चावल अनुसंधान समूह बैठकों की प्रारूप कार्यवाही

Draft Proceedings of 57th Annual Rice Group Meetings

अखिल भारतीय समन्वित चावल सुधार परियोजना

All India Co-ordinated Rice Improvement Project

IIRR, Hyderabad, 18-19th & 25-27th April, 2022

(Conducted in Hybrid mode)

2022

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

57th Annual Rice Research Group Meetings
18-19th & 25-27th April, 2022
(Hybrid Mode)

All India Coordinated Rice Improvement Project (AICRIP)

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Chairman : Dr. T. R. Sharma, DDG (CS), ICAR, New Delhi
Chief Guest : Dr. T. Mohapatra, DG, ICAR & Secretary DARE
Co-Chairman : Dr. R.K. Singh, ADG (FFC), ICAR, New Delhi
Rapporteurs : Drs. J. Aravind Kumar, C. Kannan & K. Chattarjee

The inaugural session of the 57th Annual Rice Research Group Meeting was held in the Dr. SVS Shastri Auditorium, Indian Institute of Rice Research, Hyderabad on April 25th, 2022 at 3.00 PM, with inaugural ICAR song followed by lighting of the lamp by the dignitaries.

Dr. R.M. Sundaram, Director, ICAR-IIRR, welcomed the dignitaries on the dais and also those who virtually attending the meeting, delegates of the All India Coordinated Research Project on rice (AICRPR), seed industry and all other stakeholders. He took pride to inform that Rice Group is meeting in hybrid mode two years after the start of the COVID-19 pandemic. The welcome address was followed by the Director's report, which is a brief presentation of the research highlights of AICRPR and ICAR-IIRR. He informed that ICAR-IIRR released six varieties viz., DRR Dhan 57, 58, 59, 60, 62 and 63 through the AICRPR system in 2021. He thanked the cooperating scientists for their support and cooperation ensuring the success of AICRIP network.

Dr. Padmini Swain, Director (A), NRRI, complimented the IIRR team for conducting the 57th Annual Rice Research Group Meeting in hybrid mode and expressed her satisfaction in attending the same. She underscored the importance of AICRPR testing system and how ICAR-NRRI was conducting the trials in two zones (III and IV) at 35 different locations. During 2021, ICAR-NRRI has released three varieties (CR Dhan 318, CR Dhan 319 and CR Dhan 320).

Dr. R.K. Singh, ADG (FFC), ICAR in his inaugural address, underscored the importance of the rice as one of the most important crops of India with largest area and production. Dr. Singh stressed the importance of improving production and productivity of rice in addressing the issue of malnutrition and food security of the nation. He mentioned that the All India Coordinated Research Project (AICRP) system is the best system in the world for a coordinated approach aimed towards improving the productivity and production of the crop and pointed out that bio-fortified varieties will be very crucial in addressing the nutritional security of India. He also emphasized the importance of varietal replacement, from the old less productive ones to the improved resource use efficient and highly productive varieties for increased rice production in the country. Dr. Singh asked the researchers to utilize cutting-edge technologies (ex. genome editing) in developing climate resilient varieties.

Dr. T. R. Sharma, DDG (CS), ICAR lauded the efforts of ICAR-IIRR and congratulated the Director, IIRR and his team on the progress and quality of research. He emphasized the importance of the use of modern, cutting edge technologies, including IoT, Genomics and

Precision agriculture, in the development of varieties with high productivity and suitable for different ecosystems and suited to a rapidly changing climate. He informed the gathering that India from being a food deficient country during independence has become a net exporter of rice contributing more than Rs. 60,000 crores in foreign exchange earnings, owing to development of improved Basmati and non-Basmati varieties and also the key policy decisions of the GoI. Dr. Sharma stressed on the necessity of developing Japonica varieties to capture the East Asian markets in addition to the improvement of Basmati varieties which has high demand in the Europe and the middle-eastern countries. He suggested the development of product profile for varieties targeting both domestic and export markets with the following qualities: high yield (6.5-7.0 t/ha), multiple stress tolerance, water use efficiency (WUE) and nutrient use efficiency (NUE), desirable grain and nutritional quality (high Fe, Zn, protein, low GI, etc.), early maturity and suitable for mechanical sowing/planting and harvesting. He has suggested that GWAS and haplotype-based breeding should be extensively utilized. Further, Dr. Sharma informed that as per the recent decisions taken at the Council level, at least about 10% of the FLDs should include bio-fortified varieties. He also highlighted the importance of DSR in the changing climate scenario. He suggested the following points for rice researchers of AICRP on rice, (1) continuous and systematic survey of pathogen and biotype emergence and differentials (at national and international level) (2) designing of specific experiments at hot-spot locations for quantitative estimation of yield losses (3) development of prediction models for monitoring the outbreaks of pests and pathogens and use of AI and drones for their management i.e., strong and effective surveillance system (4) deployment of high throughput phenotyping methods (5) emphasis on integrated pest/disease approach management i.e., for supporting the GoI's initiative of natural farming.

Dr. T. Mohapatra, Secretary, Department of Agriculture Research and Education (DARE) and Director General, ICAR and, at the outset congratulated the entire team of AICRP on rice and stressed the importance of development of multi-stress tolerant varieties. Dr. Mohapatra also underscored the importance of popularization and adoption of varieties that have been released over the years and to develop and release varieties only after thorough evaluation of the market and consumer's preference. He suggested that the documentation of production and protection technologies should be taken up on priority basis in AICRPR network. Dr. Mohapatra proposed that the varietal composition in the last five or ten years should also be documented as a part of production oriented survey (POS) and this will help in introducing the new varieties in different regions based on specific zonal/state preferences. The extent of varietal spread on actual basis should be documented and calculations of varietal spread based on breeder's seed indent should be discouraged. The implementation of precision agriculture and use of modern tools like drones, laser levelling, AI etc. should be adopted for the purpose of better management and utilization of soil, water, fertilizers and also for disease/pest surveillance and their management. Dr. Mohapatra urged the researchers to explore the diversion of broken and damaged rice for bio-ethanol production. He highlighted the importance of pre-

breeding in varietal improvement and asked the group to deliberate on what kind of crosses are to be made as a part of the AICRPR. He also suggested that pest and pathogen evolution has to be studied in finer detail and the reasons have to be identified for the emergence of pest/pathogens despite cultivating the resistant varieties.

The programme ended with vote of thanks by Dr. L.V. Subba Rao, ICAR-IIRR, Convener, 57th ARGM.

SESSION II - Review of Results and Progress Report

Chairman : Dr. T. R. Sharma, DDG (CS), ICAR, New Delhi
Co-Chairman : Dr. R.K. Singh, ADG (FFC), ICAR, New Delhi
Dr. R.M.Sundaram, Director, ICAR-IIRR, Hyderabad
Rapporteurs : Drs. S. V. Sai Prasad and P. Revathi

CROP IMPROVEMENT

Dr. L. V. Subba Rao, Head & PI (AICRIP), Plant Breeding, ICAR-IIRR, Hyderabad presented the Varietal Improvement progress of irrigated ecosystems & Breeders Seed Production for the year 2021-22. He informed the house that last year 83 varieties viz., 27 (3 hybrids) from CVRC and 56 (4 hybrids) from SVRC were released; a new trial was initiated i.e., Japonica trial considering the importance of export. He emphasized that locations are to be increased under salinity stress trials. It was proposed for constituting a new trial for coloured rice. He expressed concern for no promotions under ASG, NILs (Biotic) and bio-fortification trials.

Dr. B. C. Patra, PS, ICAR-NRRI, Cuttack presented the results of varietal trials conducted in the rainfed ecosystem. He emphasized on developing infrastructure for phenotyping for stress traits at various funding centres, for which Dr. TR Sharma DDG (CS) expressed that best performing centres are to be identified and more funds are to be allotted for their further improvement.

It was followed by the presentation on Basmati trials as well as NIL trials on drought tolerance, bacterial blight, blast and herbicide tolerance by Dr. S. Gopal Krishnan, PS, ICAR-IARI, New Delhi. The grain quality traits like low HRR is a problem along with Basmati quality traits in the entries evaluated under various trials and emphasized for including basmati quality parental lines in the breeding program. The feedback from the Industry about the Basmati quality traits of high yielding genotypes should be part in identifying promising genotypes to meet the requirements of rice exports.

Dr. A.S. Hari Prasad, PS, ICAR-IIRR, Hyderabad presented the results of hybrid rice trials. Dr. TR Sharma DDG (CS) appreciated last year progress on "Hybrid Rice" as many hybrids were promoted based on their yield potential in various zones and overall performance. The contribution of private sector in development of rice hybrids was lauded by the Chair.

Dr. TR Sharma DDG (CS), emphasized on strengthening pre-breeding activities by utilizing land races and wild species in crossing programme by various centres to broaden the genetic base and developing multiple stress resistance high yielding genotypes. The resistant genotypes identified over the years from the Pathology and Entomology AICRPR trials are to be incorporated in the breeding programme. With respect to the performance of various AICRPR centres performance, best performing centers may be encouraged with incentives and Non-performing centres progress may be reviewed for corrective measures. As the area under rice is more in North Eastern Region, more testing locations should be identified for evaluation of genotypes.

Dr. A.K. Singh, Director, ICAR-IARI, New Delhi expressed satisfaction on the decision of utilizing CD at 5% level of significance at IVT level for promotion of the entries. With respect to NIL trials, test locations for evaluation of entries may be extended to popularly grown states in addition to released states and include these states in the release proposal. Key grain quality traits like head rice recovery (HRR), Amylose content (AC) and Gel consistency (GC) must be analyzed before nominating the entries to avoid rejections and save resources of the network. Rice varietal development for export needs a thorough discussion for fetching high earnings and setting the criteria for premium quality market. A clear road map for the utilization of donors identified in the various screening nurseries and development of mapping population may be initiated. The donors identified from pathology and entomology disciplines over years needs to be shared with different breeding programmes. He expressed that, while conducting the bio-fortified trials, zinc level in the soil needs to be analysed so that only those locations with sufficient soil Zn levels may be considered for promotion of entries.

Dr. Parminder Virk, Harvest Plus has emphasized in utilizing diverse parental line and mentioned that high throughput phenotyping facilities are needed for developing bio-fortified varieties. Dr. Deepak Sharma of IGKVV, Raipur once again emphasized the importance of head rice recovery % of grain quality traits and informed 24000 germplasm are available at IGKV University. He also mentioned that the trials on New Plant type (NPT) rice lines may be initiated in AICRIP.

Dr. BC Viraktamath, Ex-Director, ICAR-IIRR, Hyderabad expressed that parents with high zinc are to be identified as donors and breeding programme is to be strengthened for developing genotypes with high zinc. He also emphasized that the area under hybrid rice has to be increased through development of better hybrids and also through policy interventions, so that it can help in reducing rice area, saving water, assist in crop diversification and increasing productivity in a mission mode approach.

CROP PRODUCTION

Rapporteurs: Dr B. Sreedevi, Dr P.C. Latha, ICAR-IIRR

AGRONOMY

Dr R. Mahender Kumar has presented the results of Agronomy Program of kharif 2021.

A total of 245 were experiments conducted at 45 (35 funded and 10 voluntary centers) locations consisting of evaluation of promising cultivars (132 cultures) belonging to 18 groups viz., early hill (irrigated), Upland Hill (UH), early (TP and DS), IME, IM, Late, RSL, CSTVT, AL & ISTVT, Aerobic. Biofortified, NIL (HT- herbicide - resistant mutant and Nitrogen and Phosphorous use efficiency) AVT-1 BT trials in the transplanted situation, for their response to integrated nutrient management at 50 and 100% Recommended dose of fertilizer (RDF). six trials on cultural management, four trials each on weed management and three in rice based cropping systems and climate resilient agriculture.

In nutrient management trials, at most of the locations, application of 100% RFD was found promising. Except Early hills, 2-3 cultures found promising over checks in other groups. 35 entries found promising across the Groups. Results of the trial on development of package of practices for mechanized transplanting revealed that Mechanical transplanting (15 days) seedlings and recommended spacing) at normal planting time resulted in significantly the highest grain yield in all the locations. In the trial on developing suitable package of practices for dry and wet DSR, local wet direct seeded practices and pre-emergence herbicide fb manual weeding was effective. Results of the trial on yield maximization of rice in different zones showed that, RDF + FYM 10 t/ha was the best treatment to increase the grain yield across the locations. For enhancing productivity of organic rice cultivation, apart from 100% RDN through inorganic source, organic management practices of respective States resulted in highest grain yield in all the locations. Results of the trial on Water management for enhancing water use efficiency in different rice establishment methods found alternate wetting and drying as the best option to enhance water use efficiency and productivity of rice in all test locations. Also mechanical transplanting in puddled soil was the best treatment to enhance the productivity of rice crop. Evaluation of nano-fertilizers for increasing nutrient use efficiency, yield and economic returns showed that 100%RDN through urea and 75% of RDN + nano-urea @ 2% foliar spray at tillering and panicle initiation stages were comparable.

The long term trial on weed dynamics in mono or double cropped rice system under different establishment methods showed that, mechanical transplanting has lowest weed biomass and un-puddled direct seeding has highest weed biomass, and among weed control treatments, chemical weed control treatments recorded lowest. Evaluation of advanced cultures for weed competitiveness under aerobic system showed superiority of IET26168 followed by IET 26194 and useful in breeding program for developing weed competitive varieties. In the trial on sustainable Weed Management in Aerobic rice system, mulching followed by post-emergence herbicide application, mechanical weeding followed by post-emergence herbicide application were comparable to chemical

weed control in terms of weed index, weed population and dry weed biomass. Integrated Weed Management as part of Integrated Pest Management has shown significant higher Yields compared to farmers practices with an yield advantage of 23.83%. The Rice Equivalent Yield & system productivity was higher due to rice residue incorporation at all four locations in Conservation agriculture based management practices in rice and rice based cropping systems incorporation in Vadagaon, Karjat, Titabar and ARI-Rajendranagar. The trial on evaluation of promising cultivars for late planting and management for higher productivity and mitigate the effect of climate change showed that AD 16028 and ADT 53 at Aduthurai, Pusa Basmati 1728 and Jammu Basmati 118 at Chatha, AD 17152, AD 08219 and AD 16028 at Jagdalpur, CTH 1 and KMP 175 at Mandya, Gitesh and Bina 11 at Titabar were found promising with better yields under late planting situation. The performance and yielding ability of *kharif* sorghum hybrids in Rice-Sorghum sequence cropping system was effective. Dr P.C. Pandey Member PMAC, suggested to include integrated nutrient management to increase productivity, adoption of Alternate wetting drying method for improved Irrigation and water use efficiency in framing the technical program.

SOIL SCIENCE

Dr. K. Surekha, PI, presented the consolidated results of eight soil science trails. In the trial on long-term soil fertility management in RBCS, the treatment RDF + FYM resulted in maximum grain yield at MTU, MND and TTB locations but was significantly superior to RDF at MND only during Kharif. In the trial on soil quality and productivity assessment for bridging the yield gaps in farmers' fields, the highest level of yield gap of 84 % was recorded at Kaul while lowest of 17% was observed at Ludhiana. Use of nano Zn spray in the trial on Management of sodic soils was found to increase grain yield, Zn translocation to grain and also soil available zinc in sodic soils of FZB, MND and Ludhiana. In a study on management of acid soils, silixol spray along with RDF increased grain yield and agronomic efficiency of nutrients in acid soils of MCP, TTB and Dumka. With respect to residue management in rice based cropping system trial, it was observed that crop residues in combination with Pusa decomposer can be deployed to substitute a part (25-50%) of the recommended N due to their positive effect on grain yield, nutrient use efficiency and grain quality. In the nitrogen use efficiency screening trial, ARRH 7576, Varadhan and CNN 5 recorded higher yields under optimal and sub optimal N doses confirming their high NUE. RDF+10 t FYM/ha was found to be the best treatment recording highest yield at majority of the locations in the trial on Yield maximization of rice. In the study on Enhancing productivity of Organic Rice cultivation, though 100% inorganic N resulted in higher yields at majority locations, soil organic carbon values were higher with organics.

Dr. A Subba Rao, Ex. Director, ICAR-IISS, Bhopal and Member RAC, ICAR-IIRR suggested that release of bio-fortified varieties has to be done considering two issues, namely, yield level and acceptability of the varieties by farmers in a given area. He expressed the necessity to study the pathways of nano-urea uptake at different stages, translocation to grain and final impact on the yield with an emphasis on as to what happens to soil system

and how long the nano-urea sustains the crop. Since low inputs of N, P and K fertilizers resulted in good crop yields, Dr. Rao opined that it is essential to know how long low levels of fertilizer application can sustain crop yield by observing whether the effect is temporary for a couple of years or for long term. It is therefore required to characterize the soil nutrient content before applying fertilizers to increase yield. He suggested to popularize the results from long term experiments i.e., application of 50% NPK + 50% of FYM with or without green manuring to obtain good yields, after studying the longevity of the recommendation in farmers' field for sustainability. In certain experiments, where good response to 'zero' nitrogen was registered, it is essential to know how long 'zero' nitrogen fertilization sustains crop yields. It is to ascertain whether it was due to any residual effect. He also suggested application of Mg as dolomite and zinc sprays etc. simultaneously.

PLANT PHYSIOLOGY

Dr. D. Subramanyam presented the results of Plant Physiology program. Six trials were conducted in 8 funded centers, four voluntary centers and two ICAR institutes. Silicon application (@ 0.08% ortho silicylic acid) resulted in 5.7% increase in grain yield across 7 locations. Silicon application reduced the yield loss caused by water stress. Genotypes 27P63, DRR-Dhan-48 & Sahabhagidhan show increase in grain yield by silicon. Based on performance under rainfed condition & drought indices and stability analysis IL-19206, Krishna Hamsa, IL-19204, IL-19185, IL-19198, IL-19181, IL-19347, IL-19096 and IL-19279 could be identified as relatively tolerant to drought and suitable for rainfed cultivation. Genotypes CO-1, IET-29948, IET-29942 and IET-29938, IET-29950 & IET-29946, IET29940, IET29949, IET29952 and IET29960 were identified as heat tolerant. Under multiple abiotic stress trial, only CR-2862-IC-10 was tolerant to all the abiotic stresses. while IET-27051, Dular were tolerant to both AG and osmotic stresses and AC43037 was tolerant to salinity and osmotic stresses. Based on survival under 14 days of complete submergence. Genotypes AC43037, Black Gora, Mahulata, Gurjari and Pani Kekua, NPS71, Ampaki Bora, Mian Sali and Boga Amona were found to tolerant to submergence stress. In low-light (50%) stress trial genotypes IET28276 and IET29031 showed minimum reduction in grain yield and performed better than the tolerant check Swarnaprabha. The genotypes AC43037, Black Gora, Mahulata, Gurjari and Pani Kekua, NPS71, Ampaki Bora, Mian Sali and Boga Amona were found to tolerant to submergence stress, while low-light (50%) intensity stress trials, IET28276 and IET29031 showed minimum reduction in grain yield and performed better than the tolerant check, Swarnaprabha.

Dr. M. Sreeman Sesashayee, Member RAC and PMAC, suggested to include large number of germplasm in phenotyping for abiotic stress tolerance, so that the strategies can be developed that can be helpful to the breeders for identifying potential genotypes with high yield and productivity. He also suggested to combine heat and drought stress for studying the effect of future climate. He was of the opinion that plant physiologists and breeders should work in close coordination for developing better multi-stress tolerant varieties.

CROP PROTECTION

Rapporteurs: Dr. V. Prakasam and Dr. S. D. Mahapatra

PLANT PATHOLOGY

Dr. M. Srinivas Prasad, Principal Scientist and Head, Plant Pathology, IIRR, Hyderabad presented the results of AICRIP Plant Pathology trials conducted during 2021 at different locations in India. A total of 15 trials were conducted during 2021 at 49AICRIP locations on host plant resistance, field monitoring of virulence in major pathogens and disease management. Five national screening nurseries comprising of 1449 entries of advanced breeding lines and new rice hybrids were evaluated at 49 centers for their reactions to major rice diseases. Among the tested entries, 74 entries found moderately resistant against two to four major rice diseases across the tested locations. IET No. 30253 showed moderate resistance to LB, NB & BS) in NSN-1; IET No.29838 to NB in NSN-2; IET Nos 28907 and 29651 to NB in NSN-H. In NHSN IET# 29753 identified with moderate resistant reaction to six diseases viz., LB, NB, ShB, BS, BB and ShR. Similarly, IET#29721 found moderately resistant to four diseases (LB, NB, ShB, & BB) while three entries for three diseases viz., 29747 (MR to LB, NB &ShR), 29752 (MR to NB, ShB&ShR) and 29751 (MR to NB, BS & BB). In DSN, 3 donors exhibited either R or MR to diseases and that included RP-Bio Patho -4 (MR to LB, NB &ShR) and RP-Bio Patho -5 (MR to LB, BB & resistant to NB), RNR 28400 (MR to LB, NB & RTD). He also presented the results of monitoring of field virulences of blast pathogen (*Magnaporthe oryzae*) and bacterial blight pathogen (*Xanthomonas oryzae pv. oryzae*). He mentioned that there was shift in virulence profile of blast pathogen in some of the location. Cluster analysis of field virulence reaction of blast pathogen of 25 locations on 35 differentials grouped them into 8 major clusters at 65% similarity coefficient. Regarding monitoring of field virulences of bacterial blight pathogen, he mentioned that the differentials possessing single BB resistance genes like *Xa1, Xa3, Xa4, xa5, Xa7, xa8, Xa10, Xa11 and Xa14* were susceptible at most of the locations. BB resistance gene xa13 was susceptible in 8 locations while Xa21 was susceptible in 11 locations. Based on their virulence, the isolates were grouped into high, moderate and low virulence groups.

The data from disease observation nursery revealed that bacterial blight was high in early and normal sown crop compared to late sown crop while incidence of sheath blight and bakane was more in early sown crop. Sheath rot incidence was also more in late sown crops. Data on chemical control trial experiments revealed that isoprothiolane 40% EC (1.5 ml/l) was effective against leaf blast while thifluzamide 24% SC (0.8g/L) and difenoconazole 25% EC (0.5 ml/L) were effective in reducing sheath blight. Tebuconazole 25.9% EC (1.5 ml/L) was showed broad spectrum activity against sheath blight, sheath rot, brown spot and blast. He mentioned that in Integrated disease management trial, Seed treatment with carbendazim @2g/kg of seeds plus a spray of 0.4g/l of trifloxystrobin 25%+ tebuconazole 50% (T5) resulted in the most effectively decreased the disease severity and increased the grain yield over control. He also mentioned that

seed treatment and spraying of bio-control agent at 15-20 DAT (10 g/litre) along with one spray of propiconazole (1 g/litre) at the booting stage was effective against leaf blast, neck blast and sheath blight. In special IPM trial, he mentioned that IPM practices performed better compared to farmer practices against Sheath blight and bacterial blight at most of the locations. He mentioned that with increase in disease intensity of leaf blast, sheath blight and bacterial blight, there is corresponding decrease in yield. He also mentioned that intensity of diseases like neck blast, sheath rot and sheath blight was comparatively less in puddle direct seeded rice.

Dr G. S. Laha, Principal Scientist, Plant Pathology, ICAR-IIRR, presented the results of Production Oriented Survey-2021. He mentioned that Survey was conducted in 14 rice growing states by 16 AICRIP centres. A total of 601 villages in 98 districts were covered during the survey. Seasonal rainfall over the country as a whole was 96-104% of its Long Period Average (LPA) in 2021. In AP, heavy cyclonic rain during September 2021 resulted in submergence and heavy incidence of bacterial blight which significantly affected the yield. He mentioned that Some varieties occupied large areas in some states, e.g. In AP major area was covered by Swarna, MTU 1121 and PLA 1100, Ranjit was most predominant variety in Assam. Major area in Gujarat was covered by Gurjari, GAR 13 and GNR 3. In Punjab, 21% area was covered by PR 121. Among Basmati varieties, Pusa Basmati 1121 had the highest area followed by Pusa Basmati 1509. Among the states surveyed, UP and Haryana had the highest area under hybrids. Regarding rice consumption pattern, he mentioned that farmers from northern and western states told that their main meal consisted of both rice and wheat while some farmers from Karnataka and Maharashtra told that they are including millets in their diet. Many farmers from the states of AP, Bihar, Haryana, Punjab and Telangana applied higher dose of N. He mentioned that application of nano urea is gaining popularity in some places in telangana and AP.

During 2021, DSR was popular in AP, Karnataka, Telengana and Punjab. Overall, weed intensity was low to moderate. Farmers in most of the places are following 1-2 hand weedling and need based herbicide application. Commonly used pre-emergence herbicides were butachlor and pretilachlor and post-emergence herbicide was Bispyribac Sodium. He mentioned that major demands of the farmers were short duration rice varieties and varieties suitable for direct sowing, subsidy on inputs and implements, increase in MSP and improvement in irrigation facilities. He mentioned that severe incidence of leaf and neck blast was reported from Kangra in HP, parts of Jammu and Kashmir and Mandya and Mysore districts of Karnataka. Leaf blast was also very common in many parts of Haryana. False smut was severe in most of the districts in eastern UP and in Mandya in Karnataka. BB was very wide spread and severe in coastal AP especially following the cyclone Gulab. Severe BB incidence was also reported from Mysore in Karnataka, Thane and Raigad in Maharashtra and in parts of Kerala. Very severe BB incidence was reported from several districts of Telangana especially on BPT 5204. Bakanae was widespread in moderate form in many parts of Haryana, Punjab and also some parts of Telangana. Plant hoppers were severe in Karnal district, in Mandya and Mysore during dough and grain filling stage and some parts of Telangana. High incidence of stem borer and leaf folder was reported from Mandya in Karnataka. Rice

crop damage by blood worm was reported from Cauvery command area in Karnataka and Vadodora district of Gujarat. Zinc and iron deficiency symptoms were reported from some of the surveyed areas.

Dr. R. Jagadeeshwar, Director of Research, PJTSAU appreciated the AICRIP Plant Pathology program and also the Production Oriented Survey. He mentioned that bacterial blight disease is spreading in many districts of Telangana state and advised for demonstration and cultivation of bacterial blight resistant rice varieties developed by ICAR-IIRR. He suggested that plant pathologists should also work on disease forecasting for taking suitable preventive measures. He mentioned that AI and machine learning technologies should be used for early detection of diseases and insect pests. Dr. R. K. Singh, ADG, FFC and commercial crops appreciated the Plant Pathology and POS program. He suggested that all the centres should conduct the trials sincerely and send the data in time. Dr. T. R. Sharma, Deputy Director General, Crop Science appreciated the AICRIP Plant Pathology program and POS. He suggested disease resistant donors identified in the AICRIP program should be used in the resistance breeding program throughout the country. He also suggested that AICRIP data can be analysed more scientifically and salient points should be presented.

ENTOMOLOGY

Dr. B. Jhansi Rani, PI of Entomology Coordinated Programme presented the results of the trials conducted during *kharif* 2021 in the afternoon of 26th April 2022. She informed the house that the trials encompassing various aspects of rice entomology like host plant resistance studies, chemical control, biocontrol and biodiversity studies, ecological studies, IPM trials, and population monitoring through light traps were conducted at 38 locations (IIRR, 28 funded & 9 voluntary centres) in 21 states and 2 Union Territories. In all, 268 experiments (98.13%) were conducted in funded centres and 52 experiments (88.46%) in voluntary centres. She presented the most promising cultures identified in pest specific screening trials v*iz*., Planthoppers, gall midge, leaf folder and stem borer and the National Screening nurseries. The results of Insect biotype and population monitoring studies of plant hoppers and gall midge suggested that PTB33 and RP 2068-18-3-5 for BPH; Aganni and W1263 for gall midge are the most promising donors. In the trial on evaluation of granular insecticides against gall midge, seed treatment with thiamethoxam @ 4 g /kg seed followed by application of fipronil 3% GR @ 25 kg /ha at 20-25 days after transplanting was most effective across the locations with significantly lower per cent silver shoot damage as compared to other insecticide treatments. In the Insecticide Botanical Evaluation trial (IBET), performance of various treatments having combinations of commercially available neem formulation, effective plant oils along with recommended insecticides against major insect pests of rice and consequent impact on natural enemies and grain yield was studied and the results suggested that all insecticides module was found to be superior in reducing stem borer damage at both vegetative and reproductive phases compared to other insecticide-botanical modules. Results of crop establishment methods on pest incidence revealed that the incidence of pests was relatively high in machine transplanting, normal transplanting and direct

seeding methods as compared to SRI, aerobic rice and semi dry rice methods. The slow release blends recorded maximum catches compared to normal blends in case of all test insect pests across locations in evaluation of pheromone blends for insect pests of rice (EPBI) trial. Results of the Ecological Engineering for pest management (EEPM) conducted with a combination of interventions such as organic manuring, alleyways, spacing management, water management and growing of flowering plants on bunds were summarized. She highlighted the results of the Integrated Pest Management Special (IPMs) trial that was conducted with zone-wise practices at 19 locations in 40 farmers' fields during Kharif 2021 in collaboration with plant pathologists, and weed specialists in a farmer participatory mode. The talk ended with the summary of the population dynamics of rice insect pests assessed through light trap catches that were recorded during the whole year across locations throwing light on the prevalence of pests and natural enemies in the various zones.

PRE WORKSHOP INAUGURAL SESSION

Chairman : Dr. T. R. Sharma, DDG (CS), ICAR, New Delhi
Co-Chairman : Dr. R.K. Singh, ADG (FFC), ICAR, New Delhi
Rapporteurs : Drs. P. Senguttuvel, Dr C Kannan, Dr. Mangal D Tuti

The inaugural session of the 57th Annual Rice Research Group Meeting was held at ICAR-Indian Institute of Rice Research, Hyderabad on 18th April, 2022 in virtual mode. Dr. RM Sundaram, Director, ICAR-Indian Institute of Rice Research welcomed, Dr TR Sharma., DDG (Crop Sciences), Dr. RK. Singh, ADG (Commercial Crops & FFC), Dr. D. K. Yadava, ADG (Seeds), AK Singh, Director, ICAR-IARI, Dr Padmini Swain, Director (A) (NRRI), the dignitaries and delegates of ICAR, AICRIP, PMC, Private seed companies and participants from cooperating centres for the pre-group meeting. He expressed profound grief on the significant adverse effects of COVID 19, due to which we lost some of our esteemed colleagues of rice fraternity assisting AICRIP Network, logistical issues in packing and dispatch of seed materials in time due to transport. Despite the setbacks, systematic conduct of AICRIP trial with about 80% conductance and efficiency was well appreciated. He narrated the details of pre-group meeting deliberations; these two days deliberations help us in identification of promising varieties and technologies for promotion and also framework AICRIP in more efficient and effective. He further insisted that as first among the All India coordinated schemes for different crops and animals, ICAR-IIRR have developed and formulating guidelines for nominations of non-varietal technologies (NVT) and proforma of release of promising technologies through AICRIP. He further informed that ICAR-IIRR has initiated the new nominations for AICRIP 2022 from across different sectors and finalization of trial will be completed by first week of May.

Dr Padmini Swain, Director (A) (NRRI) in her opening remarks, welcomed and congratulated all rice scientists for successful conduct of AICRIP, even under pandemic situation. She highlighted the achievements of this largest rice network in the country, collaborative research work with assistance from FAO, IRRI and ICAR. She appreciated that the AICRIP has released more than 150 rice varieties and 55 are in seed chain with 18 % of rice area and 17 % of production covered by NRRI varieties. NRRI actively involved in AICRIP coordination and monitoring since 2018 for rain fed upland and coastal ecosystem comprises of 92 centres. She insisted that all coordinating units should have interaction virtually or physically frequently to improve fair conduct of trials and quality data.

Dr. A.K Singh, Director, ICAR-IARI, welcomed all participants and appreciated the highest export of rice with 21MT in 2021 that generated an income of 68, 0000 crores, and the surge in non-basmati export to 16MT. He informed that though basmati export declined by one MT, still India stands first in production and export and thanked public and private sectors in contribution to world market. He congratulated the decision taken on use of CD value @5% and F value statistics in promotion of entries IVT trial, first in rice and will give better promotion.

Dr. D. K. Yadava, ADG (Seeds),welcomed the largest and advanced AICRP group scientist and informed that so far 1271 varieties and hybrids released and notified, out of which 442 varieties including 58 hybrids were released during last seven years (181 CVRC& 261 SVRC), 43 marker assisted selection varieties are released. He raised concern and informed that all these varieties/hybrids need popularization and commercialization, further effective use of genome edited lines, development of water use efficient, heterotic hybrids and bio-fortified rice research is need of the hour. He narrated the path of rice research and the production journey, with 30.81 m ha in 1951 which has now reached to 45M, and enhancement of 1.5times and also production has gone to six times with help of scientific intervention and good agricultural practices followed. He informed the house that this was possible due to more than 380 scientists dedicated to rice research across the country, involved in the research of three components of rice under irrigated, upland and basmati which are now well taken care by ICAR-IIRR, NRRI and IARI and that this division has significantly improved the coordination and rice improvement programme. He informed that council is extending financial support by releasing 200 crores annually to AICRIP programs which must be translated into enhancement of production, productivity and export of rice. He specifically mentioned that under new seed bill, registration is necessary and synonym to the varietal notification, AICRIP is one platform to fulfill the release and notification.

Dr TR Sharma., DDG (Crop Sciences), welcomed the participants and stressed upon significance of AICRIP and concern that even one week is less to discuss the whole aspects of rice. He was impressed with the record rice production of 121 mt during 2021-22 in spite of same cultivation area of 42.5 M ha, which we are cultivating for past several years and with a recent increase of about 3.5-4.2M ha for past 50 years He appreciated and congratulated all rice scientist and workers and requested them to take the rice crop research sincerely and to improve productivity. He raised concern that in comparison to wheat production in India and rice production in china, the productivity of rice in India needs to be accelerated. He suggested that seed production is key to the success of any varietal popularization and thus to bring all the released rice varieties to seed chain in DAC and agricultural departments, so that it can immensely contributes to national food security. He suggested that effective planning is very important in these two days of pre-workshop deliberations. He suggested that more emphasize should be on genome editing, hence SDN1 and SDN2 have been approved by Govt of India. As an example in experiments, more than 35 % yield improvement has been achieved with editing of a single gene viz., IBT-1 on plant architecture. Further in coming years varieties with multiple resistance/tolerance to biotic and abiotic stresses may be more important and will succeed when compared to single trait varieties. He emphasized that Govt of India has allowed distribution of fortified rice under PDS and our research should be more intense on bio fortified rice varieties. He further informed that only one variety has been released so far for improvement in protein content. Thus it is important to make use of different germplasm (both wild species and landraces) available in the gene bank with established protein content of 12-15mg and be utilized in breeding programme. He further informed that keeping in view of the changing climate, multidisciplinary approach is much more important and AICRIP is one such successful platform implementing the

multi discipline research. He raised concern that all cooperating centres should actively involve in development of rice varieties, besides the multi-location evaluation and diversifying varietal profile to farming community. He congratulated Director, ICAR-IIRR for his sincere efforts in bringing out proforma for evaluation non-varietal technologies, first in the country and rendered his best wishes to the rice scientist for successful conduct of the ARGM.

The session ended with vote of thanks by Dr LV Subba Rao.

CROP IMPROVEMENT (Pre-Workshop)

Chairman : Dr. T. R. Sharma, DDG (CS), ICAR, New Delhi
Co-Chairman : Dr. R.K. Singh, ADG (FFC), ICAR, New Delhi
Rapporteurs : Drs. Suneetha K, Dr. B. Jyothi, and Dr. R Abdul Fiyaz

IRRIGATED TRIALS

Breeder's group meeting with approximately 150 breeders was held in virtual mode on 18th April 2022 under the chairmanship of Dr AK Singh, Director, ICAR-IARI and Dr. Narendra Kulkarni, Head (Retired) Rice Breeding unit, ANGRAU co-chaired the session. 37 irrigated trials conducted across seven zones and 2 union territories with 1203 entries (1103 varietal and 100 hybrid rice) including 145 checks were conducted in 856 experiments (722 varietal and 134 hybrid rice) at 115 locations (42 funded, 73 voluntary centers) in 28 states and 2 union Territories across seven zones of the country during 2021. Results of irrigated experiments are presented by Dr. A.V.S.R. Swamy, Dr SV Sai Prasad, Dr G. Padmavathi, Dr. J. Aravind Kumar, Dr. C. Gireesh and Dr. M.S. Anantha. The following decisions were taken.

- In AVT1-IME it was suggested to recheck quality of IET 28972, however it is clarified that the data on quality (for the entries with AC beyond the intermediate range) is presented after thorough retesting and testing at IARI and NRRI only, hence there will not be further retesting of the entries for quality.
- An enquiry about the entry IET 29189 in the trial AVT-1 ETP, it is informed that the entry was dropped due to high AC of 28%
- Upon request, IET 28442 which could not be included in AVT1-IM during Kharif 2021 due to non-receipt of seed will be included during Kharif, 2022 upon timely receipt of seed at IIRR. Similarly, the promoted entry, IET 28965 from IARI will also be included in respective trial upon timely receipt of seed.
- During the presentation of *japonica* trials, it was suggested that niche areas for cultivation of *japonica* rices (targeted eastern and western Himalayan regions) need to be identified. Entries to be tested only at locations identified as niche areas for cultivation.
- With reference to the request for considering promotion of IET 30213 in ASG trial, it was reiterated that the basic criteria for inclusion in ASG trial is 'aromatic and short grains type only. Long grain entries cannot be included in the ASG trial. Hence, inclusion of IET 30213 with long grains in ASG trial was not considered.
- Dr. Narendra Kulkarni suggested the utilization of local aromatic land races especially short grain rices which are excellent in aroma and high yield and focus on their improvement towards semi dwarf plant stature and lodging resistance in the varietal development of aromatic short grain rices.

