



ICAR-Indian Institute of Rice Research NEWSLETTER

Volume: 19 Number: 3

RICE IS LIFE

July - September 2021

Virtual Research Advisory Committee Meeting



The Research Advisory Committee (RAC) Meeting of ICAR-Indian Institute of Rice Research (ICAR-IIRR), Hyderabad was held on 26th July, 2021 through virtual mode under the chairmanship of Prof. Akhilesh Tyagi, University of Delhi South Campus, New Delhi. The following RAC members joined the meeting online: Dr YP Singh, ADG (FFC), ICAR, New Delhi; Dr S Leena Kumary, Registrar (Retd.), Kerala Agricultural University, Thrissur; Dr N Raghuram, Professor, University School of Biotechnology, GGS Indraprastha University, New Delhi; Dr Mayabini Jena, ICAR Emeritus Scientist, Division of Crop Protection, ICAR-NRRI, Cuttack; Dr PC Rao, Dean (Retd.), PJTSAU, Hyderabad; Dr Prem Lata Singh, Head (Retd.), Division of Agricultural Extension, ICAR-IARI, New Delhi; Dr Dipankar Maiti, Director, ICAR-NRRI, Dr RM Sundaram, Director, ICAR-IIRR and Dr MBB Prasad Babu, Member Secretary. Two Farmer members., Shri. Ramanaiah Chakilam and Shri Bandaru Kushalaiah also participated in the meeting. A brief presentation on the activities and achievements of the institute during 2020-21 was made by the Director followed

by detailed presentation of ATR on the recommendations of RAC 2020 by member secretary and research highlights during 2020-21 by respective heads of the departments.

The committee appreciated the Scientists for their research output despite the COVID pandemic. In addition to the specific discipline wise recommendations, the RAC recommended review of long- term projects once every 5-10 years for approach and outcome.

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Institute Technology Management Unit (ITMU) Activities

- A material transfer agreement (MTA) was signed between ICAR-IIRR, Hyderabad and M/s ATGC Biotech, Pvt. Ltd., Hyderabad on 4th August 2021 at ICAR-IIRR, for the purpose of developing formulations of the native bioagents and their metabolites that can serve as potential agents for the rice plant growth and disease management. The products developed shall be tested extensively by ICAR-IIRR and its AICRIP partners and would be registered and commercialized after their validation.



- An MTA signed on 3rd August 2021 between National Institute of Plant Genome Research (NIPGR), New Delhi, ICAR-IIRR, Hyderabad and M/s ATGC Biotech Pvt Limited for the transfer of material as part of the ongoing DBT project titled "Imparting sheath blight disease tolerance in rice". The NIPGR, New Delhi will

supply the *E. coli*, ATGC, Hyderabad will formulate the protein from *E. coli* and ICAR-IIRR will evaluate the protein.

- MTA signed on 3rd August 2021 between ICAR-IIRR, Hyderabad and M/s ATGC Biotech Pvt Limited, Hyderabad in connection with the transfer of antagonistic fungi and its metabolite for formulation of antagonistic microbes and their secondary metabolites under collaboration work.
- An Agreement was signed between Valagro Biosciences Private Limited and ICAR-IIRR on 23rd September 2021 to carry out the evaluation of the products for field development trials with a total outlay of the project of Rs.11,20,560/-.
- ITMU meeting was conducted at ICAR-IIRR, Hyderabad on 23rd July 2021 to discuss about (i) Commercialization of rice-based products (ii) Conduct of Industry Meet (iii) Patents registration and (iv) Latest issues and activities in ITMU. Meeting was attended by the members of ITMU and other scientist of ICAR-IIRR: Dr RM Sundaram, Director, Dr M Sheshu Madhav (Chairman, ITMU), Dr AS Hari Prasad, Dr V Jhansi Lakshmi, Dr C Kannan, Dr PA Lakshmi Prasanna, Dr J Aravind Kumar, Special invitees: - Dr LV Subba Rao, Dr AVSR Swamy and Dr MM Azam.

Genetic stocks of ICAR-IIRR

The XXXVth meeting of Plant Germplasm Registration Committee (PGRC) was held on 21st September 2021 in virtual mode at ICAR-NBPGR, New Delhi under the Chairmanship of Dr TR Sharma, DDG (CS), ICAR. Wazuhophek a germplasm accession and IET25443, an inbred line (Drs V Prakasam and CN Neeraja, respectively) from ICAR-IIRR were recommended and approved for registration as genetic stock.

Wazuhophek (21091; IC0639795 INGR21112)-North eastern landrace registered as genetic stock with potential valuable features as "tolerance to sheath blight and low soil P tolerance".

IET25443 (21209; IC0640649 INGR21118)- An inbred line registered as genetic stock with "micro nutrient Zn – 22.6 ppm in polished rice grain".

