



ICAR-Indian Institute of Rice Research NEWSLETTER

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RICE IS LIFE

October - December 2021

ICAR-IIRR celebrated 7th Foundation Day on 18th December 2021



The institute very joyously celebrated the 7th Foundation Day on 18th December 2021 in physical mode after the relaxation of COVID-19 norms on large gatherings. All the IIRR personnel were very happy to meet each other and celebrate the institute's Foundation Day. Retired IIRR personnel were specially invited and felicitated for their services to the institute. The event was supported by the Society for Advancement of Rice Research (SARR) headquartered at ICAR-IIRR, Hyderabad. SARR felicitated all the executive committee members for their contribution to the evolution and progress of the society from the time of its inception to the present stride. Dr RM Sundaram, Director, IIRR, Hyderabad, welcomed the dignitaries, guests and presented the achievements of the institute. He highlighted that nine new rice varieties were released from ICAR-IIRR this year. Institute also identified the gene for phosphorus use efficiency. Improved crop production technologies and efficient tools were developed and distributed to farmers. Institute organized 8 training programme this year.

On the Foundation Day, SVS Shastry memorial lecture on Rice Improvement: New Breeding Technologies was delivered in virtual mode by Dr T R Sharma, DDG (Crop Science), ICAR, who is a well-known Plant Molecular



Biologist. He dwelled on the challenges being faced rice production in the country in terms of growing population, reduced resources of land, water, labour and other resources. Achievement of these targets is all the more difficult due to the challenges posed by climate change, deteriorating soil health, emergence of new biotic agents,

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changing pest and pathogen dynamics, shortage of farm labour and increasing cost of cultivation. Strategies to address the challenges in rice improvement were outlined as breeding for improvement for not only higher yield but better grain and nutritional quality, durable stress resistance, nutrient use efficiency through application of molecular tools in consonance with conventional breeding and the most recent concept of speed breeding. Customized mechanization of rice cultivation, improving resource use efficiency, sustainability of DSR, cultivars and hybrids suitable to DSR are to be the thrust areas for crop production. Development of protection technologies for the holistic management of existing and emerging multiple biotic stresses in irrigated rice is the need of the hour. Application of new technologies like AI, IoT, sensors and big data analytics are to be explored for the phenotyping of large population and management of various production and protection technologies. Strategies for accelerated diffusion of technologies among farmers and other stakeholders and assessing the constraints and impact of technological interventions is highly essential.

Dr V Praveen Rao, Vice Chancellor, PJTSAU was the Guest of Honour for the program and highlighted the concern of water shortage in India and about poor water use efficiency in rice. He suggested the use of water efficient rice varieties, and DSR technology to save water for alternative uses. He also emphasized on virtual water export, large gap in irrigation potential created in our country and major challenges in the crop diversification. Dr Himanshu Pathak, Director, ICAR-National Institute of Abiotic Stress Management, Baramati, a special guest of the program emphasized on nitrogen use efficiency in rice and suggested to re-orient the AICRP on rice on this line. He also stated that, the nitrogen use efficiency is improving in recent years due to use of neem coated urea, improved management practices and efficient rice varieties and expressed the need for conducting large scale demonstrations across the country using all the best available technologies.

87th Central Sub-Committee on Crop Standards, Notification and Release of Varieties for Agricultural Crops (CVRC) meeting & Gazette notification S.O. 8(E) 24th December 2021

The 87th meeting of Central Sub-Committee on Crop Standards, Notification and Release of Varieties for Agricultural Crops held through Video Conferencing on 22nd September, 2021 and 18th October, 2021 under the Chairmanship of Dr TR Sharma, Deputy Director General (Crop Sciences), Indian Council of Agricultural Research (ICAR) and Co-Chairman Dr SK Malhotra, Agriculture Commissioner, Govt. of India. The Sub-Committee

On this occasion, best research papers under four categories viz. Crop Improvement, Crop Protection, Crop Production and Social Sciences were awarded to the following scientists.

Crop Improvement: M. Raghurami Reddy, **Satendra K. Mangrauthia** et al (2021) PAP 90, a novel rice protein plays a critical role in regulation of D1 protein stability of PSII. *Journal of Advanced Research* 30: 197–211

Crop Protection: Sumalatha Javvaji, ... **Padmavathi Chintalapati** (2021) Characterization of resistance to rice leaf folder, *Cnaphalocrocis medinalis*, in mutant Samba Mahsuri rice lines. *Entomologia Experimentalis et Applicata*, 169(9):859-875

Crop Production: **M. Mohibbe Azam** et al (2021) Effect of different cooking methods on loss of iron and zinc micronutrients in fortified and non-fortified rice, *Saudi Journal of Biological Sciences*, <https://doi.org/10.1016/j.sjbs>.

Social Sciences: **Rathod S** et al (2021) Two-Stage Spatio temporal Time Series Modelling Approach for Rice Yield Prediction & Advanced Agroecosystem Management. *Agronomy*.11(12):2502. <https://doi.org/10.3390/agronomy11122502>

Six publications of ICAR-IIRR viz., (1) Rice Grain Quality Analysis, (2) A Compendium of Rice Genetic Stocks Registered in India, (3) Agro-techniques for Enhancing Rice Productivity, (4) Hand out of SVS Shastri memorial lecture, (5) Journal of Rice Research 14(1) and (6) Annual Report of ICAR-IIRR for the year 2020 were released on the foundation day.



approved and recommended 26 varieties/hybrids for release and notification through CVRC and notification of 46 state varietal/hybrid releases. The same were notified / released and notified through S.O. 8(E). dt. 24th December 2021. Further, Telangana Sona (RNR 15048) was considered for area extension to the state of Karnataka. Of the total 26 varieties/hybrids notified and released through CVRC, six new rice varieties were from ICAR-IIRR.