- In AVT2-ALISTVT, it was discussed and agreed upon that the cooperators conducting saline and alkaline trials should invariably send the EC and pH information taken in three replications at three different stages 1) Before puddling/transplanting, 2) Maximum tillering and 3) Flowering in 0-15 & 15-30 cm soil depth. Similarly, soil samples collected in two replications will be analysed at NRRI (coastal saline locations) and to Karnal (Inland and Alkaline locations).
- Non availability of test locations for consecutive years is reoccurring constraint in saline locations due to variability of the stress conditions. Hence, IET 27807 is considered as repeat. Similarly, IET 27847 also considered to repeat as number of locations tested were less for this ecosystem.
- Depending on the availability of budget, conduct of saline trials additionally in farmer's field at Karaikal since the selected farmer's field is in real stress situation is agreed upon. Further KVKs or other test locations for conducting saline trials with appropriate stress conditions and assured conductance of trial for consecutive years at the same location needs to be identified.
- Comprehensive analysis across the locations on trial conduct and the receipt of the data at ICAR-IIRR should be taken up and to present the same during main workshop.
- To address the constraints of coastal ecology which is prone to submergence, breeding programmes should be initiated to combine salinity and submergence tolerance. Sufficient cooling period of 3-4 years for the development of breeding material was discussed. Hence, entries with combined tolerance to salinity and submergence in CSTVT will only be considered after the cooling period.
- ICAR–CCARI (Central Coastal Agricultural Research Institute), Goa for trait verification for coastal salinity tolerance is suggested for consideration
- In Bio-fortification trial, the IET 27984 with high protein content (11%) but low AC (16%) was suggested for soft registration as genetic stock with NBPGR instead of promotion.
- All the entries under ACIRIP testing need to be evaluated for micronutrient content particularly for Zn and protein, however, to impose this minimum criterion, a buffering period of 3-4 years is to be given to generate the breeding material with improved nutritional traits. On a pilot basis, evaluation of Zn and protein content of the varieties in BSP chain and varieties released from ICAR-IIRR has been initiated at ICAR-IIRR.
- In AVT-1-NIL-Late trial the test entry IET 30304 is to be re-evaluated for quality for HRR from the different location test sample other than IIRR.
- As on date, NILs are being evaluated in the gazette notified states of recurrent parent which needs to be extended to the BSP indented states.
- Vandana as early duration check will be included in low P trial (LPT)
- Once after sufficient material is received, MLT on hybrids will be resumed

- The observational hybrid check 28P67 and Bio-799 have shown 'NO' significant yield superiority over the national hybrid check (HRI-174). They are inferior to HRI-174 in Zone-II, Zone-IV, Zone-V, Zone-VI, Zone-VII and overall mean basis (only in Zone-III, 28P67 has shown its yield superiority over HRI-174). Because of their inferior and inconsistent yield performance across the zones, they are 'NOT' considered to replace HRI-174 as nation yield check.
- In IHRT-MS trial, one of the National hybrid checks i.e., JKRH 3333 will be discontinued (as a check in the trial), as its parent's company is unable to supply the seeds, 27P63 will continue as National Hybrid check in the trial.
- In the IVT-Late trial, CR Dhan 702 will be included as an observational hybrid check to evaluate its performance vis-a-vice existing hybrid check PA 6444.
- In the IVT-Aerobic trial, recently released rice hybrids viz., US 380 and GK 5022 will be included as observational hybrid checks to evaluate their performance via-a-voce the existing hybrid check PA 6129

RAINFED TRIALS:

Rapporteurs: Drs. MS.Anantha (IIRR), Meera Kumar K (IARI) & K Chattopadhyay (NRRI)

- The proceedings of the pre-workshop for plant breeding session pertaining to rain fed trials, kharif 2021, as part of the 57th ARGM is presented below. The rain fed trials were coordinated by the ICAR-NRRI, Cuttack.
- Dr. BC. Patra, Head, Crop Improvement Division, ICAR-NRRI, Cuttack, made a brief presentation on the rain fed breeding trials constituted and coordinated by the ICAR-NRRI, Cuttack, for the Kharif 2021 cropping season.
- Dr. J Meher, Senior Scientist presented the trial results for AVT 1- EDS, Kharif 2021. Dr. NP Mondal, Principal Scientist, the drought-tolerant NIL in Anjali background is promoted as it is significantly superior (>15%) than the recurrent parent. After thorough discussion, NILs in the back ground of Anjali was accepted for promotion since the entries performed better under drought condition for last 3 years.
- Dr. Muhammed Azharudheen TP, Scientist, presented the trial results of IVT- EDS, Kharif 2021
- Dr Rameswar Prasad Sah, Scientist, presented the trial results for AVT 1- RSL, Kharif 2021. Dr. SK Pradhan, Principal Scientist, raised the issue of evaluating Varshadhan-NILs (IET 29031, IET 29026 and IET 29032) in the shallow lowland ecology, as Varshadhan is released for the semi-deep-water ecology. Therefore, it was requested that these entries be tested in Semi Deep Water ecology rather than RSL trial to confirm the yielding ability of these NILs. As the house agreed to ensure evaluation of entries in their proper ecology, the Varshadhan-NILs (IET 29031, IET 29026 and IET 29032) will be shifted to semi deep water ecology

(AVT-2 SDW). Dr Prakash Singh identified an error in the entry IET 27538 that needed to be corrected in the year of testing, and the house decided to correct and repeat the entry in the next trial.

- Dr. Sutapa Sarkar, Scientist, presented the trial results of IVT- RSL, Kharif 2021
- Dr. LK Bose, Principal Scientist, presented the trial results for AVT- 1 SDW, Kharif 2021. In response to a request from Dr. Ravikumar of Maruteru Station, the entry IET 28313 which consistently recorded <120cm height, has been shifted to shallow low land ecology, rather than being dropped and the house agreed.
- Dr. RL Verma, Scientist, presented the trial results of IVT- SDW, Kharif 2021.
- Dr. MK Kar, Principal Scientist, presented the trial results for AVT-1-NIL-SUB, Kharif 2021
- Dr. SK Pradhan, Principal Scientist, presented the trial results for IVT- DW, Kharif 2021. He underlined the importance of increasing the number of entries in the trial, as well as the importance of maintaining an adequate water table for proper evaluation of the entries. It was proposed that seeds for semi-deep and deep-water trials be sent to testing centers by May in order to maintain the right water level in the field during evaluation.
- Dr. Mridul Chakraborty, Senior Scientist presented the trial results for AVT-1-NIL-DRT, Kharif 2021. Dr V Ravindra Babu, former Director, ICAR-IIRR, emphasized the insufficiency of single-center data on drought screening and advocated for the inclusion of rain out shelter data from three centers, namely Cuttack, Coimbatore, and Raipur, in the trait verification process. To ensure that entries were properly evaluated for drought tolerance, it was advised that entries with similar duration may be screened in same trials. Dr RM Sundaram, Director, ICAR-IIRR, advised that NIL entries with a large yield advantage (>15 percent) over their recurrent parent be promoted, even if the drought evaluation data is from a single location.
- Dr RM Sundaram, Director, IIRR, proposed the use of molecular markers to validate the presence of introgressed genes in NIL entries submitted for evaluation in AICRIP trials and asked ICAR-NRRI to volunteer for the same.
- Dr. Mridul Chakraborty, Senior Scientist, ICAR-NRRI, Cuttack, brought up the issue of rain fed experiments having a high degree of environmental effect and a significant degree of error variance. Rejection/promotion of entries based on the CD at a 5% level above the best varietal check is scientifically incorrect in the case of rain fed trials, where many superior entries are getting rejected. Thus, for the purpose of promoting entries in IVT-rain fed trials, yield superiority of 5% over the best varietal check should be considered rather than CD at a 5% level of significance. It was advised that Dr. BC Patra, Head, Crop Improvement Division, ICAR-NRRI, Cuttack, bring this matter up during the ARGM meeting scheduled for 25-27 April 2022 at IIRR, Hyderabad.

BASMATI TRIALS

Rapporteurs: Drs. Divya Balakrishnan (IIRR), P.K. Bhowmick and B. Haritha (IARI)

Dr Gopalakrishnan presented the Basmati trials conducted by ICAR-IARI, New Delhi. 4 trials AVT2 BT, AVT1 BT, AVT1-NIL and IVT BT were conducted.

During Kharif 2021 IVT Basmati (IVT BT) was conducted with 14 entries including 1 hybrid and 5 checks at 2 locations. There was 100% receipt of data but 4 centres with less than 4t/ha average yield was not considered for analysis. Among 14, 3 entries performed well in terms of yield and 9 out 14 did not qualify for basmati grain and quality traits. 3 high yielding entries also dropped due to poor elongation after cooking therefore none found suitable in this trial for promotion to next year of testing. Dr Gopalakrishnan requested basmati breeder to ensure minimum parameters in basmati nominations.

AVT1 & AVT2 was combined as AVT-BT and conducted in 13 locations with 7+2 entries. Only one entry among 5 entries; IET2859 found promising under 3rd year of testing and other 4 were discontinued due poor elongation, panel test ranks and variation in flowering. Among 2 NILs for drought tolerance both entries were found promising. In AVT1 BT, II year of testing, two entries tested were not promoted due to poor elongation ratio or panel test ranks. Dr Gopalkrishnan concluded the presentation with summary of the promotions in BT trials and thanked the co-operators for timely conductance of the trial.

Dr. Gopalakrishnan informed house that stringent quality checking is carried out by analysing in 3 labs including IARI, NRRI and IIRR. It was also informed that panel test was modified using cooking rice in customized mini cookers to get clear differentiation of fluffiness, non-stickiness etc. Dr AK Singh added that the coded entries are to be send to millers to get industry feedback as it is essential due to a significant reduction in Basmati exports.

CROP PRODUCTION (Pre-Workshop)

AGRONOMY

Chairman	:	Dr. G. Ravindrachary, Project Co-ordinator, AICRPDA
Co-Chairman	:	Dr. T. Ramesh, Head, Plant Physiology, PJTSAU Hyderabad
PAMC Members	:	Dr Sesha Sai, Dr P.C.Pandey
Rapporteurs	:	Drs. Mastana Reddy, Vijay Kumar and Spandana

As a part of 57th AICRIP workshop, the Agronomy group meeting organized by ICAR-IIRR (95 participants) was held on online mode on 18th April 2022 (10:30 AM to 6:30 PM) under Chairmanship of Dr. G. Ravindra Chary, Project Co-ordinator, AICRPDA and Dr. T. Ramesh Head Plant Physiology PJTSU Hyderabad. The meeting was convened as a part of ARGM meeting to discuss the results of the trials carried out at different co-operating centers during *kharif* 2021 and *rabi* 2020-21, and to finalize the Technical Programme for the coming season (2022). A total of 95 participants including Scientists from Crop Production Division of IIRR, Agronomy co-operators from different location and representatives from private agro-industries attended group meeting.

The meeting was started with the welcome by Dr. D. Subramaniam, Head and PI, Plant Physiology, followed by the introduction of the Chairman and Co-chairman of the meeting. In the introductory remarks, Chairman of the meeting Dr. Ravindra chary emphasized the need to reorient the program to address Climate change, crop diversification, residue management, nutrient and water balance. Whereas, Dr T. Ramesh, Co-chairman of the meeting emphasized on the practical applicability of the technical programs proposed and conducted to focus on the present scenario. In introductory remarks, Dr. P.C. Pandey suggested that the focus should be increasing the productivity is the land is the prime requirement, maintaining the soil quality with addition of organic matter and INM practices, possibility of exploring the expansion of DDSR horizontally. In his introductory remark Dr. Shesha Sai pointed out that, the Crop Production group is testing genetic lines. But the Production group should suggest character/ traits to be included while developing the variety in achieving the particular target. He insisted on encouraging controlled environmental studies and trials in AICRIP. He opined that, the Nitrogen and water management trials of Agronomy, Physiology and Soil science may be integrated as the objectives of the trials reflect same outcome.

Dr. R M Kumar, PI (AICRIP) Agronomy, presented the consolidated results of Agronomy for understanding the response of rice for understanding the response of rice crop to management practices, resource conservation and climatic variations for developing efficient crop and resource management technologies that maximize the productivity and ensure high profitability to double the farmers income on a sustainable basis at different locations during *rabi* 2020-21-20 and *kharif* 2021. A total of 245 were experiments (Nutrient response trials of selected AVT-2 rice cultures under optimum and low input

management) were conducted at 45 (35 funded and 10 voluntary centers) locations consisting of evaluation of promising cultivars (132 cultures) belonging to 18 groups *Viz.,* early hill (irrigated), Upland Hill (UH), early (TP and DS), IME, IM, Late, RSL, CSTVT, AL& SATVT, Aerobic. Biofortified, NIL (HT-herbicide - resistant mutant and Nitrogen and Phosphorous use efficiency) AVT-1 BT trials in the transplanted situation, for their response to integrated nutrient management at 50 and 100% Recommended dose of fertilizer (RDF). In addition, six trials on cultural management, four trials each on weed management and three in rice based cropping systems and climate resilient agriculture. Most of the trials were collaborative trials with Soil science (2), Entomology (2), and Pathology (2) while all nutrient management trials were in collaboration with Plant Breeding to develop cost effective cultivars and technologies in rice and rice based cropping systems.

Dr R.M. Sundaram, Director, ICAR-IIRR addressed the Group of Crop Production Scientists and informed about draft approval of non-varietal technology promotion by higher authorities and prerequisites for nominations. The private companies may also sponsor the products to be tested under AICRIP and a certificate will be arranged for the successful technologies.

Finalization of Technical Programme 2022-23, Agronomy

The Chairman suggested the following :

- To reframe Centres zones based on agro- ecology (climate-soil type and rice agroecology (upland, midland, low land etc.) for example, Semiarid-Vertisol-Rainfed Upland zone for agroecology and system specific research, technology development and scaling up of the technologies in the similar agreocolgical situations
- Definite terminology of different systems of rice cultivation may be brought out as Publication for reference of AICRP Co-Operators.
- Rice growing agro-ecologies and cropping systems need to be mentioned in the trials.
- Network programme on Crop diversification with Rice – oilseed based cropping systems may be formulated based on the situations like rice fallows, irrigation availability, etc.
- Network programme on Conservation agriculture based on tillage, water, weed, and residue management may be formulated, for example CA under dry aerobic and wet aerobic rice production systems.
- Network programme may be formulated on Climate resilient rice based production systems for sustainability, profitability, resilience and net emission reduction – at selected centres keeping in view of the climate variability, risks, rice production systems, and also availability of manpower, resources, expertise - NRRI may help design and implement this network programme

- The name of the All India Coordinated Rice Improvement Project may be modified to All India Coordinated Research Project on Rice, keeping in view of the multi/interdisciplinary research nature of the project, development of varieties, crop production and protection technologies and also other names of majority/other Crop AICRPs

Trial name	Remarks
Development of package of practices for mechanized transplanting	All centres to work out and provide Cost of cultivation, Energy use efficiency and Time utilisation in simple trial with 2 best treatments of previous studies. Will continue with modified treatments
Suitable package of practices for higher yield in DSR systems Dry DSR	(with treatments of DSR only without weed management treatments as other trials are covering weed aspects) Will continue with modified treatments
Yield maximization of rice in different zones	The treatments like Sampoorna and eco agro with composition details. Spray of foliar nutrition should be based on stage of the crop not based on DAT. The treatments of optimal and location specific to be provided. Yield gap 1 and yield gap 2 may be brought out clearly. Will continue with modified treatments.
Water management for enhancing water use efficiency and higher productivity	Sensor based water management may be incorporated in different establishments. Separate trials for different establishments using sensors have to be included and change the title accordingly. Will continue with modified treatments.
Enhancement of Nutrient Use efficiency using Nano-fertilizers	Dr. R. Mahender Kumar requested the centres to submit data on uptake of nutrients. Chairman informed the house about new guidelines for use of nano fertilisers promoted by IFFCO. Will continue with modified treatments
Long term studies on weed dynamics	Will continue under cultural, nutrient, water and weed management head
Evaluation of advanced rice cultivars for weed competitiveness under Aerobic rice system	Concluded

Sustainable weed management in Aerobic Rice System	May be integrated in to CA network experiment with modified treatments of conservation agriculture
Integrated Pest Management	Will continue
Conservation Agriculture / System based Management Practices in rice and rice-based cropping systems	Will continue in a new network mode
Evaluation of Promising cultivars for Late planting and management for higher productivity	Cultivars that available in seed chain only have to be considered. Will continue

Finally the group decided to conduct the following trials for ensuing *kharif 2022* and *rabi* seasons of 2022-23 and total of 252 indents were received.

S.No	Trial name		Locations	Total
1	(a) AVT 2-E (H)	IET 28890 IET 28196 (R) IET 28206 (R) IET 28884 IET 28883 IET 28895 IET 28882	Almora, Khudwani, Malan, Upper Shillong	4
	(b) AVT 2-M (H)	IET 28224 IET 28222 IET 28907 IET 28217	Almora, Lamphelpat, Malan, Umiam, Upper Shillong, Wangbal	6
	(c) AVT 2-E(TP)	IET 29140 IET 28954 IET 28960 IET 29142 IET 29177 IET 28959 IET 28964 IET 28950 IET 28956 IET 29197	Coimbatore, Dhangain, Faizabad, Ghaghraghat, Karjat, Hazaribagh, Jagdalpur, Malan, Mandya, Maruteru, Nagina, Ranchi, Rewa, Sabour, Vadgaon, Varanasi	16
	(d) AVT 2 – IME	IET 29214 IET 29233 IET 29217 IET 29212 IET 28353 IET 29235 IET 29246 IET 29238 IET 28982 IET 28128 IET 28979	Aduthurai, Chinsurah, Dhangain, Faizabad, Gangavathi, Ghaghraghat, Kanpur, Karjat, Kota, Mandya, Maruteru, Nagina, Navsari, Nawagam, Puducherry, ARI-Rajendranagar, Varanasi	17

S.No	Trial name		Locations	Total
		IET 29236 IET 28506		
	(e) AVT 2 – IM	IET 29268 IET 28489 IET 29002 IET 29284 IET 29006 IET 29014 IET 29257 IET 29301 IET 28997 IET 29008 IET 29256 IET 29290 IET 29001 IET 29004 IET 29009 IET 29000	Chinsurah, Dhangain, Faizabad, Jagdalpur, Karjat, Kaul, Kota, Maruteru, Nagina, Nawagam, Pantnagar, Puducherry, Pusa, Titabar, Varanasi	15
	(f) AVT 2-L	IET 29349 IET 29351	Aduthurai, Chinsurah, Chiplima, Dhangain, Karjat, Mandya, Maruteru, Pusa	8
	(g) AVT 2-CSTVT	IET 27847	Chinsurah, Canning Town, Panvel, Nagina, Navsari, Cuttack, Vytilla, Gangavathi	8
	(h) AVT 2-AL&ISTVT	IET 29356 IET 29365 IET 29354 IET 29360 IET 29361 IET 29366 IET 29358 IET 29353 IET 27807	Kanpur, Navsari, Lucknow, Pusa, ARI-Rajendranagar Kampasagar	6
	(i) AVT 2-AEROB	IET 29423 IET 29422 IET 29412 IET 29396 IET 29405 IET 29411 IET 29415 IET 29424 IET 29394 IET 29436 IET 29421 IET 29409 IET 29430 IET 29410	Cuttack, Jagdalpur, Kaul, Kota Ludhiana, Nawagam, Pantnagar, Raipur, Vadgaon, Varanasi, Hazaribagh	11
	(j) AVT 2-Biofort	IET 28694	Kota, Nagina, Pusa, NRRI Cuttack, IIRR, Kaul, Raipur, Warangal	8
	(k) AVT 2-MS	IET 29539 IET 29523 IET 29492	Chakdah, Dhangain, Faizabad, Karjat, Kaul, Maruteru,	10

S.No	Trial name		Locations	Total
		IET 29017 IET 29536	Mandya, Nagina, Raipur, ARI-Rajendranagar	
	(l)i AVT 2-LNT	IET 30261	Gangavathi, Karjat, Kaul, Ludhiana, Mandya, Maruteru, Pusa, Raipur, Ranchi, Varanasi, Vadgaon, IIRR	12
	(l)ii AVT 2-LPT	IET 28821	Gangavathi, Karjat, Kaul, Ludhiana, Mandya, Maruteru, Pusa, Raipur, Ranchi, Varanasi, Vadgaon, IIRR	12
	(l) iii AVT-2 DRT	IET 28018 IET 28017	Jagdalpur, Nelllore, Pantnagar,Nagina, Maruteru, Warangal	6
	(m) AVT-2 BORO	IET 28840 IET 28849 IET 28848	Chiplima, Chinsurah, Cuttack, Gerua, Pusa and Titabar	6
	Final Entries will be based on the timely supply by corresponding breeder at right time and quality and quantity seed.			
Cultural Management Trials				
2	**CMT-1** Development of package of practices for mechanized transplanting		Aduthurai(K+R), Ludhiana	3
3	**CMT-2.1** Suitable package of practices for higher yield in DSR systems Dry DSR		Khudwani, Ludhiana, Mandya, Pusa, Raipur, ARI-Rajendranagar, Vadgaon, Varanasi	8
4	**CMT-2.2** Wet DSR		Aduthurai(K+R), Coimbatore, Kota, MAruteru(R), Navsari, Pusa, Titabar, Vaadgaon, Varanasi	10
5	**CMT-3** Yield maximization of rice in different zones Assessment of yield gap analysis-Collaboration with Economics		Chinsurah(K+R), Ghaghraghat, Kanpur (K+R), Karaiakal(R), Khudwani, Kota(K+R), Malan, Mandya, Maruteru(K+R), Raipur, Titabar	15
6	**CMT-4** Enhancing productivity of Organic Rice cultivation		Chinsurah(K+R), Karaikal (R), Khudwani, Malan, Raipur, Titabar	7
7	**CMT-5** Water management for enhancing water use efficiency and higher productivity		Arundhatinagar, Chatha,Faizabad, Jagtial, Karaikal, Mandya, Nawagam, Puducherry, Pusa	9
8	**CMT-6** Enhancement of Nutrient Use efficiency using Nano-fertilizers (New trial)2nd year		Bankura (K+R), Coimbatore, Kanpur, Kaul, Khudwani, Mandya, Maruteru(K+R), Navsari, Pusa, Sabour, ARI-Rajendranagar (K+R)	14
Weed Management Trials				
9	**WMT-1** Long term studies on weed dynamics in different crop establishment methods (**Collaborative with Entomology and Pathology)** (a) Mechanical transplanting, (b) Wet DSR and (c) Dry DSR		Aduthutai(K+R), Chinsurah, Ghaghraghat, Malan, Pusa, ARI-Rajendranagar, Titabar, Varanasi	9

S.No	Trial name	Locations	Total
10	**WMT-2** Evaluation of advanced rice cultivars for weed competitiveness under Aerobic rice system	Karaikal, Ludhiana, Malan, Mandya, Varanasi	5
11	**WMT-3** Sustainable weed management in Aerobic Rice System	Navsari	1
12	**WMT-4** Integrated Pest Management – (Collaborative trial with Entomology and Pathology)	Chinsurah(K+R), Kaul, Ludhiana, Mandya, Navsari, Titabar, Vadgaon	8
Resource Conservation Technologies in RBCS			
13	**RCT-1** Conservation Agriculture / System based Management Practices in rice and rice-based cropping systems (crop diversification) for higher profitability	Ghaghraghat(K+R), Titabar, Vadgaon	4
14	**RCT-2** Evaluation of Promissing cultivars for Late palnting and management for higher productivity and mitigate the effect of climate change (Colloborative with Plant Breeding)	Aduthurai, Bankura, Chinsurah, Dhangain, Ghaghraghat, Mandya, Titabar	7
15	**RCT-3** Assessing the performance and yielding ability of Sorghum hybrids in Rice fallows (Collaborative with IIMR)	Karaikal (R), Mandya	2
16	**RCT-4** Natural farming	Kanpur(K+R), Maruteru(K+R), Raipur	5
17	**CRA-1** Analysis of long term meteorological data of AICRIP centers (temp and rainfall) for identifying the reasons for yield reduction (Collection of 25 years data)	All Locations	
18	**Yield gap analysis in different Zones (Agronomy and economics) – Questionnaire based data collection**	All Locations	
	TOTAL		**252**

- Mallesh Tigali from CultYvate Pvt. Ltd. Informed about the IOT based water management and possibility of multi-location testing in Agronomy Program.
- Dr. Shesha Sai RAC & PAMC member suggested to formulate inter disciplinary studies involving agronomists, soil scientists, breeders and physiologists. He also highlighted to identify traits for drought tolerance and importance of controlled environmental experiments. He further opined that, the percent adoption of organic agriculture is low and may not be of much use to meet the increasing food demand, and hence emphasis should be on organic carbon studies instead of organic farming.

- Dr. P.C. Pandey, RAC & PAMC member suggested for improving interactions and farmer contacts by scientists.
- Dr. A.K. Nayak from ICAR-NRRI, Cuttack requested the house to formulate guidelines for evaluation of Crop Production and Protection Technology (CPPT) testing and their release after a thorough discussion with all the stakeholders.
- Dr. T. Ramesh (Co chairman) in his closing remarks insisted on interdisciplinary and multi-disciplinary approach to improve outcome of AICRIP. Dr. Ravindra Chary (Chairman) while concluding the session emphasized on pilot studies on GHG emissions from paddy fields; developing technology based cropping system; quantification of the benefits of water saving technologies like aerobic rice, Direct Seeded Rice (DSR) and Alternate Wetting and Drying (AWD); Mechanization and IoT based technologies.
- Dr. Subramaniam, Principal Investigator AICRIP, Plant Physiology, was felicitated on the occasion of his superannuation in November, 2022. The session ended with vote of thanks by Dr. B. Sreedevi.

SOIL SCIENCE (Pre-Workshop)

Chairman	**:**	Dr. G. Ravindra Chary, Project coordinator, AICRPDA, ICAR-CRIDA
Co-Chairman	**:**	Dr. T. Ramesh, Professor (Physiology), PJTSAU
PAMC Members	**:**	Dr. P.C. Pandey, Professor (Retd), Dept. of Agronomy, GBPUAT
		Dr. Sheshshayee, Professor (Physiology), UAS-Bangalore
Rapporteurs	**:**	Drs. R. Gobinath, V. Manasa, Ch. Sreenivas (Maruteru)

The Soil Science group meeting was held at ICAR-IIRR on 18-04-2022 at 10.30 AM under the Chairmanship of Dr. G. Ravindra Chary, Project Coordinator, AICRPDA, ICAR-CRIDA, to discuss the results of Soil Science programme conducted during 2020-21. Dr. D. Subramanyam, Principal Scientist (Physiology) & Head, Crop Production welcomed the dignitaries and introduced the AICRIP related activities to the Chairman and Project Assessment and Monitoring Committee (PAMC) members. Dr. R.M Sundaram, Director, ICAR –IIRR, joined the meeting in the afternoon and appreciated the work carried out by AICRIP Cooperating centers and conveyed that council has approved the release of non-varietal technologies henceforth. At the outset, Dr. Surekha, PI-Soil Science, ICAR-IIRR presented the results of eight trials conducted at 18 AICRIP centers.

After thorough discussion, the following suggestions were given by the subject matter experts, Chairman and Co-operators.

- Dr. Ravindra Chary, emphasized the need for research work on rice based cropping systems. He suggested to modify the programme in accordance with the climate resilience and sustainability. He also expressed that research programme should cover all the G x E x M aspects to attain maximum productivity and urged to draw a commonality (zone allocation) among the rice growing centres for conducting similar research trials, testing of technologies.
- Dr. Sheshshayee, suggested to conduct multidisciplinary research trials among the crop production and also informed the cooperators to strictly follow standard operating procedure (SOP) given by headquarters and provide the required research data.
- Dr. P.C Pandey specified the need for addition of organic matter and integrated nutrient management approach for increased productivity.
- Dr. A.K. Nayak expressed that due care has to be taken while formulating guidelines for release of non-varietal technologies.
- Dr. Dinesh Kumar, co-operator expressed his opinion that buildup of phosphorus induced Zn deficiency causing yield reduction in and around Mandya location. Dr. Ramesh suggested to focus on micro nutrient deficiency and formulate the micronutrient management trials in coming years.
- Scientists (Dr. Shahid and Dr, Upendra) from ICAR-NRRI, Cuttack has proposed the non-varietal technologies (NRRI decomposer and NRRI-NPK bio nutrients) for AICRIP

soil science trials and house opined that detailed discussion to be carried out for inclusion of new trials.

After thorough deliberations, the following technical program for the year 2022-23 was suggested.

1. **Long term soil fertility management in rice based cropping system**

   Trial will be continued with in depth studies on system productivity, water, nutrient, carbon, and energy balance.

   Centres*: Mandya, Titabar, Maruteru, Pusa (4)*

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

   Prescribed fertilizer recommendations to achieve maximum yield has to be validated in this year. Data pertaining to trial location (soil, plant and meteorological) should be given. The data on parameters/indicators of soil quality may be collected for comprehensive assessment for soil quality, yield gap assessment in various rice growing agro ecologies (climate-soil type-rice production systems) and nutrient recommendations.

   Centres*: Kanpur, Karaikal, Moncompu, Kaul, Chinsurah, Pantnagar, Pusa, Titabar, Ludhiana, Raipur (10)*

3. **Management of sodic soils using nano Zn formulation**

   Trial will be continued. Data on other micronutrients to be generated.

   Centres*: Kanpur, Mandya, Pusa, Ludhiana, Faizabad (5)*

4. **Management of acid soils**

   Trial will be continued. One more product developed by ICAR – IIRR will be included in the treatments. Data on other micronutrients to be generated.

   Centres*: Moncompu, Pusa , Titabar (3)*

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

   Chairman suggested that this programme may be continued with more data generation on system productivity, carbon decomposition, mineralization pattern, mineral composition of the burnt residue, soil quality parameters etc. Trial will be continued and NRRI culture may be included.

   Centres*: Kanpur, Karaikal, Kaul, Maruteru, Moncompu, Pantnagar, Ludhiana, Faizabad, Hazaribagh, Khudwani, Raipur, Purulia (12)*

6. **Screening of rice germplasm for nitrogen use efficiency (NUE)**

   Concluded.

7. **Yield maximization of rice in different zones**

   This experiment may be integrated with the similar experiment by agronomy section wherein soil scientists may collect data on soil and nutrient management related properties. Composition of Sampoorna and Eco Agra should be shared with the cooperators.

   ***Centres**: Kanpur, Karaikal, Kaul, Mandya, Maruteru, Moncompu, Pantnagar, Chinsurah, Faizabad, Khudwani, Puducherry, Purulia (12)*

8. **Enhancing productivity of Organic Rice cultivation**

   Suggested to change the title and treatments and also to include organic pest and disease management practices. Title of the trial is changed to organic nutrient management in irrigated rice.

   ***Centres**: Kanpur, Mandya, Moncompu, Pantnagar, Khudwani (4)*

9. **Long term evaluation of Natural Farming in RBCS**

   New trial will be taken up in the upcoming year.

   ***Centres**: Kanpur, Kaul, Maruteru, Titabar, Chinsurah, Puducherry, Raipur (7)*

PLANT PHYSIOLOGY (Pre-Workshop)

Chairman : Dr. G. Ravindra Chary,
Project Coordinator, AICRIPDA/CRIDA
Co-Chairman : Dr. T. Ramesh, Head, Plant Physiology, PJTSAU
Rapporteurs : Drs. Akshay S Sakhare & Kaushik Chakraborthy

The 57th ARGM Pre-Workshop Group Meeting for Crop Production (Plant Physiology, Agronomy & Soil Science) was held on April 18-19th April, 2022 via Video conference from ICAR-IIRR, Hyderabad on account of Covid-19. The meeting was Chaired by Dr. G.Ravindra Chary, PC APRIPDA and Dr. T.Ramesh, Professor, Crop Physiology PJTAU acted as Co-Chairman. Dr. Seshasayee, Professor of Plant Physiology, UAS Bangalore & member RAC also attended the meeting. session Dr. Ravindra Chary at the outset thanked the Director ICAR-IIRR for inviting participate in the ARGM pre-group meeting 2022. The Chary in his opening remarks felt that in view of imminent changing climate crop production scientists should focus more in devising strategies for food and nutritional security He emphasized that rice ecologies and agro-ecologies should be considered while formulating Crop Production trials. Dr. T. Ramesh suggested that the trials should be oriented to the larger benefit of the farmer. After the presentations by Agronomy & Soil Science Dr. Raghuveer Rao to present the results of the Plant Physiology trials for year 2021. Dr. M. Sheshashayee appreciated the trials conducted under ACRIP physiology and suggested that physiologist should not confine themselves to identify suitable stress tolerant genotypes but also to suggest suitable traits to be given to breeders. Regarding multiple abiotic stress tolerance studies, he suggested that work should be initiated to study combined effects of abiotic stresses like high temperature and drought etc. depending on the facilities available. During the deliberations, Dr. R.M. Sundaram, Director visited the Crop Production Group and appreciated the work which is being done by the group.

After lunch break the group assembled again to decide the technical programme for kharif -2022 season. After lot of deliberations, the physiology group finalized the following technical programme. It was decided to continue all the 6 trials with out any modifications. During discussion it was suggested by Dr. Chary to quantify the light levels at all the locations conducting low light stress tolerance trials. He also felt that one location either funded or voluntary should be included from north-eastern region.

Technical Program of Plant Physiology (AICRIP) *Kharif* 2022

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

Locations:11 centres (CBT, CHN, IIRR, KJT, KRK, MTU, PNR, PTB, RANCHI, REWA and TTB)

The experimental lay-out will be split-plot with three replications.
Water stress will be imposed after PI stage by withholding irrigation.
Silicon will be applied as 2.7% Ortho Silicilic Acid (OSA) (measured as 0.8% Silicon)

2: Screening of elite rice cultures for drought tolerance
Locations: 7 centers (CBT, NRRI, PTB, REWA, TTB, RPR and RANCHI)

The treatments consisted of two irrigation regimes
a. Irrigated as per the recommended schedule.
b. Rainfed condition without any supplementary irrigation.
a. Design: 2 Factorial RCBD with 3 replication

3: Screening for high temperature tolerance in Rice genotypes Locations:
7 centers (CHN, IIRR, MTU, PNR, PTB, REWA and TTB)

Objective: To investigate the differences in the terminal heat stress tolerance in elite rice genotypes.

Methodology:
The genotypes will be transplanted in two blocks/strips, one for control and another block/strip for imposing terminal heat stress by covering the block/strip with polythene sheet supported by a metal frame or bamboo sticks like a "tunnel" **IMMEDIATELYAFTER PI STAGE (before onset of flowering**) stage until maturity. Control block/strip should be kept uncovered. Leave at least 10 cm space between polythene sheets for sufficient ventilation. Each entry should be sown in 3 rows of 1.5 meter length maintaining 20 cm spacing between rows and recommended plant to plant distance. Leave one blank row between the entries. Each row will be treated as a replication and all the observations needs to be recorded for each row separately. A minimum-maximum thermometer will be installed inside the tunnel and both minimum and maximum temperatures needs to be recorded everyday inside the tunnel.

4: Physiological characterization of selected rice genotypes for multiple abiotic stress Tolerance,
Locations: 10 centers (CBT, NRRI, FZB, KJT, KRK, MTU, PTB, REWA, TTB, and Ranchi)

Under this experiment, only laboratory experiments will be conducted to screen the above genotypes with the following treatments

1. Salinity stress: Sodium chloride of concentration 200mM (Water potential: -1.26, PF: 4.11) was used for germinating the seeds. In case of control situations, seedlings were grown in Hoagland's solution and the following observations were recorded in each of these stresses and control grown situations. Shoot & root length (cm) and shoot & root dry weight, leaf chlorophyll content were recorded (Gupta 1998) were recorded during experimental period.
2. Water stress (1% and 2% mannitol) stress.

3. Anaerobic germination stress.
4. Low temperature stress.

5. Screening for submergence tolerance in Rice,
Locations: 4 centers (NRRI, PTB CBT and TTB)

Screening using field tanks (wherever available) or in pots

1. Before sowing the seeds should be pre-heated at 50 °C for 2-3 days for breaking the seed dormancy (if any).
2. The seeds need to be directly sown inside the tanks using wet-bed direct sowing method.
3. Each genotype should be sown in 2 rows (min.) with 3 replications with a row to row spacing of 20 cm and plant to plant spacing of 15 cm.
4. Germinated seedlings should be grown normally till 20–25 days without submergence stress. 5. Plant height (average of 5 plants/genotype per replication) and number of hills per genotype per replication (total numbers) should be recorded before the imposition of submergence stress.
5. Then the plants should be subjected to the submergence stress in the form of standing water, where tanks should be filled with 80-100 cm of water and the level of water must be 20-25 cm above the top of the plant canopy.
6. The level of water should be maintained for 14 days after imposition of submergence stress inside the tanks.
7. After 14 days of submergence stress, water should be drained out from the tanks (de-submergence), and initially plant height, the number of hills will be counted from the plants.
8. Finally, the de-submerged plants should be allowed to grow 5 days in normal condition and the number of survived hills should be calculated for each genotype.
9. Same experiment may be conducted in pots of 10 cm size and small cemented tanks. In case of pot experiment, it is better to put 2-day old germinated seedlings in the pot (3 seedlings per pot) with minimum 5 replications, where 1 pot serves as 1 replication. Rest of the protocol is same.

6: Screening of elite rice germplasm for low light stress tolerance
Locations: 7 centers (NRRI, IIRR, KJT, MTU, PNR, TTB and RPR)

Light intensity is one of the most important environmental factors that determine the basic characteristics of rice development.

A trial will be conducted in 7 AICRIP centres with 21 entries taken from IVT-SDW trial. Swarnaprabha will be included as tolerant check and IR-8 will be taken as susceptible check.
The trial will be conducted in factorial RCBD design with 3 replications with light regimes as main plot treatment and genotypes as subplot treatment.

Low light treatments will be imposed immediately after transplanting by enclosing the plots in shade-net (50% transmittance). The shade net will be supported by metal/bamboo poles.

