प्रगति प्रतिवेदन

Draft Proceedings of 55th Annual Rice Research Group Meeting

अखिल भारतीय समन्वित चावल सुधार परियोजना

All India Co-ordinated Rice Improvement Project

IIRR, Hyderabad, 11-13th May, 2020

(Conducted through video conference)

भाकृअनुप - भारतीय चावल अनुसंधान संस्थान

भारतीय कृषि अनुसंधान परिषद

ICAR - Indian Institute of Rice Research

Indian Council of Agricultural Research

Rajendranagar, Hyderabad - 500 030

DRAFT PROCEEDINGS

55th Annual Rice Research Group Meetings
11 – 13th May, 2020
(Video Conferencing)

All India Coordinated Rice Improvement Project (AICRIP)

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INAUGURAL SESSION

Chairman : **Dr. Tilak Raj Sharma, DDG(CS),ICAR, New Delhi**
Chief Guest : **Dr. Trilochan Mohapatra, Secretary, DARE & DG, ICAR, New Delhi**
Guest of Honour : **Dr. Y. P. Singh, ADG (FFC), ICAR, New Delhi**
Dr. D.K. Yadava, ADG (Seed), ICAR, New Delhi

The 55th Annual Rice Group Meeting was organized by the ICAR-Indian Institute of Rice Research, Hyderabad via Video Conferencing from 11-13th May 2020. The inaugural session was chaired by Dr. Tilak Raj Sharma, Deputy Director General, Crop Science, ICAR. Dr. Trilochan Mohapatra, Secretary, DARE & DG, ICAR was the Chief Guest. Dr. Y.P. Singh, ADG (FFC) and Dr. D.K. Yadava, ADG (Seed), ICAR were the special invitees. Directors, Dr A. K. Singh, IARI, New Delhi, Dr CH Sreenivasa Rao, NAARM, Hyderabad, Dr Himanshu Pathak, NIASM, Baramati; Rice experts, Prof Uday Kumar, Dr BC Viraktamath, Dr YP Sarma, Dr N Shobha Rani, Dr Raveendran; Dr H S Gupta, IIRR-QRT Chairperson and team members; Prof AK Tyagi IIRR-RAC, Chairperson and Team members, AICRIP Co-operators of funded and voluntary centers and staff of private industry participated in the three day 55th ARGM meeting.

Dr. Dipankar Maithi, Director, ICAR-National Rice Research Institute, Cuttack welcomed the participants.

Dr. S.R. Voleti, Director, ICAR-Indian Institute of Rice Research, Hyderabad, presented the overview of the achievements of AICIRP program for the year 2019-20.

Dr. T.R. Sharma, DDG (CS), ICAR, while welcoming all the participants, mentioned that due to the health crisis posed by Covid-19, the 55th ARGM had to be conducted through video conferencing. He appreciated the efforts of AICRIP for the past 55 years in developing, evaluating and releasing of more than 1360 rice varieties for the cultivation by our farmers. Notwithstanding the increase in rice production, he insisted for best use of our available resources to increase the rice productivity, which was lower than that of China and other countries. He called for focus on targets with specific experiments like direct seeded rice, herbicide tolerant rice and nutrient use rice varieties. Use of land races for different traits like biotic and abiotic stresses and also traits related to biofortification needed special attention. He pointed out that human resource development was very important and the next five years our AICRIP co-operators need to be trained in different areas of crop improvement, including MAS, crop production and crop protection technologies. Three institutes, IIRR, NRRI and IARI should take a lead in organizing appropriate training programmes for the AICRIP co-operators, for which appropriate provisions should be made in the next EFC. In view of the large number of centers, DDG CS also suggested to identify zonal co-ordinators.

Dr. Sharma informed that for the first time, very experienced rice experts were invited to participate and evaluate the the progress of work under AICRP and requested for their

continued presence in the ARGM meetings in the next three years for their guidance and advice.

In his address, Dr. T. Mohapatra, Secretary, DARE & DG, ICAR, complimented IIRR efforts for conducting first time the Virtual Annual Rice Group meeting and pointed out the importance of digital platform in facilitating the much needed participation of senior officials of ICAR as well as experts in all the AICRP meetings ensuring effective outcome. He highlighted the country's self-sufficiency in food production which ensured feeding the large population despite the serious COVID-19 situation. The enhanced rice production has also given the confidence to explore diversion of its use for bioethanol production. He complimented the efforts of all the stakeholders for these achievements. During his address he highlighted some of the major points that AICRIP need to be focussed:

- ✓ He felt that there was a need to rationalize our rice production system to give way for diversification of other crops. Production oriented survey could also include information on consumption pattern of rice throughout the country and should help in guiding policy makers in the country..
- ✓ While giving credit for overall increase in higher production, he expressed concern at the inability to replicate productivity of> 7.0 tons achieved in certain areas across the country. He also mentioned that the rice varieties that have been promoted through IRRI and utilizing the indigenous materials should be brought out explicitly.
- ✓ AICRIP experiments needed to be conducted seriously and sincerely. Solid data based on scientific inputs should be generated by the centres and if any centre (voluntary/funded)was not serious enough in conducting and reporting the experiments/trials very seriously those centres could be either warned or even removed from the AICRIP. Perform or perish should be the mantra for all the AICRIP centres.
- ✓ He suggested that young scientists should be encouraged to work on hybrid ricebreeding aspects. Field oriented crosses and strengthening the breeding program should be given emphasis.
- ✓ A huge amount to the tune of Rs. 75,000 crores was being given as subsidy by the govt on fertilizers, particularly on nitrogenous fertilizers and 37% nitrogen was being utilized for rice crop alone. Hence, Nitrogen Use Efficiency should be one of the key target areas in future.
- ✓ Similarly, water availability had been a major concern for not only rice crop cultivation but also for all other cropping systems. Lot of experiments were conducted on water saving technologies, yet proper recommendation/ package of practices for reduced water consumption of crops are lacking in the country. Hence, systematic, strategic and implementable recommendations on DSR, AWD, Aerobic rice varieties should made available for use by for the farmers.

- ✓ Dr. Mohapatra also pointed out that there were varieties that were highly photosensitive with > 12% protein content, however showed very low levels of yield, hence deserved special attention. Similarly, there should be some concerted efforts in evolving ASG varieties with potential for export as well as domestic consumption. For promotion of any variety quality analysis should be compulsory from at least three centres.
- ✓ Pre-breeding efforts should be an integral component of all the AICRIPs including rice.
- ✓ He opined that there should be a holistic and innovative IPM protocol by integrating all the components and coordination of IPM work being carried out by different agencies/institutes for different crops.
- ✓ Criteria for promotion/deletion/release of varieties should be based on certain rationality and logistic but not necessarily based on only rule book. This should be done without any bias.
- ✓ Package of practices of a newly released/identified variety should also be released and certificate of recommendations of plant protection and resource management technologies should be issued to the contributors.
- ✓ We must focus in developing and promoting our own varieties by making large number of crosses regularly with innovation and open mind.
- ✓ It is also suggested to include the action taken report while presenting the results for continuity of the program and implementation of the recommendations and decisions taken during the workshop.

  Finally he complemented all the stakeholders of AICRIP for tremendous achievements over the past 55 years and expected to change the mode of functioning so as to meet the challenges of rice production system in the country.

Dr L.V. Subba Rao, Principal Scientist, Plant Breeding, IIRR, thanked all the dignitaries and AICRIP co-operators for their participation and contribution to the success of the AICRIP.

This was followed by the afternoon session in which for the first time AICRIP funded centres presented the achievements.

The following 17 centres out of 44 funded centers presented results representing all the 7 zones. Chatha, Kanpur, Kota, Kaul, Ludhiana, Pantnagar, Bankura, Chinsurah, Titabar, Masodha, Raipur, Nawagam, Coimbatore, Mandya, Pattambi, ARI Rajendranagar, Maruteru. Due to paucity of time, the remaining centres only participated in the meeting and their results were covered in the respective PI presentations.

GENERAL SESSION

CROP IMPROVEMENT

Chairman: Dr T.R. Sharma. DDG (CS), ICAR
Co-Chairman: Dr A.K. Singh, Director, IARI
Principal Investigator: Dr L.V. Subba Rao
Dr. A.S. Hari Prasad

Progress report of AICRIP 2019 was presented by Dr LV Subba Rao, PI (AICRIP-Varietal Improvement) and Head (Plant Breeding) in the technical session II held on 12th May, 2020 under the chairmanship of Dr. T.R. Sharma, DDG (CS) and Co-Chaired by Dr. A.K. Singh, Director, ICAR-IARI. The Chairman welcomed all the delegates for the 1st ever virtual workshop of Rice Program. Results of 46 trials (Rainfed (upland/lowland), irrigated, Basmati, NIL, saline/alkaline, biofortification, aerobic, low phosphorus trials) with 1319 test entries in 28 states and 2 UTs of 7 zones in 671 trial sites conducted during kharif 2019. He informed that about 30% of entries were promoted in the respective duration/ group trials after assessing their superior performance over the best check. Every trial was discussed in detail and several participants deliberated on many issues related to centres performance and criteria for promotion of the entries.

The following decisions were taken after thorough discussion:

- Saltol alone shouldn't be considered in AICRIP trials as it provides only for seedling stage salinity stress tolerance. Introgressions with both seedling stage and reproductive stage salinity tolerance genes/QTL only will be considered in case of NIL nominations for salinity tolerance.
- For NIL entries with drought QTL introgressions, AICRIP 2019 data on inclusion/exclusion of centres is to be relooked, considering the trait verification based on rainout shelter data and accordingly the entries have to be reassessed with AICRIP 2019 data. For drought-NILs, rain out shelter data should be used for trait verification. Since the plant population in the rain out shelter is very small for each entry. The centers like IARI, CRURRS, Hazaribagh and TNAU where rainout shelters are available should contribute for the AICRIP rice on drought on similar lines to screening pests and diseases in the screen house conditions. This data will be of confirmative nature in the absence of large population data for decision making.
- Data on DUS traits should be provided by the breeder at the time of nomination of NIL entry to AICRIP and the same will be considered in the evaluation of similarity of the NIL with the recurrent parent (RP).
- Chairman reiterated that based on single location data in a zone or a trial should not be considered for promotion. Minimum of two (2) location data is essential for assessment of the performance of the entries. Those zones or trials where in one

- location data is available, the entries have to be repeated irrespective of the performance.
- In case of days to 50% flowering (DFF) difference in a particular duration trial, shifts should be based on standard error (Mean±SE) value. If the DFF of any entry under consideration is not in the range of Mean±SE for that particular duration trial, the entry invariably gets shifted to IVT of suitable duration and will not be promoted.
- Performance of the entries at the nominating centre versus performance of the entries at remaining centers needs to be worked out. Inspite of coding the entries, the breeder whoever developed and nominated will be able to identify his or her entry. Therefore to avoid any kind of bias, it is suggested to verify the performance of such (entries nominated centres) locations with other locations.
- Promotion and deletion of the entries should be based on suitable statistical significance.
- Stability and ranking of the entries may be presented and considered for release.
- The nomination of entries to the AICRIP testing will be based on the performance of the entry in station trial at respective locations. A common variety trial (CVT) should be conducted at the centres before nominating the entries to AICRIP trials. The best entries from the CVT shall be nominated from a centre. This will also help not only in identifying the best performing entries from a centre but also in restricting number of nominations.
- Molecular data for NILs: background genome recovery information (% RP genome recovery, no of background markers) should be submitted. When a NIL is used as recurrent parent in the development of NILs (2nd or subsequent generation NILs) nomination for the entry will be considered only when complete marker information about recurrent parent genome recovery including the recovery of the genes of the NIL is provided. NIL entries are to be tested in relevant hot spot areas.
- Breeding varieties suitable for parboiled rice is to be explored in view of expanding market.
- Avenues to be explored for improvement of aromatic short grains (ASG) and black rice for export purpose.
- Emphasis on pre-breeding activities at coordinating centre should be enhanced and material to be shared with cooperating centres.
- Biotechnologists should focus their research activities on basic research and development of tools to be used by breeders in the development of varieties.
- Breeding should be strengthened to reduce dependence on CG system. Any direct entry from IRRI bred material should be clearly identified with respect to its pedigree at the time of nomination. Nomination of entries in the coordinated trials from supporting disciplines (Pathology, Entomology, Physiology, etc.) should be dissuaded.

However, if there is any promising material emanating from these disciplines it should be routed through breeders.

- When there is precision breeding, precision evaluation should be done at centres where the facilities are available.
- The present zonal system of evaluation of test entries may be reverted back to the testing on overall basis in the country.
- In the first year of testing, all the test entries are tested in all the locations as per the duration/group of the trials and performance is assessed on overall basis. From the second year onwards, those entries which are found superior in a particular zone in the first year of testing are tested in that particular zone only (zonal basis of testing); while in the past before 2016, all entries were tested in all the locations irrespective of the performance in the zones during the first year of testing.
- Many participants raised several issues on the testing and analysis of trials, as well as the criteria for promotion/ deletion. Therefore, Dr. T.R. Sharma, DDG (CS) and Chairman of the session felt the need to revisit the guidelines for AICRIP trials and decision was taken to constitute a committee with the following members to evolve new guidelines for rice varietal testing in AICRIP trials:
    1. Dr HS Gupta, Chairman, QRT (ICAR-IIRR)
    2. Dr DK Yadava, ADG (Seeds), ICAR
    3. Dr AK Singh, Director, ICAR-IARI, New Delhi;
    4. Dr LV Subba Rao, PI (AICRIP), ICAR-IIRR, Hyderabad
    5. Director of Research, PAU, Ludhiana;
    6. Dr PV Satyanarayana, Associate Director, RARS, Maruteru;
    7. Dr SK Pradhan, Principal Scientist, ICAR-NRRI, Cuttack
    8. Dr BC Viraktamath, Ex-Director, ICAR-IIRR and Representative- private seed sector)
    9. Dr AS Hariprasad, Principal Scientist, ICAR-IIRR, Hyderabad
    10. Dr SR Das, Retd Professor and eminent rice breeder, OUAT, Bhubaneswar

- Based on the deliberation in the plant breeding session, the following entries were reconsidered for promotion/repeat in the AICRIP trials 2020 testing:
    - ✓ IET 28014 (AVT1-L-NIL): Tested for one more year (AVT2-NIL) for yield only in Telangana and Andhra Pradesh along with the recurrent parent (2nd year repeat)
    - ✓ IET 28801 (AVT1-L-NIL): Promoted to 2nd year of testing.
    - ✓ IET 27438 is considered for promotion to AVT 2 - MS.
    - ✓ IET 28032 (AVT1-IME; a NIL of IR64): Promoted to AVT2-IME.
    - ✓ IET 28033 (AVT1-IME; a NIL of IR64): Promoted to AVT2-IME.

- ✓ IET 27263 –As repeat in AVT2-IM.
- ✓ IET 28017 (A *qDTY* NIL of Pusa 44 with *qDTY2.1+qDTY3.1*): Promoted to AVT2-IM NILs (Drt) under AVT2-IM trial.
- ✓ IET 28018 (A *qDTY* NIL of Pusa 44 with *qDTY2.1+qDTY3.1*): Promoted to AVT2-IM NILs (Drt) AVT2-IM trial.
- ✓ IET 27280 (a NIL of Akshayadhan) - As repeat in AVT2-IM.
- ✓ IET 27632 (AVT 1-L): Repeat as 2nd year entry in AVT1-L.
- ✓ IET 26790 (AVT 1-ETP of 2018): Repeat as 2nd year entry in AVT1-ETP.
- ✓ IET 27525 (AVT 1-EDS): Repeat as 2nd year entry in AVT1-EDS.
- ✓ IET 27263 (AVT1-IM) will be evaluated for one more year.
- ✓ IET 26418 (AVT1-IM) will be repeated in AVT2-IM.
- ✓ IET 28271 (IVT RSL) considered for shift to late trial.
- ✓ IET 28787 (AVT1-BT) (A NIL of Pusa Basmati 1 with *qDTY1.1*): Promoted to AVT2-BT.
- ✓ IET 28788 (AVT1-BT) (A NIL of Pusa Basmati 1 with *qDTY1.1*): Promoted to AVT2-BT.
- ✓ IET 27720 (AVT1-BT): Promoted to AVT2-BT.
- ✓ IET 27728 (AVT1-BT): Repeat as 2nd year entry in AVT1-BT.
- ✓ IET 28574 (IVT-BT): Promoted to AVT1-BT.

To facilitate timely seed distribution and monitoring of the trials it was decided that now onwards, the coordination responsibilities of seed collection from contributing centres and dispatch to testing centres, monitoring of trials and data compilation will be shared as under:

ICAR-NRRI, Cuttack : Rainfed upland and shallow lowland coordinated trials including National Screening Nursery trials for generating pest and disease resistance data.

ICAR-IARI, New Delhi : Basmati rice trials including National Screening Nursery trials for generating pest and disease resistance data

ICAR-IIRR, Hyderabad : Rest of the coordinated trials including NSN of these trial entries, compilation of overall progress reports of AICRP on rice and organization of AICRP on rice AGM, Varietal Identification Committee etc.

HYBRID RICE

The Chairman of the session Dr. T.R. Sharma, Deputy Director General (Crop Sciences), ICAR emphasized on the need of strengthening the Public-Private Partnership in the hybrid rice research for area expansion in the country.

Dr. A.S. Hari Prasad, PI, AICRIP-Hybrid Rice discussed promotion and deletion of entries of Hybrid Rice trials and following issues emerged from the discussion.

- ✓ It is proposed to constitute four Initial Hybrid Rice Trails (IHRTs – Early, Mid Early, Medium and Medium Slender during Kharif 2020.
- ✓ PI has informed that, so far they have not received the seeds of new hybrid nominations for IHRTs, which may delay the trial constitution and dispatch of trials to the AICRIP testing centers, which will lead to invariable delay in sowing/planting that may lead to improper evaluation of test genotypes.
- ✓ Few AICRIP centers have informed that, in view of COVID-19 pandemic, they're anticipating labour shortages, they may not be able to conduct the IHRTs during Kharif 2020, hence the same should not be sent to them.

A special session on Hybrid rice was organized under the Chairmanship of Dr. T.R. Sharma, Deputy Director General (Crop Sciences), ICAR with private as well as public sector co-operators to solicit their views to strengthen the hybrid rice programme in the country. The following issues were emerged from this meeting.

- ✓ Efforts need to be strengthened in germplasm exchange, between all the stakeholders.
- ✓ As CRP on Hybrids is already in place and nine centres are already partners under this programme, The Public-Private Sector Hybrid Rice Consortium which is in process since long in the SMD, needs to be launched.
- ✓ There were concerns about the grain quality data of AICRIP trials and it was suggested to have three data points, as was decided in earlier meetings. IARI, NRRI and IIRR and BMDF to provide the quality data. Biochemists from these institutes are to be made requested to assist in quality analysis. At IIRR the seed material is reaching very late for the quality analysis which can be sent directly to the above centers. However, the date of harvest is important so that the baseline quality of storage should be made.
- ✓ There was a concern about the testing of identified promising hybrids in only few zones (where they were found promising). Instead, it is desirable to test the promoted genotypes in all the AICRIP test locations of the country (irrespective of zones where they were found promising). This will help generating the entry's performance data across locations in the country, to assist the nominating centers/companies in knowing the performance of their entries in much better way.
- ✓ There were concerns about the shortage of labour and water availability. To overcome, the research efforts on farm mechanization (especially transplanters which can be useful in small fields), refining DSR technologies need to be intensified.

GENERAL SESSION

CROP PRODUCTION

Chairman: **Dr S. K. Chaudhari, DDG (NRM), ICAR**
Co-Chairman: **Dr Ch. Srinivasa Rao, Director, NAARM**
Special Invitees: **Dr. H. S. Gupta, Chairman, QRT, IIRR**
Dr. Himanshu Pathak, Director, NIASM
Dr. A. K. Singh, Director, IARI

The session was chaired by Dr. S. K. Chaudhari, DDG (NRM). He welcomed all the delegates and called upon the respective Principal Investigators to present the progress report for the year 2019.

AGRONOMY

Dr. R. Mahender Kumar, Principal Investigator summarized the results of 236 experiments conducted at 49 locations. These trials consisted of evaluation of promising cultivars (94 cultures) belonging to 16 groups viz., early hill (irrigated), medium hill (irrigated), early (TP), irrigated mid-early, irrigated medium, late, medium slender, alkaline & inland saline, rainfed shallow lowland, basmati, biofortified, NIL (BL & BLB), herbicide-resistant mutant, nitrogen and phosphorous use efficiency trials in the transplanted situation, for their response to integrated nutrient management at 50, 100 and 150% Recommended dose of fertilizer (RDF). Also, six trials on cultural management, five trials each on weed management, four trials on rice-based cropping systems and climate-resilient agriculture and five collaborative trials (Soil Science, Entomology, and Plant Breeding) were conducted to develop cost-effective technologies in rice and rice-based cropping systems. The following results were presented.

Promising cultivars identified in different groups were:

In AVT-2 EH (Irrigated) the culture IER 26565 at Almora; AVT-2 MH (Irrigated) IET 25838 and IET 26579; AVT - Early (Transplanted) - IET 25713 (5.13 t/ha) followed by IET 26477 (5.05 t/ha); AVT -2 IM (Transplanted)- . IET 27263 and IET 26420; AVT Late- IET 26974, IET 26948 and IET 25948; AVT-2 MS - IET 25802, IET 25798 and IET 26549; AVT-2 AL and ISTVT- IET 27077; AVT-2 RSL- IET 26692;AVT-2 BT- IET 26999 and IET 26995; AVT-2 Biofortified- IET 27179 ; NMT NIL (Bl & BLB)-IET 27280 (5.88 t/ha), IET 27285 (4.97 t/ha) were found promising. In herbicide tolerant AVT-2 trial, identified herbicide tolerant cultures were: IET 28812 and IET28813 with no or low phytotoxicity to Imazethapyr. Popular varieties and advanced entries which performed better under low soil nitrogen conditions were IET 28080, IET 28088, IET 28087, IET 28827, IET 28826, IET 27730, IET 27730 and IET 28831 are the high yielding and high nitrogen use efficient. Similarly cultures under low soil phosphorus conditions were IET 28061, IET

28816, IET 28066, IET 28076, IET 28066, IET 28076, IET 28071, IET 28059, IET 28061, IET 28076, IET 28066, IET 28075, 28824, IET 28070 and IET 28818 are the high yielding and high phosphorus use efficient.

Cultural Management Trials (CMTs)

Six trials on cultural management were also conducted. A total of 55 cultural management trials were conducted across various locations.

- Mechanical transplanting of 15 days seedlings at normal sowing time resulted in the highest grain yield at five locations out of seven locations. Mechanized line sowing found to be the best among all establishment methods.
- Local practices such as at Chatha (dibbling SRI), Ragolu (semi-dry rice, 20 x 15 cm) and Ranchi (Rice + Sesbania was broadcasted, Sesbania was broadcasted at the rate of 40 kg/ha and then rice was sown in lines 20 cm apart, at 25th DAS *Sesbania* was uprooted and placed in between rice rows) also showing better results in DSR.
- The highest rice-rice system productivity was recorded under mechanical transplanting followed by LCC based N management. Nutrient Expert ® continued to show its superiority over the recommended fertilizer dose at the farmers' field.
- Grain yield across all the centers revealed that alternate wetting and drying resulted in the highest grain yield while the higher cost of cultivation was recorded under flooding throughout crop growth at Mandya (Rs. 56717/-) and Varanasi (Rs. 32943/-). Similarly, input water was saved due to adoption of alternate wetting and drying was 49.0 cm at Varanasi and 66.9 cm at Mandya.

Weed Management Trials (WMTs):

Five trials on weed management were conducted.

- Among the test genotypes The IET 28812, IET 28813 IET28814 were superior and comparable under the Imazethapyr application.
- Long term trial on weed dynamics in mono or double-cropped rice system under different establishment methods showed the superiority of mechanical transplanting with chemical weed control and/or mechanical weeding using weeder in reducing weed problem. In clay loam and clay soils, chemical weed control using pre and post-emergence herbicides was found superior and in sandy loam soils, mechanical weeding using weeder showed superior performance.
- For the second consecutive season, systemic post-emergence herbicide thiobencarb @ 5 L/ha applied at 20 days after sowing was found superior, and comparable to hand weeding twice and standard post-emergence herbicide bispyribac sodium @ 300 ml/ha.
- The lower weed population and biomass two to five times under IPM implemented plots compared to farmers' practice, resulted in significantly higher grain yields.

Resource Conservation Technologies (RCTs) in RBCS

A total of three trials were conducted.

- Among the crop establishment methods, the transplanting method gave better yields at most of the locations viz., Rajendranagar (5.62 t/ha), Karjat (8.68 t/ha) due to reduced weed competition. The REY of system productivity was higher at three locations due to rice- residue incorporation in Vadagaon, Rajendranagar and Karjat.
- In rice – pulse system, higher average system productivity (10.65 t/ha) was recorded under the rice-cowpea system as compared to the rice-rice system (7.65 t/ha). Rice fallow pulse increases grain yield significantly over the rice-rice system for the past two years of study.
- There was yield reduction to the tune of 16 and 53% due to 15 and 30 days delay in planting at Mandya. The cultivars identified were AD 17037, ADT 53 at Aduthurai, Indiraero-1, MTU 1010, Co-51, IR 64, GNV-1089 at Gangavathi and KMP 175, Samleshwari, CR Dhan 201, Co-51 and CTH-3 at Mandya was found promising with better yields.

During the interaction, the following points were discussed.

Dr. H. S. Gupta, Chairman, QRT, ICAR-IIRR pointed out that few locations reported that 150% RDF resulted in higher grain yield than that under 100% RDF. Therefore, agronomists and soil scientists may like to revisit the recommended dose of fertilizers in rice cultivation. A new yield maximization trial may be initiated at all 7 zones. Mechanical transplanting can be standardized and promoted across the country following the pattern of the Puducherry center. The rice-based cropping system (RBCS) in different zones needs to be revisited. Pulses need to be explored in RBCS. Director of IIWB, Karnal may be invited to take part in rice group meet to explore the sustainability of rice-wheat system productivity in NW Indo-Gangetic plain. Dr. A. K. Singh, Director, ICAR-IARI, New Delhi emphasized on dry direct-seeded rice and suggested to be validated at various locations. Mechanical transplanting methods should be fine-tuned. Ridge planting and drip irrigation should be initiated and validated. Dr. Himanshu Pathak, Director, ICAR-NIASM, Baramati, urged to develop nitrogen management technologies to enhance nitrogen use efficiency (NUE). Few trials (line sowing, AWD, broadcasting etc.) need to be dropped as these are as old practices. New trials on Soil Test Crop Response (STCR) and Site-Specific Nutrient Management (SSNM) should be initiated. System based research to be continued. Production technology may be identified in line with the notification of varieties. He further stated that there is a greater need to link among AICRIPs of the NRM division. Dr. A.K. Nayak, Head, Crop Production Division, ICAR-NRRI, Cuttack suggested calculating agronomic use efficiency in the evaluation of nitrogen and phosphorus trials to promote entries. Dr. Ch. Srinivasa Rao, Director, ICAR-NAARM, Hyderabad pointed out that statistically analysed data should be presented. Water-saving should be quantified. Similarly, iron coating rice seeds resulted in a 33 % higher grain yield than that of without coating. It needs validation. Further in delayed planting, yields are almost similar to in

that under timely planting. Reasons to be explored. In conservation agriculture trial, 3 principles to be followed up. He stressed that zero budget natural farming is different from Natural farming, the careful usage of wording is essential. The Agronomy and Soil Science Experiemnts need to reviewed need to be decided further, kind of experiments to be taken up jointly by the scientists from Agronomy and Soil Science.

Finally he mentioned that production technology may be identified in line with notification of varieties (mentioned by Dr. Himanshu Pathak).

Concluding remark given by Chairman, Dr. S. K. Chaudhari, DDG (NRM). He stressed upon the linkages among AICRIPs. He suggested that proven technologies should be avoided during the formulation of new trials. A new rice-wheat Consortium on production technology may be initiated. A detailed study on advancement in nitrogen use efficiency to be initiated. He echoed the same thought that there is no merit on zero-based natural farming.

SOIL SCIENCE

Dr. K. Surekha, Principal Investigator (SoilScience) presented the results of 8 trials conducted in 37 experiments at 17 (8 funded+9 voluntary) locations during 2019. These trials are related to sustaining productivity of soil and crop systems on a long-term basis, soil quality and productivity assessment for bridging the gap in farmers' fields, germplasm screening in sodic and acid soils and their management, testing/validation of computer-based nutrient management tool, Nutrient Expert, developed by IPNI for site-specific nutrient management in farmers' fields, residue management in rice-based cropping systems, identification of genotypes having high nitrogen use efficiency and collaborative trials with Agronomy and Entomology in nutrient management and bio-intensive pest management under organic farming.

The results in brief are given below.

- RDF + FYM recorded maximum yield and was on par to RDF at Maruteru in both seasons and in *Kharif* at Titabar. Whereas, RDF+FYM was significantly superior to RDF at Mandya in *Kharif* and Titabar in *rabi.* Significant yield loss due to omission /imbalance/reduction of some nutrients was noticed at all locations.
- FYM alone yielded on par to RDF in *Kharif* at Mandya and MTU and in *rabi* at Titabar. Supplementary use / complete organic manuring improved SOC and available NPK status compared to RDF, and control is the lowest. Significant reduction in available NPK in omission plots compared to RDF indicating nutrient depletion in control and omission plots at all 3 locations.
- Considerable site variations in rice productivity, soil nutrient supply, and nutrient requirement were observed in farmers' fields. Soil Quality index varied across the farmers' fields in all locations and it did not match with crop productivity and fertiliser doses in most sites. The yield gap was maximum (52%) at Chinsurah and

minimum at Karaikal (23%).

- Gypsum application in conjunction with NPK fertilization improved rice yields at Kanpur by 48-72% and several promising varieties with increased productivity (SRL3, RMS1, RMS 2, RMS 7, GPV1, GPV 2 and MTP1 etc) were identified for Kanpur, Faizabad, Mandya and Pusa.
- Liming increased yields at Ranchi and Titabar by 12 and 19%, respectively. Most of the IIRR varieties performed well under acid and sodic soil conditions (RMS 4, RMS 5, PUP 221, GPV1, GPV2, Varadhan etc).
- Out of 46 sites, Nutrient expert recorded highest grain yield at 15 sites, RDF at 12 sites and FFP at 10 sites. Nutrient Expert recorded higher yields by 2 - 17 % over RDF.
- BIPM recorded higher yield over general POP (FP) in 3 cases by 13-76% and lower yield by 38 % at 1 location with moderate improvement in most of the soil properties at Chinsurah.
- In the residue management trial, across the centres, RDF resulted in maximum grain yield while combined application of GM or VC with residues was on par to RDF. NUE was higher with residues than RDF. Crop residues can be deployed to substitute half of the recommended nitrogen without yield penalty.
- In the NUE trial, the mean maximum yield was recorded at 100% N over 50% N and zero N to an extent of 31 and 51%, respectively. Yield increase at 100% N over 50% N was 17%.
- Among the varieties, mean maximum yield across 9 locations was recorded by ARRH7576 followed by CNN4 and Varadhan.

In the discussion that followed, many important and good suggestions were given by the subject matter experts. Dr. H. S. Gupta, Chairman, QRT, ICAR-IIRR pointed out to modify the NRM program with innovative ideas. He also expressed that since Soil Science centres are very less in number, both Agronomy and Soil Science centres can be combined and work together. He also emphasized that native soil fertility level should be recorded in all crop production experiments before experimentation. Dr. A. K. Singh, Director, ICAR-IARI, New Delhi suggested to use "Pusa decomposer" for the faster decomposition of crop residues in Soil Science trial. Dr. Himanshu Pathak, Director, ICAR-NIASM, Baramati, suggested to collect 4-5 most efficient technologies developed by different institutes and validate them across AICRIP multilocations and to come out with the best package. He also emphasized to come out with the best straw management practice using different straw decomposers developed by IARI, PAU etc. He also suggested to work on the sustainability of organic rice, green house gas emissions etc. and on enhancing nutrient use efficiency. Dr. A.K. Nayak, Head, Crop Production Division, ICAR-NRRI, Cuttack informed that as per CSSRI recommendations, only 25-75% gypsum requirement is sufficient rather than 100% GR. He also suggested to take experiences from other long term experiments being run under rice-rice system. Dr. Ch. Srinivasa Rao, Director, ICAR-

NAARM, Hyderabad, pointed out that the critical role of AICRIPs differs from that of research institutes. He suggested to study the genotypic variation for methane emissions at different nutrient levels. He also suggested to calculate the reduction in the efficiencies of other nutrients like P and K if one particular nutrient like N is omitted in case of long term experiment. He also suggested to have Soil Science related studies to be taken up in Agronomy experiments. Duplication of Experiments from Agronomy and Soil Science may be minimized. He suggested a Platform on Rice Residue Managmenet towards reduction of residue burning may be proposed.

PLANT PHYSIOLOGY:

The Plant Physiology report for the year 2019 was presented by Dr. P. Raghuveer Rao on 12th May 2020. The Salient findings of Plant Physiology 2019 are summarised below:

Influence of silicon on induced stress tolerance in rice genotypes:

- The application of silicon resulted in >11% increase in mean grain yield. Significant differences were observed amongst the locations. The increase in yield is higher in JKRH-3333 followed by IIRRH-122.
- Application Silicon on water stressed plants resulted in maximum mitigation of yield reduction caused by water stress in Sahabhagidhan followed by IIRRH-131.

Screening of elite rice cultures for drought tolerance:

- Based on the reduction in grain yield under rainfed condition IET 28250, IET 28262, IET 28262, IET 28660 and US 314 could be identified as relatively drought tolerant and these entries are suitable for rainfed cultivation.
- Based on computed drought indices, IET 28252, IET 28256, IET 28245, Sahabhagidhan and US-314 may be considered as relatively drought tolerant.
- During ***Rabi season at TTB***, Based on drought indices IET 27514, IET27522, Govind, IET 27520, 27525, 27519 and Sammaleswari could be identified as relatively drought tolerant.

Screening for high temperature tolerance in rice genotypes.

- Yield reduction under high temperature show none of tested entries performed better than the tolerant check N-22. Only IET26780 with 19.5% reduction and IET28403 (>25% reduction over control) showed moderate tolerance to high temperature.
- Based on heat tolerance indices, IET28387, IET28390, IET28393, IET28397, IET28403, Gontra bidhan-3 and IET28432 performed better than the tolerant check N-22.

Physiological characterization of selected rice genotypes for multiple abiotic stress Tolerance.

Entries like IET 27762 show tolerance to salinity and water stress, IET 27768 and Mahulata performed well under salinity, water stress and anaerobic stress, IET 27356 show relative tolerance to water stress and anaerobic stress. These entries could be identified as possessing tolerance to multiple abiotic stresses.

Screening for submergence tolerance in Rice

- Submergence tolerance was estimated by survival percentage of the seedlings subjected to complete submergence. The survival percentage was relatively higher in AC42088 Sabita followed by AC38575, AC42088 and Madhulata, these show better survival percentage than the Swarna sub1 at TTB and NRRI
- A significant positive association was observed between the leaf starch content and % survival indicating that leaf starch content is very important in seedling survival during submergence.

Screening of elite rice germplasm for low light stress tolerance

The reduction in grain yield was highest in IET27590 followed by IET27597 and IET27592. The reduction is >40% in all the remaining entries with the exception of IET27595, IET275995 and IET27596 in which the reduction is <40%. These entries may be considered as relatively tolerant to low-light as the yield loss in these entries is less than the tolerant check swarnaprabha

The comments given by various experts and dignitaries were discussed and would be included in the technical programme from next year. The suggestion received from Dr. H.S. Gupta, Dr. Himanshu Pathak, Dr. Ch. Srinivasa Rao and Dr. A.K. Singh to strengthen Plant Physiology Programme in AICRIP mode and also at the coordinating unit at ICAR-IIRR are given below. The experimental results on the critical role of Si in improvement of rice need to be finalized considering location specificity considering soil types and agro ecosystems and can go as recommendation.

Prof. M. Uday Kumar provided valueble comments via email and emphasized the need to initiate focused programs on combined stress effect of drought and high temperature – emphasis should be on precise combined stress imposition and phenotype for response and traits. He felt that the Indices approach is relevant and this concept is fairly well used by the physiology group. But the analysis is confined to yield. Besides for yield DSI for other traits like biomass, leaf area, phenology and yield attributing traits etc provides insight in genotypic response and also to identify the tolerant donors from the entries and germplasm for the relevant adaptive traits. He emphasized the need to deviate from conventional discipline-based programmes and initiate "PROGRAME-BASED RESEARCH". This concept of multi-diciplinary approach to address specific problems is well conceived by many national and international organizations. The programe-based approach should be limited to specific locations where the problem exists with breeders, soill scientist, agronomits and physiologists working together. Work on lodging

resistance may be included in the silicon trial, in multiple stress tolerance studies even work on biotic stresses may be under taken. Dr. Gupta suggested that cutting edge research work may be undertaken at the Head Quarter such as improving Photosynthetic efficiency and work on development of C_4 rice along with major studies on high temperature induced spikelet sterility in rice.

GENERAL SESSION

CROP PROTECTION

Chairman: Dr.R. Sridhar
Co-Chairman: Dr.J.S. Bentur
Special Invitee: Dr. Rajan, ADG(PP&B)

The session was chaired by Dr. R. Sridhar, QRT Member, ICAR-IIRR. At the outset, the Chairman in his introductory remarks emphasized the importance of interactions between mega and micro organisms in our day-to-day life particularly at a time when the human race is slipping into an era of living together with coronavirus. Life being associated with several thousands of microorganisms and with its own part played by insect pests is not new or novel in evolution. This has led to the subsequent developments of selectively avoiding or accommodating some of them for their benefit and in the course leading to pathogenesis and parasitism causing sufferings affecting human race.These relations in rice have recently been assessed globally by an expert-assessment committee estimating that 30% loss in rice production was being caused by both microbial pathogens and insect pests.

ENTOMOLOGY

Dr. Gururaj Katti, Principal Investigator, Entomologysummarized the results of twenty one trials consisting of 234 experiments conducted under greenhouse and field conditions at 41 locations (32 funded and 9 voluntary), during Kharif 2019.The trials were carried out under five major themes viz., i. Host Plant Resistance – 9 trials, ii. Insect Biotype Studies – 3 trials, iii. Chemical Control Studies – one trial, iv. Ecological Studies – 5 trials (three in collaboration with Agronomy section), v. Biocontrol and biodiversity studies – 2 trials, vi. Integrated Pest Management – one trial (involving Entomology, Plant Pathology and Agronomy sections). The following salient findings were presented.

Host plant resistance studies comprised of seven screening trials involving 1652 entries evaluated at 42 locations against 11 insect pests. Sixty four entries (3.87%) exhibited resistance.

Planthopper screening trial (PHS) - Evaluation of the entries against the two planthoppers BPH and WBPH in 10 greenhouse and 8 field tests indicated 16 entries (including 9 breeding lines, 4 germplasm accessions and three checks) as resistant in 7 to14 tests. Four germplasm accessions viz., IC 216735, IC 76013, IC 75975 and IC 76057 from IIRR and three breeding lines viz., MTU 1305, MTU 1306 and MTU 1308 performed better in the second year of retesting.

Gall midge screening trial (GMS) - Evaluation of 40 entries in one greenhouse and 5 field tests against 6 populations of gall midge (five identified biotypes) helped in confirming the resistance of one retested entry, SKL-07-8-720-63-147-182-276 in 3 out of 6 valid tests across all the populations. Aganni continued to be resistant in 4 tests.

Gall midge special Screening trial (GMSS) - Evaluation of 85 donors against 5 gall midge biotypes in one greenhouse and 6 field tests identified 16 lines as resistant in 4 to 6 tests. Significantly, IIRR-ENT-2019-17 exhibited resistance in all the 6 field tests, while 14 pyramided lines (MTU1010 with gm3+Gm4 +Gm8) along with Aganni showed resistance in 4 tests. Of these promising pyramided lines, six were in the second year of retesting.

Leaf folder Screening Trial (LFST) - Field evaluation of 20 entries replicated thrice in a randomised block design at 16 locations revealed the field resistance of 4 entries in 3-4 tests out of 9 valid field tests. Of these, two mutant cultures of PTB, Cul M8 and Cul M9 were resistant in 4 of the 9 valid tests while another mutant culture, Cul M6-2 and a selection from landrace Kalluruli were resistant in 3 of the 9 valid field tests.

Stem borer screening trial (SBST) - Evaluation of 30 entries in 19 valid field tests identified 12 entries as tolerant in 4 to 6 of the 19 tests in terms of low dead hearts (≤10%), white ear damage(≤5%) and high grain yield (≥15g/hill) suggesting that recovery resistance and tolerance could be the mechanism in these entries as they have good grain yield despite damage. The mean no. of larvae in the stubbles in these entries ranged from 0.13-1.68/hill. The reaction of four of these promising entries *viz*., KAUPTB 0627-2-11,JGL 33440,BK 49-76 and JGL 33080 are confirmed in this second year of testing.

Multiple resistance screening trial (MRST) - Evaluation of 25 entries in 6 greenhouse and 43 field tests against 9 insect pests revealed three entries *viz*., Sinnasivappu, JS5 (selection from Jaya) and SKL -07-11-177-50-65-60-267 as most promising in 4-6 tests with a PPR of 2.7 to 4.8 against 3 pests. The check lines PTB 33, Suraksha and W1263 continued to express resistance in 9, 8 and 5 tests, respectively with a PPR of 3.4 to 7.3 against 3 to 4 pests.

National Screening Nurseries (NSN) comprised of 4 trials *viz*., NSN1,NSN2, National Screening Nursery – Hills (NSN hills) and National Hybrid Screening Nursery (NHSN).

NSN1: Evaluation of 367 entries at 18 locations in 5 greenhouse and 26 field tests against 7 insect pests identified three entries *viz*., IET nos 27632, 26948 and 28793 as resistant in 4 to 5 tests of the 31 valid tests against one to three pests. Aganni and PTB 33 continued to express their resistance in 4 and 3 tests, respectively.

NSN2: Evaluation of 682 entries in 5 greenhouse and 18 field tests against 7 pests in 23 valid tests identified six entries along with PTB 33, RP 2068-18-3-5 and Aganni as resistant in 3 to 4 tests of the 23 valid tests against one or two pests.

NHSN: Evaluation of 94 hybrids along with checks in 5 greenhouse and 17 field tests against 6 insect pests identified IET Nos 28125, JKRH-3333 (NCH-1) and CH 45 exhibited satisfactory level of resistanc in 3 tests of the 22 valid tests. Abhaya, PTB 33 and RP 2068-18-3-5 confirmed their resistance in 3 to 4 tests.

Insect biotype studies comprising of three trials 1) Gall midge biotype monitoring trial (GMBT), 2) Gall midge population monitoring (GMPM) and 3) Plant hopper special

screening trial (PHSS) were conducted to monitor the virulence pattern of gall midge and brown planthopper populations.

Gall midge biotype monitoring trial (GMBT) - Evaluation of the differentials with known resistance gene in one greenhouse and 9 field tests against 5 different biotypes identified Aganni (*Gm8*) as resistant in 8 of the 10 valid tests. INRC 3021(*Gm8*), RP5925 (*Gm8*), W1263 (*Gm1*) and Kavya were resistant in 5 of the valid 10 tests. The results suggest that *Gm8* and *Gm1*are effective across locations.

Gall midge population monitoring (GMPM) - Evaluation of the differentials carrying known resistance gene through single female progeny testing revealed that populations at Jagtial and Warangal were less virulent on Aganni (*Gm8*) as compared to populations at Pattambi.However, the virulence of these populations on RP 2068-18-3-5 (*gm3*) was at an enhanced level similar to the trend recorded in GMBT trial during the past few years, and is a cause of concern

Planthopper special screening trial (PHSS) - Among the 16 differentialswith known resistance gene evaluated, two differentials *viz.*, PTB 33 (with *bph2+Bph3*+unknown factors) was was broadly resistantin 8 locations and RP 2068-18-3-5 (with *Bph33(t)* gene) in 9 out of 11 locations. T12 (with *bph7* gene) was resistant only in 4 centres.RathuHeenati (with *Bph3+Bph17* genes), Swarnalatha with *Bph 6* gene and Babawee with *bph 4* gene were consistently resistantin 3 centres, each. Three other gene differentials *viz.*, ASD 7 with *bph2,*Chinsaba with *bph 8* gene and IR 65482-7-216-1-2-B with *Bph 18* gene recorded low damage at two locations only. Except for PTB 33 (DS 4.3), none of the above differentials exhibited consistent and higher level of resistance to WBPH.Interestringly, RP 2068-18-3-5 supported low honeydew excretion, nymphal survival and egg hatching in tests conducted at Pantnagar.

Insecticide Botanicals Evaluation Trial (IBET) was carried out at 28 locations across the country to evaluate performance of five treatments having combinations of commercially available neem formulation, effective plant oils along with recommended insecticides. Among various treatments, all insecticide treatmentseffectively controlled the target insect pestsrecording highest yield of 4781.2 kg/ha with 32.3% increase over control followed by treatment with applications of neemazal, neem oil and triflumezopyrim showing yield of 4393.0 kg/ha (21.6% IOC).

"Ecological studies" as a title may not appropriate for the set of studies reported here. Ecology needs to be concerned with interactions among organisms and their biophysical environment, which includes both biotic and abiotic components. Topics of interest include the biodiversity, distribution, biomass, and populations of organisms, as well as cooperation and competition within and between species. Therefore it may be termed as "Effect of cultural conditions on pest incidence.)

Ecological studies consisted of trials on effect of planting dates on insect pest incidence (EPDP), effect of iron seed coating on insect pest incidence (ESCP), influence of crop establishment methods on pest incidence (IEMP), cropping systems influence on pest incidence (CSIP) and evaluation of pheromone blends for insect pests of rice (EPBI).–

In the Effect of planting dates on insect pest incidence (EPDP) trial conducted at 22 locations. The incidence of stem borer, gall midge, leaf folder, whorl maggot, caseworm, thrips, BPH, WBPH, GLH and rice skipper was high in late planted crop compared to early and normal plantings. Minor pests like horned caterpillar incidence was observed at Navsari and rice skipper and grasshopper incidence was reported from Khudwani.

Effect of iron seed coating on insect pest incidence (ESCP), initiated this year in collaboration with Agronomy revealed, low pest incidence across the locations in different treatments. Influence of crop establishment methods on pest incidence (IEMP) trial, initiated this year in collaboration with Agronomy, revealed that dry direct seeding recorded relatively high stem borer, leaf folder and whorl maggot damage followed by normal transplanting method. In contrast, BPH population was high in transplanted crop as compared to dry direct seeding, puddled direct seeding and mechanised transplanting methods. In the Cropping systems influence on pest incidence (CSIP) trial, the pest population was too low to draw valid conclusions. However, since this was the first year of all these trials, they need to be continued with satisfactory level of pest incidence for drawing any valid conclusion.