Sailent Featurs of new rice varieties of ICAR-IIRR

DRR Dhan 57 (Aerobic variety)

- **Varietal characteristics:** A mid-early duration (113-120 days) aerobic rice variety with multiple disease resistance.
- **Designation:** DRR Dhan 57 (IET 26171) (RP 5601-283-14-4-1)
- **States released:** Jharkhand (Zone III) and Chhattisgarh (Zone V)
- **Notification date:** S.O. 8(E). dt. 24th December 2021
- **Yield:** 5-5.5 t/ha.
- **Disease reaction:** Moderately resistant to leaf blast and neck blast.
- **Pest reaction:** Resistance to gall midge, rice thrips and moderate resistance to planthoppers and whorl maggot
- **Grain type:** Short Bold



- **HRR:** 60%.
- **Gel Consistency:** 53 mm
- **Amylose Content:** 23.4%

DRR Dhan 58 (MAS derived salinity tolerant bacterial blight resistant variety)

- **Varietal characteristics:** DRR Dhan 58 is MAS derived in the background of Improved Samba Mahsuri (ISM) with introgression of *Salto1* for salinity tolerance and *xa5+xa13+Xa21* for bacterial blight resistance. It is high yielding, fine grain variety possessing premium grain and cooking quality suitable for cultivation under irrigated areas similar to medium and late duration varieties.



a. whole grains, b. brown/hulled rice and c. polished rice

- **DRR Dhan 58** has well exerted panicles, medium spikelet density of pubescence of lemma, higher level of yield and higher level of bacterial blight resistance compared to ISM.
- **Designation:** IET 28784 (RP 6287 188-45-12-88)
- **States released:** Andhra Pradesh, Telangana, Tamil Nadu, Karnataka, Odisha, Chhattisgarh, Jharkhand, Bihar, Gujarat and Maharashtra.
- **Notification date:** S.O. 8(E) 24th December 2021
- **Yield:** 5.0 t/ha under saline conditions, DRR Dhan 58 gives 24% more yield under saline conditions and 8% under normal conditions than the susceptible varieties.
- **Disease reaction:** exhibited highly resistant reaction to bacterial blight with an SI of 4.6 (2019) and 3.7 (2020).
- **Grain type:** Medium slender
- **HRR:** 61.6 %
- **Gel Consistency:** 22 mm
- **Amylose Content:** 23.35 %

DRR Dhan 59 (MAS derived bacterial blight resistant variety)

- **Varietal characteristics:** MAS derived improved bacterial blight resistant with high yielding and long-bold grain type variety possessing premium grain and cooking quality.
- **DRR Dhan 59** is a semi-tall stature and non-lodging habit, with long deflexed panicles which are completely exerted (100% exertion), long-bold grains without awns with straw colored apiculi. It possesses a major bacterial blight resistance gene *Xa33* and exhibited high level of resistance to bacterial blight across the country
- **Designation:** IET 27280 (DRR Dhan 59 RP-5989-47-15-11-1-126-2-13-11)
- **States released:** Telangana, Andhra Pradesh, Tamilnadu, Karnataka and Jharkhand
- **Notification date:** S.O. 8(E) 24th December 2021
- **Yield:** 5.0-5.5 tonnes/ha, on overall basis, it exhibited 11.10 % yield superiority over the recurrent parent, Akshayadhan.



- **Disease reaction:** exhibited highly resistant reaction to bacterial blight with an SI of 4.0 (2018) and 4.8 (2020) as compared to the recurrent parent, Akshayadhan, which showed SI of 5.2 (2018) and 6.4 (2020).
- **Pest reaction:** -
- **Grain type:** Long bold
- **HRR:** 56.2%
- **Gel consistency:** 44 mm
- **Amylose content:** 26.57%

DRR Dhan 60 (MAS derived low P tolerant variety)



A-Field view of DRR Dhan 60; B- Single plant view of DRR Dhan 60;
C- Seed of DRR Dhan 60; D- Milled rice of DRR Dhan 60

- **Varietal characteristics:** DRR Dhan 60 is MAS derived in the background of ISM high-yielding with introgression of *Pup1* for low P tolerance and *xa5+xa13+Xa21* for bacterial blight resistance. It is a fine-grain type rice variety with excellent cooking quality.

- **Designation:** IET 28061 (RP 5970-2-6-19-16-24-1)
- **States released:** Andhra Pradesh, Telangana, Tamil Nadu, Karnataka, Odisha, Chhattisgarh, Jharkhand, Bihar, Gujarat and Maharashtra
- **Notification date:** S.O. 8(E) dt. 24th December 2021
- **Yield:** 4.8 to 5.19 t/ha
- **Disease reaction:** DRR Dhan 60 has shown high levels of resistance to bacterial blight (SI= 2.6, 4.0 and 3.4), good level of resistance against false smut (average SI-3) and moderate resistance to neck blast (average SI-5).
- **Grain type:** Medium slender
- **HRR:** 64.5%
- **Gel Consistency:** 22 mm
- **Amylose Content:** 23.23%

DRR Dhan 62 (MAS derived blast and bacterial blight resistant variety)

- **Varietal Characteristics:** DRR Dhan 62 is a MAS derived with introgression of *Pi-2+Pi54* for blast resistance and *xa5+xa13+Xa21* for bacterial blight resistance in the background of Improved Samba Mahsuri.