The following recommendations emerged from Plant Physiology AICRIP trials in Kharif 2021 along with stable and superior entries for abiotic stress tolerance in rice

1. Silicon application (@ 0.08% ortho silicylic acid) resulted in 5.7% increase in grain yield across 7 location. Silicon application reduced the yield loss caused by water stress. Genotypes 27P63, DRR-Dhan-48 & Sahabhagidhan show increase in grain yield by silicon.

2. Based on performance under rainfed condition & drought indices and stability analysis IL-19206, Krishna Hamsa, IL-19204, IL-19185, IL-19198, IL-19181 , IL-19347, IL-19096 and IL-19279 could be identified as relatively tolerant to drought and suitable for rainfed cultivation

3. Genotypes CO-1, IET-29948, IET-29942 and IET-29938, IET-29950 & IET-29946, IET29940, IET29949, IET29952 and IET29960 were identified as heat tolerant.

4. Under multiple abiotic stress trial, only CR-2862-IC-10 was tolerant to all the abiotic stresses. while IET-27051, Dular were tolerant to both AG and osmotic stresses and AC43037 was tolerant to salinity and osmotic stresses.

5. Based on survival under 14 days of complete submergence. Genotypes AC43037, Black Gora, Mahulata, Gurjari and Pani Kekua, NPS71, Ampaki Bora, Mian Sali and Boga Amona were found to tolerant to submergence stress.

6. In low-light (50%) stress trial genotypes IET28276 and IET29031 show minimum reduction in grain yield and performed better than the tolerant check Swarnaprabha.

CROP PROTECTION (Pre-Workshop)

PLANT PATHOLOGY

Chairman : Dr (Mrs) G. Umadevi
Co-Chairman : Drs. Arup Mukharjee & Dr. Kalyan K Mandal
Rapporteurs : *Drs. C. Kannan, D. Ladhalakshmi, V. Prakasam, K Basavaraj & GS Jasudasu*

The Plant Pathology group meeting was held in Virtual mode on the forenoon of 18th April, 2022 at Plant Pathology Department, ICAR-Indian Institute of Rice Research, Hyderabad. Dr. M. Srinivas Prasad, PI, Plant Pathology program welcomed the participants and expressed his heartfelt thanks for successfully conducting the AICRIP trials and timely submission of the data with few exceptions. The session was chaired by Dr (Mrs) G. Umadevi, Head, Plant Pathology, PJTSAU and Co-chaired by Dr. Arup Mukharjee, Principal Scientist, NRRI andDr. Kalyan K Mandal, Principal Scientist, IARI. The scientists from IIRR, Drs. G.S. Laha, D. Krishnaveni, C. Kannan, D Ladhalakshmi, V Prakasam, K Basavaraj and GS Jasudasu were also participated in the group meeting.

Chairman, Dr. G. Umadevi appreciated all the efforts of Dr. M. Srinivas Prasad, PI, Plant Pathology and his team for bringing out the Plant Pathology report in time and appreciated all the co-operators for good conduct of the trials. She insisted to identify more number of multiple disease resistant lines to meet out the demand on the mutation of the pathogens. She emphasized on the identification disease tolerant lines to use under Direct seeded rice cultivation and also stressed upon the utilization of land races for gene deployment against different diseases. Disease management with alternative to fungicides may need to be explored. With respect to change in disease scenario, she mentioned about emergence of stem rot and *Erwinia* rot diseases in heavy rainfall areas.

After the Chairman's introductory remarks, PI Plant Pathology presented the results of AICRIP trials on irrigated ecosystem conducted during 2021. A total of 571 experiments of 15 trials were conducted at 49 locations (34 funded centres and 15 voluntary centres) including IIRR. In his presentation, he highlighted the promising entries against different rice diseases. He discussed about the issues pertaining to conduct of trials and low disease pressure at different centres. In detail, PI also discussed about the results of virulence monitoring for leaf blast and bacterial blight pathogens and different management trials. Dr. G. S. Laha, Principal Scientist, IIRR discussed about the results of bacterial blight and informed the cooperators to be cautious while recording the data.

Dr. Arup Mukherjee from NRRI, highlighted about the results of Upland Plant Pathology trials conducted and mentioned about the promising lines against different diseases. Similarly Dr. Kalyan K Mandal briefed about the basmati trials conducted during 2021. He insisted the cooperators to send the raw data for report writing. In addition, the PI,

Dr. M. S Prasad strictly instructed to the cooperators to send the screening data of the upland and Basmati trials to Dr. Arup Mukherjee and Dr. K. K Mandal respectively. He also insisted Dr. Arup Mukherjee and Dr. K. K Mandal to send the compiled report and analyzed screening data to include in the Progress Report and Screening Nurseries report. PI requested co-operators to share any other monogenic differential lines to include in the virulence monitoring program. With respect to POS report, Dr. G.S. Laha, congratulated the cooperators for the well conduct of the survey and insisted to send the report along with the filled proforma in time to compile the report. He requested to use the revised POS proforma for survey.

During the group meeting, Dr. R. M. Sundaram, Director, IIRR appreciated the efforts of AICRIP Plant Pathology team for bringing out the Plant Pathology report in time and congratulated all the cooperators for successful conduct of trials despite the Covid-19 pandemic situations. With happiness he informed the group regarding the approval of the guidelines for the release of Production and Protection technologies, which is a milestone to bring out the technologies other than varieties. Director informed that the co-operators that, next year onwards NILs will be given with special codes and special monitoring will be done to cross verify the disease reaction. He encouraged the co-operating centres to go for soft registration of multiple disease resistant entries at ICAR-NBPGR.

In the afternoon session, Co-operators *viz*., Drs. Gaurav Verma (Almora), P.P. Ghosh (Bankura), Vijay Bahadhur Singh (Chatha), Gopala Krishnan (Coimbatore), Dilip Kumar Patra (Chinsurah), Rini Pal (Chiplima), Amrita Banerjee & Someshwar Bhagat (Hazaribagh), Vindeshwari Prasad (Masodha), Fayaz Ahmad Mohiddin (Khudwani), K. S. Raghuwanshi (Lonavala), J.S. Lore (Ludhiana), Pushpa Patil (Karjat), Sachin Upmanyu (Malan), Vijay Patil (Navsari), Rakesh Kumar Gangwar (Nawagam), Mahaveer Singh (Kaul), P. Raji (Pattambi), R K Ranjan (Pusa), M. Surendran (Moncompu), Bijendra Kumar (Pantnagar), T. Kiran Babu (Rajendranagar), Balaram (Jagtial) Bhuvaneshwari (Maruteru) and R. K. Singh (Varanasi) presented brief report of Plant Pathology trials conducted at their respective locations.

PI, discussed in detail about the formulation of new trials; that included special artificial screening trial on false smut (IIRR, Ludhiana, Gudalur, Masodha, Chinsurah and Varanasi), Brown spot (Hazaribagh, IIRR, Pusa and Rewa); Rice tungro disease (NRRI, Coimbatore, Thirur and IIRR); fungal culture and methodology for screening will provided from IIRR. A special trial on testing the bio-control formulation against sheath blight and bacterial blight was also proposed at IIRR, Maruteru, Mandya, Pantnagar and Warangal. Special screening trial on Bakanae at IARI, Kaul and Ludhiana under Basmati trials was formulated. Dr. Bishnu Maya from IARI, will provide the fungal culture and methodology for screening.

Chairman, requested PI, ACRIP Plant Pathology to consider Warangal as one of the voluntary centre. PI informed about the inclusion of new voluntary centre Karaikal and welcomed Dr. Jeyalakshmi, Professor (Plant Pathology), PAJANCOA & RI, Karaikal for joining in the Rice Group. Chairman in her concluding the remarks, requested the

Co-operators to take at most care while recording the data on host plant resistance and to augment the disease when disease pressure is low. She emphasized on the use of organic/biological control methods for rice disease management for sustainable rice production and enquired about the inclusion of any natural farming components for disease management in AICRIP. In addition she suggested to work out on weather forecast models for better management of rice diseases under changing climatic conditions. Co-Chairman, Drs. Arup Mukharjee & Dr. Kalyan K Mandal thanked Chairman and PI in smooth conduct of group meeting. Group meeting ended with formal vote of thanks by Dr. D. Krishnaveni (PS, IIRR).

The group has finalized the trials for the year 2022-23 as follows:

Trial 1: Screening for Leaf Blast

NSN1 (33)

Arundhutinagar	Bankura	Chatha	Coimbatore	Cuttack
Gangavati	Gerua	Ghaghraghat	Gudalur	Hazaribagh
IIRR	Imphal (Lamphalpet)	Jagdalpur	Jagtial	Karjat
Karaikal	Kaul	Khudwani	Lonavla	Malan
Mandya	Maruteru	Mugad	Navsari	Nawagam
Nellore	New Delhi	Pattambi	Ponnampet	Rajendranagar
Ranchi	Rewa	Wangbal		

NSN2 (21)

Bankura	Coimbatore	Cuttack	Gangavati	Ghaghraghat
Hazaribagh	IIRR	Jagdalpur	Kaul	Malan
Mandya	Maruteru	Mugad	Nawagam	Nellore
Pattambi	Ponnampet	Rajendranagar	Ranchi	Rewa
Wangbal				

NSN Hills (13)

Almora	Cuttack	Gerua	IIRR	Imphal (Lamphalpet)
Karjat	Khudwani	Lonavla	Malan	Ponnampet
Umiam (Barapani)	Upper Shillong	Wangbal		

NHSN (26)

Arundhutinagar	Bankura	Coimbatore	Cuttack	Gangavati
Ghaghraghat	Hazaribagh	IIRR	Imphal (Lamphalpet)	Jagdalpur
Karjat	Khudwani	Lonavla	Malan	Mandya
Maruteru	Mugad	Nawagam	Nellore	Pattambi
Ponnampet	Rajendranagar	Ranchi	Rewa	Upper Shillong
Wangbal				

DSN (26)

Almora	Arundhutinagar	Bankura	Coimbatore	Cuttack
Gangavati	Ghaghraghat	Hazaribagh	IIRR	Imphal (Lamphalpet)
Jagdalpur	Karjat	Lonavla	Malan	Mandya
Maruteru	Mugad	Nawagam	Nellore	Pattambi
Ponnampet	Rajendranagar	Ranchi	Rewa	Upper Shillong
Wangbal				

Trial 2: Screening for Neck Blast

NSN1(13)

Bankura	Jagdalpur	Karaikal	Khudwani	Lonavla
Mandya	Maruteru	Mugad	Nawagam	Nellore
Ponnampet	Rajendranagar	Ranchi		

NSN2 (7)

Bankura	Jagdalpur	Mandya	Maruteru	Mugad
Ponnampet	Ranchi			

NSNHills (7)

Almora	Imphal (Lamphalpet)	Khudwani	Lonavla	Malan
Ponnampet	Umiam (Barapani)			

NHSN (12)

Bankura	Imphal (Lamphalpet)	Jagdalpur	Khudwani	Lonavla
Malan	Mandya	Maruteru	Mugad	Nawagam
Rajendranagar	Ranchi			

DSN (11)

Almora	Bankura	Imphal (Lamphalpet)	Jagdalpur	Lonavla
Mandya	Maruteru	Mugad	Nawagam	Rajendranagar
Ranchi				

Trial 3: Screening for Brown Spot

NSN1 (19)

Bankura	Chatha	Chinsurah	Cuttack	Gangavati
Ghaghraghat	Gudalur	Hazaribagh	IIRR	Jagdalpur
Khudwani	Lonavla	Ludhiana	Mugad	Ponnampet
Pusa	Rewa	Sabour	Upper Shillong	

NSN2 (12)

Bankura	Chatha	Gangavati	Ghaghraghat	Hazaribagh
Jagdalpur	Ludhiana	Mugad	Ponnampet	Pusa
Rewa	Sabour			

NSNHills (6)

Almora	Cuttack	IIRR	Khudwani	Lonavla
Ponnampet				

NHSN (14)

Bankura	Chatha	Chinsurah	Gangavati	Ghaghraghat
Hazaribagh	IIRR	Jagdalpur	Khudwani	Lonavla
Ludhiana	Mugad	Pusa	Rewa	

DSN (15)

Almora	Bankura	Chatha	Cuttack	Gangavati
Ghaghraghat	Hazaribagh	IIRR	Jagdalpur	Lonavla
Ludhiana	Mugad	Pusa	Rewa	Sabour

Trial 4: Screening for Sheath Blight

NSN1 (25)

Aduthurai	Arundhutinagar	Bankura	Chinsurah	Chiplima
Coimbatore	Cuttack	Gangavati	IIRR	Jagtial
Kaul	Ludhiana	Mandya	Maruteru	Masodha (Faizabad)
Moncompu	Navsari	New Delhi	Pantnagar	Patna
Pattambi	Raipur	Titabar	Upper Shillong	Varanasi

NSN2 (21)

Aduthurai	Bankura	Chinsurah	Chiplima	Coimbatore
Cuttack	Gangavati	IIRR	Kaul	Ludhiana
Mandya	Maruteru	Masodha (Faizabad)	Moncompu	Navsari
Pantnagar	Patna	Pattambi	Raipur	Titabar
Varanasi				

NSNHills (3)

Cuttack	IIRR	Pantnagar		

NHSN (23)

Aduthurai	Arundhutinagar	Bankura	Chinsurah	Coimbatore
Cuttack	Gangavati	IIRR	Kaul	Ludhiana

Mandya	Maruteru	Masodha (Faizabad)	Moncompu	Navsari
New Delhi	Pantnagar	Patna	Pattambi	Raipur
Titabar	Upper Shillong	Varanasi		

DSN (23)

Aduthurai	Arundhutinagar	Bankura	Chiplima	Coimbatore
Cuttack	Gangavati	IIRR	Kaul	Ludhiana
Mandya	Maruteru	Masodha (Faizabad)	Moncompu	Navsari
New Delhi	Pantnagar	Patna	Pattambi	Raipur
Titabar	Upper Shillong	Varanasi		

Trial 5: Screening for Sheath Rot

NSN 1 (13)

Aduthurai	Bankura	Chinsurah	Coimbatore	Cuttack
Karjat	Lonavla	Navsari	Nawagam	Pusa
Raipur	Rajendranagar	Titabar		

NSN 2 (5)

Aduthurai	Bankura	Coimbatore	Pusa	Raipur

NSN Hills (2)

Karjat	Lonavla

NHSN (13)

Aduthurai	Bankura	Chinsurah	Coimbatore	Cuttack
Karjat	Lonavla	Navsari	Nawagam	Pusa
Raipur	Rajendranagar	Titabar		

DSN (11)

Aduthurai	Bankura	Coimbatore	Cuttack	Karjat
Lonavla	Navsari	Nawagam	Pusa	Raipur
Rajendranagar				

Trial 6: Screening for Bacterial Leaf Blight

NSN 1 (27)

Aduthurai	Arundhutinagar	Chatha	Chinsurah	Chiplima
Coimbatore	Cuttack	Gangavati	Gerua	IIRR
Karjat	Karaikal	Ludhiana	Maruteru	Masodha (Faizabad)
Moncompu	Navsari	Nawagam	Nellore	New Delhi
Pantnagar	Patna	Pattambi	Raipur	Sabour

Titabar	Varanasi			

NSN 2 (21)

Aduthurai	Chatha	Chinsurah	Chiplima	Coimbatore
Cuttack	Gangavati	IIRR	Ludhiana	Maruteru
Masodha (Faizabad)	Moncompu	Navsari	Nawagam	Pantnagar
Patna	Pattambi	Raipur	Sabour	Titabar
Varanasi				

NSN Hills (4)

Cuttack	IIRR	Karjat	Pantnagar

NHSN (21)

Aduthurai	Chatha	Chinsurah	Coimbatore	Cuttack
Gangavati	IIRR	Karjat	Ludhiana	Maruteru
Masodha (Faizabad)	Moncompu	Navsari	Nawagam	New Delhi
Pantnagar	Patna	Pattambi	Raipur	Titabar
Varanasi				

DSN (22)

Aduthurai	Chatha	Chiplima	Coimbatore	Cuttack
Gangavati	Gerua	IIRR	Karjat	Ludhiana
Maruteru	Masodha (Faizabad)	Moncompu	Navsari	Nawagam
New Delhi	Pantnagar	Patna	Pattambi	Raipur
Titabar	Varanasi			

Trial 7: Screening for Rice Tungro Disease

NSN 1 (3)	Coimbatore	Cuttack	IIRR
NSN 2 (1)	IIRR		
NSN Hills (1)	IIRR		
NHSN (2)	Coimbatore	IIRR	
DSN (3)	Coimbatore	Cuttack	IIRR

Trial 8: Special Screening Trials

i) SSTFS (7)

Chinsurah	Gorakpur	Gudalur	IIRR	Ludhiana
Masodha (Faizabad)	Varanasi			

ii) SSTBS (5)

Hazaribagh	IIRR	Ludhiana	Pusa	Rewa

Trial 9: Monitoring field virulence

1. *Pyricularia oryzae* (28)

Almora	Cuttack	Gangavati	Gerua	Ghaghraghat
Gudalur	Hazaribagh	Imphal (Lamphalpet)	Jagdalpur	Jagtial
Karjat	Khudwani	Lonavla	Malan	Mandya
Maruteru	Mugad	Navsari	Nawagam	Nellore
New Delhi	Patna	Pattambi	Ponnampet	Rajendranagar
Ranchi	Upper Shillong	Wangbal		

2. *Xanthomonas oryzae* pv. *oryzae* (24)

Aduthurai	Chatha	Chinsurah	Chiplima	Coimbatore
Cuttack	Gangavati	Gerua	Jagtial	Karjat
Ludhiana	Maruteru	Masodha (Faizabad)	Moncompu	Navsari
Nawagam	New Delhi	Pantnagar	Patna	Pattambi
Raipur	Rajendranagar	Sabour	Titabar	

T10 (DON) (11)

Bankura	Chinsurah	Kaul	Malan	Mandya
Maruteru	Moncompu	Nawagam	Nellore	Pusa
Raipur				

T11 (LSD) (34)

Aduthurai	Bankura	Chatha	Chinsurah	Chiplima
Coimbatore	Cuttack	Gangavati	Gerua	Ghaghraghat
Hazaribagh	Jagdalpur	Kaul	Lonavla	Ludhiana
Malan	Mandya	Maruteru	Masodha (Faizabad)	Moncompu
Mugad	Navsari	Nawagam	Pantnagar	Pattambi
Ponnampet	Pusa	Raipur	Rajendranagar	Ranchi
Rewa	Sabour	Titabar	Varanasi	

12. Evaluation trial on Bio-control formulations (10)

Gudalur	Hazaribagh	IIRR	Karaikal	Maruteru
Moncompu	Navsari	Pantnagar	Rewa	

T13. (Special –IPM Trial) (15)

Arundhutinagar	Chiplima	Cuttack	Ghaghraghat	Hazaribagh
Jagdalpur	Karjat	Kaul	Malan	Mandya
Maruteru	Nawagam	Rajendranagar	Titabar	Umiam (Barapani)

T14. Yield Loss Trial (10)

Cuttack	Gangavati	Jagdalpur	Ludhiana	Malan
Mandya	Maruteru	Moncompu	Nellore	Pantnagar
Pattambi				

PRODUCTION ORIENTED SURVEY 2022 (28)

Aduthurai	Bankura	Chatha	Chinsurah	Coimbatore
Cuttack	Gangavati	Gerua	Ghaghraghat	Hazaribagh
Karjat	Kaul	Khudwani	Ludhiana	Malan
Mandya	Maruteru	Masodha (Faizabad)	Moncompu	Nawagam
Pantnagar	Patna	Pattambi	Pusa	Raipur
Rajendranagar	Ranchi	Rewa	Jabalpur	

ENTOMOLOGY

Chairman : Dr. Sanjay Sharma
Co-Chairman : Dr. P. S. Sarao
Rapporteurs : *Dr. N. R. G. Varma & Dr. Y. Sridhar*

The pre-group meeting session of Entomology was held in virtual mode on 18th April 2022 under the Chairmanship of Dr. Sanjay Sharma, Professor, IGKV, Raipur and was co-chaired by Dr. P. S. Sarao, Professor, PAU, Ludhiana. At the outset Dr. B. Jhansi Rani, Principal Investigator & Head (Entomology), IIRR, Hyderabad welcomed all the dignitaries and cooperators from different AICRIP centres. She complimented for timely reporting of data. The data receipt was 98.13%.

Dr. Sanjay Sharma congratulated the rice entomology group and opined that excellent progress has been made since 1968 to generate entomological data through AICRIP on aspects like host plant resistance, biotypes, ecological studies etc. He emphasized the need to initiate work on non-insect pests like rice panicle mite, blood worms, rodents, and avian pests which are becoming economically important in rice crop. He felt that this session will aid in strengthening of entomology program through fruitful deliberations.

Dr. P.S. Sarao, Co-chairman stated that each AICRIP centre need to focus on one major rice pest with rearing facilities to generate complete information. Further he emphasized on the promotion of IPM across the country in a big way.

Dr. B. Jhansi Rani, Principal Investigator & Head (Entomology), IIRR, Hyderabad presented the results of IBET trial wherein, all insecticides treatment was significantly superior followed by module 2 which realized higher grain yield apart from control of major insect pests. Dr. V. Jhansi Lakshmi, Principal Scientist (Ento), IIRR, Hyderabad highlighted the outcome of different planthopper screening trials wherein several promising planthopper tolerant cultures like HWR – 1 – IR 83784, JGL 38168, JGL 38233, KNM 7660, KNM 12505, WGL 1523 were identified. Based on planthopper population monitoring trial BPH populations of Gangavathi were identified to be more virulent.

Dr. A. P. Padmakumari, Principal Scientist (Ento), IIRR, Hyderabad showcased the results of gall midge, stem borer, multiple resistance screening and national screening nurserie. Three gall midge resistant genotypes were identified. WGL 1062, JGL 38190, CR Dhan 308 offered good level of resistance to stem borer while CR AC 35003 and CR AC 34997 and RP Bio 4918-230 were identified to possess multiple resistance.

Dr. Chitra Shanker, Principal Scientist (Ento), IIRR, Hyderabad discussed the results of EEPM and BIPM, wherein ecological engineering coupled with alternate wetting and drying was better to manage BPH, while habitat management led to increase in beneficial insect populations. BIPM was found to reduce insect pest populations and proved a cost effective strategy.

Dr. Ch. Padmavathi, Principal Scientist (Ento), IIRR, Hyderabad presented the results of LFST, IEMP, CSIP, EPBI and IPM trials. Based on evaluation of different pheromone blends

it was deduced that stem borer, leaf folder, ear cutting caterpillar catches were higher in slow release pheromone blends. Zone wise analysis of IPM practices showed that adoption of IPM technologies has resulted in better management of insect pests, diseases and weeds apart from being cost effective than farmers practice.

Dr. Y. Sridhar, Principal Scientist (Ento), IIRR, Hyderabad presented the light trap data and pest survey reports and EIGM trial. Salient observations made through light trap data of 30 locations were explained along with their peak occurrence periods. Through pest survey reports (PSR) status of emerging pests like rice black bug, leaf mite and thrips was highlighted. For management of gall midge through granular insecticides, seed treatment with Thiamethoxam 25WG + main field application of Fipronil 0.3GR was found effective.

All the compiled results of different entomology experiments were discussed thoroughly and the house felt that some new trials need to be conducted focusing on another emerging pest like rice gundhi bug and generate exclusive information on multiple resistant rice genotypes. Both Chairman and Co-chairman lauded the efforts of all cooperators in planning and conducting the programme meticulously and team IIRR for presentation of results.

In the afternoon session Dr. Jhansi Rani welcomed Dr. Subash Chander, Director, NCIPM and member, PAMC. In his remarks, Dr. Subash Chander appreciated the concerted efforts of the entomology group in conduct of IPM, biotype and phenological studies. However, under changing scenario of insect pests in recent decade, he suggested to identify the insect species taxonomically so that any changes in the species composition could be identified. He also emphasized the need to conduct studies on population dynamics covering off-season survival of pests such as BPH and leaf folder and migration patterns of planthoppers. Conservation biological control need to be focused with basic studies on suitability of flowering plant species. He emphasized to consider natural enemy population while recommending ETL to prevent unnecessary application of pesticides. Further, emphasized to increase the adoption rate of IPM across the country. Dr. Karthikeyan, ADR & PS (Ento), Pattambi felt that incidence of pink stem borer is increasing in *rabi*. This was followed by discussion on centre wise trial allotments.

Dr. R. M. Sundaram, Director, IIRR, Hyderabad complimented and congratulated the entomology group for their good work. He suggested that all the multiple resistant screening lines or genotypes for specific traits needs to be registered with NBPGR and proposals for registration may be submitted. He suggested to work in network mode with centres like Ludhiana and Maruteru for concerted work on planthoppers. In view of increasing severity of gall midge, he suggested to initiate resistance breeding programme for gall midge. He suggested to test NILs for planthoppers resistance at 7-8 hotspot areas. He informed that ICAR has approved methodology for nomination of crop production and protection technologies and any technology tested for three years in AICRIP can be submitted for release. Director stated that he will be happy to consider providing of extra contingency by identifying 4-5 centres to renovate and strengthen screening facilities. He urged the PI (Entomology) to identify and propose the same.

Dr. Chitra Shanker proposed a new trial on "Evaluation of entomopathogens against sucking pests of rice (EESP)" and Dr. A.P. Padmakumari proposed a trial on Optimum pest

control trial (OPCT) which will be conducted in both protected and unprotected conditions to generate information on performance of most promising rice resistant cultures.

Dr. Sanjay Sharma, Chairman suggested to go for population structure screening particularly virulence studies. Dr. Subash Chander, PAMC, member suggested to conduct studies on thermo-tolerance of resistant sources, thermos-tolerance of natural enemies and impact of climate change on insecticide efficacy.

The group felicitated Dr. B. Jhansi Rani, PI & Head (Entomology), IIRR, Hyderabad and Dr. C. V Rama Rao, PS (Entomology), RRC, Bapatla who are superannuating before the next ARGM.

Finally, Dr. V. Jhansi Lakshmi proposed the vote of thanks, wherein the efforts of all cooperators and scientists of IIRR, technical staff of IIRR were acknowledged. Especially, the efforts of Sri. Amudhan Srinivasan, Technical Officer, IIRR were appreciated for compiling data and preparing reports and for making all the arrangements for this group meeting.

The following trials were allotted to various centres for conduct during *kharif* 2022 and Rabi 2022-23.

***kharif* 2022**

Planthopper Screening Trial (PHS) **Locations: 17**

Aduthurai	Chinsurah	Coimbatore	Cuttack	Gangavathi	Jagtial
Ludhiana	Mandya	Maruteru	Nawagam	Nellore	New Delhi
Pantnagar	R. Nagar	Raipur	Sakoli	Warangal	

Gall Midge Screening Trial (GMS) **Locations: 13**

Ambikapur	Brahmavar	Chiplima	Jagdalpur	Jagtial	Maruteru
Moncompu	Nellore	Pattambi	Ragolu	Ranchi	Sakoli
Warangal					

Leaf Folder Screening Trial (LFST)

Locations: 19

Aduthurai	Ambikapur	Arundhutinagar	Bapatla	Chatha	Chinsurah
Cuttack	Jagdalpur	Karaikal	Karjat	Kaul	Ludhiana
Malan	Masodha	Navsari	Nawagam	Nellore	Pattambi
R. Nagar					

Stem Borer Screening Trial (SBST) **Locations: 15**

Aduthurai	Ambikapur	Arundhutinagar	Chinsurah	Coimbatore	Ghaghraghat
Moncompu	Navsari	Nellore	Pantnagar	Pattambi	Pusa
R. Nagar	Raipur	Titabar			

Multiple Resistance Screening Trial (MRST) **Locations: 28**

Aduthurai	Ambikapur	Brahmavar	Chatha	Chinsurah	Chiplima
Coimbatore	Gangavathi	Jagdalpur	Khudwani	Ludhiana	Malan

Mandya	Maruteru	Masodha	Navsari	Nawagam	Nellore
Pantnagar	Pattambi	Pusa	R. Nagar	Ragolu	Raipur
Ranchi	Sakoli	Titabar	Warangal		

National Screening Nurseries-1(NSN-1) **Locations: 19**

Ambikapur	Chiplima	Coimbatore	Gangavathi	Jagdalpur	Ludhiana
Mandya	Maruteru	Masodha	Moncompu	Nawagam	Pantnagar
Pusa	R. Nagar	Ragolu	Raipur	Sakoli	Titabar
Warangal					

National Screening Nurseries – 2 (NSN-2) **Locations: 16**

Aduthurai	Chinsurah	Chiplima	Coimbatore	Gangavathi	Ghaghraghat
Jagdalpur	Karjat	Kaul	Ludhiana	Malan	Mandya
Maruteru	Moncompu	Navsari	Pantnagar		

National Screening Nurseries – Hills(NSN-H) **Locations: 7**

Chatha	Coimbatore	Khudwani	Ludhiana	Malan	Maruteru
Pantnagar					

National Hybrid Screening Nurseries – (NHSN) **Locations: 12**

Chinsurah	Coimbatore	Ghaghraghat	Ludhiana	Mandya	Maruteru
Moncompu	Nawagam	Pantnagar	Pattambi	R. Nagar	Raipur

Gall Midge Biotype Trial (GMBT) **Locations: 18**

Aduthurai	Ambikapur	Brahmavar	Chiplima	Cuttack	Gangavathi
Jagdalpur	Jagtial	Maruteru	Moncompu	Nellore	Pattambi
Ragolu	Raipur	Ranchi	Sakoli	Titabar	Warangal

Planthopper Special Screening Trial (PHSS) **Locations: 12**

Aduthurai	Coimbatore	Cuttack	Gangavathi	Ludhiana	Mandya
Maruteru	New Delhi	Pantnagar	Raipur	R. Nagar	Warangal

Gall Midge Population Monitoring Trial (GMPM) **Locations: 6**

Gangavathi	Jagtial	Moncompu	Pattambi	Ragolu	Warangal

Planthopper Population Monitoring Trial (PHPM) **Locations: 5**

Coimbatore	Gangavathi	Ludhiana	New Delhi	Pantnagar

Optimum Pest Control Trial (OPCT) **Locations: 7**

Ambikapur	Coimbatore	Chinsurah	Gangavathi	Ludhiana	
Titabar	Warangal				

Insecticides Botanicals Evaluation Trial (IBET) **Locations: 31**

Ambikapur	Arundhutinagar	Bapatla	Chinsurah	Cuttack	Gangavathi

Jagdalpur	Karaikal	Karjat	Chiplima	Kaul	Khudwani
Ludhiana	Malan	Mandya	Maruteru	Masodha	Moncompu
Navsari	Nawagam	Nellore	New Delhi	Pattambi	Pusa
R. Nagar	Ragolu	Raipur	Ranchi	Sakoli	Titabar
Warangal					

Evaluation of Insecticides for Gall Midge Management (EIGM) **Locations: 13**

Aduthurai	Ambikapur	Bapatla	Chiplima	Gangavathi	Jagdalpur
Jagtial	Maruteru	Nellore	Pattambi	Ragolu	Sakoli
Warangal					

Influence of Establishment Methods on Pest Incidence (IEMP) **Locations: 15**

Aduthurai	Chatha	Chinsurah	Chiplima	Gangavathi	Ghaghraghat
Jagdalpur	Malan	Moncompu	Nawagam	Pantnagar	Pattambi
Pusa	R. Nagar	Titabar			

Cropping systems influence on Pest Incidence (CSIP) **Locations: 3**

Ghaghraghat	Karjat	Titabar

Evaluation of Pheromone blends for Insect Pests of rice (EPBI) **Locations: 11**

Aduthurai	Chinsurah	Coimbatore	Jagdalpur	Jagtial	Ludhiana
Navsari	Pusa	Raipur	Sakoli	Titabar	

Evaluation of Entomopathogens against Sucking Pests of Rice (EESP) **Locations:9**

Brahmavar	Chatha	Gangavathi	Moncompu	Karjat	Coimbatore
Navsari	Mandya	Raipur			

Integrated Pest Management Special Trial (IPMS) **Locations: 22**

Aduthurai	Arundhutinagar	Chinsurah	Chiplima	Gangavathi	Jagdalpur
Karjat	Kaul	Khudwani	Ludhiana	Malan	Mandya
Maruteru	Masodha	Navsari	Nawagam	Pantnagar	Pusa
R. Nagar	Raipur	Sakoli	Titabar		

Light Trap Collections (LT) **Locations: 30**

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

***Rabi* 2022-23**

Planthopper Screening Trial (PHS) **Location: 1**

Maruteru

Stem Borer Screening Trial (SBST) **Locations: 7**

Chinsurah Coimbatore Cuttack Gerua Maruteru Pattambi R.Nagar

National Screening Nursery (Boro) **Locations:6**

Chinsurah Coimbatore Gerua Maruteru Pattambi Titabar

Evaluation of Pheromone blends for Insect Pests of rice (EPBI) **Location: 1**

Pattambi

Integrated Pest Management Special Trial (IPMS) **Locations: 2**

Maruteru Pattambi

Technical Session - Presentation by cooperating centers on 19.04.2022

Chairman : RM Sundaram, Director, ICAR-IIRR
Co-Chairman: Dr. Padmini Swain, Director, ICAR-NRRI
Rapporteurs : Dr. C. Gireesh

Dr. L.V. Subba Rao dignitaries and all the delegates for the technical session III presentation by cooperating centres. Dr. Sundaram has given welcome remarks. Dr. Padmini Swain welcomed all the delegates from IIRR, NRRI, IARI, and AICRIP centres. Dr. Swain requested the centres present the important outcomes of the work carried and constraints. Dr. L. V Subba Rao moderated the centers presentation.

Zone II

Chatha

Dr. Ravinder Singh Sudan made presentation about the progress of centre. All the scientific posts of Agronomy, plant breeding, entomology, pathology are filled and the budget released is utilized. Two basmati and two non-basmati trials successfully conducted. Five hundred lines of germplasm are being maintained at the center. Promising lines of breeding materials were nominated to AICRIP. Breeder seeds production of basmati varieties were produced as per the DAC indent. Basmati 370 needs to be improved for yield and grain quality parameters. A total 7 pathology trials were conducted. All the production trials were conducted as per the technical program. Production orientated survey conducted in two districts Rajouri and Pouchh. Blast, brown spot and BPH were major disease noticed. A total of 5 entomology trials were conducted successfully. Five agronomy trials were conducted successfully. Dr. R.M. Sundaram appreciated the work carried out by the centres. Dr. Swain also appreciated the progress of the centres.

Kanpur

Dr. P.K. Singh made the presentation on the progress of the centre. One breeder, one agronomist, three technical posts were filled as per the sanctioned posts. Out of five allotted, only three trials were conducted. Two test entries nominated from the centre were promoted to AVT2 AL&ISTVT. Two trials of Agronomy were conducted as per the technical program. Dr. Sundaram, advised to conduct more number trials as per the allotment, and also to provide the soil parameters of the trials conducted. He asked to strengthen the research program in the centre. Dr. Swain also advised the centre to increase the efforts to strengthen AICRIP activities.

Kaul

Of the 7 sanctioned posts, four were filled while three vacant. Most of the budget is utilized. Out 14 breeding trial, 12 trials were conducted. Prebreeding for yield, earliness and disease resistance being undertaken. IET 27866 is found promising in yield but agronomy trial is requested to conduct during ensuing season. Breeder seed production

of seven varieties were undertaken. All 7 agronomy trials were conducted. Director stressed to increase the breeding program.

Kota

Dr. KM Sharma presented progress report of the centre. All the 7 agronomy trials were conducted as per the technical program. Dr. Sundaram and Dr. Swain appreciated the work.

Nagina

Dr. Rajendra Singh presented the progress report of the Nagina centre. One Agonomist and one breeder post is filled. Six trials were allotted in breeding and conducted. Nearly 10 promising lines were identified in the centre. Nagina Vallabh Basmati 1 is released from the centre. Out of 11 trials of agronomy allotted, 10 were conducted. Chairman expressed the need of strengthening the crossing and breeding program.

Ludhiana

Two breeding, one each in agronomy, entomology, pathology, and soil science was filled. Heavy incidence of false smut is observed. Three hundred crosses were made. Total of 135 breeding lines were identified. Three entries nominated from center in the AICRIP for testing. Pyramiding of bacterial blight resistant genes have been undertaken. Breeder seed production of different varieties were undertaken. All the 9 trials of agronomy were conducted. Pathology and Entomology trials were conducted as per the technical program.

Pantnagar

Dr. Pandey presented the progress of the center. The center conducted all the trials of different discipline as per the technical program.

Dr. Sheshashayee, UAS Bangalore stressed on identification and introgression of major QTLs associated with drought, heat, temperature, salinity should be addressed. The outcomes of DBT/ICAR/DST/NASF funded projects should be utilized in development program in AICRIP. Dr. Sundaram informed that information about markers, major QTLs of important traits will be provided to cooperating centres to utilize in the breeding program.

Zone III

On the request of Chairman Dr. Sundaram, Dr. Padmini Swain acted as chairman of the session of presentations by cooperating centre in Zone III. Dr. Swain thanked and requested cooperating centres to follow the presentation guidelines and complete within time.

Ghaghraghat

Dr. Nitindra Prakash presented progress of the centre. One post each in breeding, agronomy and entomology is filled while one post of pathology is vacant. Six breeding trials allotted and all the trial were conducted. One breeding trial vitiated due to late planting of materials. Total of 14 crosses attempted, landraces and germplasm were maintained at the centre. One genetic stock registered with NBPGR. Agronomy 7 trials,

entomology 5 trials, pathology 5 trials were conducted as per the technical program. NDGR 702 (Jal Bhavani) released by CVRC.

Jeypore

Dr. Mihir Ranjan Mohanty presented the progress report of the center. Out of two sanctioned posts of breeding, one post is filled. Most of the budget is utilized. All the 25 trials of breeding allotted were conducted as per technical program. In addition, PGR and MLT trials were also conducted. A total of 582 germplasm lines were maintained. Breeding program for BPH, BLB and ASG traits were undertaken. ORJ 7 from the center is released by SVRC. ORJ 1161 one culture will be proposed in SVRC. One culture OEJ 1346 will be proposed for CVRC release. Collection, characterization and conservation of rice germplasm being carried out. Breeder seeds of 204 q was produced. One pathology and agronomy post, two field assistant posts are requested. Dr. Padmini appreciated the commendable work carried out by center despite one breeding post. Due to paucity of funds, additional requested posts are difficult to provide at present.