Evaluation of pheromone blends for insect pests of rice (EPBI) was also another new trial initiated with an objective to evaluate pheromone blends and doses against rice leaf folder (RLF) and pink stem borer at 12 locations.Rice leaf folder catches were high in RLF blend at Ludhiana followed by Titabar. However, at other locations, catches were low in pheromone traps in spite of the presence of adult population in the field, which needs further evaluation. About pink borer information too may be collected.

Biocontrol and biodiversity studies covered i) Ecological Engineering for Planthopper Management (EEPM) and ii) Bio-intensive Integrated pest management (BIPM).

Ecological engineering for pest management (EEPM) trial carried out in eight locations with a combination of interventions such as organic manuring, alleyways, spacing management, water management and growing of flowering plants on bunds, revealed that water management along with ecological engineering significantly reduced hopper population at Warangal while stem borer damage was significantly lower in ecological engineered treatments with various bund crops at New Delhi. Such interventions increased the natural enemy populations like mirids, spiders and coccinellids.

Bio intensive pest management trial (BIPM) was conducted in 10 locations this year. The stem borer incidence was reduced in BIPM plots at Chinsurahwhile in Ludhiana and Ranchi, the pest incidence was on par with that of Farmers' practice. The results indicated an increase in natural enemy population in the organic BIPM plots.

Integrated Pest Management special (IPMs) trial was conducted at 13 locations involving 28 farmers' in a participatory mode across the country with an objective of managing insects, diseases and weeds in a holistic way by providing a basket of options to the farmers. The insect pest incidence exceeded ETL at 8 locations and was observed high in farmer practices (FP) plots as compared to IPM plots. Yield was high in IPM plots

compared to FP plots at all the locations. Similarly, BC ratio varied from 0.88 to 4.71 at various locations in both IPM and FP plots.

Assessment of insect populations throughout the year using light traps revealed that, yellow stem borer, leaf folder, and hoppers continued to be the most important pests in terms of numbers as well as spread across the locations.

After the presentation, Co Chairman, Dr. Bentur made the following observations:

- Under HPR studies, RPNF lines earlier investigated under NF project, may be included.
- The germplasm accessions with confirmed R reaction (IC75975 + 3) under PHS, may be quickly characterized for presence of new or known gene(s). No promising material identified against WBPH wasa cause of concern and more testing centres were needed in view of higher proportion of WBPH in field observation.
- In GMS, since gene specific reliable markers are available, gene present in the promising line SKL-07-8-720-63 may be identified.
- IIRR-ENT-17 from the GMSS may also be tested for presence of known resistance genes. RPNF lines may also be tested in this trial.
- The mutant lines of PTB18 and PTB21 from Pattambifound promising under the LFST, may also be tested for BPH and GM as the original lines are resistant to these pests. Then these will provide a good genetic resource for further investigation. More studies may also be undertaken on most promising mutant lines for larval survival etc.
- It is interesting to note that SinnaSivappu is showing gall midge resistance. This may be confirmed.
- In GMBT,in view of widespread susceptibility noted against most of the differentials in groupII, and now group IV, more genetically uncharacterized new donors like SinnaSivappu, IIRR-ENT-17 need to be tested in this trial. Depending upon the availability of seeds, Mue Nang 62M (a new recessive gene has been identified) may also be included.
- In PHSS, Balamawee (Bph27), ARC10550 (bph5) and ADR52 (Bph25+Bph26) which are effective genes in India, should be included.

Dr. T.R. Sharma, DDG(CS), ICAR remarked that:

- Insect pest resistance was lagging behind disease resistance mainly due to lack of precise and fool proof mass rearing of insect pests and screening technologies.
- Sets of differentials used in the screening programmes should be updated regularly in view of changing pest population dynamics and variability across locations. Donor identification should be made fool proof.
- Precise phenotyping method to capture the pest population dynamics and variability of the pest populations which is necessary for phenotyping of mapping populations.

- The advancement in knowledge on utilization of gall midge donors and genes may be utilized for understanding the interactions of other major insect pests like BOH and stem borers.
- Pest and disease loss assessment studies should be carried out to delineate the losses in monetary terms.
- Inter institutional linkage may be maintained with NBAIR for inclusion of effective biocontrol agents or biopesticides from AICRP on Biocontrol and NCIPM for carrying out IPM trial.

Dr TVK Singh, QRT expert remarked that there should be proper directions and guidelines given on the utilization of donors in the breeding program. Studies related to the new concept of Environment impact quotient may be taken up

Dr Maiti, Director, ICAR - NRRI suggested that a trial may be constituted to capture the effect of climate change on the change in insect pest status.

PLANT PATHOLOGY

Dr. M. Srinivas Prasad, PI, Plant Pathology presented the consolidated results of trials conducted during *Kharif* 2019. A total of 612 experiments of 13 trials were conducted at 49 locations (34 funded and 14 voluntary centres) and at IIRR. Trials were conducted on host plant resistance, virulence monitoring, disease observation nursery, chemical management of location specific diseases, integrated disease management and evaluation of essential oils against rice diseases.

Under host plant resistance, five national screening nurseries (NSN-1, NSN-2, NSN-H, NHSN and DSN) comprising of 1404 entries were evaluated for their reactions to major rice diseases *viz*., leaf blast, neck blast, sheath blight, bacterial blight, brown spot, sheath rot and rice tungro disease at 49 locations. Screening was undertaken in the hotspot locations and in case of low disease pressure disease was augmented by artificial inoculation of the respective pathogen. Across the tested locations, 52 entries were resistant against leaf blast; 72 against neck blast; 60 against brown spot; 28 against sheath rot; 33 against bacterial blight and 27 against rice tungro disease. In case of sheath blight 28 identified entries recorded a susceptibility index of 4.2 to 5.0. Among 1404 entries, 52 lines expressed resistant reaction for two or more diseases.

In the study of virulence monitoring of *Pyricularia oryzae,* twenty five host genotypes were used across the locations (17) to monitor the blast reaction. The reaction pattern of genotypes at all the locations was grouped into six major groups. Significantly, the susceptible check cultivar HR-12 recorded moderately resistant reaction, while the resistant check cultivar, IR 64 was susceptible indicating a shift in the pathogen virulence. Similar study was undertaken for *Xanthomonas oryzae* pv. o*ryzae* at 21 locations with twenty eight near isogenic lines (IRBB lines) possessing different bacterial blight

resistant genes (singly) or in various combinations in the background of rice cultivar IR 24 along with different checks like Improved Samba Mahsuri, TN1 and DV85. Most of the differentials possessing single bacterial blight resistance genes like *Xa1*, *Xa3*, *Xa4*, *xa5*, *Xa7*, *xa8*, *Xa10*, *Xa11* and *Xa14* were susceptible at most of the locations. Based on their virulence, the isolates were grouped into high, moderate and low virulence groups. Interestingly, the isolate from Maruteru showed exceptional virulence as none of the monitoring genotypes expressed resistance.

The trial on disease observation nursery was conducted at 9 locations. The incidence of leaf blast was more severe in the late sown crop; incidence of neck blast was high both in the early and normal sown crops; and severity of sheath blight was more severe in early sown crop. In the case of bacterial blight, the disease severity was high in the normal sown crop. The severity of brown spot and sheath rot was high in the late sown crop. In an attempt to find out the spread of the disease and its correlation with the weather parameters like temperature, rainfall and humidity, the AUDPC was calculated from the centres which had provided their weather data during the experimentation. Generally, the rainfall had a greater positive impact on the diseases like sheath rot and sheath blight in the spread among the populations. However, in the case of disease like leaf blast and brown spot humidity played a major role and is directly correlated with the increase in the spread of the disease.

Evaluation of fungicides against location specific diseases: New fungicidal molecules viz., prochloraz 23.5% w/w + tricyclazole 20.0% w/w SE (2.0 ml/l) and prochloraz 45% EC (2.0 ml/l) were evaluated against fungal diseases of rice. The fungicides were evaluated against leaf blast (10 locations), neck blast (eight locations), sheath blight (15 locations), sheath rot (five locations), brown spot (six locations), false smut (two locations) and grain discoloration (two locations). A combined test product prochloraz 23.5% w/w + tricyclazole 20.0% w/w SE (2.0 ml/l) was effective in reducing the leaf blast and neck blast with increased grain yield. Another combination fungicide formulation, azoxystrobin 18.2 % w/w + difenoconazole 11.4 % w/w SC (1.0ml/L) was effective against sheath blight and sheath rot. Hexaconazole 5%EC (2.0 ml/l) was effective against brown spot.

Integrated disease management: This trial was conducted at 14 locations. Treatment consisting of seed treatment with carbendazim (2 g/kg) + one blanket application of combination fungicide (trifloxystrobin 25% + tebuconazole 50%) @ 0.4 g/l at booting stage effectively reducedleaf and neck blast, sheath blight, brown spot and sheath rot. However, the treatment T3 (seed treatment with *T. viride* + propiconazolespray at booting stage @ 1ml/l)and T4 (seed treatment with *T. viride*+ application of bio-control agent at 15-20 DAT(10 g/l) and propiconazole spray at booting stage @ 1ml/l).

Special trial on essential oils: Eight essential oils were tested for their efficacy against leaf blast, neck blast, sheath blight, brown spot and false smut diseases, at 15 locations. Two sprays of neem oil @ 2 ml/l (T7) and Clove oil @ 2 ml/l (T6) were better in reducing the

leaf blast severity. However, Neem oil @ 2 ml/l (T7) alone could reduce both leaf and neck blast disease severity. In case of sheath blight disease, spraying of Citronella oil @ 2 ml/l (T1), Cedar wood oil @ 2.0ml/l (T3), Nirgundi oil @2.0ml/l (T4), Lemon grass oil @ 2.0 ml/l (T5), Clove oil @ 2 ml/l (T6) and Neem oil @ 2 ml/l (T7) were effective in reducing the disease. Application of Citronella @ 2.0 ml/l (T1) reduced brown spot development. Citronella @ 2.0 ml/l (T1) and Neem oil @ 2.0 ml/l reduced false smut.

Dr. G S Laha, presented the consolidated report of Production Oriented Survey (POS) of rice for the year 2019 including weather and climate, natural calamities, agronomic practices, methods of planting, prevalence of weeds and their management, and crop varietal spectrum, insect pest and disease prevalence and their management, utilization of farm machineries, constraints faced by farmers etc. Survey revealed that hybrid rice varieties occupied a significant area in states like Uttar Pradesh, Haryana, Chhattishgarh, Gujarat and Bihar and its area is increasing in states like Himachal Pradesh, Karnataka, Maharashtra and West Bengal. The major problems faced by the farmers were shortage of agricultural labours and their high wages and and availability of irrigation water. Many farmers from different states also expressed problem of timely availability of seeds of different hybrids, availability of different inputs in time, farm mechanization (on hire basis/custom hiring), market facility and farm loan. Diseases like blast, neck blast, sheath blight, brown spot, sheath rot, false smut, grain discoloration and bacterial blight were very widespread almost throughout the country.. High incidence of bacterial blight and bacterial leaf streak were observed in some areas of Karnataka. Severe blast was reported from many districts of Telangana during Rabi season, 2020. The insect pests like stem borer, leaf folder and BPH were widespread throughout the country. High incidence of BPH was recorded in parts of Kerala.

Dr. T.R. Sharma, DDG(CS), ICAR comments:

In case of blast and bacterial blight more detailed studies have been made on the virulence spectrum, identification of resistance genes and development resistant varieties. It is necessary the scientists to develop methods for understanding the virulence spectrum of other pathogens of rice. DDG insisted to design a simple technique for the evaluation of rice genotypes against false smut at the laboratory level. Assessment of quantitative yield loss trials has to be conducted for major rice diseases in the hot spot locations under AICRIP system. National set of differential host with monogenic lines in indica background developed at IARI can beutilised along with othersin the AICRIP system to study the virulence spectrum of blast pathogen. Pre-breeding materials has to be developed at IIRR with landrace and wild species to create a wide variation in genetic material which will help in the identification of newer resistance genes against disease and insect pests. DDG insisted on the interdisciplinary collaboration of the scientists to work in group for obtaining deeper insights on select diseases. DDG advised IIRR to include regular training programs in EFC to update the knowledge of AICRIP partners on important topics.

In Production oriented survey, with respect to pests and diseases, information on its economic impact need to be collected. Data mining approach can be done by using the POS data base to understand the difference between the past and present status for projecting the areas where research policy interventions are needed.

Chairman, Dr. R. Sridhar suggested the following points

In case of false smut, brown spot and sheath blight, whatever lines reported as resistant lines under natural conditions in few locations have to be verified by following a two tier system of resistance evaluation. Hot-spot field evaluations followed by artificial inoculation of genotypes classified as resistant by injection method at booting stage of the plant in case of false smut in greenhouse and by foliar spray inoculation of select resistant genotypes grown in nutrient solution culture in case of brown spot, as brown spot is highly influenced by certain macro as well as micro nutrients. This will help in identifying the reliable and utilisable genotypes for use as resistance sources for breeding purposes and further moving ahead towards genetics of resistance and molecular biology studies.

With respect to virulence monitoring there is a need to re-examine the virulence monitoring trials for bacterial blight and blast pathogens using NILs with single R genes. The trial needs to be considered as an experiment with two different parts to be performed in continuation. 1. The assessment of resistance/susceptibility of the genotypes in exclusive disease nursery either in the experimental farm or in farmers fields, where the disease occurs naturally. 2. Isolate the pathogen strains from the susceptible genotypes – at least a minimum of 10 isolates per genotype [carrying known R gene(s) including the susceptible or spreader check entries and, then pathotype them on a set of all-India differentials (derived by AICRIP headquarters) either in the concerned research stations, where facilities are available or move the pathogen isolates to the AICRIP headquarters for pathotyping.

Virulence monitoring trial has to be carried out under natural infection. Artificial inoculation should strictly be avoided. In case, natural infection does not usually occur in research stations (e.g. Chinsurah and Lonavalaetc maybe in Pantnagar also), virulence monitoring trial need to be conducted, wherever feasible, in farmers' fields where, the disease occurs naturally.He also suggested that biological stress agents naturally occur in farmers' fields, but not in research stations (e.g. Rice Research Station, Chinsurah; Agricultural Research Station, Lonavala) needs a separate epidemiological study for expanding the understanding on the occurrence of the diseases.

He insisted to take utmost care for maintaining the seed purity has to be maintained especially with reference genotypes and differentials used in the trials.One way is to discard the assembly of these seeds at the headquarters used for sharing with the AICRIP centres, obtain fresh seeds of all these from IRRI or if available with NBPGR with the original accession numbers and enter these seed lots in hybrid seed production chain at the headquarters. Fresh seed from this seed lot need to be utilised for the disease and insect pest resistance assessment studies. It may not be possible to execute this for

this year. However, this needs to be followed from the next year. Slackening in this would shake the pillars of resistance breeding strategies. It is a good practice, to include the original accession number of these entries while distributing them and while compiling the results for report purposes, so that one can check back whenever a problem is encountered, and selectively eliminate the problematic seeds in future. He has requested the POS team to survey the blast situation in rice-wheat ecosystem in Indo-gangetic plains in the background of the 2016 devastating wheat blast that rocked wheat cultivation in Bsngladesh. . He suggested the ARS, Maruteru centre should study the Bengal method of rice cultivation and come out with scientific reports.

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PLENARY SESSION

Chairman: **Dr S. K. Chaudhari, DDG (NRM), ICAR**
Co-Chairman: **Dr Ch. Srinivasa Rao, Director, NAARM**
Special Invitees: **Dr. H. S. Gupta, Chairman, QRT, IIRR**
Dr YP Singh, ADG (FFC), ICAR
Dr. Himanshu Pathak, Director, NIASM
Dr. A. K. Singh, Director, IARI

AGRONOMY

The 55th All India Rice Research Group Meeting of Agronomy was held on 13th May, 2020 through virtual video conference hosted by ICAR-IIRR, Hyderabad. Around 45 scientists co-operators and delegates of the private sector from 45 centers participated in the group meeting. The session was deliberated by Dr. R. Mahender Kumar, PI and Head, Agronomy Section, ICAR-IIRR. As part of the program of mechanized transplanting, yield maximization trial, nutrient management studies and organic rice trial will be taken up on a priority basis. Rest of the trials will be fine-tuned as per the suggestions given by the experts.

Finally the following 13 trials were finallliseeed for ensuing *kharif* and *rabi* seasons of 2020-21.

S. No	Trial code	Name of the trial	*Kharif*	*Rabi*	Total
I		**AVT-2 Nutrient Varietal Trial (NVTs)**			
1	NMT-1a	AVT-2 E (H)			
	NMT-1b	AVT-2 M (H)			
	NMT-1c	AVT-1 U (H)			
	NMT-1d	AVT 1-E-DS			
	NMT-1e	AVT 2-E-TP			
	NMT-1f	AVT 2 – IME (TP)			
	NMT-1g	AVT 2 – IM (TP)			
	NMT-1h	AVT 2-L			
	NMT-1i	AVT 2-MS			
	NMT-1j	AVT 2-Aerobic			
	NMT-1k	AVT 1-Boro			
	NMT-1l	AVT 2-AL&ISTVT			
	NMT-1m	AVT 2- RSL			
	NMT- 1n	AVT 2-SDW			
	NMT- 1o	AVT 2-CSTVT			
	NMT-1p	AVT 1-BT			
	NMT-1q	AVT 2-Biofort			
	NMT- 1r	AVT-2 NIL Blast			
	NMT- 1s	AVT-2 NIL BLB			
	NMT- 1t	Weed suppressing cultivars			
	NMT- 1u	Nitrogen use efficiency			

S. No	Trial code	Name of the trial	*Kharif*	*Rabi*	Total
	NMT- 1v	Phosphorus use efficiency			
	NMT- 1w	NPTs			
II		**CULTURAL & NUTRIENT MANAGEMENT TRIALS (CMTs)**			
2	CMT-1	Development of package of practices for mechanized transplanting			
3	CMT-2	Suitable package of practices for higher yield in DSR i) Dry DSR			
4	CMT-3	ii) Wet DSR			
5	**CMT-4**	**Yield maximization of rice in different zones (New Trial) (Collaborative with Soil Science)**			
6	**CMT-5**	**Enhancing productivity of Organic Rice cultivation (New trial) – permanent trial for 5 years and in permanent plot and system-based approach (Collaborative with Soil Science)**			
7	CMT-6	Water management for enhancing water use efficiency and higher productivity			
III		**WEED MANAGEMENT TRIALS (WMTs)**			
8	WMT-1	Long term studies on weed diversity in (**Collaborative with Entomology and Pathology**) (a) Mechanical transplanting (b) Wet DSR and (c) Dry DSR			
9	WMT-2	Evaluation of weed suppressing short duration rice cultivars under DSR (a) Dry DSR and (b) Wet DSR			
10	WMT-3	Integrated Pest Management – (Collaborative trial with Entomology and Pathology)			
IV		**RESOURCE CONSERVATION TECHNOLOGIES (RCTs) IN RBCS**			
11	RCTs-1	Conservation Agriculture / System based Management Practices in rice and rice-based cropping systems (crop diversification) for higher profitability			
12	RCTs-2	Technology to enhance the productivity of cultivars suitable for late planting situation			
13	RCTs-3	Exploration of rice fallows (Rice-cereal, Rice-oilseed, Rice-pulse)- Permanent trial (Alternative cropping system for Rice –rice system)			
		Analysis of long term meteorological data of AICRIP centers (temp and rainfall) for identifying the reasons for yield reduction (Collection of 25 years data)			
		Total			

SOIL SCIENCE

For the year 2020-21, the ongoing eight trials will be continued with some modifications in the treatments as per the suggestions given by the experts.

1. **Long term soil fertility management in rice based cropping systems (*kharif* and *rabi*).**

   This trial will be continued and additional data on soil quality will be generated by NRRI as promised by the microbiologist from NRRI. In addition, reduction in PUE and KUE in the absence of N will also be calculated.

2. **Soil quality and productivity assessment for bridging the yield gaps in farmers' fields.**

   This trial is intended to take up survey work in farmers' fields (10-20) to identify soil related problems that are limiting the productivity of low yielders. Based on this data, on-farm experiments with specific recommendations will be taken up to bridge the yield gaps in the fields of low yielders in the subsequent years.

3. **Screening of germplasm for soil sodicity**

   This trial will be continued without gypsum application and with same improved genotypes studied last year.

4. **Screening of rice genotypes for acid soils**

   This trial will be continued with same genotypes used in the previous year.

5. **Yield maximization in farmers' fields using Nutrient software (optional)**

   This trial will be continued based on the interest of cooperators

6. **Bio-intensive pest management (BIPM) in rice under organic farming (*kharif* and *rabi*)(In collaboration with Entomologists).**

   To be continued as such.

7. **Residue management in rice based cropping systems**

   This trial will be continued with some modifications in the treatments by using straw decomposers developed by IARI, PAU etc as per the suggestions made by the experts.

8. **Screening of rice germplasm for Nitrogen use efficiency (NUE)**

   This trial will be continued with same genotypes used in the previous year

   In addition, **one or two new trials** will be formulated in collaboration with Agronomy on yield maximization and revisiting of fertilizer recommendations.

PLANT PHYSIOLOGY

Proposed trials in Plant Physiology :

1. Influence of silicon on induced stress tolerance in in rice genotypes

Locations: CHN,CBT,NRRI, IIRR, KJT, KRK, MTU, PNR, PTB,REWA, Ranchi and TTB (12).

The treatments are T1. Control (without any silica treatment), T2: Silixol @ 0.6% applied at 4 phenological stages (Tillering, PI, 50% Flowering and grain filling state). T3: Silixol (+ water stress(WS) imposed during grain filling stage. Varieties: to be decided in consultation with Scientists from Plant Breeding and Hybrid Rice.

2. Screening for high temperature tolerance: The trail will continue.

Locations: CBT, CHN, IIRR, MTU, PNR, PTB, REWA and TTB (8).

The entries to be tested will be decided in consultation with the Plant Breeding section.

3. Screening elite rice cultures for drought tolerance

Locations: CBT, NRRI, PTB, REWA, TTB (rabi), Ranchi and Raipur (7).The trial will continue without any modifications NRRI will provide check varieties for the trial.

4. Physiological characterization of selected genotypes for multiple abiotic stress tolerance

Locations: CBT, CHN, NRRI, KJT, KRK, MTU, PNR, PTB, PUSA, REWA and TTB (11).

1. Anaerobic germination,2. Salinity, 3. Drought. 4. Low temperature

All the experiments will be conducted in laboratory and subjected to stress treatments individually at seedling stage only. The same set of genotypes will be taken under normal field for physiological characterization. New entries from physiology experiments will be included.

5. Screening of Rice varieties for tolerance to low-light stress.

Locations: IIRR, NRRI, KJT, MTU, PNR, TTB and Raipur (7).

The trial will be continued, Check variety will be provided by NRRI.

6. Evaluation of elite germplasm for submergence tolerance

Locations: CBT, NRRI, PTB, FZB and TTB (5)

Finally the chairman concluded the session and appreciated all the members. He insisted on the development and refinement of the package of practices for the profitability of the rice farmers for each situation/system. The session ended with a vote of thanks by Dr. S.R. Voleti, Director, ICAR-IIRR, Hyderabad.

ENTOMOLOGY

Dr. G. Katti, PI presented the finalized technical programme for 2020-21, which is as follows:

- ✓ Pest Survey reporting will continue on fortnightly basis including online submissions in the provided format.
- ✓ All the existing screening and biotype trials *viz.,* Planthopper Screening Trial (PHS), Gall Midge Screening Trial (GMS), Gall Midge Special Screening Trial (GMSS), Stem Borer Screening Trial (SBST), Leaf Folder Screening Trial (LFST), Multiple Resistance Screening Trial (MRST), National Screening Nurseries (NSN1, NSN2, NSNH and NHSN), Planthopper Special Screening Trial (PHSS), Gall Midge Biotype Studies (GMBT) and Gall Midge Population Monitoring trial (GMPM) will continue.
- ✓ The trial on Insecticides and botanicals evaluation trial (IBET) will continue.
- ✓ Effect of Planting Dates on insect Pest incidence (EPDP) will continue.
- ✓ Ecological Engineering for Management of Insect pests (EEMP) trial with observations on all the insect pests and Bio-intensive Pest Management (BIPM) trial will continue with suitable modifications in consultation with NBAIR to avoid duplication.
- ✓ Three trials on i) Effect of seed coating on insect pest incidence (ESCP), ii) Influence of establishment methods on pest incidence (IEMP) and iii) Cropping systems influence on pest incidence (CSIP) in collaboration with Agronomy will continue
- ✓ The trial on Evaluation of pheromone blends for insect pests of rice (EPBI) will also continue at selected few locations.
- ✓ The trials on EEPM and BIPM will continue. Efforts will be made to include effective/certified biocontrol agents/biopesticides from AICRP on BC of ICAR - NBAIR.
- ✓ Integrated Pest Management special Trial (IPMs) will be continued. Efforts will be made to maintain inter institutional linkage with NCIPM.
- ✓ Population monitoring of insect pests through Light Trap will continue.

The details of location wise trials are shown below:

KHARIF 2020

Pest Survey Reports:				**Locations 37**
Aduthurai	Arundhutinagar	Chatha	Chinsurah	Chiplima
Coimbatore	Cuttack	Gangavathi	Ghaghraghat	Jagdalpur
Jagtial	Karaikal	Karjat	Kaul	Khudwani
Ludhiana	Malan	Mandya	Maruteru	Masodha
Moncompu	Navsari	Nawagam	Nellore	New Delhi

Pantnagar	Pattambi	Pusa	R.Nagar	Ragolu
Raipur	Ranchi	Rewa	Sakoli	Titabar
Wangbal	Warangal			
Planthopper Screening Trial				**Locations 14**
Aduthurai	Coimbatore	Cuttack	Gangavathi	IIRR
Jagtial	Ludhiana	Mandya	Maruteru	Nawagam
Pantnagar	R.Nagar	Sakoli	Warangal	
Gall midge Screening Trial				**Locations 13**
Chiplima	Cuttack	IIRR	Jagdalpur	Jagtial
Maruteru	Moncompu	Nellore	Pattambi	Ragolu
Ranchi	Sakoli	Warangal		
Gall midge Special Screening Trial				**Locations 10**
Chiplima	IIRR	Jagdalpur	Jagtial	Moncompu
Pattambi	Ragolu	Ranchi	Sakoli	Warangal
Leaf Folder Screening Trial				**Locations 18**
Bapatla	Chatha	Chinsurah	Cuttack(G)	Gangavathi
IIRR	Jagdalpur	Karaikal	Karjat	Khudwani
Ludhiana	Malan	Masodha	Navsari	Nawagam
Nellore	Pattambi	R.Nagar		
Stem Borer Screening Trial				**Locations 12**
Chinsurah	Coimbatore	Cuttack	Ghaghraghat	IIRR
Malan	Moncompu	Navsari	Pantnagar	Pusa
R.Nagar	Raipur			
Multiple Resistance Screening Trial				**Locations 27**
Chatha	Chinsurah	Chiplima	Coimbatore	Cuttack
Gangavathi	IIRR	Jagdalpur	Khudwani	Ludhiana
Malan	Mandya	Maruteru	Masodha	Navsari
Nawagam	Nellore	Pantnagar	Pattambi	Pusa
R.Nagar	Ragolu	Raipur	Ranchi	Sakoli
Titabar	Warangal			
National Screening Nursery-1				**Locations 18**
Chiplima	Coimbatore	Gangavathi	IIRR	Jagdalpur
Ludhiana	Maruteru	Masodha	Moncompu	Nawagam
Pantnagar	Pusa	R.Nagar	Ragolu	Raipur
Sakoli	Titabar	Warangal		
National Screening Nursery-2				**Locations 14**
Chinsurah	Chiplima	Coimbatore	Gangavathi	Ghaghraghat
IIRR	Jagdalpur	Ludhiana	Malan	Mandya
Maruteru	Moncompu	Navsari	Pantnagar	
National Screening Nurseries (Hills)				**Locations 8**
Coimbatore	Gangavathi	IIRR	Khudwani	Ludhiana
Malan	Maruteru	Pantnagar		
National Hybrid Screening Nurseries				**Locations 14**
Chinsurah	Coimbatore	Cuttack	IIRR	Gangavathi
Ludhiana	Mandya	Maruteru	Moncompu	Nawagam
Pantnagar	Pattambi	R.Nagar	Raipur	
Gall Midge Biotype Trial				**Locations 14**
Chiplima	Cuttack	IIRR	Jagdalpur	Jagtial
Maruteru	Moncompu	Nellore	Pattambi	Ragolu
Raipur	Ranchi	Sakoli	Warangal	
Planthopper Special Screening Trial				**Locations 12**
Aduthurai	Coimbatore	Cuttack	Gangavathi	IIRR

Ludhiana	Mandya	Maruteru	New Delhi	Pantnagar
R.Nagar	Warangal			

Gall midge Population Monitoring Trial **Locations 6**

Jagtial	Moncompu	Pattambi	Ragolu	Sakoli
Warangal				

Insecticide-Botanicals Evaluation Trial **Locations 31**

Arundhutinagar	Bapatla	Chatha	Chinsurah	Chiplima
Coimbatore	Cuttack	Gangavathi	IIRR	Jagdalpur
Karaikal	Karjat	Khudwani	Ludhiana	Malan
Mandya	Maruteru	Masodha	Navsari	Nawagam
Nellore	New Delhi	Pattambi	Pusa	R.Nagar
Ragolu	Raipur	Ranchi	Sakoli	Titabar
Warangal				

Effect of Planting Dates on Pest Incidence **Locations 23**

Arundhutinagar	Bapatla	Chatha	Chinsurah	Chiplima
Gangavathi	Ghaghraghat	Jagdalpur	Karaikal	Karjat
Kaul	Khudwani	Malan	Masodha	Navsari
Nawagam	New Delhi	Pusa	Raipur	Ranchi
Rewa	Sakoli	Titabar		

Effect of Seed coating on Pest Incidence **Locations 6**

Chiplima	Coimbatore	IIRR	Karjat	Maruteru
Raipur				

Influence of Establishment Methods on Pest Incidence **Locations 18**

Aduthurai	Chatha	Chiplima	Coimbatore	Gangavathi
Ludhiana	Mandya	Maruteru	Nawagam	Pantnagar
Raipur	R. Nagar	Ranchi	Jagdalpur	Rewa
Malan	Moncompu	Navsari		

Cropping systems influence on Pest Incidence **Locations 7**

Aduthurai	Maruteru	Karjat	R.nagar	Pantnagar
Jagdalpur	Pattambi			

Evaluation of Pheromone blends for Insect Pests of rice **Locations 14**

1. Leaffolder (8)

Aduthurai	Coimbatore	Pattambi	Jagdalpur	Navsari
Raipur	Sakoli	Titabar		

Pink Stem borer(6)

Ludhiana	Pattambi	Ragolu	Jagtial	Raipur
Warangal				

Ecological Engineering for Planthopper Management **Locations 9**

Bapatla	Gangavathi	Karjat	Malan	Mandya
Moncompu	New Delhi	R.Nagar	Warangal	

Bio Intensive Pest Management **Locations 13**

Bapatla	Chinsurah	Cuttack(G)	IIRR	Jagdalpur
Karjat	Ludhiana	Masodha	Moncompu	Pattambi
Raipur	Ranchi	Titabar		

Integrated Pest Management-Special Trial **Locations 20**

Arundhutinagar	Chatha	Chinsurah	Coimbatore	Cuttack
Gangavathi	Jagdalpur	Karjat	Kurumbapet	Ludhiana
Mandya	Masodha	Nellore	Pantnagar	Pusa
Malan	R.Nagar	Raipur	Sakoli	Titabar

Light Trap for Population Dynamics **Locations 30**

Aduthurai	Chatha	Chinsurah	Chiplima	Coimbatore
Gangavathi	Jagdalpur	Jagtial	Karaikal	Karjat
Kaul	Khudwani	Ludhiana	Malan	Mandya
Maruteru	Masodha	Moncompu	Navsari	Nawagam
Nellore	Pantnagar	Pattambi	R.Nagar	Ragolu
Raipur	Rewa	Sakoli	Titabar	Warangal

RABI 2020-21

Leaf Folder Screening Trial **Locations 1**

Aduthurai

Stem Borer Screening Trial **Locations 7**

Aduthurai	Chinsurah	Cuttack(G)	IIRR	Maruteru
Pattambi	R. Nagar			

Multiple Resistance Screening Trial **Locations 3**

Aduthurai	Maruteru	R. Nagar

Insecticide-Botanicals Evaluation Trial **Locations 12**

Aduthurai	Chinsurah	Chiplima	Coimbatore	Cuttack(G)
Gangavathi	Karjat	Maruteru	Pattambi	Ragolu
Raipur	Titabar			

Effect of Planting Dates on Pest Incidence **Locations 4**

Aduthurai	Chinsurah	Maruteru	Raipur

Ecological Engineering for Planthopper Management **Locations 4**

Aduthurai	Gangavathi	Maruteru	Moncompu

Integrated Pest Management-Special Trial **Locations 7**

Aduthurai	Chinsurah	Gangavathi	Karjat	Maruteru
Pattambi	R.Nagar			

PLANT PATHOLOGY

Dr. M. S. Prasad, PI, Plant Pathology presented the pathology trials to be taken up in *Kharif* 2020. Details of trials are as follows

I. Host Plant Resistance

Trials (1 to 7) on leaf blast, neck blast, sheath blight, brown spot, sheath rot, bacterial blight and rice tungro disease will be continued as such without any modifications.

1) Trial-1: Screening for Leaf Blast Resistance
2) Trial -2: Screening for Neck Blast Resistance
3) Trial-3: Screening for Sheath Blight Resistance
4) Trial-4: Screening for Brown Spot Resistance
5) Trial-5: Screening for Sheath Rot Resistance
6) Trial-6: Screening for Bacterial Blight Resistance
7) Trial-7: Screening for Tungro Resistance
8) Trial 8 & trial 9 : Field monitoring of virulences of *Pyriculariaoryzae* and *Xanthomonasoryzae* pv. o*ryzae*: Based on the availability of monogenic lines, a national set of host differential will be constituted for both the trials.
9) Trial 10: Disease observation nursery: The trial will be continued as such without modifications. All the funded centres are requested to take up the trial and to send the daily weather data.
10) Trial 11: Evaluation of fungicides against location specific diseases:The treatment with tricyclazole will be replaced by suitable chemical and trial will be continued.
11) Trial 12: Integrated trial on disease management will be continued.
12) Trial 13: Special IPM trial along with Entomology and Agronomy
13) Trial 14: Special trial on the evaluation of essential oils against rice diseases: This trial was conducted for two years and it has been concluded
14) Trial 15: Trial on Yield loss assessment on major rice diseases will be formulated
15) Production oriented Survey: Production oriented survey conducted by a team of subject matter experts (from different state agricultural universities and ICAR Institutes) along with officials from state department of agriculture will be continued.

False smut, brown spot and sheath blight resistance located in screening trials

Quite a few resistance sources for false smut and brown spot have been located by some of the centres. On the other hand, we still continue to believe that the lack of resistance sources to these diseases hinders launching appropriate resistance breeding

programmes. Some isolated experimental approach with QTLs for sheath blight resistance has been experimented with some success. This denotes problems in the use of these resistance sources. There is a necessity, to reconfirm the resistance in these identified sources following a two tier system of resistance evaluation. Hot-spot field evaluations followed by artificial inoculation of select genotypes classified as resistant by injection method at booting stage of the plant in case of false smut in greenhouse and by foliar spray inoculation of select resistant genotypes grown in nutrient solution culture in case of brown spot, as brown spot is highly influenced by certain macro as well as micro nutrients. This will help in identifying the reliable and utilisable genotypes for use as resistance sources for breeding purposes and further moving ahead towards genetics of resistance and molecular biology studies.

Virulence monitoring

There is a need to re-examine the virulence monitoring trials for bacterial blight and blast pathogens using NILs with single R genes and multiple R genes in a single line.

This is being treated as a routine trial. But, it needs to be considered as an experiment with two different parts to be performed in continuation. 1. The assessment of resistance/susceptibility of the genotypes in exclusive disease nursery either in the experimental farm or in farmers fields, where the disease occurs naturally. 2. Isolate the pathogen strains from the susceptible genotypes – at least a minimum of 10 isolates per genotype [carrying known R gene(s)] including the susceptible or spreader check entries and, then pathotype them on a set of all-India differentials (derived by AICRIP headquarters) either in the concerned research stations, where facilities are available or move the pathogen isolates to the AICRIP headquarters for pathotyping.

In some of the centres, this trial is artificially inoculated due to absence of natural infection (indicating that the pathogen is absent in that location). The purpose of this trial is to assess the virulence of pathogen strains which are naturally occurring in a particular location. Artificial inoculation should strictly be avoided. In case, natural infection does not usually occur in research stations (e.g. Chinsurah and Lonavala etc maybe in Pantnagar also), virulence monitoring trial need to be conducted, wherever feasible, in farmers' fields where, the disease occurs naturally.

Usually, in research stations like NRRI, Cuttack, APRRI & RARS, Maruteru and in Zonal Agricultural Research Station, Mandya most of the Rice diseases and insect pests occur naturally in sufficient proportions, and for specific groups of diseases and insect pests in Paddy Breeding Station, Tamil (TNAU), Coimbatore, Tamil Nadu Rice Research Institute, Aduthurai, Regional Rice Research Station of PAU, Kapurthala etc. for screening for resistance against them. Where, the vice versa that these biological stress agents naturally occur in farmers' fields, but not in research stations (e.g. Rice Research Station, Chinsurah; Agricultural Research Station, Lonavala) that forces them to artificially inoculate the trial entries for evaluation needs a separate epidemiological study for expanding our understanding.

Seed purity

We have noted during our QRT deliberations that there are seed purity problems especially with those of reference genotypes used as disease differentials, and Mandya centre observed these problems even with some of the genotypes in other trials. Utmost care is needed for maintaining seed purity, especially with reference genotypes used in the trials. One way is to discard the presently available seed lots of these seeds at the headquarters used for sharing with the AICRIP centres, obtain fresh seeds of all these from IRRI or if available with NBPGR with the original accession numbers and enter these seed lots in hybrid seed production chain at the headquarters. Fresh seed from this stock need to be utilised for the disease and insect pest resistance assessment studies. It may not be possible to execute this for this year. However, this need to be followed from the next year. Slackening in this would shake the pillars of resistance breeding strategies. It is a good practice, to include the original accession number of these entries while distributing them and while compiling the results for report purposes, so that one can check back whenever a problem is encountered, and selectively eliminate the problematic seeds in future.

Implementation of AICRIP Intranet (http://www.aicrip-intranet.in)

Dr. B. Sailaja, Principal Scientist, presented the status of implementation of AICRIP Intranet and Artificial Intelligence models developed using AICRIP Experimental Database. Data available in this web portal are details of centers, co-operators, trials/experiments, allotment of trials to locations/star sheet, seed dispatch and receipt, crop condition, weather and RBD/Split design/ screening pest/disease wise experimental data. During this year, Soil Science and Hybrid Rice data was analysed and reports were generated (location wise treatment means with ranks and performance over checks) using AICRIP-Intranet. State and Zone wise reports of Plant breeding were also designed during this year.

Dr. Sailaja also explained about yield prediction model which was developed using K Nearest Neighbors Regression machine learning algorithm by analysing the long term meteorology data (2005-2018) from eight AICRIP centers namely Navasari, Rajendranagar, Mandya, Coimbatore, Gangavathi, Kaul, Khudwani and Ludhiana.

Random Forest ML Algorithm with R Program was used to predict and map disease severity of rice crop using the POS data of leaf blast and Brown spot and historical weather maps from http://worldclim.org as covariates. It was clear from the analysis that maximum temperature is the major influencing parameter on disease severity compared to other weather parameters.

Chairman emphasized to make AICRIP Intranet device independent and advised to maintain the back up in multiple places to avoid data losses and sustain data security.

7th Annual Hill Rice Research Group Meeting
ICAR-Indian Institute of Rice Research, Hyderabad
(February 19th, 2020)

The 7th Annual Hill Rice Research Group Meeting was held on 19 February 2020 at Indian Institute of Rice Research (ICAR), Hyderabad. Dr. L.V. Subba Rao, Head, Plant Breeding, ICAR-IIRR & PI-AICRIP, Varietal Improvement welcomed all the participants of the workshop. Dr. S. M. Balachandran, Head, CIS welcomed the participants and in his introductory remarks emphasized the conduct of AICRIP trials as per the guidelines prescribed. Dr. S.R. Voleti, Director, ICAR-IIRR, Chairman of the meeting inaugurated the Hill Rice Research Group Meeting, released three newsletters of volume 18 of ICAR-IIRR. He further emphasized the need to follow the AICRIP guidelines in the conduct of trials and discussed in brief about the EFC recommendations. The technical session was formally started by Dr. L.V Suba Rao (Principal Scientist & Head, Plant Breeding, ICAR-IIRR Hyderabad), who presented the consolidated progress report on varietal development under Hill trials conducted during 2019. This is followed by sate wise presentation of progress report by cooperators as follows.

Jammu & Kashmir

Dr. Najeb Rehman Sofi, Sr. Scientist, AICRIP, Rice Mountain Research Centre for Field Crops, Khudwani presented progress of trials in Jammu & Kashmir conducted at Khudwani, Rajouri, Wadura, Bandipore and Pombay. Dr. Sofi, emphasized the need for japonica rice improvement programme to be initiated by *japonica/indica* hybridization programme using wide compatible varieties to develop i*ndicalinous* and *japonicalinous* varieties. Dr. Sofi informed that the farmers are harvesting at least a minimum of 10 t/ha. Based on the discussion, suggested that yield data from the authenticated government sources to be collected. Contribution of *japonica* landraces to the landraces trial was also suggested for this centre. Inclusion of Larnoo centre for cold screening was also discussed. Dr. Sofi also informed about the constraints of temperate hybrid rice programme and requested to include in the ongoing hybrid rice consortium.

Himachal Pradesh

Dr. Neelam Bhardwaj from Malan Centre presented the progress of trials in Himachal Pradesh conducted at Malan, Palampur and Daulakhan. All the trials received except AVT 1 BT (due to late receipt) was conducted. The plot size of entries was less and discussed that the plot size for each entry to be increased. Inclusion of more centres for conducting the trials was also discussed. Request for transport vehicle and funds for irrigation facilities was raised from the centre. Medium trials to be sent for Palampur centre.

Uttarakhand

Dr. J.P. Aditya, Scientist, Plant breeding, ICAR-VPKAS Almora presented the information about the performance of trials conducted at Almora and Bageswar. Plot size of each entry to increased was suggested. Enhancement of contingencies for the conduct of AICRIP trials was requested from this centre. In the discussion, it was suggested that Upland

trials only will be conducted at Bageswar while at Almora both upland and irrigated trials will be conducted.

Meghalaya

Dr. Mayank Rai from ICAR- Research complex for North Eastern Region, Barapani presented the performance of trials conducted at Upper Shillong, ICAR-Umiam, CAU-Umiam. The conduct of trials based on altitude was discussed. A new centre for conducting low elevation trials- CAU, Kyrdemkulai was identified. CAU, Barapani to conduct Low and Medium altitude trials. ICAR Research Complex for NEH Region, Umiam (Barapani) to conduct medium and high-altitude trials. Contribution of four landraces to landrace trial from CAU, Barapani was suggested.

Tripura

Dr. S.P. Das, Principal Scientist, Plant breeding, ICAR Research Complex for NEH Region. Tripura centre presented the varietal information from their centre.

Sikkim

Dr. Chandan Kapoor, Scientist, Plant breeding from ICAR-National organic farming Research Institute, Tadong, Gangtok presented the performance of entries in the hill trials following the organic package of practices. Discussion on data that is generated based on organic farming from the rest of the centres. Suggested to follow the recommended organic package of practices by the Institute to be followed.

Ponnampet

Dr. G.N. Hosagoudar, from Ponnampet presented the trials results. Requested for more quantity of seed to accommodate the required plot size of each entry.

Dr K.S. Raghuwanshi from Lunawala presented the results of pathology screening.

ICAR-IIRR, Hyderabad

Dr. A.V. S. R. Swamy, Principal Scientist, Plant breeding presented the detailed report on the trial performance of entries and the entries promoted to next year of testing. Dr. G. Katti (Principal Scientist & Head, Entomology, ICAR-IIRR & PI, AICRIP, Entomology) reported overall performance of national screening nurseries of hills conducted for different insect pests in the hill ecology. It was reported that IET 28205, IET 28210, IET 28229 and IET 27504 were promising for stem borer and none of the entries were identified promising for planthoppers. Dr. M.S. Prasad, Head, Plant Pathology, ICAR-IIRR & PI, AICRIP Plant Pathology suggested artificial inoculation when the disease pressure is low. Further, he requested all the pathologists to look for the recommendation for blast control as Tricyclazole is banned to use. Dr. R.M. Kumar, Head, Agronomy, ICAR-IIRR & PI, AICRIP, Crop Production briefed about the weed control in rice. Dr. K. Surekha, Head, Soil Science, PI, AICRIP, Soil Science discussed about the aluminum and Fe toxicity screening and designing the experiments.

The deliberations during the technical sessions resulted into different recommendations as enlisted in the following minutes of this workshop:

- A yield advantage of 10% over the best check should be considered for trials conducted in single location to select the superior genotypes
- Quality wise, the recommendation of 50% HRR, 18 to 27% AC to be considered for promotion of entries. If the entry records, 27% AC, the GC should be >40mm.
- Two entries viz., IET 26596 and IET 27474 with required yield advantage, which exhibited low HRR suggested to recheck for quality (HRR) and the sample for rechecking to be provided from Malan centre.
- Recommended that IET 25826 to be tested for one more year in the medium elevation trial
- Uniform plot size across the hill zone to be followed. Suggested statistician to come up with the required plot size.
- It was unanimously agreed upon for timely constitution of coordinated trials, the seed material from the cooperating centres should reach ICAR-IIRR by 10 March, 2020 and the constituted trial seed should reach the cooperating centres by 2 April, 2020. There will be no onus on the concerned scientist for not conducting trials, in case of delayed arrivals either.
- A seed quantity of 5 kgs for new nominations for IVT, 8 kgs for AVT and min 2kgs for landrace trial should be submitted.
- Deliberations on the utilization of indigenous germplasm in generating breeding material with due emphasis on the varietal spread.
- Replacement of checks -VL Dhan 68 in place of VL Dhan 62 and VL Dhan 158 in place of VL Dhan 154 if they complete three years inclusion as check in the trial. Suggested these checks can be replaced in IVT.
- The landrace trial which was conducted for two years will be conducted in the third year also to identify promising landraces.
- Discussion on the increasing the number of test locations in the hill zone. Medium trials to be sent for Palampur centre. CAU, Kyrdemkulai was identified for the conduct of the low elevation trials coordinated by CAU Barapani. ICAR Research Complex for NEH Region, Umiam (Barapani) to conduct medium and high-altitude trials.
- Operational expenses for the ICAR centres to be revised and UC of the funded centres to be submitted at the earlier for release of funds.
- It was directed to hill centres to furnish information about tribal populations in their respective ecologies so that funds could be provided under TSP. The information may please be submitted at the earliest for the implementation of TSP and release of funds thereof. Dr. L.V. Subba Rao to send the guidelines of TSP to all the AICRIP hill centres.