DRR Dhan-62

Improved Samba Mahsuri

DRR Dhan-62

- **Total Duration:** 135-140 days
- **Yield potential:** DRR Dhan 62 recorded average yield advantage of +11.26% and +2.11% over the recurrent parent, ISM during *kharif* 2019 and 2020. Expected yield of the variety 18-20 q/ acre.
- **Grain and cooking quality parameters:** DRR Dhan 62 possess medium-slender grains with HRR of 61.2%,

DRR Dhan 63 (Biofortified high Zinc variety)

- **Varietal characteristics:** A high yielding biofortified rice variety possessing high Zn (24.2 ppm) in polished grains. It is suitable for cultivation under irrigated ecosystem with short bold grains and superior grain and cooking quality.
- **DRR Dhan 63** is a semi-dwarf, medium duration variety (127 to 130 days) possessing thick and strong culm, moderate tillering, non-lodging, erect flag leaf;



acceptable amylose content (26.51%), GC (45 mm), intermediate ASV (4.0) and is comparable to the recurrent parent, Improved Samba Mahsuri in all the grain and cooking quality parameters.

- **Recommended States:** Andhra Pradesh, Telangana, Tamil Nadu, Karnataka, Odisha, Chhattisgarh, Jharkhand, Bihar, Gujarat and Maharashtra

semi-erect panicles, partly exerted, long and drooping panicles with short bold and non-shattering grains

- **Designation:** IET 26383 (RP 5115-111-24-3-1-1)
- **States released:** Uttar Pradesh, and Odisha (Zone 3) and Kerala (Zone 7)
- **Notification date:** S.O.8 (E) dt 24th December 2021
- **Yield:** 5 ts/ha
- **Disease reaction:** Moderate resistance to leaf blast and BLB
- **Pest reaction:** Moderate resistance to planthoppers
- **Grain type:** Short Bold
- **HRR:** 59.3 %.
- **Gel Consistency:** 23 mm
- **Amylose Content:** 24.5 %

Genetic Stocks of ICAR-IIRR

The XXXVIth meeting of Plant Germplasm Registration Committee (PGRC) was held on 24th December 2021 in virtual mode at ICAR-NBPGR, New Delhi under the Chairmanship of Dr T R Sharma, DDG (CS), ICAR. An elite breeding line RP 5690-20-6-3-2-1 of ICAR-IIRR (Dr G Padmavathi) was recommended and approved for registration as genetic stock.

RP 5690-20-6-3-2-1 (National ID: INGR 21176) is a dual donor for resistance to Brown planthopper and Whitebacked planthopper in rice with *bph4*, *Bph 9*, *Bph 17* and *Bph 32* genes for BPH resistance; and *wbph 9* & *wbph 10* genes for WBPH resistance.

Salient features of the registered genetic stocks

RP 5690-20-6-3-2-1 (INGR 21176), dual donor for resistance to Brown planthopper and Whitebacked planthopper in rice

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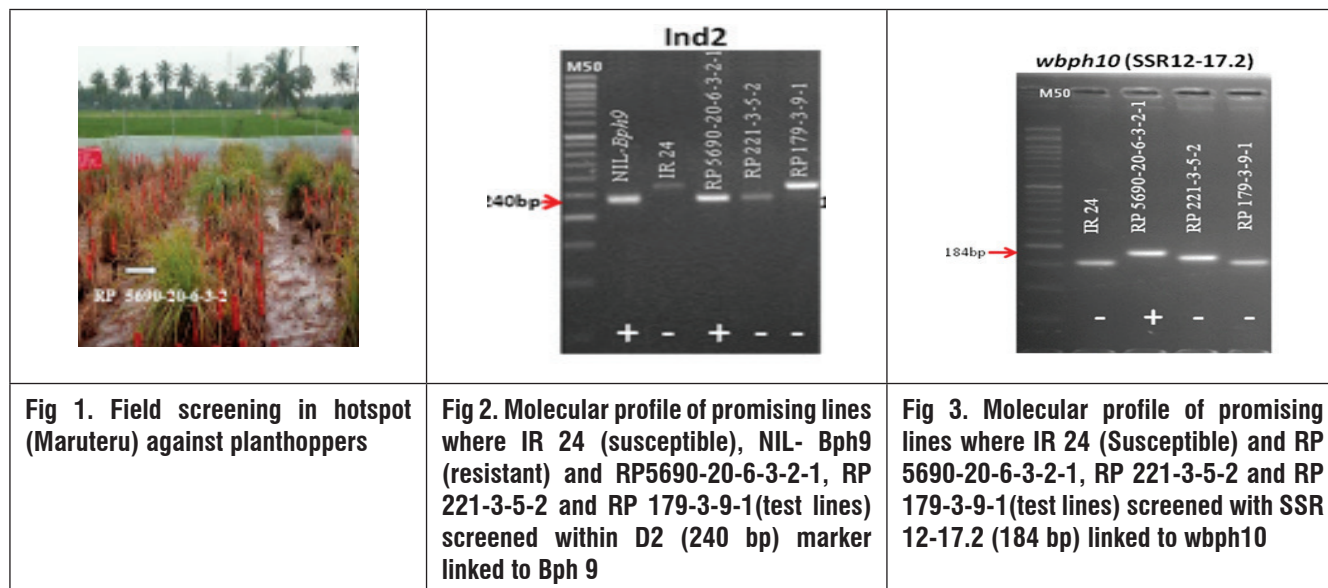
An advanced breeding line (F₇), RP 5690-20-6-3-2-1, derived from the cross Sona Mahsuri/SR 26-B was developed in resistant breeding program for planthoppers at IIRR, Hyderabad following pedigree selection. It was screened in PlantHopper Screening Trial (PHS) of AICRIP entomology continuously for 2 years (2017 to 18) at hot spot centres under heavy insect pressure. The overall resistance reaction was observed to be stable consistently for 2 years in 4 locations *i.e.*, IIRR- Hyderabad, Ludhiana

and Pantnagar with a mean DS: 3.2 against BPH; at IIRR, Hyderabad with resistance against WBPH (DS: 3.1) and moderate resistance reaction (DS: 4) at Maruteru against planthoppers. The resistant checks PTB 33 and MO1 recorded mean damage scores ranging from 0.9 to 4.85 and 1.6 to 4.2 respectively (Fig 1).