Chiplima

Plant breeding post and soil science post is vacant. Eight out of 8 trials conducted in breeding**.** Total of 18 crosses attempted, generation advancement up to F4 generations. A 20 released and notified varieties collected. 6 out of 8 trials in agronomy, 9 out of 10 trials in entomology were conducted. Stem borer, leaf hopper and leaf folder were the major pests in location. In Pathology, 9 trials were conducted. The major diseases in the region were sheath blight, BLB and leaf blast. Technology developed included mechanized line sowing and pesticide identification for location specific pet and diseases. Chairman congratulated the work and to write more publication from the centre.

Bankura

Six breeding trials conducted as per the allotment, 31 germplasm lines were maintained, 11 crosses attempted, one resistant line IET 28274 for RTD is identified. Breeder seeds of four varieties produced. NSN1, NSN2, DSN, NSNH were conducted in pathology. Several multiple disease resistant trials were identified. Data for agronomy not received despite repeated calls. Brown spot, blast and BLB are severe diseases. Artificial inoculation was followed for all the diseases.

Pusa

Dr. Nilanjaya, Plant breeding presented the report. Total of 10 plant breeding trials, seven agronomy trials, 10 pathology, six entomology and two soil science trials were conducted as per allotment. Two agronomy/breeding (LPT) trials were failed due heavy rains. Nearly 335 rice germplasm are maintained and 250 fixed breeding materials were maintained. Breeder seeds of five varieties were produced as per DAC indent. Disease orientation survey reported that brown spot disease is severe in several regions. Dr. Sundaram advocated the center for registration of disease resistant lines in NBPGR.

Varanasi

Dr. Jayasudha presented the report of the center. She informed that one post each in breeding, agronomy, pathology are vacant. Out of 19 trials allotted in breeding, 15 trials

were conducted. Prebreeding activities are being undertaken for drought, salinity and biotic stress tolerance. Totally 900 germplasm maintained. Breeder seeds of seven varieties is produced. All the agronomy trials were conducted as per the technical program. Seven plant pathology trials were conducted. Dr. Padmini Swain appreciated the excellent work carried out and advised to fill up the vacant posts.

Ranchi

Dr. Krishna Prasad presented the report of the center. One post each in breeding, agronomy, pathology and entomology sanctioned and filled. Totally, 21 breeding trials, 8 agronomy, 7 pathology, 6 entomology, 1 soil science and 3 physiology trials were conducted. Nearly 500 germplasm lines are maintained. Breeder seed of six varieties produced.

Chinsurah

Dr. Indrani Dana presented the progress of the center. One post each in breeding, agronomy, pathology are vacant. Out of 21 trials allotted in breeding, 17 were conducted. Further, 40 crosses are made, 25 advanced breeding lines identified. Besides, 9 out of 10 trials in agronomy, 2 soil science, 1 physiology, 10 entomology, 13 pathology are conducted.

Bikramganj

Two breeder, one each in agronomy and pathology are filled while one entomology post is vacant. Total of 27 breeding trials were conducted. Total of 291 crosses made and 579 germplasm were maintained and 22 promising lines are identified. BRR 2177 is new culture found promising. Novel genetic resources are identified and efforts are being made to register with NBPGR. Molecular mapping of false smut resistance is being undertaken. Out of 7 allotted, six in agronomy and 7 in pathology conducted.

Masodha

Dr. D. K. Dwivedi presented the progress of the report. Two posts each in breeding and agronomy filled as per the sanctioned. Of the 29 trials allotted in breeding, 28 conducted including 4 hybrid rice trials. 320 q of breeder seed has produced from the centre. Five agronomical trials have been conducted at Masodha centre. In soil science three trials were conducted successfully while in physiology, one trial on abiotic stresses was conducted. Seven entomology trials were conducted at the centre during 2021. Sheath blight, sheath rot, brown spot, leaf blast and BLB were the diseases reported in the farmer's field in the location. In Pathology, different HPR, management trials and production-oriented survey experiments were conducted. Their future line of work included development of multiple pest and disease tolerant genotypes and also NUE lines.

Zone IV and V

Rapporteurs: Drs. B. Sreedevi and P. Seguttuvel

Zone IV

Titabar:

Dr PC Dey presented the AICRIP progress report. He informed the house that Titabar is the oldest centre in Assam with focus on winter rice (Sali) of 18.89 lakh ha followed by summer rice (Boro) of 4.05 lakh and autumn rice (Ahu) of 1.91 lakh ha. Among the three seasons rice cultivation, Boro has maximum productivity followed by winter rice. The major constraints are frequent occurrence of flood, erratic rainfall and shortage of labor during peak season. The major research focus is in the development of varieties suitable for Boro with BLB resistance, drought and submergence tolerance. The popular rice variety is Ranjith with Sub1 tolerance, whereas Numali and U-86 new varieties submitted for proposal. 518 nos of germplasm were sent to NBPGR for registration as new genetic stocks. Breeder Seed Production for Ranjith Sub1, Bahadur Sub 1, Gitesh, Numali, KetekiJoha and Aghoni Bora are indented. In Crop Production Program, 10 Agronomy trials allotted were conducted; four Soil Science trials and six physiology trials were conducted and the results of the findings were presented.

Wangbal - Not represented

Arundhutinagar – Not presented

Zone V

Raipur:

Dr Sunil Niar presented the AICRIP Progress Report. The centre was established 1968 with focus on rain fed ecosystem of Zone V (Chhattisgarh) and the research in improvement of rice varieties for drought with biotic and abiotic stresses. A total of 25 plant breeding trials were conducted. 18538 germplasm lines were registered as genetic stock. The number of germplasm available is 23250. In Crop Production program, 8 Agronomy trials on NMT-Aerobic, NMT-Bio fortified, IVT/AVT-1 LPT, development of suitable package of practices for dry Direct Seeded Rice CMT on yield maximization, enhancing productivity of organic rice cultivation, integrated pest management were conducted and results presented. In Plant Physiology program, two trials on drought and low-light stress were reported. In Entomology program, 13 trials were allotted and 12 were conducted and in Pathology program, 4 trials were reported.

Jagdalpur:

Dr Sonali Kar presented the AICRIP Progress Report. The centre was established in 1987 for agro ecological region of Bastar (Zone V) to cater the research needs of tribal farmers. The research focus is on development of varieties for upland, mid land and low land ecologies. 16 AICRIP breeding trials were allotted and all were conducted. Two lines were nominated to AICRIP. Bastardhan1 was released and Breeder Seed Production was

indented. All the three ecologies of upland, midland and low land are distinctly maintained in the research farm. In Crop Production program, 12 Agronomy trials were allotted and ten were conducted 13 entomology and 12 pathology trials were allotted and all were conducted and results presented.

Rewa:

Dr. Perraju presented the AICRIP progress report of Rewa centre under the JNKVV, Jabalpur. Rewa represents Zone V rice ecosystem. The centre is working in rainfed upland ecologies. Out of five positions, only two scientist position is filled. In AICRIP Plant Breeding, eight trials were allotted, and seven were conducted (IVT-aerobic trial was not conducted). The popular varieties where Breeder Seed Production targeted are JR 767 and JR 206. In Crop Production Program, 4 Agronomy trials were conducted and reported. In Plant Physiology program, three trials were conducted. In Plant Protection program, ten Plant Pathology trials were conducted and results were reported.

Sakoli:

Dr. G R Sham Kumar presented the overall progress report of Sakoli centre under PDKV, Akola. A total of 16 AICRIP trials were allotted and conducted. Two rice scientist under AICRIP, however one scientist (entomology) got transferred. The major thrust area of development of rice varieties for super fine grain varieties with Hopper resistance, gall midge resistance (biotype 4) and bio-fortified colored grain varieties. 17 plant breeding trials were allotted and all were conducted. The major research area is development of cultivars for earliness, DSR adopted, Super grain varieties and for pigmented biofortified rice varieties. PDKV Sadhana (SKL-3-1-41-8-33-15) was identified for Vidarbha region of Maharashtra is SVRC release. Breeder seed productions of PDKV Sadhana, PKV Ganesh, PDKV Kisan, Sakoli-9, PDKV Sakoli red rice, PKV HMT were taken up. In Crop Protection Program, 13 trials (entomology) were allotted and conducted.

Zone VI and Zone VII (Southern Zone)

Rapporteurs: Drs Suneetha Kota, V. Prakasam, Ch. Suvarna Rani

The centre wise presentations from Zone VI and Zone VII were held in virtual mode on 19 April, 2022. All the centres in Zone VI (Western region) except Tuljapur and in Zone VII except Mugad made the presentations about the conduct of the AICRIP trials during kharif, 2021 as a part of AGRM, 2022.Centre wise presentations were made from Karjat, Nawagam, Navsari, Gangavati, Moncompo, Brahmavar, Pattambi, Puducherry, Aduthurai, Coimbatore, Mandya, Maruteru, Rajendranagar and Warangal centres. The centres have presented the conduct of the AICRIP trials, performance of the entries in the respective trials, the research activities and the breeding material generated at the respective centre according to prescribed mandate, the popular prevalent varietal and production technologies and future thrust areas of research.

Zone VI

Nawagam:

Dr M. B. Parmar reported about the conduct of 21 trials that were allotted and submitted the interim report. In addition, all the allotted trials of Agronomy (7) and Entomology (12) were also presented. The breeding material from F_2 to F_6 was also evaluated and the crop was in good condition.

Navsari:

The conduct of trials has been reported by Dr P.B. Patel. The centre has conducted four Hybrid rice trials and 20 Plant Breeding trials including IVT-ASG, IVT-IME, IVT-Biofort, IVT-Aerobic, IVT-MS, IVT-L, IVT-CSTVT, IVT AL&ISTVT, AVT-1-IME, AVT1-Aerobic, AVT-1-MS, AVT1-Biofort, AVT-1-L, AVT-1-NIL-Late, AVT-1-NIL IME & IM, AVT-1-IM, AVT-1-, AVT-2- NIL CS, AVT1 AL&ISTVT, ICAR-BMGF-ERA and. About 115 new crosses were attempted and the crop stand was good.

Karjat:

Dr. B.D. Wagmode reported the trial of AICRIP at Karjat centre. The centre has conducted sixteen out of 19 trials which include AVT2-ETP, AVT1- ETP, IVT- ETP, AVT1- IME, IVT-IME, AVT1- IM, IVT-IM, AVT1-L, IVT-L, AVT1- Biofort, IVT- Biofort, IVT-ASG, AVT1-NIL (IME & IM), AVT1-NIL (Yield, late). They have a targeted breeding towards BLB resistance, Zinc, Fe and protein enrichment, submergence tolerance and aroma with good cooking quality. Several crosses were generated and breeding material is being evaluated.

Zone VII

Gangavati:

Dr BG Mastana Reddy, presented the details of trials conducted in Kharif 2021. All the 16 trials, were conducted. Dr Reddy explained about 12 Agronomy and 16 Entomology were conducted. Research activities include about 25 crosses generated 309 lines identified, molecular breeding for BPB resistance, breeder seed production of recent releases of this centre were taken up. DRR Dhan 53 is found promising in farmer's field which is on par with BPT 5204 at lesser cost of cultivation. Several multiple disease resistant lines were identified from different AICRIP trials of pathology. Focus on the development of salinity tolerance, MS grain type and early maturing varieties. Molecular characterization of gall midge biotypes is being taken up.

Moncompu:

Dr Surendran presented the trails conducted at this centre. Only 7 out of nine trials conducted under ETP, IME, and bio-fortification. Late trials were not conducted due to constraints in water management system in this region. Pre-breeding activities for artificial screening for salinity tolerance at reproductive stage and submergence are being carried out with the focus on development of varieties with salinity, flood and acid tolerant varieties. Development of suitable package of practices for high yield under

direct seeded conditions and weed dynamics are being addressed at this centre. High rainfall and floods are major constraints of the centre for rice cultivation.

Brahmavar:

Dr Sreedevi A.J. discussed the details of the trials conducted.15 trials allotted and 13 trials conducted and the crop condition is good. IVT E (TP) & IVT (L) were not conducted. Saline trials conducted at Farmer's field. Mutants of coloured rice varieties are also developed in this centre. 46 crosses generated and about 13 populations are being evaluated, 35 promising lines were identified are being evaluated in station trials for nominations in AICRIP. About 139 germplasm lines are being maintained with recent collections are being characterized. The promising lines from AICRIP trials are being utilized in hybridization programme. Evaluation of 297 advanced mutant lines of 4 red rice varieties and segregating populations for high yield, disease and pest resistance is being carried out.

Pattambi:

Dr Biji, presented the results of this year AICRIP trials from the centre. All the allotted 15 breeding trials were conducted for ETP, IME, IM MS, Bio-fortification, NIL and ASG. 104 crosses generated, 5150 breeding material in different segregating generations are evaluated and about 420 promising lines identified, 14 lines in station trial evaluated, 5 entries were nominated in AICRIP trials. Donors for abiotic and biotic stresses were identified. About 1316 germplasm collections are being maintained. Evaluated wild rice derivatives from *O.nivara* and *O.glaberrima* introgression lines and promising lines are being utilized in their breeding programmes. Also presented the AICRIP pathology, entomology, Agronomy, physiology trials conducted.

Puducherry:

Dr. Narasimhan, presented the observations on trials conducted. Total 9 trials were allotted and all were conducted. Many entries in AICRIP trials were susceptible to BLB and blast. All the allotted 8 Agronomy and 5 soil science trials were conducted. MS grain type cultivars with, salinity tolerance are being focussed at this centre. About 24 promising lines are in station trial were evaluated. Popularization for traditional rices and development of package of practices for changing climate scenario are being focussed.

Aduthurai:

Dr. Suresh, TRRI, Aduthurai presented the observations on trials conducted at this institute. A total of 19 breeding trials were conducted. All the trials were conducted as per recommendations. 6 Agronomy and 15 Pathology trials were conducted. Salinity stress and terminal drought is the reoccurring constraint at this centre. Heavy rains occurred continuously for 3 month during Kharif, 2021. Several crosses in early, medium and late duration were generated. Trait based breeding with emphasis on BPH wherein 8 land races were identified with resistance to BPH, 4 donors for false smut in the hot spot region of Gudalur were identified. Advanced lines with 3 or 4 gene combination of BLB resistance genes developed. Promising donors for false smut, submergence, anaerobic germination and in situ germination were identified. Advanced lines with

drought QTLs qDTY1.1, *qDTY* 3.1 and qDTY 12.1 were developed. Advanced lines with more than 10 ppm Fe and 25 ppm of Zn in polished rice were identified and are being evaluated.

Coimbatore:

Dr. Saraswathi presented the trial status. 21 breeding trials allotted were conducted as per recommendations. Two Late trials were not conducted. 7 Agronomy, 10 entomology and 9 pathology trials, 3 physiology trials were conducted and presented. Focus on development of varieties and hybrids for yield, quality, drought and salinity with different durations. Identified donors for drought and salinity and breeding material generated are in BC1F4 generation stage. Donors for nutrient quality identified. Two and three line hybrids developed are being evaluated. About 136 germplasm, 2316 accessions in gene bank including wild rice accessions are being maintained. Molecular breeding for biotic stress tolerance through pyramiding blast, BLB, false smut and other biotic stresses being focussed.

Mandya:

Dr. G.R. Denesh and Dr. Deepak explained about the trials conducted at this centre. Eighteen AICRIP trials were conducted at this centre The crop stand across trials was reported to be good. 17 Agronomy, 19 Pathology, 11Entomology, 3 soil science trials were also conducted. About 90 crosses generated and several segregating populations are being evaluated, donors for leaf blast and neck blast identified. About 5917 germplasm accessions are being maintained. Focus on BPH tolerance with 52 crosses was generated for evaluation. Breeding material for salinity tolerance, sheath blight was developed and is being evaluated.

RARS, Maruteru:

Dr. Ravi Kumar presented the AICRIP trials results. 26 trials were received and conducted. Several segregating lines were noticed in different trails. Pre breeding for BPH and BLB, Biofortification of Zn and Protein, crosses for BPH, Blast, BLB with high yield and quality is being focussed with 90 new crosses generated, several populations being evaluated, 95 uniform bulks identified to be tested in station trials, 25 backcrosses populations were generated and are being evaluated. About 23 lines were nominated in different AICRIP trials.140 donors lines for biotic, abiotic and other stresses identified are being maintained in resistance block. Molecular breeding for anaerobic germination *qAG* 3.1 is being introgressed into popular varieties. 10 of the 11 Agronomy trails, 8 soil science trials, 12 plant pathology trials were conducted. The bacterial leaf blight incidence was more and moderate levels of neck blast, false smut and sheath rot diseases were observed. In case of entomology trials, 13 were allotted and conducted. Due to heavy rains, the 4 screening nurseries were not conducted properly and also incidence of pests was almost zero. These trials are being repeated during Rabi season.

Rajendranagar:

Dr Raghu Rami Reddy and Dr. Ram Gopal Verma presented all trials conducted at ARI Rajendranagar during Kharif 2021. 12 Plant breeding, 5 Agronomy, 12 entomology and 11 Pathology trials were conducted. In plant breeding IVT and AVT trials of MS, IM and

NIL trials were conducted. Four entries are in minikit testing. About 471 germplasm, several donors, Blast, BLB and BPH are available. Several diverse crosses are being generated as well as new CMS lines are being developed. Focus on development of high yielding varieties with cold and salt tolerance.

Warangal:

Dr. Damodhar Reddy presented the details of AICRIP trials allotted 21 varietal trails including breeding and hybrid trials, 12 entomology, 4 Agronomy trials were conducted at this centre. Crop was in good condition for the trials under late, medium, mid early, early transplanted, bio fortification and NIL trials. It was suggested to focus on developing varieties for beaten rice and puffed rice. 22 lines in station trials, 351 new lines were identified and 28 new hybrids developed are being evaluated. About 464 land races, with 30 new collections are being maintained. Promising lines with high yield are in minikit trials. Promising lines for blast, sheath rot, gall midge, BPH identified. Germplasm accession INRC 3021 for gall midge resistance identified. Molecular breeding for introgression of blast and BPH is being carried out.

Dr. Padmini Swain, Director, in her concluding remarks congratulated Dr. R. M. Sundaram, Director, IIRR for organizing the interactive session with all the co-operators in Zone-VII and for their excellent research activities. The major constraints of fund and manpower are expressed, suggested to fill the vacant positions available at different centres. Appreciated efforts made in different disciplines in their research activities as witnessed in their presentations. Dr. Gopal Krishnan, from IARI thanked all the participants for their good presentations and research activities. Dr. L.V. Subba Rao, PI AICRIP, Varietal Improvement thanked all the presenters. The session ended with formal vote of thanks by Dr. R. M. Kumar, PS and Head, Agronomy from IIRR.

SESSION III : Proceedings of Crop Production & Protection Technologies Identification Committee (CPPTIC) meeting on 26.04.2022 conducted in Hybrid Mode

Dr. R M Sundaram all the dignitaries and briefed about the purpose of the meeting. Dr. T R Sharma, in his introductory remarks emphasized the importance of identification and release of Crop Production and Protection Technologies. He appreciated the efforts carried out by Team ICAR-IIRR in collaboration with ICAR-NRRI and ICAR-IARI in formulating the guidelines and proforma for nomination of Crop Production and Protection Technologies (CPPTs) in All India Coordinated Research Project on Rice (AICRPR), their identification and releases. All the members unanimously agreed that CPPTs related to rice should be evaluated in AICRPR network and promising technologies should be identified and release by the committee. Dr. M S Prasad presented the details about the guidelines and proforma for evaluation, notification and release of CPPT. After a critical and thorough deliberation, most of the members felt that the proforma needs some fine-tuning. Dr. T.R. Sharma suggested Director, ICAR-IIRR to share the MS Word file of the draft guideline and proforma with committee members and get their feedback within the next seven days.

After receiving inputs from the committee members, Director, ICAR-IIRR will prepare the final version of the guidelines and proforma, get the approval of the competent authority and share with all concerned. After this process is completed, the committee will meet once again to discuss, evaluate and finalize the list of technologies to be considered for the Kharif 2022 trials in addition to considering those technologies which have successfully completed three years of testing in AICRPR. The meeting ended with vote of thanks proposed by Director, ICAR-IIRR.

The following members attended the meeting

Chairman : Dr. T R Sharma, DDG (Crop Science), ICAR, New Delhi

Members :

Dr. Himansu Pathak, Director, ICAR-NIASM, Baramati
Dr. R K Singh, ADG (FFC), ICAR, New Delhi
Dr. S C Dubey, ADG (PP&B), New Delhi
Dr. S Bhaskar ADG (Agronomy and Agro-forestry), New Delhi
Dr. R M Sundaram, Director, ICAR-IIRR, Hyderabad
Dr. Padmini Swain, Director, ICAR-NRRI, Cuttack
Dr. Harsh Vardhan Singh, Director, ICAR-NBAIM, Bengaluru
Dr. M Nagesh, Director, ICAR-NBAIR, Mau, New Delhi
Dr. Jagdeeshwar, Director of Research, PJTSAU
Dr. Subhash Chander, Director, NCIPM, New Delhi
Dr. Senthil Kumar, Director, CPPS, TNAU, Coimbatore
Dr. A Subbirami Reddy, Director (Seeds), ANGRAU, Guntur
Director, Crop Management, TNAU, Coimbatore

Dr. Pratibha Sharma, ICAR-Emeritus Scientist, Jobner
Mr. A Nageshwar Rao, MD, Vishwamitra Bio agro Pvt Ltd, Guntur

Members from ICAR-IIRR:

Drs. D Subrahmanyam, M Srinivas Prasad, R Mahender Kumar, B Jhansi Rani, K Surekha, P Raghuveer Rao and LV Subba Rao

Members from ICAR-NRRI: Drs. A K Nayak and B C Patra

Rapporteurs: Drs. Y Sridhar, M D Tuti, V Prakasam, Akshay Sakhare and V Manasa

Session IV : IRRI-ICAR collaborative programmes

The session on IRRI ICAR collaborative programmes was held on 27th April 2022 during 57th ARGM at ICAR IIRR Hyderabad on hybrid mode (Physical and online). The session was chaired by Dr T R Sharma, DDR (Crop Science), ICAR New Delhi, Co-chaired by Dr Ajay Kohli, IRRI. Other dignitaries present during the meeting were Dr R M Sundaram, Director, ICAR IIRR, Hyderabad, Dr P Swain, Director ICAR NRRI Cuttack, Dr A K Singh, Director ICAR IARI, New Delhi and scientists from ICAR IIRR Hyderbad and ICAR NRRI Cuttack.

Dr T R Sharma, DDG, gave opening remarks and importance of IRRI in Indian Rice Research followed by Dr Hans Bharadwaj, IRRI. Dr Nese Srinivasulu, scientist from IRRI presented the salient achievement of IRRI ICAR Collaborative programme 2017-22. The programme was carried out under main 3 projects viz., New Rice Varieties, Climate Smart Management practices and Training and capacity building. He explained about the contribution of IRRI in development of rice varieties for the country and importance of collaboration of ICAR and IRRI in terms of varietal development, number of farmers benefited etc. Key breeding outputs of this programme were discussed. Many MAS derived varieties having Gn1a and SPL14 improved grain yield in targeted varieties. Association network of genes for yield identified OsTPR gene as critical in balancing yield and quality parameters. Genome editing of OsTPR work has been carried out and superior haplotypes have been identified for panicle length, grain number and other important traits influencing yield. 3 K panel is utilized for identifying superior haplotypes for different biotic and abiotic stress tolerance breeding. Rice varieties having higher Zinc content have been identified (>33ppm) and QTL for Zinc content Zn 5.1 is under study to utilize in Indian rice breeding lines. Genome editing of SWEET genes responsible for BLB has resulted in better disease resistance. One Rice Breeding of IRRI helped to accumulate minor QTLs/genes and also application of Genomic selection helped to develop IR 16A4938 for irrigated condition and IR 125042 for DSR condition. A total of 61 varieties have been released by this programme in last 5 years.

DSR Consortium: Area under DSR in Punjab has occupied a considerable area of 0.55 m.ha. owing to labour shortage caused due to Pandemic situation and also due to extensive work of DSR consortium to standardize the management practices. Some of the lines suitable for DSR are PR 126, PR 128 and PR 129 in Punjab. Nutrient management, weed management and mechanized DSR have been standardized.

Rice Fallow System: Through GIS technology, Rice fallow area have been mapped more precisely and identified profitable Rice Fallow crops.

Climate Smart Management practices like submergence tolerance, drought tolerance, high temperature tolerance have helped to develop abiotic tolerant rice varieties.

Digital Extension: Rice crop manager, seed cast, Rice doctor, Rice Knowledge bank are some of the digital applications for spreading rice technologies. RICE, a satellite based

rice monitoring system helps to forecast the possible weather problems in advance and helps farmers to go for crop insurance.

Training: Many of M. Sc. and Ph. D. students have been trained in the area of advance technologies for rice improvement. Short term and on job training programmes have been organized to impart training to young researchers. A newly developed B4R programme has been shared with 65 partners to accelerate breeding activities. Public Private Partnership has been very much useful in training and capacity building. The trainees have been imparted the knowledge on DSR and One Rice breeding platform.

Workplan for IRRI ICAR collaborative plan 2023-27

Dr Nese Srinivasulu presented the work plan for 2022-27 of IRRI ICAR Collaborative programme. A committee has been constituted under the chairmanship of Dr A K Singh, Director ICAR IARI and 13 members to frame and monitor the this programme for next 5 years (2022-27).

The programme is divided into 5 projects

1. Market driven Rice varieties to capture export potential: Linkage of AICRIP programme to one rice breeding by genomic selection
2. Integrated DSR system
3. Rice based health and nutrition
4. Climate resilient rice
5. Capacity building

Dr A K Singh suggested to clearly delineate the responsibilities for NARE and IRRI scientists. Only 10% of the Non Basmati rice is exported from India therefore he emphasized to improve the mechanism of increasing the export of rice. He suggested to ensure market availability before large scale production of any specialty rice (For example: Manipuri black rice).

Dr R M Sundaram suggested not to include aroma component and concentrate on health and nutrition in Project 3. He also suggested to include extension personnel in capacity building.

Dr P Swain emphasized the inclusion of sheath blight and false smut in the research programme.

Dr R K Singh appreciated the progress made in last 5 years including capacity building and precision agriculture.

Dr Haritha from ICAR IARI informed that they have identified the novel allele for reducing the rate of rancidity in rice bran oil.

Dr Virakthmat suggested to facilitate the inclusion of high Zinc rice genotypes and also low GI rice from IRRI to be included in national programme.

Dr B N Singh emphasized the research for submergence tolerance for water stagnation beyond 15 days which is very much essential in eastern Indian including UP and Bihar.

Dr T R Sharma appreciated the progress made and insisted to fix very specific year wise targets and quantifiable deliverables both from NARS and IRRI scientists. He suggested to explore the export potential of specialty rice and genome editing.

Dr Ajay Kohli informed that along with high yielding rice varieties, superior grain quality parameters have been achieved in recent years through utilizing specific tools and techniques. Zinc improvement has been emphasized to be the part of next collaboration. He emphasized the product specific flagship projects to be implemented in Agronomy, seed system and trait discovery. Use of Rice Fallow will open up new avenues to make high returns to farmers.

DDG Crop science requested the participants to email their suggestions Director ICAR IIRR for improvement of IRRI ICAR collaborative programme within two days so that they can be incorporated before finalizing the proceedings.

The meeting was ended with vote of thanks by Director ICAR IIRR.

SESSION V : Proceedings of the Varietal Identification Committee Meeting-2022

Varietal Identification Committee (VIC) Meeting on virtual mode was held on 27thApril 2022 under the chairmanship of Dr. T. R. Sharma, DDG (Crop Science), ICAR. The members of the Committee are listed in the Annexure "A". There were a total of 36 proposals including 32 varietal entries and 4 hybrid entries as given below.

List of VIC Proposals received for 57th ARGM 2022

S.No.	IET No.	Designation	Submitted by	Variety/ Hybrid
Irrigated Early Transplanted:				
1	28343	KNM 6965	PJTSAU, Kunaram	Variety
2	28354	CR Dhan 321	ICAR-NRRI, Cuttack	Variety
3	26790	MTU Rice 1273	ANGRAU, Maruteru	Variety
4	28329	RCPR 60-IR 97073-26-1-1-3	ICAR Res. Complex for Easter Region, Patna	Variety
5	28358	DRR Dhan 64	ICAR-IIRR, Hyderabad	Variety
6	28332	KNM 7048	PJTSAU, Kunaram	Variety
7	26898	HURS 17-7- IR 95786-9-2-1-2	BHU, Varanasi	Variety
8	27340	US 319	Seed Works International Pvt. Ltd.	**Hybrid Re-Submission**
Irrigated Medium:				
9	27686	MTU Rice 1310	ANGRAU, Maruteru	Variety
10	28160	HRI-202	Bayer Bioscience Pvt. Ltd.	**Hybrid**
Irrigated Late:				
11	28544	CR Dhan 322	ICAR-NRRI, Cuttack	Variety
Aerobic:				
12	28631	RCPR 63-IR 97034-21-2-1-3	ICAR Res. Complex for Easter Region, Patna	Variety
13	27937	DRRH-4	ICAR-IIRR, Hyderabad	**Hybrid**
Medium Slender Grain:				
14	28730	KPS 6262	PJTSAU, Kampasagar	Variety
15	28746	RNR 28362	PJTSAU, Rajendranagar	Variety
16	28757	MTU Rice 1321	ANGRAU, Maruteru	Variety
Biofortification:				
17	28714	Gujarat Rice-23	NAU, Navsari	Variety
Alkaline and Inland Saline:				
18	27077	RNR 11718	PJTSAU, Rajendranagar, Hyderabad	Variety
Coastal Saline:				
19	27051	CR Dhan 414	ICAR-NRRI, Cuttack	Variety
Boro:				
20	26435	TRC 2016-14	ICAR Res. Complex for NEH Region, Tripura Centre, Lembucherra	Variety **Re-submission**

S.No.	IET No.	Designation	Submitted by	Variety/ Hybrid
Rainfed Shallow Lowland:				
21	27538	BRR 2110	BAU, Dhangain	Variety
Semi Deep Water:				
22	28299	CR Dhan 513	ICAR-NRRI, Cuttack	Variety
Hills:				
23	28230	TRC PSM-1720-B-B-5-1	ICAR Res. Complex for NEH Region, Tripura Centre, Lembucherra	Variety
24	27472	HPR 2865	CSK HPKV, Malan	Variety
25	28200	TRC BN-1311-B-B-43-11-1	ICAR Res. Complex for NEH Region, Tripura Centre, Lembucherra	Variety
Low Phosphorus:				
26	27641	DRR Dhan 65	ICAR-IIRR, Hyderabad	Variety
Basmati				
27	28579	TAJ	Shakthi Seeds Pvt. Ltd., Hyderabad	**Basmati Hybrid**
28	28589	Punjab Basmati 8	PAU, Ludhiana	Variety
Near Isogenic Lines- Coastal Salinity:				
29	28010	MTU Rice 1293	ANGRAU, Maruteru	MAS Variety
Near Isogenic Lines- Drought				
30	28788	Pusa 1882-12-111-20	ICAR-IARI, New Delhi	Basmati MAS Variety
31	28787	Pusa 1882-12-111-7	ICAR-IARI, New Delhi	Basmati MAS Variety
32	28032	CRR 751-1-7-B-B	ICAR-NRRI-Hazaribag	MAS Variety
Near Isogenic Lines- Low Phosphorus:				
33	28818	WGL-1487	PJTSAU, Warangal & ICAR-IIRR, Hyderabad	MAS Variety
34	28066	DRR Dhan 66	ICAR-IIRR, Hyderabad	MAS Variety
Near Isogenic Lines- Submergence:				
35	28791	KKL (R)2	PAJANCOA&RI, Karaikal	MAS Variety
Near Isogenic Lines-BLB & Blast:				
36	28014	Pusa 1853-12-288	ICAR-IARI, New Delhi	MAS Variety

All the 36 proposals were critically examined for their performance with respect to on overall, zonal and state basis over the years, their reaction to biotic/abiotic stresses, performance in agronomic trials and quality features, etc. The committee emphasized that if the superior performance of an entry is limited a single state in a particular zone, such entries may be considered by the respective SVRCs. Specific comments and decision of the committee are given below for all the proposals.

Irrigated Early Transplanted

Proposal No. 1: IET 28343 (KNM 6965)

The entry IET 28343 submitted for irrigated early-transplanted ecology and the proposal is considered. It is moderately resistant to leaf blast. IET 28343 with long slender grain type and desirable grain quality parameters in terms of high HRR (66.9 %) and intermediate AC (21.82%). **It is recommended for Chhattisgarh and Maharashtra in central zone (Zone V).**

Proposal No. 2: IET 28354 (CR Dhan 321)

The entry IET 28354 submitted for irrigated early-transplanted ecology and the proposal is considered. It is moderately resistant to leaf blast.It is MS grain type with 68.2% HRR and 24.5 % AC and is recommended for **Odisha, Bihar, Jharkhand, West Bengal and Uttar Pradesh in eastern zone (Zone III), Tripura and Assam in north eastern zone (Zone IV) and Chhattisgarh and Maharashtra in central zone (Zone V).**

Proposal No. 3: IET 26790 (MTU Rice 1273)

This proposal submitted under irrigated early-transplanted ecology and the proposal is considered. IET 26790 recorded promising yield performance with early duration and moderate resistance to leaf blast. IET 26790 with long slender grain type and desirable grain quality parameters in terms of high HRR (63%) and intermediate AC (22.4%) is recommended for **Chhattisgarh, Maharashtra and Gujarat in central and western zones (Zones V and VI).**

Proposal No. 4: IET 28329 (RCPR 60-IR 97073-26-1-1-3)

IET 28329 submitted for irrigated early-transplanted ecology and the proposal is considered. It is moderately resistant to leaf blast and brown spot. IET 28329 with promising yield performance, long slender grain type and desirable grain quality parameters in terms of high HRR (64.70%) and soft GC of 67 mm. **It is recommended for Haryana and Rajasthan in northern zone (Zone II), Bihar and Uttar Pradesh in eastern zone (zone III) and Chhattisgarh and Maharashtra central zone (zone V).**

Proposal No. 5: IET 28358 (DRR Dhan 64)

This proposal submitted to irrigated transplanted ecology. It is an early duration entry, with moderate resistance to leaf blast and neck blast. The entry has long slender grain type with desirable grain quality parameters in high HRR (66.8%), intermediate AC (22.5%). **The proposal is recommended for the states of Bihar and West Bengal in eastern zone (zone III).**

Proposal No. 6: IET 28332 (KNM 7048)

IET 28332 proposed for irrigated early-transplanted ecology and the proposal is considered. It is moderately resistant to leaf blast and sheath rot. It has promising yield performance, long bold grains and high HRR of 69.8% and intermediate AC of 23.11%. It

is recommended for **Odisha and West Bengal in eastern zone (Zone III), Chhattisgarh and Maharashtra in central zone (Zone V).**

Proposal No. 7: IET 26898 (HURS 17-7- IR 95786-9-2-1-2)

The proposal recommended for re-submission by including data on year-wise percent increase/decrease over the checks in the proposed states.

Proposal No. 8: IET 27340 (US 319)

The proposal is not considered, as there was inconsistency in the performance of the entry and due to lack of sufficient data in zones and states**.**

Irrigated Medium

Proposal No. 9: IET 27686 (MTU Rice 1310)

IET 27686 proposed for irrigated medium ecology and the proposal is considered. It is moderately resistant to leaf blast and neck blast. It has promising yield performance, medium slender grains and acceptable HRR of 54.7%, and intermediate AC of 25.94%. **Hence, recommended for the states of Andhra Pradesh, Telangana, Tamil Nadu and Karnataka in southern zone (Zone VII).**

Proposal No. 10: IET 28160 (HRI-202)

This proposal submitted under irrigated medium duration ecology and the proposal is considered. With promising yield performance, it is moderately resistant to BLB and has medium slender grains, high HRR of 65% and intermediate AC of 23.7%. **It is recommended for Haryana and Punjab in northern zone (Zone II), Uttar Pradesh, Bihar, Jharkhand and Odisha in eastern zone (Zone III), Madhya Pradesh and Chhattisgarh in central zone (Zone V), Telangana, Andhra Pradesh, Tamil Nadu and Karnataka in southern zone (Zone VII).**

Irrigated Late

Proposal No. 11: IET 28544 (CR Dhan 322)

The proposal is not considered, as there was inconsistency in the performance of the entry and there is a lack of sufficient data in zones and states**.**

Aerobic

Proposal No. 12: IET 28631 (RCPR 63-IR 97034-21-2-1-3)

This proposal not considered and suggested for submission to SVRC for state release as there is only one state proposed from each zone**.**

Proposal No. 13: IET 27937 (DRRH-4)

IET 27937 is a promising hybrid entry suitable for stress prone water limited conditions with moderate resistance to leaf blast, gall midge, rice stem borer and leaf folder. It has good head rice recovery (62.8%), intermediate amylose content (24.6), and gel

consistency of 30mm. **It is recommended for Punjab in northern zone (Zone-II), Odisha in eastern zone (Zone III), Tripura in north eastern zone (Zone IV), Chhattisgarh in central zone (Zone V) and Gujarat in western zone (Zone VI)**.

Medium Slender

Proposal No. 14: IET 28730 (KPS 6262)

This proposal rejected due to single state from each of the zone proposed.

