      | 0             | 0                 | 1                 | 0                   | 0                        | 0             | 0                           | 0                              | 0                                    | 0                 | 0                 | 1                 | 0                        | 0             | 0               | 0             | 2     |
| 15          | Bhagalpur     | 0             | 0                 | 0                 | 0                   | 0                        | 0             | 0                           | 0                              | 0                                    | 0                 | 0                 | 1                 | 0                        | 0             | 0               | 1             | 2     |
| 15          | Shillongani   | 0             | 1                 | 0                 | 0                   | 0                        | 0             | 1                           | 0                              | 0                                    | 0                 | 1                 | 0                 | 0                        | 0             | 0               | 0             | 3     |
| 15          | Bilaspur      | 0             | 0                 | 1                 | 1                   | 1                        | 0             | 0                           | 0                              | 0                                    | 1                 | 0                 | 1                 | 0                        | 0             | 0               | 0             | 5     |
| 15          | Mahabaleshwar | 0             | 0                 | 0                 | 1                   | 0                        | 0             | 0                           | 0                              | 0                                    | 0                 | 0                 | 0                 | 1                        | 0             | 0               | 0             | 2     |
| 15          | Niphad        | 1             | 0                 | 1                 | 0                   | 1                        | 0             | 0                           | 0                              | 0                                    | 0                 | 0                 | 1                 | 0                        | 0             | 0               | 0             | 4     |
| 15          | Dharwad       | 1             | 0                 | 1                 | 1                   | 1                        | 1             | 0                           | 1                              | 0                                    | 1                 | 0                 | 1                 | 1                        | 0             | 0               | 0             | 9     |

|    |                |    |   |    |    |    |   |   |   |   |    |   |    |   |   |   |    |     |
|----|----------------|----|---|----|----|----|---|---|---|---|----|---|----|---|---|---|----|-----|
| 15 | Faizabad       | 0  | 0 | 1  | 1  | 1  | 0 | 0 | 0 | 0 | 1  | 0 | 1  | 0 | 0 | 0 | 1  | 6   |
| 15 | Ranchi         | 0  | 0 | 0  | 0  | 1  | 0 | 0 | 0 | 0 | 0  | 0 | 1  | 0 | 0 | 0 | 0  | 2   |
| 15 | Nilgiris Hills | 0  | 1 | 0  | 0  | 0  | 0 | 0 | 0 | 0 | 1  | 0 | 0  | 1 | 0 | 0 | 0  | 3   |
| 15 | Karnal         | 1  | 1 | 1  | 1  | 1  | 1 | 0 | 1 | 0 | 1  | 1 | 1  | 1 | 1 | 0 | 2  | 14  |
| 15 | Rajasthan      | 0  | 0 | 1  | 1  | 1  | 0 | 0 | 0 | 0 | 1  | 0 | 1  | 0 | 0 | 0 | 0  | 5   |
| 15 | Coochbehar     | 0  | 0 | 1  | 1  | 0  | 0 | 0 | 0 | 0 | 1  | 0 | 0  | 0 | 1 | 0 | 1  | 23  |
| 15 | Varanasi       | 0  | 0 | 1  | 0  | 1  | 0 | 0 | 0 | 0 | 1  | 0 | 0  | 0 | 0 | 0 | 1  | 4   |
| 15 | New Delhi      | 1  | 0 | 0  | 0  | 0  | 0 | 0 | 0 | 0 | 1  | 0 | 0  | 0 | 0 | 0 | 1  | 3   |
| 15 | Gwalior        | 1  | 0 | 0  | 0  | 0  | 0 | 1 | 0 | 0 | 1  | 0 | 0  | 0 | 0 | 0 | 0  | 3   |
| 15 | Kanpur         | 1  | 0 | 1  | 0  | 1  | 0 | 0 | 0 | 0 | 1  | 0 | 1  | 0 | 0 | 0 | 0  | 5   |
| 15 | Bihar          | 1  | 0 | 1  | 0  | 0  | 0 | 0 | 0 | 0 | 0  | 0 | 1  | 0 | 0 | 0 | 1  | 4   |
| 15 | Udaipur        | 0  | 0 | 1  | 0  | 0  | 1 | 0 | 0 | 0 | 0  | 0 | 0  | 0 | 0 | 0 | 0  | 2   |
| 15 | West Bengal    | 0  | 0 | 1  | 0  | 0  | 0 | 0 | 0 | 0 | 1  | 0 | 0  | 0 | 0 | 0 | 1  | 3   |
| 15 | Parbhani       | 1  | 0 | 0  | 1  | 1  | 1 | 0 | 0 | 0 | 0  | 0 | 0  | 0 | 0 | 0 | 0  | 4   |
| 15 | Imphal         | 0  | 1 | 0  | 0  | 0  | 0 | 0 | 0 | 0 | 1  | 1 | 0  | 0 | 0 | 0 | 0  | 3   |
| 15 | New Delhi      | 1  | 0 | 1  | 1  | 1  | 1 | 0 | 0 | 1 | 1  | 0 | 1  | 1 | 0 | 0 | 0  | 9   |
| 15 | Sagar          | 0  | 0 | 0  | 0  | 0  | 0 | 0 | 0 | 0 | 1  | 0 | 0  | 0 | 0 | 0 | 0  | 1   |
| 15 | New Delhi      | 0  | 0 | 0  | 0  | 0  | 0 | 0 | 0 | 0 | 0  | 0 | 0  | 0 | 1 | 0 | 1  | 2   |
| 15 | New Delhi      | 0  | 0 | 0  | 0  | 0  | 0 | 0 | 0 | 0 | 1  | 0 | 1  | 0 | 0 | 0 | 0  | 2   |
|    | TOTAL:         | 19 | 4 | 24 | 17 | 22 | 8 | 2 | 4 | 1 | 25 | 3 | 20 | 5 | 6 | 0 | 13 | 191 |

## Resource Management

### Technical Programme of Resource Management for 2026-27

#### Co-ordinated trials of wheat and barley

Evaluation of AVT-II-year entries of wheat and barley under different growing conditions (Timely, late, restricted irrigation, salinity, HYPT) in various zones will be conducted as per allotment of the trials from crop improvement programme.

#### Production technologies trials

The group decided to conclude the following four special trials and come out with recommendations:

SPL-3: Comparative performance of nano urea plus and prilled urea in wheat

SPL-5: Evaluation of herbicides for broad-leaved weed control in barley

SPL-7: Efficacy of pre-mix combination of bixlozone + metribuzin against weeds in wheat

SPL-8: Elucidating the effect of heat stress mitigators in terminal heat stress mitigation and yield improvement of wheat

The group decided that the following four special trials will be continued during the 2026-27 crop season:

SPL-1: Effect of tillage, rice residue and microbial consortia management on system productivity, profitability and soil health

SPL-2: Optimizing the application timing and dose of chlormequat chloride for higher productivity in wheat

SPL-4: Improving the productivity of late sown wheat through Gibberellic Acid (GA3) and Absciscic Acid

SPL-6: Optimizing the sowing time and nitrogen dose in hullless barley

Dr. R. S. Chhokar proposed to add one additional treatment of absciscic acid based Biostimulant (Top grain® of Sumitomo) @62.5g/ha + 200 ml/ha surfactant in 400 litres of water at milking stage in SPL-2. After detailed discussion the proposed treatment approved by the house.

The following three new special trials were formulated and proposed to be conducted from the 2027-27 crop season:

SPL-3: Enhancing Wheat Productivity and Nitrogen Use Efficiency through Integrated Soil and Foliar Nitrogen Application

Treatments: 12

18. Control + no foliar urea spray
19. Control + foliar urea spray @
20. 6% at 50-55 days after sowing (DAS)
21. Control + foliar urea spray @ 9% at 50-55 DAS
22. Control + foliar urea spray @ 12% at 50-55 DAS
23. 50% RDN + no foliar urea spray
24. 50% RDN + foliar urea spray @ 6% at 50-55 DAS
25. 50% RDN + foliar urea spray @ 9% at 50-55 DAS
26. 50% RDN + foliar urea spray @ 12% at 50-55 DAS
27. 75% RDN + no foliar urea spray
28. 75% RDN + foliar urea spray @ 6% at 50-55 DAS
29. 75% RDN + foliar urea spray @ 9% at 50-55 DAS
30. 75% RDN + foliar urea spray @ 12% at 50-55 DAS
31. 100% RDN + no foliar urea spray
32. 100% RDN + foliar urea spray @ 6% at 50-55 DAS
33. 100% RDN + foliar urea spray @ 9% at 50-55 DAS
34. 100% RDN + foliar urea spray @ 12% at 50-55 DAS

Design: Factorial RBD

Replications: 3

Centres: Agra, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar,

SPL-5: Influence of tillage and residue management on herbicide efficacy and wheat productivity under rice-wheat system

TREATMENTS:

Main plot: 04 Tillage and residue management

1. ZT      2. ZT+ Residue Retention (6-8t/ha)      3. CT      4. CT+Residue Incorporation (6-8t/ha)

Sub plot: 04 Weed management

5. Weed free
6. Weedy check
7. Pyroxasulfone + metsulfuron 127.5+ 4.0 g/ha
8. Aclonifen + Diflufenican + Pyroxasulfone 900 + 150 + 100 g/ha

Design: Split-plot; Replications: Three

PLOT SIZE: Gross: 2.0 m X 8 m, Net: 1.60m x7.0 m

FERTILISER: RDF

Centres: Gurdaspur, Karnal, Jammu, Ludhiana, Pantnagar,

SPL-7: Optimizing the row spacing and seed rate of hulless barley

Treatments:

A. Main plot (Row Spacing): 03

S<sub>1</sub>-18cm

S<sub>2</sub>-20cm

S<sub>3</sub>-22cm

B. Sub-plot (Seed Rate): 03

SR<sub>1</sub>-75 kg/ha

SR<sub>2</sub>-100 kg/ha

RS<sub>3</sub>-125 kg/ha

FERTILISER: Apply 1/2 nitrogen, full phosphorus (30 kg P<sub>2</sub>O<sub>5</sub>/ha) and potash (20 kg K<sub>2</sub>O/ha) as basal and the remaining 1/2 nitrogen at first irrigation.

Design : Split-plot; Replication : Three

Centres: NHZ: Almora, Malan, NWPZ: Agra, Durgapura, Hisar, Karnal, Ludhiana

NEPZ: Ranchi CZ: Vijapur

SPL-8: Optimizing the sowing timing and nitrogen dose for higher productivity in Dual purpose barley

Treatments:

A. Main plot (Sowing Dates): 02 (D<sub>1</sub>- 25th October ± 2 days); D<sub>2</sub>- 10<sup>th</sup> November ± 2 days

B. Main plot (Nitrogen levels): 03

N<sub>1</sub>-60 kg/ha

N<sub>2</sub>-80 kg/ha

N<sub>3</sub>-100 kg/ha

Design: Split Plot

Replications: Three

FERTILISER: Apply 1/2 nitrogen (as per treatment), full phosphorus (30 kg P<sub>2</sub>O<sub>5</sub>/ha) and potash (20 kg K<sub>2</sub>O/ha) as basal and the remaining 1/2 nitrogen in two splits at first irrigation (1/4<sup>th</sup>) and after first cut (1/4<sup>th</sup>).

Centres: Almora, Malan, Agra, Durgapura, Hisar, Karnal, Ludhiana; Ranchi, Vijapur

SPL-9: Comparative evaluation of herbicide efficacy under drone and knapsack sprayer

TREATMENTS:

4. Pre-emergence application of Aclonifen + diflufenican + pyroxasulfone using drone
5. Pre-emergence application of Aclonifen + diflufenican + pyroxasulfone using knap sack sprayer
6. Weedy control

Design: RBD; Replications: Three

PLOT SIZE: Gross: 30 m X 60 m

FERTILISER: RDF

Centres: Hisar, Karnal, Ludhiana, Pantnagar, Pune

## Crop Protection

The programme for the crop year 2026-27 was chalked out in the 65<sup>th</sup> All India Wheat and Barley Research Workers Meet held at RARI, Durgapura, Jaipur during 18-20 August 2026. The various activities to be executed to be respective centers are given below

### **PROGRAMME 1: Host resistance -IPPSN and PPSN**

#### **Adult Plant Resistance for rusts & other diseases**

#### **1. Initial Plant Pathological Screening Nursery (IPPSN)**

##### **Objectives**

To evaluate breeding materials generated at various Centres against rusts and foliar blights for promoting to coordinated multi-location trials (Under artificial inoculated conditions).

##### **(a) Rusts:**

**Stripe rust:** Durgapura, Ludhiana, Gurdaspur, Pantnagar, Bajaura, Karnal, Hisar, Delhi, Jammu, Malan, and Khudwani.

**Leaf rust (North):** Durgapura, Ludhiana, Pantnagar, Karnal, Kanpur, Delhi, and Jammu

**Leaf rust (South):** Junagadh, Mahabaleshwar, Pune, Indore, Niphad, Powarkheda, Vijapur, Dharwad and Wellington.

**Stem rust:** Junagadh, Mahabaleshwar, Pune, Indore, Niphad, Powarkheda, Vijapur, Dharwad and Wellington.

##### **(b) Leaf Blights:** Ayodhya, Varanasi, RPCAU Pusa, Sabour, Kalyani, Coochbehar, Pune and Dharwad.

#### **2. Plant Pathological Screening Nursery (PPSN)**

##### **Objectives**

Evaluation of breeding material for promotion of entries from one stage to the other in the coordinated trials and identification of varieties for release after AVT level on the basis of their level of disease resistance.

##### **(a) Rusts:**

**Stripe rust:** Durgapura, Ludhiana, Gurdaspur, Pantnagar, Bajaura, Karnal, Hisar, Delhi, Dhaulakuan, Almora, Malan, Jammu, and Khudwani.

**Leaf rust (North):** Durgapura, Ludhiana, Pantnagar, Karnal, Kanpur, Hisar, Delhi, and Jammu

**Leaf rust (South):** Junagadh, Mahabaleshwar, Pune, Indore, Niphad, Powarkheda, Vijapur, Dharwad and Wellington.

**Stem rust:** Junagadh, Mahabaleshwar, Pune, Indore, Niphad, Powarkheda, Vijapur, Dharwad and Wellington.

**Note:** The samples of leaves of AVT entries and varieties (checks) in PPSN showed resistance in the past but now showing rust severity of 40S or more at any centre, should be sent to the Incharge, ICAR-IIWBR Regional Station Flowerdale, Shimla for pathotype analysis, with information to P.I. (Crop Protection).