FRONTLINE DEMONSTRATIONS (FLDs) ON RICE

Chairman: **Dr S. K. Chaudhari, DDG (NRM), ICAR**
Co-Chairman: **Dr Ch. Srinivasa Rao, Director, NAARM**
Special Invitees: **Dr. H. S. Gupta, Chairman, QRT, IIRR**
Dr. Himanshu Pathak, Director, NIASM
Dr. A. K. Singh, Director, IARI

During 55th Virtual Annual Rice Group Meeting, report of FLDs conducted during 2019-20 was presented by Dr. Shaik N.Meera, Principal Scientist and Coordinator, FLD programme.He reiterated that Frontline Demonstration as face of AICRIP and very important farmer interface activity of AICRIP programme. During the year through NFSM sponsored Frontline Demonstrations programme, a cafeteria of rice technologies were demonstrated in 852 hectare area covering 20 states and six major rice ecosystems of the country. FLDs organized during this year have been effective in creating the awareness about the potential of new rice varieties, hybrids and other management technologies. In majority of the cases the yield advantages recorded by the FLD technologies were significant. Out of 852 FLDs reported, about 67.7% were conducted in irrigated rice ecosystem; whereas about 12.56% of FLDs were conducted in rainfed uplands. More than 9% of FLDs were organized in shallow lowlands and 7.98% in hill ecologies. There is a scope to increase the number of FLDs in rainfed and shollow lowland ecologies. The summary statement reveals that the mean yield advantage was the highest in semi deep ecologies (42.46%) followed by Problem Soils/Coastal Saline (30.81%), hills (30.65%). There is a tremendous scope to bridge the yield gaps (particularly Yield gap-II) in case of Rainfed uplands (11.63% mean yield advantage), Shallow lowlands (16.35 %) and irrigated ecologies (22.91%). For this, proper extension strategies need to be deployed for large scale adoption of these technologies.

FLD technologies demonstrated in irrigated ecosystems have recorded mean yield of 4.99 t/ha where as in Shallow lowlands FLD technologies have recorded an average yield of 4.84 t/ha. Average demonstration yields in rainfed uplands was 3.84 t/ha. This shows the attainable yield potential in the farmers' fields, which needs to be considered for planning the extension programs in these regions. The range of yield advantages explains that there are few promising technologies, if properly adopted by the farmers may result in enhancing the farm level productivity.

In total 50 promising technologies have been identified from 20 states. These technologies will help either in withstanding abiotic stresses (Sambha Sub-1 + INM for submergence, DRR Dhan 42 for drought tolerance, Daksha for aerobic condition), improving the field productivity (Samleshwari, SJR-129, BINA Dhan-17, Kanak, Ajit, Ratnagiri-8, Shalimar Rice 40), solving the local problems (Problem soil management, KAU Weed Wiper), labour scarcity (Machine transplanting), early harvest for facilitating rabi crops (Sahbhagi dhan), better basmati options for farmers (Basmati 564), consumer preferences (RC Maniphou-13), replacing the popular varieties (CO 52, TKM 13, CR Dhan

909) etc., But a viable strategy should be in place before these promising technologies making a difference in the livelihoods of farmers.

Dr HS Gupta, QRT chairman appreciated the presentation and suggested that FLDs to focus in the eastern and north eastern regions to bridge the existing yield gaps. Dr AK Singh, Director –IARI pointed out to increase the efforts to popularize biofortified technologies beyond the demonstrations.Dr Himanshu Pathak, Director NIASM congratulated the efforts of FLD team and reiterated that FLD program acts as face of AICRIP. He suggested that demonstrated technologies to be undertaken with complete package of practices against the latest checks. He suggested to include in the report, the 2-3 years of performance of selected FLD Technologies. For few FLDs, economic analysis may be included. Dr Ch. Srinivasa Rao, Director NAARM appreciated the efforts and insisted to quantify the contributions of the varietal interventions in the FLD programme. The technologies suitable for marginalized soils should be tried to prove the efficacy of genotypes. He suggested that, along with crop varieties, other management practices may also be demonstrated in the FLDs program. While doing the cost benefit analysis or profit loss, factorial contribution of a particular technology in the total package may be done. The farmers in whose field, the technologies are demonstrated in the current year may be trained as Masters Trainers for popularizing the demonstrated technologies in that area. The same farmers should not be selected for demonstration for next year.

To formulate the plan for FLDs to be organized during 2020-21, indent forms along with Annexures –I, II, III, IV and V were circulated through emails to the cooperators and the indents for proposed FLDs were collected. As per the advice from the Ministry and experts suggestion, more emphasis is given for organizing the FLDs in eastern and North-eastern hill regions.

Critical care is taken to include the demonstrations on latest varieties, hybrids along with management practices, bio-fortified varieties, conservation technologies, labour saving/ input saving technologies etc., It was emphasized that whole package of practices are to be demonstrated in the farmers' fields apart from the FLD variety/ hybrid/ technologies allotted. It is conveyed that all the demonstration fields should be geo-tagged using the mobile app of the Ministry. A team of scientists critically analyzed the indents submitted by the cooperators and a tentative program for FLDs for the year 2020-21 was chalked out, which is given below.

C. No.	State	Ecosystem	Technologies to be demonstrated	No. Of FLDs (Allotted)	Name and address of nodal officer	Relative advantage
1	Andhra Pradesh	Coastal Ecosystem	Panduranga (MCM 100) salt tolerant rice variety (2019)	10	Dr M. Girija Rani, Senior Scientist (GPB)& Head Agricultural Research Station, Machilipatnam-521002 ANGRAU Krishna district Andhra Pradesh arsmtm@gmail.com	High Yielding salt tolerant rice variety MCM 100 derived from MTU 1042 / MTU 1061 with 140-145 days duration, medium slender straw glume grain type, non-Lodging, Semi-dwarf, having 6 t/ha yield potential,

C. No.	State	Ecosystem	Technologies to be demonstrated	No. Of FLDs (Allotted)	Name and address of nodal officer	Relative advantage
					girija_aprri@yahoo.co.in 9490195904	suitable for cultivation during Kharif season in saline soils of coastal regions of A.P was released during kharif 2018 as Pandu Ranga by 37th state seed sub-committee and notified (3220 (E) dated 5.9.2019) during 2019.
2	Andhra Pradesh	Irrigated	Integrated Weed Management DRRDhan50, DRRDhan52 New Herbicide (Penoxsulam+cyhalofopbutyl) use in Integrated Weed Management	20	Dr. B. Sreedevi Principal Scientist, Indian Institute of Rice Research, Rajendranagar, Hyderabad-500030, sreedevi.palakalanu@gmail.com 9440089607	1.Higher yield, shorter duration, fine grain, heat tolerance 2. broad spectrum, single application of post emergence herbicide and economical Enhanced Productivity, Enhanced income by reducing cost of cultivation
3	Arunachal Pradesh	Rainfed lowland	CAU R-1, CAU-R3; RC Maniphou 13	20	Premaradhya, N Assistant Professor of Agronomy Multi Technology Testing Centre and Vocational Training Centre (Central Agril University-Imphal), CHF, Pasighat -791102 Arunachal Pradesh email id: premaradhya@gmail.com Phone: +91 9731855427, 7005192217	Replacing the low yielding land races with improved variety
4	Assam	Rainfed lowland	CR Dhan 310, CR Dhan 909	40	Dr. R. Bhagawati Principal Scientist & Officer In-charge (I/C)ICAR-NRRI-RRLRRS, Gerua, Hajo Kamrup-781102, Assam,09436252487, Phone: +91-361-2820334 FAX: +91-361-2820370 rbhagawati@rediffmail.com	CR Dhan 310 : High protein rice and zinc content; CR Dhan 909: Semi-dwarf, strong aroma, goocl ccoking quality
5	Bihar	Irrigated	CR Dhan 909	20	Dr. Narayan Bhakta, Pr. Scientist ICAR Research Complex for Eastern Region, Patna ICAR Parisar, B.V. College post office, PIN-800014 Bihar Nbhakta65 @rediffmail.com 9471004797	Replacement of local aromatic rice variety with CR Dhan 909 will enhance the productivity of the area and income of the farmer

C. No.	State	Ecosystem	Technologies to be demonstrated	No. Of FLDs (Allotted)	Name and address of nodal officer	Relative advantage
6	Bihar/Jharkhand	Irrigated	Swarna Shakti Dhan Swarna Shreya	10	Dr. Santosh Kumar (Senior Scientist, Plant Breeding) Dr. Dhiraj Kumar Singh (Scientist, Agricultural Extension) ICAR Research Complex For Eastern Region, ICAR Pariser, P.O. Bihar Veterinary College, Patna-800014, Bihar santosh9239@gmail.com, dhirajextension@gmail.com Dr. Santosh Kumar (9973113026) Dr. Dhiraj Kumar Singh (9816738307) 0612- 2228882, 2223962	to popularize the newly released and notified varieties/technologies for varietal diversification in the target areas. Adoption of high-yielding, good-quality, input-responsive and moisture stress tolerant aerobic rice varieties
7	Chhattisgarh	Irrigated and shallow lowland	Trombey Chhattisgarh Dubraj Mutant-1 Hybrid: Chhattisgarh rice hybrid-2 and KRH-4	16	Dr. Deepak Sharma Indira Gandhi Krihsi Vishwavidyalaya Department of Genetics and Plant Breeding, College of Agriculture, Raipur, Krishak Nagar, Raipur, Chhattisgarh. deepakhybridrice@gmail.com +91-9826647509	Chhattisgarh rice hybrid-2 Yield – 60-65 quintal/ha. Duration: 120-125 days Resistant to Gall midge biotype-1 Trombey Chhattisgarh Dubraj Mutant-1 Yield – 40-45 quintal/ha. Duration: 140-145 days Plant Height – 90-95 cm. (Dwarf dubraj) Aroma- high aroma Tolerant to BLB and stem borer
8	Chhattisgarh	Irrigated medium	Chhattisgarh Devbhog	20	Dr. S.K. Nair (Senior Scientist, Plant Breeding) Dr. H.L. Sonboir (Senior Scientist, Agronomy) Indira Gandhi KrishiVishwavidyalaya, Krishak Nagar, Raipur, Chhattisgarh 492 012 sunil.aadya@gmail.com sonboir@rediffmail.com 9826192630 – Dr. S.K. Nair 9406474448 – Dr. H.L. Sonboir	2018 by CVRC 40-45 q/ha yield Tolerant to Brown spot, Sheath rot, Tungro and Stem borer 135-140 days-Medium slender, Aromatic rice variety, good cooking quality . It will enhance productivity and income of the farmers due to its aromatic and premium quality.
9	Gujarat	Irrigated	1. GNR-5 (Notified in the year 2018) 2. GNR-7(Notified in the year 2019) 3. GR-15 (Notified in the	40	Dr. Pathikkumar B. Patel Main Rice Research Centre, Navsari Agricultural University Navsari-396450, Gujarat pbp_swm@nau.in	Varieties /hybrid characterized high yielding, salt tolerant, resistant to major pest and diseases with good quality characters.

C. No.	State	Ecosystem	Technologies to be demonstrated	No. Of FLDs (Allotted)	Name and address of nodal officer	Relative advantage
			year 2019) 4. GR-17 (Released in the year 2019) 5. GRH-2 (Notified in the year 2019)		9106678851 / 9725023750	
10	Gujarat	Irrigated	GAR-14 (Released in CVRC 2018, Notification in 2018) Mahisagar (Released in SVRC 2016, Notification in 2017)	20	Dr. M. B. Parmar Main Rice Research Station Anand Agricultural University Nawagam, Dist.: Kheda, Gujarat PIN: 387 540 rsrice_mrrs@yahoo.com, researchscientistrice@aau.in 07573013548, 02692-284278	GAR-14: Aromatic rice growing farmers will have the high yielding improved variety with earliness. Mahisagar: Irrigated transplanted rice growing farmers will have high yielding variety with earliness. Which help to grow rice-vegetable crops, rice-tobacco, rice-pulses cropping sequence.
11	Himachal Pradesh	Hills	HPR2720, HPR2795 and HPR2656 With full package of practices	5	Dr.D.P.Pandey Rice and Wheat Research Centre,CSKHPKV Malan-176047(HP) pandeydp04@yahoo.co.in 9418149787 01892252306 01892252306	Higher productivity and more income due to red rice sell at primium price due to more micronutrient like iron,zinc, manganese etc.
12	Jammu and Kashmir	Irrigated	Basmati- 564 JB-129	20	Dr. Anuradha Saha AICRP on Rice, Division of Plant Breeding and Genetics, SKUAST-Jammu, Chatha, Jammu-180009 anuradha_agron@yahoo.co.in 09419202983	1. Both varieties give more high yield than check variety i.e. basmati-370. 2. Variety B-564 has less duration (10-15 days) and short statured (20-30cm less) which reduces lodging as compared to the check. 3. Variety JB-129 has less duration (15-20 days) and short statured (30-35cm less) which reduces lodging with longer grain length as compared to the check
13	Jammu and Kashmir	Irrigated	SR-4, SR-3, SR-5	40	Dr. Ashaq Hussain (Sr. Scientist Agronomy) Mountain Research Centre foe Field Crops (MRCFC), Shere-e-Kashmir University of Agricultural Sciences and Technology, Khudwani, 192 102	15-20 % yield and income

C. No.	State	Ecosystem	Technologies to be demonstrated	No. Of FLDs (Allotted)	Name and address of nodal officer	Relative advantage
					ahshah71@gmail.com 9906688383 0132238246	
14	Jammu and Kashmir	Irrigated	Latest varieties	10	Dr Ganai, KVK Anantnag	Higher productivity
15	Jharkhand	Rainfed upland	CR Dhan 202, CR Dhan 204, DRR Dhan 42 + Weed Management & DSR	15	Dr B.C. Verma, Dr. S.M. Prasad, Dr. S. Bhagat Dr. Sudarsha Sekhar CRURRS, Hazaribagh bishash.ssac@gmail.com 9863083855, 9065343014	Short duration and suitable for drought regions, Higher yield, resistant to abiotic stress, increased income
16	Jharkhand	Rainfed lowland and mid land	DRR Dhan 42, CR Dhan-310, CR Dhan-311	20	Dr. Binay kumar Singh, senior scientist, ICAR -Indian institute of agricultural biotechnology, Garhkhatanga , Namkum, Ranchi-834010	High yielding under drought stress, high protein in grain
17	Karnataka	Irrigated lowland	Alternate wetting and drying irrigation in transplanted paddy	5	Dr. Denesh, G.R. AICRP on Rice Agronomy, Zonal Agricultural Research Station, V.C. Farm, Mandya PIN 571405 grdenesh@rediffmail.com + 91 9448980134 08232277923	Helps in conserve the natural resources such as water and soil for higher paddy productivity
18	Kerala	Rainfed Low Land (Below Sea Level Farming)	'Pournami' (MO 23)	5	Ambily A.K., Assistant Professor (Plant Breeding & Genetics) Rice Research Station, Kerala Agricultural University, Moncompu – 688 503 Thekkekara P.O., Alleppey District Kerala ambily.ak@kau.in 9495424961 2702245 (0477)	1. Higher yield 2. Lesser duration by 10 days than the popular variety 3. Tolerance to BPH and Gall midge 4. Tolerance to acidity and high temperature stress 1. Higher yield 2. Lesser duration by 10 days than the popular variety 3. Tolerance to BPH and Gall midge 4. Tolerance to acidity and high temperature stress
19	Kerala	Irrigated	Management of weedy rice	5	Dr. Nimmy Jose, Associate Professor (Agron.) Rice Research Station, Kerala Agricultural University, Moncompu – 688 503 Thekkekara P.O., Alleppey District	1. Pre emergence management of weedy rice in infested fields. 2. Reduction in the subsequent emergence of weedy rice from the soil seed bank in the cropped field.

C. No.	State	Ecosystem	Technologies to be demonstrated	No. Of FLDs (Allotted)	Name and address of nodal officer	Relative advantage
					Kerala nimmy.jose@kau.in 9495671971 2702245 (0477)	3. Reduces drudgery in hand weeding of weedy rice. 4. Increases the yield of the crop in the severely weedy rice infested paddy fields.
20	Kerala	Irrigated	Chemical control of major diseases	5	Dr. M. Surendran, Associate Professor (Pl. Path.) Rice Research Station, Kerala Agricultural University, Moncompu – 688 503 Thekkekara P.O., Alleppey District Kerala surendran.m@kau.in surenpath@yahoo.co.in 9447565946 2702245 (0477)	1. The broad spectrum fungicide is controlling the four major diseases. 2. Quality grains and higher yield can be obtained
21	Kerala	Irrigated	Good Agricultural Practices (GAP) for insect pest management in rice	5	Dr. Jyothi Sara Jacob, Assistant Professor (Agrl. Ento.) Rice Research Station, Kerala Agricultural University, Moncompu – 688 503 Thekkekara P.O., Alleppey District Kerala jyothi.sj@kau.in 9526548485 2702245 (0477)	1. Minimizing the use of chemical insecticides 2. Enhancing the biological control of insect pests 3. Encouraging ecofriendly insect pest management tactics
22	Kerala	Irrigated	PTB 61 (Supriya), PTB 62 (Akshaya)	10	Dr Biji, assistant professor (plant breeding and gen) regional agricultural research station, Pattambi, Palakad, kerala-679306, Phone no. 9946912674 biji.kr@kau.in	High yield(7 t/ha) , multiple resistance (blast, sheath rot, whorl maggot), tolerance to moisture stress/high temperature , non lodging, long duration (135-140d)
23	Madhya Pradesh	Semi irrigated	JR 206, Improved Chinnor	40	Dr. Uttam Bisen, college of agriculture/RARS, Balghat Murjhad, Waraseoni, dist. Balaghat, m.p - 481331	High yield Enhance productivity and income
24	Maharashtra	Irrigated	Ratnagiri-8	20	Dr. B.D.Waghmode Principal Scientist and Officer incharge, Agricultural Research Station, Shirgaon-415 629 Ratnagiri	Higher yield
25	Maharashtra	Rainfed	Karjat 10 Karjat 9	30	Drs Mahendra P Gawai, RG Mardane, RL	Higher yield

C. No.	State	Ecosystem	Technologies to be demonstrated	No. Of FLDs (Allotted)	Name and address of nodal officer	Relative advantage
					Kunkerkar, RARS Karjat, M.S. mahendragawai76@gmail.com 09423454447	
26	Manipur	Rainfed lowland Rainfed Upland	CAU R-1, CAU-R3; RC Maniphou 13 Full package of practices	20	Dr. Shashidhar, K. S. Directorate of Research, Central Agricultural University, Lamphelpat, Manipur 795004 shashiuas@gmail.com 9436441477; 7019361166	Replacing the low yielding land races with improved variety
27	Odisha	Rainfed	Newly released Varieties B) CR Dhan 701	50	Mr. Asit Kr Pradhan ICAR- NRRI, Cuttack 753006 asitpradhan20672@gmail.com, gak.kumar26@gmail.com 7827266011(Asit Pradhan), 9437484576 (Head, SSD, NRRI) 0671-2367663	Enhanced productivity and incomeEnhanced productivity and income
28	Odisha	Rainfed Shallow Low Land	Hasanta	30	Sri Mihir Ranjan Mohanty, Junior Breeder-cum-Officer-In-Charge, RRTTSS(OUAT), Jeypore Regional Research and Technology Transfer Sub Station (OUAT), M G Road, Jeypore - 764001, Dist - Koraput ODISHA oicjeypore.ouat@gmail.com oicaicrpricejey.ouat@gmail.com mihirgenetics@gmail.com 9078154995 06854-240569	In Southern part of Odisha BPH is a major problem and variety Hasanta exhibits moderately resistant to BPH.
29	Puduche rry	Coastal Ecosystem	ADT 51	5	Dr.V.Sridevi Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikal -609 603 srideviagr@gmail.com 9344833782	ADT 51 was released from TRRI, Aduthurai which gives enhanced productivity of 10% over the ruling variety CR 1009. However, the variety is not popular among the farmers of Karaikal region, tail end of Cauvery delta zone. The proposed variety ADT 51 was released from TRRI, Aduthurai which gives enhanced productivity of 10%

C. No.	State	Ecosystem	Technologies to be demonstrated	No. Of FLDs (Allotted)	Name and address of nodal officer	Relative advantage
						over the ruling variety CR 1009. However, the variety is not popular among the farmers of Karaikal region, tail end of Cauvery delta zone.
30	Tamil Nadu	Irrigated	Rice CO 53 & Rice CO 52	40	Dr.K.Ganesamurthy Professor&Head Department of Rice Tamil Nadu Agricultural University Coimbatore - 641003 rice@tnau.ac.in 9360339737 0422-2474967	Rice CO 53 is a early duration high yielding drought tolerant rice variety than Anna (R) 4 (14.0% higher yield). In drouht prone districts of Tamil Nadu, by growing this variety farmers get high yield therby production and productivity gets increased. Rice CO 52 is a medium duration, high yielding fine graintype rice variety with 12.0 percent increased yield over BPT 5204. Because of its fine grain type it fetches high price in the market. By growing this variety, the farmers will get more yield and thereby more revenue.
31	Tamil Nadu	Irrigated	ADT 53, ADT 54	30	R. Suresh and D. Sassi Kumar Tamil Nadu Rice Research Institute, Tamil Nadu Agricultural University, Aduthurai-612101, Thanjavur sureshpbg@gmail.com 9489384427	Higher yield
32	Tamil Nadu	Irrigated	Integrated pest Management practices in ADT 54	10	Dr. P. Anandhi, Asst. Professor (Agrl. Entomology) Dr. D. Sassikumar, Associate Professor (PB & G) Tamil Nadu Rice Research Institute, Aduthurai- 612 101 anandhi.aaidu@gmail.com 8903155400 0435 - 2472098 (O) 0435 - 2472881	The new variety is high yielding with good cooking qualities. The variety will be demonstrated against improved White Ponni a popular farmer variety known for good cooking quality but susceptible to neck blast.

C. No.	State	Ecosystem	Technologies to be demonstrated	No. Of FLDs (Allotted)	Name and address of nodal officer	Relative advantage
33	Tamil Nadu	Irrigated	DRR Dhan 50, DRR Dhan 45(Biofortified varieties)	14	Dr. S. Arun Kumar Scientist, Extension Indian Institute of Rice Research Hyderabad 500 030 09246548340 arunswarnaraj@gmail.com (In collaboration with Farmer Producer Organisations)	Higher yield, cost reduction
	Tamil Nadu	Irrigated	ADT 53	10	Dr Sheeba, RRS Tirur (TNAU)	
34	Telangana	Irrigated	DRR Dhan-45, DRR-44, Bina Dhan-17, BRRI-75, JGL-24423 and KNM-118. Direct Sown Rice, Variety+ICM (Integrated Crop Management)	30	Dr. N. Venkateshwar Rao Sr.Scientist and Head, 2. D.Sreenivas Reddy, Scientist (Plant Protection) 3. J. Vijay, Scientist, (Agronomy), PRAKASAM KRISHI VIGYAN KENDRA, JAMMIKUNTA, KARIMNAGAR-505122 Telangana state .	Introducing high yielding new varities and by overcoming labour shortage, timely operations with the effective ICM practices farmers were receiving higher net returns with lesser cost of cultivation.
35	Telangana	Irrigated	JGL24423 (2019)	10	Dr.P.Spandana Bhatt Rice Research Centre, ARI, Rajendranagar, Professor Jayashankar Telangana state Agricultural university Hyderabad, Telangana, 500030 spandana9119@gmail.com psrice2009@gmail.com 9705162962	Increase in yield and increased net returns over existing old varieties
36	Telangana	Irrigated	Sodic soil management, Varadhan for NUE	10	Dr. K. Surekha, principal scientist, soil science, ICAR-IIRR, RAJENDRA NAGAR, Hyderabad-500030, surekhakuchi@gmail.com, 9440963382, 040-24591221, 04024591217	Higher yield , soil quality improvement, residue utilization
37	Telangana	Irrigated	Warangal Rice-1 (WGL-915) Telangana Vari-1 (WGL-739) with complete package	20	Dr.B.Satish Chandra o/o Associate Director of Research Regional Agricultural Research Station, PJTSAU, Warangal-506007, Telangana chandragene@gmail.com 9948990788 0870-2975223	The newly released varieties are having high yielding and possess tolerance to pests and diseases when compare to local varieties

C. No.	State	Ecosystem	Technologies to be demonstrated	No. Of FLDs (Allotted)	Name and address of nodal officer	Relative advantage
38	Telangana	Irrigated	DSR, AWD and Water saving technologies	30	Dr. R. Mahender Kumar Principal Scientist and PI of AICRIP (Agronomy) Crop Production Section ICAR-Indian Institute of Rice Research Rajendranagar, Hyderabad- 500 030 Telangana State (T.S.), India Tel: +91 9440476493	Higher yield and resource conservation
39	Telangana	Irrigated	DRR Dhan 45	10	Amtul Waris ICAR-IIRR Amtul.waris@gmail.com 9959715245 040-24591317	To meet micronutrient needs of vulnerable popuation
40	Telangana/Andhra Pradesh	Irrigated	DRRDHAN45 CRDHAN310 CRDHAN311 CGZR2 ZINCORICE	30	C.N.Neeraja, Ph.D Principal Scientist (Biotechnology) Crop Improvement ICAR-Indian Institute of Rice Research Rajendranagar Hyderabad 500030 Office: +914024591285 Mobile:+919705003663	Nutritional security through biofortified rice technologies
41	Uttarakhand	Hills	VL Dhan 48 (2014)	5	Dr. Jay Prakash Aditya Sr. Scientist, Plant Breeding, ICAR-VPKAS, Almora, Uttarakhand- 263 601 jayprakashaditya@gmail.com	Higher yield, biotic stress tolerance
42	West Bengal	Irrigated Medium / Rainfed Lowland	Variety –Amala, , Bhupesh, Nirmalya, Sukumar, Manisha, Swarna Sugandhi, Gosaba 6, Swarnali . Kanak Other improved technology – Mechaninical DSR, Mechanical Transplanting RCT, BIPM, Organic farming	40	Dr. Sangeet Sekhar Deb, Agronomist Office of the Joint Director of Agriculture (Rice Dev.) Rice Research Station, Chinsurah P.O. – Chinsurah R.S., Dt - Hooghly PIN- 712102. isangeet.sd@gmail.com jdarice1932@gmail.com +91 8420244711 / 9433378200 (WA)	Enhanced productivity & income
43	West Bengal	RSL and upland	Resource conservation technology, SSNM, Weed management in DSR	10	Dr. Malay Kumar Bhowmick, Assistant Agronomist (HQ) Directorate of Agriculture (Govt. of West Bengal), Jessop Building, 1st Floor 63, N. S. Road (Strand	Resource use optimisation

C. No.	State	Ecosystem	Technologies to be demonstrated	No. Of FLDs (Allotted)	Name and address of nodal officer	Relative advantage
					Road Side), Kolkata-700001, West Bengal, India Mob.: 9434239688 / 9830817897 E-mail: bhowmick_malay@rediffmail.com, bhowmickmk@gmail.com	
44	Andhra Pradesh /Odisha / West Bengal	Irrigated	MTU 1155, MTU 1172	20	Dr PV Satyanaryana, Principal Scientist (Rice), Acharya NG Ranga Agricultural University Regional Agricultural Research Station Maruteru-534122 psriceangrau@gmail.com, adr.godavarizone@gmail.com girija_aprri@yahoo.com 9490545888 9490195904	Higher yield
45	Across India		High yielding varieties	125	AICRIP centres	

NB: These are only proposals, but not to be construed as approved. Administrative sanction will be given after getting the approval from DAC. The actual number of FLDs allotted to each centre may vary at the time of administrative approval.

A total of 1000 FLDs of 1 ha each are planned to be conducted during the year in 45 centres. A cafeteria of new and innovative technologies is proposed to be demonstrated in the farmers' fields. Care was taken to consider only recently released varieties and hybrids for demonstration. Instead of focusing on only varietal demonstrations, cooperators were encouraged to organize the FLDs on other technologies also. The proposal will be submitted to the Agricultural Commissioner, Department of Agriculture and Cooperation, Government of India. Once administrative approval is received from the Ministry, the same will be communicated to all the cooperators in due course of time. IIRR will not be responsible if any centre conducts FLDs without proper administrative approval.

ISSUES IN SHARING OF AICRIP TRIALS

All India Coordinated Rice Improvement Project (AICRIP) on Rice was established in 1965 by ICAR to coordinate the multidisciplinary and multiplication testing of varietal, crop protection and crop management technologies across prevailing ecosystems for increasing and stabilizing the ric production in the country. Since then AICRIP multilocation testing program is being organized across the country based on standard guidelines (Ref. J.P. Tandan et al., 2015, ICAR guidelines for testing Crop Varieties under All India Coordinated Crop Improvement Projects, ICAR, New Delhi). Under AICRIP (Rice) the following set of activities are being carried out till today.

As per the discussions/deliberations held in the recently concluded 55th ARGM, the Basmati trials (IVT-BT, AVT1-BT & AVT2-BT) is to be organized/coordinated by IARI, New Delhi and the Rainfed trials i.e., Upland (IVT- E DS, AVT1 E DS, AVT2 E DS) and Lowland (IVT-RSL, AVT1 RSL, AVT2 RSL, IVT SDW, AVT1 SDW, AVT2 SDW, IVT DW, AVT1 DW, AVT2 DW) to be organized/coordinated by ICAR-NRRI, Cuttack and the remaining trails to be organized/coordinated by ICAR-IIRR, Hyderabad. It may be noted that the rainfed ecology trials are spread across the country in all the zones. The Entomology and Pathology scientists of these two institutes will arrange to collect and dispatch the seed material for NSN (National Screening Nursery) trials for generating pest and disease resistance data in centres covered under these regions.

Seed quantities requirement:

For Basmati trials:

- 6 kg per entry to be obtained from the co-operators for each nominated entry, 1 kg each for NSN trial, 6 kg each for agronomy trial (NVT).
- 200-250 gms seed is parked as per the constitution for each entry in the trial while packing the seed for dispatching the trial to centres for conducting the trial.

For Rainfed Upland trials/low land trials:

- 8-10 kg seed per entry to be obtained from the centres, 1 kg each for NSN trials per each entry, 6 kg for Agronomy trials per each entry.
- 200-250 gms of each entry in a trial to be packed.

  Note: By the end of May seed should be with cooperating centre.

  It will be the responsibility of the concerned coordinated centre to carry out the activities of their trials right from receiving new nomination to the report writing. The list of centres which are conducting the rainfed trials and basmati trials is provided in appendices and accordingly the centres will be informed to send the new nomination and seed to NRRI and IARI for rainfed and basmati trials respectively. The various activities involved in coordination of trials are listed below

Along with this guidelines for the following may be considered and suggestions are invited for improving rapid and enhancing efficiency of the AICRIP

- Multiplication of check varieties (NC, ZC, LC)
- Nomination of test entries by plant breeders at AICRIP centres
- Despatch of nominated entries by centre to the main centre of coordination
- Trial constitution
- Assigning IET numbers to entries – it should be at one place, preferably at ICAR-IIRR
- Checking seed purity of test entries
- Sharing test entries in 1st year, 2nd year and 3rd year of testing with Entomology and Pathology divisions for constituting NSN-1 and NSN-2 against Pests and Diseases.
- Sharing test entries in 3rd year of testing with Agronomy Division for constituting Nutrient Variety Trial
- Seed Packing
- Seed distribution to various test centres
- Conducting monitoring tours
- Fund allocation to funded centres and contingencies to voluntary centres
- Data receipt from centres
- Statistical analysis of data
- Grain Quality analysis
- Preparation of Promotion & Deletion report
- Report writing
- Presentation of AICRIP results
- Conducting Varietal Identification Committee (VIC) meeting for identifying promising entries for further release by CVRC/SVRC.

Appendix - A

Rainfed Upland Locations:

1. Banswara
2. NRRI, Cuttack
3. Jeypore
4. Pusa
5. Sabour
6. Ranchi
7. Hazaribag
8. Gharkatanga
9. Hathwara
10. Bankura
11. Masodha
12. Lembucherra
13. CAU, Imphal
14. Rewa
15. Raipur
16. Jagadalpur
17. Derol
18. Vyara
19. Coimbatore
20. Tirur
21. Mugad

Rainout shelter locations:

1. Hazaribag
2. Raipur
3. Coimbatore

Rainfed upland location address:

1.	Banswara	Rice Breeder, Plant Breeding & Genetics Department, Agricultural Research Station, (Maharana Pratap University of Technology), Dohad Road, P.B. No. 25, Borwat Farm, Banswara - 327001, Rajasthan; 02962-260070 (O), 02962-260013 (F).
2.	Cuttack	Dr. B.C. Patra, Principal Scientist & I/c, Crop Improvement Division, ICAR- Central Rice Research Institute, Cuttack-753 006, Odisha, 09937171699 (M), bcpatracrri@yahoo.com
3.	Jeypore	Sri Mihir Ranjan Mohanty,Junior Breeder-cum-Officer-In-Charge, RRTTSS (OUAT), M.G.Road, Jeypore-764001, Koraput, Odisha 06854-240569(O), 09078154995(M) mihirgenetics@gmail.com oicjeypore.ouat@gmail.com oicaicrpricejey.ouat@gmail.com
4.	Pusa	Dr. N.K. Singh, Chief Scientist (Rice), Dept of Plant Breeding, Dr. Rajendra Central Agril.University, Pusa-848125,Samastipur, Bihar 06274-240255 (F), 06274-240947 (R), 09431834065 (M) , nksingh_1958@yahoo.com
5.	Pusa	Dr. M.K.Singh, Assistant Professor, Dept. of Plant Breeding & Genetics, Co-PI, AICRIP, Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur-848125, Bihar, 8986590206, 7983312594 (M). mithileshgpb@gmail.com
6.	Sabour	Dr. Suresh Prasad Singh, Rice Breeder, Dept. of Plant Breeding and Genetics, Bihar Agricultural College, Bihar Agricultural University, Sabour, Bhagalpur-813 210, Bihar, 0641-2451254 (O), 9472060575 (M) sps2007bau2011@gmail.com
7.	Ranchi	Dr. Krishna Prasad, Rice Breeder, Dept. of Plant Breeding & Genetics, Birsa Agricultural University, Kanke, Ranchi, Jharkhand- 834006, 06151-2450625 (O), 09934199128 (M), krishna_dumka@yahoo.co.in krishnachamera@gmail.com
8.	Hazaribagh	Dr. N. P. Mandal, Principal. Scientist (Plant Breeding), CRURRS (ICAR-NRRI), Post Box- 48, Hazaribag-825 301, Jharkhand 06546-222263

		(O),06546-224506 (R) 09430391164(M), 06546-223697 (F) npmandal@hotmail.com , nimai.mandal@gmail.com
9.	Garhkhatanga	Dr. Vijaipal Bhadana, Principal Scientist, ICAR-Indian Institute of Agricultural Biotechnology, PDU Campus, IINRG, Namkum, Ranchi-834010, 9490729918 (M), bhadanavijai@gmail.com
10.	Hathwara	Dr. Uday Sankar Ray , Assistant Botanist, Zonal Drought Resistant Paddy Research Station, Dept. of Agriculture, Govt. of West Bengal, Hathwara, P.O : V. Nagar, Purulia-723 147, West Bengal, 03252-201191 (O),08900606271(M) zdrprs@gmail.com uday_rmp@rediffmail.com
11.	Bankura	Dr. Vivekananda Mandi, Assistant Botanist, Rice Research Station, Nutanchati P.O., Bankura – 722101, West Bengal, 03242-251306 (O), 9564697908 (M), rrsbankura@gmail.com
12.	Imphal, CAU	Dr. (Mrs.) Sonika Yumnam, Scientist (Plant Breeding), AICRIP on Chickpea & I/c AICRIP (Rice), Directorate of Research, Central Agricultural University, Lamphelpat, PIN- 795004, Imphal, Manipur , 8730007376 / 8787674900 (M), sonikayumnam@gmail.com drcau@yahoo.com
13.	Masodha	Dr. D.K.Dwivedi, Office Incharge/ Professor (Genetics & Plant Breeding), Crop Research Station, Masodha (NDUA &T), Dabhasemar, Faizabad, PIN- 224 133, U.P, 07706884188, 07992075842 (M), aicripmasodhafzd@gmail.com
14.	Masodha	Dr. Saurab Dixit, Senior Rice Breeder, Crop Research Station, NDUA&T, Masodha , P.O. Dabhasemar, Faizabad, PIN- 224 133, UP 05278-254153 (O), 09450763002 (M) saurabhnduat@gmail.com
15.	Lembucherra	Dr. S. P. Das, Principal Scientist, Division of Plant Breeding, ICAR-Research Complex for NEH Region, Tripura Centre, Lembucherra-799210 - West Tripura, 0381-2865203 (O), 0381-2865537 (F), 09436450747 (M), drspdas@gmail.com
16.	Raipur	Dr. A.K .Sarawgi, Professor & Head, Dept. of Genetics and Plant Breeding, College of Agriculture, Indira Gandhi Krishi Vishwavidyalaya, Krishak Nagar, Raipur- 492 012, 09425507284(M), sarawgi1@yahoo.co.in
17.	Raipur	Dr. S.K.Nair, Senior Scientist & Biodiversity, Dept. of Genetics and Plant Breeding, College of Agriculture, Indira Gandhi Krishi Vishwavidyalaya, Krishak Nagar, Raipur– 492012 Chhattisgarh, 9826192630 (M), sunil_ryp@yahoo.com sunil.aadya@gmail.com
18.	Raipur	Dr. Deepak Gauraha, Scientist (GPB), AICRIP on Rice, Department of Genetics & Plant Breeding, College of Agriculture, Indira Gandhi Krishi Vishwavidyalaya, Krishak Nagar, Raipur- 492 012, Chhattisgarh, 0771 2442352 (O), 09424217252 (M) dgauraha@yahoo.co.in
19.	Raipur	Dr. Abhinav Sao, Scientist (GPB), Dept. of Genetics & Plant Breeding, College of Agriculture, Indira Gandhi Krishi Vishwavidyalaya, Krishak Nagar, Raipur-492012, Chhattisgarh, 08839199972 (M), saoabhi27@yahoo.co.in
20.	Rewa	Dr. P. Perraju, Senior Rice Breeder, College of Agriculture (JNKVV), Rewa-486004, Madhya Pradesh, 07662-220732(O), 07662-221014(R), 09827681203 (M), perraju.p@rediffmail.com

21.	Jagdalpur	Dr. Sonali Kar, Scientist (PB), SG College of Agricultural and Research Station (IGKV) Kumhrawand, JAGDALPUR – 494 001, Bastar District., Chhattisgarh, 07782-229360 (O), 09424282716(M), sonalikar31@gmail.com
22.	Jagdalpur	Sh. Raja Ram Kanwar, Scientist (PB), SG College of Agricultural and Research Station (IGKV) Kumhrawand, JAGDALPUR – 494 001, Bastar Dist., Chhattisgarh,
23.	Derol	Dr. R.G. Machhar, Assoc. Res. Scientist, Agricultural Research Station (Anand Agricultural University) Derol-389320, Tq. Kalol, Dist. Panchmahal Gujarat, 02676- 235528 (O), 09427019132 (M), arsderol@gmail.com arsderol@aau.in
24.	Vyara	Dr. Vipul P. Patel, Associate Research Scientist (PB), Regional Rice Research Station, Navsari Agricultural University, Vyara-394650, District Tapi, Gujarat, 02626-220212 (O) , 02637-651344 (R),08469417374 (M), 02626220212 (F), vppatel13@gmail.com, rrrsvyara@yahoo.in
25.	Coimbatore	Dr. K.Ganesamurthy, Professor (Plant Breeding) & Head, Department of Rice, Centre for Plant Breeding and Genetics, Tamil Nadu Agricultural University, Coimbatore-641 003, Tamil Nadu, 0422-2474967 (O), 0422-6611415 (F), 09360339737(M), rice@tnau.ac.in
26.	Coimbatore	Dr. R.Saraswathi, Professor, Hybrid rice breeder, Department of Rice, TNAU, Coimbatore-641 003, TN, 09894561745 (M), sarasrice2004@yahoo.co.in
27.	Coimbatore	Dr. R. Pushpam, Associate Professor, Department of Rice, TNAU, Coimbatore-641 003, TN, 09790471067 (M), rice@tnau.ac.in pushpamtnau@gmail.com
28.	Mugad	Dr. S.C.Talekar, Asst. Profressor (GPB), AICRP on Rice, Agricultural Research Station, Mugad-580 007, Karnataka 0836-2786643 (O), 9741105926 (M), talekarsc@uasd.in aicrpricemugad@uasd.in siddu.talekar@gmail.com
29.	Tirur	Dr. A.Sheeba, Assistant Professor (PB&G), Rice Research Station, Tirurkuppam, Tirur (Post), Tiruvallur District, Tamil Nadu-602 025, 044-27620233(O), 044-27620383 (F), 09842005221(M), sheebateddy@gmail.com

Early Direct Seeded Checks:

National Check : Sahbhagidhan & Vandana
Zonal Check : Anjali (For all zones), Govind (Northern), Narendra 97 (Eastern & North Eastern), Samaleshwari (Central), Varalu (Western) and Tulasi (Southern)
Sensitive Check : Gangavathi Ageti
Local Check :

Appendix - B

Rainfed Lowland locations:

a) **Rainfed Shallow Lowland**:

1. Bhubaneswar
2. NRRI, Cuttack
3. Jeypore
4. Bikramganj
5. Pusa
6. Ranchi
7. Chinsurah
8. Bankura
9. Masodha
10. Ghaghraghat
11. Titabar
12. Gerua
13. Maruteru
14. Mugad
15. Sirsi
16. Ponnampet

b) Semi deep water :

1. Bhubaneswar
2. NRRI, Cuttack
3. Pusa
4. Chinsurah
5. Bankura
6. Masodha
7. Varanasi
8. Ghaghraghat
9. Titabar
10. Gerua
11. Maruteru

c) Deep Water:

1. NRRI, Cuttack
2. Pusa
3. Chinsurah
4. Masodha
5. Ghaghraghat
6. Titabar
7. Gerua

Rainfed Lowland location address:

1.	Bhubaneswar	Dr. D. N. Bastia, Professor & Rice Breeder, Dept. of Plant Breeding & Genetics, College of Agriculture, O.U.A.T, Bhubaneswar-751 003, 0674-2397780 (F), 09861106427(M), debendranath.bastia@gmail.com
2.	Cuttack	Dr. B.C. Patra, Principal Scientist & I/c, Crop Improvement Division, ICAR-Central Rice Research Institute, Cuttack-753 006, Odisha, 09937171699 (M), bcpatracrri@yahoo.com
3.	Jeypore	Sri Mihir Ranjan Mohanty,Junior Breeder-cum-Officer-In-Charge, RRTTSS (OUAT), M.G.Road, Jeypore-764001, Koraput, Odisha 06854-240569(O), 09078154995(M) mihirgenetics@gmail.com oicjeypore.ouat@gmail.com oicaicrpricejey.ouat@gmail.com
4.	Bikramganj (Patna)	Dr. Ashok Kumar Singh, Sr. Scientist-cum Assoc. Professor, (Rice Breeding), Botanical Research Unit (BRU), BAU, DHANGAIN-802 212 P.O.-Bikramganj, Distt.-Rohtas, Bihar, 09835906354 (M), aksinghrau@gmail.com aicripricebrudhangain@gmail.com
5.	Pusa	Dr. N.K. Singh, Chief Scientist (Rice), Dept of Plant Breeding, Dr. Rajendra Central Agril.University, Pusa-848125,Samastipur, Bihar 06274-240255 (F), 06274-240947 (R), 09431834065 (M) , nksingh_1958@yahoo.com
6.	Pusa	Dr. M.K.Singh, Assistant Professor, Dept. of Plant Breeding & Genetics, Co-PI, AICRIP, Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur-848125, Bihar, 8986590206, 7983312594 (M). mithileshgpb@gmail.com