Proposal No. 15: IET 28746 (RNR 28362)

This proposal submitted for consideration under medium slender grain type and the proposal considered. With promising yield performance, it is moderately resistant to leaf blast, neck blast and brown spot. IET 28746 has medium slender grains, HRR of 63.2%; and intermediate AC of 23.57%. **Hence, the entry recommended for Uttar Pradesh and Odisha in eastern zone (Zone III).**

Proposal No. 16: IET 28757 (MTU Rice 1321)

This proposal submitted for consideration under medium slender grain type and the proposal is considered. IET 28757 is moderately resistant to leaf blast. **It is recommended for Telangana, Tamil Nadu, Karnataka and Puducherry in southern zone (Zone VII).**

Bio-fortification

Proposal No. 17: IET 28714 (Gujarat Rice-23)

This proposal submitted under bio-fortification trial and DNA fingerprinting data not furnished in the proposal. Hence, it can be resubmitted with requisite DNA fingerprinting data

Alkaline and Inland Salinity

Proposal No. 18: IET 27077 (RNR 11718)

IET 27077 submitted under alkaline and inland saline ecology with desirable grain quality characteristics of high HRR (61.8%), intermediate AC (23.5%), soft GC (40 mm) and medium slender (MS) grain type. It is moderately resistant to leaf blast (4.8), neck blast (4.0) and bacterial leaf blight (4.8). It is recommended for **Karnataka and Puducherry in Southern zone (Zone VII).**

Coastal Salinity

Proposal No. 19: IET 27051 (CR Dhan 414)

IET 27051 with medium slender grain type proposed for coastal saline ecology. It has superior yield performance under coastal salinity stress and high HRR (61%), AC (26.3%) and soft GC (41 mm). It is recommended for **Odisha and West Bengal in eastern zone (Zone III).**

Boro

Proposal No. 20 IET 26435 (TRC 2016-14)

The short bold grain type entry IET 26435 exhibited yield superiority over the best varietal check. It also showed acceptable quality: HRR: 65.15%, and AC 18.5%, GC 64%, ASV of 4. It is recommended for the states of **Tripura, Assam (Zone IV) and West Bengal (Zone III) for Boro Cultivation.**

Rainfed Shallow Low Land

Proposal No. 21: IET 27538 (BRR 2110)

A medium slender grain type entry IET 27538 exhibited the required yield superiority over the best varietal check. It has HRR (62%) and intermediate AC (22.8%). IET27538 had moderate resistance to leaf blast and neck blast, BPH, sheath blight and leaf folder. It is recommended for **Karnataka and Andhra Pradesh in southern zone (Zone VII).**

Semi Deep Water

Proposal No. 22: IET 28299 (CR Dhan 513)

IET 28299 submitted for semi deep-water ecology. It is recommended for resubmission after inclusion of Agronomic Trial data conducted in AICRIP.

Hills

Proposal No. 23: IET 28230 (TRC PSM-1720-B-B-5-1)

IET 28230 is an Upland Hills entry and the proposal is considered. It has short bold grains and high HRR 61.6%, AC 21.1%, GC 46%, ASV of 7. It is moderately resistant to leaf blast. Recommended for the **Upland Hills of Himachal Pradesh and Manipur**.

Proposal No. 24: IET 27472 (HPR 2865)

IET 27472 submitted under hill ecology and DNA fingerprinting data not furnished in the proposal. Hence, it can be resubmitted with requisite DNA fingerprinting data

Proposal No. 25: IET 28200 (TRC BN-1311-B-B-43-11-1)

The proposal is not considered due to inconsistency in performance.

Low P Tolerance

Proposal No. 26: IET 27641 (DRR Dhan 65)

IET 27641 is a high yielding low phosphorus tolerant variety developed from wild introgression lines showed promising yield performance under various recommended dose of fertilizer P. It has desirable grain quality characteristics with high HRR-67.5% and soft GC-45 mm and short bold (SB) grain type. It showed multiple biotic and abiotic stress tolerance especially heat stress tolerance and tolerance to leaf blast, neck blast and plant

hoppers. **The entry is recommended for Andhra Pradesh, Telangana, Chhattisgarh and Punjab.**

Basmati

Proposal No. 27: IET 28579 (TAJ)

IET 28579 hybrid for basmati growing areas. Recommended for re-examination of grain quality characteristics of Basmati.

Proposal No. 28: IET 28589 (Punjab Basmati 8)

IET 28589 is a basmati culture. It is promising only for single state (Punjab), hence may be proposed through SVRC for state release

Near Isogenic Line-Coastal Salinity

Proposal No. 29: IET 28010 (MTU Rice 1293)

IET 28010 is a MAS derived line with seedling stage salinity tolerance (*Saltol* QTL) in the background of MTU 1010. It has long slender grains, high HRR of 66.2% and intermediate AC of 23.82%. **It is recommended for gazette notified areas of the recurrent parent MTU 1010 (Andhra Pradesh and Telangana) in southern zone (Zone VII).**

Near Isogenic Line-Drought tolerance

Proposal No. 30: IET 28788 (Pusa 1882-12-111-20)

IET 28788 a MAS derived line in the background of Pusa Basmati 1 with the reproductive stage drought tolerance QTL (*qDTY1.1*). It has long slender grains and acceptable quality parameters. **It is recommended for states for which Pusa Basmati 1 has been gazette notified in Basmati GI areas (viz., Punjab, Haryana, Delhi, Uttarakhand, Western Uttar Pradesh, Jammu and Kashmir).**

Proposal No. 31: IET 28787 (Pusa 1882-12-111-7)

IET 28787 a MAS derived line in the background of Pusa Basmati 1 with the reproductive stage drought tolerance QTL (*qDTY1.1*). Since IET 28788 and 28787 are sister lines with same trait and background, superior one (IET 28788) was identified and hence this entry is not considered.

Proposal No. 32: IET 28032 (CRR 751-1-7-B-B)

IET 28032 is a MAS derived line with drought tolerance in the background of IR 64. Recommended for resubmission after furnishing DNA fingerprinting data.

Near Isogenic Line-Low P tolerance

Proposal No. 33: IET 28818 (WGL-1487)

IET 28818 a MAS derived line in the background of MTU 1121 with low soil phosphorous tolerance QTL '*Pup1'*. It has long slender grains, with desirable quality in terms of high HRR 71.6%, and intermediate AC of 25.25%. **It is recommended for gazette-notified areas of the recurrent parent MTU 1121 (Andhra Pradesh and Telangana)**

Proposal No. 34: IET 28066 (DRR Dhan 66)

IET 28066 a MAS derived line in the background of MTU 1010 with low soil phosphorous tolerance QTL '*Pup1*'. It has acceptable quality parameters. **It is recommended for gazette notified areas of the recurrent parent MTU 1010 (Andhra Pradesh and Telangana) in southern zone (Zone VII).**

Near Isogenic Line-Submergence tolerance

Proposal No. 35: IET 28791 (KKL (R) 2)

IET 28791 is a submergence tolerance MAS derived variety with introgression of *Sub1* in the background of ADT 46. Owing to its significant superior performance over the recurrent parent under normal and submerged conditions, **It is recommended for gazette-notified areas of the recurrent parent ADT 46 (Tamil Nadu and Puducherry) in southern zone (Zone VII).**

Near Isogenic Line-Blast and Bacterial Blight

Proposal No. 36: IET 28014 (Pusa 1853-12-288)

IET 28014 is a MAS derived line in the background of Samba Mahsuri with tolerance to Bacterial leaf blight (*xa13+Xa21*) and Blast resistance (*Pi1+Pi54+pita*). It has medium slender grains and acceptable quality parameters. **It is recommended for gazette-notified areas of the recurrent parent Samba Mahsuri (Andhra Pradesh and Telangana) in southern zone (Zone VII).**

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Annexure-A

List of members participated in the VIC Committee Meeting conducted in Hybrid mode during 57thARGM, 2022 at ICAR-IIRR, Hyderabad

1	**Dr. T. R. Sharma, DDG (CS), ICAR, New Delhi**	**Chairman**
2	Dr. R. K. Singh, Assistant Director General (FFC), ICAR, New Delhi	Member
3	Dr. D. K. Yadava, Assistant Director General (Seeds), ICAR, New Delhi	Member
4	Dr. Man Singh, Director, Directorate of Rice Development, Patna	Member
5	Sri. A. Britto, Regional Manager, National Seed Corporation Ltd., Tukaram gate, Secunderabad	Member
6	Dr. R. Vijaya Kumar, Research Advisor, Basant Agrotech (I) Ltd Hyderabad	Member
7	Dr. B. C. Viraktamath, Ex Director, ICAR-IIRR, Hyderabad	Member
8	Dr. R. Jagadeshwar, Director of Research, PJTSAU, Rajendranagar, Hyderabad-500 030, Telangana State	Member
9	Dr. K. Kesavulu, Director, TSSOCA, Hyderabad	Member
10	Dr. Ritesh Sharma, Principal Scientist, BEDF (APEDA), SVPUA&T Campus, Meerut	Member
11	Dr. Padmini Swain, Director (A), ICAR-NRRI, Cuttack-753 006, Odisha	Member
12	Dr. Sanjay Kumar, Director, ICAR-Indian Institute of Seed Science, MAU	Member
13	Dr. R. M. Sundaram, Director, ICAR- Indian Institute of Rice Research, Hyderabad-500030	**Member Secretary**
14	Dr. A. K. Singh, Director, ICAR-IARI, New Delhi	Special Invitee
15	Dr. L.V. Subba Rao, PS & PI AICRPR, ICAR-IIRR, Hyderabad	Member
16	Dr. R. Mahender Kumar, PS & PI, Agronomy, ICAR-IIRR, Hyderabad	Member
17	Dr. Jhansi Rani, PS & PI, Entomology, ICAR-IIRR, Hyderabad	Member
18	Dr. C.N. Neeraja, PS & Head (Biotechnology), ICAR-IIRR, Hyderabad	Member
19	Dr. M. Srinivas Prasad, PS & PI, Pathology, ICAR-IIRR, Hyderabad	Member
20	Dr. A.S. Hariprasad, PS & PI Hybrid Rice, ICAR-IIRR, Hyderabad	Member
21	Dr. K. Surekha, PS & PI, Soil Science, ICAR-IIRR, Hyderabad	Member
22	Dr. A.V.S.R.Swamy, PS, Crop Improvement, ICAR-IIRR, Hyderabad	Special Invitee
23	Dr. Jyothi Badri, Senior Scientist, ICAR-IIRR, Hyderabad	Rapporteur
24	Dr. R. Abdul Fiyaz, Senior Scientist, ICAR-IIRR, Hyderabad	Rapporteur

Session VI : PLENARY SESSION

Chairman : Dr. T. R. Sharma, DDG (CS), ICAR, New Delhi
Co-Chairman : Dr. R.K. Singh, ADG (FFC), ICAR, New Delhi
Dr. A. K. Singh, Director, ICAR-IARI, New Delhi
Rapporteurs : Drs. S V Sai Prasad & GS Laha, IIRR, Hyderabad

The Plenary Session of 57th Annual Rice Research Group Meeting was held on 27th April, 2022 at 2.30 PM in the SVS Shastry Auditorium, ICAR-IIRR, Hyderabad. The session was chaired by Dr. R. K Singh and Dr. A. K. Singh (Director, ICAR-IARI, New Delhi). The Principal Investigators of various disciplines (as detailed below) presented brief reports of the proceedings of group discussions (held on 18-19th and 26 April, 2022).

Discipline		**Principal Investigator**
Plant Breeding	:	Dr. L. V. Subba Rao
Hybrid Rice	:	Dr. A. S. Hari Prasad
Agronomy	:	Dr. R. Mahendra Kumar
Soil Science	:	Dr. K. Surekha
Plant Physiology	:	Dr. D. Subramanyam
Entomology	:	Dr. B. Jhansi Rani
Plant Pathology	:	Dr. M. Srinivas Prasad

Dr. R. K. Singh, ADG (FFC & CC) congratulated all the plant breeders whose cultures are identified and also thanked all the retiring scientists for their long association and contribution to the All India Coordinated Research Programme on Rice (AICRPR) program. He mentioned that in the last three years, there has been record rice production in the country and he directed the coordinating centre to incorporate all the suggestions made during the deliberations and fine-tune the program accordingly. He also congratulated Director ICAR-IIRR and his team for formulation of guidelines for evaluation, identification and release of crop production and protection technologies (CPPTs). He requested all the co-operators of AICRPR across the country, especially the funded centres, to take utmost care in conducting the trials and ensure that quality data is collected and submitted the coordinating unit. He mentioned that in the Varietal Identification Committee (VIC) meeting held on 27th April 2022, a total 36 varietal proposals were received for identification many promising varieties and few hybrids have been identified. Dr. Singh appreciated the deliberations made in the IRRI-ICAR collaborative work plan presentation made on 27th April 2022 and suggested to incorporate the important points raised during presentation during the finalization of the work plan for the period 2023-28.

The following scientists, who are due to retire during the year 2022-23, were felicitated by the Chairman & Co-chairman for their long and outstanding contribution to the AICRIP program.

S. No.	Name of the Scientist	Designation	Institution
1	Dr. Padmini Swain	Principal Scientist, Plant Physiology and Director (I/c)	ICAR-NRRI, Cuttack
2	Dr. D. Subramanyam	Principal Scientist, Plant Physiology and Head, Crop Production	ICAR-IIRR, Hyderabad
3	Dr. B. Jhansi Rani	Principal Scientist & Head, Entomology	ICAR-IIRR, Hyderabad
4	Dr. C. V. Rama Rao	Professor, Entomology	College of Agriculture, Bapatla, ANGRAU, AP (In absentia)
5	Dr. Ravindra Prasad	Sr. Enotomologist	BAU, Ranchi (In absentia)
6	Dr. Rupankar Bagawati	Principal Scientist (Pl. Pathology) & Officer I/c	RRLLRS, ICAR-NRRI, Gerua, Assam (In absentia)
7	Dr. R. Jagadeeshwar	Professor, Plant Pathology and Director of Research	PJTSAU, Hyderabad (In absentia)
8	Dr. V. K. Srivastava	Principal Scientist, Agronomy	BHU, Varanasi (In absentia)

Responding to a query from Dr. Krishendu Chottopadhaya from ICAR-NRRI, Dr. AR. M. Sundaram, Director, ICAR-IIRR clarified that low phytic acid component can be incorporated in the biofortification trial provided the entries are also rich in zinc/iron. Dr. A. K. Singh, Director, ICAR-IARI highlighted few issues related to multilocation testing of coloured rice genotypes. He also suggested the coloured rice genotypes bestowed with Geographical Indicator protection, should be tested in the specified GI areas only. He mentioned that genotypes with low glycaemic index (GI) should also have desired taste and palatability. In response, Dr. R. M. Sundaram informed the house that two varieties viz., Telangana Sona (RNR 15048) and Improved Samba Mahsuri have been validated through clinical trials carried out by ICMR-National Institute of Nutrition to have low GI (GI > 52) and have been licensed to various companies. Dr. A. K. Singh advised that, depending upon the demand of low GI rice, these varieties should be popularized. Dr. S. K. Dash, Principal Scientist, Plant Breeding, NRRI suggested about the issue of considering of CD at 5% level of significance alone as the criteria for promotion of entries under rainfed trials, which are affected by high variability and suggested that we should consider a 5 % yield superiority for promotion of entries in such adverse ecosystems. Dr. A. K. Singh suggested that arbitrary parameters like 5 % yield improvement should be discouraged and our decisions should be based on sound statistical principles like considering of CD values for promotion of entries. He also mentioned advised that data from such trials (i.e. rainfed trials) can be transformed using appropriate statistical tools and requested Dr. Dash to send the data for further analysis at ICAR-IASRI, New Delhi before making a final decision on this issue. He congratulated Director, ICAR-IIRR and Director, ICAR-NRRI and their teams for excellent conduct of the rice workshop and also for the fruitful discussions. The meeting ended with formal vote of thanks by Dr. R. M. Kumar, Convenor of the 57th Annual Rice Group Meeting.

Proceedings of 9th Rice Research Group Meeting for Hill Region

The ninth Rice Research Group Meeting for Hill Region was held on 28th February, 2022 on virtual mode under the chairmanship of Dr. T.R. Sharma, Dy. Director General (Crop Science), ICAR and co-chaired by Dr. R. K. Singh, ADG (FFC), ICAR. It was hosted by ICAR Indian Institute of Rice Research (ICAR-IIRR), Hyderabad. Dr. R. M. Sundaram, Director, ICAR- IIRR, Dr. Padmini Swain, Director (A), ICAR-NRRI, Dr. L.V. Subba Rao, PI-AICRIP, ICAR- IIRR, Dr. AVSR Swamy, PS, ICAR- IIRR, PIs of different disciplines from ICAR-IIRR, Scientists from ICAR- IIRR as well as cooperating centres of the Hill region *viz.,* Almora, Khudwani, Pombay, Rajouri, CAU-Umiam, ICAR-Umiam, Upper Shillong, Malan, Palampur, Sundernagar, Lamphelpat, Ponnampet, Sirsi, Gudalur participated in the workshop.

Dr R. M. Sundaram welcomed the participants and briefed about the importance of Rice Hill workshop and the necessity to conduct it in advance in the month of February as compared to the regular workshop, which is generally conducted in mid-April every year. Dr L. V Subba Rao, PI-AICRIP briefed about the importance of Rice Hill ecology, its area, production and constraints in the Hill ecology. He explained about the classification of Hill zones based on altitude and number of Hill Rice trials conducted under All India Coordinated Rice Improvement Project (AICRIP) and number of locations in which the trails were conducted during Kharif 2021. Dr R K Singh briefed about diverse rice ecologies in India and urged the co-operators to take care of supply of quality seeds of rice to farmers in Hill zones including north eastern India. Dr. T.R Sharma in his introductory remarks, emphasised on the importance of collection and submission of data of high quality regarding the trials from all the funded and voluntary centres to ensure proper assessment of the test entries. The inaugural session was followed by center wise presentations and the following deliberations were made.

1. The number of testing locations in north eastern states at least one centre per state to be increased in addition to the existing centers. Badarva for mid hills in Jammu, Bandipora for high hills in Kashmir will be included as voluntary centres for hill ecology.
2. Considering the importance of coloured rice like red and black rices for their nutritional quality and sticky rice for their export potential, the research work on such speciality rices to be strengthened as hill ecology is rich in local landraces which can be exploited.
3. To identify elite Tropical *japonica* rice from North east to target export market in other South East Asian countries. To test the *japonica* germplasm, Larno centre for high hills in Kashmir will be included as voluntary centre.
4. Hybridization programme involving *indica* x *japonica* crosses combining the important traits like cold tolerance and other biotic stress tolerance should be strengthened.

5. Coordinating center should assign a standard crossing programme for hill ecology including defined parental lines and specific number of crosses to be generated at each center at the beginning of season. The performance of the centres will be evaluated based on the targets achieved.
6. Collection and characterization of diverse germplasm of north-western Himalayan region need to be intensified to identify the new genes/novel sources for various biotic and abiotic stress tolerance/resistance.
7. Since North east, Northern Himalayas, Jammu and Kashmir, Uttarakhand and Himachal Pradesh are hot spots for important biotic and abiotic stresses like leaf blast, neck blast, cold, sheath blight and drought all the AICRIP entries irrespective of the ecology to be screened in these hot spots. In addition, the core and mini-core germplasm should be screened at these active sites.
8. Marker-assisted selection for blast and other important pest and diseases should be an integral part of AICRIP. In this direction, efforts to be made in network mode involving all the cooperating centres of the hill ecology and a training programme on MAS to be conducted to co-operators in collaboration with ICAR-IIRR and ICAR-NRRI.
9. Whenever, 2nd and 3 year entries are merged into a single trial, the trial should be renamed as AVT1 & AVT2 trial so that 3rd year of testing will be highlighted.
10. Every year, one identified center from hill ecology will present a comprehensive report of complete hill ecology trials during the main ARGM of the same year.
11. IET 28196 and IET 28206 in AVT 1 E (H) upon request were considered for repeat. IET 28895 and IET 28882 with Amylose content of 25.14% and 25.3 % respectively in AVT 1 E trial were accepted for promotion. The designations of IET nos. 28224 & 28217 to be corrected for typographical errors in the progress report.
12. Blast resistance is a prerequisite for consideration in nominations from hill ecology.
13. Upper Shillong being a funded center should select a proper location to conduct AICRIP trials based on elevation and ensure timely communication.
14. Wangbal being a funded centre should ensure filling of all the sanctioned posts under AICRIP, timely communication and participation in the meetings and activities related to AICRIP.
15. All cooperating centres to send one-page note on recent area, production, productivity, popular varieties and recently released varieties of their respective states.
16. 7th March is the last date for seed receipt of IVT entries for Hill trials. Timely dispatch of seeds from all cooperating centers will hasten the process of seed packing and in return dispatch to different AICRIP centers.

The workshop ended with vote of thanks from Dr R Mahender Kumar, PI (Crop Production), ICAR IIRR Hyderabad.

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RECOMMENDATIONS & ACTION POINTS

Agronomy

- ✓ Superior AVT cultures and herbicide tolerant (HT) NILs and high N and P efficient cultivars identified through agronomic screening should be used by different All India Coordinated Research Project on Rice (AICRPR) centers across the country.
- ✓ Mechanization of transplanting and weeding were economical and superior under Alternate Wetting and Drying method with reduced labour requirement. These results should be validated further in the AICRPR for another 1-2 years.
- ✓ Application of Nano urea (2 times Spray) substituted 25% of Urea application was found to be beneficial in a preliminary study. The results obtained need in-depth studies and analysis with respect to soil Nitrogen status, uptake by plant and uptake by grain
- ✓ Shift in weed flora due to changes in crop establishment methods to Direct Seeding. No considerable shift in weed flora due to continuous use of same herbicide over 2 years.
- ✓ Weed management practices for Dry DSR and Wet DSR were evaluated and pre-emergence herbicide application followed by manual weeding was found to be effective. Sustainable weed management practice for aerobic rice system include mulching followed by post-emergence herbicide application or mechanical weeding followed by post-emergence herbicide application (Bispyribac sodium). Integrated Weed Management as part of Integrated Pest Management has shown significant higher Yields compared to farmer's practices with a yield advantage of 23.83%.
- ✓ Residue incorporation of straw improved cropping system yields significantly
- ✓ Sorghum hybrid CSH 25 was found to be promising in rice fallows.

Soil Science

- ✓ In the 33rd year of study on long term soil fertility management in RBCS, the treatment RDF + FYM resulted in maximum grain yield at all three locations and imbalanced nutrition resulted in significant yield loss. Supplementary or complete use of organics improved the important fractions and indices of soil carbon.
- ✓ Nano Zinc spray increased grain yield, zinc translocation to grain and also soil available zinc in sodic soils of Faizabad, Mandya and Ludhiana in the first year of study.
- ✓ In acid soils of Dumka, Moncompu and Titabar, silixol spray along with RDF increased grain yield and agronomic efficiency of nutrients in the first year of study.

- ✓ Crop residues in combination with Pusa decomposer, developed by IARI can be deployed to substitute a part (25–50%) of the recommended N due to their positive effect on grain yield and nutrient use efficiency.
- ✓ The hybrid, ARRH 7576; Varadhan and CNN 5 (RP6252-BV/RIL/170) recorded higher yields under optimal and sub optimal N doses confirming their high nitrogen use efficiency (NUE).

Plant Physiology

- ✓ Silicon application reduced the yield loss caused by water stress. Genotypes 27P63, DRR-Dhan-48 & Sahabhagidhan show increase in grain yield by silicon.
- ✓ Based on performance under rainfed condition & drought indices and stability analysis IL-19206, Krishna Hamsa, IL-19204, IL-19185, IL-19198, IL-19181 , IL-19347, IL-19096 and IL-19279 could be identified as relatively tolerant to drought and suitable for rainfed cultivation
- ✓ Genotypes CO-1, IET-29948, IET-29942 and IET-29938, IET-29950 & IET-29946, IET29940, IET29949, IET29952 and IET29960 were identified as heat tolerant.
- ✓ Under multiple abiotic stress trial, only CR-2862-IC-10 was tolerant to all the abiotic stresses. while IET-27051, Dular were tolerant to both AG and osmotic stresses and AC43037 was tolerant to salinity and osmotic stresses.

Plant Pathology

- ✓ The entries that are showing resistance to more than two diseases viz., IET # 30253; 29838, 28907, 29651, 29753, 29721, 29747, 29752, 29751 may be used in resistance breeding programme by AICRIP partners.
- ✓ Fungicides *viz*., kitazin 48% EC (1.0 ml/L) found effective in minimizing the leaf blast and isoprothiolane 40% EC (1.5 ml/L) found effective in minimizing the Leaf and Neck blast. Tebuconazole 25.9% EC (1.5 ml/L) showed broad spectrum activity against sheath blight, sheath rot, brown spot and blast in reducing the diseases. These fungicides can be used for the management.

Entomology

- ✓ HWR-1-IR83784-5-28-B, HWR-15-IR 75870-5- 8-5-B-5-B, and one land race PTB 21 are the new sources of resistance to brown planthopper. KNM 7660 i.e.) tolerant to both BPH and WBPH.
- ✓ ENTGP 2018-178, INRC 17470 and WGL 21 had exhibited consistent resistant reaction to gall midge to gall midge populations and can serve as new source of resistance to gall midge.

- ✓ WGL 1062, RP 5587-B-B-B-273-1, NND5, NND2, RP 5588, HWR 17, RP 5588-B-B-B-B-223, BK 64-116 and RP 2068-18-3-5 exhibited tolerance to stem borer damage in two years of testing.
- ✓ BPT 2699, NWGR 15028, BPT 3059 and BPT 3034 were found promising against rice leaf folder, *Cnaphalocrocis medinalis* in both the years of testing across 6-8 locations.
- ✓ Slow release pheromone blends of yellow stem borer, leaf folder and ear cutting caterpillar had more adult trap catches compared to normal blends.

****

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, Badarva, Larnoo (6)
Himachal Pradesh	Malan (1)	Palampur, Dhaulakhan, Sundernagar, Bajaura, Bhertin (5)
Uttarakhand		Almora, Bageshwar, (2)
North Eastern Hills		
Manipur	Wangbal (1)	Imphal-CAU, Lamphalpat, (2)
Nagaland	Kohima (1)	Mediziphema (1)
Meghalaya	Upper Shillong (1)	ICAR-Umiam, CAU-Umiam (2)
Sikkim		Gangtok (1)
Southern Hills		
Karnataka	Ponnampet (1)	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, Palwal, Anjanitel, Panipat (7)
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 (1)
West Bengal	Bankura, Chinsurah (2)	Canning, Pundibari, Chakdha, Hathwara, (4)
Uttar Pradesh	Masodha ,Ghaghraghat, Varanasi (3)	Lucknow, BEDF-Modipuram, Gautam Budha Nagar, SVPUAT, Meerut (4)
ZONE IV – NORTH EASTERN		
Assam	Titabar (1)	Gerua, Karimganj, Shillongani (3)
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, Phondaghat, Vadagaon, Parbhani, Palghar (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 (4)
Tamil Nadu	Aduthurai, Coimbatore (2)	Trichy, Annamalainagar, Tirur, Gudaluru (4)
Kerala	Moncompu, Pattambi (2)	Vyttila (1)
Karnataka	Mandya, Mugad, Ponnampet, Brahmavar, Gangavati (5)	Sirsi, Malagi, Kumta (4)
Puducherry	Kurumbapet (1)	Karaikal (1)
Total locations	**45**	**86**

Underline :ICAR Institutions

Appendix-2

List of Coordinated Trials, Kharif 2022

Centre:

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

Appendix 3 a

Seed Requirement for New Nominations, Kharif 2022

Trials		Quantity
Early, Mid-early, Medium, Late , Medium Slender Grain , Biofortification,	:	12 Kg
Aerobic, Aromatic Short Grain, Shallow Water, Saline/Alkaline, Boro, Basmati, Near Isogenic Lines, Semi-deep, deep water.	:	10 kg
Hills, Boro, Phosphorus, Nirogen,	:	6 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 2022*

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 – 2023

1.	For entries which have been tested for 3 years	:	Last date of receipt: **31st December, 2022**
2.	For entries which are in 3rd year (final) of testing.	:	Last date of receipt: **10th March, 2023**
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 2022

1.	For those which are identified by VIC	:	Latest by 30th May, 2022
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 & Farmers 'Welfare, Govt. of India, Seed Division Room No. 116, B, Shastri Bhawan, Rajendra Prasad Road, **NEW DELHI-110001** 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 CropVarieties/ Hybrids at workshops/State Varietal Identification Committee meetings

Content

S. No. Item

Summary of the Proposal (in bullets only)

Proforma for Submission of Proposal forIdentificationof Crop Varieties/ Hybridsat 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 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 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 and 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:

Sl.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

S No Item

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 and 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								

		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
		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 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 2022

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, 2021 (AS PER DAC INDENT)

S. No.	Centre Name	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)
1	CRURRS, Hazaribagh (NRRI, Cuttack)	Abhishek (IET - 17868) (RR-272-829)	0.05	1.92	1.87
		SAHBHAGI (Sahbhagi Dhan IET-19576)	75.65	167.70	92.05
		Total	**75.70**	**169.62**	**93.92**
2	TNRRI, Aduthurai (TNAU, Coimbatore)	ADT-37	1.10	1.10	0.00
		ADT-39	1.10	1.10	0.00
		ADT-45	0.10	0.10	0.00
		ADT (R)-46	0.10	0.10	0.00
		ADT-51 (IET 23617)	1.85	1.85	0.00
		ADT-53 (IET 23955)	0.95	0.95	0.00
		Total	**5.20**	**5.20**	**0.00**
3	RRS, Chinsurah (Govt. of WB)	Ajit	7.60	5.00	-2.60
		Muktashree (IET 21845)	2.70	1.95	-0.75
		Rajdeep (CN 1039-9) (IET 17713)	0.65	1.70	1.05
		Sabita (IET-8970)	2.00	2.48	0.48
		Sukumar (IET 21261)	5.80	0.00	-5.80
		Shatabdi (IET-4786)	28.20	5.59	-22.61
		Sujala (CNR-2) (IET 20235)	1.10	1.60	0.50
		Bidhan Suruchi (IET 25701)	3.10	0.00	-3.10
		Chinsurah Nona - 2 (Gosaba- 6) (IET-21943)	1.00	1.28	0.28
		Chinsurah Rice (IET 19140)(CNI 383-5-11) (Kaushalya)	1.00	1.00	0.00
		CN1272-55-105 (IET- 19886) (Kanak)	0.50	2.50	2.00
		Khitish (IET-4094)	3.00	3.90	0.90
		BNKR-1 (Dhiren) (IET 20760) (PY-84)(IET 19848)	3.20	1.85	-1.35
		Total	**59.85**	**28.85**	**-31.00**
4	ANGRAU, Guntur	Amara (MTU-1064)	5.60	5.60	0.00
		Bharani (NLR 30491)	1.00	1.00	0.00
		BPT 5204	42.80	42.80	0.00
		BPT-3291 (Sonamasuri)	4.00	4.00	0.00
		Chandra(IET 23409) (MTU-1153)	86.90	86.90	0.00
		Cottondora Sannalu (MTU-1010)	164.60	164.60	0.00
		Maruteru Sannalu (MTU-1006, IET-14348)	1.00	1.00	0.00
		MTU 1001 (Vijetha)	55.30	55.30	0.00
		MTU 1075 (IET 18482)	8.50	8.55	0.05
		Varam (MTU 1190)	1.50	1.50	0.00
		MTU 1223	17.80	17.80	0.00
		MTU 1239	16.70	16.70	0.00
		MTU 1140 (Bheema)	11.10	11.10	0.00
		MTU 1156 (Tarangini)	103.50	103.50	0.00
		MTU-1061	6.20	6.20	0.00
		MTU-1121(Sri Dhruthi)	32.85	32.85	0.00
		Ksheera (MTU 1172)	1.70	1.70	0.00
		MTU-1210	9.00	9.00	0.00
		MTU-1224	8.50	8.50	0.00
		MTU-1262	7.50	7.50	0.00
		MTU-7029	130.80	130.80	0.00
		Nellore Dhyanyarasi (NLR- 3354)	1.00	1.00	0.00

S. No.	Centre Name	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)
		NLR-4001	1.00	1.00	0.00
		NDLR-7	2.10	2.10	0.00
		Nellore Mahsuri (NLR- 34449)	7.10	7.10	0.00
		Pardhiva (NLR - 33892)	1.00	1.00	0.00
		RGL 2537	9.00	9.00	0.00
		Total	**738.05**	**738.10**	**0.05**
5	NRRI, Cuttack	Ankit	9.20	9.20	0.00
		Annada	1.50	1.50	0.00
		CR Dhan 201 (IET 21924)	0.65	0.65	0.00
		CR Dhan 202 (IET 21917	0.80	0.80	0.00
		CR Dhan 300 (CR2301-5) (IET 19816)	0.30	0.30	0.00
		CR Dhan 303 (CR 2649-7)(IET 21589	0.10	0.10	0.00
		CR Dhan 304 (IET 22117)	0.40	0.40	0.00
		CR Dhan 305 (IET 21287	7.69	7.70	0.01
		CR Dhan 306	1.00	1.00	0.00
		CR Dhan 315	3.00	3.00	0.00
		CR Dhan 311 (MUKUL)	25.51	25.60	0.09
		CR Dhan 401(REETA) (IET 19969)	0.50	0.00	-0.50
		CR Dhan 505 (IET 21719)	0.20	1.00	0.80
		CR Dhan 510 (IET 23895)	0.60	0.70	0.10
		CR Dhan 511	0.60	0.80	0.20
		CR Dhan 601(IET 18558)	4.60	4.60	0.00
		CR Dhan 701 (IET 20852)(CRHR32)	0.02	0.02	0.00
		ÇR Dhan 800 (SWARNA- MAS)	25.00	26.40	1.40
		CR Dhan 801 (IET-25667)	5.05	11.20	6.15
		CR Dhan 802 (Subhar)	11.50	4.55	-6.95
		CR Dhan-203	16.15	16.15	0.00
		CR Dhan-307	2.10	0.80	-1.30
		CR Dhan-309	1.00	1.00	0.00
		CR Dhan-310	70.60	70.60	0.00
		CR Dhan-407	0.30	1.60	1.30
		CR Dhan-409	1.50	9.50	8.00
		CR Dhan-508	1.70	3.00	1.30
		CR Sugandh Dhan 907 (IET 21044) (CR2616- 3- 3-3-1)	10.00	0.25	-9.75
		CR-1009	2.00	3.00	1.00
		CR-1009 SUB-1	49.75	39.00	-10.75
		CR Dhan-102 (IET 26121)	1.52	1.60	0.08
		CR Dhan-210 (IET 23449)	1.50	1.50	0.00
		CR Dhan-308 (IET 25523)	1.50	1.50	0.00
		CR Dhan 312 CR 3808-13 (IET 25997)	1.50	4.00	2.50
		CR Dhan 602 (IET 26692)	3.55	3.60	0.05
		Geetanjali (CRM-2007-1) (IET-17276)	1.00	1.00	0.00
		LunaSampad (IET 19470)	1.50	0.15	-1.35
		LunaSuwarna (IET 18697)	1.50	0.15	-1.35
		Luni Sree	0.50	0.80	0.30
		Naveen (CR-749-20-2) (IET-14461)	4.20	4.20	0.00
		Pooja (IET-12241)	0.10	48.40	48.30
		Samba Sub-1 (IET 21248)	23.30	4.06	-19.24
		CR Sugandh Dhan-908 (IET-23189)	1.92	2.00	0.08
		Swarana-Sub 1 (CR2539-1) IET-20266	79.50	78.00	-1.50
		Varshadhan (CRLC-899)(IET-16481)	1.50	4.50	3.00
		Improved Lalat	17.35	9.28	-8.07
		Total	**395.26**	**409.16**	**13.90**

S. No.	Centre Name	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)
6	OUAT, Bhubaneswar	Ashuthosh	1.50	1.50	0.00
		Gobinda (OR 2324-8)	1.50	1.50	0.00
		Hasanta	4.70	4.70	0.00
		Kalachampa	45.00	28.00	-17.00
		Lalat (IET-9947)	1.00	1.00	0.00
		Mandakini (OR 2077-4) (IET 17847)	6.20	6.20	0.00
		Mrunalini (OR 1898-18) (IET 18649)	3.00	3.00	0.00
		Parijat (IET-2684)	1.00	1.00	0.00
		Pradeep (IET 20923)	0.10	0.10	0.00
		Pratibha (OR 2172-7) (IET 21582)	1.50	1.50	0.00
		Pratikshya (ORS 201-5) (IET-15191)	19.10	19.10	0.00
		Rani Dhan (IET-19148)	4.00	4.00	0.00
		Total	**88.60**	**71.60**	**-17.00**
7	RARS, Pattambi	Athira (PBT-51)	0.30	1.00	0.70
		Jyothi	10.50	23.21	12.71
		Total	**10.80**	**24.21**	**13.41**
8	PRDF Gorakhpur, Uttar Pradesh	KN3 (Kalanamak)	0.10	0.10	0.00
		Total	**0.10**	**0.10**	**0.00**
9	IGKV, Raipur	Bhadshabhhog Selection-1	25.40	26.60	1.20
		CG Madhuraj Dhan-55	30.00	46.20	16.20
		Chhattisgarh Devbhog	30.00	42.90	12.90
		Chhattisgarh Zinc Rice -1	30.00	32.10	2.10
		Chhattisgarh Zinc Rice-2	30.00	31.20	1.20
		DUBRAJ SELECTION-1	30.50	39.90	9.40
		IGKVR-1 (IET 19569)	63.30	73.50	10.20
		IGKVR-2 (IET 19795)	10.00	12.00	2.00
		Indira Aerobic- 1 (R1570-2649-1-1546-1) (IET 21686)	50.00	58.20	8.20
		Indira Barani Dhan-1 (RF-17-38-70)(IET 21205)	22.00	25.20	3.20
		IR-36	2.60	17.10	14.50
		IR-64	33.10	45.60	12.50
		Mahamaya (IET-10749)	80.00	96.60	16.60
		Maheswari (IGRKVR- 1244) (R 12244-1246-1-605-1) (IET 19796)	15.00	15.00	0.00
		Samaridhi (R-2384)	1.20	0.00	-1.20
		Tarun Bhog Selection-1	30.00	45.20	15.20
		Trombey Chattisgarh Dubraj Mutent-1	30.00	37.20	7.20
		Vishnubhog Selection- 1	25.20	39.60	14.40
		Zinco Rice MS	50.00	63.30	13.30
		Total	**588.30**	**747.40**	**159.10**
10	IIRR, Hyderabad	Kasturi (IET-8580)	5.00	3.20	-1.80
		BRRIDhan 69	0.10	0.50	0.40
		BRRI Dhan-75 (HUA 565)	4.20	5.00	0.80
		BINA Dhan-10	0.30	0.00	-0.30
		BINA Dhan-11 (Cinerang Sub-1)	31.70	23.50	-8.20
		BINA Dhan-8	0.10	0.00	-0.10
		BINA Dhan-17	9.90	5.40	-4.50
		DRR Dhan 50 (IET 25671) (Drt Tolerent)	21.00	22.00	1.00
		DRR Dhan-45 (IET 23832)	12.20	13.00	0.80
		DRR Dhan-53	11.00	9.00	-2.00
		DRR Dhan-39 (Jagjeevan (IET-19487) RP-4631-46-6- 5-1-1-1)	11.05	7.00	-4.05
		DRR Dhan-42 (IR-64 Drt- 1) (RP 5208 - IR-87707-445-B-B)	123.74	125.00	1.26