For screening against rusts, the mixture of following races will be used and be provided by IIWBR, RS, Flowerdale, Shimla.

| <b>Rust</b>   | <b>Rust pathogen</b>             | <b>Pathotypes</b>                   |
|---------------|----------------------------------|-------------------------------------|
| Stem/Black    | <i>Puccinia graminis tritici</i> | 11, 40A, 117-6, 21A-2, 122          |
| Stripe/Yellow | <i>P. striiformis</i>            | 238S119, 46S119, 110S119, 110S84, T |
| Leaf/Brown    | <i>P. triticina</i>              | 77-9, 77-5, 104-2, 12-5, 52-4       |

#### **3. Monitoring of PPSN**

The teams of plant pathologists and breeders will be constituted by PI, CP for effective monitoring and data recording in PPSN at various locations in different zones.

The Plant Pathologists of other zones will monitor PPSN during Zonal monitoring tours.

#### 4. AUDPC based identification of slow rusters in AVT material:

**Stripe rust:** Ludhiana, New Delhi, Karnal, Durgapura

**Leaf rust:** Ayodhya, New Delhi, Mahabaleshwar, Ludhiana

**Stem rust:** Mahabaleshwar, Indore

#### **PROGRAMME 2: Seedling rust resistance and rust gene postulation**

##### **1. Race specific adult plant resistance**

AVT entries will be screened for adult plant resistance to specific predominant races

- Stripe, leaf and stem rusts (under controlled conditions):** Flowerdale, Shimla
- Stripe rust** – Ludhiana and New Delhi
- Leaf rust** – Ludhiana and New Delhi
- Black rust (under controlled conditions):** Pune, Indore and Mahabaleshwar

Race inoculum to be supplied by RS, ICAR-IIWBR, Flowerdale and races should be the same for all the respective Centres as follows.

| Rust          | Rust pathogen              | Pathotypes               |                          |
|---------------|----------------------------|--------------------------|--------------------------|
|               |                            | Flowerdale               | Other Centres            |
| Stem/Black    | <i>P. graminis tritici</i> | 11, 40A, 117-6           | 11, 40A, 117-6           |
| Stripe/Yellow | <i>P. striiformis</i>      | 238S119, 46S119, 110S119 | 238S119, 46S119, 110S119 |
| Leaf/Brown    | <i>P. triticina</i>        | 77-9, 77-5, 104-2        | 77-9, 77-5, 104-2        |

##### **2. Seedling Resistance Tests (SRT) and postulation of rust resistance genes**

- Stripe, leaf and stem rusts** (All races): ICAR-IIWBR, Regional Station, Flowerdale, Shimla for AVT's (*T. aestivum*) entries. Flowerdale centre to generate data on rust resistance genes of all the AVT entries.
- Leaf and stem rust:** Mahabaleshwar for SRT on AVT entries of CZ, PZ and NIVT (durum entries).

#### **PROGRAMME 3: Leaf Blight**

##### **Leaf Blight Screening Nursery (LBSN):**

This nursery will consist of AVT entries as well as other resistant entries identified. It will have all the released varieties and material found resistant in preceding years.

##### **Centres:**

**NWPZ:** Ludhiana, Karnal, Hisar, Delhi, and Pantnagar

**NEPZ:** Ayodhya, Varanasi, RPCAU Pusa, Sabour, Kalyani, and Coochbehar

**PZ:** Pune and Dharwad

#### **PROGRAMME 4: Karnal Bunt**

##### **Karnal Bunt Screening Nursery (KBSN):**

This nursery will consist of the earlier identified resistant materials, released varieties along with AVT entries under artificially inoculated conditions.

**Centres:** Malan, Jammu, Ludhiana, Karnal, Hisar, New Delhi, and Pantnagar

#### **PROGRAMME 5: Loose Smut**

**Loose Smut Screening Nursery (LSSN):** It will contain resistant materials identified in the past released varieties and AVT entries.

**Centres:** Malan, Almora, Ludhiana, Hisar and Durgapura.

#### **PROGRAMME 6: Powdery Mildew**

**Powdery Mildew Screening Nursery (PMSN):** All entries of AVT, previously identified resistant varieties

**Centres:** Malan, Dhaukuan, Almora, Shimla, Jammu, Pantnagar and Wellington

### **PROGRAMME 7: Region specific diseases**

1. **Flag Smut Screening Nursery:** Ludhiana, Hisar and Durgapura
2. **Head scab:** Dhulakuan, Gurdaspur, Karnal, Delhi, Dharward, Kalyani and Wellington
3. **Foot rot:** Dharwad
4. **Hill bunt:** Malan, Bajaura, IARI-RS Shimla and Almora (AVT entries NHZ only)

### **PROGRAMME 8: Crop Health**

#### **1. Pre- harvest crop health monitoring**

##### **Crop Health Monitoring: Pre harvest surveys**

- All the centres associated with crop protection programme will conduct the surveys on regular interval during crop season and will send the information after every survey. Rust samples collected during the survey should be sent to Incharge, ICAR-IIWBR, RS, Flowerdale, Shimla and other disease P.I. Crop Protection.
- Wheat Crop Health Newsletter will be issued on monthly basis by PI (CP) ICAR-IIWBR, Karnal, during the crop season. Information on off season surveys will be included.
  - Monitoring of new virulence's of rusts in NWPZ by specially constituted teams: Specially constituted teams will visit the areas as per the schedules given below for effective monitoring of crop health in general and appearance and spread of yellow rust in particular, along the areas near the western border and foothills/sub mountainous areas of NWPZ. Entomologists will also accompany the teams.

**Team I (last week of Dec. 2026):** Drs. Ravindra Kumar, VK Singh, Jaspal Kaur, Beant Singh  
(Haryana and Punjab)

**Team II (second week of Jan. 2027):** Drs. P.L. Kashyap, O. P. Gangwar, M. K. Pandey  
(Haryana, Punjab and Jammu)

**Team III (last week of January, 2027):** Drs. Pradeep Sharma, P. Prasad, Joginder Pal  
(Haryana, Punjab and H.P.)

**Team IV (Second week of Feb. 2027):** Drs. Pradeep Sharma, S Dhiman, MM Singh  
(Haryana, Punjab and Jammu)

**Team V (Fourth week of Feb., 2027):** Drs. O. P. Gangwar, Ritu Bala, Beant Singh  
(Haryana, Punjab and West U. P.)

**Monitoring the pathotype distribution of rust pathogens:** It will be undertaken by IIWBR, Regional Station, Flowerdale, Shimla (all three rusts from all zones) and Rust Research Station, Mahabaleshwar (brown and black rust from CZ and PZ). All the cooperating Centres are required to send the rust infected samples (natural infection) for pathotype analysis to the concerned centres according to recommended protocol.

**Wheat Disease Monitoring Nursery (To be coordinated by Flowerdale, Shimla):** The nursery will be planted at 38 locations including Khudwani (Srinagar), Yamunanagar (Haryana), and Varanasi KVK, Rampur. Samples from this nursery should be sent regularly to ICAR-IIWBR, RS, Flowerdale, Shimla for virulence analysis and information. Information on rust appearance to be provided at monthly intervals, starting from end of December to the P.I. (Crop Protection).

**Off-season Disease Monitoring Nursery (To be coordinated by ICAR-IIWBR Reg. Station, Flowerdale):** This nursery will be planted in Dalang Maidan, Kukumseri, Sangla, Sarahan (HP) and Leh (J&K). High altitude varieties and one hulless barley variety will also be included in this nursery.

**SAARC- Nursery (To be coordinated by ICAR-IIWBR Reg. Station):** Nursery will be planted at 15 Indian locations, viz., Ludhiana, Delhi, Dhaulakuan, Gurdaspur, Dera-Baba-Nanak, Abohar, Sri Ganganagar, Chattha, Kathua, Rajouri, Almora, Durgapura, Ayodhya, Pantnagar and Wellington.

#### **2. Post- harvest crop health monitoring**

##### **Monitoring of Karnal bunt and black point in harvested grains**

Post harvest monitoring will be undertaken by all the cooperating centres by analyzing samples from grain *mandies* of their respective states.

### **PROGRAMME 9: Integrated disease management**

**1. Elite Multiple Disease Screening Nursery (EMDSN):** It will have sources of resistance to rusts and other diseases found earlier and will revalidate their status to different diseases:

#### **Diseases**

**Stripe rust:** Durgapura, Ludhiana, Gurdaspur, Pantnagar, Bajaura, Karnal, Hisar, Delhi, Almora, Malan, Jammu, and Khudwani.

**Leaf rust (North):** Durgapura, Ludhiana, Pantnagar, Karnal, Kanpur, Delhi, and Jammu

**Leaf rust (South):** Junagadh, Mahabaleshwar, Pune, Indore, Niphad, Powarkheda, Vijapur, Dharwad and Wellington.

**Stem rust:** Junagadh, Mahabaleshwar, Pune, Indore, Niphad, Powarkheda, Vijapur, Dharwad and Wellington.

**Leaf Blight:** Ayodhya, Varanasi, RPCAU Pusa, Sabour, Kalyani, Coochbehar, Pune, Ludhiana and Dharwad.

**Karnal Bunt:** Malan, Jammu, Ludhiana, Karnal, Hisar, New Delhi, and Pantnagar.

**Loose smut:** Malan, Almora, Ludhiana, Hisar and Durgapura.

**Powdery mildew:** Malan, Dhaulakuan, Almora, Shimla, Jammu, Pantnagar and Wellington

**Flag smut:** Ludhiana, Hisar and Durgapura

**Head scab:** Gurdaspur, Karnal, Kalyani, Wellington, Dharwad and Delhi

**Nematodes (CCN):** Hisar, Udaipur, and Durgapura.

The confirmed sources of resistance will be multiplied and seed will be shared with breeders along with passport data in NGSN.

## **2. Management of diseases**

### **(a) Chemical management of Stripe rust of wheat:**

**Centres:** Jammu, Karnal, Baujara, Durgapura, Ludhiana, Karnal, and Pantnagar.

The chemicals will be tested are:

| S. No. | Treatments                                                          | Doses  |
|--------|---------------------------------------------------------------------|--------|
| 1      | Tebuconazole 50% +Trifloxystrobin 25% WG                            | @0.06% |
| 2      | Picoxystrobin 7.05%+ Propiconazole 11.7% SC                         | @0.1%  |
| 3      | Fluxapyroxad 167 g/l + Pyraclostrobin 333 g/l SC                    | @0.1%  |
| 4      | Penflufen 13.28%w/w + Trifloxystrobin 13.28% w/w FS (Evergol Xtend) | @0.1%  |
| 5      | Propiconazole                                                       | @0.1%  |
| 6      | Tebuconazole                                                        | @0.1%  |
| 7      | Control (without chemicals)                                         | -      |

The chemical will be evaluated under artificial inoculated condition and spray will be done at heading stage. Design – RBD, Plot size – 6 rows of 3 meters, replications - 3.

### **(b) Assessment of yield losses caused by stem rust in wheat (New experiment)**

**Centre:** Junagarh, Pune, Indore, Niphad, Powerkheda, Vijpur, Dharwad

The yield losses will be estimated are:

| Variety   | Protected |            | Unprotected |            | Yield loss (%) |
|-----------|-----------|------------|-------------|------------|----------------|
|           | ACI       | Yield(q/h) | ACI         | Yield(q/h) |                |
| MACS6222  |           |            |             |            |                |
| HD3386    |           |            |             |            |                |
| UAS304    |           |            |             |            |                |
| GW322     |           |            |             |            |                |
| PUSA4     |           |            |             |            |                |
| AKW4210-6 |           |            |             |            |                |

Wheat varieties will be planted in plots consisting of 6 rows, each 6 meters long, in a randomized complete block design (RCBD). The trial will be replicated three times. The experiment includes two conditions: protected (sprayed with fungicides) and unprotected (unsprayed). The fungicides used will be Propiconazole 25% EC at 0.1% or Tebuconazole 50% + Trifloxystrobin 25% WG at 0.06%. These will be applied as a foliar spray when the disease first appears and again after 14 days. Data on disease severity will be collected three times at 15-day intervals. At harvest, grain yield (q/ha) will be measured to assess yield losses under both protected and unprotected conditions.

**(c) Assessment of yield losses caused by stripe rust in wheat (New Experiment)**

**Centres:** Ayodhya, Varanasi, Coochbehar, Kalyanai, Pune, Dharwad

The yield losses will be estimated are:

| Variety  | Protected conditions      |                      |            | Unprotected conditions    |                      |            | Yield loss (%) |
|----------|---------------------------|----------------------|------------|---------------------------|----------------------|------------|----------------|
|          | Disease score (DD, 00-99) | Disease severity (%) | Yield(q/h) | Disease score (DD, 00-99) | Disease severity (%) | Yield(q/h) |                |
| HD3086   |                           |                      |            |                           |                      |            |                |
| DBW386   |                           |                      |            |                           |                      |            |                |
| PBW 897  |                           |                      |            |                           |                      |            |                |
| HD 3386  |                           |                      |            |                           |                      |            |                |
| DBW252   |                           |                      |            |                           |                      |            |                |
| Sonalika |                           |                      |            |                           |                      |            |                |

Wheat varieties will be planted in plots consisting of 6 rows, each 6 meters long, in a randomized complete block design (RCBD). The trial will be replicated three times. The experiment includes two conditions: protected (sprayed with fungicides) and unprotected (unsprayed). The fungicides used will be Propiconazole 25% EC at 0.1% or Tebuconazole 50% + Trifloxystrobin 25% WG at 0.06%. These will be applied as a foliar spray when the disease first appears and again after 14 days. Data on disease severity will be collected three times at 15-day intervals. At harvest, grain yield (q/ha) will be measured to assess yield losses under both protected and unprotected conditions.

**PROGRAMME 10: ENTOMOLOGY**

1. Host plant resistance: Entomological screening nurseries (ESN), elite multiple pest screening nurseries (EMPSN) and special screening nurseries of promising entries identified during previous season will be evaluated as per following plan.

(a) Entomological screening nurseries (ESN)- In these nurseries, AVT entries along with those found resistant during previous years will be screened for

- (i) Shootfly (Centres: Dharwad, Ludhiana, Kanpur, Niphad)
- (ii) Brown wheat mite (Centres: Kanpur and Ludhiana)
- (iii) Foliar Aphids (Centres: Niphad, Ludhiana, Karnal, Khudwani, RPCAU Pusa and Kharibari)
- (iv) Root aphid (Centres: Karnal, Kharibari, Ludhiana)

(b) Elite Multiple pest screening nurseries (EMPSN)- In these nurseries, the germplasm having resistance to multiple diseases and insect-pests will be screened for

- (i) Shootfly (Centres: Dharwad, Ludhiana, Kanpur and Niphad)
- (ii) Brown wheat mite (Centres: Kanpur and Ludhiana)
- (iii) Foliar aphids (Centres: Niphad, Ludhiana, Karnal, Khudwani, RPCAU Pusa and Kharibari)
- (iv) Root aphid (Centres: Karnal, Kharibari and Ludhiana)

## 2. Integrated Pest Management

Survey and surveillance of insect-pests and their natural enemies in wheat (All centres)

Roving surveys will be carried out at peak period of activity of different pests during the cropping season in wheat for insect-pests and their natural enemies. Population and damage levels of different insect-pests will be recorded and indicated as grades or percent damage inflicted to crop. The severity of damage of different insect-pests will also be recorded.