7.	Ranchi	Dr. Krishna Prasad, Rice Breeder, Dept. of Plant Breeding & Genetics, Birsa Agricultural University, Kanke, Ranchi, Jharkhand- 834006, 06151-2450625 (O), 09934199128 (M), krishna_dumka@yahoo.co.in krishnachamera@gmail.com
8.	Chinsurah	Dr. Partha Roy Chowdhury, Joint Director of Agriculture (Rice Development), Rice Research Station, Govt. of West Bengal, Chinsurah, Hooghly-712102, West Bengal, 033-26861149, 033-26862484 (O), jdarice1932@gmail.com parthaenergy@gmail.com
9.	Chinsurah	Dr. Bijan Adhikari, Senior Rice Breeder, Rice Research Station, Govt. of West Bengal, Chinsurah, Hooghly-712102, West Bengal, 09433643509(M), adhikaribijan@gmail.com
10.	Chinsurah	Dr. Rajib Das,Asst. Botanist, Rice Research Station, Govt. of West Bengal, Chinsurah, Hooghly-712102, West Bengal.
11.	Chinsurah	Mr. Sumit Murmu, Assistant Botanist, W.B.A.S. (Research) I/C, S & FRPRS, Rice Research Station, Govt. of West Bengal, Chinsurah, Hooghly-712 102, West Bengal, 09007256755 (M), murmu.sumit@gmail.com
12.	Chinsurah	Dr. Mitali Chatterjee, Assistant Botanist, W.B.A.S. (Research), Rice Research Station, Govt. of West Bengal, Chinsurah, Hooghly-712 102, West Bengal, mitali..mchatterjee@gmail.com
13.	Chinsurah	Dr. Suman Debnath, Assistant Botanist, W.B.A.S. (Research), Rice Research Station, Govt. of West Bengal, Chinsurah, Hooghly-712 102, West Bengal, 09933739365 (O), sumandebnath.agri@gmail.com
14.	Chinsurah	Dr.Suparna Gupta, Assistant Botanist, W.B.A.S. (Research), Rice Research Station, Govt. of West Bengal, Chinsurah, Hooghly-712 102, West Bengal drsuparnagupta12@gmail.com
15.	Bankura	Dr. Vivekananda Mandi, Assistant Botanist, Rice Research Station, Nutanchati P.O., Bankura – 722101, West Bengal, 03242-251306 (O), 9564697908 (M), rrsbankura@gmail.com
16.	Masodha	Dr. D.K.Dwivedi, Office Incharge/ Professor (Genetics & Plant Breeding), Crop Research Station, Masodha (NDUA &T), Dabhasemar, Faizabad, PIN-224 133, U.P, 07706884188, 07992075842 (M), aicripmasodhafzd@gmail.com
17.	Masodha	Dr. Saurab Dixit, Senior Rice Breeder, Crop Research Station, NDUA&T, Masodha , P.O. Dabhasemar, Faizabad, PIN- 224 133, UP 05278-254153 (O), 09450763002 (M) saurabhnduat@gmail.com
18.	Ghaghraghat	Dr. Nitendra Prakash, Rice Breeder, Crop Research Station, P.O. Jarwal Road, Bahraich, Ghaghraghat-271901, Uttar Pradesh 05251-225481 (O) ,05262-224669 (R), 09415160709 (M), nitendra63@yahoo.co.in
19.	Titabar	Dr. Sanjay Kumar Chetia, Principal Scientist, Regional Agricultural Research Station, (Assam Agricultural University) Titabar, Assam – 785630, 03771-248453(O), 09435096506 (M), sanjaykumarchetia@gmail.com
20.	Titabar	Mr. Janardan Das, Jr. Scientist, PBG, RARS (AAU), Titabar, Assam-785630, 9577373867 (M), janardan.das@aau.ac.in janardand03@gmail.com
21.	Gerua	Dr. R. Bhagawati, Principal Scientist & Officer In-charge, ICAR-NRRI RRLRRS, Gerua, Hajo, Kamrup -781102, Assam, 0361-2820334 (O), 0361-2820370(F), rbhagawati@rediffmail.com
22.	Gerua	Mr. Surendra Kumar Ghritlahre, Scientist (PB & G), Regional Rainfed Lowland Rice Research Station, Gerua, P.O. – Hajo, Assam-781102; 91-361-2820334 (O), 91-361-2820370 (F), 07670099132 (M), surenpb2008@gmail.com
23.	Maruteru	Dr. P.V. Satyanarayana, Principal Scientist (PB), AICRIP on Rice & PS (Rice), Regional Agricultural Research Station, Maruteru-534122, West Godavari

		District, Andhra Pradesh, 08819-246848 (R), 9490545888 (M), satya_rice@yahoo.com, rarsmtu@yahoo.com adr.godavarizone@gmail.com
24.	Maruteru	Dr. B.N.V.S.R. Ravi Kumar, Senior Scientist (PB), AICRIP on Hybrid Rice, RARS, Maruteru-534122, West Godavari District, A.P., 9866649495(M) ravibnvsr@gmail.com
25.	Maruteru	Dr. P. Venkata Ramana Rao, Senior Scientist (PB), AICRIP on Rice, RARS, Maruteru-534 122, West Godavari District, A.P, 09440441922 (M), pvrgene@gmail.com
26.	Maruteru	Dr. N. Chamundeswari, Senior Scientist (PB), RARS, Maruteru-534 122, West Godavari District, A.P, 09440275608 (M), narne_chamundeswari@rediffmail.com
27.	Mugad	Dr. S.C.Talekar, Asst. Profressor (GPB), AICRP on Rice, Agricultural Research Station, Mugad-580 007, Karnataka 0836-2786643 (O), 9741105926 (M), talekarsc@uasd.in aicrpricemugad@uasd.in siddu.talekar@gmail.com
28.	Sirsi	Dr. P. Surendra, Principal Scientist (GPB), Agricultural Research Station, Banavasi Road, Sirsi- 581 401, Uttara Kannada, Karnataka, 092422 81402 (M), psurendra63@gmail.com
29.	Ponnampet	Dr G.N. Hosagoudar, Junior Rice Pathologist, Agricultural & Horticulture Research Station, Ponnampet- 571216, Kodagu (Dist), Karnataka-571216, 08274249156 (O), 9480838987 (M), gnhosagoudar@rediffmail.com
30.	Varanasi	Prof. R.P.Singh; Principal Rice Breeder, AICRIP, Dept. of Genetics and Plant Breeding, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi-221005, Uttar Pradesh, 0542-6702545 (O), 0542-2369036 (F), 08004930515 (R), 09838464343 (M), , ravi_piyush@rediffmail.com
31.	Varanasi	Dr. S.Jayasudha, Assistant Professor, Dept. of Genetics and Plant Breeding, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi-221005, 09880034400 (M), jkomalaster@gmail.com

Rainfed Lowland Checks:

a) Rainfed Shallow Lowland:

National Check **:** Swarna Sub-1
Zonal Check : Pooja (Eastern), Bahadur (North Eastern), Savitri (Southern)
Hybrid Check : PA 6444
Local Check **:**

b) Semi Deep Water:

National Check **:** CR Dhan 506
Zonal Check : Purnendu (Eastern & North Eastern), MTU 1172 (Southern)
Local Check **:**

c) **Deep Water:**

National Check **:** CR Dhan 500
Zonal Check : Dinesh
Local Check **:**

Appendix - C

Basmati Locations:

1) IARI, New Delhi
2) Ludhiana
3) Rauni
4) Gurdaspur
5) Kapurthala
6) Kaul
7) Pantnagar
8) Nagina
9) BEDF, Modipuram
10) SVBPUA&T, Meerut
11) CSSRI, Karnal
12) Khudwani
13) Chatha
14) Malan

Basmati Trial Checks:

Pusa Basmati-1 (Yield Check)
Pusa Basmati 1121 (Yield & Quality Check)
Taroari Basmati (Quality Check)
Pusa RH 10 (Hybrid Check)
Local Check

Basmati Location Address:

1	New Delhi	Dr. Gopala Krishnan, Senior Scientist (Rice Breeding) Division of Genetics, ICAR-Indian Agricultural Research Institute (IARI), Pusa, New Delhi-110012, 011-25843550 (R),09873545505 (M), gopal_icar@yahoo.co.in krish.icar@gmail.com
2	Ludhiana/ Gurdaspur/ Rauni/ Kapurthala	Dr. G. S. Mangat, Senior Rice Breeder & Head, Dept. of Plant Breeding & Genetics, Rice Section, Punjab Agricultural University, Ludhiana-141 004, Punjab 0161-2401960 extn 423 (O), 0161-2409891 (F),0161-2400770 ® 09814516464 (M), mangatgs2005@yahoo.co.in gsmangat-pbg@pau.edu
3	Kaul	Dr. Khushi Ram, Sr. Rice Breeder; CCS HAU Rice Research Station, Kaul (Kaithal)-136 021, Haryana, 01746-254550 (O),01746-254946 (F), 09813136867(M), khushirambattan60@yahoo.com
4	Pantnagar	Dr. Indra Deo Pandey, Professor/ Principal Rice Breeder , Department of Genetics and Plant Breeding, College of Agriculture, GBPUA&T, Pantnagar-263 145, Distt.- U.S. Nagar, Uttarakhand 05944-233210 (O), 05944-233473 (F), 05944-235279 (R), 08755790584, 07467032941 (M), idpandey2005@rediffmail.com
5	Nagina	Dr. Rajendra Singh, PI & Rice Breeder (AICRIP), SVPUA&T Rice Research Station, Nagina, Bijnor, Uttar Pradesh-246762, (O) 01343-250271, 01343-250271 (F), 07017089688(M), malik_zrsnagina@rediffmail.com malikngn@gmail.com
6	BEDF, Modipuram	Dr. Ritesh Sharama, Principal Scientist, Basmati Export Development Foundation, Roorkee Road, Modipuram, MEERUT – 250 110, Uttar Pradesh 09412705048 (M),0121-2888554 (O) riteshbedf5048@gmail.com
7	Meerut	Dr. L.K. Gangwar, Professor & Head, Dept. of Genetics & Plant Breeding, College of Agriculture, SVPUAT, Meerut-250110, Uttar Pradesh, 0121-2888518(O), 0121-2888505 (F), 9411957307 (M) , gangwarlk@gmail.com hod.gpb.svbp@gmail.com

8	Karnal	Dr. Krishna Murthy, S. L., Scientist (Plant Breeding), Division of Crop Improvement , ICAR-Central Soil Salinity Research Institute (CSSRI), Kachwa Road, Karnal-132001, Haryana 0184-2291218 Ext.216 (O), 08053726399 (M), krishnagene@gmail.com kmurthy@cssri.ernet.in,
9	Khudwani	Dr. N.R. Sofi, Sr. Scientist, PBG AICRIP, Rice, Mountain Research Centre for Field Crops (SKUAST-K), Khudwani, Anantang – 192 102 Kashmir. (F) 01931-238246. 09419040582 (M) najeeb_sofi@rediffmail.com
10	Chatha	Dr. Bupesh Kr Sharma, Junior Scientist (PBG) –AICRIP, Division of Plant Breeding Genetics, SKUAST-J, Chatha, Jammu-180009 (J&K) 09419171543(M), bupeshsharma@gmail.com
11	Malan	Dr. Neelam Bhardwaj, Scientist, Rice & Wheat Research Centre, CSKHPKV, Malan (Kangra) -176 047, HP, 9816743729 (M), neenabhardwaj@gmail.com
12	Malan	Dr. D.P. Pandey, Principal Scientist (Plant Breeding), Rice & Wheat Research Centre, CSKHPKV, Malan (Kangra) -176 047, HP 01892-252306 (O), 09418149787 (M), pandeydp04@yahoo.co.in

RECOMMENDATIONS & ACTION POINTS

DDG Dr T.R. Sharma while deliberating the plenary session invited expert comments to be included in the proceedings which are appended here under.

COMMENTS OF EXPERTS

Way Forward of AICRIP :- Need for new initiatives:

The mean productivity of rice in India is pulled down by a low productivity in specific areas (specific regions) like the Eastern India, Orissa and parts of West Bengal. Predominantly due to some specific abiotic constraints, the yields realized in these areas are low.

In Eastern India even in Chhattisgarh and nearby areas where upland rice is the major rice ecosystem, is effected by moisture stress and other accompanying environmental factors. In Orissa and parts of North East, low-light stress constrains the productivity. These two major constrains requires a highly concerted efforts to improve the productivity by reducing the gap between potential and realized yields.

In potential productivity areas in river deltas of South India, due to climate change scenario and the greater demand for water in urban areas adequate water becoming a major constraint. We need technologies to save irrigation water without compromising the potential yields both in Kharif and Rabi. Improving the productivity of direct-seeded aerobic rice is an option to save irrigation water. The aim should be to reduce 50% of water input.

In several parts of Andhra, Karnataka, Tamilnadu and delta areas and also in Punjab, the yields realized are very high. The contributions coming from these areas can be further increased only by enhancing the yield potential of rice. This necessitates to break the yield plateau which can be addressed by a comprehensive program.

There are other aspects which require specific attention like increasing the nitrogen use efficiency, water use efficiency, micro-nutrient acquisition efficiency, etc.

Around 60-65% of daily protein requirement met from the cereals. From this context, improving the quantity and quality of rice proteins has relevance and requires comprehensive approach.

Finally, the quality aspects of the rice seeds especially the enrichment of micronutrients in the endosperm as indicated by DDG is a highly relevant area of research.

We can also list out a few biotic features in endemic areas.

To address many of these constraints affecting the productivity level and quality, we need to tap the gene pool from germplasm and land races using comprehensive phenomics and genomics approaches. One of the crucial deviations needed at this juncture is to **conceptualize and adopt trait based breeding instead of breeding for yield**. Phenomenal progress has been made in recent years in identifying relevant mechanism

and traits (primary, secondary and even integrated traits),for many of the plant processes like abiotic stress tolerance, yield potential, processes related to nutrient acquisition, etc. Identifying these traits and identifying the donors (from germplasm and wild relatives) for introgression and adapting the genomics in terms of sequencing information of these accessions could be a crucial step. Another major limitation at present in ACRIP programs is lack of infrastructure for precise phenotyping of the traits of interest in a high throughput manner. Recent initiatives from other funding agencies like DBT, IRRI are likely bring the phenomenal genomic information in terms of sequencing data of these germplasm and land races. In the genomics era, to exploit rich gene pools of land races, phenotyping is going to play a crucial role. Slowly but emphatically one should address this issue in important crop centers.

With this background, we need new initiatives:

There is need for us to debate and address certain policy issues in terms of functional deviation from the on-going present structured research programs of the ACRIP and rice institutes. No doubt that the on-going programs have phenomenal relevance; however, there is a need to deviate from conventional discipline-based programs and initiate "PROGRAM-BASED RESEARCH". This concept of multi-disciplinary approach to address a specific problem is well conceived by many international and even national organizations.

The "PROGRAM-BASED RESEARCH" should be confined to specific location/s where the problem exists and it is a multi-disciplinary with breeders, soil scientists, agronomists, physiologists, etc. It is necessary to debate whether 30-40% of the time of the scientists can be earmarked for PROGRAM-BASED RESEARCH. Besides, the internal expertise, interactions with centers of excellence in specific areas with genomic resources and phenotypic infrastructure is crucial to bring in more rigor. In principal if we agree to initiate **"PROGRAM-BASED RESEARCH"**, we can brain storm to crystallize the logistics.

SOME OBSERVATIONS AND SUGGESTIONS ON THE PHYSIOLOGY PROGRAM

1. Multiple stress tolerance (MST) – Needs comprehensive approach

Occurrence of MST in many places makes it relevant.

There are specific tolerance mechanisms for different stresses (drought, salinity, heat and submergence) and there are mechanisms which are common across these stresses. The mechanisms common to these stresses by and large are: cellular level acquired tolerance mechanisms. Some of these mechanisms are well elucidated in recent years. However, there are several specific mechanisms for each stress which are to some extent are constitutive like roots, water use efficiency (WUE), stomata, plant architecture, phenology, etc.

Therefore, the major task is to decipher the common and specific traits and develop screening protocols to identify the elite material amongst the entries. Besides identifying

superior germplasm with MST for specific traits is relevant even though they are not high yielders.

Inference:
Traits/mechanism associated with MST needs to be reviewed as discussed above. Besides crucial aspect is developing high throughput phenotyping protocols for these traits.

2. Combined Drought and Heat stress in rice

Under field conditions drought and heat stress co-occur. Combined stress responses to drought and temperature is complex than individual stresses especially at the productive stage. First step is to precisely impose the combined stress and subsequently phenotype the relevant traits to assess the variability and response. Adapting rain out shelters (ROS) and staggered sowing emerged as a fairly good approach to assess the initial response of the phenotypes/germplasm.

Inference:
Needs to initiate focused programs on combined stress effect of drought and high temperature – emphasis is on precise combined stress imposition and phenotype for response and traits.

3. Drought studies – Major issue in upland rice and even aerobic rice

a. More reliable data on drought response of the entries can be obtained only by using rain out shelters (ROS) with well-designed stress imposition protocols. At least few centers should be equipped with these facilities/infrastructure.

b. Indices approach is relevant and this concept is fairly well used by the physiology group. But the analysis is confined to yield.

   Besides for yield DSI for other traits like biomass, leaf area, phenology and yield attributing traits etc provides insight in genotypic response and also to identify the tolerant donors from the entries and germplasm for the relevant adaptive traits.

c. Elite lines that are being screened for drought response and more specifically the germplasm lines, it is necessary to phenotype for drought adoptive traits both constitutive and acquired. The major thrust now is trait based breeding to introgress relevant traits for enhanced adaptation.

d. Unlike the constitutive traits, acquired tolerant traits are difficult to phenotype and map, but these traits are crucial to improve drought adaptation. An improvised phenomics platform to precisely impose the stress similar to all the genotypes is necessary to study the genotypic response to drought at given stress level and to capture genetic variability in drought tolerant traits and map them. Keeping in view the importance of rice, a low cost phenomics platform on lines established at UAS-Bengaluru may be considered for establishment at Hyderabad/Cuttack.

Inference:

- Precise evaluation of drought response of entries using ROS is relevant and important.
- Drought indices needs to extended to other growth traits besides yield.
- It is essential to phenotype the drought adaptive traits besides yield under stress.
- To capture genetic variability in acquired tolerance mechanisms needs new phenomics technologies, there is a need to consider a low-cost phenomics platform on lines at UAS-Bengaluru, either at Hyderabad/Cuttack, to assess precisely response to drought and capture genetic variability in acquired tolerant traits.

4. Trait base breeding is crucial for improving abiotic stress tolerance

The major emphasis globally in recent years is to conceptualize and adapt trait based breeding instead of breeding for yield. Phenomenal progress has been made in recent years in identifying relevant mechanisms and traits (primary, secondary and even integrated traits), for many of the plant processes like abiotic stress tolerance, yield potential, processes related to nutrient acquisition, etc. Identifying these traits and identifying the donors (from germplasm and wild relatives) for introgression is highly relevant.

Inference:

Need for trait based breeding especially for abiotic stresses instead of breeding for yield per se.

There is global consensus on this concept.

5. Genomic and phenotyping approaches to access resistant gene pools

Donors for the different tolerant traits are even for yield potential etc has to be accessed from land races. In this regard, Genomic initiatives by IRRI (3k sequenced lines) and our own initiatives by Dr. AK Singh and Dr. Kuldip Singh regarding Indian land races has phenomenal importance and relevance.

Physiologists and other groups of rice program should participate in this initiative mainly by phenotyping the selected sequenced land races and other genotypes for important traits in specific locations. Drought resistant traits, nutrient acquisition besides crop growth traits are relevant.

Inference:

New initiatives are being made to exploit genomic information (sequencing information) of land races.AICRP programs should participate in the initiative to phenotype for specific traits/mechanisms.

Genomic selection

To achieve rates of genetic gain in crop improvement needed to strengthen and stabilise food security, modern technologies must be adopted and implemented. One promising approach is genomic selection (GS),where the performance of new lines is predicted based on genome-wide information (Meuwissen*et al*. 2001). This facilitates in assembling a larger number of favourable alleles into a new variety (Hickey *et al.* 2017).

Large scale implementation of GS has high potential for significant increases in genetic gain, but might by cost prohibitive for public institutions (Santantonio*et al*. 2020). However, a cost-effective rapid-cycle recurrent selection approach for which a beginning can be made by routinely genotyping lines that enter variety development pipeline (VDP) has been demonstrated in a proof-of-concept publication (Santantonio*et al.* 2020). This would facilitate generating dataset utilising the elite genotypes (breeding lines) that enter VDP in the conventional breeding programme for routinely genotyping them. This dataset can serve to train prediction models for implementing GS strategy as a first step in the absence of historical data. It is essential that the required advanced breeding informatics system (including biometrical, and quantitative genetics as well as bioinformatics) coupled with computational infrastructure.

Hickey,J. M., Chiurugwi, T., Mackay, I., *and***Powell, W.** *(2017). Genomic pediction unifiesanimal and plant breeding programs to form platforms for biological discovery. Nat Genet 49:1297–1303.*

Meuwissen, T. H., Hayes, B. J. *and* ***Goddard, M. E.*** *(2001). Prediction of total genetic value using genome-wide dense marker maps. Genetics 157, 1819–1829.*

Santantonio. et al.*2020. Strategies for effective use of genomic information in cropbreeding programmes serving Africa and South Asia. Front Plant Sci. 11, article 353.*

N.B.: *Dr. Rajeev K. Varshney, a coauthor of the last publication is available at ICRISAT, who can be consulted for further information, if needed.*

Use of artificial intelligence

Artificial intelligence techniques provide opportunities to speed up agriculture. This technology has wide applications in phenotyping, yield predictions, genomics and molecular biology etc.

Monitoring genetic purity of seeds used in various experiments is a primary concern. Inadvertent use of wrong seeds in such studies result in disastrous conclusions. A deep-learning-based approach already devised for image-based identification of an experimental set (numbering 10) of different basmati rice genotypes (narrow range of variations)with satisfactory level of accuracy has been demonstrated (Sharma *et al.* 2020). The earlier tools based on genetical or molecular techniques are time consuming and expensive The image-based tool would also be useful for application to larger sets of rice genotypes.

Initially, the required dataset need to be developed for designing artificial intelligence-based technique for developing the required algorithm (well-defined computer-implementable instructions) training on the dataset and validating it with real life datasets.

Sharma, A., Satish, D., Sharma, S. *and* ***Gupta, D.*** *2020. iRSVPred: A web server for artificial intelligence based prediction of major basmati paddy seed varieties. Front. Plant Sci, 10, article 1791.*

N.B.: *Dr. Dinesh Gupta (dinesh@icgeb.res.in), the corresponding author of this article is available at Translational Bioinformatics Group, International Centre for Genetic Engineering and Biotechnology, ArunaAsaf Ali Marg,New Delhi, India who may be contacted for further information, if needed.*

RECOMMENDATIONS

GENERAL RECOMMENDATIONS

- ✓ Need to rationalize our rice production system to provide avenues for crop diversification utilizing Production oriented survey information on consumption pattern of rice throughout the country and should help in guiding policy makers in the country.
- ✓ AICRIP experiments needed to be conducted seriously and sincerely. Solid data based on scientific inputs should be generated by the centres and if any centre was not serious enough in conducting and reporting the experiments/ trials very seriously those centres could be either warned or even removed from the AICRIP. Perform or perish should be the mantra for all the AICRIP centres.
- ✓ A huge amount to the tune of Rs. 75,000 crores was being given as subsidy by the government on fertilizers, particularly on nitrogenous fertilizers and 37% nitrogen was being utilized for rice crop alone Also water use efficiency based on water availability had been a major concern for not only rice crop cultivation but also for all other cropping systems. Hence, systematic, strategic and implementable recommendations on these two major resources should be brought out.
- ✓ In the criteria for promotion of any variety, quality analysis should be one of the compulsory conditions with data on grain quality from at least three centres.
- ✓ There should be a holistic and innovative IPM protocol by integrating all the components and coordination of IPM work being carried out by different agencies/institutes for different crops.
- ✓ Recommendation for varietal release should include all the data including yield, production and protection measures. There should be a certificate mentioning all these aspects in the varietal recommendations.

- ✓ There should be focus on developing and promoting native genetic wealth by making large number of crosses regularly with innovation and open mind.

CROP IMPROVEMENT

- ✓ The chairman reiterated that based on single location data in a zone or a trial should not be considered for promotion. Minimum of two (2) location data is essential for assessment of the performance of the entries. Those zones or trials where in one location data is available in AVT1 and AVT2 stage of the trials, the entries may be repeated to obtain robust data, irrespective of the performance.
- ✓ Emphasis may be made to ensure that the yield trials under AICRIP at different centres shall be conducted with utmost care and best management possible in order to close the yield gap between varieties at release Vs their performance in farmer's field (which invariably is much higher than the mean yield of the entry at release). The AICRIP monitoring teams need to discuss with the PIs at the locations during monitoring and recommend the addressing specific issues through appropriate mechanism so as to enable the best possible management of trials in the AICRIP trials.
- ✓ In the IVT and AVT trials, where the test entries are large (more than 30 entries), appropriate statistical design should be adopted and also promotion and deletion of the entries in consultation with the statistician.
- ✓ Wherever, there are nomination of entries to the AICRIP testing from a single centre is more than two, due to more number of breeders nominating entries to the trials working at a particular centre, it is advised to undertake a common variety trial (CVT) at the centre, so that the best entries from the centre may be taken up for testing in the AICRIP trials. This approach will also help in reducing the number of entries being tested and improve the robustness of the testing in the AICRIP trials.
- ✓ The molecular data of the NILs including the data on recovery of recurrent parent genome (% RPG recovery, no. of markers used for background selection) should be submitted at the time of nomination of the entries. The DUS data of the NIL nominations shall be provided by the breeder at the time of nomination of NIL(s) to AICRIP trials and the same should be considered in the evaluation of similarity of the NIL with the recurrent parent (RP). To assess the recovery of recurrent parent genome may be carried out at ICAR-IIRR and if needed institutions like ICAR-IARI may be consulted for developing a robust system for testing the NILs with adequate budgetary provision for the same may be considered.
- ✓ The improved NILs with additional QTLs/ genes governing at seedling stage and reproductive stages salinity tolerance gene(s)/QTL(s) shall be considered for NILs nominated for salinity tolerance. For drought tolerance of NILs introgressed with QTLs governing reproductive stage drought tolerance, with moisture data monitoring the trait verification based on the rainout shelter data should be the primary criteria.

Also due care for adequate plant population under AICRIP 2019 has been considered for promotion of *qDTY* NILs in different backgrounds.

- ✓ Efforts needs to be initiated for breeding varieties suitable for niche markets such as parboiled rice, coloured and Aromatic Short Grain rice varieties with potential for export as well as domestic consumption Research on development of healthy export quality rices with focus on improving short aromatic rice varieties which is gaining importance in international export markets.
- ✓ The efforts on pre-breeding at the coordinating centre needs to strengthened so that enhanced breeding lines can be shared with cooperating centres. Inter-institutional collaborations and exchange of material (pre-breeding and advanced breeding lines) may be strengthened to improve the base of breeding materials at different centres as well as to drop-out excel genotypes suited to specific ecologies.
- ✓ The elite lines developed using precision breeding tools need to phenotyped with utmost care in suitable testing facility with appropriate statistical design, at centres where appropriate facilities are available so that good lines are not lost due to faulty testing procedure.
- ✓ The present zonal system of evaluation of test entries may be reverted back to the testing on overall basis in the country. In 2016, it was decided that the based on the first year of testing, all the test entries are tested in all the locations as per the duration/ group of the trials and performance is assessed on overall basis. From the second year onwards, those entries which are found superior in a particular zone in the first year of testing are tested in that particular zone only (zonal basis of testing). Based on the discussions under the chairman, it has been decided that henceforth, all the entries (both in varietal and hybrid trials) promoted from the IVT may be tested in all the locations across the zones even if the entry is promoted only based on its performance in the IVT/ AVT1 trials (first/ second year of trial) even in any one of the zones tested.
- ✓ As CRP on Hybrids is already in place and nine centres are already partners under this programme, The Public-Private Sector Hybrid Rice Consortium which is in process since long in the SMD, needs to be launched.

CROP PRODUCTION

- ✓ Need to revisit recommended dose of fertilisers in different locations as 125% of RFD found promising
- ✓ Yield maximisation and Organic rice trials to be initiated in different zones (Collaborative)
- ✓ Collaboration with other AICRIPS (Wheat, Cropping systems and weed) and AICRIPS of NRM

- ✓ Focussed efforts on Dry DSR method for resource conservation to be intensified.
- ✓ Package and Production technologies practices should be brought out with identified in line with notification of varieties.
- ✓ It was suggested to use "Pusa decomposer" developed by IARI for the faster decomposition of crop residues in Soil Science trial
- ✓ It was suggested to calculate the reduction in the efficiencies of other nutrients like P and K if one particular nutrient like N is omitted in case of long term experiment.
- ✓ Silicon protocol to be submitted as recommendation on similar lines with NPand K fertilizers.

CROP PROTECTION

- ✓ Efforts should be made to include effective/certified biocontrol agents/bio pesticides from AICRP on BC of ICAR - NBAIR.
- ✓ There should be inter institutional linkage with NCIPM in case of IPM trials being carried out under AICRIP.
- ✓ A trial may be constituted to capture the effect of climate change on the change in insect pest status.
- ✓ The germplasm accessions with confirmed R reaction for more than 3 seasons may be quickly characterized for presence of new or known gene(s). More testing centres were needed in view of higher proportion of WBPH in field observation.
- ✓ In PHSS, Balamawee (Bph27), ARC10550 (bph5) and ADR52 (Bph25+Bph26) which are effective genes in India, should be included.
- ✓ Sets of differentials used in the screening programmes should be updated regularly in view of changing pest population dynamics and variability across locations. Donor identification should be made fool proof.
- ✓ Design a simple technique for the evaluation of rice genotypes against false smut at the laboratory level.
- ✓ Assessment of quantitative yield loss trials has to be conducted for major rice diseases in the hot spot locations under AICRIP system.
- ✓ Data mining approach can be done by using the POS data base to understand the difference between the past and present status for projecting the areas where research policy interventions are needed.

TRANSFER OF TECHNOLOGY

- ✓ More FLDs may be organized in North and North Eastern Regions.
- ✓ Intensify the efforts to popularize bio fortified technologies

ACTION TAKEN REPORT on 54th ARGM Recommendations

	Recommendation	Action Taken
	General Recommendations	
	AICRIP Cell to be Established	As per the proceedings received from Council, being large Two senior most Scientists each department and dedicated for North East region to look after AICRIP activities assisted by one technical officer, with stenographers shall be part of AICRIP Cell. Accordingly a meeting has been convened by the Director and appraised the Heads of section.
	Criteria and Identification of Performing, Non performing centers.	Reviewed the centers and Identified the centers that are to be dropped and included in the new EFC plan
	Identification of New centers	New centers identified and proposed. As per the guidelines, the scientists redeployment from dropped centers indicated in the new EFC. As earlier practice after approval of EFC the centers will be informed accordingly for further implementation.
	No New positions of technical and drivers position.	Informed to all the funded centers that the posts of the above are discontinued on account of superannuation as and when basis as per ICAR guidelines
	Identification of few centers to strengthen the AICRIP for trait identification studies	A meeting has been convened along with Director , NRRI during 2019, Centers are identified for trait identification budget provision was made in the new EFC
	Guidelines, Monitoring , training of to improve the AICRIP system	Nomination guidelines revised in consultation with all the PI. Monitoring involved IIRR, (25) ,NRRI (22) and SAU (7) , implemented 2019-20. Training section wise are being planned .
	Plant Breeding	
	For NIL confirmation, entries will be tested in appropriate duration group (AVT-1 for first year of testing and AVT-2 for second year of testing) of the recurrent parent and will be compared with recurrent parent only. For trait verification in case of abiotic stresses (drought, salinity & submergence) yield under stress will be evaluated in separate trials.	As per the recommendation, the nominated NIL entries were evaluated in appropriate duration group of the recurrent parent and are compared with recurrent parent to assess yield performance of NIL. For trait verification in case of abiotic stresses (drought, salinity & submergence) yield under stress are evaluated in separate trials. For biotic stresses NIL entries were tested in NSN trials across hotspot locations of the country

	Recommendation	Action Taken
	For biotic stresses an exclusive NIL-NSN trials should be conducted	
	In case of NPT trial entries that have completed three years of testing with overall/zonal mean yield of more than 7 tonnes can be tested in AVT-2 Agronomy trial	As per the recommendation, those NPT entries which completed three years of testing and had mean yield of more than 7 tonnes are tested in AVT-2 Agronomy trial
	In low phosphorus trial, the entries will be tested at low P centers viz., Ranchi and locations in North Eastern states. For trait verification trial will be conducted at IIRR, Hyderabad plots along with a trial in normal plots. Entries will be promoted based on the results obtained from normal plots at different centers	As per the recommendation, the trial was constituted and sent to Ranchi and Barapani (Meghalaya-North eastern state), but could not received from both the centers. At IIRR, the trial was conducted at low P and normal plots
	Entries will not be considered for promotion based on single location data. As per the recommendations at least three centre data is required for promotions	Due non availability of at least three locations in some of the trials in different zones, even single location data was considered for promotions following earlier criteria of 15% over best variety check (BVC) for a variety; 15% over BVC along with 10% over the hybrid check for a hybrid entry
Agronomy		
	The trials may be collaborated with Soil Science and Physiology	Most of the AICRIP agronomy trials were reorganized and made collaborative as per the suggestions and most of the trials were collaborative trials (with soil science and plant physiology) for efficient data collection – More than 6 trials were included as collaborative and one inter institutional (IIRR and IIMR) was also initiated
	The trials may be focused on Direct seeding and Organic cultivation.	Focused trials on direct seeded rice and organic rice cultivation for enhancing the productivity and quality produce were initiated.
	Research on Crop stand, Plant population under DSR.	AVT-2 trials were started to assess the performance of at different levels of Nutrient application and herbicide mutants specially for DSR
	Cultures may be evaluated for water efficiency	As suggested efficiency of cultivars under limited water content AWD and aerobic rice system.
	Cultures may be evaluated for late sown conditions.	Evaluation of suitable cultivars for late planting was taken up.

	Recommendation	Action Taken
	Soil Science	
	The trials may be collaborated with Agronomy.	To avoid duplication, collaborative experiments were initiated by Soil Science and Agronomy sections.
	Entomology	
	To identify the effective pesticides and to study the ecological and biological aspects of pest management.	Every year newer insecticide molecules from Private companies are being evaluated for their efficacy against rice pests and inclusion as a component in IPM . During 2019, a new trial was formulated to test the effectiveness of including two essential plant oils – Eucalyptus oil 7 Neem oil as well as a commercial neem formulation, Neem Azal as alternative to all insecticidal treatments. Their efficacy will be confirmed next year after assessing two years of multi location testing data.. In order to generate more information on ecology and biological aspects of management, three new trials on impact of seed coating, planting methods and cropping systems each on insect pest incidence were initiated in collaboration with Agronomy section. Ii. Similarly, a new trial was initiated on novel pheromone technology by evaluating pheromone blends for efficacy in monitoring leaf folder and pink stem borer populations in field trials across multi locations.

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Appendix-1

Particulars of Zones, States and test Locations

Region / State	Locations	
	Funded	**Voluntary**
ZONE I – HILLY AREAS		
North Western Hills		
Jammu Kashmir	Khudwani (1)	Rajouri, Wadura, Bandipore, Pombay (4)
Himachal Pradesh	Malan (1)	Palampur, Dhaulakhan (2)
Uttarakhand		Almora, Bageshwar, (2)
North Eastern Hills		
Manipur		Imphal-CAU (1)
Nagaland	Kohima (1)	
Sikkim		Gangtok (1)
Meghalaya	Upper Shillong (1)	ICAR-Umiam, CAU-Umiam (2)
West Bengal		Kalimpong (1)
Southern Hills		
Karnataka		Sirsi (1)
ZONE II – NORTHERN		
New Delhi		IARI- New Delhi (1)
Uttarakhand	Pantnagar (1)	
Punjab	Ludhiana (1)	Gurdaspur, Kapurthala, Rauni (3)
Haryana	Kaul (1)	Karnal (CSSRI), Jind, Rohtak, Kurukshetra, Panipat (5)
Uttar Pradesh	Nagina, Kanpur (2)	
Jammu Kashmir	Chatha (R.S. Pura) (1)	
Rajasthan	Kota (1)	Banswara (1)
ZONE III – EASTERN		
Orissa	Jeypore, Chiplima (2)	Bhubaneswar, NRRI (Cuttack), Ranital (3)
Bihar	Bikramganj (Patna), Pusa (2)	Patna- ICAR, Sabour(2)
Jharkhand	Ranchi (1)	Hazaribagh, Gharkatanga (2)
West Bengal	Bankura, Chinsurah (2)	Canning, Pundibari,Chakdha,Hathwara (4)
Uttar Pradesh	Masodha ,Ghaghraghat, Varanasi (3)	Lucknow, BEDF-Modipuram, Gautam Budha Nag'ar, SVBPUAT- Meerut (4)
ZONE IV – NORTH EASTERN		
Assam	Titabar (1)	Gerua, Karimganj (2)
Manipur	Wangbal (1)	Lamphalpat, (1)
Tripura	Arundhutinagar (1)	Lembucherra (1)
ZONE V - CENTRAL		
Madhya Pradesh	Rewa (1)	Waraseoni, Jabalpur (2)
Chhattisgarh	Raipur, Jagadalpur (2)	Bilaspur, Ambikapur (2)
Maharashtra	Sakoli (1)	Sindewahi (1)
ZONE VI - WESTERN		
Maharashtra	Karjat, Tuljapur (2)	Panvel, Radhanagari, Shirgaon, Palghar Phondaghat, Vadagaon, Parbhani, (7),
Gujarat	Nawagam, Navsari (2)	Derol, Vyra, Danti, Dabhoi, (4)
Goa		Goa (1)
ZONE VII - SOUTHERN		
Andaman & Nicobar		Port Blair (1)
Andhra Pradesh	Maruteru (1)	Ragolu, Bapatla,Machilipatnam,Nellore,(4)
Telangana	Rajendranagar, Warangal (2)	IIRR, Jagtial, Kunaram, Rudrur, Kampasagar (5)
Tamil Nadu	Aduthurai, Coimbatore (2)	Trichy, Annamalainagar, Tirur, Gudalur (4)
Kerala	Moncompu, Pattambi (2)	Vyttila (1)
Karnataka	Mandya, Mugad, Ponnampet, Brahmavar, Gangavati (5)	Sirsi, Kathalgere, Malagi (3)
Puducherry	Kurumbapet (1)	Karaikal (1)
Total locations	**45**	**79**

Underline :ICAR Institutions

Appendix-2

List of Coordinated Trials, *Kharif* 2020

Centre:

Ecosystem	AVT 2	AVT 1	IVT	IHRT
Upland- DS		AVT 1-E DS	IVT-E-DS	
Rainfed shallow		AVT 1-RSL	IVT-RSL	
Semi-deep water		AVT 1-SDW	IVT-SDW	
Deep water			IVT-DW	
Early – TP	AVT2-E TP	AVT1-E TP	IVT-E TP	IHRT-E
Irrigated Mid Early		AVT 1-IME	IVT-IME	IHRT-ME
Medium		AVT1–IM	IVT-IM	IHRT-IM
Late		AVT1–Late	IVT–Late	
Boro		AVT 1-Boro	IVT-Boro	
Basmati		AVT1-BT	IVT-BT	
Aromatic short grain			IVT-ASG	
Saline alkaline		AL & ISTVT	AL & ISTVT	
		CSTVT	CSTVT	
Hills	AVT 2-E (H)	AVT1-E (H)	IVT-E(H)	
	AVT 2-M (H)	AVT1-M (H)	IVT-M(H)	
		AVT1-U (H)	IVT-U(H)	
			IVT-LRH	
Aerobic		AVT1-Aerobic	IVT-Aerobic	
Near Isogenic lines (Sub)		AVT 1-NIL		
Near Isogenic Lines (Drt).		AVT 1-NIL		
Near Isogenic Lines (Blast)	AVT 2-NIL	AVT 1-NIL		
Near Isogenic Lines (CS)		AVT 1-NIL		
Bio-fortification		AVT 1-Biofort	IVT-Biofort.	
Medium Slender	AVT 2-MS	AVT 1-MS	IVT-MS	IHRT-MS
Low Phosphorous		AVT 1- LPT	IVT - LPT	
Low Nitrogen		AVT 1- LNT	IVT - LNT	

Appendix 3 a

Seed Requirement for New Nominations, *Kharif* 2020

Trials		Quantity
Early, Mid-early, Medium, Short Grain, Biofortification, MS Grain, Aerobic	:	12 Kg
Shallow Water, Saline/Alkaline, Boro, Basmati, Isogenic Semi-deep, deep water,Hill and Late	:	8 kg

Note:

1. **Please specify clearly on the label, whether the seed is a new nomination OR a repeat entry.**
2. **For repeat entry please give the IET No. along with trial name and pedigree.**
3. **When supplying the seed of check varieties, please label the name of the checks clearly in CAPITAL LETTERS**

Appendix 3 b

Nominations for AICRIP Trials, *Kharif* 2020*

Please provide the **mandatory details** of the nominations such as cross combination, duration, performance against check varieties, additional information viz., pest/disease reaction, quality etc., for all the new nominations in the following proforma;

Trial	Designation/ Pedigree	Cross Combination#	Days to 50% flow.		Grain type	Local trial yield (kg/ha)**		Quality Characters	Pest/disease reaction@		Remarks (any other special character)
			I year	II year		I year	II year		I year	II year	
	(Name of National Check)										
	(Name of Regional Check)										
	(Name of Local Check)										
	CD (0.05)										
	CV%										

* : **Without the details especially cross combination and source of material the entries will not be included in IVT trials;**

**: Yield as compared to check varieties. It is mandatory to give the yield of check varieties along with the nominations from local (station) trials.

: Source of material (IRRI-INGER, IRRI Collaboration; any other within country programme;

@: Artificial / natural screening please specify (use more sheets if required to fill the details)

Name of the Centre:

Signature of the Breeder:

Name & Designation:

Complete Address:

Date:

(Signature of Breeder)

Appendix 4

Submission of Variety Identification proposal to VIC meeting to be held in Annual Rice Research Group Meetings – 2021

1.	For entries which have been tested for 3 years	:	Last date of receipt: **31st December, 2020**
2.	For entries which are in 3rd year (final) of testing.	:	Last date of receipt: **10th March, 2021**
3.	No. of copies for submission	:	30
4.	The proposal should be duly signed and forwarded through proper channel		
5.	Weighted average of yield data to be computed against the checks and qualifying varieties for Table 1 and the guidelines and the format for preparation of the proposal should be adhered to.		
6.	The proforma for submission of VIC proposal is available in IIRR Web site in the draft proceedings. (www.drricar.org)		

Appendix 5

Submission of CVRC variety proposal for Central Sub Committee on Crop Standards, Notification & Release of Varieties (CSC on CSN&RV) for Meeting during 2020

1.	For those which are identified by VIC	:	Latest by 30th June, 2020
2.	Number of copies for submission **35 copies of the proposal should be sent to:** **5 copies of the proposal should be sent to:**	:	40 Copies Deputy Commissioner (QC)-cum Member Secretary of CSC on CSN&RV Ministry of Agriculture & Cooperation F212, Shastry Bhavan **NEW DELHI-110002** The Director ICAR-Indian Institute of Rice Research Rajendranagar **HYDERABAD-500030**
3.	Weighted average of yield data to be computed against the checks and qualifying checks for Table 1 and the guidelines and the format for preparation of the proposal should be adhered to.		
4.	Seed material should be deposited with NBPGR and acknowledgement to be furnished duly with the proposal, by giving the IC Number in the column.		
5.	Complete morphological description of the proposed variety given in VIC proposal must be included in the CVRC proposal.		
6.	The proforma for submission of CVRC proposal is available in IIRR Web site		

Appendix 6a

Proceedings of the meeting of the committee constituted to deliberate on formulation of criteria for nomination of entries under Advanced Variety Trial 1-Near Isogenic Lines (AVT1-NIL) of AICRIP

As per the directions of Dr. S.N. Shukla, Assistant Director General (FFC), ICAR, a committee was constituted for the above mentioned purpose during the 44th Annual Rice Research Group Meeting held at ANGRAU, Hyderabad during May 2009. The members of the committee met on 11th May 2009 at Seminar Hall I of ANGRAU Auditorium, Hyderabad with Dr. M.P. Pandey, Vice Chancellor, IGAU, Raipur as Chairman and Dr. N. Shobha Rani, PI, Varietal Improvement programme, AICRIP for discussion and finalization of criteria for nomination of entries under AVT1-NIL trial of AICRIP.

The following members attended the meeting. Dr. J.L. Dwivedi, Dr. K.V. Prabhu, Dr. A.K. Singh, Dr. G.J.N. Rao, Dr. J.N. Reddy, Dr. P.K. Agarwal, Dr. N. Sarla, Dr. S.M. Balachandran, Dr. C.N. Neeraja, Dr. R.M. Sundaram, Dr. P. V. Satyanarayana, Dr. S. Manonmani.

Dr. M.P. Pandey welcomed the participants and informed that a set of guidelines for nomination and testing of NILs have been framed by a committee constituted by Ministry of Agriculture in the year 2007 and approved by DDG (CS), ICAR. The present meeting has been convened to mainly discuss issues related to operationalizing the guidelines.

The committee examined the guidelines and gave the following recommendations to facilitate the implementation of the guidelines in a practical manner.

1. **Choice of recurrent parent**: The recurrent parent selected for the marker-assisted breeding programs should be a notified variety/parental line of a hybrid which is widely cultivated and accepted by farmers which has been suffering some production bottlenecks or lacking some traits that can be improved to add value to it. For this purpose, the selection of the recurrent parent for development of NILs under AICRIP is to be decided by a committee identified by Project Director for which approval of DDG (CS), ICAR is to be obtained. Further the recurrent parent needs to be selected with appropriate concurrence of the concerned breeder/organization/institution wherever applicable.

2. **Conformity of the NILs to the recurrent parent**: The breeder has to substantiate the proposed near isogenic lines (NILs) for its conformity to the parental variety with appropriate phenotypic data such as morphological and DUS data and molecular marker data before nomination for trial. In order to ensure this, the breeder has to provide details in terms of list of all the morphological/DUS characteristics for which the NILs are similar to and different from the recurrent parent at the time of nomination of the NILs. The NILs should definitely not be inferior to the recurrent parent in terms of yield related traits.

The NIL should have minimum two phenotypic characters (which can be easily assessed in the field) for the purpose of its identification and distinction from the parental variety. This will facilitate seed certification agency/seed law enforcement authority in the certification process.

The breeder nominating entries under AVT1-NIL should enclose the list of molecular markers used for marker-assisted breeding including those used for both foreground and background selection. The NILs should have a minimum of 80% introgression as estimated from parental polymorphic SSR markers through background selection. A minimum of 6 parental polymorphic markers per chromosome should be used for this estimation (i.e. a minimum of 96 parental polymorphic markers covering the entire genome).

The breeder nominating entries under AVT1-NIL trial should furnish details in a prescribed proforma at the time of nominating the entries. A committee constituted by the Project Director will examine the proposal and approve/reject the nominations.

3. **Testing/evaluation of NILs**: Under AICRIP, the NILs would be tested along with the recurrent parent as check for two years to verify the traits that are introgressed. For yield purposes, the NILs has to be compared with the recurrent parent variety to establish its performance vis-à-vis parent variety. For validation of the introgressed trait, the NILs have to be tested along with donor parent, recurrent parent and appropriate checks. The NIL testing has to be carried out under natural and artificial conditions (where pest/disease/stress resistance is targeted) and other traits following standard experimental procedures and techniques along with the recurrent parent. The test centres and the experimental layout should be decided by the Project Directorate on a case to case basis based on the nominations.

4. **Monitoring of AVT1-NIL trial**: The final trait verification would be based on the recommendation of the monitoring team constituted by the Project Director for such trials. The monitoring of the trials is mandatory. the monitoring committee should involve at least one specialist associated with the target trait. Monitoring needs to be stringently carried out by the monitoring team both for the trait introgressed in the NILs and for equivalence to the recurrent parent.

5. **Identification, notification and release of NILs**: The NILs which have successfully completed two years of testing under AVT1-NIL as per the guidelines/criteria mentioned above should be identified, released and notified as a new variety.

Appendix 6b

Proceedings of the meeting of the Committee constituted to deliberate on revision of criteria for nomination and evaluation of entries under Advanced Variety Trial - Near-Isogenic Lines (AVT-NIL) of AICRIP during 52nd ARGM held at AAU, Jorhat.