S. No.	Centre Name	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)
		DRR Dhan-43	11.20	6.90	-4.30
		DRR Dhan-44	41.20	25.00	-16.20
		DRR Dhan-46	5.70	4.50	-1.20
		DRR Dhan-48	1.20	1.50	0.30
		DRR Dhan-49	0.10	0.50	0.40
		DRR Dhan-51	20.00	20.00	0.00
		DRR Dhan-56	1.50	0.00	-1.50
		Improved Samba Mahsuri	1.00	2.00	1.00
		Jaya	14.65	15.00	0.35
		Total	**326.84**	**289.00**	**-37.84**
11	RARS, Titabar (AAU, Jorhat)	Bahadur Sub-1	15.32	16.30	0.98
		Kanaklata (TTB-103-3- 1) (MGD-103)	0.60	1.20	0.60
		Ranjeet (IET - 12554)	1.70	6.70	5.00
		Ranjit Sub -1	32.40	34.50	2.10
		Disang [Dehangi) (IC-574471)]	2.00	4.80	2.80
		Luit	2.00	5.00	3.00
		Total	**54.02**	**68.50**	**14.48**
12	ARS, Kaul (CCSHAU, Hisar)	Basmati-370	11.50	11.50	0.00
		HKR-127 (HKR-95-222)	4.64	5.00	0.36
		HKR-47	0.43	1.00	0.57
		HKR-48	0.10	0.10	0.00
		Total	**16.67**	**17.60**	**0.93**
13	MPKV, Rahuri (ARS, Rathnagiri)	Bhogavati	0.60	2.90	2.30
		Total	**0.60**	**2.90**	**2.30**
14	BAU, Ranchi	Birsa Vikas Dhan – 111 (IET 19848) (PY - 84)	2.10	2.50	0.40
		Birsa Vikas Dhan - 203	2.10	3.25	1.15
		Birsa Vikas Sugandha-1 (IET 18941)	5.00	5.50	0.50
		Total	**9.20**	**11.25**	**2.05**
15	ZARS, Mandya (UAS, Bangalore)	BR-2655	0.70	4.00	3.30
		Total	**0.70**	**4.00**	**3.30**
16	TNAU, Coimbatore	CO 51	33.23	33.23	0.00
		Rice VGD 1	0.10	0.10	0.00
		TM-07278	0.10	0.10	0.00
		TKM 13	0.30	0.30	0.00
		Total	**33.73**	**33.73**	**0.00**
17	CSSRI, Karnal	CSR 56 (IET24537)	2.00	2.45	0.45
		CSR 60 (IET 25378)	5.00	5.60	0.60
		CSR-30	0.08	2.70	2.62
		CSR-36 (Naina) (IET- 17340)	1.00	1.23	0.23
		CSR-43	1.90	2.80	0.90
		Total	**9.98**	**14.78**	**4.80**
18	RRS, Bankura	Dhruba (IET-20761)	4.05	4.05	0.00
		Pushpa (IET 17509)	2.35	1.05	-1.30
		Sampriti (BNKR-B12) (IET-21987)	2.00	2.10	0.10
		Total	**8.40**	**7.20**	**-1.20**
19	PJTSAU, Hyderabad	Erra Mallelu (WGL- 20471)	1.00	1.50	0.50
		JGL-1798	0.40	1.00	0.60
		JGL-18047 (Bathukamma)	9.02	10.00	0.98
		JGL-24423	5.00	10.00	5.00
		JGL-17004	1.20	1.20	0.00
		JGL-11727	0.90	1.00	0.10
		JGL 11118 (Anjana)	1.30	1.30	0.00
		KNM-118	28.90	30.00	1.10

S. No.	Centre Name	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)
		RNR-15048 (Telangana Sona)	43.30	50.00	6.70
		Krishna (RNR-2458)	0.10	0.20	0.10
		Shobhini (RNR-2354) (IET- 21260)	0.30	0.50	0.20
		Sugandha Samba (RNR- 2465)	0.02	0.10	0.08
		Somnath (WGL-347)	0.10	0.50	0.40
		Tellahamsa	1.00	1.00	0.00
		Telangana Vari-1 (IET25330) (WGL-739)	1.10	1.50	0.40
		WGL-915	1.50	2.00	0.50
		Total	**95.14**	**111.80**	**16.66**
20	UAS, Raichur (ARS, Gangavati)	Gangavati Sona (GGV-05- 01)	0.70	2.50	1.80
		GNV-1089	0.75	1.75	1.00
		Gangavati Ageti (IET-19251)	0.75	1.25	0.50
		Total	**2.20**	**5.50**	**3.30**
21	AAU, Anand (GAU, Nawagam)	GAR-1 (IET 21276)	2.10	1.50	-0.60
		GAR-14	0.50	0.50	0.00
		Mahisagar (IET 22100)	0.50	0.50	0.00
		Total	**3.10**	**2.50**	**-0.60**
22	Chatha J & K (SKUAST, Jammu)	GIZA-14	6.00	1.50	-4.50
		SJR-5(IET-19972)	15.00	1.50	-13.50
		Total	**21.00**	**3.00**	**-18.00**
23	ICAR RC NEH Tripura Centre	Gomati Dhan TRC-2005-1 (TRC-05-8-4-42-8-3-7) IET 21512	0.10	0.10	0.00
		Tripura Hakuchuk-2	0.50	0.50	0.00
		Tripura Hakuchuk-1	0.50	0.50	0.00
		TRC 2008-1 (IET22167)Tripura Jala	0.10	0.10	0.00
		Tripura Khara 2 (IET 22835)	0.20	0.20	0.00
		Total	**1.40**	**1.40**	**0.00**
24	BCKV, Nadia	Gontra Bidhan-1 (IET 17430)	6.20	21.30	15.10
		Gontra Bindhan-3 (IET 22752)	20.25	22.10	1.85
		Total	**26.45**	**43.40**	**16.95**
25	RWRS, Malan (CSKHPKV, Palampur)	HPR 2143	10.00	11.50	1.50
		HPR-2656	15.00	16.50	1.50
		HPR-2795	10.00	15.45	5.45
		HPR-2880	10.00	15.00	5.00
		Sukha Dhan-5	0.10	1.00	0.90
		Total	**45.10**	**59.45**	**14.35**
26	BHU, Varanasi	HUR-917	2.50	14.00	11.50
		Total	**2.50**	**14.00**	**11.50**
27	ARS, Mugad	IET- 24451	0.25	0.00	-0.25
		KMD-2 (Abhilash)	0.75	2.00	1.25
		Intan	0.50	2.00	1.50
		Total	**1.50**	**4.00**	**2.50**
28	IARI-RS, Karnal	Improved Pusa Basmati-1 (IET - 18990) (PUSA 1460-01-32-6-7-67)	0.10	0.10	0.00
		Pusa Basmati-1(IET 10364)	0.08	10.00	9.92
		Pusa Basmati 1637 (IET 24570)	14.68	14.68	0.00
		Pusa Basmati 1728	6.00	9.00	3.00
		Pusa Basmati-1718 (IET 24565)	62.03	26.00	-36.03
		Pusa Basmati-6 (PUSA 1401) (IET 18005)	21.22	22.00	0.78
		Pusa Basmati 1692 (IET 26995)	20.98	22.00	1.02
		Pusa-44	0.08	0.08	0.00
		Total	**125.17**	**103.86**	**-21.31**
29	IARI, New Delhi	Pusa-2511	0.05	0.00	-0.05

S. No.	Centre Name	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)
		Pusa Sugandh-5 (IET- 17021)	15.00	0.00	-15.00
		Total	**15.05**	**0.00**	**-15.05**
30	JNKVV, Jabalpur	Improved Chinnor	7.60	13.50	5.90
		Improved Jeera Shankar	13.10	18.00	4.90
		JR 767	16.50	27.82	11.32
		JR-81	45.00	128.48	83.48
		JR-206	34.00	90.00	56.00
		JRB-1	25.00	90.00	65.00
		Kranti (R-2022)	0.60	50.00	49.40
		Rashmi(JR-201)	7.50	6.21	-1.29
		Total	**149.30**	**424.01**	**274.71**
31	ARS, Vadagon (MPKV, Rahuri)	Indrayani (IET - 12897)	24.00	70.00	46.00
		Total	**24.00**	**70.00**	**46.00**
32	NDUAT, Faizabad	IR-64 Sub-1 (IET 21247)	9.50	1.50	-8.00
		Narendra Dhan-97	0.05	28.00	27.95
		Sarjoo-52	1.10	160.40	159.30
		NDR 9930111	3.00	1.80	-1.20
		Total	**13.65**	**191.70**	**178.05**
33	Khudwani, J & K (SKUAST, Srinagar)	K 39	3.00	3.00	0.00
		K-448	3.00	3.00	0.00
		Shalimar Rice -2	3.60	3.60	0.00
		Total	**9.60**	**9.60**	**0.00**
34	UAHS, Shivamogga, Karnataka	KKP-5 (IET 24250)	2.10	2.10	0.00
		KHP-11	0.25	0.25	0.00
		KHP-13	0.50	0.50	0.00
		KPR-1	0.25	0.25	0.00
		Sahyadri Megha	1.25	1.00	-0.25
		Sahyadri Panchamuk	0.50	0.50	0.00
		Tunga (IET-13901)	5.85	5.85	0.00
		Total	**10.70**	**10.45**	**-0.25**
35	RARS, Karjat (BSKKV, Dapoli)	Karjat-3	3.50	4.50	1.00
		Karjat-5	1.20	1.65	0.45
		Karjat-7	2.00	5.00	3.00
		Karjat-8	0.92	1.50	0.58
		Karjat-9	1.00	2.00	1.00
		Total	**8.62**	**14.65**	**6.03**
36	Arundhutinagar, Tripura	Khowai TRC-2005-3 (TRC- 05-2-6-4-39-3-6) IET 21564	0.10	0.00	-0.10
		Total	**0.10**	**0.00**	**-0.10**
37	RRS, Moncompu (KAU, Thrissur)	MO 21 (Pratiksha)	1.00	4.35	3.35
		Bhadra (MO-4)	2.75	2.75	0.00
		Uma (MO-16)	27.25	28.00	0.75
		Total	**31.00**	**35.10**	**4.10**
38	GBPUAT, Pantnagar	Pant Dhan-18 (IET17920) (UPRI 99-1)	1.00	6.00	5.00
		Pant Dhan-24	11.20	40.00	28.80
		Pant Dhan-26	0.30	6.00	5.70
		Total	**12.50**	**52.00**	**39.50**
39	ARS, Sindewahi (PDKV, Akola)	PDKV Tilak (SYE-503-78- 34-2)	1.60	20.00	18.40
		PKV HMT	43.20	43.20	0.00
		PKV Kisan	1.60	10.00	8.40
		Sakoli-9	0.30	15.00	14.70
		Total	**46.70**	**88.20**	**41.50**
40	PAU, Ludhiana	PR 121	39.29	45.00	5.71
		PR 122	14.58	15.00	0.42

S. No.	Centre Name	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)
		PR 127	4.94	5.00	0.06
		PR-113	3.38	6.00	2.62
		PR-114	0.72	4.00	3.28
		PR-124	3.84	6.00	2.16
		PR-126	55.14	60.00	4.86
		PR-128	0.44	3.00	2.56
		PR-129	0.28	3.00	2.72
		Punjab Basmati 4	0.04	0.10	0.06
		Punjab Basmati 5	0.04	0.10	0.06
		Total	**122.69**	**147.20**	**24.51**
41	BEDF, New Delhi	Pusa - 1121 (Pusa Sugandh-4)	12.12	0.00	-12.12
		Pusa Basmati-1509 (IET 21960) (Pusa 1509-03-3-9-5)	106.23	0.00	-106.23
		Total	**118.35**	**0.00**	**-118.35**
42	RPCAU, Pusa	Rajendra Bhagvati	14.95	27.00	12.05
		Rajendra Kasturi	13.00	12.16	-0.84
		Rajendra Sweta	20.95	20.70	-0.25
		Rajendra Neelam	30.00	29.88	-0.12
		Rajshree (TCA-80-4) (IET 7970)	0.05	5.00	4.95
		Total	**78.95**	**94.74**	**15.79**
43	ARS, Shirgoan (BSKKV, Dapoli)	Ratnagiri-6	1.00	2.00	1.00
		Ratnagiri-7	0.60	1.00	0.40
		RTN-5	2.00	2.50	0.50
		RTN-8	0.30	2.00	1.70
		Total	**3.90**	**7.50**	**3.60**
44	BAU, Sabour	Sabour Shree (RAU 724- 48-33) (IET 18878)	60.60	78.00	17.40
		Sabour Deep	35.00	40.00	5.00
		Sabour Harshit Dhan (IET25342)	0.10	8.00	7.90
		Sabour Sampann	20.00	25.00	5.00
		Sabour Surbhit	10.00	14.00	4.00
		Total	**125.70**	**165.00**	**39.30**
45	ICAR RCER Patna, Bihar	Swarna Samridhi	15.00	35.40	20.40
		Swarna Shakti Dhan (IET 25640)	10.00	24.90	14.90
		Swarna Shreya	24.50	38.50	14.00
		Total	**49.50**	**98.80**	**49.30**
46	SHIATS, Prayagraj	Shiats Dhan -1 (AAIR 2) (IET 20928)	2.50	0.00	-2.50
		Shiats Dhan 5	2.00	0.00	-2.00
		Shiats Dhan-4	12.00	0.00	-12.00
		Total	**16.50**	**0.00**	**-16.50**
47	ZARS, Mandya (UAS, Bangalore)	Thanu	2.10	4.00	1.90
		Total	**2.10**	**4.00**	**1.90**
48	UBKV, Pundibari	Uttar Sona (UBKVR-1) (IET-24171)	2.70	18.00	15.30
		Uttar Lakshmi (UBKVR-15) (IET 24173)	2.10	12.00	9.90
		Total	**4.80**	**30.00**	**25.20**
49	VPKAS, Almora	VL Dhan 157 (VL 31611)(IET 22292)	2.50	1.00	-1.50
		VL Dhan 68 (VL 31611) (IET 22283)	3.00	3.00	0.00
		VL Dhan 85 (IET-16455) (VL-3613)	0.60	1.50	0.90
		VL 88	3.00	5.50	2.50
		Total	**9.10**	**11.00**	**1.90**
		Total(A)	**3598.37**	**4446.06**	**847.69**

Hybrids/Parental lines

S. No.	Centre Name	Hybrid/Parental Lines	Allocation(q)	Production (q)	Surplus/ deficit (q)
1	UAS, Bengaluru	KRH 2 A-line	0.10	**0.50**	**0.40**
		KRH 2 B-line	0.10	**0.50**	**0.40**
		KRH 2 R-line	0.10	**2.00**	**1.90**
		TOTAL (B)	**0.30**	**3.00**	**2.70**
	Grand Total		**3598.67**	**4449.06**	**850.39**

***Appendix*-11**

VARIETY WISE BREEDER SEED PRODUCTION DURING KHARIF, 2021 (AS PER DAC INDENT)

S. No.	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)	Centre Name
1	Abhishek (IET - 17868) (RR-272-829)	0.05	1.92	1.87	CRURRS, Hazaribagh
2	ADT (R)-46	0.10	0.10	0.00	TNRRI, Aduthurai
3	ADT-37	1.10	1.10	0.00	TNRRI, Aduthurai
4	ADT-39	1.10	1.10	0.00	TNRRI, Aduthurai
5	ADT-45	0.10	0.10	0.00	TNRRI, Aduthurai
6	ADT-51 (IET 23617)	1.85	1.85	0.00	TNRRI, Aduthurai
7	ADT-53 (IET 23955)	0.95	0.95	0.00	TNRRI, Aduthurai
8	Ajit	7.60	5.00	-2.60	RRS, Chinsurah
9	Amara (MTU-1064)	5.60	5.60	0.00	ANGRAU, Guntur
10	Ankit	9.20	9.20	0.00	NRRI, Cuttack
11	Annada	1.50	1.50	0.00	NRRI, Cuttack
12	Ashuthosh	1.50	1.50	0.00	OUAT, Bhubaneswar
13	Athira (PBT-51)	0.30	1.00	0.70	RARS, Pattambi
14	BahadurSub-1	15.32	16.30	0.98	RARS, Titabar
15	Basmati-370	11.50	11.50	0.00	ARS, Kaul
16	Bhadra (MO-4)	2.75	2.75	0.00	RRS, Moncompu
17	Bhadshabhhog Selection-1	25.40	26.60	1.20	IGKV, Raipur
18	Bharani (NLR 30491)	1.00	1.00	0.00	ANGRAU, Guntur
19	Bhogavati	0.60	2.90	2.30	MPKV, Rahuri
20	Bidhan Suruchi (IET 25701)	3.10	0.00	-3.10	RRS, Chinsurah
21	Bina Dhan-10	0.30	0.00	-0.30	IIRR, Hyderabad
22	Bina Dhan-11 (Cinerang Sub-1)	31.70	23.50	-8.20	IIRR, Hyderabad
23	Bina Dhan-8	0.10	0.00	-0.10	IIRR, Hyderabad
24	Binadhan-17	9.90	5.40	-4.50	IIRR, Hyderabad
25	Birsa Vikas Dhan – 111 (IET 19848) (PY - 84)	2.10	2.50	0.40	BAU, Ranchi
26	Birsa Vikas Dhan - 203	2.10	3.25	1.15	BAU, Ranchi
27	Birsa Vikas Sugandha-1 (IET 18941)	5.00	5.50	0.50	BAU, Ranchi
28	BNKR-1 (Dhiren) (IET 20760) (PY-84)(IET 19848)	3.20	1.85	-1.35	RRS, Chinsurah
29	BPT 5204	42.80	42.80	0.00	ANGRAU, Guntur

S. No.	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)	Centre Name
30	BPT-3291 (Sonamasuri)	4.00	4.00	0.00	ANGRAU, Guntur
31	BR-2655	0.70	4.00	3.30	ZARS, Mandya
32	BRRI Dhan-75 (HUA 565)	4.20	5.00	0.80	IIRR, Hyderabad
33	BRRIDhan 69	0.10	0.50	0.40	IIRR, Hyderabad
34	CG Madhuraj Dhan-55	30.00	46.20	16.20	IGKV, Raipur
35	Chandra (IET 23409) (MTU-1153)	86.90	86.90	0.00	ANGRAU, Guntur
36	Chhattisgarh Devbhog	30.00	42.90	12.90	IGKV, Raipur
37	Chhattisgarh Zinc Rice -1	30.00	32.10	2.10	IGKV, Raipur
38	Chhattisgarh Zinc Rice-2	30.00	31.20	1.20	IGKV, Raipur
39	Chinsurah Nona - 2 (Gosaba- 6) (IET-21943)	1.00	1.28	0.28	RRS, Chinsurah
40	Chinsurah Rice (IET 19140)(CNI 383-5-11) (Kaushalya)	1.00	1.00	0.00	RRS, Chinsurah
41	CN1272-55-105 (IET- 19886) (Kanak)	0.50	2.50	2.00	RRS, Chinsurah
42	CO 51	33.23	33.23	0.00	TNAU, Coimbatore
43	Cottondora Sannalu (MTU-1010)	164.60	164.60	0.00	ANGRAU, Guntur
44	CR Dhan 201 (IET 21924)	0.65	0.65	0.00	NRRI, Cuttack
45	CR Dhan 202 (IET 21917	0.80	0.80	0.00	NRRI, Cuttack
46	CR Dhan 300 (CR2301-5) (IET 19816)	0.30	0.30	0.00	NRRI, Cuttack
47	CR Dhan 303 (CR 2649-7)(IET 21589	0.10	0.10	0.00	NRRI, Cuttack
48	CR Dhan 304 (IET 22117)	0.40	0.40	0.00	NRRI, Cuttack
49	CR Dhan 305 (IET 21287	7.69	7.70	0.01	NRRI, Cuttack
50	CR Dhan 306	1.00	1.00	0.00	NRRI, Cuttack
51	CR Dhan 311 (Mukul)	25.51	25.60	0.09	NRRI, Cuttack
52	CR Dhan 312 CR 3808-13 (IET 25997)	1.50	4.00	2.50	NRRI, Cuttack
53	CR Dhan 315	3.00	3.00	0.00	NRRI, Cuttack
54	CR Dhan 401(Reeta) (IET 19969)	0.50	0.00	-0.50	NRRI, Cuttack
55	CR Dhan 505 (IET 21719)	0.20	1.00	0.80	NRRI, Cuttack
56	CR Dhan 510 (IET 23895)	0.60	0.70	0.10	NRRI, Cuttack
57	CR Dhan 511	0.60	0.80	0.20	NRRI, Cuttack
58	CR Dhan 601(IET 18558)	4.60	4.60	0.00	NRRI, Cuttack
59	CR Dhan 602 (IET 26692)	3.55	3.60	0.05	NRRI, Cuttack
60	CR Dhan 701 (IET 20852) (CRHR32)	0.02	0.02	0.00	NRRI, Cuttack
61	ÇR Dhan 800 (Swarna- MAS)	25.00	26.40	1.40	NRRI, Cuttack
62	CR Dhan 801 (IET-25667)	5.05	11.20	6.15	NRRI, Cuttack
63	CR Dhan 802 (Subhar)	11.50	4.55	-6.95	NRRI, Cuttack
64	CR Dhan-102 (IET 26121)	1.52	1.60	0.08	NRRI, Cuttack
65	CR Dhan-203	16.15	16.15	0.00	NRRI, Cuttack
66	CR Dhan-210 (IET 23449)	1.50	1.50	0.00	NRRI, Cuttack
67	CR Dhan-307	2.10	0.80	-1.30	NRRI, Cuttack
68	CR Dhan-308 (IET 25523)	1.50	1.50	0.00	NRRI, Cuttack
69	CR Dhan-309	1.00	1.00	0.00	NRRI, Cuttack
70	CR Dhan-310	70.60	70.60	0.00	NRRI, Cuttack
71	CR Dhan-407	0.30	1.60	1.30	NRRI, Cuttack
72	CR Dhan-409	1.50	9.50	8.00	NRRI, Cuttack
73	CR Dhan-508	1.70	3.00	1.30	NRRI, Cuttack
74	CR Sugandh Dhan 907 (IET 21044) (CR2616- 3- 3-3-1)	10.00	0.25	-9.75	NRRI, Cuttack
75	CR Sugandh Dhan-908 (IET-23189)	1.92	2.00	0.08	NRRI, Cuttack
76	CR-1009	2.00	3.00	1.00	NRRI, Cuttack

S. No.	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)	Centre Name
77	CR-1009 SUB-1	49.75	39.00	-10.75	NRRI, Cuttack
78	CSR 56 (IET24537)	2.00	2.45	0.45	CSSRI, Karnal
79	CSR 60 (IET 25378)	5.00	5.60	0.60	CSSRI, Karnal
80	CSR-30	0.08	2.70	2.62	CSSRI, Karnal
81	CSR-36 (Naina) (IET- 17340)	1.00	1.23	0.23	CSSRI, Karnal
82	CSR-43	1.90	2.80	0.90	CSSRI, Karnal
83	Dhruba (IET-20761)	4.05	4.05	0.00	RRS, Bankura
84	Disang [Dehangi) (IC-574471)]	2.00	4.80	2.80	RARS, Titabar
85	DRR Dhan 50 (IET 25671) (DrtTolerent)	21.00	22.00	1.00	IIRR, Hyderabad
86	DRR Dhan-39 (Jagjeevan (IET-19487) RP-4631-46-6- 5-1-1-1)	11.05	7.00	-4.05	IIRR, Hyderabad
87	DRR Dhan-42 (IR-64 Drt- 1) (RP 5208 - IR-87707-445-B-B)	123.74	125.00	1.26	IIRR, Hyderabad
88	DRR Dhan-43	11.20	6.90	-4.30	IIRR, Hyderabad
89	DRR Dhan-44	41.20	25.00	-16.20	IIRR, Hyderabad
90	DRR Dhan-45 (IET 23832)	12.20	13.00	0.80	IIRR, Hyderabad
91	DRR Dhan-46	5.70	4.50	-1.20	IIRR, Hyderabad
92	DRR Dhan-48	1.20	1.50	0.30	IIRR, Hyderabad
93	DRR Dhan-49	0.10	0.50	0.40	IIRR, Hyderabad
94	DRR Dhan-51	20.00	20.00	0.00	IIRR, Hyderabad
95	DRR Dhan-53	11.00	9.00	-2.00	IIRR, Hyderabad
96	DRR Dhan-56	1.50	0.00	-1.50	IIRR, Hyderabad
97	Dubraj Selection-1	30.50	39.90	9.40	IGKV, Raipur
98	Erra Mallelu (WGL- 20471)	1.00	1.50	0.50	PJTSAU, Hyderabad
99	Gangavati Ageti (IET-19251)	0.75	1.25	0.50	UAS, Raichur
100	Gangavati Sona (GGV-05- 01)	0.70	2.50	1.80	UAS, Raichur
101	GAR-1 (IET 21276)	2.10	1.50	-0.60	AAU, Anand
102	GAR-14	0.50	0.50	0.00	AAU, Anand
103	GeetanjalI (CRM-2007-1) (IET-17276)	1.00	1.00	0.00	NRRI, Cuttack
104	GIZA-14	6.00	1.50	-4.50	Chatha J & K
105	GNV-1089	0.75	1.75	1.00	UAS, Raichur
106	Gobinda (OR 2324-8)	1.50	1.50	0.00	OUAT, Bhubaneswar
107	Gomati Dhan TRC-2005-1 (TRC-05-8-4-42-8-3-7) IET 21512	0.10	0.10	0.00	ICAR RC NEH Tripura Centre
108	Gontra Bidhan-1 (IET 17430)	6.20	21.30	15.10	BCKV, Nadia
109	Gontra Bindhan-3 (IET 22752)	20.25	22.10	1.85	BCKV, Nadia
110	Hasanta	4.70	4.70	0.00	OUAT, Bhubaneswar
111	HKR-127 (HKR-95-222)	4.64	5.00	0.36	ARS, Kaul
112	HKR-47	0.43	1.00	0.57	ARS, Kaul
113	HKR-48	0.10	0.10	0.00	ARS, Kaul
114	HPR 2143	10.00	11.50	1.50	RWRS, Malan
115	HPR-2656	15.00	16.50	1.50	RWRS, Malan
116	HPR-2795	10.00	15.45	5.45	RWRS, Malan
117	HPR-2880	10.00	15.00	5.00	RWRS, Malan
118	HUR-917	2.50	14.00	11.50	BHU, Varanasi
119	IET- 24451	0.25	0.00	-0.25	ARS, Mugad
120	IGKVR-1 (IET 19569)	63.30	73.50	10.20	IGKV, Raipur
121	IGKVR-2 (IET 19795)	10.00	12.00	2.00	IGKV, Raipur
122	Improved Chinnor	7.60	13.50	5.90	JNKVV, Jabalpur
123	Improved Jeera Shankar	13.10	18.00	4.90	JNKVV, Jabalpur
124	Improved Lalat	17.35	9.28	-8.07	NRRI, Cuttack
125	Improved Pusa Basmati-1 (IET - 18990) (PUSA 1460-01-32-6-7-67)	0.10	0.10	0.00	IARI-RS, Karnal

S. No.	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)	Centre Name
126	Improved Samba Mahsuri	1.00	2.00	1.00	IIRR, Hyderabad
127	Indira Aerobic- 1 (R1570-2649-1-1546-1) (IET 21686)	50.00	58.20	8.20	IGKV, Raipur
128	Indira Barani Dhan-1 (Rf-17-38-70) (Iet 21205)	22.00	25.20	3.20	IGKV, Raipur
129	Indrayani (IET - 12897)	24.00	70.00	46.00	ARS, Vadagon
130	Intan	0.50	2.00	1.50	ARS, Mugad
131	IR-36	2.60	17.10	14.50	IGKV, Raipur
132	IR-64	33.10	45.60	12.50	IGKV, Raipur
133	IR-64 Sub-1 (IET 21247)	9.50	1.50	-8.00	NDUAT, Faizabad
134	Jaya	14.65	15.00	0.35	IIRR, Hyderabad
135	JGL 11118 (Anjana)	1.30	1.30	0.00	PJTSAU, Hyderabad
136	JGL-11727	0.90	1.00	0.10	PJTSAU, Hyderabad
137	JGL-17004	1.20	1.20	0.00	PJTSAU, Hyderabad
138	JGL-1798	0.40	1.00	0.60	PJTSAU, Hyderabad
139	JGL-18047 (Bathukamma)	9.02	10.00	0.98	PJTSAU, Hyderabad
140	JGL-24423	5.00	10.00	5.00	PJTSAU, Hyderabad
141	JR 767	16.50	27.82	11.32	JNKVV, Jabalpur
142	JR-206	34.00	90.00	56.00	JNKVV, Jabalpur
143	JR-81	45.00	128.48	83.48	JNKVV, Jabalpur
144	JRB-1	25.00	90.00	65.00	JNKVV, Jabalpur
145	Jyothi	10.50	23.21	12.71	RARS, Pattambi
146	K 39	3.00	3.00	0.00	Khudwani, J & K
147	K-448	3.00	3.00	0.00	Khudwani, J & K
148	Kalachampa	45.00	28.00	-17.00	OUAT, Bhubaneswar
149	Kanaklata (TTB-103-3- 1) (MGD-103)	0.60	1.20	0.60	RARS, Titabar
150	Karjat-3	3.50	4.50	1.00	RARS, Karjat
151	Karjat-5	1.20	1.65	0.45	RARS, Karjat
152	Karjat-7	2.00	5.00	3.00	RARS, Karjat
153	Karjat-8	0.92	1.50	0.58	RARS, Karjat
154	Karjat-9	1.00	2.00	1.00	RARS, Karjat
155	Kasturi (IET-8580)	5.00	3.20	-1.80	IIRR, Hyderabad
156	Khitish (IET-4094)	3.00	3.90	0.90	RRS, Chinsurah
157	Khowai TRC-2005-3 (TRC- 05-2-6-4-39-3-6) IET 21564	0.10	0.00	-0.10	ARS, Arundhutinagar
158	KHP-11	0.25	0.25	0.00	UAHS, Shivamogga,
159	KHP-13	0.50	0.50	0.00	UAHS, Shivamogga,
160	KKP-5 (IET 24250)	2.10	2.10	0.00	UAHS, Shivamogga,
161	KMD-2 (Abhilash)	0.75	2.00	1.25	ARS, Mugad
162	KN3 (Kalanamak)	0.10	0.10	0.00	PRDF Gorakhpur,
163	KNM-118	28.90	30.00	1.10	PJTSAU, Hyderabad
164	KPR-1	0.25	0.25	0.00	UAHS, Shivamogga,
165	Kranti (R-2022)	0.60	50.00	49.40	JNKVV, Jabalpur
166	Krishna (RNR-2458)	0.10	0.20	0.10	PJTSAU, Hyderabad
167	Ksheera (MTU 1172)	1.70	1.70	0.00	ANGRAU, Guntur
168	Lalat (IET-9947)	1.00	1.00	0.00	OUAT, Bhubaneswar
169	Luit	2.00	5.00	3.00	RARS, Titabar
170	LunaSampad (IET 19470)	1.50	0.15	-1.35	NRRI, Cuttack
171	LunaSuwarna (IET 18697)	1.50	0.15	-1.35	NRRI, Cuttack
172	Lunisree	0.50	0.80	0.30	NRRI, Cuttack
173	Mahamaya (IET-10749)	80.00	96.60	16.60	IGKV, Raipur
174	Maheswari (IGRKVR- 1244) (R 12244-1246-1-605-1) (IET 19796)	15.00	15.00	0.00	IGKV, Raipur
175	Mahisagar (IET 22100)	0.50	0.50	0.00	AAU, Anand

S. No.	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)	Centre Name
176	MandakinI (OR 2077-4) (IET 17847)	6.20	6.20	0.00	OUAT, Bhubaneswar
177	Maruteru Sannalu (MTU-1006, IET-14348)	1.00	1.00	0.00	ANGRAU, Guntur
178	MO 21 (Pratiksha)	1.00	4.35	3.35	RRS, Moncompu
179	MRUNALINI (OR 1898-18) (IET 18649)	3.00	3.00	0.00	OUAT, Bhubaneswar
180	MTU 1001 (Vijetha)	55.30	55.30	0.00	ANGRAU, Guntur
181	MTU 1075 (IET 18482)	8.50	8.55	0.05	ANGRAU, Guntur
182	MTU 1140 (Bheema)	11.10	11.10	0.00	ANGRAU, Guntur
183	MTU 1156 (Tarangini)	103.50	103.50	0.00	ANGRAU, Guntur
184	MTU 1223	17.80	17.80	0.00	ANGRAU, Guntur
185	MTU 1239	16.70	16.70	0.00	ANGRAU, Guntur
186	MTU-1061	6.20	6.20	0.00	ANGRAU, Guntur
187	MTU-1121(Sri Dhruthi)	32.85	32.85	0.00	ANGRAU, Guntur
188	MTU-1210	9.00	9.00	0.00	ANGRAU, Guntur
189	MTU-1224	8.50	8.50	0.00	ANGRAU, Guntur
190	MTU-1262	7.50	7.50	0.00	ANGRAU, Guntur
191	MTU-7029	130.80	130.80	0.00	ANGRAU, Guntur
192	Muktashree (IET 21845)	2.70	1.95	-0.75	RRS, Chinsurah
193	Narendra Dhan-97	0.05	28.00	27.95	NDUAT, Faizabad
194	Naveen (CR-749-20-2) (IET-14461)	4.20	4.20	0.00	NRRI, Cuttack
195	NDLR-7	2.10	2.10	0.00	ANGRAU, Guntur
196	NDR 9930111	3.00	1.80	-1.20	NDUAT, Faizabad
197	Nellore Dhyanyarasi (NLR- 3354)	1.00	1.00	0.00	ANGRAU, Guntur
198	Nellore Mahsuri (NLR- 34449)	7.10	7.10	0.00	ANGRAU, Guntur
199	NLR-4001	1.00	1.00	0.00	ANGRAU, Guntur
200	Pant Dhan-18 (IET17920) (UPRI 99-1)	1.00	6.00	5.00	GBPUAT, Pantnagar
201	Pant Dhan-24	11.20	40.00	28.80	GBPUAT, Pantnagar
202	Pant Dhan-26	0.30	6.00	5.70	GBPUAT, Pantnagar
203	Pardhiva (NLR - 33892)	1.00	1.00	0.00	ANGRAU, Guntur
204	Parijat (IET-2684)	1.00	1.00	0.00	OUAT, Bhubaneswar
205	PDKV Tilak (SYE-503-78- 34-2)	1.60	20.00	18.40	ARS, Sindewahi
206	PKV HMT	43.20	43.20	0.00	ARS, Sindewahi
207	PKV Kisan	1.60	10.00	8.40	ARS, Sindewahi
208	Pooja (IET-12241)	0.10	48.40	48.30	NRRI, Cuttack
209	PR 121	39.29	45.00	5.71	PAU, Ludhiana
210	PR 122	14.58	15.00	0.42	PAU, Ludhiana
211	PR 127	4.94	5.00	0.06	PAU, Ludhiana
212	PR-113	3.38	6.00	2.62	PAU, Ludhiana
213	PR-114	0.72	4.00	3.28	PAU, Ludhiana
214	PR-124	3.84	6.00	2.16	PAU, Ludhiana
215	PR-126	55.14	60.00	4.86	PAU, Ludhiana
216	PR-128	0.44	3.00	2.56	PAU, Ludhiana
217	PR-129	0.28	3.00	2.72	PAU, Ludhiana
218	Pradeep (IET 20923)	0.10	0.10	0.00	OUAT, Bhubaneswar
219	PratibhA (OR 2172-7) (IET 21582)	1.50	1.50	0.00	OUAT, Bhubaneswar
220	Pratikshya (ORS 201-5) (IET-15191)	19.10	19.10	0.00	OUAT, Bhubaneswar
221	Punjab Basmati 4	0.04	0.10	0.06	PAU, Ludhiana
222	Punjab Basmati 5	0.04	0.10	0.06	PAU, Ludhiana
223	Pusa - 1121 (Pusa Sugandh-4)	12.12		-12.12	BEDF, New Delhi
224	Pusa Basmati 1637 (IET 24570)	14.68	14.68	0.00	IARI-RS, Karnal
225	Pusa Basmati 1692 (IET 26995)	20.98	22.00	1.02	IARI-RS, Karnal