## 3. Population dynamics of insect-pests and natural enemies under different residue management scenarios in rice-wheat cropping system (Centres: Ludhiana, Karnal)

Effect of different sowing methods (Surface Seeder, Super Seeder, Happy seeder, Smart Seeder) under varied residue amounts will be tested to study the population dynamics of insect-pests and natural enemies in rice-wheat cropping system.

(i). Assessment of grain yield losses caused by aphid complex in wheat (Centres: Ludhiana, Kanpur, Kharibari and Niphad)

The susceptible wheat variety for aphids will be sown plots in 6 rows of 6 m length in a replicated trial under irrigated conditions in the month of November. The trial will consists treatments viz. spraying of crop at flag leaf stage, ear head emergence stage and milking grain stage along with un-sprayed plots. The CIB recommended insecticide, thiamethoxam 25% WG @ 12.5 a.i. g/ha will be used for spraying for the management of aphids in wheat. The experiment will be conducted in randomized complete block design and each treatment will be replicated five times. Data will be collected at flag leaf stage, ear head and milking stage. During each sampling date, five wheat plants from each plot will be selected randomly and the number of aphids per tiller of each plant will be counted. At harvest, TKW and grain yield (q/ha) will be recorded from each plots will be recorded to assess yield losses. The data obtained from this experiment will be used to revisit the economic threshold level of aphids for wheat crop.

### (ii) Management of aphids in wheat through border crops (Centres: Ludhiana, Karnal, and Kharibari)

The main hypothesis of the experiment is that more diverse cropping systems harboured lower incidence of aphids and help in reduction aphid infestation as compared to mono-cropping systems. In this experiment, the susceptible wheat variety for aphids will be sown plots size of 50 m<sup>2</sup> under irrigated conditions in the month of November. Border crop of mustard and radish will be also sown at the same time. Five plants from each plot from main crop as well as border crop will be selected randomly, and observations will be recorded on the number of aphids per tiller of each plant. At harvest time, yield will be recorded from main land border crop.

| Treatment | Treatment details                        |
|-----------|------------------------------------------|
| 1         | Wheat + 1 row of border crop of mustard  |
| 2         | Wheat + 2 rows of border crop of mustard |
| 3         | Wheat +1 row of border crop of radish    |
| 4         | Wheat + 2 rows of border crop of radish  |
| 5         | Control                                  |

### (iii) Management of aphids through foliar application of new chemical molecules (Centres: Ludhiana, Karnal, Niphad and Kanpur)

Following chemicals will be evaluated against foliar aphids in wheat. Insect population counts before and after the treatment will be recorded along with yield in each treatment.

| Treatment ID | Treatments        | Dosage /ha |
|--------------|-------------------|------------|
| T1           | Dinotefuran 20 SG | 40 g       |
| T2           | Dinotefuran 20 SG | 60 g       |

|    |                      |        |
|----|----------------------|--------|
| T3 | Dinotefuran 20 SG    | 80 g   |
| T4 | Pymetrozine 50 % WG  | 50 g   |
| T5 | Thiamethoxam 25 % WG | 12.5 g |
| T6 | Imidacloprid 17.8 SL | 100 ml |
| T7 | Acetamiprid 20 SP    | 100 g  |
| T8 | Untreated Check      | -      |

(iv) Management of lepidopterous pests (pink stem borer, army worm & cutworms) of wheat: (Centres: Kharibari and Ludhiana)

Following chemicals will be evaluated against lepidopterous insect-pests in wheat. Observations will be recorded on percentage of damage tillers before and after 3, 7 and 15 days of treatment. Yield in each treatment will also be recorded during harvest time.

| Treatments ID | Treatments                                            | Dosages/ha |
|---------------|-------------------------------------------------------|------------|
| T1            | Foliar spray of Coragen 18.5 SC (chlorantraniliprole) | 125 ml     |
| T2            | Soil application of fipronil 0.6 GR                   | 7.0 Kg     |
| T3            | Soil application of chlorpyrifos 20EC                 | 2.5 litre  |
| T4            | Takumi 20 WG (flubendiamide 20%)                      | 40 g       |
| T5            | Takumi 20 WG (flubendiamide 20%)                      | 50 g       |
| T6            | Takumi 20 WG (flubendiamide 20%)                      | 60 g       |
| T7            | Untreated Check                                       | -          |

(v) Management of termites through seed treatment of chemical molecules combinations (Centres: Durgapura, Kanpur, Ludhiana)

Following insecticides will be tested as seed treatment /soil application against termites. Observation will be recorded on plant population/m row, per cent damaged shoots/m row after 3,4 and 5 weeks of treatment, percent damaged tillers/m row at earhead stage, No. of damaged effective tillers/ha and grain yield (q/ha).

| Treatment ID | Treatment                                                             | Dosages/ha     |
|--------------|-----------------------------------------------------------------------|----------------|
| T1           | Seed treatment with Neonix (Imidacloprid 18.5%+Hexaconazole (1.5% FS) | 2ml/kg of seed |
| T2           | Seed treatment with Cruiser 70WS (thiamethoxam)                       | 1ml/kg of seed |
| T3           | Soil application of fipronil 0.6 GR                                   | 7.5 Kg         |
| T4           | Soil application of fipronil 0.6 GR                                   | 8.75 Kg        |
| T5           | Soil application of fipronil 0.6 GR                                   | 10 Kg          |
| T6           | Soil application of chlorpyrifos 20EC                                 | 3.0 l          |
| T7           | Untreated control                                                     | -              |

vi. Effect of different Nitrogen application on Aphid Infestation and their natural enemies in Wheat (Centres: Karnal, Ludhiana and Kharibari): New Experiment

| Treatments IDs | Treatment                                                                                                                            |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------|
| T1             | Half of the nitrogen as basal dose+1/4 with first irrigation as soil application+ ¼ with second irrigation as soil application       |
| T2             | Half of the nitrogen as basal dose+1/4 with first irrigation as soil application+ foliar application of urea with second irrigation  |
| T3             | Half of the nitrogen as basal dose+ foliar application of urea with first irrigation +1/4 with second irrigation as soil application |

|    |                                                                                                                                                                                 |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| T4 | Half of the nitrogen as basal dose+ foliar application of urea with first irrigation + foliar application of urea with second irrigation                                        |
| T5 | Half of the nitrogen as basal dose+1/4 with first irrigation as soil application+ application on the basis of Green sticker/leaf colour chart with second irrigation            |
| T6 | Half of the nitrogen as basal dose+ soil application of N on the basis of Green sticker/leaf colour chart with first irrigation+ 1/4 with second irrigation as soil application |
| T7 | Whole of N at the time of sowing as basal dose                                                                                                                                  |

## PROGRAMME 11. NEMATOLOGY

1. Monitoring of Nematodes: *Heterodera avenae*, *Anguina tritici*, *Meloidogyne graminicola* and other plant parasitic nematode: Hisar, Durgapura and Udaipur
2. Evaluation of resistance against nematodes parasitizing wheat  
*Heterodera avenae*: Hisar, Durgapura and Udaipur (AVT and EMDSN lines)
3. Cereal cyst nematode, *Heterodera avenae* management in wheat using organics and bioagents (Centres: Hisar, Durgapura and Udaipur)

Treatments:

T1- T1-Neem Cake @ 1.0 t/ha

T2- Mustard Cake (Bio fumigant) @ 1.5 t/ha.

T3-Purpureocillium lilacinum @ 2.5 kg/ha mixed in 100 kg FYM

T4-Jeevamrit (Soil Drench) @ 200 L/ha @ 7, 21 and 35 DAS.

T5- Fluensulfone (Chemical check) 2% GR @ 20 Kg/ha.

T10-Untreated check

C.D. (5%)

Statistical Design: RBD; Plot Size: 4m × 3 m net (12m<sup>2</sup>); Treatments: 06; Replications: 04

Observations to be recorded:

Initial Nematode Population (Cysts/100 g Soil)

Number of White Females/ Plant: 90-100 DAS & at harvest.

## Wheat Quality

- **NIVT and IVT** entries will be analysed for grain appearance score, hectoliter weight, protein content, sedimentation value, iron, and zinc content, in both *aestivum* and durum wheat genotypes. In addition, phenol reaction in bread wheat and yellow berry and yellow pigment in durum wheat will also be analysed.

| NIVT & condition         | Zone | Centres                                      | Analyzed at               |
|--------------------------|------|----------------------------------------------|---------------------------|
| NIVT 1A (IR-TS)          | NWPZ | Delhi, Durgapura, Hisar, Ludhiana, Pantnagar | PAU, Ludhiana             |
|                          | NEPZ | Kanpur, Sabour, Varanasi, Pusa               |                           |
| NIVT 5A (RI-TS)          | NWPZ | Delhi, Durgapura, Hisar, Ludhiana, Pantnagar | RARI, Durgapura           |
| NIVT 1B (IR-TS)          | NWPZ | Delhi, Durgapura, Hisar, Ludhiana, Pantnagar |                           |
|                          | NEPZ | Kanpur, Sabour, Varanasi                     |                           |
| NIVT 6 (IR-ES)           | NWPZ | Delhi, Durgapura, Hisar, Ludhiana, Pantnagar | SDAU, Vijapur             |
| NIVT 2 (IR-TS)           | CZ   | Indore, Junagarh, Powarkheda, Vijapur        |                           |
|                          | PZ   | Dharwad, Niphad, Pune                        |                           |
| NIVT 6 (IR-ES)           | CZ   | Indore, Junagarh, Powarkheda, Vijapur        | GBPUA&T, Pantnagar Centre |
| NIVT 3A (IR-LS)          | NWPZ | Delhi, Durgapura, Hisar, Ludhiana, Pantnagar |                           |
|                          | NEPZ | Kanpur, Sabour, Varanasi, Pusa               |                           |
| NIVT 5A (RI-TS)          | NEPZ | Kanpur, Sabour, Varanasi, Pusa               | ARS, Niphad               |
| NIVT 3B (IR-LS)          | CZ   | Indore, Junagarh, Powarkheda, Vijapur        |                           |
|                          | PZ   | Dharwad, Niphad, Pune                        |                           |
| NIVT 4 (IR-TS) Durum     | CZ   | Indore, Junagarh, Powarkheda, Vijapur        | ARI, Pune                 |
|                          | PZ   | Dharwad, Niphad, Pune                        |                           |
|                          | NWPZ | Delhi, Durgapura, Hisar, Ludhiana, Pantnagar | ICAR-IIWBR, Karnal        |
| NIVT 5B (RI-TS) TAD      | CZ   | Indore, Junagarh, Powarkheda, Vijapur        | UAS, Dharwad              |
|                          | PZ   | Dharwad, Niphad, Pune                        |                           |
| NIVT1A, 1B, 3A, 4, 5A, 6 | NWPZ | Karnal location entries                      | ICAR-IIWBR, Karnal        |
| IVT                      | NHZ  | Almora, Malan and Shimla                     |                           |

### AVT

- AVT samples from all the centres mentioned in NIVTs and IVTs will be analyzed by ICAR-IIWBR, Karnal for various quality parameters including baking. Grain hardness index of selected centres of AVT will be evaluated at ICAR-IARI, New Delhi.
- QCWBN: All QCWBN samples will be analyzed at ICAR-IIWBR, Karnal.
- AST: All AST samples will be analyzed at ICAR-IIWBR, Karnal.
- Dicoccum: All Dicoccum trial will be analyzed at UAS, Dharwad.
- All iron zinc of NIVTs will be analyzed at ICAR-IIWBR, Karnal.

### Mandatory Instructions:

- For iron and zinc estimation, only hand-threshed samples should be sent separately for AVT, HYPT, QCWBN, Dicoccum, and AST trials to ICAR-IIWBR, Karnal.
- For estimation of NIVT/IVT parameters, the samples should be sent to the centres designated for their estimation for iron and zinc estimation, only hand-threshed samples should be sent separately to ICAR-IIWBR, Karnal.
- All trials should be conducted as per the standard agronomic practices.
- The last dates for supplying the samples by respective centres are finalized as follow: NHZ 15<sup>th</sup> June 2027
- NWPZ & NEPZ 20<sup>th</sup> May 2027; CZ 15<sup>th</sup> May 2027; PZ 30<sup>th</sup> April 2027
- All the wheat grain samples, duly cleaned, and properly packed in biodegradable polythene bags separately, enclosed in cloth bags should be sent by registered post parcel.
- All the co-operators, who will analyze the wheat samples of various NIVTs should send the data to ICAR-IIWBR, Karnal positively by 15th July, 2027, by e-mail in the format used in annual report.