Molecular characterization of RP 5690-20-6-3-2-1 revealed the presence of 4 reported BPH resistance genes

(*bph4*, *Bph 9*, *Bph 17* and *Bph 32*) and 2 WBPH resistance genes (*wbph 9* & *wbph 10*). RM 190 (*bph4*), InD 2 (*Bph 9*), RM 518 (*Bph 17*) and RM 588 (*Bph 32*) amplified resistance specific alleles of 144 bp, 240 bp, 193 bp and

98 bp for *bph4*, *Bph9*, *Bph17* and *Bph 32* respectively in RP 5690-20-6-3-2-1 (Fig. 2). Two markers, SSR 12-17.2 and RM 589 amplified resistance specific alleles of 184 bp and 186 bp for *wbph10* and *wbph9* genes respectively (Fig 3).



Institute Technology Management Unit (ITMU) Activities

Memorandum of Agreement (MOA) and Memorandum of Understanding (MOU) signed

- ICAR-IIRR and Yogi Vemana University signed an MoU for research collaboration on 18th November 2021.



- Memorandum of Understanding (MOU) signed: 'Following the ICAR Guidelines for Intellectual Property Management and Technology Transfer/ Commercialization 2018, ICAR - Indian Institute of Rice Research, Hyderabad has signed one Memorandum of Understanding (MOU) on 22nd October 2021 for

licensing ICAR-IIRR developed rice line INGR15002 with M/s Savannah Seeds Pvt Ltd on non-exclusive basis for their research purpose and received Rs.1,50,000/- as licensee fee. INGR15002 developed in the background of PR114 with resistance to leaf blast and neck blast and found that it carries novel blast resistance genes *i.e.*, *Pi68*. The DRR-BL-31 line is a registered genetic stock (INGR15002) by Plant Germplasm Registration Committee (PGRC) of Indian Council of Agricultural Research dated 21st April 2015.

- A Memorandum of Understanding (MOU) signed on 28th October 2021 between ICAR-IIRR and ITC eChoupal for Evaluation of Farmers Acceptance of New IIRR varieties & technologies for enhancing the rice production.

Assessment of Acceptability of Zinc-rich Biofortified rice varieties - DRR Dhan 45 and 48 under the CRP Biofortification project

- Follow-up on the assessment of acceptability of zinc-rich biofortified rice varieties (DRR Dhan 45 and 48) in the form of complementary foods was taken up in Anganwadi center. As a part of the trial, vegetable biryani was fed to the young children at Kothapalli Anganwadi center, Kothapalli, Karimnagar District. (17th November 2021)



Meetings

- Dr M Sheshu Madhav, PS & Chairman, ITMU, ICAR-IIRR participated in the meeting organized by Telangana State Biodiversity Board, Hyderabad for distribution of sanctioned amount Rs.11,400/- under benefit sharing component to Indian Institute of Rice Research on 21st October 2021. This amount was received for supply of local culture of bacterial blight pathogen to Savannah Seeds Pvt. Ltd. through MTA.
- Dr AS Hari Prasad, PS (Hybrid Rice) & Co-Chairman, ITMU, IIRR, participated in “Review and Sensitization Workshop of ZTMUs/ITMUs/PMEs under NAIF Scheme Review of Crop Institutes”, IP&TM Unit, ICAR on 11th October 2021.
- Dr M Sheshu Madhav, PS & Chairman, ITMU, Dr Sudha Mysore, CEO, AgIn, Dr Jyothi Badri, Senior Scientist, Plant Breeding, ICAR-IIRR, Mr Madan Mohan Singh, BM, AgIn, Mr Krishan Gopal, BM, AgIn, Mr Dhruva V C, ABM, AgIn, Mr Ashaveer Singh Pannu, ABM, AgIn participated virtual online meeting (Zoom meeting), ‘Techno Commercial Assessment and Expert Committee Meeting ICAR-IIRR/AgIn’ with Agrinnovate India Limited attended for commercial assessment of ICAR-IIRR varieties DRR Dhan 50, DRR Dhan 58 and DRR Dhan 60 on 8th December 2021.

ICAR-IIRR developed genome edited rice with more grains per panicle

Researchers from the ICAR-Indian Institute of Rice Research (ICAR-IIRR), Hyderabad have developed genome edited rice lines with higher yield. Using the CRISPR/Cas technology, the team led by Dr Satendra Kumar Mangrauthia edited a gene associated with grain number in the elite rice variety, Samba Mahsuri (also known as BPT5204) for enhancing the grain yield. Samba Mahsuri is a tissue culture recalcitrant genotype, but the determination and hard work of researchers for the last four years helped the team to eventually develop a reproducible high-throughput tissue culture and genetic transformation protocol, which eventually led to the development of genome edited lines of Samba Mashuri. This export quality rice variety is very popular among farmers and consumers due to its premium grain and cooking quality.



Research Highlights

Survey of bacterial blight affected area in Khammam district of Telangana

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A team of scientists from ICAR-IIRR surveyed the bacterial blight affected area in Khammam district of Telangana. There was a severe outbreak of bacterial blight of rice in different mandals/blocks of Khammam district. Wide spread incidence (>80%) was recorded in several villages in Wyra, Thallada, Kalluru and Sattupally mandals. Most affected rice variety was BPT 5204. Demonstration fields

of newly released bacterial blight resistant rice variety, DRR Dhan 53 were totally free from bacterial blight of rice. DRR Dhan 53 is similar to BPT 5204 in grain and cooking qualities, high yielding and highly resistant to bacterial blight of rice and can be cultivated in these bacterial blight endemic areas.