Salient features of the registered genetic stocks

North eastern landrace 'Wazuhophek' a novel source for sheath blight tolerance and low P tolerance

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'Wazuhophek' a North East Indian landrace was identified as highly tolerant to sheath blight (ShB) (Fig. 1) through repeated artificial screening in field condition for the past six seasons viz., *kharif* 2012, *rabi* 2013, *kharif* 2013, *rabi* 2014 and *kharif* 2014. To know the tolerance mechanism in Wazuhophek, expression of pathogenic related (PR) genes, defence enzymes and histo-pathological studies were conducted. The expression transcripts of defence related genes viz., PR-1, PR-2, PR-3, PR-4, PR-5, PR-9, PR-10, PR-13, CHS, LOX, PAL and PPO were studied by using quantitative Real-time PCR (qRT PCR). The expression levels of PR-1, PR-3, PR-9 and PR-10 genes were 56.14%, 95.85%, 31.48%, and 66.1% higher folds (Fig. 2) in

Wazuhophek than IR 50 at 72 hours after inoculation with *R. solani*. Rate of hyphae branching, density of mycelium was high and most of the area was occupied by infection cushions in susceptible IR 50 (Fig. 3) when compared to tolerant Wazuhophek. Recombinant inbred lines (RILs) were developed using Improved Samba Mahsuri (ISM) and Wazuhophek as parents and screened 330 RILs against ShB for three seasons from *kharif* 2017 to *kharif* 2019. Linkage analysis and QTL mapping with a subset of RIL population using ICIM- additive method revealed a major QTL associated with tolerance on chromosome 3 (Fig. 4), which explained >30% phenotypic variance in addition to a few minor QTLs discovered on other chromosomes.



Fig 1. Field screening of sheath blight disease during *kharif*, 2019; A. IR-50-susceptible check; B. Wazuhophek – tolerant land race; TN1-susceptible check and D. Tetep-tolerant check

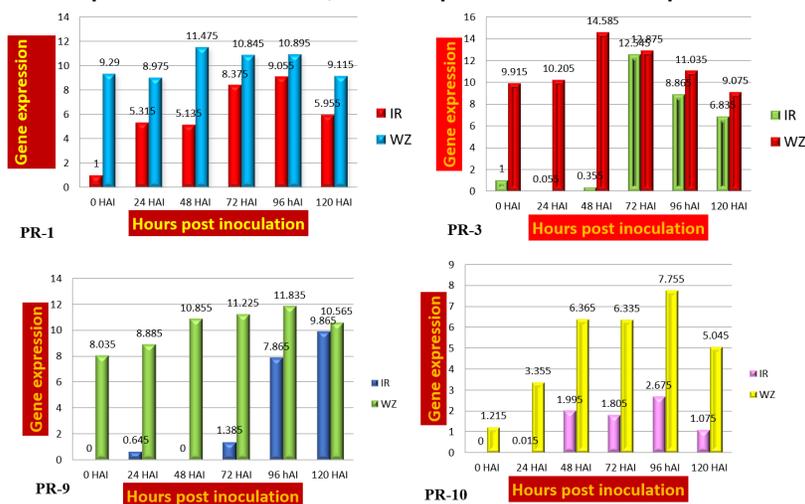


Fig 2. *In-plant* expression of PR-protein genes against *R. solani* infection in Wazuhophek (Tolerant) and IR 50 (Susceptible)

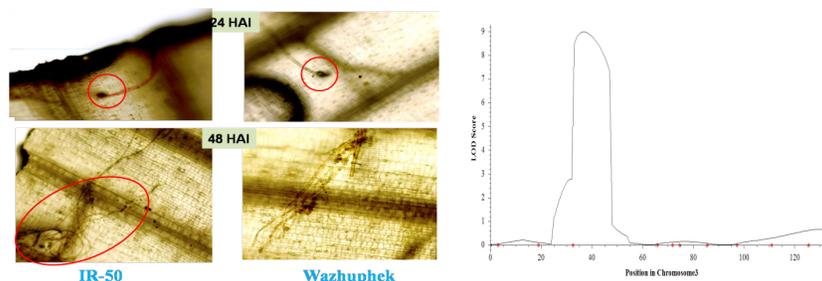


Fig 3. Appressorium and infection cushion formation by *R. solani* in IR 50 (left) and Wazuhophek (right); Fig 4. Frequency of LOD score on chromosome 3

Disease severity studies were conducted under staggered sowings of ten entries viz., five tolerant and five susceptible entries with an interval of ~20 days. Among all, 'Wazuhophek' showed less disease severity and less spread in all three planting conditions and very high disease severity and spread was observed in TN 1 followed by IR 50.

Wazuhophek also showed tolerance to low soil P (Fig. 5) and interestingly it was found that it was completely devoid of *Pup1* gene. It performed equally with the tolerant checks Kasalath and Swarna, which consist of gene specific *pup-1* gene. Stress indices parameters such as STI (stress tolerance index), YSI (yield stability index), YI (yield index) showed high value for Wazuhophek, revealing its tolerance to low soil P while other non *Pup1* genotypes got very low values and fall into highly sensitive category. Stress susceptibility index of Wazuhophek was less than zero indicating its tolerance while SSI was >1 for other non-*Pup1* genotypes and were highly sensitive to low soil P.

Marker assisted characterisation of germplasm lines for *Pup1* locus based on *Pup1* specific markers revealed that full set of sequences associated with *Pup1* are present in the tolerant checks (Kasalath and Swarna) respect to all the four *Pup1*-specific markers and absent in the sensitive checks (Improved Samba Mahsuri, IR 64 and MTU 1010). The Wazuhophek possessed 'N' allele (i.e., non-tolerant allele) with respect to all the four *Pup1* specific marker loci but phenotypically tolerant to low soil P. The genotype Wazuhophek may have different genomic regions associated to low soil P tolerance other than the earlier reported *Pup1* region. Among 330 RILs derived from ISM and Wazuhophek screened for low P tolerance during *kharif* 2017, 191 shown high tolerance for low P comprising of yield 9g and 2.5g per plant in Wazuhophek and ISM respectively. Thus, Wazuhophek possesses different mechanisms for low P tolerance and hence could help in diversification breeding programs aimed for low soil P tolerance.