### Barley Work Plan 2026-27

|                                          |                             |                                                                                             |
|------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>AVT-Feed barley-NWPZ</b> |                                                                                             |
| Production Condition                     | Irrigated-Timely sown       |                                                                                             |
| Zone                                     | NWPZ                        |                                                                                             |
| <b>No. of Trial Centers</b>              | <b>8</b>                    |                                                                                             |
| State                                    | No.                         | Name of centers                                                                             |
| Haryana                                  | 2                           | Hisar, Karnal                                                                               |
| Punjab                                   | 1                           | Ludhiana                                                                                    |
| Rajasthan                                | 2                           | Durgapura, Tabiji                                                                           |
| Uttarakhand                              | 1                           | Pantnagar                                                                                   |
| U.P.                                     | 1                           | Modipuram                                                                                   |
| Chatha (Jammu)                           | 1                           | Chatha (Jammu)                                                                              |
| <b>No. of varieties including checks</b> | <b>10</b>                   |                                                                                             |
| Contributing Centers                     | No.                         | Name of varieties                                                                           |
| Durgapura                                | 3                           | RD3128*, RD3126*, RD 3178                                                                   |
| Karnal                                   | 2                           | DWRB 2501, DWRB 2547                                                                        |
| Ludhiana                                 | 3                           | PL965*, PL968*, PL978*                                                                      |
| Checks                                   | 2                           | BH 946, DWRB137                                                                             |
| Experimental Design                      |                             | RBD                                                                                         |
| <b>Replications</b>                      |                             | <b>4 (Four)</b>                                                                             |
| Plot Size                                |                             | Gross: 5m x 2.76 m (12 rows @23 cm)                                                         |
| Fertilizer dose                          |                             | 60 Kg. N : 30Kg P: 20Kg K /ha (1/2N + full P&K as Basel dose);<br>1/2 N at first irrigation |
| Irrigation                               |                             | 2-3                                                                                         |
| Date of sowing (Between)                 |                             | 10-25 November                                                                              |

\*Final year entries

|                                          |                             |                                                                                             |
|------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>AVT-Feed barley-NEPZ</b> |                                                                                             |
| Production Condition                     | Irrigated-Timely sown       |                                                                                             |
| Zone                                     | NEPZ                        |                                                                                             |
| <b>No. of Trial centers</b>              | <b>5</b>                    |                                                                                             |
| State                                    | NO.                         | Name of centers                                                                             |
| UP                                       | 3                           | Kanpur, Varanasi, Faizabad                                                                  |
| Bihar                                    | 1                           | BISA Samastipur                                                                             |
| Jharkhand                                | 1                           | Ranchi                                                                                      |
| <b>No. of varieties including checks</b> | <b>7</b>                    |                                                                                             |
| Contributing centres                     | No.                         | Name of varieties                                                                           |
| Durgapura                                | 1                           | RD3176                                                                                      |
| Hisar                                    | 1                           | BH1076                                                                                      |
| IIWBR Karnal                             | 2                           | DWRB2501, DWRB2543                                                                          |
| Ludhiana                                 | 1                           | PL986                                                                                       |
| Checks                                   | 2                           | DWRB137, HUB113                                                                             |
| Experimental Design                      |                             | RBD                                                                                         |
| <b>Replications</b>                      |                             | <b>4 (Four)</b>                                                                             |
| Plot Size                                |                             | Gross: 5m x 2.76 m (12 rows @23 cm)                                                         |
| Fertilizer dose                          |                             | 60 Kg. N : 30Kg P: 20Kg K /ha (1/2N + full P&K as Basel dose);<br>1/2 N at first irrigation |
| Irrigation                               |                             | 2-3                                                                                         |
| Date of sowing (Between)                 |                             | 10-25 November                                                                              |

|                                          |                           |                                                                                             |
|------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>AVT-Feed barley-CZ</b> |                                                                                             |
| Production Condition                     | Irrigated-Timely sown     |                                                                                             |
| Zone                                     | Central Zone              |                                                                                             |
| <b>No. of Trial centers</b>              | <b>5</b>                  |                                                                                             |
| State                                    | NO.                       | Name of centers                                                                             |
| Rajasthan                                | 2                         | Udaipur, Kota                                                                               |
| MP                                       | 2                         | Gwalior, Tikamgarh                                                                          |
| Gujarat                                  | 1                         | Vijapur                                                                                     |
| <b>No. of varieties including checks</b> | <b>5</b>                  |                                                                                             |
| Contributing centres                     | No.                       | Name of varieties                                                                           |
| Hisar                                    | 1                         | BH1065*                                                                                     |
| Durgapura                                | 1                         | RD3126*                                                                                     |
| Ludhiana                                 | 1                         | PL986                                                                                       |
| Checks                                   | 2                         | DWRB137, RD2899                                                                             |
| Experimental Design                      |                           | RBD                                                                                         |
| <b>Replications</b>                      |                           | <b>4 (Four)</b>                                                                             |
| Plot Size                                |                           | Gross: 5m x 2.76 m (12 rows @23 cm)                                                         |
| Fertilizer dose                          |                           | 60 Kg. N : 30Kg P: 20Kg K /ha (1/2N + full P&K as Basel dose);<br>1/2 N at first irrigation |
| Irrigation                               |                           | 2-3                                                                                         |
| Date of sowing (Between)                 |                           | 10-25 November                                                                              |

\*Final year entries

|                                          |                                        |                                                                                                                                 |
|------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>IVT-Feed barley-NWPZ/ NEPZ / CZ</b> |                                                                                                                                 |
| Production Condition                     | Irrigated, Timely sown                 |                                                                                                                                 |
| <b>No. of Trial Centers</b>              | <b>19</b>                              |                                                                                                                                 |
| <b>Zone</b>                              | <b>No.</b>                             | <b>Name of centers</b>                                                                                                          |
| NWPZ                                     | 8                                      | Hisar, Karnal, Ludhiana, Durgapura, Tabiji, Pantnagar, Modipuram, Chatha (Jammu)                                                |
| NEPZ                                     | 5                                      | Kanpur, Varanasi, Kumarganj, BISA Samastipur, Ranchi                                                                            |
| CZ                                       | 6                                      | Udaipur, Gwalior, Banda, Vijapur, Kota, Tikamgarh                                                                               |
| <b>No. of varieties including checks</b> | <b>25</b>                              |                                                                                                                                 |
| Contributing Centers                     | No.                                    | Name of varieties                                                                                                               |
| Durgapura                                | 3                                      | RD 3208, RD 3209, RD 3210                                                                                                       |
| Hisar                                    | 3                                      | BH 1085, BH 1086, BH 1087                                                                                                       |
| IIWBR Karnal                             | 2                                      | DWRB2605, DWRB2606                                                                                                              |
| Ludhiana                                 | 3                                      | PL1005, PL1001, PL1013                                                                                                          |
| Kanpur                                   | 2                                      | KB2515 , KB2517                                                                                                                 |
| Varanasi                                 | 1                                      | HUB311                                                                                                                          |
| Pantnagar                                | 2                                      | UPB 1157, UPB 1158                                                                                                              |
| Vijaypur                                 | 2                                      | GB 7, GB8                                                                                                                       |
| Banda                                    | 2                                      | BUB-6 , BUB-5                                                                                                                   |
| Checks                                   | 5                                      | BH946 <sup>NWPZ</sup> , DWRB137 <sup>NWPZ,NEPZ,CZ</sup> , RD2899 <sup>CZ</sup> , HUB113 <sup>NEPZ</sup> , PL955 <sup>NEPZ</sup> |
| Experimental Design                      |                                        | Alpha lattice                                                                                                                   |
| <b>Replications</b>                      |                                        | <b>2 (Two)</b>                                                                                                                  |
| Plot Size                                |                                        | Gross: 5m x 1.38m (6 rows@23 cm)                                                                                                |
| Fertilizer dose                          |                                        | 60 Kg. N : 30Kg P: 20Kg K /ha (1/2N + full P&K as Basel dose);<br>1/2 N at first irrigation                                     |
| Irrigation                               |                                        | 2-3                                                                                                                             |
| Date of sowing (Between)                 |                                        | 10-25 November                                                                                                                  |

|                                          |                                       |                                                                                                                                                                           |
|------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>AVT- Dual Purpose barley -NWPZ</b> |                                                                                                                                                                           |
| Production Condition                     | Irrigated, Timely sown                |                                                                                                                                                                           |
| Zone                                     | NWPZ                                  |                                                                                                                                                                           |
| <b>No. of Trial Centers</b>              | <b>8</b>                              |                                                                                                                                                                           |
| Zone                                     | No.                                   | Name of centers                                                                                                                                                           |
| NWPZ                                     | 8                                     | Hisar, Karnal, Ludhiana, Durgapura, Tabiji, Pantnagar, Modipuram, Navagaon                                                                                                |
| <b>No. of varieties including checks</b> | <b>4</b>                              |                                                                                                                                                                           |
| Contributing Centers                     | No.                                   | Name of varieties                                                                                                                                                         |
| Kanpur                                   | 1                                     | KB2407                                                                                                                                                                    |
| Ludhiana                                 | 1                                     | PL994                                                                                                                                                                     |
| Checks                                   | 2                                     | RD 2715, RD 2552                                                                                                                                                          |
| Experimental Design                      |                                       | RBD                                                                                                                                                                       |
| <b>Replications</b>                      |                                       | <b>5 (Five)</b>                                                                                                                                                           |
| Plot Size                                |                                       | Gross: 5m x 2.76m (12 rows @23 cm)                                                                                                                                        |
| *First Cut                               |                                       | All the replications are to be cut at 55 days of sowing and                                                                                                               |
| Fertilizer dose                          |                                       | N=75 Kg, P= 30 Kg, K=20 Kg per hectare. 50% N as basal dose; 25 % at first irrigation (21 days of sowing) and remaining 25% (~20 kg N/ha) after first cut at 55 DAS along |
| Irrigation                               |                                       | 2-3                                                                                                                                                                       |
| Date of sowing (Between)                 |                                       | 10-25 November                                                                                                                                                            |

|                                          |                                      |                                                                                                                                                                                            |
|------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>AVT- Dual Purpose barley - CZ</b> |                                                                                                                                                                                            |
| Production Condition                     | Irrigated, Timely sown               |                                                                                                                                                                                            |
| Zone                                     | CZ                                   |                                                                                                                                                                                            |
| <b>No. of Trial Centers</b>              | <b>5</b>                             |                                                                                                                                                                                            |
| <b>Zone</b>                              | <b>No.</b>                           | <b>Name of centers</b>                                                                                                                                                                     |
| CZ                                       | 5                                    | Udaipur, Gwalior, Tikamgarh, Vijapur, Kota                                                                                                                                                 |
| <b>No. of varieties including checks</b> | <b>5</b>                             |                                                                                                                                                                                            |
| Contributing Centers                     | No.                                  | Name of varieties                                                                                                                                                                          |
| Karnal                                   | 1                                    | DWRB2504                                                                                                                                                                                   |
| Durgapura                                | 2                                    | RD3166, RD3169                                                                                                                                                                             |
| Checks                                   | 2                                    | RD 2715, RD 2552                                                                                                                                                                           |
| Experimental Design                      |                                      | RBD                                                                                                                                                                                        |
| <b>Replications</b>                      |                                      | <b>4 (Four)</b>                                                                                                                                                                            |
| Plot Size                                |                                      | Gross: 5m x 2.76m (12 rows @23 cm)                                                                                                                                                         |
| *First Cut                               |                                      | All the replications are to be cut at 55 days of sowing and fresh                                                                                                                          |
| Fertilizer dose                          |                                      | N=75 Kg, P= 30 Kg, K=20 Kg per hectare. 50% N as basal dose; 25 % at first irrigation (21 days of sowing) and remaining 25% (~20 kg N/ha) after first cut at 55 DAS along with irrigation) |
| Irrigation                               |                                      | 2-3                                                                                                                                                                                        |
| Date of sowing (Between)                 |                                      | 10-25 November                                                                                                                                                                             |

|                                   |                                            |                                                                                                                                                                                            |
|-----------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>              | <b>IVT- Dual Purpose - NWPZ/ NEPZ / CZ</b> |                                                                                                                                                                                            |
| Production Condition              | Irrigated, Timely sown                     |                                                                                                                                                                                            |
| Zone                              | NWPZ/ NEPZ / CZ                            |                                                                                                                                                                                            |
| <b>No. of Trial Centers</b>       | <b>19</b>                                  |                                                                                                                                                                                            |
| <b>Zone</b>                       | <b>No.</b>                                 | <b>Name of centers</b>                                                                                                                                                                     |
| NWPZ                              | 8                                          | Hisar, Karnal, Ludhiana, Nawagaon, Durgapura, Tabiji, Pantnagar,                                                                                                                           |
| NEPZ                              | 5                                          | Kanpur, Varanasi, Kumarganj, BISA Samastipur, Ranchi                                                                                                                                       |
| CZ                                | 6                                          | Udaipur, Gwalior, Banda, Vijapur, Kota , Tikamgarh                                                                                                                                         |
| <b>No. of varieties including</b> | <b>16</b>                                  |                                                                                                                                                                                            |
| Contributing Centers              | No.                                        | Name of varieties                                                                                                                                                                          |
| Durgapura                         | 3                                          | RD 3229, RD 3230, RD 3231                                                                                                                                                                  |
| Hisar                             | 2                                          | BH 1095, BH 1096                                                                                                                                                                           |
| IIWBR Karnal                      | 3                                          | DWRB2607, DWRB2608, DWRB-2616                                                                                                                                                              |
| Ludhiana                          | 3                                          | PL1011, PL1006, PL1002                                                                                                                                                                     |
| Pantnagar                         | 2                                          | UPB 1162, UPB 1163                                                                                                                                                                         |
| Checks                            | 3                                          | RD 2715, RD 2552, DWRB2318 <sup>NWPZ</sup>                                                                                                                                                 |
| Experimental Design               |                                            | Alpha lattice                                                                                                                                                                              |
| <b>Replications</b>               |                                            | <b>2 (Two)</b>                                                                                                                                                                             |
| Plot Size                         |                                            | Gross: 5m x 1.38m (6 rows@23 cm)                                                                                                                                                           |
| *First Cut                        |                                            | All the replications are to be cut at 55 days of sowing and fresh weight                                                                                                                   |
| Fertilizer dose                   |                                            | N=75 Kg, P= 30 Kg, K=20 Kg per hectare. 50% N as basal dose; 25 % at first irrigation (21 days of sowing) and remaining 25% (~20 kg N/ha) after first cut at 55 DAS along with irrigation) |
| Irrigation                        |                                            | 2-3                                                                                                                                                                                        |
| Date of sowing (Between)          |                                            | 10-25 November                                                                                                                                                                             |

|                                   |                              |                                                                                                   |
|-----------------------------------|------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>              | <b>IVT- Malt barley-NWPZ</b> |                                                                                                   |
| Production Condition              | Irrigated, Timely Sown       |                                                                                                   |
| Zone                              | NWPZ                         |                                                                                                   |
| <b>No. of Trial Centres</b>       | <b>13</b>                    |                                                                                                   |
| State                             | No.                          | Name of centres                                                                                   |
| Haryana                           | 3                            | Hisar, Karnal, Bawal                                                                              |
| Punjab                            | 2                            | Bathinda, Ludhiana                                                                                |
| Rajasthan                         | 4                            | Naugaon, Durgapura, Tabiji, Sri Ganganagar                                                        |
| U.P.                              | 3                            | Modipuram, Bulandshahr, Nagina                                                                    |
| Uttarakhand                       | 1                            | Pantnagar                                                                                         |
| <b>No. of varieties including</b> | <b>25</b>                    |                                                                                                   |
| Contributing Centres              | No.                          | Name of varieties                                                                                 |
| Durgapura                         | 5                            | RD 3194, RD 3195, RD 3197, RD 3198, RD 3199                                                       |
| Hisar                             | 4                            | BH 1089, BH 1090, BH 1091, BH 1092                                                                |
| IIWBR Karnal                      | 5                            | DWRB2609, DWRB-2611, DWRB-2612, DWRB-2613, DWRB-2614                                              |
| Ludhiana                          | 5                            | PL1009, PL1004, PL1003, PL1010, PL1008                                                            |
| Pantnagar                         | 2                            | UPB1159, UPB1160                                                                                  |
| Checks                            | 4                            | DWRB 219, DWRB 238, RD2849, DWRB2312                                                              |
| Experimental Design               |                              | Alpha lattice                                                                                     |
| <b>Replications</b>               |                              | <b>2 (two)</b>                                                                                    |
| Plot Size                         |                              | Gross: 5 m x 1.2 m (6 Rows @ 20cm)<br>Net: 4.5 x 1.0 (5 Rows)                                     |
| Fertilizer dose                   |                              | 90 Kg N: 40 Kg P: 20 Kg K /ha (1/2N + full P&K as Basel dose), remaining half at first irrigation |
| Irrigation                        |                              | 2-3 or more if required at certain location                                                       |
| Date of sowing                    |                              | 10-25 November                                                                                    |