Fig 1. Severe bacterial blight incidence on BPT 5204 in Khammam, October 2021



Fig 2. Healthy crop of bacterial blight resistant rice variety DRR Dhan 53 in Khammam, October 2021

Field Institute Research Council Meeting (Field IRC)

Field IRC for the year 2021 was held on 1st, 2nd and 11th November 2021. Dr RM Sundaram, Director and Chairman (IRC) along with all the scientists and technical officers participated in the field IRC. The progress of all the field-based experiments were explained by the respective PIs

of the Institute Research Programme. Director appreciated the efforts of all the scientists in effectively conducting the field experiments. Various aspects regarding the ongoing experiments and planning for the next season's experiments were thoroughly discussed.



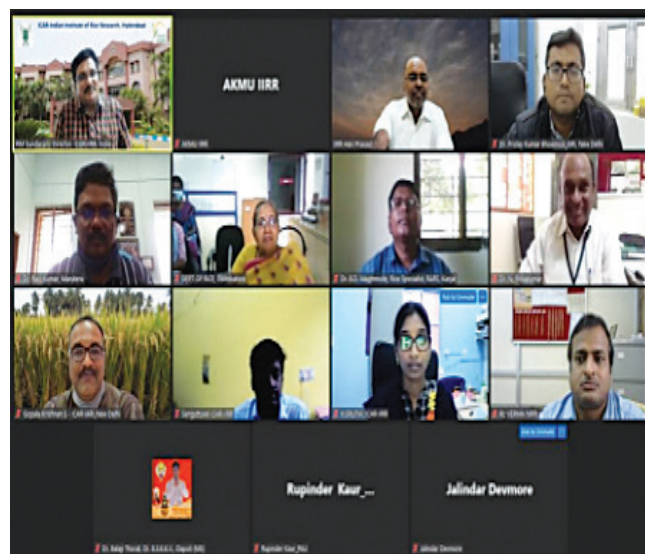
Virtual Annual Review Meeting of CRP Biofortification

A virtual meeting to review the progress of ICAR-CRP on Biofortification in selected crops for nutritional security was held under the chairmanship of Dr T R Sharma, DDG (CS) on 30th November 2021. Dr D K Yadava, ADG (Seeds) and Dr R M Sundaram, Director, IIRR, Hyderabad & Coordinator, CRP-Biofortification facilitated review meeting followed by the presentations of the status and progress by Dr C N

Neeraja (IIRR, Hyderabad), Dr Sewaram (IIWBR, Karnal), Dr P K Mandal (NRCPB, New Delhi), Dr Firoz Hossain (IARI, New Delhi), Dr Hariprasanna K (IIMR, Hyderabad), Dr C Tara Satyavati (PC, AICRP-Pearl millet, Jodhpur), Dr T E Nagaraja (PC, AICRP-Small millets, Bengaluru), Dr R Ananthan (NIN, Hyderabad), and Dr S B N Rao (NIANP, Bengaluru).

ICAR-IIRR held Virtual Review Meeting of CRPHT (Hybrid Rice)

Director, ICAR-IIRR reviewed the progress of work under CRP-Hybrid rice on 29th November 2021. All the nine network centres presented the research highlights/achievements made during the year. Director complimented the excellent work towards improving the yield of heterosis in spite of COVID pandemic and related problems. He laid emphasis on the CMS line and maintainer line improvement in a more vigorous and focused way. He also stressed molecular genotyping of all the restorers through fertility restoration (Rf) makers, in addition, to test crosses and combining ability studies.

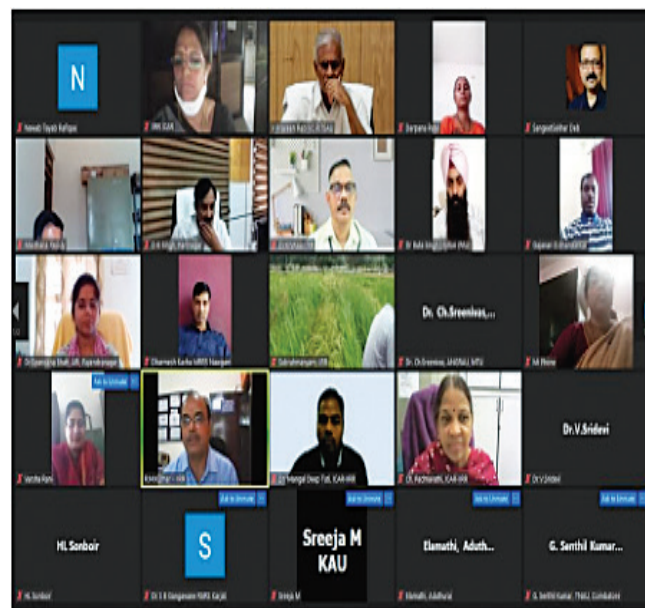


Training programme- “Modern Crop production techniques in Rice - Importance of Data collection and coordination in AICRIP”

A two days training programme (virtual mode) on “Modern crop production techniques in Rice-Importance of data collection and coordination in AICRIP” was held during 22-23 October 2021. Dr RM Sundaram, Director and other distinguished guest speakers Dr V Praveen Rao, Vice Chancellor of PJTSAU, Hyderabad, Dr JS Mishra, Director, ICAR-Directorate of Weed Research, Jabalpur, Dr G Ravindra Chary, Project Coordinator, AICRP on Dryland Agriculture, Hyderabad, Dr D Subrahmanyam, Dr DVK Nageswara Rao, Dr B Sreedevi, Dr B Sailaja, Dr Santosh Rathod, ICAR-IIRR, Dr S Gopala Krishnan, ICAR-IARI, Dr DK Singh, GBPUAT, Pantnagar and Course Director Dr R Mahender Kumar delivered their talk covering various aspects of advanced crop production techniques in rice.