S. No.	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)	Centre Name
226	Pusa Basmati 1728	6.00	9.00	3.00	IARI-RS, Karnal
227	Pusa Basmati-1(IET 10364)	0.08	10.00	9.92	IARI-RS, Karnal
228	Pusa Basmati-1509 (IET 21960) (PUSA 1509-03-3-9-5)	106.23		-106.23	BEDF, New Delhi
229	Pusa Basmati-1718 (IET 24565)	62.03	26.00	-36.03	IARI-RS, Karnal
230	Pusa Basmati-6 (PUSA 1401) (IET 18005)	21.22	22.00	0.78	IARI-RS, Karnal
231	Pusa Sugandh-5 (IET- 17021)	15.00	0.00	-15.00	IARI, New Delhi
232	Pusa-2511	0.05	0.00	-0.05	IARI, New Delhi
233	Pusa-44	0.08	0.08	0.00	IARI-RS, Karnal
234	Pushpa (IET 17509)	2.35	1.05	-1.30	RRS, Bankura
235	Rajdeep (CN 1039-9) (IET 17713)	0.65	1.70	1.05	RRS, Chinsurah
236	Rajendra Bhagvati	14.95	27.00	12.05	RPCAU, Pusa
237	Rajendra Kasturi	13.00	12.16	-0.84	RPCAU, Pusa
238	Rajendra Neelam	30.00	29.88	-0.12	RPCAU, Pusa
239	Rajendra Sweta	20.95	20.70	-0.25	RPCAU, Pusa
240	Rajshree (TCA-80-4) (IET 7970)	0.05	5.00	4.95	RPCAU, Pusa
241	Rani Dhan (IET-19148)	4.00	4.00	0.00	OUAT, Bhubaneswar
242	Ranjeet (IET - 12554)	1.70	6.70	5.00	RARS, Titabar
243	Ranjit Sub -1	32.40	34.50	2.10	RARS, Titabar
244	Rashmi(JR-201)	7.50	6.21	-1.29	JNKVV, Jabalpur
245	Ratnagiri-6	1.00	2.00	1.00	ARS, Shirgoan
246	Ratnagiri-7	0.60	1.00	0.40	ARS, Shirgoan
247	RGL 2537	9.00	9.00	0.00	ANGRAU, Guntur
248	Rice VGD 1	0.10	0.10	0.00	TNAU, Coimbatore
249	RNR-15048 (Telangana Sona)	43.30	50.00	6.70	PJTSAU, Hyderabad
250	RTN-5	2.00	2.50	0.50	ARS, Shirgoan
251	RTN-8	0.30	2.00	1.70	ARS, Shirgoan
252	Sabita (IET-8970)	2.00	2.48	0.48	RRS, Chinsurah
253	Sabour Deep	35.00	40.00	5.00	BAU, Sabour
254	Sabour Harshit Dhan (IET25342)	0.10	8.00	7.90	BAU, Sabour
255	Sabour Sampann	20.00	25.00	5.00	BAU, Sabour
256	Sabour Shree (RAU 724- 48-33) (IET 18878)	60.60	78.00	17.40	BAU, Sabour
257	Sabour Surbhit	10.00	14.00	4.00	BAU, Sabour
258	Sahbhagi (Sahbhagi Dhan IET-19576)	75.65	167.70	92.05	CRURRS, Hazaribagh
259	Sahyadri Megha	1.25	1.00	-0.25	UAHS, Shivamogga,
260	Sahyadri Panchamuk	0.50	0.50	0.00	UAHS, Shivamogga,
261	Sakoli-9	0.30	15.00	14.70	ARS, Sindewahi
262	Samaridhi (R-2384)	1.20	0.00	-1.20	IGKV, Raipur
263	Samba Sub-1 (IET 21248)	23.30	4.06	-19.24	NRRI, Cuttack
264	Sampriti (BNKR-B12) (IET-21987)	2.00	2.10	0.10	RRS, Bankura
265	Sarjoo-52	1.10	160.40	159.30	NDUAT, Faizabad
266	Shalimar Rice -2	3.60	3.60	0.00	Khudwani, J & K
267	Shatabdi (IET-4786)	28.20	5.59	-22.61	RRS, Chinsurah
268	Shiats Dhan -1 (AAIR 2) (IET 20928)	2.50	0.00	-2.50	SHIATS, Prayagraj
269	Shiats Dhan 5	2.00	0.00	-2.00	SHIATS, Prayagraj
270	Shiats Dhan-4	12.00	0.00	-12.00	SHIATS, Prayagraj
271	Shobhini (RNR-2354) (IET- 21260)	0.30	0.50	0.20	PJTSAU, Hyderabad
272	SJR-5(IET-19972)	15.00	1.50	-13.50	Chatha J & K
273	Somnath (WGL-347)	0.10	0.50	0.40	PJTSAU, Hyderabad
274	Sugandha Samba (RNR- 2465)	0.02	0.10	0.08	PJTSAU, Hyderabad
275	Sujala (CNR-2) (IET 20235)	1.10	1.60	0.50	RRS, Chinsurah

S. No.	Variety	Allocation (q)	Production (q)	Surplus/ deficit (q)	Centre Name
276	Sukha Dhan-5	0.10	1.00	0.90	RWRS, Malan
277	Sukumar (IET 21261)	5.80	0.00	-5.80	RRS, Chinsurah
278	Swarana-Sub 1 (CR2539-1) IET-20266	79.50	78.00	-1.50	NRRI, Cuttack
279	Swarna Samridhi	15.00	35.40	20.40	ICAR RCER Patna,
280	Swarna Shakti Dhan (IET 25640)	10.00	24.90	14.90	ICAR RCER Patna,
281	Swarna Shreya	24.50	38.50	14.00	ICAR RCER Patna,
282	Tarun Bhog Selection-1	30.00	45.20	15.20	IGKV, Raipur
283	Telangana Vari-1 (IET25330) (WGL-739)	1.10	1.50	0.40	PJTSAU, Hyderabad
284	Tellahamsa	1.00	1.00	0.00	PJTSAU, Hyderabad
285	Thanu	2.10	4.00	1.90	ZARS, Mandya
286	TKM 13	0.30	0.30	0.00	TNAU, Coimbatore
287	TM-07278	0.10	0.10	0.00	TNAU, Coimbatore
288	TRC 2008-1 (IET22167)Tripura Jala	0.10	0.10	0.00	ICAR RC NEH Tripura Centre
289	Tripura Hakuchuk-1	0.50	0.50	0.00	ICAR RC NEH Tripura Centre
290	Tripura Hakuchuk-2	0.50	0.50	0.00	ICAR RC NEH Tripura Centre
291	Tripura Khara 2 (IET 22835)	0.20	0.20	0.00	ICAR RC NEH Tripura Centre
292	Trombey Chattisgarh Dubraj Mutent-1	30.00	37.20	7.20	IGKV, Raipur
293	Tunga (IET-13901)	5.85	5.85	0.00	UAHS, Shivamogga,
294	Uma (MO-16)	27.25	28.00	0.75	RRS, Moncompu
295	Uttar Lakshmi UBKVR-15 (IET 24173)	2.10	12.00	9.90	UBKV, Pundibari
296	Uttar Sona (UBKVR-1) (IET-24171)	2.70	18.00	15.30	UBKV, Pundibari
297	Varam (MTU 1190)	1.50	1.50	0.00	ANGRAU, Guntur
298	Varshadhan (CRLC-899)(IET-16481)	1.50	4.50	3.00	NRRI, Cuttack
299	Vishnubhog Selection- 1	25.20	39.60	14.40	IGKV, Raipur
300	VL 88	3.00	5.50	2.50	VPKAS, Almora
301	VL Dhan 157 (VL 31611)(IET 22292)	2.50	1.00	-1.50	VPKAS, Almora
302	VL Dhan 68 (VL 31611) (IET 22283)	3.00	3.00	0.00	VPKAS, Almora
303	VL Dhan 85 (IET-16455) (VL-3613)	0.60	1.50	0.90	VPKAS, Almora
304	WGL-915	1.50	2.00	0.50	PJTSAU, Hyderabad
305	Zinco Rice MS	50.00	63.30	13.30	IGKV, Raipur
	Total(A)	**3598.37**	**4446.06**	**847.69**	

Paental lines/Hyrbrids

S. No.	Centre Name	Hybrid/Parental Lines	Allocation(q)	Production (q)	Surplus/ deficit (q)
1	UAS, Bengaluru	KRH 2 A-line	0.10	**0.50**	**0.40**
		KRH 2 B-line	0.10	**0.50**	**0.40**
		KRH 2 R-line	0.10	**2.00**	**1.90**
		TOTAL (B)	**0.30**	**3.00**	**2.70**
	Grand Total		**3598.67**	**4449.06**	**850.39**

Appendix-12

BREEDER SEED PRODUCTION OF ADDITIONAL RICE VARIETIES / STATE INDENTS DURING KHARIF, 2021

S. No.	Centre Name	Variety	Production (q)
1	ARS, Mugad	MGD 03	1.00
2	ARS, Vadagon (MPKV, Rahuri)	P. Radha	0.7
		P. Samruddhi	10.5
3	BAU, Sabour	Rajendra Mahsuri 1	25
		Rajendra Sweta	16
		Rajendra Suwasini	4.5
4	IGKV, Raipur	Vikram TCR	12
		Protezin	14.7
		CG Barani Dhan 2	9.6
		CG Jawaphool Trombay	5.4
		Swarna	20.7
		DRR Dhan 42	11.4
		MTU 1010	15
5	NAU, Navsari	NAUR-1	19
		GNR-2	23.75
		GNR-3	23.47
		GNR-4	24.7
		GNR-5	24.7
		GNR-6	9.88
		GNR-7	37.05
		GNR-8	19
		GR-15	28.5
		GR-17	17.29
		GR-19	19
		PURNA	1.98
6	NDUAT, Faizabad	BPT 5204	333.6
		NDR 2065	76
		NDR 2064	30
		Sambha sub-1	38
		NDR 359	87
		NDR-6244	1.5
7	NRRI, Cuttack	Gayatri	5.5
		CR Dhan 506	1
		CR Sugandh Dhan 909	0.5
		Dharitri	4
		Sarala	7
		CR Dhan 507	0.2
		CR Dhan 410	0.5
		Ranjit	1.5
		CR Dhan 501	0.6
8	PJTSAU, Hyderabad	RNR 11718	2
9	RARS, Pattambi	Kanchana	2.76
		K K Varna	2.38

S. No.	Centre Name	Variety	Production (q)
		Varsha	1.13
		Manuratna	0.13
10	RARS, Titabar (AAU, Jorhat)	Bahadur	1.2
		Ketekijoha	0.9
		Rongkijoha	1
		Inglongkheri	1.2
		Gitesh	1.2
		Swarna Sub-1	7.7
		Aghoni	0.4
		Mahsuri	0.8
		Numoli	0.98
11	RWRS, Malan (CSKHPKV, Palampur)	HPR 1068	5
		HPR 2720	0.8
		HPR 2612	6.7
		RP 2421	1.25
		VL 221	0.45
		Kasturi	2
Total			**1021.70**

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 2021

S.No.	IET No.	Designation	Cross Combination	Source Trial	Yield (Kg/ha)	FD (days)	GT	Promising for
1	28343	KNM 6965	MTU 1010 / KNM 118	AVT 2 – E TP	5576	89	LS	Suitable for irrigated ecology in Haryana & Mahasrashtra
2	26790	MTU 1273	MTU 1010 / FL478 // *3 MTU 1010	AVT 2 – E TP	5389	89	LS	Suitable for irrigated ecology in Chhatisgarh , Mahasrashtra Gujarat
3	28356	KNM 7073	KNM 606 / KNM 118	AVT 2 – E TP	5096	89	LS	Suitable for irrigated ecology in Odisha
4	28354	CR 4073-1339-3-5-1-1-3	IET 22296 / RR 2-6	AVT 2 – E TP	5275	90	MS	Suitable for irrigated ecology in Odisha, Bihar & Assam
5	28332	KNM 7048	KPS 3219 / KNM 118	AVT 2 – E TP	5821	88	LB	Suitable for irrigated ecology in Bihar , West Bengal, Maharashtra Chhattisgarh, Gujarat
6	28329	RCPR 60-IR 97073-26-1-1-3	IR10L146 / IR10L137	AVT 2 – E TP	5175	89	LS	Suitable for irrigated ecology in Bihar and Chhattisgarh
7	28160	***HRI-202 (Hybrid)***	-	AVT 1 - IM	6321	102	MS	Suitable for irrigated ecology in Haryana, Odisha, Chhattisgarh and Karnataka
8	28171	***RNE-0122 (Hybrid)***		AVT 1 – IM	6055	102	MS	Suitable for irrigated ecology in Telangana
9	27900	MTU-1276 (MTU 2578-56-1)	MTU 1156 / MT U 1081	AVT 1 - IM	5803	110	LB	Suitable for irrigated ecology in Tamil Nadu
10	28200	TRC BN-1311-B-B-43-11-1	Bhalum 3 / Naveen	AVT 1 – E (H)	4738	102	SB	Promising for Himachal Pradesh , Uttarakhand
11	28230	TRC PSM-1720-B-B-5-1	Pyzum / BPT 5204	IVT – U (H)	2893	97	SB	Promising for Himachal Pradesh , Manipur
12	28508	CR 2830-48-1	Swarna / ARC10075	AVT 1 - LATE	5391	113	SB	Promising for Chhattisgarh and Maharashtra
13	28730	KPS-6262	BPT 5204 / MTU 1010	AVT 1 - MS	5404	105	MS	Promising for Telangana
14	28757	MTU 1321 (MTU 2284-103-1-7)	MTU 5249 / IR 72	AVT 1 - MS	5652	110	MS	Promising for Chhattisgarh Gujarat and Odisha
15	27823	CSR MAGIC 157	Fedearroz 50 / SHZ-2 // PSBRc 82 / PSBRc 158 //// IR 77298-14-1-2-10 / IR 4630-22-2-5-1-3 // IR 45427-2B-2-2B-1-1 / Samba Mahsuri + Sub 1	AVT 1 – AL&ISTVT	AL-2983 IS-3087	AL-92 IS-108	LB	Suitable for saline and alkaline in Haryana
16	28606	CSRM1-7	IR 71730-51-2 / NSIC RC 106	AVT 1 – AL&ISTVT	AL-2896 IS- 3445	AL-79 IS-90	LS	Suitable for saline and alkaline in Haryana
17	28608	CSR 449S-13	CSR30 / CSR36	AVT 1 – AL&ISTVT	AL-3037 IS- 3046	AL-88 IS-99	LS	Suitable for saline and alkaline in Haryana
18	27847	***IIRRH 115 (Hybrid)***	-	IVT - CSTVT	3666	105	LB	Promising for Gujarat & Odisha
19	28066	RP 5973-13-1-6-67-129-57	MTU 1010*2 / Swarna	NIL (IME & IM)	AP-4655 TS-5685	AP-90 TS-98	MS	Promising for Andhra Pradesh & Telangana
20	28065	RP 5972-13-1-6-67-129-266	MTU 1010*2 / Vandana	NIL (IME & IM)	4655	101	SB	Promising for Andhra Pradesh
21	28818	RP 6317-S35-BC2F4-49-25-621	MTU 1121 * 2 / Swarna	NIL (IME & IM)	6483	96	LS	Promising for Andhra Pradesh

Appendix-15

CONSTITUTION OF VARIETY TRIALS-2022

Trial No	Test Entries	
1	**ADVANCE VARIETY TRIAL-2-EARLY TRANSPLANTED (AVT-2 E TP)**	
	3rd Year of testing	IET No: 29140, 28954, 28960, 29142, 29177, 28959, 28964, 28950, 28956, 29197
	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.
2	**ADVANCE VARIETY TRIAL-1-EARLY TRANSPLANTED (AVT-1 E TP)**	
	2nd Year of testing	IET No:29939, 29940, 29943, 29946, 29947 29951, 29957, 29958, 29964, 29975, 29983, 29992, 28965 **Repeats**: 28123 **From IHRT-E:IET Nos.** 29689, 29690, 29691, 29692, 29694, 29696, 29700, 29701
	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.
3	**INITIAL VARIETY TRIAL-EARLY TRANSPLANTED (IVT- E TP)**	
	1st of year testing	**New Nominations**: PTN-ICAR-2, LMC-3, LDN-1, MTU-1, RPR-2, RDR-1, VYR-2, ADT-2, CBT-2, HZB-2, NWG-2, MND-1, RNR-2, CTK-16, KUL-2, KJT-2, MSD-2, IAR-1, SKL-1 **Shift from IVT – IME**: IET 29775
	Checks	National: CO-51, Zonal- PR 124 (Northern), Narendra 97 (Eastern), Luit (North Eastern), Sahbhagidhan (Central & Western) MTU 1153 (Southern) and Local Check.
4	**ADVANCE VARIETY TRIAL-2- IRRIGATED MID EARLY (AVT-2 IME)**	
	3rd Year of testing	IET No: 29214, 29233, 29217, 29212, 28353, 29235, 29246, 29238, 28982, 28128, 28979, 29236, 28506
	Checks	National: Gontra Bidhan -3, Zonal- PR 113 (Northern), Lalat (Eastern&North Eastern), MTU 1010 (Central &Southern), Karjat-7 (Western), Hybrid: US 312 and Local Check.
5	**ADVANCE VARIETY TRIAL-1- IRRIGATED MID EARLY (AVT-1 IME)**	
	2nd Year of testing	IET No: 29770, 29304, 29188, 29807, 29808, 29820, 29822 **Repeats**: IET 29219 **From IHRT-ME:IET Nos**. 29708, 29714, 29715, 29717, 29718, 29726, 29729, 29731, 29734, 29735, 29736, 29738

Trial No	Test Entries	
	Checks	National: Gontra Bidhan -3, Zonal- PR 113 (Northern), Lalat (Eastern & North Eastern), MTU 1010 (Central & Southern), Karjat-7 (Western), Hybrid: US 312 and Local Check.
6	**INITIAL VARIETY TRIAL-IRRIGATED MID EARLY (IVT-IME)**	
	1st of year testing	**New Nominations**: BPT-2, LMC-3, LDN-1, MTU-4, NLR-1, PRT-2, RDR-1, VYR-2, ADT-3, RCI-1, CBT-2, NWG-2, HZB -2, RNR-2, CTK-16, KUL-2, SLG-2, KJT-1, MSD-1, SKL-1, IAR-3 **Shift from IVT-ETP:** 29947, 29948, 29950, 29952, 29960, 29976, 29990
	Checks	National: Gontra Bidhan -3, Zonal- PR 113 (Northern), Lalat (Eastern & North Eastern), MTU 1010 (Central & Southern), Karjat-7 (Western) and Local Check.
7	**ADVANCE VARIETY TRIAL-2- IRRIGATED MEDIUM (AVT-2 IM)**	
	3rd Year of testing	IET No: 29268, 28489, 29002, 29284, 29006, 29014, 29257, 29301, 28997, 29008, 29256, 29290, 29001, 29004, 29009, 29000
	Checks	National: NDR 359, Zonal- PR 121 (Northern), CR Dhan 300 (Eastern & North Eastern), Karma Mahsuri (Central), Akshayadhan (Western) Jaya (Southern), Hybrid: HRI 174 and Local Check.
8	**ADVANCE VARIETY TRIAL-1- IRRIGATED MEDIUM (AVT-1 IM)**	
	2nd Year of testing	IET No: 29825, 29826, 28523, 29831, 29833, 29834, 29837, 29843, 29845, 29850, 29855, 29857, 29859, 29860, 29861, 29865, 29868, 29869, 29870, 29287, 29873, 29875, 29877, 29878, 29879 **Repeats**: IET 28442 **From IHRT-M:IET Nos**. 29741, 29742, 29743, 29744, 29748, 29749, 29751, 29752, 29753
	Checks	National: NDR 359, Zonal- PR 121 (Northern), CR Dhan 300 (Eastern & North Eastern), Karma Mahsuri (Central), Akshayadhan (Western) Jaya (Southern), Hybrid: HRI 174 and Local Check.
9	**INITIAL VARIETY TRIAL-IRRIGATED MEDIUM (IVT-IM)**	
		New Nominations: BPT-2, PTN-ICAR-1, LMC-2, LDN-1, MTU-4, PTB-5, RPR-2, RDR-1, ADT-2, RCI-2, CAU-IMPHAL-1, CBT-1, NWG-2, RNR-2, SHR-2, VRN-3, CTK-15, GNV-1, BRM-1, IGP-1, KUL-2, PSA-1, IAR-3 **Shift from IVT – IME**: IET 29805
	Checks	National: NDR 359, Zonal- PR 121 (Northern), CR Dhan 300 (Eastern & North Eastern), Karma Mahsuri (Central), Akshayadhan (Western) Jaya (Southern) and Local Check.
10	**ADVANCE VARIETY TRIAL 2- LATE (AVT 2-L)**	
	3rdyear of testing:	IET No: 29349, 29351
	Checks:	National: Swarna, Zonal: NDR 8002 (Eastern and Central), Ranjeet (North Eastern), Salivahana (Western), Pushyami (Southern), Hybrid: PA 6444 and Local Check.

Trial No	Test Entries	
11	**ADVANCE VARIETY TRIAL 1- LATE (AVT 1-L)**	
	2nd year of testing:	IET No: 29891, 29935 **Repeat:** IET 28524
	Checks:	National: Swarna, Zonal: NDR 8002 (Eastern and Central), Ranjeet (North Eastern), Salivahana (Western), Pushyami (Southern), Hybrid: PA 6444 and Local Check.
12	**INITIAL VARIETY TRIAL –LATE (IVT-L)**	
	1st year of testing:	**New Nominations:** BPT-2, PTN-ICAR-1, LMC-2, MTU-4, NLR-1, RPR-3, ADT-3, VRN-3, CTK-18, Mali Agritech-1, PNP-1, GER-2, MSD-1, IAR-2
	Checks:	National: Swarna, Zonal: NDR 8002 (Eastern and Central), Ranjeet (North Eastern), Salivahana (Western), Pushyami (Southern), Hybrid: PA 6444, CRHR 702 Hybrid Check (Observational) and Local Check.
13	**ADVANCE VARIETY TRIAL 2- AEROBIC (AVT 2-AEROB)**	
	3rdyear of testing:	IET No: 29423, 29422, 29412, 29396, 29405, 29411, 29415, 29424, 29394, 29436, 29421, 29409, 29430, 29410
	Checks:	National: CR Dhan 201, Zonal: CR Dhan 202 (Northern, Eastern, North Eastern and Central), AAUDR-1 (Western), MAS 946-1 (Southern), Hybrid: PA 6129 and Local Check.
14	**ADVANCE VARIETY TRIAL 1- AEROBIC (AVT 1-AEROB)**	
	2nd year of testing:	IET No: 30000, 30001, 30003, 30004, 30005, 30006, 30008, 30013, 30020, 30021, 30022, 30023, 30024, 30027, 30028, 30029, 30032, 30034, 30035, 30037, 30038, 30041, 30045, 30051, 30052
	Checks:	National: CR Dhan 201, Zonal: CR Dhan 202 (Northern, Eastern, North Eastern and Central), AAUDR-1 (Western), MAS 946-1 (Southern), Hybrid: PA 6129 and Local Check.
15	**INITIAL VARIETY TRIAL- AEROBIC (IVT-AEROB)**	
	1ST year of testing:	**New Nominations:** CTK-16, PTN-ICAR-2, LMC-3, LDN-2, RPR-2, NVS-2, HZB-2, NWG-2, VYR-2, BKG-2 **Repeats**: IET 30031 and 30048
	Checks:	National: CR Dhan 201, Zonal: CR Dhan 202 (Northern, Eastern, North Eastern and Central), AAUDR-1 (Western), MAS 946-1 (Southern), Hybrid: US 380 and GK 5022 (Observational), DRR Dhan 54 (Observational) and Local Check.
16	**ADVANCE VARIETY TRIAL 2- MEDIDUM SLENDER GRAIN (AVT 2-MS)**	
	3rd year of testing:	IET No: 29539, 29523, 29492, 29017, 29536
	Checks:	National: WGL 14 (Medium duration) & BPT 5204 (Late duration), Zonal: Improved Samba Mahsuri (Eastern and Central), Ketekijoha (North East), Karjat-6 (Western), ADT 49 (Southern) 27P 63 (Hybrid) and Local Check

Trial No	Test Entries	
17	**ADVANCE VARIETY TRIAL 1- MEDIDUM SLENDER GRAIN (AVT 1-MS)**	
	2nd year of testing:	IET No: 30066, 30071, 30072, 30075, 30078, 30083, 30088, 30093, 30097, 30101, 30102, 30106, 30107, 30108, 30109, 30116, 30085, 30080 **From: IHRT-MS**: IET 29763
	Checks:	National: WGL 14 (Medium duration) & BPT 5204 (Late duration), Zonal: Improved Samba Mahsuri (Eastern and Central), Ketekijoha (North East), Karjat-6 (Western), ADT 49 (Southern) 27P 63 (Hybrid) and Local Check
18	**INITIAL VARIETY TRIAL –MEDIUM SLENDER GRAIN (IVT-MS)**	
	1st year of testing:	**New Nominations**: BPT-3, KUB-1, LMC-3, MTU-4, NLR-1, RPR-3, RDR-1, VYR-2, ADT-3, CBT-4, NWG-5, RNR-2, TTB-2, CTK-13, GNV-1, VDN-1, MSD-1, IAR-1, BKG-1
	Checks:	National: WGL 14 (Medium duration) & BPT 5204 (Late duration) and one Early duration check, Zonal: Improved Samba Mahsuri (Eastern and Central), Ketekejoha (North East), Karjat-6 (Western), ADT 49 (Southern) 27P 63 (Hybrid) and Local Check
19	**INITIAL VARIETY TRIAL - BIOFORTIFICATION (IVT-BIOFORT)**	
	3rd year of testing	28694
	1st year of testing:	**New Nominations**: BPT-3, RPR-4, RNR-1, CTK-6, GNV-2, KJT-1, MSD-1
	Checks:	**Yield Checks:** BPT 5204 & IR 64**, Yield and Micronutrient Check:** DRR Dhan 45 & DRR Dhan 48**; Micronutrient check:** Chittimuthyalu
20	**ADVANCE VARIETY TRIAL 2- ALKALINE AND INLAND SALINE TOLERANT VARIETY TRIAL (AVT 2-AL&ISTVT)**	
	3rdyear of testing:	IET Nos. 29356, 29365, 29354, 29360, 29361, 29366, 29358, 29353 **Repeat**: IET 27807
	Checks:	CSR 36 (Alkaline), CSR 23 (Inland saline), CSR 10 (Early duration saline check), FL 478 (Saline tolerant), Pusa 44 (Sensitive check) and Local check.
21	**ADVANCE VARIETY TRIAL 1- ALKALINE AND INLAND SALINE TOLERANT VARIETY TRIAL (AVT 1-AL&ISTVT)**	
	2ndyear of testing:	IET Nos. 30162, 30164, 30165, 30174, 30176, 30178, 30180
	Checks:	CSR 36 (Alkaline), CSR 23 (Inland saline), CSR 10 (Early duration saline check), FL 478 (Saline tolerant), Pusa 44 (Sensitive check) and Local check.
22	**INITIAL VARIETY TRIAL -ALKALINE AND INLAND SALINE TOLERANT VARIETY TRIAL (IVT-AL&ISTVT)**	
	1st year of testing:	**New Nominations**: RNR-2, KRK-1

Trial No	Test Entries	
	Checks:	CSR 36 (Alkaline), CSR 23 (Inland saline), CSR 10 (Early duration saline check), FL 478 (Saline tolerant), Pusa 44 (Sensitive check) and Local check.
23	**ADVANCE VARIETY TRIAL 1 - COASTAL SALINE TOLERANT VARIETY TRIAL (AVT 1-CSTVT)**	
	3rd year of testing	IET 27847 (R)
	2nd year of testing:	IET Nos. 30200, 30201, 30207
	Checks:	Bhuthnath (Coastal Saline), CSR 10 (Early duration saline check), FL 478 (Saline Tolerant Check), Pusa 44 (Sensitive check) and Local Check.
24	**INITIAL VARIETY TRIAL - COASTAL SALINE TOLERANT VARIETY TRIAL (IVT-CSTVT)**	
	1st year of testing:	**New Nominations**: MCM-4, CTK-14
	Checks:	Bhuthnath (Coastal Saline), CSR 10 (Early duration saline check), FL 478 (Saline Tolerant Check), Pusa 44 (Sensitive check) and Local Check.
25	**INTIAL VARIETY TRIAL – AROMATIC SHORT GRAIN (IVT-ASG)**	
	1st year of testing:	**New Nominations**: RPR-2, WRS-1, RCI-1, NWG-2, RNR-2, VRN-3, MSD-2, NVS-2, IAR-1, CTK-1, BKG-1
	Checks:	**National**: Shobini; **Zonal**: Badshabhog (Northern & Central), CR Sugandh Dhan 907 (Eastern & North Eastern), GAR-14 (Western), Sugandh Samba (Southern), **Quality** : Dubraj, Ketekijoha and Local Check
26	**ADVANCE VARIETY TRIAL 1 – JAPONICA (AVT 1-J)**	
	2nd year of testing:	IET No: 30306
	Checks:	**Shalimar Rice-5, Varundhan, Bhrigudhan and Local Check**
27	**INTIAL VARIETY TRIAL – JAPONICA (IVT-J)**	
	1st year of testing:	**New Nominations**:
	Checks:	**Shalimar Rice-5, Varundhan, Bhrigudhan and Local Check**
28	**ADVANCE VARIETY TRIAL 2-EARLY (HILLS) (AVT 2-E (H)**	
	3rd year of testing:	**IET Nos. 28890, 28884, 28883, 28895, 28882** **Repeats: 28196, 28206**
	Checks:	Vivekdhan 86 (National), Shalimar Rice-3 (Zonal) and Local Check
29	**ADVANCE VARIETY TRIAL 1-EARLY (HILLS) (AVT 1-E (H)**	
	2nd year of testing:	**IET Nos.: 28896, 28887, 28880, 29633, 29635, 28893, 29636, 29638, 28897, 29639, 29640, 29641**
	Checks:	Vivekdhan 86 (National), Shalimar Rice-3 (Zonal) and Local Check

Trial No	Test Entries	
30	**INITIAL VARIETY TRIAL-EARLY (HILLS) (IVT-E (H)**	
	1st year of testing:	**New Nominations: KHD-10, ICAR-UMIAM-2, CAU-UMIAM-1, LMC-3, MLN-2, ICAR-ALM-3**
	Checks:	Vivekdhan 86 (National), Shalimar Rice-3 (Zonal) and Local Check
31	**ADVANCE VARIETY TRIAL 2 & 1-MEDIUM (HILLS) (AVT 2 & 1-M (H)**	
	3rd year of testing:	**IET Nos. 28224, 28222, 28907, 28217**
	2nd year of testing:	**IET Nos.: 29643, 28906, 28915, 28914, 29654, 29656, NILs Nomination:CHT-2**
	Checks:	National: Vivekdhan 62 & VL Dhan 68; Zonal: VL Dhan 65 (North and South) RC Maniphou-11 (North East) and Local Check.
32	**INITIAL VARIETY TRIAL-MEDIUM (HILLS) (IVT-M (H)**	
	1st year of testing:	**New Nominations: KHD-5, ICAR-UMIAM-1, CAU-UMIAM-1, LMC-3, MLN-1, ICAR-ALM-3, GTK-1**
	Checks:	National: Vivekdhan 62 & VL Dhan 68; Zonal: VL Dhan 65 (North and South) RC Maniphou-11 (North East) and Local Check.
33	**INITIAL VARIETY TRIAL-UPLAND (HILLS) (IVT-U (H)**	
	1st year of testing:	**New Nominations: ICAR-UMIAM-1, LMC-3, MLN-5, ICAR-ALM-3**
	Checks:	National: Sukaradhan-1, Zonal: VL Dhan 158 (North & South) & Vivekdhan 154 (North & South) Bhalum-1 (North East) and Local Check.
34	**ADVANCE VARIETY TRIAL 1-BORO (AVT 1-BORO) 2021-22**	
	3rd year of testing:	**IET Nos.: 28840, 28849, 28848**
	2nd year of testing:	**IET Nos. : 29599, 29601, 29605, 29621, 29624, 29632, 29611, 29615, 28852, 29630**
	Checks:	Gautam, IR 64, Rajalaxmi(HC) and Local Check.
35	**INITIAL VARIETY TRIAL-BORO (IVT-BORO) 2021-22**	
	1st year of testing:	**New Nominations: CTK-19, LMC-6, MLD-5, PTB-3, Mali Agritech-1, PNB-2, PAN Seeds-1, Syngenta-1, BCKV-2**
	Checks:	Gautam, IR 64, Rajalaxmi(HC) and Local Check.
36	**ADVANCE VARIETY TRIAL 2-NEAR ISOGENIC- IME & IM duration Yield trialAVT 2-NIL (IME&IM)**	
	2nd year of testing:	IET No: 30261 **Repeats** IET No: 28018, 28017

Trial No	Test Entries	
37	**ADVANCE VARIETY TRIAL 1-NEAR ISOGENIC- IME & IM duration Yield trial(AVT 1-NIL (IME & IM)**	
	1st year of testing:	**New Nominations:** **Repeats: IET 30282, 29203, 30281 and 30284**
38	**ADVANCE VARIETY TRIAL 1-NEAR ISOGENIC- Late duration Yield trial (AVT 1-NIL (L)**	
	1st year of testing:	**Repeat:** IET 30304 **New Nominations:**
39	**ADVANCE VARIETY TRIAL 1-NEAR ISOGENIC-COASTAL SALINITY (AVT1-NIL (CS)**	
	1st year of testing:	**New Nominations**:
40	**ADVANCE VARIETY TRIAL 2-LOW PHOSPHORUS TOLERANCE (AVT 2-LPT)**	
	3rdyear of testing:	IET No: 28821
	Checks:	**Positive**: Swarna, Rasi**; Negative**: Improved Samba Mahsuri;
41	**ADVANCE VARIETY TRIAL 1-LOW PHOSPHORUS TOLERANCE (AVT 1-LPT)**	
	2ndyear of testing:	IET No: 29549, 29546, 30230, 29560, 29558, 30233, 30235, 30240, 30241, 30242, 30244, 30245, 30247, 30252
	Checks:	**Positive**: Swarna, Rasi**; Negative**: Improved Samba Mahsuri;
42	**INITIAL VARIETY TRIAL -LOW PHOSPHORUS TOLERANCE (IVT-LPT)**	
	1st year of testing:	**New Nominations:** CTK-7
	Checks:	**Positive**: Swarna, Rasi and Vandana**; Negative**: Improved Samba Mahsuri;
43	**ADVANCE VARIETY TRIAL 1-LOW NITROGEN TOLERANCE (AVT 1-LNT)**	
	2ndyear of testing:	IET No: 29573, 29576, 29577, 29564, 29579, 29584, 29581, 29574, 29578, 30261, 30269, 30270, 30273
	Checks:	**Positive :** Varadhan, Tella Hamsa, Swarna and Rasi **Susceptible :** Improved Samba Mahsuri
44	**INITIAL VARIETY TRIAL -LOW NITROGEN TOLERANCE (IVT-LNT)**	
	1st year of testing:	**New Nominations:** CTK-10
	Checks:	**Positive :** Varadhan, Tella Hamsa, Swarna and Rasi **Susceptible :** Improved Samba Mahsuri
45.	**Special Coloured Rice Pilot trial**	
	1st of year of testing:	**New Nominations:**
	Checks:	

Appendix 16

ENTRIES FOR AGRONOMIC EVALUATION KHARIF 2022

S. No.	IET No.	Designation	Cross Combination	GT	Trial Name in 2021	Trial Name in 2022
1	28890	TRC GN 117-B-B-12-1-1	Gomatidhan / Tripura Nirog	LS	AVT 1-E (H)	AVT 2-E (H)
2	28196 (R)	TRC KS -1512-B-B-1-12-1	Kanaktara / Swarna	LB	AVT 1-E (H)	AVT 2-E (H)
3	28206 (R)	HPR 3106	HPR 2336/AC 19146// HPR 2143	LB	AVT 1-E (H)	AVT 2-E (H)
4	28884	TRC BN 793-B-B-27-4-1	Bhalum 3 / Naveen	SB	AVT 1-E (H)	AVT 2-E (H)
5	28883	VL 32585	VL 31290 / O. minuta	LB	AVT 1-E (H)	AVT 2-E (H)
6	28895	VL 32560	VL 31339 / BL 122	LS	AVT 1-E (H)	AVT 2-E (H)
7	28882	HPR 3201	HPR 2143 /AC19146	LS	AVT 1-E (H)	AVT 2-E (H)
8	28224	SKUA 535	Vivekdhan 82 / Shalimar Rice-3	SB	AVT1-M (H)	AVT2-M (H)
9	28222	TRC BN-1818-B-B-23-7-1	Bhalum 3 / Naveen	LB	AVT1-M (H)	AVT2-M (H)
10	28907	CAUS 124 (ULRC 26-11-2-1-1)	Kasalath / Borodhan	LB	AVT1-M (H)	AVT2-M (H)
11	28217	SKUA 533-2	Jhelum / Shalimar Rice-1 // Jhelum	SB	AVT1-M (H)	AVT2-M (H)
12	28840	PUR- B-190	Nilachal / MTU 7029	SB	AVT 1-BORO	AVT 1-BORO
13	28849	***NK 5231 (Hybrid)***	-	SB	AVT 1-BORO	AVT 1-BORO
14	28848	***JKRH 2728 (Hybrid)***	-	SB	AVT 1-BORO	AVT 1-BORO
15	29140	BRR 2176	IR 97443-11-2-1-1-1-1-B / HUR- 1304	MS	AVT 1-E TP	AVT 2-E TP
16	28954	***KAVERI-7299 (Hybrid)***	-	LB	AVT 1-E TP	AVT 2-E TP
17	28960	***RRX-848 (Hybrid)***	-	LS	AVT 1-E TP	AVT 2-E TP
18	29142	JGL 35085	(JGL 20171 / NLR 34449) / JGL 20171	LB	AVT 1-E TP	AVT 2-E TP
19	29177	ORJ 1317 (RP 5530-23-1)	RP Bio 226 / IRGC 48960 // MTU 1081	LS	AVT 1-E TP	AVT 2-E TP
20	28959	***PHI-20101 (Hybrid)***	-	LS	AVT 1-E TP	AVT 2-E TP
21	28964	***VNR-227 (Hybrid)***	-	LB	AVT 1-E TP	AVT 2-E TP
22	28950	***HRI-207 (Hybrid)***	-	SB	AVT 1-E TP	AVT 2-E TP
23	28956	***JKRH-1601(Hybrid)***	-	LB	AVT 1-E TP	AVT 2-E TP
24	29197	ORJ 1349 (TP 30457)	IR 09L272 / IR 10L105	LB	AVT 1-E TP	AVT 2-E TP
25	29214	OR 2523-6	Khandagiri / IR 72	MS	AVT 1-IME	AVT 2-IME
26	29233	RNR 28360	Bhadrakali / NSN 20894	LS	AVT 1-IME	AVT 2-IME
27	29217	Pusa 2090-17-20	Pusa 44 / CB501	LB	AVT 1-IME	AVT 2-IME
28	29212	Shuats Dhan-7	IR 7405-297-2-1/IR 71700-247-1-1-5	LS	AVT 1-IME	AVT 2-IME
29	28353	NLR 3573	IET 21687 / NLR 40024	SB	AVT 1-IME	AVT 2-IME
30	29235	PNPK 7106	PNP 3 / SR	LS	AVT 1-IME	AVT 2-IME
31	29246	HKR 16-35	HKR 47 / HKR 99-60 // HKR 47	LS	AVT 1-IME	AVT 2-IME
32	29238	ORJ 1351 (TP 30600)	IRRI 154 / Mazhan (Red) // IR08N194	LB	AVT 1-IME	AVT 2-IME
33	28982	***RRX-809 (Hybrid)***	-	LB	AVT 1-IME	AVT 2-IME
34	28128	***SHX-468 (Hybrid)***	-	LB	AVT 1-IME	AVT 2-IME
35	28979	***PHI-20102 (Hybrid)***	-	LB	AVT 1-IME	AVT 2-IME