As per the directions of Dr. J.S. Sandhu, Deputy Director General (Crop Sciences), ICAR, a committee was constituted for the above mentioned purpose during the 52nd Annual Rice Research Group Meeting held at Assam Agricultural University, Jorhat, Assam during 8-11, April 2017. The members of the committee met on 10th April 2017 at Board Room of AAU under the chairmanship of Dr. M.P. Pandey, Former Vice Chancellor, IGKV, Raipur and BAU, Ranchi for discussion on revision of criteria for nomination of entries under AVT1-NIL trial of AICRIP. It is to be mentioned that the criteria were formulated earlier by a committee constituted by ICAR under the chairmanship of Dr. M.P. Pandey during May 2009 in the 44th Annual Rice Research Group Meeting held at ANGRAU, Hyderabad.

The following dignitaries attended the meeting.

1. Dr. M. P. Pandey (Chairperson)
2. Dr. I.S. Solanki, ADG (FFC), ICAR, New Delhi (Member)
3. Dr. P. K. Agarwal, ADG (NASF), ICAR, New Delhi (Member)
4. Dr. Kuldeep Singh, Director, ICAR-NBPGR, New Delhi (Member)
5. Dr. A.K. Singh, Head, Division of Genetics, ICAR-IARI, New Delhi (Member)
6. Dr. P.V. Satyanarayana, Director, APRRI, Maruteru, AP (Member)
7. Dr. S. Robin, Dean (PGS), TNAU, Coimbatore (Member)
8. Dr. Ish Kumar, President (R & D), Rasi Seeds, Hyderabad (Member)
9. Dr. S.K. Pradhan, Principal Scientist (Plant Breeding), ICAR-NRRI, Cuttack (Member)
10. Dr. T. Ram, Principal Scientist (Plant Breeding), ICAR-IIRR, Hyderabad (Member)
11. Dr. R.M. Sundaram, Principal Scientist (Biotechnology), ICAR-IIRR, Hyderabad (Member Secretary)

Dr. Jyothi Badri, Scientist (SS, Plant Breeding), ICAR-IIRR, Hyderabad and Dr. R. Abdul Fiyaz, Scientist (SS, Plant Breeding), ICAR-IIRR, Hyderabad assisted in recording of the proceedings.

Dr. M. P. Pandey welcomed the participants and informed them that the meeting has been constituted specifically by ICAR to examine and revise the criteria for nomination of entries under AVT1-NIL trials, which was earlier set by a committee in 2009.

The committee examined the existing guidelines and criteria and gave the following recommendations to facilitate the evaluation of NILs in AICRIP trials in a pragmatic manner broadly under the following five categories.

1) Choice of the recurrent parent: The recurrent parent selected for the marker-assisted breeding programs should be a notified popular variety/parental line of a hybrid, which has been suffering from some production bottlenecks or lacking some traits (particularly biotic and abiotic stress resistance/tolerance) that can be improved to add value to it. In case of biotic stress resistance, the choice of gene combinations selected for deployment in the recurrent parent should be based on the pest population/biotypes and/or pathogen population/race composition prevalent in the States/Zones for which the recurrent parent was originally released. The recurrent parent needs to be selected with appropriate concurrence of the concerned parent Organization/Institute.

2) Conformity of the NILs to the recurrent parent: The breeder has to substantiate the proposed NILs for their conformity to the parental variety/genotype (i.e. the recurrent parent) with appropriate phenotypic data such as morphological trait data/DUS trait data and molecular marker data before nomination for trial. In order to ensure this, breeder has to provide details, in terms of list of all the morphological/DUS characteristics for which the NILs are similar/ different from the recurrent parent at the time of nomination of the NILs. The NILs must be statistically at par or superior to the recurrent parent in terms of grain yield.

   The breeder nominating the entries under AVT1-NIL should enclose the list of molecular markers used for marker-assisted breeding including those used for foreground, recombinant and/or background selection. The NILs should have a minimum of 90% recovery of the recurrent parent genome with respect to the parental polymorphic co-dominant markers (like SSRs/SNPs) analyzed. A minimum of 400 co-dominant markers (i.e. ~ 1 marker per Mb), which are distributed uniformly across the rice genome should be used for parental polymorphism analysis.

   The breeder nominating the entries under AVT1-NIL trial should furnish details in a prescribed proforma at the time of nominating the entries. A committee constituted by Director, ICAR-IIRR will examine the proposal and approve/reject the nominations.

3) Testing/evaluation of NILs: Under AICRIP, the NILs would be tested along with the recurrent parent as check for two years (i.e. AVT1-NIL and AVT2-NIL) to verify the traits that are introgressed. For yield purposes, the NILs have to be compared with the recurrent parent variety to establish its performance vis-à-vis parent variety/genotype (i.e. the recurrent parent). For validation of the introgressed trait, the NILs have to be tested along with donor parent, recurrent parent and appropriate checks. The testing of NILs has to be carried out under natural condition in the target locations/hot-spots and under artificial conditions (in case of pest/disease/stress resistance or tolerance) and other target traits including agronomic and quality traits following standard experimental procedures and techniques along with the recurrent parent. The test centres and the experimental layout should be decided by the Director, ICAR-IIRR on a case to case basis, depending on the lines nominated.

4) Monitoring of AVT1-NIL trial: The final trait verification would be based on the recommendations of the monitoring team constituted by Director, ICAR-IIRR for such trials. The monitoring of the trials is mandatory and the monitoring committee should involve at least one specialist associated with the target trait. Monitoring

needs to be stringently carried out by the monitoring team both for the trait introgressed in the NILs and for equivalence to the recurrent parent.

5) Identification, notification and release of NILs: The NILs, which have successfully completed two years of testing under AVT1-NIL as per the guidelines/criteria mentioned above should be identified, released and notified as a new variety only for the States/Zones in which the recurrent parent has been notified and released. These criteria will be applicable for entries nominated from *Kharif* 2017 onwards.

Proforma for nominating entries under AVT1-NIL trial of AICRIP

Trial	Designation	Cross combination	Target trait introgressed	Days to 50% flowering		Grain type and quality characteristics		Local yield trial (kg/ha)#		Reaction for target trait introgressed			No. of markers used for background selection and No. of markers which have become homozygous for recurrent parent genome	Percentage recurrent parent genome recovery	No. of traits for which the recurrent parent and NIL are similar *	No. of traits for which the recurrent parent and NIL are different*
				Recurrent parent	NIL	Recurrent parent	NIL	Recurrent parent	NIL	Donor parent	Recurrent parent	NIL				

average of two seasons yield data

*****a separate table showing a comparison between the recurrent parent and NIL with respect to morphological traits/DUS traits needs to be enclosed

Appendix 7

Proforma for Submission of Proposal for Identification of Crop Varieties/ Hybrids at workshops/State Varietal Identification Committee meetings

Content

S. No. Item

Summary of the Proposal (in bullets only)

Proforma for Submission of Proposal for Identification of Crop Varieties/ Hybrids at Workshops

1	Name of the crop and species			
2	a)Name of the variety under which tested in the AICRIP trials			
	b) Proposed name of the variety			
3	Sponsoring institute			
4	a)Institution or agency responsible for developing variety (with full Address)			
	b)Person name, who helped developing variety			
	Developers			
	Collaborators			
5	a)Parentage (with details of pedigree, including the source from which variety/inbred/A,B and R lines of hybrid have been developed)			
	b)Source of the material in case of introduction			
	c)DNA profile of variety/hybrid/inbred/A,B,R lines of the hybrid vis-a vis check variety/line			
	d)Breeding method used			
	E)Breeding objective			
6	State varieties which most closely resemble the proposed variety in general characters			
7	Recommended production ecology (rainfed/irrigated; high/low fertility; season)			
8	Specific area of its adaptation (zones and states for which variety is proposed) and the recommended production ecology			
9	Description of hybrid/variety			
	a)Plant height			
	b)Distinguishing morphological characters			
	c)Maturity (range in number of days) (from seedling/transplanting to flowering, seed-to-seed)			

	d)Maturity group (early, medium and late, wherever such classification exists)			
	e)Reaction to major diseases under field and controlled conditions (reaction to physiological strains/races/pathotypes/bio-types is to be indicated, wherever possible)			
	f)Reaction to major pests (under field and controlled conditions, including storage pests)			
	g)agronomic features (e.g., resistance to lodging, shattering, fertilizer responsiveness, suitability to early or late sown conditions, seed rate, etc.			
	h)Quality of produce a)Grain quality b)Fodder quality i) Reaction to Stresses			
10	Description of parents of hybrid	A line/ inbred 1	B line/ inbred 2	R line
	a)Plant height (cm)			
	b) Distinguishing morphological characters			
	c)Days to flowering			
	d) Days to maturity (range in number of days-from seed-to-seed)			
	e) Is there any problem of synchronization? If yes, its method to overcome			
	f)Reaction to major diseases (under field and controlled conditions, reaction to physiological strains/races/bio-types/pathotypes to be indicated wherever possible)			
	g) Reaction to major pests (uder field and controlled conditions, including storage pests)			
	h)Agronomic features (e.g., resistance to lodging, shattering fertilizer responsiveness, suitability to early or late-sown conditions, seed rate, etc.)			
	i)Reaction to stresses			
11	a)Yield data in the coordinated trials (breeding, agronomy, pathology entomology, quality etc) and regional/inter regional district trials year-wise (level of fertilizer application, density of plant population and superiority over local control/standard variety) to be indicated (to be attached)			
	b)Yield data from national demonstration/large-scale demonstrations(to be attached)			
12	a)Agency responsible for maintaining the breeder seed			
	b)Quantity of breeder seed in stock (kg) Variety/A line/B line/R line/Hybrid			
13	Specific recommendations, if any, for seed production (e.g., staggered sowing, planting ratio of parental lines of hybrids in foundation and certified seeds production, probable areas of seed production)			
14	Vivid presentation (field view, close-up of a single plant and seeds/economic parts)			
15	Package of practices along with attainable yield levels			
16	Any other pertinent information			

Signature of All Contributors

Signature of the Head of the Institution

Checklist for Proforma for Submission of Proposal for Identification of Crop Varieties/ Hybrids at Workshops

Details/documents		**Attached**
Parentage with details on pedigree, including the source from which variety/inbred/A,B and R lines of the hybrid has been developed	YES	NO
Source of the material in case of introduction (IC/EC numbers provided by the NBPGR)	YES	NO
Flow chart of details of development of variety/parental lines of hybrids	YES	NO
Molecular/DNA profile of variety/hybrid/A,B,R lines of the hybrid vis-à-vis check variety/line (details of unique amplicons that distinguish markers) with photographs	YES	NO
Detailed description of the parental lines of the hybrid	YES	NO
Yield data & other data on diseases, insect-pests, quality,etc. from the coordinated trials	YES	NO
Yield data from the national demonstration/large-scale demonstrations	YES	NO
Specific recommendations, if any, for seed production (eg., staggered sowing, planting ratio of parental lines of hybrids in foundation and certified seeds production, probable areas of seed production etc.)	YES	NO
Vivid presentations (field view, close-up of a single plant and seeds) with photographs of the Variety)	YES	NO
Package of practices	YES	NO
Proforma signed by all co-authors and Head of Organization	YES	NO
Any other pertinent information	YES	NO

Signature of the Head of the Institution

Table 1: Summarized yield data of the coordinated varietal trials

Name of the proposed variety/hybrid: Adaptability Zone:
Production Conditions:

Item	Year of testing	No. of trials/ Locations	Proposed variety	National check 1	Zonal check 2	Local check 3	Latest released check 4	Qualifying variety*		
								Var.1	Var.2	Var.3
Mean yield (q/ha) a)Zonal b)Across zones (if appplicable)	1st year 2nd year 3rd year									
	Weighted mean									
Percentage increase or decrease over checks & qualifying varieties Frequency in the top three groups (pooled for three years)	1ST year 2nd year 3rd year Weighted mean									

Note: Qualifying variety is one which has completed three years of testing in the coordinated trials; Centre-wise and year-wise data must be appended, otherwise proposal will not be considered

Table 2. Adaptability to agronomic variables

Name of the proposed variety/hybrid: Adaptability Zone:
Production Conditions:

Nature of experiments	No. of trials/locations	Proposed variety	National check 1	Zonal check 2	Local check 3	Latest released check 4	Qualifying variety*		
							Var.1	Var. 2	Var. 3
Sowing date experiments	Yield (q/ha) under recommended showing date, Percentage gain or loss when sown	(i)Early (ii)Normal (iii)Late							
Fertilizer experiments	Yield (q/ha) under recommended dose Percentage gain or loss under other doses	(i)F0 (ii)F1 (iii)F2							
Irrigation experiments (wherever applicable)	Yield (q/ha) with adequate irrigation Percentage gain or loss with irrigation level	(i)Level 1 (ii)Level 2 (iii)level 3							

Note: specify each date of sowing, fertilizer level and number of irrigations at i, ii, iii

Table 3. Reaction to major diseases

Name of the proposed variety/hybrid: Adaptability Zone:
Production Conditions:

Disease name		Item	Proposed variety	National check 1	Zonal check 2	Local Check3	Latest released check 4	Qualifying variety*		
								Var. 1	Var.2	Var. 3
Disease 1	Natural	1st year 2nd year 3rd year								
	Artificial	1st year 2nd year 3rd year								
Disease 2	Natural	1st year 2nd year 3rd year								
	Artificial	1st year 2nd year 3rd year								
Disease 3	Natural	1st year 2nd year 3rd year								
	Artificial	1st year 2nd year 3rd year								
Disease 4	Natural	1st year 2nd year 3rd year								
	Artificial	1st year 2nd year 3rd year								

Table 4. Reaction to insect-pests

Name of the proposed variety/hybrid Adaptability Zone:
Production Conditions:

Pest name		Item	Proposed variety	National check 1	Zonal check 2	Local Check 3	Latest released check 4	Qualifying variety*		
								Var. 1	Var.2	Var. 3
Pest 1	Natural	1st year 2nd year 3rd year								
	Artificial	1st year 2nd year 3rd year								
Pest 2	Natural	1st year 2nd year 3rd year								
	Artificial	1st year 2nd year 3rd year								
Pest 3	Natural	1st year 2nd year 3rd year								
	Artificial	1st year 2nd year 3rd year								

Table 5. Data on the quality characteristics

Quality characteristics	Item	National check 1	Zonal check 2	Local Check 3	Latest released check 4	Qualifying variety*		
						Var. 1	Var.2	Var. 3
Parameter-1								
Parameter-2								
Parameter-3								
Parameter-4								

Note: First Specify parameters at 1 to 4 under first column

Table 6. Data on the other important characters

Name of the proposed variety/hybrid: Adaptability zone:
Production conditions:

S.No		Item	Proposed variety	National check 1	Zonal check 2	Local Check 3	Latest released check 4	Qual. Var. 1	Qual. Var.2	Qual. Var. 3
1	Plant height	1st year 2nd year 3rd year								
2	Days to flowering	1st year 2nd year 3rd year								
3	Days to maturity	1st year 2nd year 3rd year								
4	1000-grain weight	1st year 2nd year 3rd year								
5	Lodging	1st year 2nd year 3rd year								
6	Others	1st year 2nd year 3rd year								

Guidelines for Filling-up Proforma for Submission of Proposal for Identification of Crop Varieties/Hybrids during Workshops

1. Name of the crop and the species : The name given to the variety may be indicative of crop name, institute name/code, and number, if any.
2. Name of the variety under which tested : This should include the name under which the variety was tested in the coordinated trials.
3. Proposed name of the variety : This should include the name of the variety that is proposed for its commercial use as per the existing guidelines.
4. Sponsoring institute : This should include the name of the institute/organization that sponsoring the variety
5. Institution or agency responsible for developing variety (with full address) : This should give name of the Institute or organization where the variety has been developed along with the full address
6. Name of the person who helped in the development of the variety : Only those workers should be included who have contributed in the development of the variety/hybrid. The Co-workers can be grouped in 2 categories as the 'Developer' and as the 'Collaborator'.

   The co-worker should be associated with the project (from which cultivar has been developed) for a period of minimum of 2 years. The proposal should be signed by each of the co-worker and validated by the Head of the Organization.
7. Parentage (with details of pedigree including the source from which variety/inbred/A, B and R lines of the hybrid lines has been developed). This should essential ly include details of the base population/source of material used for developing variety/parental lines of the hybrid.

   Pedigree and parentage have to be furnished in details as to how the parents have been developed with flow charts, instead of just giving code numbers. Flow chart should depict clearly development of the proposal culture with year-wise details of attempting initial cross, followed by handling of segregating generation.

   Details, weather collection is indigenous (IC) or exotic (EC), accession no provided by the NBPGR if used, in the development of the variety or parental lines of hybrids, must be provided, Please note that this IC number should be different from the one provided by the NBPGR, upon submission of the seed sample of the line/hybrid/variety, the once variety/hybrid is recommended by the Variety Identification Committee (VIC).
8. Source of material in case of introduction : Details of the EC (Exotic collection) number, may be given provided by the NBPGR, for the imported material used in the variety development.
9. DNA profile of variety/hybrid/inbred/ A,B,R lines of the hybrid vis-à-vis check variety/line Detailed information on the molecular discrimination should be provided. Such information can be developed at crop-based institutes/NBPGR/Other labs. The information should include details of amplicons (name, sequence number, primer sequence) with reference to polymorphic markers.

   The relevant photographs should also be attached.
10. Breeding method used : The method used in developing the variety/parental line may be given
11. Breeding objective : The breeding objective for developing the variety
12. State varieties which most closely resemble the proposed variety in general characters.

    The information should include name of the varieties resembling most closely to the proposed variety with reference to different phenotypic traits.
13. Specific area of its adaptation (zones and states for which variety is proposed) and recommended productions ecology

    The information on zones (name of the states), season and production conditions, whether Rainfed or irrigated, should be mentioned.
14. Description of the hybrid/variety : The average and expected normal range with respect to various characters may be mentioned.

15. Description of parents of the hybrid : The average and expected normal range with respect to characters may be mentioned with reference to inbred/A line/B line/R line.

16. Yield data in coordinated trials (breeding, agronomy, pathology, entomology, quality etc) and regional/inter-regional district trials year-wise (level of fertilizer application, density of plant population and superiority over local control/standard variety) are to be indicated (to be attached) The yield data and other data of coordinated trials and other details as per the format of tables should be appended. Please not that mean is 'weighted mean' and not the 'arithmetic mean'.

17. Yield data from the national demonstration/large-scale demonstrations (to be attached) : The yield and other details as per the format of the tables should be appended.

18. Agency responsible for maintaining breeder seed : Name of the institute/organization/agency responsible to maintain the breeder seed of variety/parental line of hybrid should be given

19. Quantity of the breeder seed in stock (kg) : Quantity (kg) of available seeds with reference to variety, hybrid, inbred A/B/R lines of the hybrid are to be clearly indicated.

20. Information on acceptability of the variety by farmers/ consumers/ industry : Any information on such aspects can be given.

21. Specific recommendations, if any, for seed production (e.g. staggered sowing, planting ratio of parental lines of hybrids in foundation and certified seed production, probable areas of seed production)

    The seed production technology and specific requirements should be mentioned clearly along with the proposal. With respect to seed production of hybrid, the staggered sowing of parental lines, if required, should be clearly indicated. The planting ration of male and female parents in the seed production plots should be indicated. In addition, if there are some other precautions to be taken they are to be mentioned clearly. The probable areas of seed production need to be given.

22. Vivid presentation (field view, close-up of a single plant and a seed/economic parts) : The proposal should invariably have colored pictures with a clear field view of the variety, a close-up of a single plant and a seeds/economic parts. Photograph of other plant parts which may help in identification of varieties can also be given. The cover page of the proposal should also have a colored photograph of the variety and should be designed well.

23. Package of practices along with attainable yield levels : A note on the package of practices of the crop with respect of the variety needs to be provided, highlighting particularly specific requirements of the variety to realize its attainable yield levels.

24. Any other pertinent information : Any relevant information, which is seemingly important with reference to variety, hybrid or parental lines of the hybrids, should also be given.

25. Others

    One-page 'executive summary' of the proposal may be provided in the beginning, highlighting specific features of the variety/hybrid. Excessive presentation in executive summary should be avoided.

    Each page of the proposal should be numbered.

    Checklist needs to be part of the proposal.

Appendix 8

Proforma for Submission of Proposal for Release of Crop Varieties/Hybrids to the Central Sub-Committee on Crop Standards, Notification and Release of Varieties

Content

Summary of the Proposal (in bullets only)

Proforma for Submission of Proposal for Release of Crop Varieties/ Hybrids to the Central Sub-Committee on Crop Standards Notification and Release of Varieties

1	Name	
2	Name of the Crop and the species	
	a)Name of the variety under which tested in the AICRIP trials	
	B) Proposed name of the variety	
3	Sponsoring institute	
4	a)Institution or agency responsible for developing variety (with full Address)	
	b)Name of the person, who helped development of the variety	
	Developers	
	Collaborators	
5	A)Parentage (with details of pedigree, including the source from which variety/inbred/A,B and R lines of the hybrid has been developed)	
	b)Source of the material in case of introduction	
	c)DNA profile of variety/hybrid/inbred/A,B,R lines of the hybrid vis-a vis check variety/line	
	d)Breeding method used	
	E)Breeding objective	
6	State varieties which most closely resemble the proposed variety in general characters	
7	Recommended production ecology (rainfed/irrigated; high/low fertility; season)	
8	Specific area of its adaptation (zones and states for which variety has been proposed) and the recommended production ecology	
9	Description of hybrid/variety	
	a)Plant height	
	b)Distinguishing morphological characters	
	c)Maturity (range in number of days) (from seedling/transplanting to flowering, seed-to-seed)	
	d)Maturity group (early, medium & late, wherever such classification exists)	

	e)Reaction to major diseases under field and controlled condition s(reaction to physiological strains/races/pathotypes/bio-types is to be indicated, wherever possible)			
	f)Reaction to major pests (under field and controlled conditions, including storage pests)			
	g)agronomic features (e.g.,resistance to lodging, shattering, fertilizer responsiveness, suitability to early/ late sown conditions, seed rate, etc.			
	h)Quality of produce a)Grain quality b)Fodder quality			
10	Description of the parents of the hybrid	A line/ inbred 1	B line/ inbred 2	R line
	a)Plant height (cm)			
	b) Distinguishing morphological characters			
	c)Days to flowering			
	d) Days to maturity (range in number of days-from seed-to-seed)			
	e) Is there any problem of synchronization? If yes, its method to overcome			
	f)Reaction to major diseases (under field and controlled conditions, reaction to physiological strains/races/bio-types/pathotypes needs to be indicated wherever possible)			
	g) Reaction to major pests (uder field and controlled conditions, including storage pests)			
	h)Agronomic features (e.g., resistance to lodging, shattering fertilizer responsiveness, suitability to early or late-sown conditions, seed rate, etc.)			
	i)Reaction to stresses			
11	a)Yield data in the coordinated trials (breeding, agronomy, pathology entomology, quality etc) and regional/inter regional district trials year-wise (level of fertilizer application, density of plant population and superiority over local control/standard variety) are to be indicated (to be attached)			
	b)Yield data from national demonstration/large-scale demonstrations(to be attached)			
12	a)Agency responsible for maintaining the breeder seed			
	b)Quantity of breeder seed in stock (kg) Variety/A line/B line/R line/Hybrid			
13	Specific recommendations, if any, for seed production (e.g., staggered sowing, planting ratio of parental lines of hybrids in foundation and certified seeds production, probable areas of seed production)			
14	Vivid presentation (field view, close-up of a single plant and seeds/economic parts)			
15	a)Whether recommended by any workshop, seminar, conference, state seed committee etc.			
	b)If so, the recommendations with specific justifications for release of the proposed variety			
16	Specific area of its adaptation			
17	Acknowledgement of the submission of seed samples of variety/hybrid/inbred/ A, B and R lines of the hybrid from the NBPGR and IC numbers			
18	Package of practices along with attainable yield levels			
19	Information on the acceptability of the variety by farmers/consumers/industry			
20	Any other pertinent information			

Signature of all Contributors

Signature of the Head of the Institution

Checklist for Proforma for Submission of Proposal for Release of Crop Varieties/Hybrids to the Central Sub-Committee on Crop Standards Notification and Release of Varieties

Details/documents	**Attached**	
Parentage with details of pedigree, including the source from which variety/inbred/A,B and R lines of the hybrid has been developed	YES	NO
Source of the material in case of introduction (IC/EC numbers provided by the NBPGR)	YES	NO
Flow chart of details of development of variety/parental lines of hybrids	YES	NO
Molecular/DNA profile of variety/hybrid/A,B,R lines of the hybrid vis-à-vis check variety/line (details of unique amplicons that distinguish markers) with photographs	YES	NO
Detailed description of the hybrid/variety		
Detailed description of the parental lines of the hybrid	YES	NO
Yield data and other data on diseases, insect-pests, quality,etc. from the coordinated trials	YES	NO
Yield data from the national demonstration/large-scale demonstrations	YES	NO
Specific recommendations, if any, for seed production (eg., staggered sowing, planting ratio of parental lines of hybrids in foundation and certified seeds production, probable areas of seed production etc.)	YES	NO
Vivid presentations (field view, close-up of a single plant and seeds) with the help of photographs)	YES	NO
Recommendations of the workshop, conference	YES	NO
Acknowledgement of the submission of seed sample of variety/hybrid/A,B and R lines of the hybrid submitted to the NBPGR	YES	NO
Package of practices	YES	NO
Proforma signed by all co-authors and head of organization	YES	NO
Any other pertinent information	YES	NO

Signature of the Head of the Institution

Table 1. Summarized yield data of the coordinated varietal trials

Name of the proposed variety/hybrid: Adaptability zone :
Production conditions :

Item	Year of testing	No. of trials/ locations	Proposed variety	National check 1	Zonal check 2	Local check 3	Latest released check 4	Qual. Var.1	Qual. Var.2	Qual. Var.3
Mean yield (q/ha) a)Zonal b)Across zones (if applicable)	1st year									
	2nd year									
	3rd year									
Percentage increase or decrease over the checks and qualifying varieties	Weighted mean 2nd year 3rd year weighted mean									
Frequency in the top three groups (pooled for three years)										

Note: Qualifying variety is one which has completed three years of testing in the coordinated trials; Centre-wise data must be appended, otherwise proposal will not be considered

Table 2. Adaptability to agronomic variables

Name of the proposed variety/hybrid: Adaptability zone :
Production conditions :

Nature of experiments	Item	Proposed variety	National check 1	Zonal check 2	Local check 3	Latest released check 4	Qual. Var.1	Qual. Var.2	Qual. Var.3
Sowing date experiments	Yield (q/ha) under recommended sowing date Percentage gain or loss when sown	(i)Early (ii)Normal (iii)Late							
Fertilizer experiments	Yield (q/ha) under recommended dose percentage gain or loss under other doses								
Irrigation experiments (wherever applicable)	Yield(q/ha) with adequate irrigation Percentage gain or loss with irrigation level	(i)Level1 (ii)Level2 (iii)Level3							

Note: specify each date of sowing, fertilizer level and number of irrigations at I, ii, iii

Table 3. Reaction to major diseases

Name of the proposed variety/hybrid: Adaptability zone :
Production conditions :

Disease Name		Item	Proposed variety	National check 1	Zonal check 2	Local check 3	Latest released check 4	Qual. Var.1	Qual. Var.2	Qual. Var.3
Disease 1	Natural	1st year								
		2nd year								
		3rd year								
	Artificial	1st year								
		2nd year								
		3rd year								
Disease 2	Natural	1st year								
		2nd year								
		3rd year								
	Artificial	1st year								
		2nd year								
		3rd year								
Disease 3	Natural	1st year								
		2nd year								
		3rd year								
	Artificial	1st year								
		2nd year								
		3rd year								
	Natural	1st year								
		2nd year								
		3rd year								
Disease 4	Artificial	1st year								
		2nd year								
		3rd year								

Table 4. Reaction to insect-pests

Name of the proposed variety/hybrid Adaptability zone :
Production conditions :

Pest		Item	Proposed variety	National check 1	Zonal check 2	Local check 3	Latest released check 4	Qual. Var.1	Qual. Var.2	Qual. Var.3
Pest 1	Natural	1st year								
		2nd year								
		3rd year								
	Artificial	1st year								
		2nd year								
		3rd year								
Pest 2	Natural	1st year								
		2nd year								
		3rd year								
	Artificial	1st year								
		2nd year								
		3rd year								
Pest 3	Natural	1st year								
		2nd year								
		3rd year								
	Artificial	1st year								
		2nd year								
		3rd year								

Table 5.Data on the quality characteristics

Quality Characteristics	Item	Proposed variety	National check 1	Zonal check 2	Local check 3	Latest released check 4	Qual. Var.1	Qual. Var.2	Qual. Var.3
Parameter-1									
Parameter-2									
Parameter-3									
Parameter-4									

Note: Specify the parameters under first column at 1-14

Table 6. Data on the other important characters

Name of the proposed variety/hybrid Adaptability zone :
Production conditions :

		Item	Proposed variety	National check 1	Zonal check 2	Local check 3	Latest released check 4	Qual. Var.1	Qual. Var.2	Qual. Var.3
1.	Plant height	1st year								
		2nd year								
		3rd year								
2	Days of flowering	1st year								
		2nd year								
		3rd year								
3	Days to maturity	1st year								
		2nd year								
		3rd year								
4	1,000-grain weight	1st year								
		2nd year								
		3rd year								

		Item	Proposed variety	National check 1	Zonal check 2	Local check 3	Latest released check 4	Qual. Var.1	Qual. Var.2	Qual. Var.3
5	Lodging	1st year								
		2nd year								
		3rd year								
6	Others	1st year								
		2nd year								
		3rd year								

Guidelines for Filling-up Proforma for Submission of the Proposal for Release of Crop Varieties/Hybrids to the Central Sub-Committee on Crop Standards Notification and Release of Varieties

1. Name of the crop and the species : The name given to the variety may be indicative of crop name, institute name/code, and number, if any.
2. Name of the variety under which tested : This should include the name under which the variety was tested in the coordinated trials.
3. Proposed name of the variety : This should include the name of the variety that is proposed for its commercial use as per the existing guidelines.
4. Sponsoring institute : This should include the name of the institute/organization that sponsors the variety
5. Institution or agency responsible for developing variety (with full address) : Institute or organization where the variety has been developed along with the full address
6. Name of the person who helped in the development of the variety : Only those workers should be included who have contributed in the development of the variety/hybrid. The Co-workers can be grouped in 2 categories as the 'Developer' and as the 'Collaborator'.

   The co-worker should be associated with the project (from which cultivar has been developed) for a period of minimum of 2 years. The proposal should be signed by each of the co-worker and validated by the Head of the Organization.
7. Parentage (with details of pedigree including the source from which variety/inbred/A,B and R lines of the hybrid has been developed).

   This should essentially include the details of the base population/source of the material used for developing the variety/parental lines of the hybrid. Pedigree and parentage have to be furnished in details as to how the parents have been developed with flow charts, instead of just code numbers. Flow chart should clearly present the development of the proposed culture with year-wise details of attempting initial cross, followed by handling of segregating generation.

   Details, indigenous (IC) or exotic (EC) collections and the number of accessions (Provided by the NBPGR) if used, in the development of the variety or parental lines of hybrids, are to be provided, Please note that this IC number should be different from the one provided by the NBPGR at the submission of the seed sample of the line/hybrid/variety, the once variety/hybrid is recommended by the Variety Identification Committee (VIC).
8. Source of material in case of introduction : Details of the EC (Exotic collection) number, provided by the NBPGR, for the imported material used in the variety development, are to be given.
9. DNA profile of variety/hybrid/inbred/ A,B,R lines of the hybrid vis-à-vis check variety/line Detailed information on the molecular discrimination should be provided. Such information can be developed at crop-based institutes/NBPGR/Other labs. The information should include details of amplicons (name, sequence number, primer sequence) with reference to polymorphic markers.

   The relevant good quality high resolution photographs should also be attached.
10. Breeding method used : The method used in developing the variety/parental line

11. Breeding objective : The breeding objective for developing the variety
12. State varieties which most closely resemble the proposed variety in general characters.

    The information should include name of the varieties resembling most closely to the proposed variety with reference to different phenotypic traits.
13. Recommended production ecology : The information on zones (name of the states), season and production conditions, whether Rainfed or irrigated, should be mentioned.
14. Description of the hybrid/variety : The average and expected normal range with respect to various characters may be mentioned.
15. Description of parents of the hybrid : The average and expected normal range with respect to characters may be mentioned with reference to inbred/A line/B line/R line.
16. Yield data in coordinated trials (breeding, agronomy, pathology, entomology, quality etc) and regional/inter-regional district trials year-wise (level of fertilizer application, density of plant population and superiority over local control/standard variety) are to be indicated (to be attached) The yield data and other data of coordinated trials and other details as per the format of tables should be appended. Please not that mean is 'weighted mean' and not the 'arithmetic mean'.
17. Yield data from the national demonstration/large-scale demonstrations (to be attached) : The yield and other details as per the format of the tables should be appended.
18. Agency responsible for maintaining breeder seed : Name of the institute/organization/agency responsible for maintenance of the breeder seed of variety/parental line of hybrid
19. Quantity of the breeder seed in stock (kg) : Quantity (kg) of available seeds with reference to variety, hybrid, inbred/AB/R lines of the hybrid are to be indicated clearly.
20. Information on acceptability of the variety by farmers/ consumers/ industry : Any information on such aspects can be given.
21. Specific recommendations, if any, for seed production (e.g. staggered sowing, planting ratio of parental lines of hybrids in foundation and certified seeds production, probable areas of seed production)

    The seed production technology and specific requirements should be mentioned clearly along with the proposal. With respect to seed production of hybrid, the staggered sowing of parental lines, if required, should also be clearly indicated. The planting ration of male and female parents in the seed production plots should be indicated. In addition, if there are some other precautions needed, they are to be mentioned clearly. The probable areas of seed production need to be give.
22. Vivid presentation (field view, close-up of a single plant and a seed/economic parts) : The proposal should invariably have coloured pictures with a clear field view of the variety, a close-up of a single plant and seeds/economic parts. Photograph of other plant parts which may help in identification of varieties can also be given. The cover page of the proposal should also have a colored photograph of the variety and should be well-designed.
23. whether recommended by any workshop, seminar, conference, state seed committee etc. : Details of workshop/ conference/ seminar/ or state variety release committee be given, which recommended the variety for release.
24. If so, its recommendations with specific justifications for release of the proposed variety : The specific recommendations of the workshop/conference/state variety release committee along with the documents should be attached.
25. Specific area of its adaptation : The zone and states for which variety is proposed.
26. Acknowledgement of the submission of the seed sample of variety/hybrid/inbred/ A,B and R lines of the hybrid from the NBPGR and IC numbers : The acknowledgement certificate issued by the NBPGR providing details of the IC number with respect to variety, hybrid and parental lines of hybrids should be part of the proposal

27. Package of practices along with the attainable yield levels : A note on the package of practices of crop with respect to the variety needs to be provided, highlighting particularly specific requirements of the variety to realize its attainable yield levels.

28. Others

    One-page 'executive summary' of the proposal may be provided in the beginning, highlighting specific features of the variety/hybrid. Exaggerated presentation in executive summary needs to be avoided.

    Each page of the proposal should be numbered.

    Checklist needs to be part of the proposal.

    The CVRC proposal should be scrutinized at the level of the Project Coordinator/Project Director before submission to the CVRC. PCs/PDs will give their opinion on the proposal to member-secretary (CVRC).

29. Any other pertinent information : Any other relevant information which is important in reference to the variety, hybrid or parental lines of the hybrids is also required.

Appendix 9

Monitoring of AICRIP Trials with list of observations to be recorded by the cooperators during *kharif* 2019

Trial name	:	
Date of sowing	:	
Date of planting	:	
Plot size (Gross) m^2	:	
Plot size (Net)m^2	:	
Spacing cm	:	
No of entries	:	
Name of the checks (including local check)	:	
Cultures flowered earlier than the check	:	
Cultures flowered later than checks	:	
Highly promising entries	:	
Poor performing entries	:	
Shift based on duration	:	
Rejection based on (a) mixtures or off types (b) non-uniformity/or segregation and high degree of susceptibility to biotic/abiotic stress.	:	
Any other comments	:	

Note:	Please use additional copies for taking observations in each of the AICRIP trials allotted to the centre & return the same positively to the PI in December month.

Date:

Signature of the Breeder (with seal)

Appendix 10

CENTRE WISE BREEDER SEED PRODUCTION DURING *KHARIF*, 2019 (AS PER DAC INDENT)

(Quantity in Quintals)

S. No	Name of the centre	Name of variety	Allocation as per BSP-I	Production	Surplus (+) Deficit (-)
		Andhra Pradesh			
1	**ANGRAU, Guntur***	Akshaya	1.00	8.00	7.00
		Amara (MTU-1064)	7.50	40.00	32.50
		Bharani (NLR 30491)	7.00	20.00	13.00
		BPT-5204	38.98	322.00	283.02
		BPT-3291 (Sona Mahsuri)	5.00	5.00	-
		Chandra (IET 23409) (MTU-1153)	17.50	0.00	-17.50
		Cottondora Sannalu (MTU-1010)	351.73	440.00	88.27
		Maruteru Sannalu (MTU-1006, IET-14348)	1.00	2.00	1.00
		MTU-1075 (IET18482)	25.10	75.00	49.90
		MTU- 61 (Indra) (MTU-1061)	8.00	40.00	32.00
		MTU-1121(Sri Dhruthi)	113.10	216.00	102.90
		MTU-1156	40.50	194.00	153.50
		MTU-7029 (Swarna)	348.76	410.00	61.24
		Nellore Mahsuri (NLR-34449)	12.00	135.00	123.00
		Pardhiva (NLR-33892)	4.00	9.00	5.00
		Prabhat	2.00	32.00	30.00
		RGL 2537	11.00	31.50	20.50
		Vijetha (MTU1001)	106.90	180.00	73.10
		Total	**1101.07**	**2159.50**	**1058.43**
		Assam			
2	**RARS, Titabar (AAU, Jorhat)**	Bahadur Sub-1	40.45	73.15	32.70
		Gitesh (TTB 103-3-1)	25.00	46.75	21.75
		Ketkijoha	25.00	41.50	16.50
		Ranjeet (IET-12554)	13.50	0.00	-13.50
		Ranjit Sub-1	41.10	175.20	134.10
		Total	**145.05**	**336.60**	**191.55**
3	**Gerua, Assam**	Chandrama (IET 9354, 10419)	20.00	13.20	-6.80
		Total	**20.00**	**13.20**	-6.80
4	**AAU, Jorhat**	Bahadur	0.20	51.55	51.35
		Ranjit	20.70	22.80	2.10
		Total	**20.90**	**74.35**	**53.45**
		Bihar			
5	**RAU, Pusa**	Rajendra Bhagavati	62.30	63.00	0.70
		Rajendra Kasturi	1.80	2.00	0.20
		Rajendra Mahsuri1	31.28	32.00	0.72
		Rajendra Suwasini	1.50	2.00	0.50
		Rajeshwari-1	1.00	2.00	1.00
		Rajshree (TCA80-4) (IET-7970)	0.40	1.00	0.60
		Total	**98.28**	**102.00**	**3.72**

S. No	Name of the centre	Name of variety	Allocation as per BSP-I	Production	Surplus (+) Deficit (-)
6	**BAU, Sabour**	Sabhour Shree	35.00	101.10	66.10
		Sabhour Surbhit	35.00	36.20	1.20
		Sita	1.15	6.75	5.60
		Subour Ardhajal	35.00	132.10	97.10
		Sabour Deep	15.00	35.75	20.75
		Rajendra Sweta	4.20	5.00	0.80
		Total	**125.35**	**316.90**	**191.55**
6	**ICAR-Patna**	Swarna Shreya	16.50	23.00	6.50
		Total	**16.50**	**23.00**	6.50
		Chhattisgarh			
7	**IGAU, Raipur**	Badshah Selection-1	3.60	4.50	0.90
		Bamleshwari (IET14444, R 738-1-64-2-2)	12.00	12.00	**-**
		CGZR-1	5.00	5.10	0.10
		Chandrahasini (IET-16800)	20.00	20.10	0.10
		Danteshwari (IET 15450, R 302-111)	9.00	9.00	-
		Dubraj Section 1	3.30	3.90	0.60
		IGKVR- 1	92.80	98.40	5.60
		IGKVR- 2 (IET 19795)	38.00	46.20	8.20
		IGRKVR -1244 (R1244-1246-1-605-1)	40.00	40.20	0.20
		Indira Aerobic -1	15.00	15.90	0.90
		Indira Baranidhan -1	25.00	25.20	0.20
		IR-36	16.40	16.50	0.10
		IR-64	74.20	75.00	0.80
		Karma Mahsuri (IET 19991)	15.00	15.00	-
		Mahamaya (IET-10749)	74.10	90.00	15.90
		Poornima (IET-12284, 1281-PP-31-1)	10.40	10.50	0.10
		Samleshwari (IET-17455)	8.30	9.90	1.60
		Shyamala (IET12561, R259-WR-37-2)	0.10	1.20	1.10
		Tarunbhog Selection- 1	3.00	3.60	0.60
		Vishnubhog Selection-1	2.30	5.00	2.70
		Total	**467.50**	**507.20**	**39.70**
		Gujarat			
8	**GAU, Nawagam**	Gurjari	0.10	0.25	**0.15**
		GR- 13 (GAR -13)	0.10	0.25	0.15
		Total	**0.20**	**0.50**	**0.30**
		Haryana			
9	**CSSRI, Karnal**	CSR-36	3.50	5.50	2.00
		CSR-43	3.00	6.40	3.40
		CSR-46	2.00	6.40	4.40
		CSR-56	2.00	4.80	2.80
		CSR-30	6.02	12.95	6.93
		Total	**16.52**	**36.05**	**19.53**
10	**RRS, Kaul**	HKR-127 (HKR-95-222)	4.44	8.00	3.56
		BasmatI-370	2.58	5.00	2.42

S. No	Name of the centre	Name of variety	Allocation as per BSP-I	Production	Surplus (+) Deficit (-)
		HKR-48	0.50	2.50	2.00
		HKR-47	5.72	10.00	4.28
		Total	**13.24**	**25.50**	**12.26**
		Himachal Pradesh			
11	**CSKHPKVV, Malan**	HPR-2143	13.80	14.99	1.19
		HPR-1156 (IET 16007)	10.00	6.17	-3.83
		HPR-2612 (Palm Basmati 1)	12.00	18.45	6.45
		Basmati Katusri (IET-8580)	4.20	5.28	1.08
		Total	**40.00**	**44.89**	**4.89**
		Jharkhand			
12	**CRURRS, Hazaribagh**	Abhishek (IET-17868)	4.77	8.77	4.00
		Anjali (IET-16430)	3.04	8.25	5.21
		Hazaridhan	2.92	2.92	-
		IR-64 Drt 1 (IET 22836) (DRR Dhan-42)	18.00	36.00	18.00
		Shabhagidhan (IET-19576)	149.88	165.05	15.17
		Vandana (RR167-182)	2.92	4.78	1.86
		Total	**181.53**	**225.77**	**44.24**
13	**BAU, Ranchi**	BirsaVikas dhan-109	4.68	3.85	-0.83
		BirsaVikas dhan-110	2.34	2.40	0.06
		Birsamati	2.34	2.40	0.06
		Total	**9.36**	**8.65**	**-0.71**
		Jammu & Kashmir			
14	**SKUAT, Khudwani**	Chenab (SKAU-23)	1.00	2.00	1.00
		Total	**1.00**	**2.00**	**1.00**
15	**SKUAST, Chatha**	Giza 14	0.30	0.40	0.10
		Total	**0.30**	**0.40**	**0.10**
		Karnataka			
16	**UAS, Bengaluru**	BR-2655	1.70	6.00	4.30
		Thanu	2.45	4.00	1.55
		Total	**4.15**	**10.00**	5.85
17	**ARS, Mugad**	Intan	1.00	2.00	1.00
		KMD- 2 (Abhilash)	1.25	2.00	0.75
		Total	**2.25**	**4.00**	1.75
18	**UAHS, Shivamogga**	KHP- 11	0.50	4.00	3.50
		Thunga (IET13901)	4.75	8.00	3.25
		Sharavathi (IR-57773)	1.00	4.00	3.00
		Total	**6.25**	**16.00**	**9.75**
		Kerala			
19	**RRS, Monocompu**	Bhadra (Mo-4)	3.50	5.00	1.50
		Shreyas	0.30	6.00	5.70
		Mo21(Prathiksha)	0.75	5.00	4.25
		Uma	14.10	14.50	0.40
		Total	**18.65**	**30.50**	**11.85**
20	**KAU, Pattambi**	Athira (PBT 51)	0.40	1.00	0.60
		Jyothi	14.30	15.00	0.70
		PTB-45 (Matta Triveni)	1.00	2.50	1.50
		Total	**15.70**	**18.50**	**2.80**

S. No	Name of the centre	Name of variety	Allocation as per BSP-I	Production	Surplus (+) Deficit (-)
		Madhya Pradesh			
21	**JNKVV, Jabalpur**	Improved Chinnor	2.75	46.71	43.96
		Improved Jeera Shankar	2.75	103.75	101.00
		JR-767	16.50	20.66	4.16
		JR -503(Richa) (IET- 16783)	3.20	0.00	-3.20
		JR- 81	2.05	1600.58	1598.53
		JRB -1	2.05	120.70	118.65
		Kranti (R-2022)	10.40	3648.68	3638.28
		Rashmi (JR-201)	11.30	30.43	19.13
		Total	**51.00**	**5571.51**	**5520.51**
		Maharashtra			
22	**RARS, Karjat**	Karjat-184	0.50	2.00	1.50
		Karjat-3	2.00	12.00	10.00
		Karjat-5	0.60	6.00	5.40
		Karjat-7	1.50	15.00	13.50
		Karjat-8	0.50	3.00	2.50
		Total	**5.10**	**38.00**	**28.40**
23	**ARS, Radhanagari**	Bhogavathi	0.60	14.70	14.10
		Total	**0.60**	**14.70**	**14.10**
24	**ARS, Ratanagiri**	Ratnagini-1	0.60	59.00	58.40
		Ratnagiri-24 (RTN24) (IET-19812)	0.50	8.60	8.10
		Ratnagiri-6	0.50	20.60	20.10
		Ratnagiri-7	0.50	16.50	16.00
		Ratnagiri- 8	0.50	25.50	25.00
		RTN-5 (Ratnagiri-5)	3.00	10.50	7.50
		Total	**5.60**	**140.70**	**135.10**
25	**ARS, Vadagaon (MPKV, Rahuri)**	Indrayani (IET 12897)	66.10	128.50	62.40
		Phule Samruddhi (VDN-99-29)	0.50	38.00	37.50
		Total	**66.60**	**166.50**	**99.90**
26	**ARS, Sakoli**	PDKV Kisan	0.50	5.00	4.50
		Sakoli-9	0.50	4.50	4.00
		Total	**1.00**	**9.50**	**8.50**
27	**ARS, Sindewahi**	PDKV Tilak	1.00	25.90	24.90
		PKV HMT	71.96	52.00	-19.96
		Total	**72.96**	**77.90**	**4.94**
		New Delhi			
28	**BEDF, New Delhi**	Pusa Basmati 1121	15.00	16.00	1.00
		Pusa Basmati -1 (IET-10364)	10.00	10.00	-
		Pusa Basmati-1509 (IET-21960)	20.00	25.00	5.00
		Total	**45.00**	**51.00**	**6.00**
29	**DSST & IARI, New Delhi**	Pusa 1592	0.58	1.00	0.42
		Pusa Sugandh-2 (IET 16310, Pusa-204-1-126)	0.40	0.00	-0.40
		Pusa-6 (IET 22290) Pusa 1612-7-6-5)	0.60	2.00	1.40
		Pusa Sugandh-3 (IET-16313, Pusa-2504-1-3-1)	20.50	0.00	-20.50