Approximately 75 scientists/cooperators participated in the training programme. Rice production constraints of all seven zones were presented by respective zonal AICRIP cooperators. Every speaker sensitized the importance of AICRIP system. It was also proposed to have technology certificates for non-varietal technologies with the constitution of committee at institute level. Further explaining about how to conduct nutrient management trials, physiological trials,

organic trials, weed management, herbicide tolerance trial, short term and long term experiments, use of AICRIP intranet, analysis of multi-location data, GIS coupled with GPS, geospatial visualization, technologies upscaling, contingency planning, interface with other schemes and programmes, success stories and finally scope of agronomic research in AICRIP on Rice.



Field monitoring and coordination

Field monitoring of AICRIP trials during 2021

In continuation to the virtual interactive meetings with AICRIP centres held during Aug-Sep 2021, virtual interactive meeting of Zone III was held on 20th October 2021. Drs C Gireesh, Satendra Kumar Mangrauthia, Anantha MS, K Sruthi from Crop Improvement, Drs Brajendra Parmar and PC Latha from Crop Production, Drs AP Padmakumari and GS Laha from Crop Protection and Drs Muthuraman and Amtul Waris from TTT participated in the interactive meeting.



In addition to the virtual interactive monitoring meetings, multi-disciplinary team of scientists from ICAR-IIRR visited various locations and evaluated the field performance of the AICRIP trials. Physical monitoring of AICRIP trials was taken up in Eastern Zone (Zone III) during 16-22, November 2021. Dr Anantha MS, Senior scientist (Plant Breeding), ICAR IIRR visited and monitored AICRIP trials at CRURRS Hazaribag, BAU Ranchi, Bankura and Hathwara.



Physical monitoring of AICRIP trials was taken up at Lucknow, Kanpur and Varanasi by team of Scientists consisting of Drs AVSR Swamy, RM Kumar, C Gireesh,

Y Sreedhar and Vidhan Singh, wherein they interacted with staff of AICRIP and monitored the trails in different disciplines.



Monitoring of bio-fortified rice varieties

A team of scientists consisting of Drs CN Neeraja, LV Subba Rao and AVSR Swamy from ICAR-IIRR, Hyderabad in collaboration with M/s Coromandel Fertilizers conducted field trials with bio-fortified varieties of Rice Viz. DRR Dhan 45 (Zn 22.6 ppm) and DRR Dhan 48 (Zn 24.0 ppm) along

with respective local checks in ten villages in Andhra Pradesh and Karnataka states. The team visited Devadurga, Raichur on 11th November 2021 and Tenali and Pitapuram from 15th to 17th November 2021 to assess the progress of trials.



Latitude: 16.201966
Longitude: 83.792925
Elevation: -0.6243 m
Accuracy: 3.8 m

DUS tests in rice

A total of 24 candidate varieties for DUS tests in rice were evaluated for first year during *kharif* 2021 at IIRR, Hyderabad. In addition, 35 new varieties along with F₁'s against 15 reference varieties under second year of testing, two varieties of common knowledge (VCKs) against two reference varieties and DUS characterization of 49 Farmers' varieties were included in the DUS testing as per DUS Test Guidelines. Virtual monitoring of DUS Trials at Ramachandra Puram farm of ICAR-IIRR at ICRISAT campus was held on 30th October 2021. Drs LV Subba Rao (Nodal Officer-DUS), J Aravind Kumar and Jyothi Badri (Co-nodal officers) coordinated the field monitoring of DUS testing.



Monitoring of DUS tests in rice was conducted by the PPV & FRA, New Delhi in virtual mode on 30th October 2021

Outreach Activities

Special National Swachta Campaign on "Waste to Wealth"

As instructed by ICAR, a *Special National Swachta Campaign* on 12th October 2021 was organized in adopted village of the institute on the topic of "Waste to Wealth". In this regard a training program on vermicompost preparation and campaign on Swachta was organized in Rudraram village of Shabad Mandal, Chevella, Telangana.

Dr RM Sundaram Director, ICAR-IIRR, addressed the farmers and elaborated upon the significance of observing

the month of October as the Swachta Month and motivated the farmers to keep the farm free of waste for a healthy crop growth. A training program on Vermicompost preparation was organized under the theme of Waste to Wealth the training was attended by Sarpanch Smt. Swarnalatha, upa sarpanch, village secretary and MPDO and men and women farmers.



Swachta Campaign on Waste to Wealth, Rudraram Village, Ranga Reddy, Telangana

- An awareness creation program about the opportunities in Agriculture was organised for the students of Government Junior College, Rajendranagar on 17th November 2021. The program was coordinated by Drs D Latha Lakshmi, Kalyani Kulkarni and B Nirmala.



- A one-day on campus training program on Sustainable Rice Cultivation Practices for rural youth undergoing vocational training at Dr D Rama Naidu Vignana Jyothi Institute of Rural Development, Tuniki, Andhra Pradesh was organized on 20th November 2021 at ICAR-IIRR. The subject matter covered the following topics, Rice cultivation practices (practical on IIRR farm) Dr R Mahender Kumar, selecting appropriate rice varieties

(Dr LV Subba Rao), outreach programs for farmers (Dr P Muthuraman), Hybrid Rice Production Dr AS Hariprasad, Insect pest management in rice (Dr Ch Padmavathi), INM for saving costly fertilizers (Dr K Surekha), Disease Management in rice (Dr MS Prasad), Weed management in rice cultivation (Dr B Sreedevi), Appropriate mechanization for labour, water and energy saving (Dr T Vidhan Singh) and Potential of rice based entrepreneurship for rural youth (Dr Amtul Waris).

- An off-campus one-day training program on ‘Rice Production Technologies’ was organised for the farmers of Rachalapally and Totapally villages of Nagarkurnool district of Telangana on 20th November 2021. 60 demonstrations (20 each of ISM, DRR Dhan 42 and 48) are being organised at Nagarkurnool during *Kharif* 2021. A farmer-scientist interaction was organised with the SC beneficiary farmers. The program was coordinated by Drs B Nirmala and D Krishnaveni.