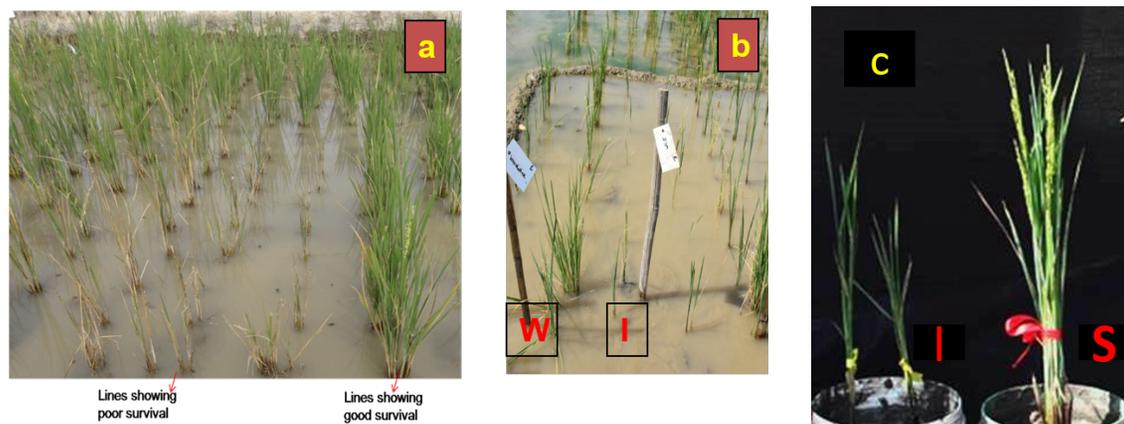


Fig 5. Screening of Wazuhophek in low soil P plot of IIRR. a- performance of rice lines growing under low soil P screening plot, b- response of W (Wazuhophek), I (ISM, low soil P susceptible rice line) under low soil P plot at IIRR, c- response of S (Swarna-tolerant check), I (ISM, low soil P susceptible check)

IET 25443 (INGR21118) – An Inbred line with high grain Zn content

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IET 25443 (INGR 21118) is an inbred line derived from BPT 5204/Chittimutyalu. IET 25443 was identified as promising line in terms of polished rice grain Zn content. It is a medium duration line with 105-109 days to 50% flowering and possess short bold (SB) grain type (Table 1). It was evaluated in AICRIP Biofortification trials during 2015, 2016 and 2017 across the locations (IIRR Progress Report, 2016; 2017; 2018). The overall mean grain yield was 4331 kg/ha. in IVT-Biofortification trial (2015), this

culture was ranked 2nd in Kerala with 6837 kg/ha grain yield. In addition, this culture was ranked 1st in UP (6942 kg/ha) and 5th in Maharashtra (4210 kg/ha) in AVT-1 Biofortification trial, 2016. In the third year of testing, IET 25443 ranked 2nd in Zone III (5197 Kg/ha) and indicated 10% yield advantage over BPT 5204. In West Bengal it was the first ranking entry (5902 kg/ha) with 22.6% and 17.8% yield gain over IR 64 and BPT 5204 respectively.

Table 1. Agro-morphological, yield and grain micronutrient characters of IET 25443 (INGR21118)

Trait	Value	S.No.	Trait	Value
Plant height (cm) ^a	94	8	Grain Yield (Kg/ha)	4331
Tiller number (Per Hill)	10	9	Grain Fe (ppm) ^a	3.36
Productive tiller number (Per Hill)	9	10	Grain Zn (ppm) ^a	22.6
Days to 50% Flowering ^a	105-108	11	Protein (%) ^a	7.96
Panicles per square meter ^a	284-317	12	Total Ash (%) ^b	17.8
Single plant yield (grams)	14.6	13	Crude Fibre (%) ^b	43.4
1000 grain weight (grams)	17.2	14	IVOMD (%) ^b	45.6

In addition to the yield advantage, IET 25443 has the notable grain micronutrient and protein content. The mean grain Fe and Zn concentration was 7.96 ppm and 22.6 ppm, respectively. In addition, it has the protein concentration of 7.96%. The identified genetic stock, IET

25443 comprises 22.6 ppm Zn content, 3.36 ppm Fe content and 7.96% protein in polished rice grain (Table 2). It can be used as a potential donor in breeding programs of rice bio-fortification studies.

Table 2. Data of IET 25443 (INGR 21118) under AICRIP trials during 2015, 2016 and 2017

Trial	Fe (ppm)	Zn (ppm)	Protein (%)	GY	DFF	PH	PAN
2015 (IVT-Biofortification)	3.6 (14)	20.4	8.14	3629 (13)	109 (18)	94 (18)	284 (18)
2016 (AVT1- Biofortification)	4.0 (16)	22.5 (15)	7.92 (4)	4660 (12)	105 (24)	94 (23)	317 (23)
2017 (AVT2- Biofortification)	2.5 (18)	25 (18)	7.83 (8)	4728 (13)	108 (24)	91 (24)	285 (24)
Mean	3.36	22.6	7.96	4339	107	93	295

Values within parenthesis indicate the number of locations tested during AICRIP trials. (IIRR Progress Report, 2016; 2017; 2018); GY-Grain Yield (Kg/ha); DFF-Days to 50% Flowering; PH- Plant Height (cm); PAN- Panicles/m².