S. No	Name of the centre	Name of variety	Allocation as per BSP-I	Production	Surplus (+) Deficit (-)
		Pusa Sugandh-5 (IET-17021)	66.71	69.00	2.29
		Total	**88.79**	**72.00**	**-16.79**
30	**ICAR-IARI, Regional Station, Karnal**	Pusa Basmati -1 (IET-10364)	19.29	20.00	0.71
		Pusa Basmati 1121	45.00	50.00	5.00
		Pusa Basmati-1509 (IET-21960)	40.00	40.00	-
		Pusa Basmati-6 (IET-18005)	21.13	22.00	0.87
		Pusa-44	40.00	40.00	-
		Pusa-1850	2.00	2.00	-
		Total	**167.42**	**174.00**	**6.58**
		Odisha			
31	**NRRI, Cuttack***	Ankit (CR 2702) (IET 21627)	2.10	1.00	-1.10
		Annada	10.20	10.00	-0.20
		CR-204	3.00	3.00	-
		CR-205	3.00	3.00	-
		CR-206	3.00	3.00	-
		CR-311	3.00	3.00	-
		CR Boro dhan-2 (IET 17612)	0.30	1.00	0.70
		CR Dhan-201 (IET 21924)	1.00	1.00	-
		CR Dhan-300 (IET 19816) (CR 2301-1)	2.60	3.00	0.40
		CR Dhan-304 (IET 22117)	2.10	3.90	1.80
		CR Dhan-305 (IET 21287)	1.60	1.50	-0.10
		CR Dhan-401 (Reeta) (IET 19969)	1.50	0.00	-1.50
		CR Dhan-505 (IET 21719)	26.50	11.10	-15.40
		CR Dhan-601 (IET 18558)	23.10	24.60	1.50
		CR Dhan-10 (IET 18312)	1.00	0.00	-1.00
		CR Dhan-203	9.50	10.00	0.50
		CR Dhan-209	1.00	0.00	-1.00
		CR Dhan-301	1.70	0.00	-1.70
		CR Dhan-303	14.50	14.50	-
		CR Dhan-307 (Maudami) (CR 2599)	5.00	26.40	21.40
		CR Dhan-310	44.10	48.00	3.90
		CR Dhan-405	1.00	1.00	-
		CR DHAN-501	20.00	0.00	-20.00
		CR Dhan-800	1.90	27.00	25.10
		CR Dhan-801	1.50	2.50	1.00
		CR Sugandh Dhan-907 (IET 21044)	3.40	0.90	-2.50
		CR 1009 Sub- 1	9.20	4.00	-5.20
		CR -1014	0.30	0.00	-0.30
		CR -1017 (Dharithri)	1.90	0.40	-1.50
		Gayatri (IET -8022)	2.10	0.60	-1.50
		Geetanjali (CRM-20007-1) (IET -17276)	1.00	3.50	2.50
		Khitish (IET -4094)	7.30	7.50	0.20
		Luna Sankhi	0.60	6.60	6.00

S. No	Name of the centre	Name of variety	Allocation as per BSP-I	Production	Surplus (+) Deficit (-)
		Luna Sampad (IET 19470)	1.30	0.55	-0.75
		Luna Suwarna (IET 18697)	1.60	0.40	-1.20
		Lunisree	0.50	0.00	-0.50
		Naveen (CR-749-20-2) (IET-14461)	8.84	10.00	1.16
		Phalguni (IET-18720) (CRAC 2224-1041)	0.50	0.50	-
		Pooja (IET-12241)	32.50	42.50	10.00
		Poorna Bhog	0.30	0.00	-0.30
		Ratna	0.10	1.00	0.90
		Sambha Sub-1 (IET21248)	14.30	6.00	-8.30
		Sarala (CR-260-77) (IET-10279)	3.90	5.00	1.10
		Satyabhama	6.00	3.00	-3.00
		Savitri (IET5897) CR 1009	4.25	0.00	-4.25
		Shatabdi (IET-4786)	28.90	40.00	11.10
		Swarna Sub-1(CR-2539-1) (IET20266)	210.85	180.00	-30.85
		Improved Lalat	14.20	9.00	-5.20
		Varshadhan (CRLC-899) (IET-16481)	5.30	5.00	-0.30
		Total	**543.34**	**524.95**	**-18.39**
32	**OUAT, Bhubaneshwar***	Khandagiri	8.30	8.30	-
		Lalat (IET- 9947)	42.98	43.00	0.02
		Manaswini (IET19005)	2.10	2.10	-
		Mandakini (OR 2077-4) (IET17847)	3.20	3.20	-
		Mrunalini (OR 1898-18) (IET18649)	5.00	5.00	-
		Pankaj	0.30	0.00	-0.30
		Parijat (IET-2684)	5.00	3.80	-1.20
		Pratikshya (OR S201-5) (IET-15191)	32.40	22.00	-10.40
		Ranidhan (IET19148)	14.30	14.30	-
		Bhuvan (IET 7804)	0.60	0.00	-0.60
		Surendra (IET-12815)	0.90	0.90	-
		Total	**115.08**	**102.60**	**-12.48**
33	**SSTL, BBSR, Govt of Odisha**	Kalachampa	10.00	30.00	20.00
		Total	**10.00**	**30.00**	**20.00**
		Punjab			
34	**PAU, Ludhina**	PAU-201	6.50	6.50	-
		PR121	45.12	50.00	4.88
		PR 122 (RYT3129)	17.70	20.00	2.30
		PR-111	6.68	10.00	3.32
		PR-113	63.30	65.00	1.70
		PR-114	17.81	20.00	2.19
		PR-116	3.28	7.00	3.72
		PR-118	10.94	15.00	4.06
		PR-123	1.20	4.00	2.80

S. No	Name of the centre	Name of variety	Allocation as per BSP-I	Production	Surplus (+) Deficit (-)
		PR-124	7.76	8.00	0.24
		PR-126	25.18	30.00	4.82
		PR-127	18.03	20.00	1.97
		Punjab Basmati -4	0.04	1.00	0.96
		Punjab Basmati -5	0.04	1.00	0.96
		Total	**223.58**	**257.50**	**33.92**
		Rajasthan			
35	**MPUAT, Kota**	Pratap-1 (RSK-1091-10-1-1)	0.10	0.00	-0.10
		Total	**0.10**	**0.00**	**-0.10**
		Tamil Nadu			
36	**TNAU, Coimbatore**	ADT-37	13.50	13.50	-
		ADT-39	5.00	5.00	-
		ADT-43(IET 14878)	0.10	0.10	-
		ASD 16	1.50	1.50	-
		CO-51	32.40	32.40	-
		TRY3	0.10	0.10	-
		Total	**52.60**	**52.60**	**-**
		Telangana			
37	**ICAR-IIRR, Hyderabad.**	Bina dhan-10	0.35	0.00	-0.35
		Bina dhan-11	17.60	11.50*	-6.10
		Bina dhan-12	0.90	1.50	0.60
		Bina dhan-17	0.20	0.20	-
		BRRI Dhan-69	0.20	0.20	-
		BRRI Dhan-75	0.20	0.00	-0.20
		DRR Dhan-50 (IET 25671)	15.30	8.50	-6.80
		DRR Dhan-45	5.95	2.50*	-3.45
		DRR Dhan-39 Jagjeevan (IET 19487) (RP 4631-46-6-5-1-1)	6.00	6.00	-
		DRR Dhan-43	1.90	2.40	0.50
		DRR Dhan-44	36.40	10.00*	-26.40
		DRR Dhan-46	3.10	8.50	5.40
		DRR Dhan-51	0.50	2.40	1.90
		IET 5656 (Swarnadhan)	1.20	1.20	-
		Improved Samba Mahsuri	22.30	23.00	0.70
		IR-64 Drt 1 (IET 22836) (DRR Dhan-42)	115.00	21.00*	-94.00
		Jaya	68.95	9.00*	-59.95
		Krishna Hamsa	0.05	0.50	0.45
		Mahsuri	1.10	1.20	0.10
		Rasi (IET-1444)	0.30	0.50	0.20
		Sampada (IET19424)	31.00	11.40	-19.60
		Total	**328.50**	**121.50**	**-207.00**
38	**PJTSAU, Hyderabad**	Erra Mallelu (WGL- 20471)	5.40	5.50	0.10
		JGL-11470 (Jagtial Mahsuri)	0.60	0.80	0.20
		JGL-1798	1.15	1.50	0.35
		JGL -8047(Bathukamma)	5.10	5.50	0.40
		KNM-118	30.10	32.00	1.90
		RNR 15048 (Telangana Sona)	31.20	35.00	3.80

S. No	Name of the centre	Name of variety	Allocation as per BSP-I	Production	Surplus (+) Deficit (-)
		ShobhinI (RNR2354) (IET21260)	1.00	1.00	-
		Tella Hamsa	1.50	1.50	-
		Warangal Sannalu (WGL32100) (IET-18044)	12.50	13.00	0.50
		WGL-347	1.00	1.50	0.50
		WGL-44	1.00	2.00	1.00
		Total	**90.55**	**99.30**	**8.75**
		Uttarakhand			
39	**GBPUAT, Pantnagar**	Govind	0.20	47.00	46.80
		Pantdhan-18 (IET-17920) (UPRI-99-1)	1.20	16.00	14.80
		Pantdhan-10 (IET-8616)	0.30	7.00	6.70
		Pantdhan-12 (IET-10955)	3.10	6.00	2.90
		Pantdhan-24	25.00	38.00	13.00
		Pantdhan-26	0.30	10.00	9.70
		Total	**30.10**	**124.00**	**93.90**
40	**VIHA, Almora**	VL Dhan 157 (VL31611) (IET 22292)	2.50	2.50	-
		VL Dhan-68 (VL31611) (IET 22283)	8.00	15.00	7.00
		VL Dhan-85 (IET16455) (VL3613)	0.60	0.70	0.10
		VL Dhan-158	0.20	1.00	0.80
		Total	**11.30**	**19.20**	**7.90**
		Uttar Pradesh			
41	**NDUAT, Faizabad**	Narendradhan (NDR359)	5.52	32.15	26.63
		Narendradhan-97	1.20	14.00	12.80
		NDR-2065 (IET17476)	20.00	63.50	43.50
		Sarjoo-52	11.10	90.00	78.90
		Total	**37.82**	**199.65**	**161.83**
42	**BHU, Varanasi**	HUR-1304	5.00	11.00	6.00
		HUR-1309	5.00	10.00	5.00
		HUR- 917	0.15	16.00	15.85
		Total	**10.15**	**37.00**	**26.85**
43	**SVBAUA& T Meerut**	Vallabh Basmati - 24 (IET 20827) (MAUB -171)	0.20	1.00	0.80
		Total	**0.20**	**1.00**	**0.80**
44	**SHUATS, Prayagraj,UP**	Shiats Dhan-1 (AAIR2) (IET20928)	5.00	0.00	-5.00
		Shiats Dhan-2	2.00	0.00	-2.00
		Shiats Dhan-3	2.10	0.00	-2.10
		Total	**9.10**	**0.00**	**-9.10**
		West Bengal			
45	**RRS, Chinsurah**	Ajit	4.70	8.00	3.30
		Chinsurah Rice (IET 19140) (CNI 383-5-11)	1.00	1.50	0.50
		CN 1272-55-105 (IET 19886)	0.50	2.00	1.50
		CNR-2 (IET 20235)	2.50	2.00	-0.50

S. No	Name of the centre	Name of variety	Allocation as per BSP-I	Production	Surplus (+) Deficit (-)
		Khitish (IET -4094)	3.00	8.00	5.00
		Sabita (IET-8970)	4.20	4.00	-0.20
		Shatabdi (IET-4786)	28.00	20.00	-8.00
		Sujala (CNR-2) (IET20235)	12.30	2.00	-10.30
		Total	**56.20**	**47.50**	**-8.70**
46	**RRS, Bankura**	BNKR-1 (Dhiren) IET 20760	3.90	2.90	-1.00
		Pushpa (IET-17509)	1.70	0.00	-1.70
		Sampriti (BNKR-BB12) (IET-21987)	2.00	2.00	-
		Total	**7.60**	**4.90**	**-2.70**
47	**BCKVV, Nadia**	Gontra Bidhan-1 (IET 17430)	44.85	44.85	-
		Gontra Bidhan-4	0.30	0.00	-0.30
		Gontra Bidhan-3 (IET 22752)	18.05	20.70	2.65
		Total	**63.20**	**65.55**	**2.35**
Sub Total			**4397.29**	**11958.57**	**7561.28**

***Rabi seed production was taken up in 3 farms**
Lockdown almost for 2 months due to COVID-19 and untimely rains (Hail storm) damaged the seed production plots
Untimely rains and wild boar damage in the IIRR farm ICRISAT campus
Seed production of DRR Dhan 42 was teken up in 4 acers in the registered seed producer farm and plots were rejected due to heavy mixers (30% voluntary plants) and untimely rains with hail storm damage the crop.
Government seed farm in the East Godavari district in Andhra Pradesh few quintals of seed is expected

S. No.	Name of the entre	Name of hybrid	Allocation as per BSP-I	Production	Surplus (+) Deficit (-)
1	**UAS, Bangalore**				
	KRH 2	Karnataka Rice Hybrid - 2 (IR 58025A) (KRH-2)	0.1	0.25	0.15
		Karnataka Rice Hybrid - 2 (IR 58025B) (KRH-2)	0.1	0.2	0.1
		Karnataka Rice Hybrid - 2 (KMR - 3R) (KRH-2)	0.1	0.2	0.1
	KRH-4	KRH-4 A-Line	0.12	0.6	0.48
		KRH-4 B-Line	0.08	0.2	0.12
		KRH-4 R-Line	0.08	0.5	0.42
		Total	**0.58**	**1.95**	**1.37**
2	**RARS, Karjat**				
		Sahyadri-5 RTN-13A	0.06	0.13	0.07
		Sahyadri-5 RTN-13B	0.02	0.26	0.24
		Sahyadri-5 RTN-R-5	0.03	0.34	0.31
		Sahyadri-4 IR-58025-A	0.15	0.55	0.4
		Sahyadri-4 IR-58025-B	0.05	0.28	0.23
		Sahyadri-4 IR-58025-R	0.04	0.21	0.17
		Sahyadri-3 (F)	0.1	0.4	0.3
		Sahyadri-3 (M)	0.03	0.25	0.22
		Sahyadri-3 (R)	0.03	0.18	0.15
		Total	**0.51**	**2.6**	**2.09**
		Total (Hybrids)	**1.09**	**4.55**	**3.46**
		Grand Total	**4398.38**	**11963.12**	**7564.74**

***Appendix*-11**

VARIETY WISE BREEDER SEED PRODUCTION DURING KHARIF, 2019 (AS PER DAC INDENT)

(Quantity in Quintals)

S.No	Name of Variety	Allocation as per BSP-I	Actual Production	Surplus (+) Deficit (-)	Name of the Producing centre
1	Abhishek (IET-17868) (RR-272-829)	4.77	8.77	4.00	CRURRS, Hazaribagh
2	ADT-37	13.50	13.50	-	TNAU, Coimbatore
3	ADT-39	5.00	5.00	-	TNAU, Coimbatore
4	ADT-43(IET 14878)	0.10	0.10	-	TNAU, Coimbatore
5	Ajit	4.70	8.00	3.30	RRS, Chinsurah
6	Akshaya	1.00	8.00	7.00	ANGRAU, Guntur
7	Amara (MTU-1064)	7.50	40.00	32.50	ANGRAU, Guntur
8	Anjali (IET-16430) RR-347-166)	3.04	8.25	5.21	CRURRS, Hazaribagh
9	Ankit (CR 2702) (IET 21627)	2.10	1.00	-1.10	NRRI, Cuttack
10	Annada	10.20	10.00	-0.20	NRRI, Cuttack
11	ASD 16	1.50	1.50	-	TNAU, Coimbatore
12	Athira (PBT 51)	0.40	1.00	0.60	KAU, Pattambi
13	Badshah Selection-1	3.60	4.50	0.90	IGAU, Raipur
14	Bahadur	0.20	51.55	51.35	AAU, Jorhat
15	Bahadur Sub-1	40.45	73.15	32.70	RARS, Titabar
16	Bamleshwari (IET14444)	12.00	12.00	-	IGAU, Raipur
17	Basmati Kasturi (IET-8580)	4.20	5.28	1.08	CSKHPKVV, Malan
18	BasmatI-370	2.58	5.00	2.42	RRS, Kaul
19	Bhadra (Mo-4)	3.50	5.00	1.50	RRS, Monocompu
20	Bharani (NLR 30491)	7.00	20.00	13.00	ANGRAU, Guntur
21	Bhogavathi	0.60	14.70	14.10	ARS, Radhanagari
22	Bhuvan (IET 7804)	0.60	0.00	-0.60	OUAT, Bhubaneshwar
23	Bina dhan-10	0.35	0.00	-0.35	ICAR-IIRR, Hyderabad.
24	Bina dhan-11	17.60	11.50	-6.10	ICAR-IIRR, Hyderabad.
25	Bina dhan-12	0.90	1.50	0.60	ICAR-IIRR, Hyderabad.
26	Bina dhan-17	0.20	0.20	-	ICAR-IIRR, Hyderabad.
27	Birsamati	2.34	2.40	0.06	BAU, Ranchi
28	BirsaVikas dhan-109	4.68	3.85	-0.83	BAU, Ranchi
29	BirsaVikas dhan-110	2.34	2.40	0.06	BAU, Ranchi
30	BNKR-1 (Dhiren) IET 20760	3.90	2.90	-1.00	RRS, Bankura
31	BPT 3291 (Sona Mahsuri)	5.00	5.00	0.00	ANGRAU, Guntur
32	BPT-5204	38.98	322.00	283.02	ANGRAU, Guntur
33	BR-2655	1.70	6.00	4.30	UAS, Bangalore
34	BRRI Dhan-69	0.20	0.20	0.00	ICAR-IIRR, Hyderabad.

S.No	Name of Variety	Allocation as per BSP-I	Actual Production	Surplus (+) Deficit (-)	Name of the Producing centre
35	BRRI Dhan-75	0.20	0.00	-0.20	ICAR-IIRR, Hyderabad.
36	CGZR-1	5.00	5.10	0.10	IGAU, Raipur
37	Chandra (IET 23409) (MTU-1153)	17.50	0.00	-17.50	ANGRAU, Guntur
38	Chandrahasini (IET-16800)	20.00	20.10	0.10	IGAU, Raipur
39	Chandrama (IET 9354, 10419)	20.00	13.20	-6.80	Gerua, Assam
40	Chenab (SKAU-23)	1.00	2.00	1.00	SKUAT, Khudwani
41	Chinsurah Rice (IET 19140) (CNI 383-5-11)	1.00	1.50	0.50	RRS, Chinsurah
42	CN 1272-55-105 (IET 19886)	0.50	2.00	1.50	RRS, Chinsurah
43	CNR-2 (IET 20235)	2.50	2.00	-0.50	RRS, Chinsurah
44	CO-51	32.40	32.40	-	TNAU, Coimbatore
45	Cottondora Sannalu (MTU-1010)	351.73	440.00	88.27	ANGRAU, Guntur
46	CR 1009 Sub- 1	9.20	4.00	-5.20	NRRI, Cuttack
47	CR -1014	0.30	0.00	-0.30	NRRI, Cuttack
48	CR -1017 (Dharithri)	1.90	0.40	-1.50	NRRI, Cuttack
49	CR Boro dhan-2 (IET 17612)	0.30	1.00	0.70	NRRI, Cuttack
50	CR Dhan-10 (IET 18312)	1.00	0.00	-1.00	NRRI, Cuttack
51	CR Dhan-201 (IET 21924)	1.00	1.00	-	NRRI, Cuttack
52	CR Dhan-203	9.50	10.00	0.50	NRRI, Cuttack
53	CR Dhan-209	1.00	0.00	-1.00	NRRI, Cuttack
54	CR Dhan-300 (IET 19816, CR 2301-1)	2.60	3.00	0.40	NRRI, Cuttack
55	CR Dhan-301	1.70	0.00	-1.70	NRRI, Cuttack
56	CR Dhan-303	14.50	14.50	-	NRRI, Cuttack
57	CR Dhan-304 (IET 22117)	2.10	3.90	1.80	NRRI, Cuttack
58	CR Dhan-305 (IET 21287)	1.60	1.50	-0.10	NRRI, Cuttack
59	CR Dhan-307 (Maudami) (CR 2599)	5.00	26.40	21.40	NRRI, Cuttack
60	CR Dhan-310	44.10	48.00	3.90	NRRI, Cuttack
61	CR Dhan-401 (Reeta) (IET 19969)	1.50	0.00	-1.50	NRRI, Cuttack
62	CR Dhan-405	1.00	1.00	-	NRRI, Cuttack
63	CR Dhan-501	20.00	0.00	-20.00	NRRI, Cuttack
64	CR Dhan-505 (IET 21719)	26.50	11.10	-15.40	NRRI, Cuttack
65	CR Dhan-601 (IET 18558)	23.10	24.60	1.50	NRRI, Cuttack
66	CR Dhan-800	1.90	27.00	25.10	NRRI, Cuttack
67	CR Dhan-801	1.50	2.50	1.00	NRRI, Cuttack
68	CR Sugandh Dhan-907 (IET 21044)	3.40	0.90	-2.50	NRRI, Cuttack

S.No	Name of Variety	Allocation as per BSP-I	Actual Production	Surplus (+) Deficit (-)	Name of the Producing centre
69	CR-204	3.00	3.00	-	NRRI, Cuttack
70	CR-205	3.00	3.00	-	NRRI, Cuttack
71	CR-206	3.00	3.00	-	NRRI, Cuttack
72	CR-311	3.00	3.00	-	NRRI, Cuttack
73	CSR-30	6.02	12.95	6.93	CSSRI, Karnal
74	CSR-36	3.50	5.50	2.00	CSSRI, Karnal
75	CSR-43	3.00	6.40	3.40	CSSRI, Karnal
76	CSR-46	2.00	6.40	4.40	CSSRI, Karnal
77	CSR-56	2.00	4.80	2.80	CSSRI, Karnal
78	Danteshwari (IET 15450)	9.00	9.00	-	IGAU, Raipur
79	DRR Dhan-39, Jagjeevan (IET 19487)	6.00	6.00	-	ICAR-IIRR, Hyderabad.
80	DRR Dhan-43	1.90	2.40	0.50	ICAR-IIRR, Hyderabad.
81	DRR Dhan-44	36.40	10.00	-26.40	ICAR-IIRR, Hyderabad.
82	DRR Dhan-45	5.95	2.50	-3.45	ICAR-IIRR, Hyderabad.
83	DRR Dhan-46	3.10	8.50	5.40	ICAR-IIRR, Hyderabad.
84	DRR Dhan-50 (IET 25671)	15.30	8.50	-6.80	ICAR-IIRR, Hyderabad.
85	DRR Dhan-51	0.50	2.40	1.90	ICAR-IIRR, Hyderabad.
86	Dubraj Section 1	3.30	3.90	0.60	IGAU, Raipur
87	ErraMallelu (WGL- 20471)	5.40	5.50	0.10	PJTSAU, Hyderabad
88	Gayatri (IET -8022)	2.10	0.60	-1.50	NRRI, Cuttack
89	Geetanjali (IET -17276, CRM-20007-1)	1.00	3.50	2.50	NRRI, Cuttack
90	Gitesh (TTB 103-3-1)	25.00	46.75	21.75	RARS, Titabar (AAU, Jorhat)
91	Giza 14	0.30	0.40	0.10	SKUAST, Chatha
92	Gontra Bidhan-1 (IET 17430)	44.85	44.85	-	BCKVV, Nadia
93	Gontra Bidhan-3 (IET 22752)	18.05	20.70	2.65	BCKVV, Nadia
94	Gontra Bidhan-4	0.30	0.00	-0.30	BCKVV, Nadia
95	Govind	0.20	47.00	46.80	GBPUAT, Pantnagar
96	GR- 13 (GAR -13)	0.10	0.25	0.15	GAU, Nawagam
97	Gurjari	0.10	0.25	0.15	GAU, Nawagam
98	Hazaridhan	2.92	2.92	-	CRURRS, Hazaribagh
99	HKR-127 (HKR-95-222)	4.44	8.00	3.56	RRS, Kaul
100	HKR-47	5.72	10.00	4.28	RRS, Kaul
101	HKR-48	0.50	2.50	2.00	RRS, Kaul
102	HPR-1156 (IET 16007)	10.00	6.17	-3.83	CSKHPKVV, Malan
103	HPR-2143	13.80	14.99	1.19	CSKHPKVV, Malan
104	HPR-2612 (Palm Basmati 1)	12.00	18.45	6.45	CSKHPKVV, Malan
105	HUR- 917	0.15	16.00	15.85	BHU, Varanasi

S.No	Name of Variety	Allocation as per BSP-I	Actual Production	Surplus (+) Deficit (-)	Name of the Producing centre
106	HUR-1304	5.00	11.00	6.00	BHU, Varanasi
107	HUR-1309	5.00	10.00	5.00	BHU, Varanasi
108	IET 5656 (Swarnadhan)	1.20	1.20	-	ICAR-IIRR, Hyderabad.
109	IGKVR- 1	92.80	98.40	5.60	IGAU, Raipur
110	IGKVR- 2 (IET 19795)	38.00	46.20	8.20	IGAU, Raipur
111	IGRKVR -1244 (R1244-1246-1-605-1)	40.00	40.20	0.20	IGAU, Raipur
112	Improved Chinnor	2.75	46.71	43.96	JNKVV, Jabalpur
113	Improved Jeera Shankar	2.75	103.75	101.00	JNKVV, Jabalpur
114	Improved Lalat	14.20	9.00	-5.20	NRRI, Cuttack
115	Improved Samba Mahsuri	22.30	23.00	0.70	ICAR-IIRR, Hyderabad.
116	Indira Aerobic -1 (R 1570-2649-1-1546-1)	15.00	15.90	0.90	IGAU, Raipur
117	Indira Baranidhan -1 (RF-17-38-70)	25.00	25.20	0.20	IGAU, Raipur
118	Indrayani (IET 12897)	66.10	128.50	62.40	ARS, Vadagaon (MPKV, Rahuri)
119	Intan	1.00	2.00	1.00	ARS, Mugad
120	IR-36	16.40	16.50	0.10	IGAU, Raipur
121	IR-64	74.20	75.00	0.80	IGAU, Raipur
122	IR-64 Drt 1 (IET 22836) (DRR Dhan-42)	133.00	57.00	-76.00	ICAR-IIRR, Hyderabad, CRURRS, Hazaribagh
123	Jaya	68.95	9.00	-59.95	ICAR-IIRR, Hyderabad.
124	JGL -8047 (Bathukamma)	5.10	5.50	0.40	PJTSAU, Hyderabad
125	JGL-11470 (Jagtial Mahsuri)	0.60	0.80	0.20	PJTSAU, Hyderabad
126	JGL-1798	1.15	1.50	0.35	PJTSAU, Hyderabad
127	JR -503(Richa) (IET- 16783)	3.20	0.00	-3.20	JNKVV, Jabalpur
128	JR- 81	2.05	1600.58	1598.53	JNKVV, Jabalpur
129	JR-767	16.50	20.66	4.16	JNKVV, Jabalpur
130	JRB -1	2.05	120.70	118.65	JNKVV, Jabalpur
131	Jyothi	14.30	15.00	0.70	KAU, Pattambi
132	Kalachampa	10.00	30.00	20.00	SSTL, BBSR, Govt of Odisha
133	Karjat-184	0.50	2.00	1.50	RARS, Karjat
134	Karjat-3	2.00	12.00	10.00	RARS, Karjat
135	Karjat-5	0.60	6.00	5.40	RARS, Karjat
136	Karjat-7	1.50	15.00	13.50	RARS, Karjat
137	Karjat-8	0.50	3.00	2.50	RARS, Karjat
138	Karma Mahsuri (IET 19991)	15.00	15.00	-	IGAU, Raipur
139	Ketekijoha	25.00	41.50	16.50	RARS, Titabar
140	Khandagiri	8.30	8.30	-	OUAT, Bhubaneshwar
141	Khitish (IET -4094)	10.30	15.50	5.20	RRS, Chinsurah, NRRI, Cuttack

S.No	Name of Variety	Allocation as per BSP-I	Actual Production	Surplus (+) Deficit (-)	Name of the Producing centre
142	KHP- 11	0.50	4.00	3.50	UAHS, Shivamogga
143	KMD- 2 (Abhilash)	1.25	2.00	0.75	ARS, Mugad
144	KNM-118	30.10	32.00	1.90	PJTSAU, Hyderabad
145	Kranti (R-2022)	10.40	3648.68	3638.28	JNKVV, Jabalpur
146	Krishna Hamsa	0.05	0.50	0.45	ICAR-IIRR, Hyderabad.
147	Lalat (IET- 9947)	42.98	43.00	0.02	OUAT, Bhubaneshwar
148	Luna Sampad (IET 19470)	1.30	0.55	-0.75	NRRI, Cuttack
149	Luna Sankhi	0.60	6.60	6.00	NRRI, Cuttack
150	Luna Suwarna (IET 18697)	1.60	0.40	-1.20	NRRI, Cuttack
151	Lunisree	0.50	0.00	-0.50	NRRI, Cuttack
152	Mahamaya (IET-10749)	74.10	90.00	15.90	IGAU, Raipur
153	Mahsuri	1.10	1.20	0.10	ICAR-IIRR, Hyderabad.
154	Manaswini (IET19005)	2.10	2.10	-	OUAT, Bhubaneshwar
155	Mandakini (OR 2077-4, IET 17847)	3.20	3.20	-	OUAT, Bhubaneshwar
156	Maruteru Sannalu (MTU-1006, IET-14348)	1.00	2.00	1.00	ANGRAU, Guntur
157	Mo21(Prathiksha)	0.75	5.00	4.25	RRS, Monocompu
158	Mrunalini (OR 1898-18) (IET18649)	5.00	5.00	-	OUAT, Bhubaneshwar
159	MTU- 61 (Indra) (MTU-1061)	8.00	40.00	32.00	ANGRAU, Guntur
160	MTU-1075 (IET18482)	25.10	75.00	49.90	ANGRAU, Guntur
161	MTU-1121 (Sri Dhruthi)	113.10	216.00	102.90	ANGRAU, Guntur
162	MTU-1156	40.50	194.00	153.50	ANGRAU, Guntur
163	MTU-7029 (Swarna)	348.76	410.00	61.24	ANGRAU, Guntur
164	Narendradhan (NDR359)	5.52	32.15	26.63	NDUAT, Faizabad
165	Narendradhan-97	1.20	14.00	12.80	NDUAT, Faizabad
166	Naveen (CR-749-20-2) (IET-14461)	8.84	10.00	1.16	NRRI, Cuttack
167	NDR-2065 (IET17476)	20.00	63.50	43.50	NDUAT, Faizabad
168	Nellore Mahsuri (NLR-34449)	12.00	135.00	123.00	ANGRAU, Guntur
169	Pankaj	0.30	0.00	-0.30	OUAT, Bhubaneshwar
170	Pantdhan-10 (IET-8616)	0.30	7.00	6.70	GBPUAT, Pantnagar
171	Pantdhan-12 (IET-10955)	3.10	6.00	2.90	GBPUAT, Pantnagar
172	Pantdhan-18 (IET-17920) (UPRI-99-1)	1.20	16.00	14.80	GBPUAT, Pantnagar
173	Pantdhan-24	25.00	38.00	13.00	GBPUAT, Pantnagar
174	Pantdhan-26	0.30	10.00	9.70	GBPUAT, Pantnagar
175	Pardhiva (NLR-33892)	4.00	9.00	5.00	ANGRAU, Guntur
176	Parijat (IET-2684)	5.00	3.80	-1.20	OUAT, Bhubaneshwar
177	PAU-201	6.50	6.50	-	PAU, Ludhina
178	PDKV Kisan	0.50	5.00	4.50	ARS, Sakoli

S.No	Name of Variety	Allocation as per BSP-I	Actual Production	Surplus (+) Deficit (-)	Name of the Producing centre
179	PDKV Tilak	1.00	25.90	24.90	ARS, Sindewahi
180	Phalguni(IET-18720) (CRAC 2224-1041)	0.50	0.50	-	NRRI, Cuttack
181	Phule Samruddhi (VDN-99-29)	0.50	38.00	37.50	ARS, Vadagaon (MPKV, Rahuri)
182	PKV HMT	71.96	52.00	-19.96	ARS, Sindewahi
183	Pooja (IET-12241)	32.50	42.50	10.00	NRRI, Cuttack
184	PoornaBhog	0.30	0.00	-0.30	NRRI, Cuttack
185	Poornima (IET 12284, 1281-PP-31-1)	10.40	10.50	0.10	IGAU, Raipur
186	PR 122 (RYT 3129)	17.70	20.00	2.30	PAU, Ludhina
187	PR-111	6.68	10.00	3.32	PAU, Ludhina
188	PR-113	63.30	65.00	1.70	PAU, Ludhina
189	PR-114	17.81	20.00	2.19	PAU, Ludhina
190	PR-116	3.28	7.00	3.72	PAU, Ludhina
191	PR-118	10.94	15.00	4.06	PAU, Ludhina
192	PR121	45.12	50.00	4.88	PAU, Ludhina
193	PR-123	1.20	4.00	2.80	PAU, Ludhina
194	PR-124	7.76	8.00	0.24	PAU, Ludhina
195	PR-126	25.18	30.00	4.82	PAU, Ludhina
196	PR-127	18.03	20.00	1.97	PAU, Ludhina
197	Prabhat	2.00	32.00	30.00	ANGRAU, Guntur
198	Pratap-1 (RSK-1091-10-1-1)	0.10	0.00	-0.10	MPUAT, Kota
199	Pratikshya (OR S201-5) (IET-15191)	32.40	22.00	-10.40	OUAT, Bhubaneshwar
200	PTB-45 (Matta Triveni)	1.00	2.50	1.50	KAU, Pattambi
201	Punjab Basmati -4	0.04	1.00	0.96	PAU, Ludhina
202	Punjab Basmati -5	0.04	1.00	0.96	PAU, Ludhina
203	PUSA 1592	0.58	1.00	0.42	DSST & IARI, New Delhi
204	Pusa Basmati -1 (IET-10364)	29.29	30.00	0.71	BEDF, New Delhi, ICAR-IARI, Regional Stn.Karnal
205	Pusa Basmati 1121	60.00	66.00	6.00	BEDF, New Delhi, ICAR-IARI, Regional Stn,Karnal
206	Pusa Basmati-1509 (IET-21960)	60.00	65.00	5.00	BEDF, New Delhi, ICAR-IARI, Regional Stn Karnal
207	Pusa Basmati-6 (IET-18005)	21.13	22.00	0.87	ICAR-IARI, Regional Stn,Karnal
208	Pusa Sugandh-2 (IET-16310, Pusa-204-1-126)	0.40	0.00	-0.40	DSST & IARI, New Delhi
209	Pusa Sugandh-3 (IET-16313, Pusa-2504-1-3-1)	20.50	0.00	-20.50	DSST & IARI, New Delhi
210	Pusa Sugandh-5 (IET-17021)	66.71	69.00	2.29	DSST & IARI, New Delhi
211	Pusa-1850	2.00	2.00	-	ICAR-IARI, Regional Stn,Karnal

S.No	Name of Variety	Allocation as per BSP-I	Actual Production	Surplus (+) Deficit (-)	Name of the Producing centre
212	Pusa-44	40.00	40.00	-	ICAR-IARI, Regional Stn,Karnal
213	Pusa-6 (IET 22290) (Pusa 1612-7-6-5)	0.60	2.00	1.40	DSST & IARI, New Delhi
214	Pushpa (IET-17509)	1.70	0.00	-1.70	RRS, Bankura
215	Rajendra Mahsuri1	31.28	32.00	0.72	RAU, PUSA
216	Rajendra Bhagavati	62.30	63.00	0.70	RAU, PUSA
217	Rajendra Kasturi	1.80	2.00	0.20	RAU, PUSA
218	Rajendra Suwasini	1.50	2.00	0.50	RAU, PUSA
219	Rajendra Sweta	4.20	5.00	0.80	BAU, Sabour
220	Rajeshwari-1	1.00	2.00	1.00	RAU, PUSA
221	Rajshree (TCA80-4) (IET-7970)	0.40	1.00	0.60	RAU, PUSA
222	Ranidhan (IET19148)	14.30	14.30	-	OUAT, Bhubaneshwar
223	Ranjeet (IET-12554)	13.50	0.00	-13.50	RARS, Titabar (AAU, Jorhat)
224	Ranjit	20.70	22.80	2.10	AAU, Jorhat
225	Ranjit Sub-1	41.10	175.20	134.10	RARS, Titabar (AAU, Jorhat)
226	Rashmi (JR-201)	11.30	30.43	19.13	JNKVV, Jabalpur
227	Rasi (IET-1444)	0.30	0.50	0.20	ICAR-IIRR, Hyderabad.
228	Ratna	0.10	1.00	0.90	NRRI, Cuttack
229	Ratnagini-1	0.60	59.00	58.40	ARS, Ratanagiri
230	Ratnagiri- 8	0.50	25.50	25.00	ARS, Ratanagiri
231	Ratnagiri-24 (RTN24) (IET-19812)	0.50	8.60	8.10	ARS, Ratanagiri
232	Ratnagiri-6	0.50	20.60	20.10	ARS, Ratanagiri
233	Ratnagiri-7	0.50	16.50	16.00	ARS, Ratanagiri
234	RGL 2537	11.00	31.50	20.50	ANGRAU, Guntur
235	RNR 15048 (Telangana Sona)	31.20	35.00	3.80	PJTSAU, Hyderabad
236	RTN-5 (Ratnagiri-5)	3.00	10.50	7.50	ARS, Ratanagiri
237	Sabhour Shree	35.00	101.10	66.10	BAU, Sabour
238	Sabhour Surbhit	35.00	36.20	1.20	BAU, Sabour
239	Sabita (IET-8970)	4.20	4.00	-0.20	RRS, Chinsurah
240	Sabour Deep	15.00	35.75	20.75	BAU, Sabour
241	Sakoli-9	0.50	4.50	4.00	ARS, Sakoli
242	Sambha Sub-1 (IET21248)	14.30	6.00	-8.30	NRRI, Cuttack
243	Samleshwari (IET-17455)	8.30	9.90	1.60	IGAU, Raipur
244	Sampada (IET19424)	31.00	11.40	-19.60	ICAR-IIRR, Hyderabad.
245	Sampriti (BNKR-BB12) (IET-21987)	2.00	2.00	-	RRS, Bankura
246	Sarala (CR-260-77) (IET-10279)	3.90	5.00	1.10	NRRI, Cuttack
247	Sarjoo-52	11.10	90.00	78.90	NDUAT, Faizabad
248	Satyabhama	6.00	3.00	-3.00	NRRI, Cuttack
249	Savitri (IET5897, CR 1009	4.25	0.00	-4.25	NRRI, Cuttack

S.No	Name of Variety	Allocation as per BSP-I	Actual Production	Surplus (+) Deficit (-)	Name of the Producing centre
250	Shabhagidhan (IET-19576)	149.88	165.05	15.17	CRURRS, Hazaribagh
251	Sharavathi (IR-57773)	1.00	4.00	3.00	UAHS, Shivamogga
252	Shatabdi (IET-4786)	56.90	60.00	3.10	NRRI, Cuttack, RRS, Chinsurah
253	Shiats Dhan-1 (AAIR2) (IET20928)	5.00	0.00	-5.00	SHUATS, Prayagraj,UP
254	Shiats Dhan-2	2.00	0.00	-2.00	SHUATS, Prayagraj,UP
255	Shiats Dhan-3	2.10	0.00	-2.10	SHUATS, Prayagraj,UP
256	ShobhinI (RNR2354) (IET21260)	1.00	1.00	-	PJTSAU, Hyderabad
257	Shreyas	0.30	6.00	5.70	RRS, Monocompu
258	Shyamala (IET 12561, R259-WR-37-2)	0.10	1.20	1.10	IGAU, Raipur
259	SITA	1.15	6.75	5.60	BAU, Sabour
260	SubourArdhajal	35.00	132.10	97.10	BAU, Sabour
261	Sujala (CNR-2) (IET 20235)	12.30	2.00	-10.30	RRS, Chinsurah
262	Surendra (IET-12815)	0.90	0.90	-	OUAT, Bhubaneshwar
263	Swarna Shreya	16.50	23.00	6.50	ICAR-Patna
264	Swarna Sub-1 (CR-2539-1, IET 20266)	210.85	180.00	-30.85	NRRI, Cuttack
265	Tarunbhog Selection- 1	3.00	3.60	0.60	IGAU, Raipur
266	TellaHamsa	1.50	1.50	-	PJTSAU, Hyderabad
267	Thanu	2.45	4.00	1.55	UAS, Bangalore
268	Thunga (IET 13901)	4.75	8.00	3.25	UAHS, Shivamogga
269	TRY3	0.10	0.10	0.00	TNAU, Coimbatore
270	Uma	14.10	14.50	0.40	RRS, Monocompu
271	Vallabh Basmati - 24 (IET 20827) (MAUB -171)	0.20	1.00	0.80	SVBPUA& T Meerut
272	Vandana (RR167-182)	2.92	4.78	1.86	CRURRS, Hazaribagh
273	Varshadhan (CRLC-899) (IET-16481)	5.30	5.00	-0.30	NRRI, Cuttack
274	Vijetha (MTU1001)	106.90	180.00	73.10	ANGRAU, Guntur
275	Vishnubhog Selection-1	2.30	5.00	2.70	IGAU, Raipur
276	VL Dhan 157 (VL31611) (IET22292)	2.50	2.50	-	VIHA, Almora
277	VL Dhan-158	0.20	1.00	0.80	VIHA, Almora
278	VL Dhan-68 (VL31611) (IET22283)	8.00	15.00	7.00	VIHA, Almora
279	VL Dhan-85 (IET 16455, VL3613)	0.60	0.70	0.10	VIHA, Almora
280	Warangal Sannalu (WGL32100, IET 18044)	12.50	13.00	0.50	PJTSAU, Hyderabad
281	WGL-347	1.00	1.50	0.50	PJTSAU, Hyderabad
282	WGL-44	1.00	2.00	1.00	PJTSAU, Hyderabad

S.No	Name of Variety	Allocation as per BSP-I	Actual Production	Surplus (+) Deficit (-)	Name of the Producing centre
	Total	**4397.29**	**11958.57**	**7561.28**	

Hybrids

S. No.	Name of the Centre	Name of hybrid	Allocation as per BSP-I	Production	Surplus (+) Deficit (-)
	UAS, Bangalore	Karnataka Rice Hybrid – 2 (IR 58025A) (KRH-2)	0.1	0.25	**0.15**
		Karnataka Rice Hybrid – 2 (IR 58025B) (KRH-2)	0.1	0.2	**0.1**
		Karnataka Rice Hybrid - 2 (KMR - 3R) (KRH-2)	0.1	0.2	**0.1**
		KRH-4 A-Line	0.12	0.6	**0.48**
		KRH-4 B-Line	0.08	0.2	**0.12**
		KRH-4 R-Line	0.08	0.5	**0.42**
		Total	**0.58**	**1.95**	**1.37**
2	RARS, Karjat	Sahyadri-5 RTN-13A	0.06	0.13	**0.07**
		Sahyadri-5 RTN-13B	0.02	0.26	**0.24**
		Sahyadri-5 RTN-R-5	0.03	0.34	**0.31**
		Sahyadri-4 IR-58025-A	0.15	0.55	**0.4**
		Sahyadri-4 IR-58025-B	0.05	0.28	**0.23**
		Sahyadri-4 IR-58025-R	0.04	0.21	**0.17**
		Sahyadri-3 (F)	0.1	0.4	**0.3**
		Sahyadri-3 (M)	0.03	0.25	**0.22**
		Sahyadri-3 (R)	0.03	0.18	**0.15**
		Total	**0.51**	**2.6**	**2.09**
		Total (Hybrids)	**1.09**	**4.55**	**3.46**
Grand Total			**4398.38**	**11963.12**	**7564.74**

Appendix-12

BREEDER SEED PRODUCTION OF ADDITIONAL RICE VARIETIES / STATE INDENTS DURING KHARIF, 2019

(Quantity in Quintals)

S. No	Name of the Producing centre	Name of variety	Produced
1	**RRS, Bankura**	Dhruba (20761)	0.75
		Total	**0.75**
2	**IGKV, Raipur**	IGKV R 1	39.00
		Indra Barani Dhan 1	3.00
		Mahamaya	59.40
		Vishnubhog Selection 1	8.95
		Dubraj Selection 1	6.30
		Badshabhog Selection 1	6.40
		Tarunbhog Selection 1	3.45
		CGZR 2	5.40
		Zinco Rice MS	15.00
		CG Devbhog	4.45
		Swarna	54.00
		MTU 1010	112.20
		DRR Dhan 42	16.80
		CG Madhuraj Dhan 55	6.30
		Total	**340.65**
3	**JNKVV, Jabalpur**	Danteswari	2.81
		IR 36	4.86
		IR 64	8.87
		JR 206	2.41
		MTU 1010	6.85
		PS 1460	1.56
		PS 4	41.48
		Sahbhagi	1.99
		Total	**70.83**
4	**BHU, Varanasi**	HUR 917	18.00
		HUR 3022	2.00
		HUBR 10-9	3.10
		HUBR 2-1	2.40
		Total	**25.50**
5	**BEDF, Modipuram (Meerut)**	Pusa Basmati 1121	1.00
		Pusa Basmati 1509	5.00
		Total	**6.00**
6	**ICAR-VPKAS, Almora**	VL Dhan 209	0.15
		VL Dhan 86	0.81
		Total	**0.96**
7	**ARS, Sirsi (Mugad)**	Prasanna	2.00
		MGD 101	0.10
		MTU 1010	0.10
		SIRI 1253	0.75
		BPT 5204	0.25
		RP Bio 226	0.25

S. No	Name of the Producing centre	Name of variety	Produced
		MGD 103	0.10
		Mugad Suganda	0.10
		K44-1	0.10
		PSB 68	0.50
		Hemavathi	0.75
		Intan	0.25
		Total	**5.25**
8	**BAU, Sabour**	Rajendra Kasturi	11.95
		Rajendra Suvasaini	9.42
		TOTAL	**21.37**
9	**CSSRI, Karnal**	CSR 10	1.00
		CSR 13	1.00
		CSR 23	1.00
		CSR 27	1.00
		CSR 49	1.60
		CSR 52	2.00
		CSR 60	5.20
		Total	**12.80**
10	**RARS, Karjat**	Karjat-2	10.00
		Karjat-4	4.00
		Karjat-6	4.50
		Karjat-9	7.00
		Karjat-10	8.00
		Trombay Karjat Kolam	5.40
		Sahyadri	
		A Line	0.38
		B Line	0.25
		R Line	0.20
		Sahyadri 2	
		A Line	0.45
		B Line	0.24
		R Line	0.18
		Total	**40.60**
11	**CRURRS, Hazaribag**	CR Dhan 40	0.70
		Sadabahar	0.50
		Virendra	0.60
		Total	**1.80**
12	**CSSRI, Karnal**	CSR-46	4.20
		CSR-49	2.50
		CSR-52	2.40
		CSR-56	2.80
		CSR-60	3.60
		Total	**15.50**
13	**RRS, Kaul**	HKR 128	10.00
		Taraori Basmati	5.00
		Haryana Basmati-2	10.00
		Total	**25.00**
14	**G.B PUAT, Pantnagar**	Pusa 44	36.00

S. No	Name of the Producing centre	Name of variety	Produced
		PR 113	122.00
		NDR 359	14.00
		Pant Basmati 1	5.00
		Pant Sugandh Dhan 27	8.00
		Pant Sugandh Dhan 17	7.00
		Pusa Basmati 1	13.00
		Pusa Sugandh 4 (Pusa 1121)	49.00
		Pant Dhan 19	16.00
		PR 114	36.00
		PR 121	31.00
		HKR 47	119.00
		Pant Dhan 11	41.00
		PR 124	13.00
		MTU 7029	20.00
		BPT 5204	19.00
		Type 3	6.00
		Type 3 (Organic)	4.00
		Pant Dhan 22	8.00
		Pant Dhan 28	8.00
		Pusa Sugandh 5 (Pusa 2511)	43.00
		HKR127	20.00
		Pusa 1612	9.00
		Total	**647.00**
15	**ARS, Shirgaon**	Ratnagiri-73	0.90
		Ratnagiri-2	1.20
		Ratnagiri-3	1.20
		Ratnagiri-711	3.00
		Ratnagiri-4	5.70
		Sahyadri -5 (A Line)	1.50
		Sahyadri-5 (B Line)	1.00
		Sahyadri-5 (R Line)	0.70
		Total	**15.20**
		Grand Total	**1229.21**

Appendix 13

Breeder Seed Production Proformae

The Calendar of events for breeder seed production are as under : **Co-operators are requested to please comply with the schedule**

Proforma BSP I : Allocation of Breeder Seed Production of Varieties/ Parental lines of Rice hybrids

S. No	Variety	Name of the producing Breeder/ Institution	Quantity allotted (Qtls)	Members of monitoring team

Action:

- **BSP I will be sent to respective centres in the last week of April by IIRR after rice workshop.**

Proforma BSP II: Time of production and availability of Breeder Seed

S. No	Variety/ Parental lines	Quantity targeted (Qtls)	Area sown (ha)	D/S	D/P	Field location	Expected fortnight for monito-ring	Expected date of Harvest	Expected Produc-tion (Qtls)	Expected date of availa-bility

Action:

- **BSP II should positively reach IIRR in the last week of September**

Proforma BSP III: Inspection Report of the Monitoring Team

Sl. No	Variety	Area under variety (ha)	Field Location	Authority under which grown		Report of Monitoring Team	Expected Production (Qtls)
				Date of Proforma BSP-I	Date of Proforma BSP-II		

Action:

- **BSP III should positively reach IIRR in the second fortnight of November**

Proforma BSP IV : Report on Breeder Seed Production actually produced

(a) Breeder Seed Produced as per DAC indent

Variety/ Parental lines	Quantity of B.S. allotted as per BSP I	Quantity of B.S. actually produced (Qtls)	Comments of the Monitoring Team (Satisfactory/ Unsatisfactory)

b) Breeder Seed Produced in addition to above allocation, if any

Variety/ Parental lines	Quantity of B.S. produced (Qtls)	Comments of the Monitoring Team (Satisfactory/ unsatisfactory)

(c) Carry over seed, if any

Variety/ Parental lines	Year of Production	Quantity	Germination Percentage	
			Previous year	Current year

Action:

- **BSP IV should positively reach IIRR in the second fortnight of December (*If BSP data is submitted timely, we can minimize the problems of non lifting.)***

Proforma BSP V : Report of Grow Out Test

Proforma BSP VI : Report on the Status of Lifting/Non-lifting /Supply position for theprevious season.