Panorama of Institute Activities

World Soil Day 2021

The Soil Science section of ICAR-IIRR organised World Soil Day on 5th December 2021 at Rudram village, Shabad mandal, Ranga Reddy District of Telangana. A team of eight scientists from the sections of Soil Science, Agronomy, Plant Breeding, Entomology and Pathology along with village Sarpanch and more than 50 rice farmers participated in the programme. Soil scientists of ICAR-IIRR delivered talks on importance of soil day and its theme of the year (*Halt soil salinization, boost soil productivity*); highlighted the importance of soil health, primary and micro nutrient management, saline soil management, vermicompost preparation and straw management. Other subject scientists explained about newly released varieties for pest and disease resistance, high Zn content, short duration and pest and disease management etc. Soil samples brought by the farmers were analysed by rapid soil health testing kit and the soil health cards were generated on the spot

and they were distributed to the farmers with guidelines on the fertiliser input management. Posters on soil sampling, saline soil management, compost preparation using straw, images of pest and diseases were displayed. Use of leaf colour chart (LCC) for urea economy was explained and distributed to the farmers for their benefit.



Scientist and farmers gathering



Demonstration of LCC



Soil analysis with rapid soil test kit



Distribution of soil testing report

ICAR-IIRR organized official language implementation

भारतीय चावल अनुसंधान संस्थान, हैदराबाद में 2021 के दौरान राजभाषा कार्यान्वयन गतिविधियां चेतना मास समारोह

भाकृअनुप - भारतीय चावल अनुसंधान संस्थान, हैदराबाद में 14 सितंबर से 13 अक्टूबर, 2021 के दौरान हिंदी चेतना मास समारोह का आयोजन किया गया। उक्त चेतना मास के अंतर्गत हिंदी में कुल 11 विभिन्न प्रतियोगिताओं (अनुवाद, प्रश्नमंच, अंत्याक्षरी आदि) का आयोजन किया गया। जिनमें वैज्ञानिक, तकनीकी, प्रशासनिक तथा अनुसंधान सहायक, शोध छात्रों आदि ने बड़े-ही उत्साह एवं उमंग के साथ भाग लिया। इसके अलावा उक्त माह के दौरान हिंदी में हस्ताक्षर अभियान भी चलाया गया।

अक्टूबर 27, 2021 को हिंदी चेतना मास के दौरान आयोजित विभिन्न प्रतियोगिता के विजेताओं को पुरस्कार एवं प्रमाण-पत्र वितरण समारोह का आयोजन किया गया। समारोह का शुभारंभ भारतीय कृषि अनुसंधान परिषद् गान से हुआ। सर्वप्रथम डॉ. महेश कुमार, वरिष्ठ तकनीकी अधिकारी (राजभाषा), भाकृअनुप-भारतीय कदन्न अनुसंधान संस्थान एवं राजभाषा प्रभारी, भारतीय चावल अनुसंधान संस्थान, हैदराबाद ने समारोह में उपस्थित लोगों का स्वागत किया। तत्पश्चात उन्होंने पिछले वर्ष के दौरान संस्थान में संपन्न राजभाषा कार्यान्वयन संबंधी कार्यों पर वार्षिक प्रतिवेदन एवं हिंदी चेतना मास समारोह के दौरान आयोजित कार्यक्रमों पर प्रतिवेदन प्रस्तुत किया। उन्होंने उक्त समारोह को सफल बनाने के लिए संस्थान में कार्यरत सभी अधिकारियों एवं कर्मचारियों के प्रति आभार व्यक्त किया।

इस अवसर पर डॉ. आर एम सुंदरम, निदेशक, भारतीय चावल अनुसंधान संस्थान ने हिंदी चेतना मास के दौरान आयोजित प्रतियोगिताओं के विजेताओं को नकद पुरस्कार तथा प्रमाण-पत्र एवं प्रतियोगिता के अन्य सहभागियों को कलम व सहभागिता प्रमाण-पत्र प्रदान किए। इसके अलावा उन्होंने प्रतियोगिताओं के आयोजकों/निर्णायकों को प्रमाण-पत्र व स्मृति चिह्न भी प्रदान किए। डॉ. सुंदरम ने अपने संबोधन में बताया कि राजभाषा हिंदी में कार्य करना केवल हमारा संवैधानिक दायित्व ही नहीं, बल्कि हमारा नैतिक दायित्व भी है, चूंकि समूचे देश को इसने एकता के सूत्र में बांधे रखा है तथा कदम-कदम पर हमारी सामासिक संस्कृति को सुरक्षित रखने में सहयोग प्रदान कर रही है। इन्हीं विशेषताओं के चलते हिंदी को राजभाषा का दर्जा प्रदान किया गया। इसके अलावा उन्होंने कहा कि हमारा संस्थान कृषि से संबंधित है अतः हमारा दायित्व तो और भी बढ़ जाता है, क्योंकि जब तक किसान हमारे शोध कार्यों से परिचित नहीं होते, तब तक उनका पूरा उपयोग कठिन होगा। अतः किसानों तक हमारी बात पहुंचाने हेतु भारतीय भाषाएं, विशेषकर हिंदी ही हमें सहायता प्रदान कर सकती है।

अंत में श्रीमती वनिता, प्रवर श्रेणी लिपिक के द्वारा धन्यवाद ज्ञापन, तत्पश्चात सामूहिक रूप से राष्ट्रगान के बाद समारोह का समापन हुआ। संस्थान में संपन्न पूरे हिंदी चेतना मास समारोह के कार्यक्रमों का संचालन एवं समन्वय डॉ. आर एम सुंदरम, निदेशक, भाचाअनुसं के दिशा-निर्देश में डॉ. महेश कुमार, श्री बी विद्यानाथ, सहायक प्रशासनिक अधिकारी तथा श्रीमती वनिता के द्वारा किया गया।



ICAR- IIRR organized Swachh Bharat from 2nd to 31st October 2021.