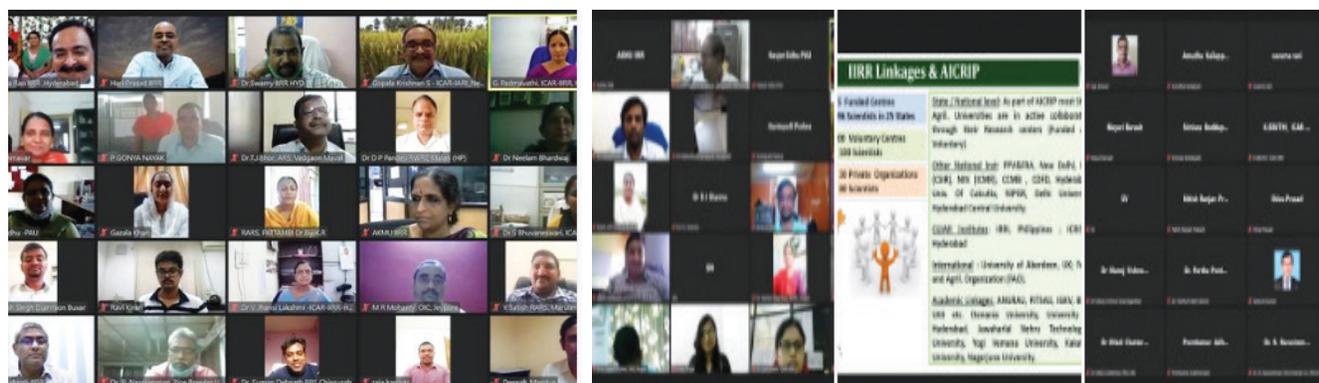


Fig 1. Paddy, Brown and Polished rice [Left] and Plant view (Right) of IET 25443 (INGR21118), BPT 5204 and Chittimuthyalu

Training programme - “Sensitization of AICRIP and Modern Breeding Techniques in Rice”

Two days training programme on “Sensitization of AICRIP and Modern Breeding Techniques in Rice” was conducted for the benefit of the young AICRIP breeders of co-operating centres during 14-15 September 2021 at ICAR-IIRR, Rajendranagar, Hyderabad in virtual mode. Dr RM Sundaram, Director, ICAR-IIRR and Chairman of the training explained “Current status of rice research in India: Way forward” and Dr LV Subba Rao, PI AICRIP & Course Director gave lecture on Five decades of AICRIP: Process, Achievements and future prospects. A series of lectures on critical considerations in breeding and conducting AICRIP trials for different rice ecologies were given by Scientists of ICAR-IIRR, ICAR-NRRI and ICAR-

IARI for the benefit of breeders followed by lectures on various novel breeding techniques in Rice. AICRIP intranet functionalities and statistical analysis of AICRIP data was discussed. 69 researchers from various institutes across the country including 21 States and one Union Territory, registered for the programme. Among the participants, six were from ICAR institutes and 61 from SAUs/ State Agricultural Stations. Maximum representation was from southern zone with 22 participants followed by eastern zone with 14 participants. Speakers from ICAR institutes gave lectures during the training programme. Drs C Gireesh, MS Anantha, R Abdul Fiyaz and Divya Balakrishnan coordinated and facilitated the training programme.



Research Highlights

Influence of different crop establishment methods on microbial population dynamics and nitrogen fixers in rice

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Rice fields represent unique aqua-terrestrial ecosystems, which harbour tremendous diversity of soil microbes, soil fauna and plants. The growth and colonization of soil microorganisms can be influenced by chemical, physical and biological properties of the soil. Essential soil elements for plant growth, such as nitrogen, phosphorus, potassium and micro nutrients influence the microbial population as these nutrients are also needed for microbial growth and activity. Soil microbes play a vital role in providing soil nutrients especially N and P. Rice plants harbour a diverse group of microorganisms and beneficial soil microbes such as free-living nitrogen fixing bacteria; besides nitrogen fixation, microbes have made significant contributions in plant growth promotion, which enhance nutrient uptake and photosynthesis in rice. In this, we studied the microbial population dynamics through enumeration in different rice establishment method., Samples were

collected from the farmer's field from Chandanpally (rice followed by legume), Madhapur, Turkapalli, Champa puram, Palampur (HP), Dhuala Kuan, Mandya (KA) and ICAR-IIRR research farm for total microbial enumeration and isolation nitrogen fixing microbes from different rice establishment method viz, Aerobic (AR), Alternate wetting and drying (AWD) and Flooded (NTP). Samples were analyzed using various media and sample collected from rice rotated with leguminous crop (Chandanpally) was found with highest number

microbes followed by IIRR research farm and lowest at Madhapur. In rice establishment method the AR at Chandanpally was found with highest number microbes, NTP and AWD at ICAR-IIRR research farm was found with highest number of microbes (Table 1). The number of morphotypes obtained was the highest in aerobic (62) establishment method followed by NTP (30) and AWD (8) in samples collected from different parts of India (Fig. 1).