S. No.	IET No.	Designation	Cross Combination	GT	Trial Name in 2021	Trial Name in 2022
36	29236	CR 3580-3-1-1-1-1-1-2	Lalat / N 22	SB	AVT 1-IME	AVT 2-IME
37	28506	CR 3849-2-1-2-1-2	Pooja / IR64 MAS	LB	AVT 1-IME	AVT 2-IME
38	29268	OROI-8- IR 88228-33-3-5-2	IR 80410-B-197-4 / IR 64-Sub 1 // NCIC RC 158	LS	AVT 1-IM	AVT 2-IM
39	28489	BRR 2141	TTB 680-2-35-2 Selection	MS	AVT 1-IM	AVT 2-IM
40	29002	***PHI-20106 (Hybrid)***	-	LB	AVT 1-IM	AVT 2-IM
41	29284	MTU 1348 (MTU 2689-45-1-1)	MTU 1010 / MTU 7029	MS	AVT 1-IM	AVT 2-IM
42	29006	***PHI-20108 (Hybrid)***	-	LB	AVT 1-IM	AVT 2-IM
43	29014	***MEPH-159 (Hybrid)***	-	SB	AVT 1-IM	AVT 2-IM
44	29257	RNR 28399	BPT5204 / IR79216-141-1-3-3-3	LB	AVT 1-IM	AVT 2-IM
45	29301	AD 16124	CO (R) 50/AD 08132	SB	AVT 1-IM	AVT 2-IM
46	28997	***HRI-204 (Hybrid)***	-	LB	AVT 1-IM	AVT 2-IM
47	29008	***PHI-20109 (Hybrid)***	-	LB	AVT 1-IM	AVT 2-IM
48	29256	BPT 3050	BPT 5204 / BPT 3291	LB	AVT 1-IM	AVT 2-IM
49	29290	HURS19-3	CR 2407 / IR 64	SB	AVT 1-IM	AVT 2-IM
50	29001	***S-7004 (Hybrid)***	-	LB	AVT 1-IM	AVT 2-IM
51	29004	***PHI-20107 (Hybrid)***	-	LB	AVT 1-IM	AVT 2-IM
52	29009	***US-375 (Hybrid)***	-	LB	AVT 1-IM	AVT 2-IM
53	29000	***HRI-205 (Hybrid)***	-	LB	AVT 1-IM	AVT 2-IM
54	29349	R 2284-52-114-1	R 1670-3267-1-3920-1 / ARC 10550	SB	AVT 1-L	AVT 2-L
55	29351	WGL-1289	MTU1081 / BM71	LB	AVT 1-L	AVT 2-L
56	28508	CR 2830-48-1	Swarna / ARC10075	SB	AVT 1-L	
57	29423	TRC 2020–3	Hakuchuk 2 / Tripura Nirog	LS	AVT 1-AEROB	AVT 2-AEROB
58	29422	CRR 756-21	IR08L183 / MTU 1010	LS	AVT 1-AEROB	AVT 2-AEROB
59	29412	***US 393 (Hybrid)***	-	LB	AVT 1-AEROB	AVT 2-AEROB
60	29396	CRR 822-20-1-2-2	IR11L152 / Sabitri	LS	AVT 1-AEROB	AVT 2-AEROB
61	29405	RCPR 70- IR 84899-B-184-16-1-1-1	IR78877-208-B-1-1 / IRRI 132	LB	AVT 1-AEROB	AVT 2-AEROB
62	29411	CR 4161-5-6-IR 14L572	IR10L146 / IR10L149	LS	AVT 1-AEROB	AVT 2-AEROB
63	29415	RP 6326-278-14-1	MTU 1010 / WGL 505	LB	AVT 1-AEROB	AVT 2-AEROB
64	29424	CR 4317-2-IR 97034-21-2-1-3	IR09L337 / IR09L154	LB	AVT 1-AEROB	AVT 2-AEROB
65	29394	CSR 88	CSR30 / CSR36	LS	AVT 1-AEROB	AVT 2-AEROB
66	29436	CRR 821-21-2-1-3	IR09L337 / IR09L154	LS	AVT 1-AEROB	AVT 2-AEROB
67	29421	RP 6324-123-14-4-1	CR 691-1 / CR Dhan 202	MS	AVT 1-AEROB	AVT 2-AEROB
68	29409	TRC 2020–14	Hakuchuk 1 / Naveen	LB	AVT 1-AEROB	AVT 2-AEROB
69	29430	CR 4118-1-1-2-2-1	CR Dhan 201 / IR 84549-B-183-13-1-1-2	LS	AVT 1-AEROB	AVT 2-AEROB
70	29410	RP 5594-147-23-1	MTU 1010 / RPHR 1005	LB	AVT 1-AEROB	AVT 2-AEROB
71	29539	MTU 1362 (MTU 2578-5-2-1-1-1)	MTU 1156 / MTU 1081	MS	AVT 1-MS	AVT 2-MS
72	29523	R 2054-685-1-205-1	R 1033-2559-1-1 / Gopal bhog	MS	AVT 1-MS	AVT 2-MS
73	29492	CSR 27SM160	CSR 27 / BPT 5204	MS	AVT 1-MS	AVT 2-MS
74	29017	***RALLIS-19608 (Hybrid)***	-		AVT 1-MS	AVT 2-MS
75	29536	OR 2674-14-6-2	CRMS 32A / OR 1889-5	MS	AVT 1-MS	AVT 2-MS
76	28694	GNV 1906	Selection from IR	LB	AVT 1-BIOFORT	AVT 2-BIOFORT

S. No.	IET No.	Designation	Cross Combination	GT	Trial Name in 2021	Trial Name in 2022
			99290-11-2-2			
77	29356	CSAR-7-9-2020	Selection from BC-3-7-9	LB	AVT 1-AL&ISTVT	AVT 2-AL&ISTVT
78	29365	CSR TPB 159	Trichy 1 / PB1	LB	AVT 1-AL&ISTVT	AVT 2-AL&ISTVT
79	29354	CSR YET 59	CSR27 / CSR36	LS	AVT 1-AL&ISTVT	AVT 2-AL&ISTVT
80	29360	CSAR 12-10-2020	Selection from BC-12-12-10	LB	AVT 1-AL&ISTVT	AVT 2-AL&ISTVT
81	29361	CSR CPB 69	CSR 89IR15 / PB1	LB	AVT 1-AL&ISTVT	AVT 2-AL&ISTVT
82	29366	CSR YET 8	CSR 27 / CSR 36	LB	AVT 1-AL&ISTVT	AVT 2-AL&ISTVT
83	29358	CSR YET 55	CSR27 / CSR36	MS	AVT 1-AL&ISTVT	AVT 2-AL&ISTVT
84	29353	GNV 18-64	GNV 1109 / CSR 22	LS	AVT 1-AL&ISTVT	AVT 2-AL&ISTVT
85	27807	KR 15066 (224-4-3-1-1)	ADT 45 / FL478	LB	AVT 1-AL&ISTVT	AVT 2-AL&ISTVT
86	27847	***IIRRH115 (Hybrid)***	-	LB	IVT-CSTVT	AVT 1-CSTVT
87	30261	RP 6317-RMS-S35-BC2F4-49-25-12-18	MTU 1121*2 / Swarna	LS	AVT 1-NIL-LNT	AVT 2-NIL-LNT
88	28018	Pusa 1823-12-82	Pusa 44 / IR81896-B-B-142 // Pusa 44*3	LS	AVT 1-NIL Drt	AVT 2-NIL Drt
89	28017	Pusa 1823-12-62	Pusa 44 / IR81896-B-B-142 // Pusa 44*3	LS	AVT 1-NIL Drt	AVT 2-NIL Drt
90	28821	RP 5964-82	KMR 3R / Swarna*1	LB	AVT1-LPT	AVT 2-LPT

Appendix 17

Rice Varieties Released in 2021

S. No.	*Variety/ Hybrid*	IET No.	Designation	Cross combination	FD	Eco	GT	Reaction to pests and diseases	Recommended States	Yield (t/ha)	Notification No. & date
CENTRAL RELEASES											
1	***RH 150025 (Hybrid)***	26477	ADV 8082	RH150025A/RH150025R	90	IRE	SB	MT- SB	CH, MH	6.74	500 (E) 29-01-2021
2	***JKRH 2354 (Hybrid)***	26468	JKRH 2354	JKRA 1104/JKRR 10571	90	IRE	LB	MR-BLB, ShBl, BS	CH, MP, MH	7.09	500 (E) 29-01-2021
3	***JKRH 2154 (Hybrid)***	24914	JKRH 2154	JKRA 1102/JKRR 10571	90	IRE	LB	R-SB, LF; MR-BLB, BS,	PU, HR, UP, BI, WB	6.27	500 (E) 29-01-2021
4	CR Dhan 315	27179	CR 2826-1-1-2-4B-2-1	Swarna/ARC 10075	100	Biofort	MS	MR-SB, MT-BS	GU, MH	5.02	500 (E) 29-01-2021
5	Aerobic Dhan-1	26178	TRC 2015-5	Naveen/Kataktara	86	ARB	SB	MT-ShBl, BS	KA, JH, CH	4.94	500 (E) 29-01-2021
6	ICAR-NEH Hill Rice 14-8	24197	TRC 2014-8 (IR 83928-B-B-9-1)	IR 78878-208-B-1-2/IR 74371-54-1-1	99	HRIR	LS	R-BLB, RTD, ShBl, BS	HP, KA	4.21	500 (E) 29-01-2021
7	DRR Dhan 56	26803	RP 6221-GSR IR1-8-S9-D2-Y2=HHZ 8-SAL9-DT2-Y2	Huang-Hua-Zhan*2/Phalguna	89	IRE	LS	R-BLB	PU, HR	5.25	500 (E) 29-01-2021
8	Telangana Vari 3	26125	JGL 21078	MTU 1010/JGL 11470	90	IRME	MS	R-BLB, RTD, ShBl, BS	TS, KE	5.55	500 (E) 29-01-2021
9	DRR Dhan 53	27294	RP 6113-Patho-BB9	Improved Samba Mahsuri*3/PAU 3554	101	NILs	MS	R-BLB	AP, TS, CH, MH, JH, OD, BI, GU, MH	4.79	500 (E) 29-01-2021
10	DRR Dhan 55	26194	RP 5591-123-16-2	MTU 1010/IR 79915-B-83-4-3	87	ARB	LB	R-GM;MR-BPH, WBPH	BI, CH	4.97	500 (E) 29-01-2021
11	DRR Dhan 54	25653	RP 5943-421-16-1-1-B	RP 5124-11-4-3-2-1/IR 78877-208-B-1-1	86	ARB	SB	R-RTD; MR-BLB, BS, GM	BI, OD, TS, JH, HR, GU	5.26	500 (E) 29-01-2021
12	***PHI-17108 (Hybrid)***	26549	28S44	RA503F/RA511	105	MS	MS	R-BLB; MR-RTD; T-LF	TS, KA, AP	6.52	500 (E) 29-01-2021
13	***PHI-16101 (Hybrid)***	25745	27P27 (B 9333)	RA402F/R872	97	IRME	LB	MR-BLB	UT, CH, MH	7.13	500 (E) 29-01-2021

S. No.	*Variety/ Hybrid*	IET No.	Designation	Cross combination	FD	Eco	GT	Reaction to pests and diseases	Recommended States	Yield (t/ha)	Notification No. & date
14	***Indam 100-012 (Hybrid)***	26999	Indam 100-012	IAHS 25A/IASN RB 30-22	100	SCR	LS	MR-GM; T-SB	UP, PU	7.81	500 (E) 29-01-2021
15	Telangana Vari 2	26027	WGL 697	MTU-1010/NLR 34449	108	IRM	MS	MR-RTD, BPH, WBPH, LF	TS, AP, TN, KE	6.96	500 (E) 29-01-2021
16	MTU Rice 1239	26263	MTU 1239	MTU 1075/BM 71	110	MS	MS	MR-BLB	AP, TN, MH	6.26	500 (E) 29-01-2021
17	MTU Rice 1223	25856	MTU 1223	MTU 1081/MTU 1064	120	RSL	MS	MT-BLB, SB	OD, BI	5.30	500 (E) 29-01-2021
18	VL Dhan 88	25819	VL 32224	Vivek Dhan 82/VL 31629	93	HRIR	LB	MR-BLB, ShBl	HP, ME, UT	4.96	500 (E) 29-01-2021
19	***SAVA 127(Hybrid)***	22876	SVH-005	-	90	IRE	LB	MR-BL, BLB, ShBl	BI, PU	5.69	2986 (E) 20-07-2021
20	DRR Dhan 57	26171	RP 5601-283-14-4-1	BPT 5204/Azucena	90	ARB	SB	MR-BL	JH, CH	4.78	8 (E) 24-12-2021
21	DRR Dhan 58	28784	RP 6287-188-45-12-88	Improved Samba Mahsuri*3///FL 478	100	NILs	MS	R-BLB	AP, TS, TN, KA, JH, OD, CH, MH, GU, BI	4.15	8 (E) 24-12-2021
22	DRR Dhan 59	27280	RP 5989-47-15-11-1-126-2-13-11	Akshayadhan*2/FBR1-15	100	NILs	LB	R-BLB	AP, TS, TN, KA, JH	5.50	8 (E) 24-12-2021
23	DRR Dhan 60	28061	RP 5970-2-6-19-16-24-1	Improved Samba Mahsuri*2/Swarna	90	NILs	MS	R-BLB	AP, TS, TN, KA, JH, OD, CH, MH, GU, BI	3.96	8 (E) 24-12-2021
24	DRR Dhan 62	28804	RP 6286-Bio Patho 5-156-14-7	Improved Samba Mahsuri*2///Improved Samba Mahsuri/C101A51//Improved Samba Mahsuri/Tetep	100	NILs	MS	R-BLB	TS, AP, TN, KA, CH, OD, JH, BI, GU, MH	4.23	8 (E) 24-12-2021
25	Pusa Basmati-1847	27722	Pusa 1847-12-62-190-39-7	Pusa Basmati 1509*2/Pusa 1790	94	SCR	ELS	R-BL, BLB	DL, PU, WUP	5.70	8 (E) 24-12-2021
26	Pusa Basmati-1885	28807	Pusa 1885-13-125-20-6	Pusa 1883/Pusa Basmati 1718	109	SCR	ELS	R-BL, BLB	DL, PU, HR	4.68	8 (E) 24-12-2021
27	Pusa Basmati-1886	28808	Pusa 1886-13-91-26-9	Pusa 1884/Pusa Basmati 1728	109	SCR	LS	R-BL, BLB	HR, UT	4.49	8 (E) 24-12-2021

S. No.	*Variety/ Hybrid*	IET No.	Designation	Cross combination	FD	Eco	GT	Reaction to pests and diseases	Recommended States	Yield (t/ha)	Notification No. & date
28	Pusa Basmati-1979	28812	Pusa 1979-14-7-33-99-66	PB 1121/Robin//PB 1121*4	102	SCR	ELS	R-BL, BLB, ShBl	DI, PU, HR	4.57	8 (E) 24-12-2021
29	Pusa Basmati-1985	28814	Pusa 1985-15-7-58-190	PB 1509/Robin//PB 1509*3	87	SCR	ELS	R-BLB, MR-ShBl, S-RTD	DL, PU, WUP	5.15	8 (E) 24-12-2021
30	***NPH-XI (Hybrid)***	27332	NPH-XI	NPS 2030/NPS 2342	90	IRE	SB	MR-BL, BPH, GM	JH, WB	6.34	8 (E) 24-12-2021
31	***MR 8666 (Hybrid)***	24990	MR 8666	RA0159/RR0341	107	MS	MS	T-BLB, RTD, ShBl, BS	OD, UP, CH, AP	5.57	8 (E) 24-12-2021
32	Swarna Unnat Dhan	27892	RCPR 58-IR 93827-29-1-1-3	IR 81039-B-173-U-3-3/IR 81063-B-94-U-3-1	87	IRE	LS	MR-BL, BLB	OD, BI, WB, MP, MH	5.30	8 (E) 24-12-2021
33	MTU Rice 1281	27438	MTU 1281	(MTU 1075/MTU 1081)/MTU 1121	110	MS	MS	MR-BL, BPH	AP, TS, TN, KA, PD, OD	5.97	8 (E) 24-12-2021
34	CRR 807-1	27914	CR Dhan-320	IR 10L146/IR 10L137	87	IRE	LS	MR-BL, BS; MT-SB, BPH, LF	BI, JH, WB	5.35	8 (E) 24-12-2021
35	CR Dhan-318	27803	CR 4009-4-2-GSR IR1-DQ 138-L11-Y1	GSR IR1-8-S6-S3-Y2/GSR IR1-8-Y7-D2-S1	88	IRE	LS	MR-BL	BI, WB, UT, HR	5.29	8 (E) 24-12-2021
36	CR Dhan-319	25530	CR 3561-3-2-1-1-1-1	Surendra/Annapurn	101	IRM	MB	T-SB, BPH	BI, OD	6.02	8 (E) 24-12-2021
37	DRR Dhan 63	26383	RP 5115-111-24-3-1-1	IET 17280/Pusa Basmati 1	97	Biofort	SB	MR-BLB	UP, OD, KE	6.04	8 (E) 24-12-2021
38	VL Dhan 69	26596	VL 32130	VL 10689/UPRI 2005-15	100	HRIR)	SB	MR-BS, SB, BPH, WBPH	UT, SK, J&K	4.25	8 (E) 24-12-2021
39	Telangana Vari 4	27869	JGL 25958	MTU 1010/NLR 34449	90	IRE	LS	MR-RTD	BI, JH, OD	5.58	8 (E) 24-12-2021
40	MTU Rice 1212	26819	MTU 1212	IR 64/PLA 99-1-3-1-3	110	IRM	MS	MR-BL, ShBl, BS, GLH, WBPH	AP, TS	5.50	8 (E) 24-12-2021
41	MTU Rice 1280	27705	MTU 1280	MTU 1001/KMP 150	105	IRM	LB	MR-SB, LF	AP, TS, TN, KA	6.07	8 (E) 24-12-2021
42	Kalinga Dhan 1201	26126	OR 2512-5	Kharavela/IR 62037-93	125	IRME	LS	MR-BL, BLB, BS, GM, LF	CH, MH, OD	5.72	8 (E) 24-12-2021
43	Kalinga Dhan 1202	26227	OR 2560-6	Pratikshya/IR 32253-7	130	MS	MS	MR-BS, BPH, GM	CH, MH, OD	6.05	8 (E) 24-12-2021

S. No.	*Variety/ Hybrid*	IET No.	Designation	Cross combination	FD	Eco	GT	Reaction to pests and diseases	Recommended States	Yield (t/ha)	Notification No. & date
44	Kalinga Dhan 1203	27117	ORJ 1135	Mutant of R-R-615	110	MS	MS	MR-SB, BPH, LF	CH, MH, OD	5.42	8 (E) 24-12-2021
45	Kalinga Dhan 1301	26024	OR 2573-15	Birupa/IR 76561-AC-8-8	104	IRM	LB	MR-BLB, SB, BPH, LF	AP, TN, MH	5.95	8 (E) 24-12-2021
STATE RELEASES											
46	***PNPH 24 (Hybrid)***	21406	***PNPH 24***	PRN 1A (IR 58025)/PRN 24R	97	IRME	LS	T-BL, BS	AS	5.53	500 (E) 29-01-2021
47	Vikram Trombay Chhattisgrah Rice	27773	VIKRAM-TCR	Safri-17, Local Variety of Chhttisgarh	93	IRME	LS	T-SB	CH	5.33	500 (E) 29-01-2021
48	CG Jawaphool Trombay	27027	RTR-31	Jawaphool, Local variety of Chhatisgarh	105	ASG	SS	T-BLB, SB	CH	3.95	500 (E) 29-01-2021
49	Narendra Shishir	19117	IR 70803-2-NDR-3-4-15 (NDR 9930111)	CN 843-7-1/KDML 105//IR 49830-7-1-2-3	105	RSL	SB	MR-BLB, ShBl, SB, BPH, WBPH, GM	UP	4.50	500 (E) 29-01-2021
50	Sabour Sampanna Dhan	25960	BRR 0059	IR 91659-54-35//IR81896-B-B-195/2*IR05F102	125	RSL	SB	MR-BLB, BS	BI	5.50	500 (E) 29-01-2021
51	VL Sikkim Dhan-4	26596	VL 32130	VL 10689/UPRI 2005-15	91	HRIR	SB	R-ShBl, BS	UT	4.85	500 (E) 29-01-2021
52	Swarna Samriddhi Dhan	24306	RCPR-10-IR83383-B-B-129-4	IR72022-46-2-3-3-2/IR57514-PMI 5-B-1-2	105	RSL	LS	MR-BLB, RTD, ShBl, BS	BI	5.50	500 (E) 29-01-2021
53	Swetha	22764	NLR 40024	WGL 14280-1/NLR 30491	95	RUP	MS	T-BL	AP	4.79	500 (E) 29-01-2021
54	Nellore Sona	20552	NLR 3041	BPT 5204/NLR 145	110	IRME	MS	T-BL, BPH,WBPH	AP	6.00	500 (E) 29-01-2021
55	VL Dhan 159	26598	VL 20083	VL 66/HPR 2143	88	HRUR	SB	R-BS		2.05	500 (E) 29-01-2021
56	Tapi (GR 16)	26646	NVSR 2233	GR-5/Danteswari	100	RUP	LB	MT-SB	GU	3.20	500 (E) 29-01-2021
57	CG Barani Dhan-2	24690	R-RF-105	IR 84887-B-153-CRA-25-1/IR74371-51-1-1/IR 78877-208-B-1-1	77	RUP	MS		CH	3.49	500 (E) 29-01-2021
58	Jammu Basmati 118	27733	SJBR 118	Secondary selection from local traditional basmati	105	SCR	LS	MR-BLB, BS, SB	JK	4.50	2986 (E) 20-07-2021

S. No.	*Variety/ Hybrid*	IET No.	Designation	Cross combination	FD	Eco	GT	Reaction to pests and diseases	Recommended States	Yield (t/ha)	Notification No. & date
59	Jammu Basmati 123	27718	SJBR 123	Secondary selection from local traditional basmati	125	SCR	LS	MR-BLB, BS	JK	4.00	2986 (E) 20-07-2021
60	Jammu Basmati 138	27725	SJBR 138	Secondary selection from local traditional basmati	125	SCR	LS	MR-BLB, BS	JK	4.20	2986 (E) 20-07-2021
61	Kau Pournami (MO 23)	23739	KAU M 109-1-2-1	NHTA 8/ MO 8	90	IRME	MB	MR-ShBl, BPH, GM	KE	5.30	2986 (E) 20-07-2021
62	Kau Manu Rathna		HS-16	Pure line selection from Hraswa	99	RUP	MB	MT- BL, BLB, ShBl	KE	5.70	2986 (E) 20-07-2021
63	Kau Akshya (PTB 62)	26951	Kau PTB 0615-01-25-17	Pranava x Chettadi	110	IRL	SB	MR-SB	KE	5.00	2986 (E) 20-07-2021
64	Lavanya (Kau-VTL-10)	25083	KAU VTL -51-5	VTL-3 Mutant	83	IRSA	SB	MS-SB	KE	4.50	2986 (E) 20-07-2021
65	Jyotsna (KAU, BIL4)	26057	KAU VTL-11	Jyothi/FL 478/Jyothi//Jyothi	75	IRSA	LS	MR-BL, ShBl, S-BLB	KE	5.44	2986 (E) 20-07-2021
66	KAU Supriya (PTB 61)	27244	KAU PTB 0614-7-8-24 (Cul 06-6)	Pranava x Vellari	110	RUP	SB	MR-BLB	KE	6.50	2986 (E) 20-07-2021
67	Devli Kolam	27419	GR 18 (NVSR 2528)	GAR 13/JGL 3828	83	MS	MS	MT-SB, WBPH	GU	5.40	8 (E) 24-12-2021
68	Auranga	27043	GR 19	Dandi/IET 15429	100	IRSA	SB	MR-BLB	GU	3.12	8 (E) 24-12-2021
69	Aarti	27941	GNR 8 (NVSR 396)	IET 19347/RP-4075-129-07-3	73	ARB	LB	MR-BLB, SB, LF	GU	5.17	8 (E) 24-12-2021
70	JR 10	25535	NPT 14-10	NPT 29/R 296	95	IRME	LS	R-BL	MP	5.50	8 (E) 24-12-2021
71	CO 54	24313	CB 12588	CB 04110/CB 05501	84	IRE	MS	MR-BL,BS,BPH	TN	6.35	8 (E) 24-12-2021
72	Rice ADT 55	26770	AD (Bio) 09518	ADT 43/IRBB 60	115	IRE	MS	MR-BL, LF	TN	5.92	8 (E) 24-12-2021
73	Rice TRY 4	21730	TR 05031	ADT 39/CO 45	100	IRSA	MB	R-BLBS, SB, GM, LF	TN	5.73	8 (E) 24-12-2021
74	Trombay Chhattisgarh Sonagathi Mutant	27646	TCSM	Sonagathi, A Traditional Rice Landrace	104	IRL	MB	MR-ShBl, BS, SB	CH	6.67	8 (E) 24-12-2021

S. No.	*Variety/ Hybrid*	IET No.	Designation	Cross combination	FD	Eco	GT	Reaction to pests and diseases	Recommended States	Yield (t/ha)	Notification No. & date
75	Trombay Chhattisgarh Vishnubhog Mutant								CH		8 (E) 24-12-2021
76	PR 128	28467	RYT 3437	PAU 201/PAU 3699-13-2-3-1//PAU 201	111	IRL	LS	R-BLB	PU	7.71	8 (E) 24-12-2021
77	PR 129	26127	RYT 3468	PAU 201/PAU 3699-13-2-3-1//PAU 201	108	IIRME	LS	R-BLB	PU	7.38	8 (E) 24-12-2021
78	Swarna Sukha Dhan	24692	RCPR-16-IR84894-143-CRA-17-1	IR 77080-B-34-3/IRRI 132	85	RUP	MS	MR-BLB, RTD, ShBl, BS	UP	4.00	8 (E) 24-12-2021
79	Chhattisgarh Dhan 1919	26229	R 1919-537-1-160-1	Shyamala/G 93-02	102	MS	MS	T- BS	CH	5.34	8 (E) 24-12-2021
80	***CR Dhan 702 (Hybrid)***	25231	CRHR-102	CRMS 31A/CRL 123R	115	IRL	LS	MR-BLB, RTD, BPH, WBPH, GM	OD	5.43	8 (E) 24-12-2021
81	***CR Dhan 703 (Hybrid)***	25278	CRHR-103	CRMS 32A/CRL 123R	115	IRL	LS	MR- BLB, RTD	OD	5.86	8 (E) 24-12-2021
82	CRRI Gaurav-1	27267	CR Dhan 316	IR 73963-86-1-5-2/CR 2324-1	111	NPT	LB	R-SB; MR-LF	OD	5.61	8 (E) 24-12-2021
83	Roshan	24409	CR Dhan 317	Tapaswini/Dhobanumberi	108	IRL	SB	R-BPH; T-BLB, ShBl	OD	4.57	8 (E) 24-12-2021
84	Swaranjali	26398	CR Dhan 411 (CR 2830-PLS-17)	ARC 10075/Swarna	108	Biofort	SB	R-LF; MT-BLB, BS	OD	5.37	8 (E) 24-12-2021
85	NICRA Dhan, Lune Ambika	27852	CR Dhan 412 (CR 2851-S-1-6-2B-4-1)	Gayatri/SR 26B	101	IRSA	MS	R-LF; MR-BS; T-BLB	OD	3.21	8 (E) 24-12-2021
86	Reeta-Panidhan	26696	CR Dhan 413 (CR 4041-1-2-1-1-1)	Swarna-Sub 1/Reeta	124	RSL	SB	R-SB, BPH, WBPH; MR-LF	OD	4.92	8 (E) 24-12-2021
87	Satrughan	25912	CR Dhan 512 (CR 2667-5-1-2-1-1)	Gayatri/AC.38599	88	SDW	SB	MT-BLB, ShBl	OD	3.92	8 (E) 24-12-2021
88	Trilochan	26398	CR Dhan 803 (CR 3932-7)	Pooja*3/Swarna-Sub 1	114	NILs	SB	R-RTD, SB, BPH; MR-WBPH, LF	OD	5.04	8 (E) 24-12-2021
89	CSR 76	27070	CSR 2748-4441-195	CSR 27/MI48	100	IRSA	LS	MR-BLB	UP	3.44	8 (E) 24-12-2021
90	PDKV Sakoli Red Rice	28710	SKLRR 1	Selection from Local Ludka-Local ludka 7-3-2	106	Biofort	SS	MR-SB	MH	4.30	8 (E) 24-12-2021

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91	Rajendranagar Vari-1	27077	RNR 11718	MTU 1010/NLR 34449	110	IRL	MS	MR-BLB, BS, SB, BPH, LF; S-GM	TS	6.62	8 (E) 24-12-2021
92	Rajendranagar Vari-2	26143	RNR 15435	RNR 17818/Vasumati	97	SCR	LS	MR-BL, BS	TS	5.71	8 (E) 24-12-2021
93	Warangal Vari-2	26094	WGL 962	BPT 5204/GEB 24//BPT 5204//Shatabdi	95	IRME	MS	MT-SB; S-BLB, BPH, GM	TS	5.31	8 (E) 24-12-2021
94	Kunaram Vari-2	26245	KNM 1638	JGL 11727/JGL 17004	89	MLT	MS	MR-BL	TS	7.60	8 (E) 24-12-2021
95	Kampasagar Vari-1	27816	KPS 2874						TS		8 (E) 24-12-2021
96	VL Dhan 210	28929	VL 11364	VL Dhan 207/VL 30424	122	HRUR	LS	R-BL, BS, SB, LF	UT	2.15	8 (E) 24-12-2021
97	VL Dhan 211	28924	VL 11574	VL Dhan 209/VL 30424	126	HRUR	SB	R-BL, BS, SB, LF	UT	2.08	8 (E) 24-12-2021
98	Kalinga Dhan 1401	24297	OR(T) 26	A mutant of Rice Var. Lalat	112	IRL	MS	T-ShBl, BS	OD	5.59	8 (E) 24-12-2021
99	Kalinga Dhan 1501								OD		8 (E) 24-12-2021
100	Kalinga Dhan 1502								OD		8 (E) 24-12-2021
101	Kalinga Dhan 1204								OD		8 (E) 24-12-2021
102	Karjat Shatabdi		BM-4						MH		8 (E) 24-12-2021
103	Jai Bhawani	25882	NDGR 702	NDRGR207/IR49906-B-B-B-10-GHT-1	115	DW	MB	MR-SB	UP	4.00	8 (E) 24-12-2021
104	Sikkim Dhan-1	22948	RCPL1-412	Selection from IURON (BP 3180-MR-6)	100	HRIR	LB	MR-BLB, ShBl, BS	SK	3.50	8 (E) 24-12-2021
105	Sikkim Dhan-2	26579	HPR 2922	HPU-741/HPR-1149	95	HRIR	LS	R-ShBl, BS, T-SB, LF	SK	3.38	8 (E) 24-12-2021
106	Sikkim Dhan-3	25539	HPR 2774	VL221/RP2421//IR53915	95	HRUR	LS	MR-BS	SK	3.00	8 (E) 24-12-2021

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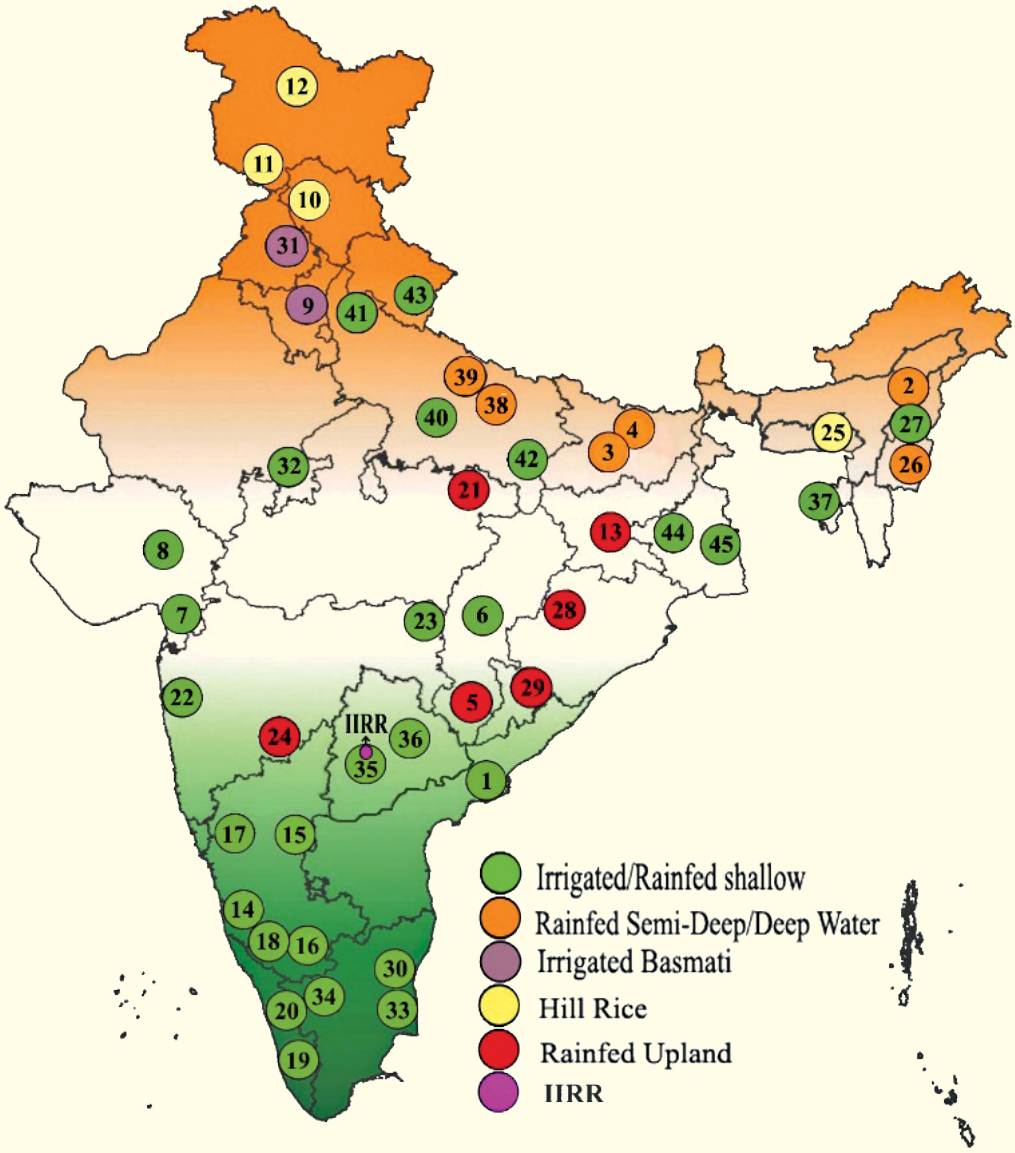
107	IGKV DH Rice-1	28452	CG Tejaswi Dhan	Safri-17/RP Bio-226	125	IRM	MS	MR-BLB	CH	5.50	8 (E) 24-12-2021
108	Kalinga Dhan 1205	22579	ORJ 7	ORS 199-2/MRC 22909	110	IRME	MS	MR-BL, BLB, BS	OD	5.29	8 (E) 24-12-2021
109	***Sava 300 (Hybrid)***	24796	SVZ-1109	-	91	IRE	LS	MR-BL, T-GLH, BPH	MP	6.21	8 (E) 24-12-2021
110	***Sava 200 (Hybrid)***	24901	Sava 200	-	91	IRE	LS	T-BLB, RTD, ShBl,SB	MP	6.69	8 (E) 24-12-2021
111	RNR 15048	23746	RNR 15048	MTU 1010/JGL 3855	87	IRME	SS		KA	7.76	8 (E) 24-12-2021
112	Sahyadri Pancmukhi										8 (E) 24-12-2021
113	Sahyadri Megha										8 (E) 24-12-2021

Note: Bold and italics are hybrids

आज़ादी का
अमृत महोत्सव



भाकृअनुप - भारतीय चावल अनुसंधान संस्थान

भारतीय कृषि अनुसंधान परिषद

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