|                                   |                                |                                                                                                       |
|-----------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>              | <b>AVT-Hulless barley-NWPZ</b> |                                                                                                       |
| Production Condition              | Irrigated, Timely sown         |                                                                                                       |
| Zone                              | NWPZ                           |                                                                                                       |
| <b>No. of Trial centres</b>       | <b>12</b>                      |                                                                                                       |
| State                             | NO.                            | Name of centres                                                                                       |
| Haryana                           | 2                              | Hisar, Karnal,                                                                                        |
| Punjab                            | 2                              | Ludhiana, Bhatinda                                                                                    |
| Rajasthan                         | 4                              | Durgapura , Naugaon, Tabijji, Sri Ganganagar                                                          |
| Uttrakhand                        | 1                              | Pantnagar                                                                                             |
| U.P.                              | 3                              | Modipuram, Nagina, Bulandshahr                                                                        |
| <b>No. of varieties including</b> | <b>12</b>                      |                                                                                                       |
| Contributing Centers              | No                             | Name of varieties                                                                                     |
| Karnal                            | 5                              | DWRB2436*, DWRB2442*, DWRB2523, DWRB2539, DWRB2530                                                    |
| Durgapura                         | 2                              | RD3158 , RD3161 ,                                                                                     |
| Ludhiana                          | 1                              | PL999                                                                                                 |
| Checks                            | 4                              | Karan 16, PL891, DWRB 223, DWRB244                                                                    |
| Experimental Design               |                                | RBD                                                                                                   |
| <b>Replications</b>               |                                | <b>4 (Four)</b>                                                                                       |
| Plot Size                         |                                | Gross: 5m x 2.76m (12 rows)                                                                           |
| Fertilizer dose                   |                                | 60 Kg. N : 30Kg P: 20 Kg K /ha (1/2N + full P&K as Basel dose);<br>remaining half at first irrigation |
| Irrigation                        |                                | 2-3                                                                                                   |
| Date of sowing (Between)          |                                | 10-25 November                                                                                        |

|                                          |                                |                                                                                                    |
|------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>AVT-Hulless barley-NEPZ</b> |                                                                                                    |
| Production Condition                     | Irrigated, Timely sown         |                                                                                                    |
| Zone                                     | NEPZ                           |                                                                                                    |
| <b>No. of Trial centres</b>              | <b>6</b>                       |                                                                                                    |
| State                                    | NO.                            | Name of centres                                                                                    |
| U.P.                                     | 3                              | Kanpur, Varanasi, Faizabad                                                                         |
| Jharkhand                                | 1                              | Ranchi                                                                                             |
| Bihar                                    | 1                              | BISA Samastipur                                                                                    |
| West Bengal                              | 1                              | Burdwan                                                                                            |
| <b>No. of varieties including checks</b> | <b>6</b>                       |                                                                                                    |
| Contributing centres                     | No.                            | Name of varieties                                                                                  |
| Karnal                                   | 3                              | DWRB2436*, DWRB2408 *, DWRB2410*                                                                   |
| Ludhiana                                 | 1                              | PL976 *                                                                                            |
| Checks                                   | 2                              | K1149 (Gitanjali), NDB 943                                                                         |
| Experimental Design                      |                                | RBD                                                                                                |
| <b>Replications</b>                      |                                | <b>4 (Three)</b>                                                                                   |
| Plot Size                                |                                | Gross: 5m x 2.76m (12 rows)                                                                        |
| Fertilizer dose                          |                                | 60 Kg. N : 30Kg P: 20 Kg K /ha (1/2N + full P&K as Basel dose); remaining half at first irrigation |
| Irrigation                               |                                | 2-3                                                                                                |
| Date of sowing (Between)                 |                                | 10-25 November                                                                                     |

|                                          |                                |                                                                                                    |
|------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>AVT - Hulless barley-CZ</b> |                                                                                                    |
| Production Condition                     | Irrigated, Timely sown         |                                                                                                    |
| Zone                                     | CZ                             |                                                                                                    |
| <b>No. of Trial centres</b>              | <b>6</b>                       |                                                                                                    |
| State                                    | No.                            | Name of centres                                                                                    |
| Rajasthan                                | 2                              | Udaipur, Kota                                                                                      |
| MP                                       | 2                              | Gwalior, Tikamgarh                                                                                 |
| Gujarat                                  | 1                              | Vijapur                                                                                            |
| UP                                       | 1                              | Jhansi                                                                                             |
| <b>No. of varieties including checks</b> | <b>8</b>                       |                                                                                                    |
| Contributing centres                     | No.                            | Name of varieties                                                                                  |
| Ludhiana                                 | 2                              | PL976 *                                                                                            |
| Karnal                                   | 3                              | DWRB2442* <sup>Bio</sup> , DWRB2523, DWRB2539                                                      |
| Checks                                   | 3                              | KARAN 16, PL891, K1149                                                                             |
| Experimental Design                      |                                | RBD                                                                                                |
| <b>Replications</b>                      |                                | <b>4 (Four)</b>                                                                                    |
| Plot Size                                |                                | Gross: 5m x 2.76m (12 rows)                                                                        |
| Fertilizer dose                          |                                | 60 Kg. N : 30Kg P: 20 Kg K /ha (1/2N + full P&K as Basel dose); remaining half at first irrigation |
| Irrigation                               |                                | 2-3                                                                                                |
| Date of sowing (Between)                 |                                | 10-25 November                                                                                     |

|                                          |                                            |                                                                                                                                   |
|------------------------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>IVT- Hulless barley- NWPZ /NEPZ /CZ</b> |                                                                                                                                   |
| Production Condition                     | Irrigated, Timely sown                     |                                                                                                                                   |
| Zone                                     | NWPZ/ NEPZ / CZ                            |                                                                                                                                   |
| <b>No. of Trial centres</b>              | <b>24</b>                                  |                                                                                                                                   |
| <b>Zones</b>                             | <b>No.</b>                                 | <b>Name of centres</b>                                                                                                            |
| NWPZ                                     | 12                                         | Hisar, Karnal, Bhatinda, Ludhiana, Nawagaon, Tabiji Durgapura,                                                                    |
| NEPZ                                     | 6                                          | Kanpur, Varanasi, Faizabad, Ranchi, BISA Samastipur, Burdwan                                                                      |
| CZ                                       | 6                                          | Udaipur, Kota, Tikamgarh, Gwalior, Vijapur, CAU. Jhansi                                                                           |
| <b>No. of varieties including checks</b> | <b>25</b>                                  |                                                                                                                                   |
| Contributing Centers                     | No.                                        | Name of varieties                                                                                                                 |
| Durgapura                                | 6                                          | RD 3201, RD 3202, RD 3203, RD 3204, RD 3205, RD 3206                                                                              |
| IIWBR Karnal                             | 9                                          | DWRB2601, DWRB2602, DWRB2603, DWRB2604, DWRB2610, DWRB-2617, DWRB-2618, DWRB-2619, DWRB-2620                                      |
| Kumarganj                                | 2                                          | NDB 2522, NDB 2524                                                                                                                |
| Ludhiana                                 | 1                                          | PL1012                                                                                                                            |
| Pantnagar                                | 2                                          | UPB 1155, UPB 1156                                                                                                                |
| Checks                                   | 5                                          | DWRB 223 <sup>NWPZ</sup> , DWRB 244 <sup>NWPZ</sup> , RD3089 <sup>NWPZ, CZ</sup> , RD3088 <sup>CZ</sup> , UPB1121 <sup>NEPZ</sup> |
| Experimental Design                      |                                            | Alfa Lattice                                                                                                                      |
| <b>Replications</b>                      |                                            | <b>2 (Two)</b>                                                                                                                    |
| Plot Size                                |                                            | Gross: 5m x 1.38m (6 rows @23 cm)                                                                                                 |
| Fertilizer dose                          |                                            | 60 Kg. N : 30Kg P: 20 Kg K /ha (1/2N + full P&K as Basel dose); remaining half at first irrigation                                |
| Irrigation                               |                                            | 2-3                                                                                                                               |
| Date of sowing (Between)                 |                                            | 10-25 November                                                                                                                    |

|                                          |                             |                                                                                                                    |
|------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>IVT/AVT-RF-FB-DP-NHZ</b> |                                                                                                                    |
| <b>Production Condition</b>              | <b>Rainfed-Dual Purpose</b> |                                                                                                                    |
| Zone                                     | NH Zone                     |                                                                                                                    |
| <b>No. of Trial Centres</b>              | <b>7</b>                    |                                                                                                                    |
| State                                    | No.                         | Name of centres                                                                                                    |
| Himachal                                 | 3                           | Bajaura, Malan, Shimla                                                                                             |
| Uttarakhand                              | 2                           | Almora, Majhera                                                                                                    |
| J&K                                      | 2                           | Khudwani, Wadura,                                                                                                  |
| <b>No. of varieties including checks</b> | <b>20</b>                   |                                                                                                                    |
| Contributing Centres                     | No.                         | Name of varieties                                                                                                  |
| Bajaura                                  | 5                           | HLB 905 , HBL 906, HBL 907, HBL 908, HBL 909                                                                       |
| Almora                                   | 3                           | VLB 200, VLB 201, VLB 202                                                                                          |
| Shimla                                   | 5                           | BHS 526, BHS 527, BHS 528, BHS 529, BHS 530                                                                        |
| Pantnagar                                | 2                           | UPB 1162, UPB 1163                                                                                                 |
| Checks                                   | 5                           | BHS400 <sup>FB</sup> , HBL113 <sup>FB</sup> , VLB118 <sup>FB</sup> , BHS380 <sup>DPB</sup> , BHS502 <sup>DPB</sup> |
| <b>Experimental Design</b>               |                             | <b>RBD</b>                                                                                                         |
| Replications                             |                             | 4 (Four)                                                                                                           |
| Plot Size                                |                             | Gross: 3.5 m x 1.38 m (6 Rows) Net: 3.5 x 0.92 m (4 Rows)                                                          |
| Fertilizer dose                          |                             | 40 Kg N: 30 Kg P: 20 kg K/ha (All as basal)                                                                        |
| Irrigation                               |                             | None                                                                                                               |
| Date of sowing (Between)                 |                             | NHZ (15 October-10 November)                                                                                       |

|                                          |                                           |                                                           |
|------------------------------------------|-------------------------------------------|-----------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>IVT/AVT-Hulless Barley-Rainfed-NHZ</b> |                                                           |
| Production Condition                     | Rainfed-Hulless barley                    |                                                           |
| Zone                                     | NH Zone                                   |                                                           |
| <b>No. of Trial Centres</b>              | <b>7</b>                                  |                                                           |
| State                                    | No.                                       | Name of centres                                           |
| Himachal                                 | 3                                         | Bajaura, Malan, Shimla                                    |
| Uttarakhand                              | 2                                         | Almora, Majhera                                           |
| J&K                                      | 2                                         | Khudwani, Wadura                                          |
| <b>No. of varieties including checks</b> | <b>13</b>                                 |                                                           |
| Contributing Centres                     | No.                                       | Name of varieties                                         |
| Bajaura                                  | 4                                         | HBL902* , HBL 910, HBL 911, HBL 912,                      |
| Pantnagar                                | 1                                         | UPB 1134**                                                |
| Shimla                                   | 5                                         | BHS 521, BHS 522, BHS 523, BHS 524, BHS 525               |
| Checks                                   | 3                                         | BHS352, BHS497, BHS500                                    |
| Experimental Design                      |                                           | RBD                                                       |
| <b>Replications</b>                      |                                           | <b>3 (Three)</b>                                          |
| Plot Size                                |                                           | Gross: 3.5 m x 1.38 m (6 Rows) Net: 3.5 x 0.92 m (4 Rows) |
| Fertilizer dose                          |                                           | 40 Kg N: 30 Kg P: 20 kg K/ha (All as basal)               |
| Irrigation                               |                                           | None                                                      |
| Date of sowing (Between)                 |                                           | NHZ (15 October-10 November)                              |

\*\*Final year entries

|                                   |                        |                                                                                                  |
|-----------------------------------|------------------------|--------------------------------------------------------------------------------------------------|
| <b>Name of Trial</b>              | <b>AVT/IVT-SAL/ALK</b> |                                                                                                  |
| Production Condition              | SAL / ALK              |                                                                                                  |
| Zone                              | NWPZ / NEPZ            |                                                                                                  |
| <b>No. of Trial Centres</b>       | <b>6</b>               |                                                                                                  |
| State                             | No.                    | Name of centres                                                                                  |
| U.P.                              | 2                      | Dalipnagar, Faizabad                                                                             |
| <b>No. of varieties including</b> | <b>20</b>              |                                                                                                  |
| Contributing Centres              | No.                    | Name of varieties                                                                                |
| CSSRI, Karnal                     | 4                      | KRL2502, KRL2514, KRL2531, KRL2523                                                               |
| Durgapura                         | 6                      | RD 3215, RD 3216, RD 3217, RD 3218, RD 3219, RD 3221                                             |
| Hisar                             | 2                      | BH 1093, BH 1094                                                                                 |
| Kumarganj                         | 1                      | NDB 2501                                                                                         |
| Varanasi                          | 1                      | HUB314                                                                                           |
| Kanpur                            | 3                      | KB2523, KB2528, KB2529                                                                           |
| Checks                            | 3                      | NDB1173, RD2794, RD2907, RD3102                                                                  |
| Experimental Design               |                        | RBD                                                                                              |
| <b>Replications</b>               |                        | <b>3 (Three)</b>                                                                                 |
| Plot Size                         |                        | Gross: 5 x 1.38 m (6 Rows @23 cm)                                                                |
| Fertilizer dose                   |                        | 60 Kg N:30 Kg P:20 Kg K /ha (1/2N + full P&K as basel dose) , remaining half at first irrigation |
| Irrigation                        |                        | 2-3                                                                                              |
| Date of sowing (Between)          |                        | NWPZ / NEPZ (10-25 November)                                                                     |

|                                          |                             |                                                          |
|------------------------------------------|-----------------------------|----------------------------------------------------------|
| <b>Name of Trial</b>                     | <b>AVT/IVT-Rainfed-NEPZ</b> |                                                          |
| Production Condition                     | Rainfed                     |                                                          |
| Zone                                     | NEPZ                        |                                                          |
| <b>No. of Trial Centers</b>              | <b>7</b>                    |                                                          |
| State                                    | NO.                         | Name of centres                                          |
| UP                                       | 4                           | Kanpur, Varanasi, Faizabad, Saini                        |
| Bihar                                    | 1                           | BISA-Samastipur                                          |
| Jharkhand                                | 1                           | Ranchi                                                   |
| West Bengal                              | 1                           | Burdwan                                                  |
| <b>No. of varieties including checks</b> | <b>20</b>                   |                                                          |
| <b>Contributing Centers</b>              | <b>NO</b>                   | <b>Name of varieties</b>                                 |
| Durgapura                                | 8                           | RD3131**, RD3187*, RD 3222, RD 3223, RD 3224,RD          |
| IIWBR Karnal                             | 3                           | DWRB2518*, DWRB2519*, DWRB2520*                          |
| Kumarganj                                | 2                           | NDB1841**,NDB 2508                                       |
| Varanasi                                 | 2                           | HUB312, HUB313                                           |
| Pantnagar                                | 1                           | UPB1143*, UPB 1161                                       |
| Kanpur                                   | 2                           | KB2518, KB2522                                           |
| Checks                                   | 2                           | K 603, Lakhan                                            |
| Experimental Design                      |                             | RBD                                                      |
| <b>Replications</b>                      |                             | <b>3 (Three)</b>                                         |
| Plot Size                                |                             | Gross: 5m x 1.38 m (6 Rows @23 cm)                       |
| Fertilizer dose                          |                             | 40 Kg N : 30 Kg. P: 20Kg K /ha (1/2N + full P&K as Basel |
| Irrigation                               |                             | None                                                     |
| Date of sowing                           |                             | NEPZ (20 October -10 November)                           |

\*\*Final year entries

## **Barley Quality Work Plan for 2026-27**

### **1. Quality analysis of malt barley trials**

**Grain Parameters:** Grain appearance score (Subject to approval), Test weight, Thousand Grain weight, Kernel Plumpness, Husk Content, Germinative energy, Protein Content, Starch Content, Moisture content, Beta Glucan content

**Malt Parameters:** Malt yield, Friability, Homogeneity, Wort Filtration rate, Wort pH, Wort Colour, Saccharification Rate, Hot Water Extract, Free Amino Nitrogen.