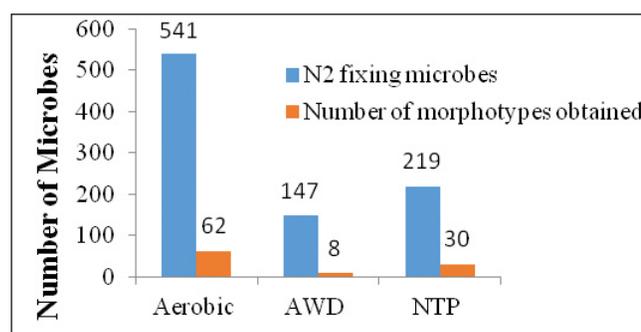


Fig 1. N₂ fixing microbes in different rice establishment methods

Table 1. Microbial population dynamics in different rice establishment method

Place Name	Establishment method	CFU/ gram of soil		
		Bacteria (10 ⁶)	Actinomyceete (10 ⁵)	Fungi (10 ³)
IIRR	AR	270	12	25
	AWD	230	11	22
	NTP	190	8	21
Chandanpally	NTP	120	57	36
	NTP	1230	66	26
	NTP	130	43	42
Turkapalli	AWD	130	42	36
	NTP	120	71	39
	NTP	130	41	28
Champa puram	NTP	130	29	26
	NTP	130	23	29
Madhapur	AWD	140	53	30
	NTP	120	23	27
Dhuala Kuan	AR	200	75	51
Mandya	NTP	150	43	20
	Aerobic	230	96	65
Palampur	Aerobic	210	81	58

Virtual field monitoring of AICRIP trials during Kharif 2021

During *kharif* 2021, AICRIP monitoring of various zones were conducted by Scientists of ICAR-IIRR and ICAR-NRRI through a series of zone wise virtual field monitoring.

AICRIP centres have supported the assessment of entries of trials by nominating self-monitoring teams from their organizations.

Zones	Crop Improvement	Crop Production	Crop Protection	TTT	Date of virtual monitoring
Zone I - Hills	Dr G Padmavathi Dr C Gireesh Dr P Senguttuvel	Dr Bandeppa Dr Soumya saha	Dr Ch Padmavathi Dr K Basavaraj	Dr S Arun kumar	10 th Aug 2021
Zone II - Northern	Dr J Aravind Kumar Dr M Seshu Madhav Dr Divya Balakrishnan Dr M B Kalyani	Dr V Manasa Dr Mangal D Tuti	Dr Chitra Sankar Dr GS Jesudas	Dr Laxmi Prasanna	21 st Aug 2021
Zone IV - North Eastern	Dr K Suneetha Dr R A Fiyaz Dr Kemparaju	Dr R Gobinath Dr Aarthi Singh Dr PR Rao	Dr V Prakasam	Dr P Jeykumar	27 th Sep 2021
Zone V - Central	Dr CN Neeraja Dr MS Anantha Dr Jyothi Badri	Dr RM kumar Dr D Subrahmanyam	Dr Y Sreedhar Dr Ladha Lakshmi	Dr B Nirmala	25 th Aug 2021
Zone VI - Western	Dr AS Hari Prasad Dr Jyothi Badri Dr RA Fiyaz Dr Ch Survana Rani	Dr R M Kumar Dr Akshay S	Dr B Jhansi Rani Dr C Kannan	Dr Santhosh Rathod	30 th Aug 2021
Zone VII Southern	Dr AVSR Swamy Dr P Senguttuvel Dr Divya Balakrishnan	Dr DVKN Rao Dr MBB Prasad Babu Dr B Sreedevi Dr D Subrahmanyam	Dr V Jhansi Lakshmi Dr D Krishnaveni Dr MS Prasad	Dr P Muthuraman	6 th Sep 2021 and 30 th Sep 2021

The first interactive meetings with AICRIP centres were held during 2021 in virtual mode across the zones. The meetings were chaired by Dr RM Sundaram, Director, ICAR-IIRR, Hyderabad and coordinated by Dr LV Subba Rao, PI, AICRIP. Centre wise presentations were made on the status of receipt of trials, trial conduct, self-monitoring, breeding material generated and evaluated, breeder

seed production and recent releases from the respective centres. The virtual presentations from the centres were along with multi-disciplinary monitoring team from ICAR-IIRR participated in the meeting. All the co-operators from different centres of the hill zone presented the progress of AICRIP trials. Various issues were deliberated during the course of the meeting.



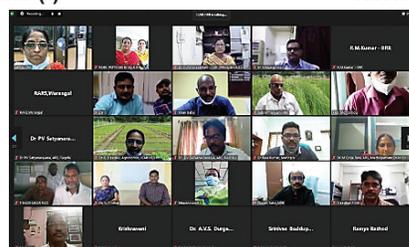
Hills (I)



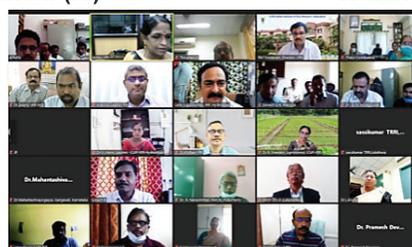
North eastern (IV)



Western (VI)