ICAR - IIRR is organized Vigilance Awareness Week during 26th October to 1st November 2021



ICAR-IIRR celebrated Constitution day: Mass PREAMBLE reading

ICAR-IIRR celebrated CONSTITUTION DAY - SAMVIDHAN DIVAS on 26th November 2021 to commemorate the adoption of the Constitution of India for the promotion of Constitution values among citizens. The Director, Dr RM Sundaram read the PREAMBLE and it was recited by all the staff.



ICAR - IIRR organized 'Health Camp' in association with 'Apollo Pharmacies Limited' on 4th December 2021



- **Hon'ble Prime Minister Shri Narendra Modi Ji's Address on "Natural Farming"** on 16th December 2021, 11:00 AM.



- Medical Camp at ICAR-IIRR was organized on 4th December 2021.

Visits to ICAR-IIRR

Dr Vinay K Nandicoori, Director, CSIR-Centre for Cellular and Molecular Biology (CCMB), Hyderabad, and a well known molecular biologist visited our institute on 10th November 2021. Dr Hitendra Kumar Patel, Principal Scientist, CSIR-CCMB also accompanied him during the visit. Dr RM Sundaram, Director, ICAR-IIRR detailed the research work, progress, and achievements of the institute followed by a visit to the research fields at Rajendranagar. Rice biotechnology issues were discussed for strengthening further research collaborations between ICAR-IIRR and CSIR-CCMB.



Webinars hosted

The ICAR-IIRR in association with Society for Advancement of Rice Research (SAAR) and National Academy of Agricultural Sciences, Hyderabad Chapter (NAAS), Hyderabad organized a webinar on different aspects by eminent speakers.

- Dr Arvind Kumar Deputy Director General– Research Regional Director- Asia ICRISAT, Patancheru, India delivered lecture on "Breeding for drought tolerance in rice: Gains made and prospects for the future" on 30th October 2021 organized by ICAR-IIRR and SARR.
- Dr AK Shasany, Director, NIPB, New Delhi delivered his talk on "Aroma Biology and livelihood security" on 1st November 2021 organized by ICAR-IIRR and NAAS-Hyderabad Chapter.
- Dr Ananthan, Scientist-D, NIN delivered lecture on "Nutritional perspectives of Rice" on 26th November 2021 organized by ICAR-IIRR and NAAS-Hyderabad Chapter.

Staff News

Dr RM Sundaram, Director, ICAR-IIRR, Hyderabad has delivered a lead talk on "Breeding for Nutrient Use Efficiency in rice: Present status and future prospects" in the Fifth International Agronomy Congress - "Agri Innovations to Combat Food and Nutrition Challenges" held from 23–27 November 2021 at PJTSAU, Hyderabad, Telangana. He co-chaired the session symposium III - "Agronomic Innovations for Tapping Genetic Potential" along with Dr VM Bhale, Hon. Vice-Chancellor, Dr PDKV Akola.



Recognition/Awards

- Dr R Mahender Kumar, Principal Scientist, ICAR - IIRR, for being awarded as **Fellow of Indian Society of Agronomy** and Dr Mangaldeep Tuti, Scientist, ICAR - IIRR for being awarded as **Associate Fellow of Indian Society of Agronomy** during 5th International Agronomy Congress organized at PJTSAU on 24th November 2021.
- Dr Jyothi Badri received **Dr. KS Behera Best Paper Award** and Drs Mangaldeep Tuti and G Padmavathi received **Best Oral Presentation Award** on 17th December 2021 during ARRW Diamond Jubilee National Symposium on "GenNext Technologies for Enhanced Productivity, Profitability and Resilience of Rice Farming" from 16th-17th December 2021 organized by Association of Rice Research Workers (ARRW), Cuttack, Odisha.

- Dr Santosha Rathod was awarded **Outstanding Achievement Award** in the field of Agricultural Statistics and **Best Oral Presentation award** during 3rd International Conference (Hybrid Mode) on Food, Agriculture and Innovations during 24-26 December 2021.

Promotions

The following officials are promoted to next higher grade in November month

1. Mr A Venkataiah promoted to Technical Officer *w.e.f.* 16th January 2021
2. Mr C Muralidhar Reddy promoted to Technical Officer *w.e.f.* 12th January 2021
3. Mr T Venkaiah promoted to Technical Officer *w.e.f.* 17th January 2021
4. Mr S Vijay Kumar, promoted to Senior Technician *w.e.f.* 18th January 2021
5. Mr Chandra Kumar promoted to Senior Technician *w.e.f.* 18th January 2021
6. Dr M Ezra promoted to ACTO *w.e.f.* 18th January 2019
7. Mr U Chaitanya, promoted to ACTO *w.e.f.* 30th December 2018
8. Shri K Mallikarjundu, UDC promoted to next higher-grade Assistant *w.e.f.* 18th December 2021

Transfer

- Dr Sowmya Saha, Scientist transferred from ICAR-IIRR to ICAR - NRRI, Cuttack, on request basis on 11th October 2021

New Joining

- Dr S Vijayakumar, Scientist (Agronomy), Joined ICAR-IIRR on 8th October 2021 on request transfer from ICAR-NRRI, Cuttack



New charge

- Shri K Srinivas Rao, Joined as FAO, at ICAR-IIRR on 16th October 2021 on regular basis

Retirement

- Smt T D Pushpalatha, Assistant retired from the Council's service on attaining the age of Superannuation on 31st October 2021
- Mr A Venkataiah, Technical Officer retired from the Council's service on attaining the age of Superannuation on 30th November 2021

Editorial Committee: Drs. Nageswara Rao DVK, Amtul Waris, Senguttuvel P, Jyothi Badri, Kalyani M Barbadikar, Bandeppa S, Arti Singh and Basavaraj K



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