- **Status of breeder seed produced in the previous season / year and supplied to various seed agencies / state dept. of Agriculture as per the DAC allotment in other words lifting / non-lifting / supply position may kindly be sent to DRR positively in the second fortnight of September.**

Name of the producing centre	Variety	Target set	Actual production	Allocation (Agency wise)	Lifting (Agency wise)	Balance if, any	Remarks

Action:

- **BSP VI should positively reach DRR in the second fortnight of September**

All the proforma should be distributed to:

1. Asst. Director General (Seeds), ICAR, Krishi Bhavan, New Delhi – 110 001.
2. Deputy Commissioner (Seeds), Department of Agriculture and Co-operation, Ministry of Agriculture, Shastri Bhavan, New Delhi – 110 001
3. Director, ICAR-Indian Institute of Rice Research, Rajendranagar, Hyderabad – 500 030.
4. Director, ICAR-Indian Institute of Seed Science, Village: Kusmaur (P.O.Kaithili), Mau Nath Bhanjan, Uttar Pradesh.
5. General Manager (Production), National Seed Corporation, Beej Bhawan, Pusa Campus, New Delhi – 110 012.

Appendix-14

Promising Entries in Varietal Trials, *Kharif* 2019

S.No.	IET No.	Designation/ Cross Combination	GT	DFF	Yield (kg/ha)	Trial	Promising for
1.	25912	CR 2667-5-1-2-1-1 (Gayatri / AC.38599)	SB	114	4765	AVT 1-SDW	Promising for state of Odisha in Zone III
2.	26468	***JKRH 2354 (Hybrid)***	LB	90	7503	AVT 2-E TP	Promising for Chhattisgarh
3.	26477	***RH-150025 (Hybrid)***	SB	91	7045	AVT 2-E TP	Promising for Chhattisgarh
4.	27294	RP 6113-Patho BB-9 (GSY-BB-IPB-2-9) (Improved Samba Mahsuri*3/ PAU 3554)	MS	100	5064	AVT 1-L	Promising for the Improved Samba Mahsuri growing areas of the country.
5.	26435	TRC 2016-14 (Pyzum / Samba Mahsuri)	LS	94	7695	AVT 1-Boro	Promising for the state of Tripura in Zone IV.
6.	26999	***Indam 100 -012 (Hybrid)***	LS	90	7039	AVT 1-BT	Promising for Uttar Pradesh
7.	25819	VL 32224 (Vivekdhan 82 / VL 31629)	LB	97	6482	AVT 2-E (H)	Promising for Uttarakhand and Himachal Pradesh under Northern Medium and Low elevated hills.
8.	26576	SKAU 500 (K 1356-6-4) SR-1 / Dular	SB	102	7380	AVT 2-E (H)	Promising for Jammu & Kashmir under High hills.
9.	26605	VL 20073 (VL 6394/VL 122)	SB	88	1953	AVT 1-U (H)	Promising for Uttarakhand under Medium elevated hills.
10.	26194	RP 5591-123-16-2 (MTU 1010 / IR 79915-B-83-4-3)	LB	80	5210	AVT 1 - Aerob	Promising for Bihar.
11.	25802	***ARRH 7576 (Hybrid)***	MS	101	6063	AVT 1-MS	Promising for Tripura
12.	27117	ORJ 1135 (RR 615 mutant)	MS	101	5062	AVT 1-MS	Promising for Maharashtra

Appendix-15

CONSTITUTION OF VARIETY TRIALS-2020

Trial	Test Entries	
1.	**ADVANCE VARIETY TRIAL-1-EARLY DIRECT SEEDED (AVT-1-E DS)**	
	3rd Year of testing	IETs: 27523 (III)
	2nd Year of testing	IETs: 28241(III), 28242(VI), 28248(III), 28250(O), 28253(O), 28256(O), 28258 (III), 28259 (VI). Repeats: IET 27525 (O)
	Checks	National: Sahbhagidhan and Vandana; Zonal: Govind, (Northern), Narendra 97 (Eastern & North Eastern), Samleshwari (Central), Varalu and Tulasi (Western and Southern), Anjali (for all zones); Hybrid: US 314, Sensitive check : Gangavathi Ageti and Local Check
2.	**INITIAL VARIETY TRIAL-EARLY DIRECT SEEDED (IVT-E DS)**	
	New Nominations: RPR-2, HZB-5, HTW-2, CBT-4, MTU-2, BPT-1	
	Checks	National: Sahbhagidhan and Vandana; Zonal: Govind (Northern), Narendra 97 (Eastern & North Eastern), Samleshwari (Central), Varalu and Tulasi (Western and Southern), Anjali (for all zones); Hybrid: US 314, Sensitive check : Gangavathi Ageti and Local Check
3.	**ADVANCE VARIETY TRIAL 2-RAINFED SHALLOW LOWLAND (AVT 2-RSL)**	
	3rd Year of testing	IETs: 27537 (VII), 27547 (VII)
	Checks	National: Swarna Sub1; Zonal: Pooja (Eastern), Bahadur (North Eastern), Savitri (Southern); Hybrid: PA 6444 and Local Check
4.	**ADVANCE VARIETY TRIAL 1-RAINFED SHALLOW LOWLAND (AVT 1-RSL)**	
	2nd Year of testing	IETs: 28264 (VII), 28276 (III, VII), 28281 (VII), 28283 (O, III), 28286 (VII).
	Checks	National: Swarna Sub1; Zonal: Pooja (Eastern), Bahadur (North Eastern), Savitri (Southern); Hybrid: PA 6444 and Local Check
5.	**INITIAL VARIETY TRIAL - RAINFED SHALLOW LOWLAND (IVT -RSL)**	
	New Nominations: BBN-4, BPT-2, MTU-1, CHN-1, Pallishree-1	
	Checks	National: Swarna Sub1; Zonal: Pooja (Eastern), Bahadur (North Eastern), Savitri (Southern); Hybrid: PA 6444 and Local Check
6.	**ADVANCE VARIETY TRIAL 1- SEMI DEEP WATER (AVT 1 -SDW)**	
	3rd Year of testing	None
	2nd year of testing	IETs: 28291(VII), 28292 (VII), 28293 (O,III), 28294 (O), 28296 (O,VII), 28299 (O,VII), 28302 (O,III,VII), 28304 (VII), 28305 (O,III), 28306 (VII), 28311 (O,III), 28313 (O,III,VII), 28315 (O), 28317 (O,III,VII).
	Checks:	National: CR Dhan 506; Zonal: Purnendu (Eastern and North Eastern), MTU 1172 (Southern) and Local Check
7.	**INITIAL VARIETY TRIAL - SEMI DEEP WATER (IVT -SDW)**	
	New Nominations:	
	Checks:	National: CR Dhan 506; Zonal: Purnendu (Eastern & North Eastern), MTU 1172 (Southern) and Local Check.

Trial	Test Entries	
8.	**INITIAL VARIETY TRIAL –DEEP WATER (IVT-DW)**	
	Repeated all the entries tested in IVT-DW during 2019	
	New Nominations:	
	Checks:	National: CR Dhan 500, Zonal: Dinesh and Local.
9.	**ADVANCE VARIETY TRIAL 2 –EARLY TRANSPLANTED (AVT2-E TP)**	
	3rd Year of testing	IETs: 27869 (II,V), 27866 (III,V), 27892 (V), 27914 (II,V), 27920 (V), 27905 (V), 27883 (II), 27329 (III), 27328 (III,VII), 27332 (III), 27340 (III), 26898 (III), 27880 (III).
	Checks:	National: CO-51; Zonal- PR 124 (Northern), Narendra 97 (Eastern), Luit (North Eastern), Sahbhagidhan (Central & Western), MTU 1153 (Southern); Hybrid: US 314 and Local Check.
10.	**ADVANCE VARIETY TRIAL 1 –EARLY TRANSPLANTED (AVT 1-E TP)**	
	2nd Year of testing:	IETs: 28329 (VII), 28332 (O, VII), 28333 (III), 28343 (O, III, V, VII), 28354 (O), 28356 (III), 28366 (VII), 28377 (O), 28358 (II). **Repeats**: 26790 (II, VI) **From IHRT-E:** IETs: 28111 (O, II, III, V, VI, VII), 28113 (O, III, IV, V, VI), 28114 (III), 28115 (III, IV), 28118 (V, VII), 28119 (III), 28120 (III), 28122 (O,III, V), 28123 (V), 28124 (II).
	Checks:	National: CO-51; Zonal- PR 124 (Northern), Narendra 97 (Eastern), Luit (North Eastern), Sahbhagidhan (Central & Western), MTU 1153 (Southern); Hybrid: US 314 and Local Check.
11.	**INITIAL VARIETY TRIAL –EARLY TRANSPLANTED (IVT-E TP)**	
	New Nominations: ADT-2, HZB-1, NVS-3, JGL-2, GNV-1, WGL-3, KNM-2, CTK-9, RDR-1, MTU-3, RNR-2, CBT-2, LDN-3, Nuziveedu-1, Prabhat Argitech-1, KJT-1, NWG-2, BKG-1	
	Checks:	National: CO-51; Zonal- PR 124 (Northern), Narendra 97 (Eastern), Luit (North Eastern), Sahbhagidhan (Central & Western), MTU 1153 (Southern) and Local Check.
12.	**ADVANCE VARIETY TRIAL 2- IRRIGATED MID-EARLY (AVT 2-IME)**	
	3rd year of testing:	27358 (VI), 27360 (VI)
	Checks:	National: Gontrabidhan-3; Zonal: PR 113 (Northern), Lalat (Eastern and North Eastern), MTU 1010 (Central and Southern), Karjat-7 (Western); Hybrid: US 312 and Local Check
13.	**ADVANCE VARIETY TRIAL 1- IRRIGATED MID-EARLY (AVT 1-IME)**	
	2nd year of testing:	IETs: 28386 (V), 28387 (V,VI), 28388 (III), 28389 (V), 28391 (II), 28393 (V, VI), 28395 (III, VI), 28396 (II, V), 28397 (V), 28401 (III), 28402 (VI), 28403 (V), 28409 (II, VI), 28410 (II, VI), 28415 (V, VI), 28416 (VI), 28421 (III, VI), 27695 (III, V), 28425 (V), 28433 (V). **From IHRT-ME:** IETs**:** 28126 (V, VI), 28128 (II), 28129 (VI), 28132 (III, VI), 28133 (V, VI), 28136 (O, II, V, VII), 28138 (VI), 28139 (III, VI, VII), 28143 (VII), 28145 (VI).
	Checks:	National: Gontrabidhan-3; Zonal: PR 113 (Northern), Lalat (Eastern and North Eastern), MTU 1010 (Central and Southern), Karjat-7 (Western); Hybrid: US 312 and Local Check
14.	**INITIAL VARIETY TRIAL –IRRIGATED MID-EARLY (IVT-IME)**	

Trial	Test Entries	
	Shift from IVT-E TP: IETs**:** 28328, 28331, 28337, 28342, 28347, 28352, 28353, 28355, 28357, 28358, 28365, 28369, 28370, 28371, 28374, 28378, 28380, 28381. **Shift from IVT-IM**: IET 28467 **Shift from IVT-L**: IETs: 28499, 28506 **Shifts from AVT 1-E TP**: IETs: 27907 (III), 27923 (V) **New Nominations:** BBN-1, VRN-3, RPR-3, JGL-2, RNR-2, WGL-3, HTW-1, KNM-1, CBT-6, LDN-2, NVS-2, CTK-10, MNC-1, KBP-1, ADT-3, MTU-4, KJT-2, Yaganti- 1, Prabhat Agritech-1.	
	Checks:	National: Gontrabidhan-3; Zonal: PR 113 (Northern), Lalat (Eastern and North Eastern), MTU 1010 (Central and Southern), Karjat-7 (Western) and Local Check
15.	**ADVANCE VARIETY TRIAL 2- IRRIGATED MEDIUM (AVT 2-IM)**	
	3rd year of testing:	27689 (III), 27705 (VII), 27380 (III), 25530 **Repeats**: 27263 (III), 26418
	Checks:	National: NDR 359; Zonal: PR 121 (Northern), CR Dhan 300 (Eastern and North Eastern), Karma Mahsuri (Central), Akshyadhan (Western), Jaya (Southern), Hybrid: HRI 174 & US 312 and Local check.
16.	**ADVANCE VARIETY TRIAL 1- IRRIGATED MEDIUM (AVT 1-IM)**	
	2nd Year of testing	IETs: 28439 (III,V), 28442 (II), 27749 (II), 28444 (O), 28447 (III), 28451 (III,V), 28452 (III), 27771 (III), 28471 (III), 28472 (III), 27900 (O), 28475 (III), 28481 (III, V, VI), 28483 (III), 28487 (II), 28489 (II, V, VI), 28490 (V, VI), 28491 (III), 28493 (III). **From IHRT-M:** IETs: 28156 (VI), 28158 (II), 28159 (VI), 28160 (III, VII), 28162 (O, II, III, VII), 28163 (II, III), 28166 (III, VI), 28171 (II), 28174 (II, VI). 28161 (II).
	Checks:	National: NDR 359; Zonal: PR 121 (Northern), CR Dhan 300 (Eastern and North Eastern), Karma Mahsuri (Central), Akshyadhan (Western), Jaya (Southern), Hybrid: HRI 174 & US 312 and Local check.
17.	**INITIAL VARIETY TRIAL 1- IRRIGATED MEDIUM (IVT-IM)**	
	Shifts from IVT-E TP: IETs: 28344, 28368, 28372 **Shifts from IVT-IME**: IETs: 28383, 28419, 27908. **Shifts from IVT-L**: IETs: 28498, 28503, 28514, 28523, 28529, 28530, 28535, 28540, 28546, 28552. **New Nominations**: BBN-1, RDR-1, JGL-2, RPR-3, WGL-3, RNR-2, CBT-3, BPT-2, CTK-13, WRS-1, MTU-5, NVS-1, ADT-3, LDN-3, KJT-1, NWG-1	
	Checks:	National: NDR 359, Zonal: PR 121 (Northern), CR Dhan 300 (Eastern and North Eastern), Karma Mahsuri (Central), Akshyadhan (Western), Jaya (Southern) and Local check.
18.	**ADVANCED VARIETY TRIAL 1- LATE (AVT 1-L)**	
	3rd year of testing:	27637 (V)
	2nd year of testing:	IETs: 28497 (O, VI), 28500 (VII), 28501 (VI), 28502 (VI), 28507 (VI), 28508 (V, VI), 28509 (O, V, VI), 28510 (O), 28513 (O), 28515 (VI) , 28519 (VII), 28527 (VII), 28536 (O, VII), 28538 (O), 28544 (VI), 28548 (VII), 28549 (VII), 28551 (O, VI, VII). 28535 (VI)

Trial	Test Entries	
		Repeats: 27632 (VII)
	Checks:	National: Swarna; Zonal: NDR 8002 (Eastern & Central), Ranjeet (North Eastern), Salivahana (Western), Pushyami (Southern); Hybrid: PA 6444 and Local Check.
19.	**INITIAL VARIETY TRIAL –LATE (IVT-L)**	
	Shifts from IVT-RSL: IETs: 28265, 28272, 28275, 28287, 28288, 28271 **Shifts from IVT-IM:** IETs: 28440, 28455, 28454, 28462 **New Nominations**: WGL-1, ADT-1, SKL-1, MTU-4, RDR-1, RPR-2, BPT-2, Pravardhan-1 **Repeats**: IET 28524	
	Checks:	National: Swarna; Zonal: NDR 8002 (Eastern & Central), Ranjeet (North Eastern), Salivahana (Western), Pushyami (Southern); Hybrid: PA 6444 and Local Check.
20.	**ADVANCE VARIETY TRIAL 1–AROMATIC SHORT GRAIN (AVT 1-ASG)**	
	3rd year of testing	None
	2nd year of testing	IETs: 28556 (VI), 28563 (O, III, V), 28566 (VI, VII), 28571 (V, VI).
	Checks:	National: Shobini; Zonal: Badshabhog (Northern & Central), , CR Sugandh Dhan 907 (Eastern & North Eastern), Sugandh Samba (Western & Southern); Quality: Dubraj & Ketekejoha and Local Check.
21.	**INITIAL VARIETY TRIAL –AROMATIC SHORT GRAIN (IVT-ASG)**	
	New Nominations: WRS-3, NVS-2, RPR-2, RNR-1, BKG-1	
	Checks:	National: Shobini; Zonal: Badshabhog (Northern & Central), , CR Sugandh Dhan 907 (Eastern & North Eastern), Sugandh Samba (Western & Southern); Quality: Dubraj & Ketekejoha and Local Check.
22.	**ADVANCE VARIETY TRIAL 1–BASMATI (AVT1-BT)**	
	3rd year of testing	27720
	2nd year of testing	IETs: 28572, 28573, 28575, 28577, 28579, 28582, 28583, 28586, 28589, 27728 (R)
	Checks:	Pusa Basmati -1(Yield), Pusa Basmati 1121 (Yield and Quality), Taroari Basmati (Quality), Pusa RH 10 (Hybrid) and Local Check
23.	**INITIAL VARIETY TRIAL –BASMATI (IVT-BT)**	
	New Nominations: LDN-2	
	Checks:	Pusa Basmati -1(Yield), Pusa Basmati 1121 (Yield and Quality), Taroari Basmati (Quality), Pusa RH 10 (Hybrid) and Local Check.
24.	**ADVANCE VARIETY TRIAL 1-BORO (AVT1-BORO)**	
	3rd year of testing	None
	2nd year of testing	IETs: 28089 (O), 28091 (O), 28092 (III), 28099 (III), 28102 (O), 28109 (O).
	Checks:	National: IR 64, Zonal: Gautam, Hybrid: Rajalakshmi and Local check.
25.	**INITIAL VARIETY TRIAL-BORO (IVT-BORO)**	

Trial	Test Entries	
	New Nominations: MNC-2, CTK-21, PNB-1, LMC-6, Syngenta-1, JK Agri -1, Mali Agritech-2, HTW-2, CHN-2, Pallishree-1, PTB-2	
	Checks:	National: IR 64, Zonal: Gautam, Hybrid: Rajalakshmi and Local Check.
26.	**ADVANCE VARIETY TRIAL 1- ALKALINE AND INLAND SALINE TOLERANT VARIETY TRIAL (AVT 1-AL&ISTVT)**	
	Repeated all entries tested in AVT 1-AL&ISTVT during 2019	
	Promoted from IVT-AL&ISTVT: IETs: 28591, 28598, 28601, 28606, 28608.	
	Checks:	CSR 36 (Alkaline), CSR 23 (Inland saline), CSR 10 (Early duration saline check), FL 478 (Saline tolerant check with Saltol 1), Pusa 44 (Sensitive check) and Local check.
27.	**INITIAL VARIETY TRIAL - ALKALINE AND INLAND SALINE TOLERANT VARIETY TRIAL (IVT- AL&ISTVT)**	
	New Nominations: NVS-2, KNP-3	
	Checks:	CSR 36 (Alkaline), CSR 23 (Inland saline), CSR 10 (Early duration saline check), FL 478 (Saline tolerant check with Saltol 1), Pusa 44 (Sensitive check) and Local check.
28.	**ADVANCE VARIETY TRIAL 1- COASTAL SALINE TOLERANT VARIETY TRIAL (AVT 1-CSTVT)**	
	Repeated all entries tested in AVT 1-CSTVT during 2019. **IET 27847 (VII)**	
	Checks:	Bhuthnath and FL 478 with Saltol 1 (Coastal saline checks), CSR 10 (Early saline tolerant check), Pusa 44 (Sensitive Check) and Local Check
29.	**INITIAL VARIETY TRIAL- COASTAL SALINE TOLERANT VARIETY TRIAL (IVT-CSTVT)**	
	Repeated all entries tested in IVT-CSTVT during 2019. **New Nominations:** NVS-3, MPM-2	
	Checks:	Bhuthnath and FL 478 with Saltol 1 (Coastal saline checks), CSR 10 (Early saline tolerant check), Pusa 44 (Sensitive Check) and Local Check
30.	**ADVANCE VARIETY TRIAL 2- IRRIGATED EARLY HILLS (AVT 2-E H)**	
	3rd year of testing:	IETs: 27468, 27471, 27472
	Checks:	National: Vivekdhan 86, Zonal: Shalimar Rice 3 and Local Check
31.	**ADVANCE VARIETY TRIAL 1- IRRIGATED EARLY HILLS (AVT 1-E H)**	
	2nd year of testing:	IETs: 28192, 28193, 28196, 28200, 28202, 28205, 28206
	Checks:	National: Vivekdhan 86, Zonal: Shalimar Rice 3 and Local Check
32.	**INITIAL VARIETY TRIAL - IRRIGATED EARLY HILLS (IVT -E H)**	
	New Nominations: MLN-3, ALM-4, KHD-12, LMC-3	
	Checks:	National: Vivekdhan 86, Zonal: Shalimar Rice 3 and Local
33.	**ADVANCE VARIETY TRIAL 1- IRRIGATED MEDIUM HILLS (AVT 1-M H)**	
	3rd year of testing:	None

Trial	Test Entries	
	2nd year of testing	IETs: 28210, 28212, 28216, 28217, 28220, 28222, 28224, 28227
	Checks:	National: Vivekdhan 62 & VL Dhan 68, Zonal: VL Dhan 65 (North & South), RC Maniphou 11 (North East) and Local Check
34.	**INITIAL VARIETY TRIAL–IRRIGATED MEDIUM HILLS (IVT-M H)**	
	New Nominations: MLN-2, KHD-6, ALM-4, LMC-3, CAU-BRP-3	
	Checks:	National: Vivekdhan 62 & VL Dhan 68, Zonal: VL Dhan 65 (North & South), RC Maniphou 11 (North East) and Local Check
35.	**ADVANCE VARIETY TRIAL 1– UPLAND HILLS (AVT 1-U H)**	
	3rd year of testing:	IETs: 27498, 27504
	2nd year of testing:	IETs: 28229, 28230, 28231, 28233, 28235, 28236
	Checks:	National: Sukaradhan 1, Zonal: Vivekdhan 154 & VL Dhan 158 (Northern and Southern), Bhalum 1 (North East) and Local Check
36.	**INITIAL VARIETY TRIAL – UPLAND HILLS (IVT-U H)**	
	New Nominations: ALM-5, MLN-5, LMC-3	
	Checks:	National: Sukaradhan 1, Zonal: Vivekdhan 154 & VL Dhan 158 (Northern and Southern), Bhalum-1 (North East) and Local Check.
37.	**INITIAL VARIETY TRIAL – LAND RACES (IVT-LR H)**	
	Repeats:	IETs: 28041, 28042, 28043, 28044, 28046, 28047, 28048, 28050, 28051, 28052, 28053, 28056, 28057
	New Nominations: GTK-1, KHD-2	
	Checks:	Thangjing, Him-HPR 2720, Him-HPR 2795 and Local Check
38.	**ADVANCE VARIETY TRIAL 1- AEROBIC (AVT 1-AEROB)**	
	3rd year of testing:	IET 27951 (II)
	2nd year of testing:	IETs: 28631 (O,III,V,VII), 28634 (V), 28635 (O, VI), 28636 (O, III), 28637 (O, II, III, V), 28640 (O, VI), 28641 (O, III), 28642 (V), 28644 (O), 28645 (O, VII), 28653 (O, III), 28658 (O,II, III), 28669 (O, III), 28671 (O, VI), 28672 (III), 28673 (O, V, VI), 28674 (V), 28677 (O, VI), 28678 (O, III), 28650 (III), 27937 (R) (O, II, IV)
	Checks:	National: CR Dhan 201; Zonal: CR Dhan 202 (Northern, Eastern, North Eastern & Central), AAUDR-1 (Western), MAS 946-1 (Southern), Hybrid: PA 6129 and Local Check.
39.	**INITIAL VARIETY TRIAL –AEROBIC (IVT-AEROB)**	
	New Nominations: HZB-4, NVS-2, MTU-2, BPT-1, RPR-2, LDN-2, NWG-2	
	Checks:	National: CR Dhan 201; Zonal: CR Dhan 202 (Northern, Eastern, North Eastern & Central), AAUDR-1 (Western), MAS 946-1 (Southern), Hybrid: PA 6129 and Local Check.
39.	**ADVANCE VARIETY TRIAL 1- BIOFORTIFICATION (AVT 1-BIOFORT)**	
	3rd year of testing	None
	2nd year of testing	IETs: 28691 (VII), 28694 (III), 28695 (O, III, VII), 28696 (III, VII), 28698 (V), 28701 (O, III, VI, VII), 28702 (O, III, V, VI), 28703 (III), 28704 (V), 28705 (O, II, V, VI, VII), 28706 (O, II, III), 28707 (O, II, V, VII), 28710 (O, III, V), 28713 (O, II, III, V, VI), 28714 (O, III, V, VI, VII), 28715 (VI), 28717 (O, III, V, VII), 28718 (V, VII), 28719 (V).
	Checks:	Yield Checks: BPT 5204 & IR 64, Yield Micronutrient Check: DRR Dhan 45, Micro Nutrient Check: Chittimutyalu,

Trial	Test Entries	
40.	**INITIAL VARIETY TRIAL –BIOFORTIFICATION (IVT-BIOFORT)**	
	New Nominations: MTU-2, NVS-3, BPT-2, NWG-1	
	Checks:	Yield Checks: BPT 5204 & IR 64, Yield Micronutrient Check: DRR Dhan 45, Micro Nutrient Check: Chittimutyalu
41.	**ADVANCE VARIETY TRIAL 1-MEDIUM SLENDER GRAIN (AVT 1-MS)**	
	3rd year of testing	IET 27394 (IV), 27438 (III, VII)
	2nd year of testing	IETs: 28727 (VI), 28730 (O, VII), 28732 (O, VII), 28746 (V), 28750 (IV), 28757 (O, IV, V, VII), 28760 (VII), 28768 (VI), 28754 (VII), 28778 (IV). **From IHRT-MS:** IETs: 28177 (VI), 28178 (V), 28180 (O, IV, V), 28181 (VI), 28184 (IV), 28187 (V).
	Checks:	National: WGL 14 & BPT 5204, Zonal: Improved Samba Mahsuri (Eastern and Central), Ketekejoha (North East), Karjat-6 (Western), ADT 49 (Southern), Hybrids: JKRH 3333, 27 P 63 and Local Check
42.	**INITIAL VARIETY TRIAL –MEDIUM SLENDER GRAIN (IVT-MS)**	
	New Nominations: JGL-3, BPT-2, GNV-2, WGL-2, RNR-3, CBT-5, RPR-2, SKL-1, KBP-1, MTU-5, KNM-2, NVS-2, ADT-4, Nuziveedu-1, NWG-2	
	Checks:	National: WGL 14 & BPT 5204, Zonal: Improved Samba Mahsuri (Eastern and Central), Ketekejoha (North East), Karjat-6 (Western), ADT 49 (Southern) and Local Check
43.	**ADVANCE VARIETY TRIAL 2-NEAR ISOGENIC- BLAST & BLB (AVT 2-NIL-BL & BB)**	
	2nd year of testing	IETs: 28804, 28805, 28806, 28807, 28808, 28809, 28810, 28811, 27722, 27280 (R), 28014 (R) , 28801
44.	**ADVANCE VARIETY TRIAL 1-NEAR ISOGENIC- BLAST& BLB (AVT 1-NIL-BL& BB)**	
	1st year of testing:	**New Nominations:**
45.	**ADVANCE VARIETY TRIAL 2-NEAR ISOGENIC- DROUGHT (AVT 2-NIL-DRT)**	
	2nd year of testing:	IETs: 28834 (III), 28835 (III), 28836 (III),
46.	**ADVANCE VARIETY TRIAL 1-NEAR ISOGENIC- DROUGHT (AVT 1-NIL-DRT)**	
	1st year of testing:	**Repeats**: IETs: 28837 (VII), 26753 (VII), 28787, 28788
47.	**ADVANCE VARIETY TRIAL 2-NEAR ISOGENIC- SUBMERGENCE (AVT 2-NIL-SUB)**	
	2nd year of testing:	IETs: 28791, 28789, 28794, 26744(R)
48.	**ADVANCE VARIETY TRIAL 1 - NEAR ISOGENIC- SUBMERGENCE (AVT 1-NIL-SUB)**	
	1st year of testing:	**New Nominations:**
49.	**ADVANCE VARIETY TRIAL 2-NEAR ISOGENIC- COASTAL SALINITY (AVT 2-NIL-CS)**	
	2nd year of testing:	IETs: 28008 (VII), 28010 (VII), 28783, {28784 (CS+BB)}
50.	**ADVANCE VARIETY TRIAL 1-NEAR ISOGENIC- COASTAL SALINITY (AVT 1-NIL-CS)**	
	1st year of testing:	**New Nominations:** MTU-4

Trial	Test Entries	
51.	**ADVANCE VARIETY TRIAL 2-NEAR ISOGENIC- BASMATI HERBICIDE TOLERANCE (AVT 2-NIL-BAS HT)**	
	2nd year of testing:	IETs: 28812, 28813, 28814, 28815
52.	**ADVANCE VARIETY TRIAL 1-NEAR ISOGENIC- BASMATI HERBICIDE TOLERANCE (AVT 1-NIL-BAS HT)**	
	1st year of testing:	**New Nominations:**
53.	**ADVANCE VARIETY TRIAL 1- LOW PHOSPHORUS TOLERANCE TRIAL (AVT 1-LPT)**	
	2nd year of testing:	IETs: 28066, 28816, 28065, 28061, 28818, 27641, 28076, 28821, 28070, 28776, 28075
	Checks:	Positive: Rasi, Swarna; Sensitive: BPT 5204; Negative: Improved Samba Mahsuri
54.	**INITIAL VARIETY TRIAL- LOW PHOSPHORUS TOLERANCE TRIAL (IVT-LPT)**	
	New Nominations: MTU-3, HZB-1	
	Checks:	Positive: Rasi, Swarna; Sensitive: BPT 5204; Negative: Improved Samba Mahsuri
55.	**ADVANCE VARIETY TRIAL 1- NITROGEN USE EFFICIENCY TRIAL (AVT 1-NUE)**	
	2nd year of testing:	28081, 28080, 28084, 28087, 27730, 28082, 28827, 28830, 28831
	Checks:	Rasi, Improved Samba Mahsuri, Varadhan, Tella Hamsa; Sensitive: BPT 5204; Tolerant: Swarna.
56.	**INITIAL VARIETY TRIAL- NITROGEN USE EFFICIENCY TRIAL (IVT-NUE)**	
	New Nominations: MTU-3	
	Checks:	Rasi, Improved Samba Mahsuri, Varadhan, Tella Hamsa; Sensitive: BPT 5204; Tolerant: Swarna.

Appendix 16

Entries for Agronomic Evaluation *Kharif* 2020

S No.	IET No.	Designation	Cross combination	GT	Trial name 2019 (Breeding)	Trial name in 2020 Breeding/ Agronomy)
1	27523	CRR 514-6-1-1-1-6	Brown gora / N 22 // CR 143-2-2	LS	AVT 1-E DS	AVT 2-E DS
2	27537	TRC 2018-10	TRC F-41 / TRC 2008-1	SB	AVT 1 - RSL	AVT 2-RSL
3	27547	OR 2757	Upahar / CN 1231-11-7	LS	AVT 1 - RSL	AVT2-RSL
5	27869	JGL 25958	MTU 1010 / NLR 34449	LS	AVT 1 – E TP	AVT 2-E TP
6	27866	HKR 16-1-IR14L521	IR 09L272 / IR 10L146	LS	AVT 1 – E TP	AVT 2-E TP
7	27892	RCPR 58-IR 93827-29-1-1-3	IR 81039-B-173-U-3-3 / IR 81063-B-94-U-3-1	LS	AVT 1 – E TP	AVT 2-E TP
8	27914	CRR 807-1	IR 10L146 / IR 10L137	LS	AVT 1 – E TP	AVT 2-E TP
9	27920	AD 16028	WGL 14377 / MDU 5	LB	AVT 1 – E TP	AVT 2-E TP
10	27905	NP 9968	PRN 8 / PRN 85	MS	AVT 1 – E TP	AVT 2-E TP
11	27883	CR 4009-4-2- GSR IR1-DQ 138-LI1-Y1	GSR IR1-8-S6-S3-Y2 / GSR IR1-8-Y7-D2-S1	LS	AVT 1 – E TP	AVT 2-E TP
12	27329	***MP-3050 (Hybrid)***	-	LB	AVT 1 – E TP	AVT 2-E TP
13	27328	***SHX-015 (Hybrid)***	-	LB	AVT 1 – E TP	AVT 2-E TP
14	27332	***NPH-X1(Hybrid)***	-	SB	AVT 1 – E TP	AVT 2-E TP
15	27340	***US-319(Hybrid)***	-	LB	AVT 1 – E TP	AVT 2-E TP
16	26898	HURS 17-7- IR 95786-9-2-1-2	IR 10 L-149 / IR 10 L 152	LS	AVT 1 – E TP	AVT 2-E TP
17	27880	ORJ 1346 (TP 27626)	IR 78875-176-B-2 / IR 78875-207-B-3	LB	AVT 1 – E TP	AVT 2-E TP
18	27358	***PHI-18105 (Hybrid)***	-	LS	AVT 1 - IME	AVT 2-IME
19	27360	***PHI-18106 (Hybrid)***	-	LB	AVT 1 - IME	AVT 2-IME
20	27689	CR3516-1-1-2-1-1-4	Birupa / Pusa 44	MS	AVT 1 - IM	AVT 2-IM
21	27705	MTU 1280 (MTU 2274-8-1-1-9)	MTU 1001 / KMP 150	LB	AVT 1 - IM	AVT2-IM
22	27380	***NPH-X8 (Hybrid)***	-	LB	AVT 1 - IM	AVT 2-IM
23	25530	CR 3561-3-2-1-1-1-1	Surendra/Annapurna		IVT-NPT	AVT 2-IM
24	27263	CR 4113-3-2-1	CR 3724-1 / TJ 171-1	LB	AVT 1 - IM	AVT 2-IM
25	26418	CR 3969-24-1-2-1-1	IR 73907-753-2-3 / Pratiksya	LB	AVT 1 - IM	AVT 2-IM
26	27637	OR 2438-2-1	OR 142-99 / MTU 1065	SB	AVT 1 - L	AVT 2-L
27	27720	Pusa 1301-95-12-5-2-4-2	Khalsa-7 / Imp.Sabarmati	LS	AVT 1-BT	AVT 2-BT
28	27077	RNR 11718	MTU 1010 / NLR 34449	MS	AVT 1-AL & ISTVT	AVT 2- AL & ISTVT
29	27037	OR (CZ)-9-1	CST 7-1 Mutant	SB	AVT 1-CSTVT	AVT 2-CSTVT
30	27468	TRC BN -83-372-B-B-18	Bhalum 3 / Naveen	LS	AVT 1 – E(H)	AVT 2-E (H)
31	27471	VL 32292	VL Dhan 85 / RIL 29	SB	AVT 1 – E(H)	AVT 2-E (H)
32	27472	HPR 2865	PLP Purple / Kasturi	LB	AVT 1 – E(H)	AVT 2-E (H)
33	26594	HPR 2929	Kalizini / HPR 2143 // HPR 2143	LS	AVT 2-M (H)	AVT 2-M (H)
34	27498	TRC SMCT-23-202-B-29	Samba Mahsuri / CT	LB	AVT 1 – U(H)	AVT 2-U (H)
35	27504	VL 20254	Vivek Dhan 154 / VL 31072	SB	AVT 1 – U(H)	AVT 2-U (H)
36	27951	HURS 18-2-IR98976-20-1-2-2	IR11L152 / Sabitri	LB	AVT 1-AEROB	AVT 2-AEROB
37	27394	***TMRH-139 (Hybrid)***	-	MS	AVT 1-MS	AVT 2-MS
38	27438	MTU 1281 (MTU 2385-187-1-1-1)	MTU 1075 / MTU1081 / MTU1121	MS	AVT 1-MS	AVT 2-MS

S No.	IET No.	Designation	Cross combination	GT	Trial name 2019 (Breeding)	Trial name in 2020 Breeding/ Agronomy)
39	28801	RP 6298-FG3G-12-5	Improved Samba Mahsuri / FBR 1-15	MS	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
40	28804	RP 6286-Bio Patho 5-156-24-7	Improved Samba Mahsuri *2 /C 101 A 51 / Tetep	MS	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
41	28805	RP 6286-Bio Patho 5-156-24-10	Improved Samba Mahsuri * 2 / C 101 A51 / Tetep	MS	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
42	28806	Pusa 1885-13-242-9-3	Pusa 1883/ PB 1718	LS	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
43	28807	Pusa 1885-13-125-20-6	Pusa 1883 / PB 1718	LS	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
44	28808	Pusa 1886-13-91-26-9	Pusa 1884 / PB 1728	LS	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
45	28809	Pusa 1886-13-201-18-13	Pusa 1884 / PB 1728	LS	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
46	28810	Pusa 1847-12-62-184-36-9-155	Pusa Basmati 1509 *2 / Pusa 1790	LS	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
47	28811	Pusa 1847-12-62-64-12-6-8	Pusa Basmati 1509 *2 / Pusa 1790	LS	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
48	27722	Pusa 1847-12-62-190-39-7-15	PB 1509 * 2 / Pusa 1790	LS	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
49	27280	RP 5989-47-15-11-1-126-2-13-11	Akshyadhan /// FBRI-15	LB	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
50	28014	Pusa 1853-12-288	Pusa 1850-5-18 / Pusa 1701-10-5-8	MS	AVT 1-NIL (BL&BB)	AVT 2-NIL (BL & BB)
51	28834	CRR 809-11-1-9-B	IR 84984-83-15-481-B / 3*Anjali // IR 81896-B-B-195 / 3* Anjali	SB	AVT 1-NIL (DRT)	AVT 2-NIL (DRT)
52	28835	CRR 752-3-1-B	Anjali*3 / IR 81896-B-195	SB	AVT 1-NIL (DRT)	AVT 2-NIL (DRT)
53	28836	CRR 677-1	IR 79971-B-102-B-B / 3* Vandana	LB	AVT 1-NIL (DRT)	AVT 2-NIL (DRT)
54	28791	KR 16024	ADT46 *3/Swarna sub-1	LS	AVT 1-NIL (SUB)	AVT 2-NIL (SUB)
55	28789	KR 16022	ADT46 *3/Swarna sub-1	LB	AVT 1-NIL (SUB)	AVT 2-NIL (SUB)
56	28794	120-79-RM-Sub-1	R Mahsuri //SwarnaSub1	MS	AVT 1-NIL (SUB)	AVT 2-NIL (SUB)
57	26744	CR 3932-7	Pooja*3 / Swarna-Sub1	SB	AVT 1-NIL (SUB)	AVT 2-NIL (SUB)
58	28008	MTU 1291	MTU 1010 / FL 478 // *3 MTU 1010	LS	AVT 1-NIL (CS)	AVT 2-NIL (CS)
59	28010	MTU 1293	MTU 1010 / FL 478 // *3 MTU 1010	LS	AVT 1-NIL (CS)	AVT 2-NIL (CS)
60	28783	CSR 189-11-123	Sarjoo 52 / FL 478/*4	SB	AVT 1-NIL CS)	AVT 2-NIL (CS)
61	28784	RP 6287-188-45-12-88	Improved Samba Mahsuri * 3 /// FL 478	LS	AVT 1-NIL (CS)	AVT 2-NIL (CS)
62	28812	Pusa 1979-14-7-33-99-66	Pusa 1121 / Robin	LS	AVT 1 – NIL Bas -HT	AVT 2-NIL (BAS-HT)
63	28813	Pusa 1979-14-7-33-99-15	Pusa 1121 / Robin	LS	AVT 1 – NIL Bas -HT	AVT 2-NIL (BAS-HT)
64	28814	Pusa 1985-15-7-58-190	PB 1509 / Robin	LS	AVT 1 – NIL Bas -HT	AVT 2-NIL (BAS-HT)
65	28815	Pusa 1985-15-7-112-25	PB 1509 / Robin	LS	AVT 1 – NIL Bas -HT	AVT 2-NIL (BAS-HT)

Appendix 17

Allocation of Breeder seed for Production during *Kharif* 2020 (as per DAC indent) for supply during *Kharif* 2021