Southern (VII) -part 1



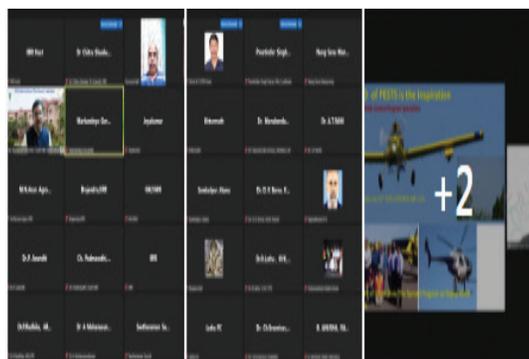
Southern (VII) -part 2

Webinars

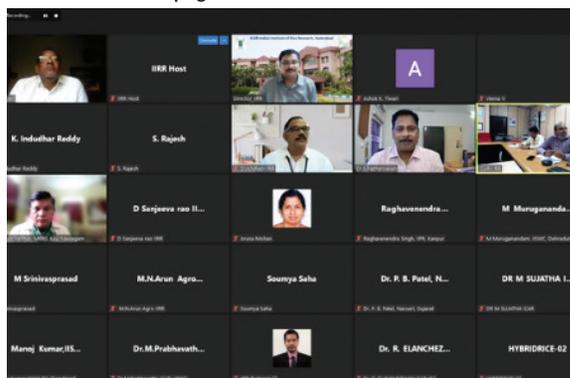
- CRP Biofortification Progress and Planning meeting 2021-2026: The review meeting of ICAR-CRP Biofortification project was held on 5th and 6th July 2021 through video conferencing. The meeting was coordinated by Dr RM Sundaram, Director ICAR-IIRR and Coordinator, ICAR-CRP Biofortification and attended by the partner PIs and Co-PIs of centres for rice, wheat, maize, pearl millet, sorghum, small millets, NIN and NIANP.



- As part of the *Azadi ka Amrit Mahotsav-75th* year of celebration of Independence, ICAR-IIRR in association with Society for Advancement of Rice Research, Rajendranagar, Hyderabad organised a Webinar on 30th August 2021. Dr Markandeya Gorantla, Chairman and Managing Director, ATGC Biotech Pvt. Ltd. has delivered a talk on “Semiochemicals as crop protection tools: Future of insect sex pheromones in row crops”.



- As part of the *Azadi ka Amrit Mahotsav-75th* year of Celebration of Independence, ICAR- IIRR in association with Society for Advancement of Rice Research organised a Webinar on 7th September, 2021. Dr S Pazhanivelan, Head, RS & GIS Unit, TNAU, delivered a talk on “Rice area mapping and yield estimation assimilating remote sensing products with crop growth models”.



Visit of ICAR-IIRR Team to Research stations and NGOs in Andhra Pradesh

ICAR-IIRR team comprising of Drs R Mahender Kumar, AVSR Swamy, P Muthuraman, Y Sreedhar and P Senguttuvel lead by Dr RM Sundaram, Director visited Agricultural Research Station, Bapatla and Pranadhaara (NGO) Cheruvu Jammulapalem, Bapatla on 29th July 2021.

Dr Krishnaveni explained about the three recently released rice varieties viz., BPT 2295, BPT 2595 and BPT 2411 through SVRC by the ARS, Bapatla, which yield around 7.5 t/ha. They also informed the members regarding maintenance of traditional land races especially black rice entries viz. BPT 2841, BPT 2848, BPT 3145 and BPT 3137, which are having high zinc and iron content and Mapillai Samba in the research station. The team observed

and appreciated efforts made in displaying seed samples of the released varieties as well as pipeline and landraces. The team also visited the field plots of the research station, and observed the package of practises being followed in maintaining the dry nursery for the experiments to be conducted. Dr Rama Rao, Head of the Research Station demonstrated the use of seed planter in Dry Direct Seeding of Rice (Dry-DSR) method. Dr Krishnaveni explained about the status of the ongoing experiments and also requested to send more pre breeding material to take up pre breeding work and selections for continuation of research. Dr Suneetha also explained various other research activities going on in the research station.



The team visited the NGO, Praanadhaara, which is actively involved in promoting Dry-DSR and Alternate Wetting and Drying method of irrigation in rice cultivation among farmers in around 6000 acres. Pundarekakshya explained about various agricultural farm implements being used in Dry-DSR and AWD and other farm operations practised from land preparation to harvesting of paddy seeds.

Farmazrs along with scientists of ICAR-IIRR Hyderabad, ARS ANGRAU Bapatla and another NGO representative participated in the programme. The team explained and demonstrated various good agricultural practices to be followed in raising a healthy and high yielding crop in the field.



Outreach Activities

Distribution of green manure at Chandepally, Yadadri Bhuvanagiri

On 1st July 2021, under ICAR-IIRR-SCSP, seed of green manure crop was distributed to 25 farmers of Chandepally village of Yadadri Bhuvanagiri, Telangana. The program was coordinated by Dr K Surekha, PS and Head (Soil Science)

Farmers Field Interaction about Weed Issues in Dry Broadcast seeding system in Bhadradi Kothagudem

In Telangana State, Khammam District, the prevailing sowing and establishment methods in practice in Vemsur; Kandukuru, Barinapadu, Diddupudi mandals is direct dry broadcast seeding / partially aerobic system. On August 4th and 5th 2021, in the farmers fields, Dr B Sreedevi along with District Agriculture Department Officials interacted with the farmers of dry broadcast seeding rice (kariveda paddati is the local term) and also from all the surrounding areas with the location details were recorded which are the basic reference points for the long term monitoring of the same fields with same herbicide application over the years. The Kandukuru, Vemsuru madals are having dry broadcasted DSR in an area of around 6,000 acres. The csowings were done in the first and 2nd week of July. But in some fields the seed started germinating after receipt of rain in 3rd week of July. In most of the fields the crop is in seedling stage. The

farmers are using herbicides higher than recommended and applying tank mix preemergence and postemergence herbicides just like insecticides. Some farmers are applying double the recommended dose of herbicides irrespective of the group of weeds infesting the fields. Over the years (9-10 years) the Leptochloa grass weed is becoming major problem and the herbicides available with local dealers are not able to control it. Similarly, Paspalum, Cynotis are the difficult to control local dominant Broadleaf weeds.