### **2. Quality analysis food barley trials:**

Test Weight, Thousand Grain Weight, Protein, Starch, Beta Glucan in AVT-II year entries

### **3. Quality analysis feed barley trials:** TGW, protein, starch, moisture, hectoliter weight in AVT-II year entries

### **4. Constitution, dispatch and quality analysis of Barley Quality Screening Nursery for different quality traits**

Total Number of Barley Genotypes: 20      Number of Replication: 3;

Design: Augmented (Two rows of 2.5 m per entry)

Number of Locations: 6 (Karnal, Hisar, Ludhiana, Pant Nagar, Kanpur & Durgapura)

## **Barley Crop Protection Work Plan for 2026-27**

### **(A) Plant Pathology**

**Crop Health Survey:** All barley cooperating centres shall conduct surveys in their respective regions to record the incidence and severity of diseases and insect pests in the farmers' fields. **The infected samples of rust will be sent to IIWBR, RS Flowerdale and leaf blight to IIWBR, Karnal for further analysis.** Any entry showing > 40S rust reaction in the trials has to be informed to IIWBR, Karnal and sample should be sent to RS Flowerdale, Shimla for race analysis.

### **1. Evaluation for status of host resistance in test entries:**

#### **i. Initial Barley Disease Screening Nursery (IBDSN):**

This nursery will comprise of test entries of station trial of barley breeding centres. The entries will be screened against yellow rust and leaf blight at hot spot locations.

Yellow rust: Ludhiana, Durgapura, Bajaura, Karnal, Almora and Jammu (6)

Leaf blight: Pantnagar, Kanpur, Ayodhya, Kalyani, Coochbehar and Varanasi (6)

#### **ii. National Barley Disease Screening Nursery (NBDSN):**

This nursery will comprise of entries from yield trials (IVT and AVT) which will be screened against rusts and leaf blight.

Yellow rust: Ludhiana, Durgapura, Bajaura, Hisar, Almora, Karnal and Jammu (7)

Leaf rust: Ludhiana and Jammu (2)

Leaf blight: Pantnagar, Kanpur, Ayodhya, Varanasi, Dharwad, Coochbehar and Kalyani (7)

#### **iii. Elite Barley Disease Screening Nursery (EBDSN):**

This nursery will have resistant entries identified in NBDSN and EBDSN tested at hot spot locations. The confirmed sources of resistance would later be shared with different barley breeders for their utilization.

Yellow rust: Ludhiana, Durgapura, Bajaura, Hisar, Almora, Karnal and Jammu (7)

Leaf rust: Ludhiana and Jammu (2)

Leaf blight: Pantnagar, Kanpur, Ayodhya, Kalyani, Coochbehar and Varanasi (6)

iv. Seedling Resistant Test (SRT) of NBDSN and EBDSN:

The test would be conducted against different pathotypes of three rusts at RS, Flowerdale, Shimla.

2. Susceptibility of barley genotypes against leaf blight and yield losses caused by leaf blight disease

(Centres: Pantnagar, Kanpur, Ayodhya, Varanasi, Sabour, Coochbehar, Kalyani and Vijapur)

Leaf blight disease will be created under artificial inoculated condition and will be allowed to reach at its peak in eight released cultivars with varying disease susceptibility viz., Jyoti, RD 2508, Bilhara, RD 2552, Raj Kiran, DWRB 137, DWRB 219, DWRB 223 at multilocations during 2025-26 to 2026-2027. The experiment will be conducted in RBD and Plot size – 6 rows of 3 meters. Disease score, and Yield (q./ha) will be recorded.

- Treatments: 08
- Replications: 03
- Locations: 08

**(B) Barley Entomology**

**Survey and surveillance of insect-pests and their natural enemies in barley (*All centres*)** Roving surveys will be carried out at fortnightly intervals during the cropping season for insect- pests and their natural enemies. Population and damage levels of different insect-pests will be recorded and indicated as grades or percent damage inflicted to crop. The peak period of pest activity and its severity of damage will also be recorded.

1. **Screening of NBDSN and Elite lines against foliar aphids (Centres: Karnal, Ludhiana, Kanpur, Khudwani and Durgapura).** The national barley aphid screening nursery (NBDSN) will be continued. It will comprise entries from coordinated trials.
2. **Management of aphids through foliar application of chemical molecules (Centres: Karnal, Ludhiana, Kanpur, Vijapur, and Durgapura).** New chemical molecules will be evaluated against foliar aphids in barley. Insect population counts before and after the treatment will be recorded along with yield to determine efficacy of each treatment. Five tillers will be tagged from each plot and the experiment will be replicated three times. The aphids will get counted from these tagged plants before spray and after spray (1, 2, 7 and 15 days) to know the efficacy of each treatment. The grain yield will also record to know the preventable losses by these treatments.

| S. No. | Treatments           | Dose ml or g / ha |
|--------|----------------------|-------------------|
| 1      | Dinotefuran 20 SG    | 40 g              |
| 2      | Dinotefuran 20 SG    | 60 g              |
| 3      | Dinotefuran 20 SG    | 80 g              |
| 4      | Pymetrozine 50 % WG  | 100 g             |
| 5      | Thiamethoxam 25 % WG | 50 g              |
| 6      | Imidacloprid 17.8 SL | 100 ml            |
| 7      | Acetamiprid 20 SP    | 100 g             |
| 8      | Untreated control    | -                 |

**(C) Barley Nematology**

- 1. Screening of NBDSN and EBDSN against CCN:** The entries of NBDSN and EBDSN will be tested against Cereal Cyst nematode (CCN) at Durgapura, Hisar and Udaipur centers in sick plots/field.
- 2. Management of cereal cyst nematode, *Heterodera avenae* in barley using organics and bio-agents**

**Centres:** Durgapura, Hisar and Udaipur.

**Treatment Details:**

- T1 - Control (Untreated Check) (Organic Agronomy Only)
- T2 - Neem Cake @ 1.0 t/ha (Incorporate at the time of Sowing)
- T3 - Mustard Cake (Bio fumigant) @ 1.5 t/ha (Incorporate at the time of Sowing)
- T4 - *Purpureocillium lilacinum* @ 2.5 kg/ha mixed in 100 kg FYM at Sowing
- T5 - Jeevamrit (Soil Drench) @ 200 L/ha at 7, 21 & 35 Days After Sowing (DAS)
- T6 - Chemical Check Fluensulfone 2% GR @ 20 Kg/ha.

Statistical Design: RBD, Plot Size: 4 m × 3 m net (12 m<sup>2</sup>), Treatments: 06, Replications: 04

**Observations to be recorded:**

1. Initial Nematode Population (Cysts/100 g Soil)
2. No. of White Females/ Plant after 90-100 Days of Sowing.
3. At Harvest: FNP (Final Nematode Population)

## Session VIII: Closing Ceremony (Plenary Session)

Chief Guest: Sh N S Rathore (Progressive Farmer)  
Chairman: Dr Sanjay Kumar (Chairman, PAMC)  
Co-Chairmen: Dr Poonam Jasrotia, ADG (PPB), ICAR  
Rapporteurs: Dr. Deepak K. Baranwal and Dr. Vanita Pandey  
Session Coordinator: Dr. P S Shekhawat, RARI, Durgapura

**Date: August 20, 2026**

The valedictory session of the 65th Wheat & Barley AGM was graced by the presence of Sh. N. S. Rathore, Dr. Poonam Jasrotia, ADG (PPB), Dr. Sanjay Kumar, Chairman, PAMC, Dr. Ratan Tiwari, Director, IIWBR, Dr. Surendra Singh, Director, RARI, Dr. Umed Singh, VC, Dr. P. S. Shekhawat and Dr. O. P. Ahlawat, Organizing Secretary.

The Director, IIWBR, delivered the opening remarks. Felicitation and introduction of the Chief Guest, Chairman, Co-Chairman and other dignitaries of the session were conducted. Dr. Poonam Jasrotia, ADG (PPB), appreciated the efforts of everyone, including the Organizing Secretary, and initiated the session on Significant Recommendations and Highlights of the Work Plan (2026–27) presented by all PIs.

Dr. Arun Gupta, PI, Crop Improvement, presented the following recommendations arising from the deliberations during the workshop:

1. The trial size of NIVT-5A under restricted irrigation would be increased from 25 to 36 entries from the crop season 2026–27.
2. The NIVT 4 to be discontinued in NWPZ from the crop season 2026-27.
3. A new SPL-NUE trial to be initiated to identify genotypes possessing superior nutrient-use efficiency (NUE).
4. The centres are encouraged to register their promising varieties with the Protection of Plant Varieties and Farmers' Rights Authority (PPVFRA) to ensure legal protection and facilitate their wider utilization.
5. Genotypes possessing superior and desirable traits of interest should be registered with the National Bureau of Plant Genetic Resources (NBPGR) as genetic stocks for their conservation and future utilization in crop improvement programmes.
6. A separate presentation by NBPGR should be made during the workshop to brief the participants on the procedures of registration, conservation and utilization of promising genotypes as genetic stocks.
7. A pre-workshop meeting may be organized before the Annual Group Meeting to streamline and resolve important issues in advance.
8. A detailed review of the progress of centres may be undertaken for each zone, highlighting the progress and achievements made during the last five years.
9. Zonal Coordinators should regularly monitor and review the progress of AICRP programmes in their respective zones and facilitate timely resolution of problems faced by the centres.
10. Nodal persons for each zone may be nominated at ICAR-IIWBR, Karnal, to ensure smooth coordination and effective implementation of AICRP activities.
11. Straw quality analysis of final year entries of NWPZ would be under taken from crop season 2026-27, in collaboration with IGFRI, Jhansi/NDRI Karnal.

Dr. S. C. Gill, PI, Resource Management, presented following recommendations for resource management program:

1. Foliar application of prilled urea @ 6% consistently outperformed nano urea plus spray @ 0.4% in wheat crop across the zones (NWPZ, NEPZ and CZ). Therefore, foliar spray of prilled urea spray @ 6% may be preferred over nano urea plus spray @ 0.4% for better productivity and profitability in wheat.
2. Multi-location experiments across NWPZ, NEPZ, and CZ demonstrated that foliar application of either prilled urea @ 6% or nano-urea plus @ 0.4% along with recommended dose of nitrogen (RDN), increased grain yield by 1.34 – 4.05 q/ha over RDN alone. Thus, supplementary foliar nitrogen application can be considered as an effective strategy for enhancing wheat grain yield when used in conjunction with RDN.

3. Based on multi-locational trials across zones (NWPZ, NEPZ and CZ), halauxifen-methyl + fluroxypyr @ 200.6 (6.1 +194.5) g/ha or metsulfuron + carfentrazone @ 4 + 20 g/ha or tank-mix combination of carfentrazone @ 20 g/ha with 2,4-D @ 400 g/ha should be applied for effective control of broad-leaved weeds in barley.
4. Based on multi-locational trials in NWPZ, bixlozone + metribuzin @ 750 (625+125) g/ha or clodinafop + metribuzin @ 270 (60+210) g/ha should be applied at 35 days after sowing for effective control of diverse weed flora in wheat.
5. For terminal heat-stress mitigation in NWPZ and NEPZ, foliar application of either sodium nitroprusside (100 µM; 10.5 g/ha) or 2% KNO<sub>3</sub> (8 kg/ha) using 400 litres of water/ha is recommended to realize higher grain yield of wheat (3.83–4.36 q/ha) over control. In CZ and PZ, foliar application of progesterone (1 µM; 125 mg/ha) using 400 litres of water/ha is recommended for higher wheat productivity (3.56–4.98 q/ha) over control.

Dr. Pradeep Sharma, PI, Crop Protection, presented the following recommendations:

1. Artificial screening of KB and FHB to be carried out for entries in the final year of testing
2. Replacement of brown rust pathotypes 77-1 with 52-4 for APR studies.
3. Monitoring of Pathological nurseries should be carried out every year especially at hot-spots
4. Acceptance of IPPSN and PPSN data from the centres should follow specific criteria
5. Conduct training programs to ensure proper documentation of AICRP trials, including the deliberate creation of epiphytotics, in order to strengthen technical capacity and improve data quality.
6. It is recommended to grow the highly resistant (ACI<10) newly released varieties HD3249, PBW757, DBW187, DBW296, DBW359, DBW377, DBW173, PBW 771, PBW833, for yellow and leaf rusts in view of current pathotype prevalence in NWPZ

Dr. Sunil Kumar, PI, Quality, presented the following recommendations for the quality program:

1. End use specific quality work should be strengthened possibly through institutional research projects
2. SOP for straw (Wheat and Barley) quality analysis will be discussed with Animal Science University/NDRI/Any other
3. Soil Fe and Zn (total as well as available) data before sowing season 2026-27, mandatorily be provided to ICAR-IIWBR by all centres conducting trials for quality analysis after taking due care of soil sample collection and analysis.