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
1	ABHISHEK (IET - 17868)	JH	3.22		
		Total	3.22	CRURRS, Hazaribagh	3.22
2	ADT-37	AP	5.00		
		Total	5.00	TNRRI, Aduthurai	5.00
3	ADT-39	AP	5.00		
		Total	5.00	TNRRI, Aduthurai	5.00
4	AJIT	SAI	3.50		
		WB	5.00		
		Total	8.50	RRS, Chinsurah	8.50
5	AMARA (MTU-1064)	AP	6.00		
		NSC	0.60		
		Total	6.60	ANGRAU, Guntur	6.60
6	ANJALI (IET-16430, RR-347-166)	WB	0.50		
		Total	0.50	CRURRS, Hazaribagh	0.50
7	ANNADA	WB	1.50		
		Total	1.50	NRRI, Cuttack	1.50
8	ARSHA DHAN	SAI	0.30		
		Total	0.30		
9	ASHUTHOSH	OR	2.00		
		Total	2.00	OUAT, Bubaneshwar	2.00
10	ATHIRA (PBT-51)	NSC	0.50		
		Total	0.50	RARS, Pttambi	0.50
11	BADSHABHHOG SELECTION-1	CG	15.00		
		SAI	0.63		
		Total	15.63	IGKV, Raipur	16.00
12	BAHADUR SUB-1	AS	50.00		
		SAI	1.40		
		Total	51.40	RARS, Titabar	51.50
13	BAMLESHWARI (IET NO.14444, R 738-1-64-2-2)	CG	10.00		
		Total	10.00	IGKV, Raipur	10.00
14	BASMATI-370	JK	10.00		
		Total	10.00	ARS, Kaul	10.00
15	BASMATI-564	NSC	0.10		
		Total	0.10	J&K Chatha	0.10
16	BB-11	SAI	6.30		
		Total	6.30		
17	BHADRA (MO-4)	KK	3.50		
		Total	3.50	RRS, Moncompu	3.50
18	BHARANI (NLR 30491)	AP	4.00		
		Total	4.00	ANGRAU, Guntur	4.00
19	BHOGAVATI	MH	0.60		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		Total	0.60	ARS, Radhanagari	0.60
20	BIDHAN SURUCHI (IET 25701)	WB	1.00		
		Total	1.00	RRS, Chinsurah	1.00
21	BINA DHAN-10	SAI	1.10		
		Total	1.10	IIRR, Rajendranagar	1.10
22	BINADHAN-17	AS	25.00		
		NSC	0.10		
		Total	25.10	IIRR, Rajendranagar	25.50
23	BINADHAN-69	NSC	0.10		
		Total	0.10	IIRR, Rajendranagar	0.10
24	BINADHAN-75	NSC	0.10		
		Total	0.10	IIRR, Rajendranagar	0.10
25	BIRSA MATI	JH	1.61		
		Total	1.61	BAU, Ranchi	1.65
26	BIRSA VIKAS DHAN - 111 (IET 19848) (PY - 84)	JH	1.61		
		Total	1.61	BAU, Ranchi	1.65
27	BIRSA VIKAS DHAN - 203	JH	2.01		
		Total	2.01	BAU, Ranchi	2.10
28	BIRSA VIKAS DHAN-109	JH	1.61		
		Total	1.61	BAU, Ranchi	1.65
29	BIRSA VIKAS DHAN-110	JH	1.61		
		Total	1.61	BAU, Ranchi	1.65
30	BIRSA VIKAS SUGANDHA - 1 (IET 18941)	JH	1.61		
		Total	1.61	BAU, Ranchi	1.65
31	BNKR-1 (DHIREN) IET 20760)	SAI	1.25		
		WB	3.00		
		Total	4.25	RRS, Chinsurah	4.25
32	BPT 5204	AP	11.00		
		CG	10.00		
		KK	1.50		
		NSC	1.00		
		TG	20.00		
		Total	43.50	ANGRAU, Guntur	43.50
33	BPT-3291 (SONAMASURI)	AP	4.00		
		Total	4.00	ANGRAU, Guntur	4.00
34	BR-2655	KK	2.00		
		NSC	0.50		
		Total	2.50	UAS, Banglore	2.50
35	C.G. SUGHANDIH BHOG	CG	20.00		
		Total	20.00	IGKV, Raipur	20.00
36	CG MADHURAJ DHAN-55	CG	15.00		
		SAI	0.30		
		Total	15.30	IGKV, Raipur	15.30
37	CHANDRA(IET 23409) (MTU-1153)	AP	2.50		
		MP	6.00		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		OR	6.00		
		SAI	8.63		
		WB	3.00		
		Total	26.13	ANGRAU, Guntur	26.50
38	CHANDRAHASINI (IET - 16800)	CG	10.00		
		Total	10.00	IGKV, Raipur	10.00
39	CHHATTISGARH DEVBHOG	CG	10.00		
		Total	10.00	IGKV, Raipur	10.00
40	CHHATTISGARH ZINC RICE-1	CG	22.00		
		NSC	0.10		
		SAI	0.03		
		Total	22.13	IGKV, Raipur	22.20
41	CHHATTISGARH ZINC RICE-2	CG	30.00		
		Total	30.00	IGKV, Raipur	30.00
42	CHINSURAH NONA - 2 (GOSABA- 6) (IET-21943)	WB	1.00		
		Total	1.00	RRS, Chinsurah	1.00
43	CHINSURAH RICE (IET 19140)(CNI 383-5-11)	SAI	0.60		
		WB	1.00		
		Total	1.60	RRS, Chinsurah	1.60
44	CIHERANG SUB-1	NSC	0.30		
		OR	3.00		
		SAI	6.53		
		TP	0.05		
		WB	6.00		
		Total	15.88	IIRR, Hyderabad	16.00
45	CN1272-55-105 (IET-19886)	WB	0.50		
		Total	0.50	RRS, Chinsurah	0.50
46	CNR-2 (IET 20235)	MP	1.00		
		Total	1.00	RRS, Chinsurah	1.00
47	CO 51	MP	11.00		
		MH	4.00		
		NSC	0.20		
		OR	5.00		
		SAI	3.45		
		UP	5.10		
		WB	2.00		
		Total	30.75	TNAU, Coimbatore	30.80
48	CO-43 SUB-1	NSC	0.10		
		SAI	0.40		
		Total	0.50	TNAU, Coimbatore	0.50
49	COTTONDORA SANNALU (MTU-1010)	CG	106.60		
		JH	16.08		
		KK	5.00		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		MP	12.50		
		MH	10.00		
		NSC	2.00		
		OR	5.00		
		TG	36.00		
		WB	8.00		
		Total	201.18	ANGRAU, Guntur	201.20
50	CR 1018(Gayatri) IET-8022	OR	1.20		
		SAI	0.40		
		Total	1.60	NRRI,Cutttack	1.60
51	CR BORO DHAN-2 (IET 17612)	SAI	0.30		
		Total	0.30	NRRI,Cutttack	0.30
52	CR DHAN 201 (IET 21924)	SAI	0.15		
		WB	1.00		
		Total	1.15	NRRI,Cutttack	1.20
53	CR DHAN 202 (IET 21917	JH	2.41		
		SAI	0.05		
		Total	2.46	NRRI,Cutttack	2.50
54	CR DHAN 300 (CR2301-5) (IET 19816)	SAI	0.35		
		WB	0.50		
		Total	0.85	NRRI,Cutttack	0.90
55	CR DHAN 303 (CR 2649-7)(IET 21589	MP	2.00		
		Total	2.00	NRRI,Cutttack	2.00
56	CR DHAN 304 (IET 22117)	OR	3.00		
		SAI	0.60		
		Total	3.60	NRRI,Cutttack	3.60
57	CR DHAN 305 (IET 21287)	JH	2.41		
		SAI	0.35		
		WB	1.00		
		Total	3.76	NRRI,Cutttack	3.80
58	CR DHAN 311 (MUKUL)	CG	10.00		
		TP	0.10		
		WB	1.00		
		Total	11.10	NRRI,Cutttack	11.10
59	CR DHAN 401(REETA)(IET 19969)	WB	1.50		
		Total	1.50	NRRI,Cutttack	1.50
60	CR DHAN 500 (IET 20220)	SAI	0.30		
		Total	0.30	NRRI,Cutttack	0.30
61	CR DHAN 505 (IET 21719)	OR	3.00		
		SAI	0.05		
		Total	3.05	NRRI,Cutttack	3.10
62	CR DHAN 511	SAI	0.60		
		Total	0.60	NRRI,Cutttack	0.60
63	CR DHAN 601(IET 18558)	SAI	0.45		
		AS	30.00		
		WB	1.00		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		Total	31.45	NRRI,Cutttack	31.45
64	CR DHAN 701 (IET 20852)(CRHR32)	NSC	0.05		
		Total	0.05	NRRI,Cutttack	0.10
65	ÇR DHAN 800 (SWARNA-MAS)	OR	15.00		
		SAI	3.25		
		WB	1.50		
		Total	19.75	NRRI,Cutttack	19.80
66	CR DHAN 801 (IET-25667)	WB	1.50		
		Total	1.50	NRRI,Cutttack	1.50
67	CR DHAN 910	OR	0.60		
		Total	0.60	NRRI,Cutttack	0.60
68	CR DHAN-10 (IET 18312)	WB	1.00		
		Total	1.00	NRRI,Cutttack	1.00
69	CR DHAN-100	SAI	0.35		
		OR	6.00		
		Total	6.35	NRRI,Cutttack	6.35
70	CR DHAN-101	SAI	3.35		
		OR	9.00		
		Total	12.35	NRRI,Cutttack	12.35
71	CR DHAN-203	OR	6.00		
		SAI	0.75		
		WB	5.00		
		Total	11.75	NRRI,Cutttack	11.80
72	CR DHAN-204 (IET 21692)	OR	3.00		
		Total	3.00	NRRI,Cutttack	3.00
73	CR DHAN-207	SAI	0.30		
		Total	0.30	NRRI,Cutttack	0.30
74	CR DHAN-209	WB	1.00		
		Total	1.00	NRRI,Cutttack	1.00
75	CR DHAN-301	MP	17.50		
		Total	17.50	NRRI,Cutttack	17.50
76	CR DHAN-307	NSC	0.50		
		OR	6.00		
		SAI	3.40		
		Total	9.90	NRRI,Cutttack	9.90
77	CR DHAN-310	CG	20.00		
		NSC	0.20		
		OR	1.20		
		SAI	1.85		
		TP	0.10		
		Total	23.35	NRRI,Cutttack	23.40
78	CR DHAN-405	WB	1.00		
		Total	1.00	NRRI,Cutttack	1.00
79	CR DHAN-407	SAI	0.20		
		Total	0.20	NRRI,Cutttack	0.20
80	CR DHAN-409	OR	15.00		
		SAI	0.05		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		Total	15.05	NRRI,Cutttack	15.10
81	CR DHAN-506	SAI	0.30		
		Total	0.30	NRRI,Cutttack	0.30
82	CR DHAN-508	AS	25.00		
		SAI	0.35		
		Total	25.35	NRRI,Cutttack	25.40
83	CR DHAN-909	AS	30.00		
		Total	30.00	NRRI,Cutttack	30.00
84	CR SUGANDH DHAN 907 (IET 21044) (CR 2616- 3- 3- 3-1))	MP	10.00		
		Total	10.00	NRRI,Cutttack	10.00
85	CR SUGANDH DHAN 908	SAI	0.70		
		Total	0.70	NRRI,Cutttack	0.70
86	CR-1009	NSC	0.70		
		Total	0.70	NRRI,Cutttack	0.70
87	CR-1009 SUB-1	NSC	0.40		
		OR	6.00		
		SAI	2.55		
		TN	10.50		
		WB	4.00		
		Total	23.45	NRRI,Cutttack	23.50
88	CSR 56 (IET24537)	SAI	0.64		
		UP	0.60		
		Total	1.24	CSSRI, Karnal	1.25
89	CSR 60 (IET 25378)	SAI	0.24		
		Total	0.24	CSSRI, Karnal	0.25
90	CSR-30	HR	0.10		
		Total	0.10	CSSRI, Karnal	0.10
91	CSR-36 (NAINA) (IET-17340)	BI	7.00		
		SAI	1.30		
		WB	0.50		
		Total	8.80	CSSRI, Karnal	8.80
92	CSR-43	WB	1.00		
		Total	1.00	CSSRI, Karnal	1.00
93	CSR-46 (CSR 2K-262)	UP	1.50		
		Total	1.50	CSSRI, Karnal	1.50
94	CSR-52 (CSR 12 B 23)	UP	0.60		
		Total	0.60	CSSRI, Karnal	0.60
95	DANTESHWARI (IET NO. 15450, R 302-111)	MP	10.00		
		Total	10.00	IGKV, Raipur	10.00
96	DHANARASI	SAI	0.20		
		Total	0.20	IIRR, Hyderabad	0.20
97	DHRUBA (IET-20761)	WB	3.00		
		Total	3.00	RRS, Bankura	3.00
98	DRR DHAN 50 (IET 25671) (DRT TOLERENT)	MP	24.00		
		SAI	2.75		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		TN	2.00		
		Total	28.75	IIRR, Hyderabad	28.80
99	DRR DHAN-45 (IET 23832)	CG	10.00		
		SAI	1.30		
		TN	1.50		
		WB	2.00		
		Total	14.80	IIRR, Hyderabad	14.80
100	DRR-39	CG	5.00		
		Total	5.00	IIRR, Hyderabad	5.00
101	DRR-41	SAI	0.21		
		Total	0.21	IIRR, Hyderabad	0.25
102	DRR-42	MP	17.00		
		OR	6.00		
		Total	23.00	IIRR, Hyderabad	23.00
103	DRR-43	CG	10.00		
		SAI	0.61		
		Total	10.61	IIRR, Hyderabad	10.65
104	DRR-44	CG	5.00		
		MP	20.00		
		NSC	0.50		
		OR	6.00		
		SAI	7.89		
		UP	2.50		
		WB	2.50		
		Total	44.39	IIRR, Hyderabad	44.40
105	DRR-45	NSC	0.10		
		Total	0.10	IIRR, Hyderabad	0.10
106	DRR-46	MH	0.60		
		SAI	0.43		
		WB	1.50		
		Total	2.53	IIRR, Hyderabad	2.60
107	DRR-48	NSC	0.10		
		TN	2.00		
		Total	2.10	IIRR, Hyderabad	2.10
108	DRR-49	NSC	0.10		
		Total	0.10	IIRR, Hyderabad	0.10
109	DRR-51	MP	0.30		
		NSC	0.10		
		SAI	3.05		
		UP	0.60		
		Total	4.05	IIRR, Hyderabad	4.10
110	DUBRAJ SELECTION-1	CG	20.50		
		Total	20.50	IGKV, Raipur	20.50
111	ERRA MALLELU (WGL-20471)	WB	1.00		
		Total	1.00	PJTSAU, Rajendranagar	1.00
112	GANGAVATI AGETI	SAI	0.35		
		Total	0.35	ARS, Gangavati	0.40

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
113	GAR-14	NSC	0.10		
		Total	0.10	GAU, Nawagam	0.10
114	GB-111	SAI	0.20		
		Total	0.20		
115	GEETANJALI (CRM-2007-1) (IET-17276)	WB	1.00		
		Total	1.00	NRRI, Cuttack	1.00
116	GITESH	AS	25.00		
		Total	25.00	RARS, Titabar	
117	GIZA-14	JK	4.00		
		Total	4.00	Chatha J&K	4.00
118	GNR-3	SAI	0.50		
		Total	0.50	GAU, Nawagam	0.50
119	GOMATI DHAN TRC-2005-1 (TRC-05-8-4-42-8-3-7) IET 21512	TP	0.10		
		Total	0.10	Arundathinagar	0.10
120	GONTRA BIDHAN-1 (IET 17430)	NSC	0.20		
		SAI	33.20		
		WB	6.00		
		Total	39.40	BCKVV, Nadia	39.50
121	GONTRA BINDHAN-3 (IET 22752)	NSC	0.20		
		SAI	13.45		
		WB	5.00		
		Total	18.65	BCKVV, Nadia	18.70
123	GONTRA BINDHAN-4	SAI	0.30		
		Total	0.30	BCKVV, Nadia	0.30
124	GOPINATH (CR DHAN 206)	OR	3.00		
		Total	3.00	NRRI, Cuttack	3.00
125	GOVIND	OR	2.00		
		Total	2.00	GBPUAT, Pantnagar	2.00
126	GUJ ANAND RICE-14	SAI	0.50		
		Total	0.50	GAU, Nawagam	0.50
127	HASANTA	OR	3.00		
		Total	3.00	OUAT, Bubaneshwar	3.00
128	HIM PALAM DHAN-1	HP	5.00		
		NSC	0.10		
		Total	5.10	RWRS, Malan	5.10
129	HKR-127 (HKR-95-222)	SAI	2.66		
		Total	2.66	ARS, Kaul	2.70
130	HKR-128	SAI	0.24		
		Total	0.24	ARS, Kaul	0.25
131	HKR-47	HR	0.10		
		SAI	6.58		
		UK	0.30		
		Total	6.98	ARS, Kaul	7.00
132	HKR-48	SAI	0.50		
		Total	0.50	ARS, Kaul	0.50

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
133	HMT SONA	SAI	1.20		
		Total	1.20		1.20
134	HPR 2143	HP	10.00		
		Total	10.00	RWRS, Malan	10.00
135	HPR-1068	HP	5.00		
		Total	5.00	RWRS, Malan	5.00
136	HPR-2720	HP	5.00		
		Total	5.00	RWRS, Malan	5.00
137	HUR 1304 (MALVIYA DHAAN 1304)	UP	1.50		
		Total	1.50	BHU, Varanasi	1.50
138	HUR 1309 (MALVIYA SUGANDH DHAN-1309)	UP	1.50		
		Total	1.50	BHU, Varanasi	1.50
139	HUR-917	UP	5.00		
		Total	5.00	BHU, Varanasi	5.00
140	IET-5656	SAI	1.30		
		Total	1.30	IIRR, Hyderabad	1.30
141	IGKVR-1 (IET 19569)	SAI	0.30		
		Total	0.30	IGKV, Raipur	0.30
142	IGKVR-2 (IET 19795)	CG	15.00		
		Total	15.00	IGKV, Raipur	15.00
143	IMPRIOVED PUSA BASMATI-1 (IET - 18990) (PUSA 1460-01-32-6-7-67)	SAI	1.90		
		Total	1.90	IARI Regional Station Karnal	1.90
144	IMPROVED CHINNOR	MP	10.30		
		Total	10.30	JNKVV, Jabalpur	10.30
145	IMPROVED JEERA SHANKAR	MP	10.30		
		Total	10.30	JNKVV, jabalpur	10.30
146	IMPROVED LALAT	SAI	6.10		
		WB	4.00		
		Total	10.10	OUAT, Bhuwabeshwar	10.10
147	IMPROVED SAMBA MAHSURI	SAI	0.30		
		WB	1.00		
		Total	1.30	IIRR, Hyderabad	1.30
148	INDIRA AEROBIC- 1 (R1570-2649-1-1546-1) (IET 21686)	CG	30.00		
		SAI	0.50		
		Total	30.50	IGKV, Raipur	30.50
149	INDIRA BARANI DHAN-1 (RF-17-38-70)(IET 21205)	CG	22.00		
		Total	22.00	IGKV, Raipur	22.00
150	INDRAYANI (IET - 12897)	MH	15.00		
		NSC	0.40		
		Total	15.40	ARS, Vadagon	15.40

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
151	INGLONGKHERI	AS	30.00	RARS, Titabar	
		Total	30.00		30.00
152	INTAN	KK	1.50		
		Total	1.50	ARS, Mugad	1.50
153	IR-36	MP	8.00		
		WB	2.00		
		Total	10.00	IGKV, Raipur	10.00
154	IR-64	CG	24.00		
		KK	14.00		
		MP	5.00		
		NSC	1.00		
		Total	44.00	IGKV, Raipur	44.00
155	IR-64 DRT-1 (DRR DHAN-42)	CG	34.70		
		JH	8.04		
		MP	27.00		
		NSC	3.00		
		SAI	8.76		
		UP	4.50		
		WB	6.00		
		Total	92.00	IIRR, Hydearabad	92.00
156	JAGJEEVAN (IET-19487) RP-4631-46-6-5-1-1-1)	WB	1.00		
		Total	1.00	IIRR, Hydearabad	1.00
157	JALASHRI (TTB 202-3)	AS	30.00		
		Total	30.00	RARS, Titabar	
158	JALDBI (IET - 17153)	CG	2.00		
		Total	2.00	IGKV, Raipur	2.00
159	JALKUNWARI (TTB 202-4)	AS	30.00		
		Total	30.00	RARS, Titabar	30.00
160	JAMMU BASMATI-129 (SJR-129-2-2) (IET 24597)	JK	1.00		
		NSC	0.10		
		Total	1.10	J&K Chatha	1.10
161	JAYA	KK	4.00		
		MH	3.50		
		NSC	2.00		
		Total	9.50	IIRR, Hydearabad	9.50
162	JGL 11470 (JAGTIAL MAHSURI)	KK	50.00		
		Total	50.00	PJTSAU, Rajendranagar	50.00
163	JGL-1798	KK	0.50		
		Total	0.50	PJTSAU, Rajendranagar	0.50
164	JGL-18047 (BATHUKAMMA)	KK	0.50		
		SAI	5.20		
		TG	68.20		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		Total	73.90	PJTSAU, Rajendranagar	73.90
165	JGL-24423	SAI	0.30		
		TG	2.70		
		Total	3.00	PJTSAU, Rajendranagar	3.00
167	JR 767	MP	11.80		
		Total	11.80	JNKVV Jabalpur	11.80
168	JR-81	MP	10.90		
		Total	10.90	JNKVV Jabalpur	10.90
169	JRB-1	MP	23.00		
		Total	23.00	JNKVV Jabalpur	23.00
170	JRH-19	MP	5.00		
		Total	5.00	JNKVV Jabalpur	5.00
171	JYOTHI	KK	5.00		
		AP	2.00		
		NSC	6.40		
		Total	13.40	RRS, Pattambi	13.40
172	K 39	JK	2.00		
		Total	2.00	MRCFC, Khudwani	2.00
173	K-448	JK	2.00		
		Total	2.00	MRCFC, Khudwani	2.00
174	KALACHAMPA	NSC	0.10		
		OR	20.00		
		SAI	6.10		
		Total	26.20	OUAT, Bhubaneshwar	26.20
175	KANAKLATA	AS	25.00		
		SAI	0.65		
		Total	25.65	RRS, Titabar	25.65
176	KARJAT-3	MH	2.50		
		Total	2.50	RARS, Karjat	2.50
177	KARJAT-5	MH	0.60		
		Total	0.60	RARS, Karjat	0.60
178	KARJAT-7	MH	1.50		
		Total	1.50	RARS, Karjat	1.50
179	KARJAT-8	MH	0.60		
		SAI	0.95		
		Total	1.55	RARS, Karjat	1.60
180	KARJAT-9	MH	0.60		
		Total	0.60	RARS, Karjat	0.60
181	KHANDAGIRI	OR	3.00		
		Total	3.00	OUAT, Bhubaneshwar	3.00
182	KHITISH (IET-4094)	WB	3.00		
		Total	3.00	RRS,Chinsurah	3.00
183	KHOWAI TRC-2005-3 (TRC-05-2-6-4-39-3-6) IET 21564	TP	0.10		
		Total	0.10	Arundathinagar	0.10
184	KMD-2 (ABHILASH)	KK	1.50		
		Total	1.50	UAS, Dharwad	1.50
185	KNM 733	TG	1.50		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		Total	1.50	PJTSAU, Rajendranagar	1.50
186	KNM-118	NSC	0.35		
		TG	93.10		
		Total	93.45	PJTSAU, Rajendranagar	93.50
187	KRANTI (R-2022)	MP	0.50		
		Total	0.50	JNKVV Jabalpur	0.50
188	KUNARAM SANNALU	SAI	0.30		
		Total	0.30	PJTSAU, Rajendranagar	0.30
189	LALAT (IET-9947)	JH	8.04		
		OR	6.00		
		WB	1.00		
		Total	15.04	OUAT, Bhubaneshwar	15.50
190	LUNASAMPAD (IET 19470)	SAI	0.30		
		WB	1.00		
		Total	1.30	NRRI, Cuttack	1.30
191	LUNASUWARNA (IET 18697)	WB	1.00		
		Total	1.00	NRRI, Cuttack	1.00
192	LUNISREE	WB	0.50		
		Total	0.50	NRRI, Cuttack	0.50
193	MAHAMAYA (IET-10749)	CG	85.00		
		Total	85.00	IGKV, Raipur	85.00
194	MAHESWARI (IGRKVR-1244)	CG	20.00		
		Total	20.00	IGKV, Raipur	20.00
195	MAHISAGAR	SAI	0.50		
		Total	0.50	NAU, Nawagam	0.50
196	MANDAKINI (OR 2077-4)(IET 17847)	SAI	0.50		
		Total	0.50	OUAT, Bhubaneshwar	0.50
197	MANISHA (IET-23770)	SAI	0.20		
		Total	0.20	RRS, Chinsurah	0.20
198	MARUTERU SANNALU (MTU-1006, IET-14348)	WB	1.00		
		Total	1.00	ANGRAU, Guntur	1.00
199	MO 21 (PRATIKSHA)	KK	0.75		
		Total	0.75	RRS, Moncompu	0.75
200	MTU 1001 (VIJETHA)	CG	50.00		
		KK	8.50		
		MH	1.00		
		NSC	1.50		
		OR	20.00		
		TG	4.20		
		WB	1.00		
		Total	86.20	ANGRAU, Guntur	86.20
201	MTU 1075 (IET 18482)	AP	7.00		
		OR	2.10		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		SAI	2.30		
		TG	1.50		
		WB	1.00		
		Total	13.90	ANGRAU, Guntur	14.00
202	MTU 1078	OR	3.00		
		Total	3.00	ANGRAU, Guntur	3.00
203	MTU 1140 (BHEEMA)	SAI	1.30		
		WB	7.00		
		Total	8.30	ANGRAU, Guntur	8.30
204	MTU 1156	AP	10.00		
		CG	30.00		
		MP	11.40		
		NSC	0.55		
		OR	6.00		
		SAI	19.30		
		TG	3.60		
		WB	7.00		
		Total	87.85	ANGRAU, Guntur	87.90
205	MTU 2116	OR	3.00		
		Total	3.00	ANGRAU, Guntur	3.00
206	MTU-1061	AP	6.00		
		TG	1.20		
		Total	7.20	ANGRAU, Guntur	7.20
207	MTU-1081	SAI	0.10		
		Total	0.10	ANGRAU, Guntur	0.10
208	MTU-1121(SRI DHRUTHI)	AP	25.00		
		NSC	0.80		
		SAI	0.73		
		TG	1.50		
		WB	2.50		
		Total	30.53	ANGRAU, Guntur	30.60
209	MTU-1155	SAI	3.00		
		Total	3.00	ANGRAU, Guntur	3.00
210	MTU-1172	SAI	1.00		
		Total	1.00	ANGRAU, Guntur	1.00
211	MTU-1187	SAI	0.60		
		Total	0.60	ANGRAU, Guntur	0.60
212	MTU-1194	SAI	0.60		
		Total	0.60	ANGRAU, Guntur	0.60
213	MTU-1210	AP	2.00		
		WB	1.00		
		Total	3.00	ANGRAU, Guntur	3.00
214	MTU-3626	SAI	1.50		
		Total	1.50	ANGRAU, Guntur	1.50
215	MTU-7029	AP	10.00		
		CG	53.00		
		JH	8.04		
		MH	2.00		
		NSC	2.00		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		OR	20.00		
		TG	1.50		
		TP	0.10		
		UK	0.60		
		WB	22.00		
		Total	119.24	ANGRAU, Guntur	119.30
216	MUKTASHREE (IET 21845)	WB	1.00		
		Total	1.00	NDUAT, Faizabad	1.00
217	NARENDRA-8002 (IET-15848)	CG	5.00		
		Total	5.00	NDUAT, Faizabad	5.00
218	NAVEEN (CR-749-20-2) (IET-14461)	JH	4.02		
		SAI	0.30		
		TP	0.10		
		WB	1.00		
		Total	5.42	NRRI, Cuttack	5.50
219	NC KALMA	SAI	0.40		
		Total	0.40		
220	NDLR-7	TG	60.00		
		Total	60.00	ANGRAU, Guntur	60.00
221	NDR 2064 (IET 17475)	SAI	0.30		
		Total	0.30	NDUAT, Faizabad	0.30
222	NDR-3112	SAI	0.60		
		Total	0.60	NDUAT, Faizabad	0.60
223	NELLORE MAHSURI (NLR-34449)	TN	4.00		
		Total	4.00	ANGRAU, Guntur	4.00
224	NLR34449	AP	4.00		
		Total	4.00	ANGRAU, Guntur	4.00
225	NRRI SUPER RICE	SAI	0.20		
		Total	0.20	NRRI, Cuttack	0.20
226	PANT BASMATI-2	NSC	0.10		
		Total	0.10	GBPUAT,Pantnagar	0.10
227	PANT DHAN-18 (IET 17920) (UPRI 99-1)	SAI	0.20		
		WB	1.00		
		Total	1.20	GBPUAT,Pantnagar	1.20
228	PANT DHAN-24	SAI	2.31		
		UP	8.10		
		Total	10.41	GBPUAT,Pantnagar	10.45
229	PANT DHAN-26	UK	0.30		
		Total	0.30	GBPUAT,Pantnagar	0.30
230	PANT-4	SAI	0.12		
		Total	0.12	GBPUAT,Pantnagar	0.15
231	PARDHIVA (NLR - 33892)	AP	5.00		
		Total	5.00	ANGRAU, Guntur	5.00
232	PARIJAT (IET-2684)	WB	1.00		
		Total	1.00	OUAT,Bhubaneshwar	1.00
233	PAU-201	SAI	7.74		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		Total	7.74	PAU, Ludhiana	7.75
234	PB-1638	SAI	0.50		
		Total	0.50	IARI Regional Station karnal	0.50
235	PDKV TILAK (SYE-503-78-34-2)	MH	1.50		
		Total	1.50	ARS, Sindewahi	1.50
236	PHALGUNI (IET 18720) CRAC 2224-1041)	WB	0.50		
		Total	0.50	NRRI,Cuttack	0.50
237	PHULE SAMRUDDHI (VDN-99-29)	MH	1.00		
		Total	1.00	ARS, Vadagon	1.00
238	PKV HMT	CG	30.00		
		MH	0.60		
		Total	30.60	ARS, Sindewahi	30.60
239	PKV KISAN	MH	1.00		
		Total	1.00	ARS, Sindewahi	1.00
240	POOJA (IET-12241)	NSC	0.20		
		OR	30.00		
		Total	30.20	NRRI,Cuttack	30.20
241	POORNIMA (IET-12284,R-281-PP-31-1)	NSC	1.50		
		Total	1.50	IGKV, Raipur	1.50
242	PR 121	NSC	0.20		
		PB	0.60		
		SAI	24.14		
		UP	3.50		
		UK	0.30		
		Total	28.74	PAU, Ludhiana	28.80
243	PR 122	PB	0.08		
		SAI	9.96		
		UK	0.30		
		Total	10.34	PAU, Ludhiana	10.35
244	PR 127	PB	0.08		
		SAI	6.84		
		Total	6.92	PAU, Ludhiana	7.00
245	PR-113	PB	0.16		
		UK	0.30		
		Total	0.46	PAU, Ludhiana	0.50
246	PR-114	HR	0.10		
		PB	0.30		
		Total	0.40	PAU, Ludhiana	0.40
247	PR-118	SAI	9.40		
		Total	9.40	PAU, Ludhiana	9.40
248	PR-123	SAI	0.50		
		Total	0.50	PAU, Ludhiana	0.50
249	PR-124	HR	0.10		
		PB	0.08		
		SAI	4.46		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		UP	2.50		
		Total	7.14	PAU, Ludhiana	7.15
250	PR-125	SAI	0.40		
		Total	0.40	PAU, Ludhiana	0.40
251	PR-126	NSC	0.20		
		PB	0.60		
		SAI	18.78		
		Total	19.58	PAU, Ludhiana	19.60
252	PR-128	PB	0.16		
		SAI	7.80		
		Total	7.96	PAU, Ludhiana	8.00
253	PR-129	PB	0.20		
		SAI	4.14		
		Total	4.34	PAU, Ludhiana	4.35
254	PR-130	SAI	0.54		
		Total	0.54	PAU, Ludhiana	0.60
255	PR-30	SAI	0.60		
		Total	0.60	PAU, Ludhiana	0.60
256	PRABHAT	AP	1.00		
		Total	1.00	ANGRAU, Guntur	1.00
257	PRATAP -1 (RSK - 1091 - 10 -1-1)	RJ	0.10		
		Total	0.10	MPUAT ,Kota	0.10
258	PRATIBHA	OR	5.00		
		Total	5.00	OUAT, Bubhaneshwar	5.00
259	PRATIKSHYA (ORS 201-5)(IET-15191)	SAI	9.50		
		WB	15.00		
		Total	24.50	OUAT, Bubhaneshwar	24.50
260	PUNJAB BASMATI 4	PB	0.04		
		Total	0.04	PAU, Ludhiana	0.05
261	PUNJAB BASMATI 5	PB	0.04		
		Total	0.04	PAU, Ludhiana	0.05
262	PUSA - 1121 (PUSA SUGANDH-4)	HR	0.10		
		JK	1.00		
		NSC	0.80		
		PB	0.16	BEDF, New Delhi	20.00
		SAI	107.84	IARI Regional Station karnal	90.00
		Total	109.90	Total	110.00
263	PUSA 1592	SAI	1.60		
		Total	1.60	DSST & IARI, New Delhi	1.60
264	PUSA -6 (IET 22290) (PUSA 1612-7-6-5)	SAI	3.50		
		Total	3.50	DSST & IARI, New Delhi	3.50
265	PUSA BASMATI 1637 (IET 24570)	NSC	0.30		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		SAI	23.08		
		UP	20.00		
		Total	43.38	IARI Regional Station karnal	43.40
266	PUSA BASMATI 1728	JK	2.00		
		NSC	0.60		
		SAI	9.63		
		UP	1.20		
		Total	13.43	IARI Regional Station karnal	13.45
267	PUSA BASMATI-1509 (IET 21960) (PUSA 1509-03-3-9-5)	HR	0.10		
		NSC	0.85		
		PB	0.16		
		SAI	98.26		
		UP	28.60	BEDF, New Delhi	29.00
		UK	0.30	IARI Regional Station karnal	100.00
		Total	128.27	Total	129.00
268	PUSA BASMATI-1609	NSC	0.10		
		SAI	1.60		
		Total	1.70	IARI Regional Station karnal	1.70
269	PUSA BASMATI-1718 (IET 24565)	HR	0.10		
		JK	2.00		
		NSC	0.15		
		PB	0.16		
		SAI	49.64		
		UP	30.50		
		Total	82.55	IARI Regional Station karnal	82.55
270	PUSA BASMATI-6 (PUSA 1401) (IET 18005)	HR	0.10		
		MP	2.00		
		SAI	27.10		
		Total	29.20	IARI Regional Station karnal	29.20
271	PUSA SUGANDH-5(IET-17021)	CG	10.00		
		MP	26.50		
		SAI	21.31		
		Total	57.81	DSST & IARI, New Delhi	57.85
272	PUSA-44	HR	0.10		
		Total	0.10	IARI Regional Station karnal	0.10
273	PUSASAMBA 1850	OR	3.00		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		Total	3.00	DSST & IARI, New Delhi	3.00
274	PUSHPA (IET 17509)	WB	2.00		
		Total	2.00	RRS, Bankura	2.00
275	R NEELAM	SAI	0.30		
		Total	0.30		
276	RAJENDRA BHAGVATI	BI	30.00		
		SAI	2.20		
		UK	0.30		
		WB	4.00		
		Total	36.50	RAU, Pusa	36.50
277	RAJENDRA KASTURI	SAI	0.30		
		Total	0.30	RAU, Pusa	0.30
278	RAJENDRA MAHSURI-1	BI	30.00		
		JH	8.04		
		NSC	1.50		
		SAI	12.90		
		UK	0.30		
		WB	2.00		
		Total	54.74	RAU, Pusa	54.80
279	RAJENDRA SWETA	BI	15.00		
		JH	2.01		
		NSC	0.70		
		SAI	2.50		
		UK	0.30		
		Total	20.51	RAU, Pusa	20.55
280	RAJESWARI (IGKVR-1)	CG	43.00		
		SAI	2.10		
		Total	45.10	IGKV, Raipur	45.10
281	RANI DHAN (IET-19148)	SAI	3.10		
		WB	5.00		
		Total	8.10	OUAT, Bhubaneshwar	8.10
282	RANJEET (IET - 12554)	WB	1.50		
		Total	1.50	RARS,Titabar	1.50
283	RANJIT SUB -1	AS	50.00		
		NSC	0.10		
		SAI	3.70		
		WB	1.00		
		Total	54.80	RARS,Titabar	54.80
284	RASHMI(JR-201)	MP	10.00		
		Total	10.00	JNKVV, Jabalpur	10.00
285	RASI (IET- 1444)	KK	0.50		
		Total	0.50	IIRR, Hyderabad	0.50
286	RATNAGIRI-6	MH	0.60		
		Total	0.60	ARS, Shirgoan	0.60
287	RATNAGIRI-7	MH	0.30		
		Total	0.30	ARS, Shirgoan	0.30
288	RGL 2537	AP	9.00		
		OR	1.50		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		Total	10.50	ANGRAU, Guntur	10.50
289	RNR-1446	SAI	0.30		
		Total	0.30	PJTSAU,Rajendranagar	0.30
290	RNR-15048 (TELANGANA SONA)	AP	5.00		
		KK	8.50		
		NSC	4.00		
		TG	79.00		
		TN	2.00		
		UP	4.50		
		Total	103.00	PJTSAU,Rajendranagar	103.00
291	RONGKHANG	AS	30.00		
		Total	30.00	RARS, Titabar	30.00
292	RP-BIO 226	NSC	0.30		
		Total	0.30	IIRR, Hyderabad	0.30
293	RTN-5	MH	3.00		
		Total	3.00	ARS, Shirgoan	3.00
294	RTN-8	MH	0.30		
		Total	0.30	ARS, Shirgoan	0.30
295	RUDRA	SAI	0.30		
		Total	0.30		
296	SABITA (IET-8970)	WB	2.50		
		Total	2.50	RRS, Chinsurah	2.50
297	SABOUR SHREE (RAU 724-48-33) (IET 18878)	BI	50.00		
		SAI	0.20		
		Total	50.20	BAU, Sabour	50.20
298	SADABAHAR	SAI	0.40		
		Total	0.40		
299	SAHBHAGI (SAHBHAGI DHAN IET-19576)	BI	30.00		
		CG	10.00		
		JH	8.04		
		MP	20.50		
		NSC	0.70		
		SAI	4.00		
		TP	0.20		
		WB	3.00		
		Total	76.44	CRURRS, Hazaribagh	76.50
300	SAKOLI-9	MH	0.60		
		Total	0.60	ARS, Sakoli	0.60
301	SAMBA SUB-1 (IET 21248)	NSC	0.60		
		OR	3.00		
		SAI	0.90		
		TN	2.00		
		UP	7.10		
		WB	1.00		
		Total	14.60	NRRI, Cuttack	14.60

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
302	SAMPADA (IET 19424)	BI	10.00		
		CG	20.00		
		SAI	0.90		
		Total	30.90	IIRR,Hyderabad	30.90
303	SAMPRITI (BNKR-B12) (IET-21987)	SAI	0.05		
		WB	2.00		
		Total	2.05	RRS, Bankura	2.05
304	SARALA CR-260-77 (IET-10279)	OR	3.00		
		Total	3.00	NRRI, Cuttack	3.00
305	SARJOO-52	UK	0.30		
		Total	0.30	NDUAT, Fizabad	0.30
306	SETHA	SAI	0.60		
		Total	0.60	BAU,Sabour	0.60
307	SHATABDI (IET-4786)	TP	0.05		
		WB	28.00		
		Total	28.05	RRS,Chinsurah	28.10
308	SHIATS DHAN -1 (AAIR 2) (IET 20928)	UP	7.10		
		Total	7.10	Prayagraj	7.10
309	SHIATS DHAN 2 (AAIR 203)	UP	3.50		
		Total	3.50	Prayagraj	3.50
310	SHIATS DHAN 3 (AAIR 205) (IET 22522)	UP	5.00		
		Total	5.00	Prayagraj	5.00
311	SHOBHINI (RNR-2354) (IET- 21260)	SAI	1.00		
		WB	1.00		
		Total	2.00	PJTSAU, Rajendranagar	2.00
312	SHYAMOLI	SAI	0.10		
		Total	0.10		
313	SJR-5(IET-19972)	MP	15.00		
		Total	15.00	Chatha	15.00
314	SREYAS	NSC	0.60		
		Total	0.60		
315	SUGANDHA SAMBA (RNR-2465)	TP	0.10		
		Total	0.10	PJTSAU, Rajendranagar	0.10
316	SUJALA (CNR-2) (IET 20235)	WB	0.50		
		Total	0.50	RRS, Chinsurah	0.50
317	SUNSHREE	SAI	0.05		
		Total	0.05		
318	SUTALA	SAI	0.30		
		Total	0.30		
319	SWARANA-SUB 1 (CR 2539-1) IET-20266	AS	30.00		

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
		BI	20.00		
		CG	38.50		
		NSC	0.50		
		OR	6.00		
		SAI	8.55		
		TP	0.10		
		WB	3.00		
		Total	106.65	NRRI, Cuttack	106.70
320	TARUN BHOG SELECTION-1	CG	10.00		
		Total	10.00	IGKV, Raipur	10.00
321	TELLAHAMSA	KK	2.00		
		Total	2.00	PJTSAU, Rajendranagar	2.00
322	THANU	KK	2.50		
		NSC	0.40		
		Total	2.90	ZARS, mandya	2.90
323	TKM 13	NSC	0.20		
		Total	0.20		
324	TRIPURA CHIKANDHAN	TP	0.10		
		Total	0.10	Arundathinagar	0.10
325	TRIPURA HAKUCHUK-2	TP	0.20		
		Total	0.20	Arundathinagar	0.20
326	TRIPURA NIROG	TP	0.10		
		Total	0.10	Arundathinagar	0.10
327	TROMBEY CHATTISGARH DUBRAJ MUTENT-1	CG	10.00		
		Total	10.00	IGKV, Raipur	10.00
328	TUNGA (IET-13901)	KK	4.75		
		Total	4.75	ZARS, mandya	4.75
329	UMA (MO-16)	AP	5.00		
		KK	3.75		
		NSC	10.00		
		Total	18.75	RRS, Moncompu	18.75
330	UTTAR SONA (UBKVR-1) (IET-24171)	WB	1.00		
		Total	1.00	RRS, Bankura	1.00
331	VALLABH BASMATI-24	SAI	0.30		
		Total	0.30	SVBAU&T, Meerut	0.30
332	VARSHADHAN (CRLC-899)(IET-16481)	SAI	1.00		
		WB	1.50		
		Total	2.50	NRRI, Cuttack	2.50
333	VISHNUBHOG SELECTION-1	CG	15.00		
		Total	15.00	IGKV, Raipur	15.00
334	VL DHAN 157 (VL 31611) (IET 22292)	UK	2.50		
		Total	2.50	VIHA, Almora	2.50
335	VL DHAN 158	HP	2.00		
		SAI	0.30		
		Total	2.30	VIHA, Almora	2.30

S.No	Variety	Indented by	Quantity (DAC)	To be Produced by	Quantity (Qtls)
336	VL DHAN 68 (VL 31611) (IET 22283)	UK	8.00		
		Total	8.00	VIHA, Almora	8.00
337	VL.DHAN 85 (IET-16455) (VL-3613)	UK	0.60		
		Total	0.60	VIHA, Almora	0.60
338	WGL-915	TG	1.50		
		Total	1.50	PJTSAU, Rajendranagar	1.50
339	ZINCO RICE MS	CG	50.00		
		SAI	1.00		
		Total	51.00	IGKV Raipur	51.00
Total			**4113.02**		**4262.77**

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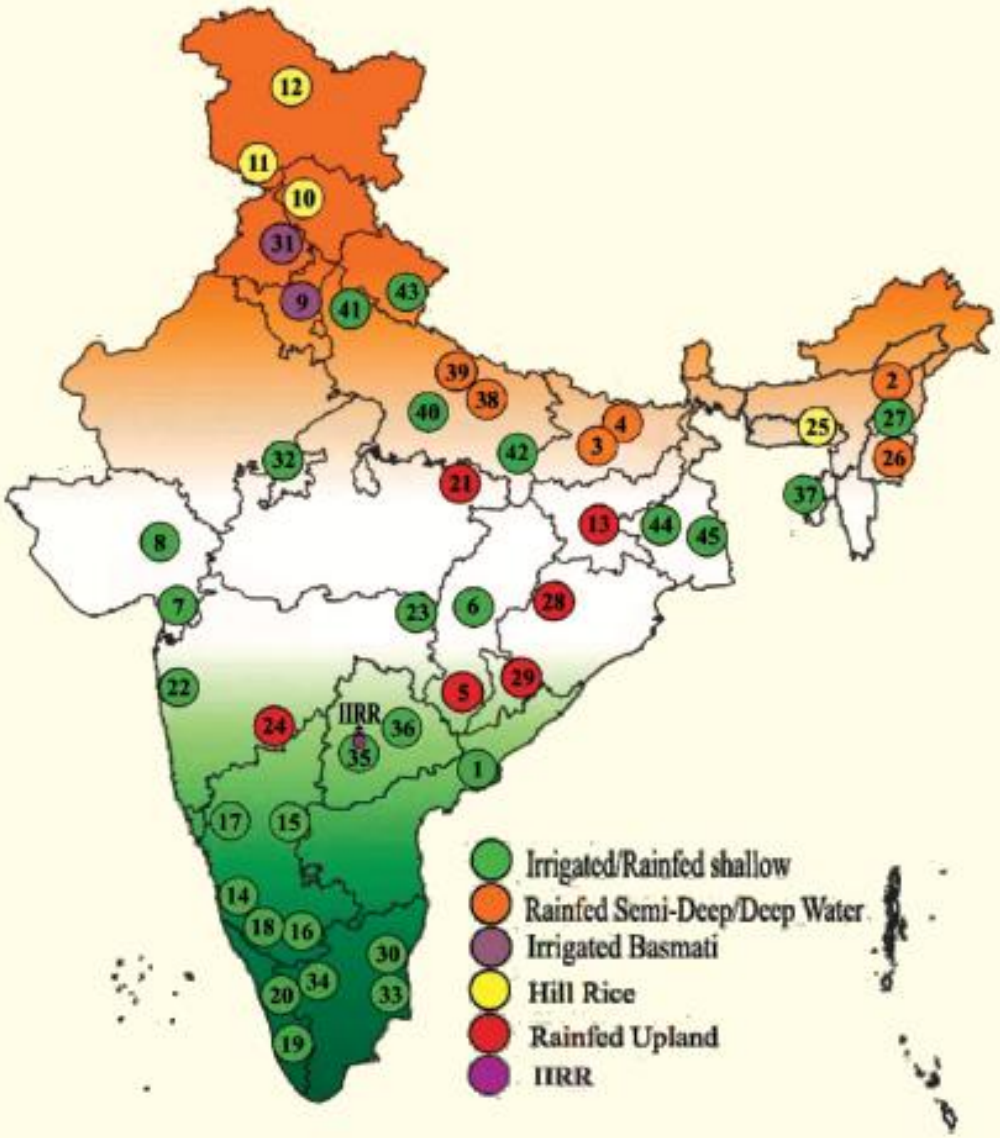

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