The Field trials in adopted village of Agricultural College, Aswaraopet, PJTSAU along with Agricultural College officials. Integrated Weed Management in puddle direct sown rice, dry direct sown field trials of farmers in the village of Jakarapeta, Tekkali Mandal and monitored the crop growth, weed situation and effect of chemicals already distributed to the farmers in dry direct sown rice with variety DRR Dhan 46. Also interacted with farmers of the villages about mechanization and economic agro techniques of direct seeding. I have also explained briefly on New High Yielding Varieties of IIRR; Weed management using pre/post-emergence/ combination and tank mix herbicide application; Reducing Nitrogen dose by using leaf colour charts for topdressing, etc. and discussed about rice cultivation and problems they are phasing in rice cultivation



Food and Nutrition for Farmers

ICAR-Indian Institute of Rice Research celebrated “Azadi ka Amrit Mahotsav” with a programme on “Food and Nutrition for Farmers” on 26th August 2021 at Manchal Village, Ranga Reddy District, Telangana Following the COVID-19 protocol the program was organized for 30 farmers. A comprehensive program on the importance of food and nutrition for farmers was planned and organized in the village as advised by Indian Council of Agricultural Research. The significance of “Azadi ka Amrit Mahotsav”, the stupendous growth in rice production since Independence to current situation and the role of

ICAR-IIRR rice varieties in food and nutritional security of farmers and other related aspects were highlighted by Dr LV Subba Rao.

The importance of biofortified crops for food and nutritional security and building immunity of farm families and rice consumers, especially in the times of the pandemic was elaborated by Dr CN Neeraja. The potential and prospects for doubling farmer’s income with seed production of nutritionally rich rice varieties was explained eloquently by Dr AVSR Swamy. Dr P Muthuraman motivated the farmers to adopt the nutritionally superior

rice varieties (DRR Dhan 45, DRR Dhan 48 and DRR Dhan 49) and the low glycemic index (GI) rice, Improved Samba Mahsuri for own consumption and also to earn a premium by cultivating these varieties. Dr Amtul Waris highlighted

Poshan Vatika Mahaabhiyan program

A comprehensive program on Curtain Raiser on “International Year of Millets 2023”, as desired by Ministry and ICAR was organized in a tribal village of Ranga Reddy district of Telangana and about 50 farmers and 74 school girls attended the program on 17th September 2021. On this occasion, vegetable mini kits of ten different varieties (tomato, brinjal, bottle gourd, beans, amaranth, methi, bhindi etc) were distributed to set up kitchen garden for ensuring dietary diversity and nutritional security of families. The seeds of nutritious rice varieties (DRR Dhan 48, Improved Samba Mahsuri) developed by ICAR-IIRR were distributed to farmers for overcoming malnutrition with high Zn variety and managing diabetes with low GI variety.



the salient features of biofortified rice varieties developed by ICAR-IIRR and encouraged the farmers to undertake cultivation and consumption of these varieties to ensure nutritional security at farm level.

The scientists of ICAR-IIRR delivered lectures on the topics relevant to the theme on Importance of Poshan Abhiyan-GOI program, (Dr Amtul Waris), Nutri-cereals and their role in human health (Dr CN Neeraja), eco-friendly cultivation practices for healthy foods (Dr. Chitra Shankar), Nutritious rice for healthy work force (Dr Jyothi Badri) and Farmer Interest groups for cultivation of nutri-cereals (Dr B Nirmala). The program was a grand success and attended by local panchayat and ward members with active collaboration of NGO, Vikasith Rythu Sankshema Samithi (VKRSS)



Farmers' Interaction Meet & Exposure visit to ICAR-IIRR

Interaction meet of farmers with Honourable, Prime Minister of India (virtual) and exposure visit to ICAR-IIRR was organized on 28th September 2021 for farmers from adopted villages of Ranga Reddy District, Telangana. A farmer-scientist interaction was organized and seeds of Improved Samba Mahsuri variety were distributed to farmers for demonstrations. The program was coordinated by Drs Amtul Waris and S Arun Kumar.

Personnel of Mulkanoor Cooperative Rural Credit and Marketing Society Ltd., Warangal, visited the institute on 21st September 2021 and were briefed about the research and outreach activities of the institute.





Panorama of Institute Activities

- Director, ICAR- IIRR and team of scientists interacted with 256 Agri. undergraduates from UAS Bengaluru through virtual tour on 13th July 2021



- A virtual health camp was organised by doctors of Germanen Hospital for all the staff of ICAR-IIRR on 15th July 2021. Lectures were given by Dr Jawad Zar Khan on work place ergonomics, lifestyle disorder management by Dr Shankar Reddy and Dr Naveen. Dr Anas Ansari, Chief Business Executive coordinated the meeting.