Dr. Chuni Lal, PI Barley Improvement, presented the recommendations for implementation in upcoming crop season:

1. The RARI (SKNAU), Durgapura center announced as Zonal Coordinating Unit (ZCU), NWPZ for Barley by ICAR, and will start functioning from the ensuing crop season (Rabi 2026-27).
2. An online meeting, as a follow-up to a recommendation that emerged during the 65th Annual Wheat and Barley Research Workers' Meet held at RARI (SKNAU), Durgapura, was convened on 11 September 2026 under the chairmanship of the Deputy Director General (Crops Science), ICAR, New Delhi to deliberate upon the promotion criteria for malt barley test entries. It was recommended that a malt test entry shall qualify for promotion if its malt quality (overall malt quality score) is superior or equal to that of the check variety possessing the best malt quality, with its grain yield being statistically equal (in case of superior malt quality only) to or numerically superior to that of the same check variety.
3. Fodder quality assessment should initially be undertaken in AVT-Dual Purpose Barley entries at ICAR-IIWBR, Karnal, in collaboration with ICAR-IGFR, Jhansi/ICAR-NDRI, Karnal, and subsequently extended to other centres.
4. Soil salinity analysis should be undertaken for AVT/IVT-SAL/ALK barley trials, with representative soil samples analysed by ICAR-CSSRI, Karnal, through ICAR-IIWBR, Karnal, to ensure uniform assessment across locations.
5. Regular ICARDA barley trials and nurseries should be resumed, with material be provided to cooperating centres for site-specific evaluation and selection.
6. Only two trials, namely IVT-IRTS-FB-CZ and IVT-IRTS-DPB-CZ, should be allocated to Banda (Uttar Pradesh). Barley trials at Chatha (Jammu) should be resumed.

7. No special agronomy trials should be allocated to Shimla Centre. Instead, experiments on barley production technologies should be conducted at Bajaura Centre.
8. NBDSN allocation for barley aphid screening and entomology experiments at CCS-HAU, Hisar, should remain suspended until an Entomologist is available.

#### *Comments of PAMC Members*

Dr. S. C. Bhardwaj appreciated the initiation of work on endophytes at IIWBR, Karnal, and suggested seeking funding for the same. He also suggested that Bundelkhand should be promoted for GI on durum wheat. Dr. S. R. Verma suggested that the barley collection at Powarkheda should be submitted to NBPGR for preservation. He emphasized the judicious utilization of resources and recommended conducting a pre-workshop meeting for better discussions. Dr. Sewa Ram reiterated the message of the Honourable DG to enhance the marketability of research and improve the nutritional quality of products. He emphasized that the breeding programme should be reoriented accordingly.

Dr. Laxmi Kant appreciated the wheat programme. He also emphasized that rust data should be critically analysed so that there is no loss of entries. Dr. Parveen Chunneja suggested strengthening the pre-breeding programme by identifying centres and facilitating resources, as well as assigning and training staff in a systematic and strategic manner for its successful execution. Various dignitaries, including Dr. Surendra Singh, appreciated the wheat programme and the various deliberations and sessions and thanked everyone for their contributions. Dr. Umed Singh also appreciated the wheat programme and emphasized the need for nematology work in wheat. He further stressed the development of nitrogen-, phosphorus- and other nutrient-use-efficient varieties.

Superannuated scientists, including Drs. A. S. Patel, K. J. Vihol (both from WRS, SDAU, Vijapur, Gujarat Centre) and Dr. V. S. Sohu (eminent wheat scientist from PAU, Ludhiana Centre), were felicitated and honoured by the house. The Chief Guest appreciated the wheat programme and the contribution of wheat scientists, workers and farmers towards making India self-sufficient in food. He suggested that the development and promotion of varieties should remain a priority and thanked the organisers and everyone involved.

Dr. Poonam Jasrotia, ADG (Crop Protection and Biosafety), thanked the Council and the organisers, discussed the ongoing activities and made the following suggestions during the session:

- The programme agenda should be made crisp for better discussions and deliberations, with a focus on the work plan, progress and reports of the wheat and barley programmes.
- Development of Centres of Excellence for pre-breeding should be implemented, with designation of centres in each zone.
- The work should be carried out within a defined timeline to analyse the progress achieved.
- Criteria for varietal selection should be fixed and remain stable.
- A comprehensive, zone-wise analysis of the prevalent disease and pest patterns of the last five years should be undertaken, and necessary corrections in varietal nomination/promotion criteria, if required, should be recommended in consultation with breeders and pathologists.
- Bioavailability studies should be carried out for selected entries in multilocation trials.
- There should be convergence of views during the Barley Internal Meeting among collaborators of the barley programme for conducting trials. The group should organize online meeting for the same.
- Key recommendations/outcomes should be shared with the co-operators.
- Sharing of funds and resources with international organisations should also be critically examined.

PAMC Chairman, Dr. Sanjay Kumar, discussed the ongoing programme and suggested redefining the programme according to the requirements of different zones and states. Pre-workshop meetings may be organized for streamlining the activities of AICRP on Wheat & Barley. He thanked everyone for their contributions.

Director, ICAR-IIWBR, Dr. Ratan Tiwari, presented the proceedings of VIC meeting and enlisted identified entries. The next venue for holding the workshop was also discussed. Incharges from GBPUAT Pantnagar, BCKV Kalyani and SDAU Vijapur showed their willingness to host the next workshop.

Dr. O. P. Ahlawat, Organizing Secretary, conveyed the vote of thanks to the ICAR officials, entire organising teams, PAMC members, national and international collaborators, IIWBR, Karnal, and the RARI, Durgapura team for their efforts and assistance in successfully organising the event.

# Annexure I

## List of final year entries and checks for season 2026-27 (Wheat)

| SN  | Zone                 | Entry                                                                                | Checks                                                        |
|-----|----------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------|
| 1.  | NHZ - AVT-RF-TS-TAS  | VL2061, VL2063                                                                       | HS507, HS562, VL907, VL2041                                   |
| 2.  | NWPZ - AVT-IR-TS-TAS | BW20R105                                                                             | DBW222, PBW826, HD3386                                        |
| 3.  | NWPZ - AVT-IR-LS-TAS | HD3505, HD3507, HD3508, HD3542 <sup>M</sup> , PBW979, PBW980, DBW495, WH1353, WH1355 | PBW771, HD3428, HI1621, DBW173, JKW261, HD3059                |
| 4.  | NWPZ - AVT-IR-TS-TDM | HI8859(d)                                                                            | PDW314, PDW291, WHD943, HD3386(aest.)                         |
| 5.  | NEPZ - AVT-IR-LS-TAS | HD3505, DBW491                                                                       | HI1563, HD3118, HI1621, PBW833                                |
| 6.  | NEPZ - AVT-RI-TS-TAS | HP1987, DBW499                                                                       | K1317, HD3171, HD3293, DBW252                                 |
| 7.  | CZ - AVT-IR-TS-TAS   | GW569                                                                                | GW322, MACS6768, GW555(I)                                     |
| 8.  | CZ - AVT-IR-TS-TDM   | HI8859(d), HI8861(d), HI8865(d)                                                      | HI8713(d), HI8737(d), MACS4135(d)                             |
| 9.  | CZ - AVT-RI-TS-TAD   | GW573                                                                                | DBW110, CG1040, DBW359, HI8851(d), HI8627(d), HI8823(d)       |
| 10. | PZ - AVT-IR-TS-TAD   | HD3543, UAS3044 <sup>M</sup>                                                         | GW322, MACS6222, DWR162, HI8849, MACS4135(d), MACS3949        |
| 11. | AVT-RI-TS-TAD        | NIAW4649, HI8862(d), DBW503 UAS3038                                                  | HI1605, NIAW3170, NIAW4267, NIDW1149(d), UAS478(d), UAS446(d) |

## Final Year Barley Test Entries and Checks for 2026-27

| Name of Trial      | Name of Test Entry                  | Checks                                 |
|--------------------|-------------------------------------|----------------------------------------|
| AVT-IRTS-FB-NWPZ   | RD3128, PL965, RD3126, PL968, PL978 | BH946, DWRB137                         |
| AVT-IRTS-FB-CZ     | BH1065, RD3126                      | DWRB137, RD2899                        |
| AVT-HLB-NWPZ       | DWRB2436, DWRB2442                  | Karan 16, PL 891, DWRB223, and DWRB244 |
| AVT-HLB-NEPZ       | DWRB2436, PL976, DWRB2408, DWRB2410 | K1149 (Gitanjali) and NDB943           |
| AVT-HLB-CZ         | PL976, DWRB2442 <sup>Bio</sup>      | Karan16, K1149 (Gitanjali), and PL891  |
| AVT/IVT-RF-HLB-NHZ | UPB1134                             | BHS352, BHS497                         |
| AVT/IVT-RF-NEPZ    | RD3131, NDB1841                     | K603, Lakhan                           |

# AGENDA



## 65<sup>th</sup> All India Wheat & Barley Research Workers' Meet

All India Coordinated Research Project on Wheat & Barley  
(Indian Council of Agricultural Research)



**Organized by :**

**Sri Karan Narendra Agriculture University, Jobner (Rajasthan)**

**&**

**ICAR-Indian Institute of Wheat and Barley Research, Karnal (Haryana)**

**Venue: Rajasthan Agricultural Research  
Institute, Durgapura Jaipur**

## Pre-Workshop Meetings

**August 18, 2026 (Tuesday)**

**Venue: Auditorium-Main Hall, RARI Durgapura**

|                     |                     |
|---------------------|---------------------|
| <b>8:30-9:30 am</b> | <b>Registration</b> |
|---------------------|---------------------|

### Session -I: Review of work done by individual AICRP centres during 2025-26

(Presentations by the Zonal Coordinators and AICRP Centre Incharges; 10+3 minutes each)

|                      |   |                                                                             |
|----------------------|---|-----------------------------------------------------------------------------|
| Chairman             | : | Dr Sanjay Kumar, Chairman, PAMC                                             |
| Co-Chairman          | : | Dr. Poonam Jasrotia, ADG (PPB), ICAR, New Delhi                             |
| PAMC Members         | : | Dr. Ashok Yadav; Dr. S.R. Verma; Dr. Vinod; Dr. S.C. Bhardwaj; Dr. Sewa Ram |
| AICRPW&B Coordinator | : | Dr. Ratan Tiwari, Director, ICAR-IIWBR, Karnal                              |
| Participants         | : | All Scientists of AICRP on Wheat & Barley                                   |
| Session Coordinator  | : | Dr. O P Ahlawat (PS, ICAR-IIWBR) Organizing Secretary                       |
| Rapporteurs          | : | Drs. Vikas Gupta & Kiran Gaikwad                                            |

| Time        | : | Centre-wise presentation (10+6minutes) |                              |                                                                             |
|-------------|---|----------------------------------------|------------------------------|-----------------------------------------------------------------------------|
|             |   | Zone                                   | Zonal Coordinator            | AICRP Centre In-charge                                                      |
| 9:00-9:50   | : | North Western Plains Zone              | Dr. VSSohu                   | Ludhiana, Durgapura, Jammu, Hisar & Pantnagar                               |
| 9:50-10:50  | : | North Eastern Plains Zone              | Dr. Amit Sharma              | Ayodhya, Coochbehar, Kalyani, Kanpur, Ranchi, Sabour, Shillongani& Varanasi |
| 10:50-11:15 |   | Tea/ Coffee Break                      |                              |                                                                             |
| 11:15-12:05 | : | Central Zone                           | Dr. JB Singh                 | Bilaspur, Gwalior, Jabalpur, Junagadh, Vijapur, Powarkheda, Sagar & Udaipur |
| 12:05-12:35 | : | Peninsular Zone:                       | Dr. Yashavanthakumar KJ      | Pune, Dharwad, Niphad, & Mahabaleshwar                                      |
| 12:35-13:05 | : | North Hill Zone                        | Dr. Dharam Pal               | Palampur, Bajaura, Imphal & Srinagar                                        |
| 13:05-13:30 | : | Remarks                                | Remarks by the PAMC & Chairs |                                                                             |
| 13:30-14:30 | : | Lunch Break                            |                              |                                                                             |

### Session -II: Formulation of Work Plan 2026-27 (Discipline wise concurrent session)

**Time: 14.30 – 16.15**

|                                                  |   |                                                    |
|--------------------------------------------------|---|----------------------------------------------------|
| <b>Crop Improvement</b>                          | : | <b>Venue: Maharana Pratap Auditorium</b>           |
| Chairman                                         | : | Dr. Sanjay Kumar, Chairman PAMC                    |
| Co-Chairman                                      | : | Dr. Vinod, Member PAMC                             |
|                                                  | : | Dr. K S Hooda, PS, FFC, ICAR                       |
| Convener                                         | : | Dr. Arun Gupta, PI, Crop Improvement               |
| Rapporteurs                                      | : | Drs. Hanif Khan & Manjeet Kumar                    |
| <b>Resource Management &amp; Social Sciences</b> | : | <b>Venue: Committee Room (Agronomy Department)</b> |
| Chairman                                         | : | Dr. Ashok Yadav, Member PAMC                       |
| Co-Chairman                                      | : | Dr. SC Gill, PI, Resource Management               |
| Convener(s)                                      | : | Dr. Anuj Kumar, PI, Social Sciences                |
|                                                  | : | Dr. RS Chhokar, PS, ICAR-IIWBR                     |
| Rapporteurs                                      | : | Drs. Bhagat Singh & Ravindra Sekhawat              |
| <b>Crop Protection</b>                           | : | <b>Venue: Committee Room (Seed Technology)</b>     |
| Chairperson                                      | : | Dr. S C Bhardwaj, Member PAMC                      |
| Co-Chairperson                                   | : | Dr. Poonam Jasrotia, ADG (PP&B), ICAR              |
| Convener                                         | : | Dr. Pradeep Sharma, PI, Crop Protection            |
| Rapporteurs                                      | : | Drs. P L Kashyap & Pramod Prasad                   |
| <b>Quality and Basic Sciences</b>                | : | <b>Venue: Committee Room (Plant Physiology)</b>    |
| Chairperson                                      | : | Dr. Sewa Ram, Member PAMC                          |
| Co-Chairperson                                   | : | Dr. Dinesh Kumar, PS, ICAR-IIWBR                   |
| Convener                                         | : | Dr. Sunil Kumar, PI, Quality & Basic Sciences      |
| Rapporteurs                                      | : | Drs. OP Gupta & Lenika Kashyap                     |
| <b>Barley Improvement</b>                        | : | <b>Venue: Committee Room (Director RARI)</b>       |
| Chairman                                         | : | Dr. S.R. Verma, Member PAMC                        |
| Co-Chairman                                      | : | Dr. Lakshmi Kant, Director, ICAR-VPKAS             |
| Convener                                         | : | Dr. Chuni Lal, PI, Barley Network                  |
| Rapporteurs                                      | : | Drs. Neha Sharma & Ravindra Kumar                  |

16:15-16:30

Tea/ Coffee Break

**Session-III: Discussion on constitution of trial for Nutrient Use Efficiency in Wheat****Time: 16.30 – 17.30**

|             |   |                                                                              |
|-------------|---|------------------------------------------------------------------------------|
| Chairman    | : | Dr. Ashok Yadav, Member PAMC                                                 |
| Co-Chairman | : | Dr. Ratan Tiwari, Director, ICAR-IIWBR                                       |
| Convener(s) | : | Dr. SC Gill, PI, Resource Management<br>Dr. Arun Gupta, PI, Crop Improvement |
| Rapporteurs | : | Drs C N Mishra & Jagdish Choudhary                                           |

**17:30-19:30 Session IV: Variety Identification Committee Meeting****Venue: Committee Room (Entomology Department)**

|                  |   |                                                                                 |
|------------------|---|---------------------------------------------------------------------------------|
| Chairman         | : | Dr. DK Yadava, DDG(CS), ICAR                                                    |
| Co-Chairman      | : | ADG(FFC), ICAR                                                                  |
| Member Secretary | : | Dr. Ratan Tiwari, Director, ICAR-IIWBR                                          |
| Participants     | : | All members of Variety Identification Committee (VIC) <b>By invitation only</b> |

**Day 2: August 19, 2026 (Wednesday)****09:00-12:00****Inaugural Session (Session – I)**

|                     |   |                                                                                                                 |
|---------------------|---|-----------------------------------------------------------------------------------------------------------------|
| Chief Guest         | : | <b>Honorable Chief Minister of Rajasthan, Shri Bhajan Lal Sharma</b>                                            |
| Chairman            | : | Dr. ML Jat, Secretary DARE & DG, ICAR, New Delhi                                                                |
| Co-Chairmen         | : | Prof. Puspendra Singh Chauhan, Vice Chancellor, SNKAU, Jobner, Raj.<br>Dr. DK Yadava, DDG (CS), ICAR, New Delhi |
| Special Guest       | : | Dr. Kirodi Lal Meena, Honorable Minister for Agriculture, Rajasthan                                             |
| Guest of Honour     | : | Shri V. Srinivas, Chief Secretary, Govt. of Rajasthan, Jaipur                                                   |
| Session Coordinator | : | Drs. Anuj Kumar & Usha Das, ICAR-IIWBR, Karnal                                                                  |
| Rapporteurs         | : | Drs. Kavita Bhadu & Charu Lata                                                                                  |
| 09:00-09:05         | : | ICAR Song & Lighting of lamp                                                                                    |
| 09:05-09:20         | : | Welcome Address and Director's Report (2025-26)<br>Dr. Ratan Tiwari, Director, ICAR-IIWBR, Karnal               |
| 09:20-09:35         | : | Remarks by Prof. Puspendra Singh Chauhan, VC, SNKAU, Jobner                                                     |
| 09:35-09:45         | : | Remarks by Dr. DK Yadava, DDG (CS), ICAR                                                                        |
| 09:45-10:00         | : | Presentation of Varietal Plaques & Release of Publications                                                      |
| 10:00-10:20         | : | Address of Dr. ML Jat, Secretary DARE & DG, ICAR                                                                |
| 10:20-10:40         | : | Address of Guest of Honour: Shri V. Srinivas, Chief Secretary, Govt. of Rajasthan, Jaipur                       |
| 10:40-11:00         | : | Address of Special Guest: Dr. Kirodi Lal Meena, Honorable Minister for Agriculture, Rajasthan                   |
| 11:00-11:30         | : | Address of Chief Guest: Shri Bhajan Lal Sharma, Honorable Chief Minister of Rajasthan                           |
| 11:30-11:35         | : | Vote of thanks by Dr. U Singh, Director Research, SKNAU, Jobner                                                 |
|                     | : | National Anthem                                                                                                 |

**Hi-Tea (11:35 am – 12:00 noon)****12:00-13:30****Session-II: Special Session: Firming up strategic partnership with international collaborators for global advantage & Stakeholders**

|                     |   |                                                                                                            |
|---------------------|---|------------------------------------------------------------------------------------------------------------|
| Chairman            | : | Dr. M L Jat, Secretary DARE & DG, ICAR                                                                     |
| Co-Chairmen         | : | Dr. DK Yadava, DDG (CS), ICAR, New Delhi<br>Dr. Flavio Breseghello, Global Wheat Program Director (CIMMYT) |
| Coordinator         | : | Dr. Ratan Tiwari, Director, ICAR-IIWBR                                                                     |
| Session Convener(s) | : | Drs. Umesh Kamble & A K Sharma                                                                             |
| Rapporteurs         | : | Drs O P Gangwar & R R Chaudhary                                                                            |

1. Enhancing Agricultural Productivity Through Technology & Innovation - *Dr Flavio Breseghello (CIMMYT)*
2. Biological Nitrification Inhibition (BNI) role in sustainable agriculture? - *Dr. Tadashi Yoshihashii (JIRCAS)*
3. Digital and smart agriculture for resource use efficiency - *Dr. Saurav Pandey, (CSIR-CISO Chandigarh)*
4. Global research update on wheat disease including Wheat blast – *Dr P K Singh (CIMMYT)*
5. Strengthening Global Nutrition & Food Security - *Dr Velu Govindan (CIMMYT)*
6. Overarching Barley Breeding Philosophy from High-yielding, zone-specific varieties to Climate-resilient, purpose-specific, nutritious and market-driven barley - *Dr SR Verma/Dr Lakshmi Kant*
7. Indian Wheat Genomics Initiative: Mining India's National Genebank for Genomic Insights into Biotic Stress Resistance - *Dr. Sandeep Kumar (ICAR – NBPGR)*

**Lunch (13.30 – 14.30)**

**Session-III: Presentation of significant achievements of work done during 2025-26****14:30-16:00****(10 minutes each; 8 minutes presentation & 2 minutes discussion)**

|                          |   |                                                 |
|--------------------------|---|-------------------------------------------------|
| Chairman                 | : | Dr. D K Yadava, DDG (CS), ICAR, New Delhi       |
| Co-Chairperson           | : | Dr. Sanjay Kumar (Chairman PAMC)                |
|                          | : | Dr. Poonam Jasrotia, ADG (PPB), ICAR, New Delhi |
| AICRPW&B Coordinator     | : | Dr. Ratan Tiwari Director, ICAR-IIWBR           |
| Rapporteurs              | : | Drs. Satish Kumar & G S Mavi                    |
| Crop Improvement         | : | Dr. Arun Gupta, PI, Crop Improvement            |
| Resource Management      | : | Dr. SC Gill PI, Resource Management             |
| Crop Protection          | : | Dr. Pradeep Sharma, PI, Crop Protection         |
| IIWBR-RS, Shimla         | : | Dr. Pramod Prasad, I/c IIWBR-RS, Shimla         |
| Quality & Basic Sciences | : | Dr. Sunil Kumar, PI, Quality & Basic Sciences   |
| Barley Improvement       | : | Dr. Chuni Lal, PI, Barley Network               |
| Social Sciences          | : | Dr. Anuj Kumar, PI, Social Sciences             |
| Seed Production          | : | Dr. A K Sharma, Nodal Officer, Seed             |
| <b>Tea/ Coffee Break</b> |   |                                                 |

**16:00-18:00****Special Session: Society for Advancement of Wheat & Barley Research, Karnal***(Detailed program as per attached annexure)***Workshop Day 3: August 20, 2026 (Thursday)****Session-IV: Finalization & Presentation of Work Plan for 2026-27 09:00-11:00**

|                          |   |                                                 |
|--------------------------|---|-------------------------------------------------|
| Chairman                 | : | Dr. DK Yadava, DDG (CS), ICAR, New Delhi        |
| Co-Chairperson           | : | Dr. Poonam Jasrotia, ADG (PPB), ICAR, New Delhi |
|                          | : | Dr. Ratan Tiwari Director, ICAR-IIWBR           |
| Rapporteurs              | : | Drs. Charan Singh & Neeraj Kumar                |
| Crop Improvement         | : | Dr. Arun Gupta, PI, Crop Improvement            |
| Resource Management      | : | Dr. SC Gill PI, Resource Management             |
| Crop Protection          | : | Dr. Pradeep Sharma, PI, Crop Protection         |
| Quality & Basic Sciences | : | Dr. Sunil Kumar, PI, Quality & Basic Sciences   |
| Barley Improvement       | : | Dr. Chuni Lal, PI, Barley Improvement           |
| <b>Tea/ Coffee Break</b> |   |                                                 |

**Session-V: Plenary Session 11:30-13:00**

|                                                                   |   |                                                                                                   |
|-------------------------------------------------------------------|---|---------------------------------------------------------------------------------------------------|
| Chairman                                                          | : | Dr. DK Yadava, DDG (CS), ICAR                                                                     |
| Co-Chairperson                                                    | : | Dr. Poonam Jasrotia, ADG (PPB), ICAR                                                              |
|                                                                   | : | Dr. Ratan Tiwari, Director, ICAR-IIWBR                                                            |
| Rapporteurs                                                       | : | Drs. Vanita Pandey & Deepak Baranwal                                                              |
| Session Coordinator                                               | : | Dr. P S Shekhawat, Incharge AICRP, Durgapura & Organizing Secretary                               |
| Significant Recommendations and Highlights of Work Plan (2026-27) | : | Respective PIs (Dr. Arun Gupta, Dr. SC Gill, Dr. Sunil Kumar, Dr. Pradeep Sharma & Dr. Chuni Lal) |
| Remakes by PAMC                                                   | : | Dr. Sanjay Kumar, Dr. Ashok Yadav; Dr. S.R. Verma; Dr. Vinod; Dr. S.C. Bhardwaj; Dr. Sewa Ram     |
| Felicitation of Superannuating Scientists                         | : | Chief Guest & Other Dignitaries                                                                   |
| Remarks & Recommendations of VIC                                  | : | Dr. Ratan Tiwari, Director, ICAR-IIWBR                                                            |
| Finalization of Venue for 66 <sup>th</sup> AGM                    | : | All Participants                                                                                  |
| Remarks by the Co-Chairman                                        | : | Dr. SK Pradhan, ADG (FFC), ICAR                                                                   |
| Remarks by the Chairman                                           | : | Dr. D K Yadava, DDG (CS), ICAR                                                                    |
| Vote of Thanks                                                    | : | Dr. O P Ahlawat, Organizing Secretary                                                             |
| <b>National Anthem</b>                                            |   |                                                                                                   |
| <b>Lunch &amp; Disperse</b>                                       |   |                                                                                                   |

## **PROCEEDINGS OF A MEETING HELD ON 11<sup>TH</sup> SEPTEMBER 2026 TO REVIEW THE CRITERIA FOR PROMOTION OF MALT BARLEY TEST ENTRIES**

An online meeting, as a follow-up to a recommendation that emerged during the recently concluded Annual Wheat and Barley Research Workers' Meet held at RARI (SKNAU), Durgapura, was convened on 11 September 2026 to deliberate upon the promotion criteria for malt barley test entries.

The meeting was chaired online by the Hon'ble Deputy Director General (Crop Science), ICAR, New Delhi. Dr J. P. Jaiswal and Dr S. S. Rajput from the coordinating centres at Pantnagar and Durgapura, respectively, also participated in the meeting online. Besides the Director (Acting), the Barley Group of ICAR-IIWBR, Karnal (Drs Chuni Lal, Dinesh Kumar, Jogendra Singh, Lokendra Kumar, Amit Sharma, Rekha Malik and OP Gupta), actively participated in the deliberations.

At the outset, the Director (Acting) elaborated upon the need to promote those malt barley entries that possess superior malt quality along with competitive grain yield. Thereafter, the Barley Quality Scientist, Dr OP Gupta presented the grain yield and malt-quality data generated under the AICRP trials.

A detailed discussion was held on the grain yield and malt-quality performance of the test entries vis-à-vis the check varieties. It was reiterated that the variety which is used as check variety, has to be the latest identified/notified variety. Following detailed deliberations, the following recommendations were made, which shall form the criteria for the promotion of malt barley test entries to the next stage of varietal trial evaluation.

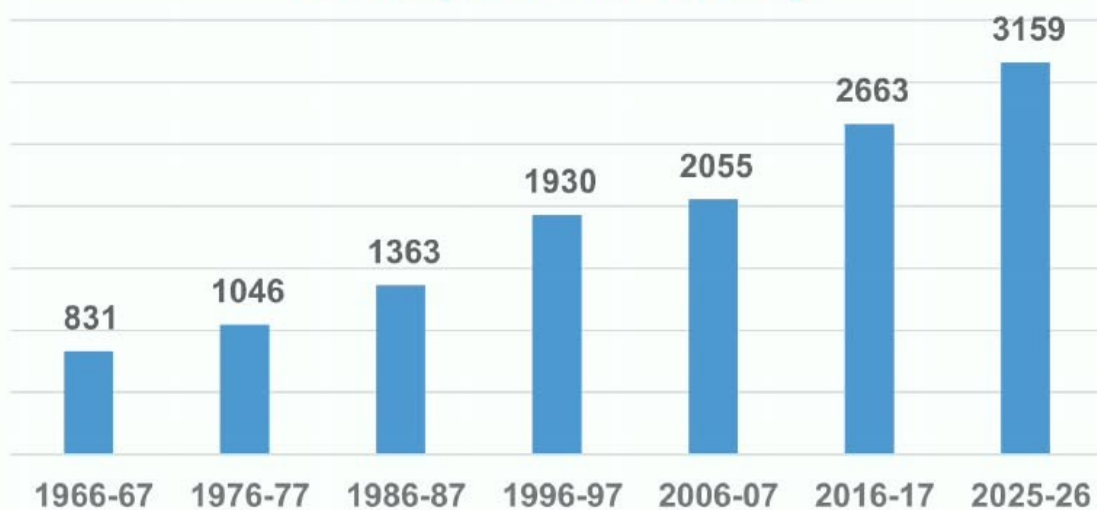
A malt barley test entry will be promoted to the next stage of varietal trial evaluation if:

- 1. The malt quality (overall malt quality score) of the test entry is superior to that of the check variety possessing the best malt quality, and the grain yield of the test entry is equal to or numerically superior to that of the check variety with the best malt quality.**
- 2. The malt quality (overall malt quality score) of the test entry is equal to that of the check variety possessing the best malt quality, and the grain yield of the test entry is numerically superior to that of the check variety with the best malt quality.**

The meeting concluded with a vote of thanks proposed by the Director (Acting), who expressed his gratitude to all the participants, particularly the Hon'ble DDG (Crop Science), for his valuable guidance and suggestions.

## जौ की उत्पादकता Barley Productivity

(kg/ha)



65<sup>वीं</sup> अखिल भारतीय गेहूँ एवं जौ अनुसंधान कार्यकर्ता संगोष्ठी-2026  
राजस्थान कृषि अनुसंधान संस्थान, दुर्गापुरा, जयपुर  
श्री कर्ण नरेन्द्र कृषि विश्वविद्यालय, जोबनेर, राजस्थान

65<sup>th</sup> All India Wheat and Barley Research Workers Meet - 2026  
Rajasthan Agricultural Research Institute, Durgapura, Jaipur  
Shri Karan Narendra Agriculture University, Jobner, Rajasthan

अगस्त 18-20, 2026 | August 18-20, 2026