- “Har Medh Par Ped - Azadi ka Amrit Mahotsav” ICAR- IIRR celebrated PLANTATION DAY by planting saplings at ICAR-IIRR, Rajendranagar and ICRISAT campus on the auspicious occasion of ICAR Foundation Day - 16th July 2021.



- Dr VK Singh, Director, ICAR-CRIDA, visited ICAR-IIRR on 28th July 2021



- Products of SBI - Safe and Remunerative Investments on 3rd August 2021 was organized in virtual Mode
- Soil Health Camp and skilling SC farmers at Eraldinne village, Pebbair Mandal, Wanaparthy district on 9th August 2021



- 75th Independence Day celebrations at ICAR-IIRR on 15th August 2021



- As a part of “Hindi Chetana Mass” celebrations at IIRR from 14th September-13th October 2021, extempore competition was organized on 29th September 2021. चावला अनुसंधान संस्थान में आयोजित आशुभाषण प्रतियोगिता संपन्न-सितंबर 29 2021 Inauguration of Hindi Chetana Maas/ हिंदी चेतना मास समारोह का उद्घाटन - 14 सितंबर, 2021



बाल अनुसंधान संस्थान में आशुभाषण प्रतियोगिता सं

वृत्त, 29 सितंबर
 (विशेष प्रतिवेदन)
 भारतीय पशुपालन अनुसंधान संस्थान में जहाँ हिन्दी चेतना मास आशुभाषण प्रतियोगिता का आयोजन किया गया।
 मन्त्री प्रेम सिंह के अध्यक्षता में, भारतीय पशुपालन अनुसंधान संस्थान में आयोजित आशुभाषण प्रतियोगिता का उद्घाटन किया गया।
 डॉ. आर. (विशेष प्रतिवेदन) ने प्रतियोगिता का उद्घाटन किया।
 कार्यक्रम का सम्बन्ध पूर्व में आर.एस. सुंदरम के निदेशों में डॉ. कुमार कर्मा की अध्यक्षता में आयोजित किया गया।



Parthenium Awareness Program

Parthenium Awareness Program from 16 to 22 August 2021 was coordinated by Drs B Sreedevi and R Mahender Kumar at ICAR-IIRR. The awareness programme was inaugurated by Dr RM Sundaram, Director, ICAR-IIRR and the staff had participated in mechanical and manual removal of *Parthenium hysterophorus* in the premises. The

young vegetative stage plants of Parthenium were put in the compost pit and plants in flowering and seeding stage were heaped and burnt in open field outside the premises. The following activities were taken up during the awareness week.

Date	Location	Activity
16 th August 2022	ICAR-IIRR main campus	Inauguration of Parthenium Awareness programme; mechanical and manual removal of parthenium.
17 th August 2022	Research farm, ICAR-IIRR, Rajendranagar	Mechanical and manual removal of parthenium; demonstration of allelopathic effect of <i>Cassia tora</i> , <i>Tephrosea purpurea</i> , <i>Amaranthus</i> , <i>Tagetta spp</i> on Parthenium.
18 th August 2022	Research Farm, ICAR-IIRR, Ramachandrapuram	Awareness on parthenium (invasion, spread, manual, mechanical, chemical and biological control methods and integrated Parthenium Management) was created among the farm labourer using poster in vernacular language.
19 th August 2022	Research farm, ICAR-IIRR, Rajendranagar	Campaign on chemical control by spraying of non-selective contact herbicide Gluphosinate Ammonium on Parthenium on field bunds, Borewells and field drain channels and road side areas.
21 st August 2022	Research farm, ICAR-IIRR, Rajendranagar	Awareness on parthenium (invasion, spread, manual, mechanical, chemical and biological control methods and integrated Parthenium Management) was created among the farm labourer using poster in vernacular language. The biological control agent mexican beetle <i>Zygogramma bicolorata</i> which is naturally infesting the Parthenium were brought from Directory of Weed Research and released on Parthenium in B Block and demonstrated the activity of the beetles in control of Parthenium.



STAFF NEWS

Promotions

- Shri B Ramesh, Personal Assistant has been promoted to next higher grade of Private Secretary w.e.f. 23rd July 2021
- Smt S Rekha Rani, LDC has been promoted to next higher grade of UDC w.e.f. 23rd July 2021
- Shri B Vidyanath, Assistant has been promoted to next higher grade of Assistant Administrative Officer w.e.f. 3rd August 2021
- Shri Bharath Raju UDC has been promoted to next higher grade of Assistant w.e.f. 22nd September 2021
- Shri K Jashwanth, LDC has been promoted to next higher grade of UDC w.e.f. 23rd September 2021
- 38 CLTS have been regularized as Skilled Supporting Staff w.e.f. 14th September 2021



Joining

- Shri D Srinivasa Rao, Technician (T-1) Joined ICAR-IIRR on 17th August 2021 on transfer from ICAR- CTRI, Rajahmundry
- Mrs K Padmaja, Senior Technical Officer joined ICAR-IIRR, Rajendranagar on 1st September 2021 on inter institutional transfer from ICAR-CTRI, Rajahmundry. She has been posted in the Soil Science Division. At CTRI, Rajahmundry she served in Crop Protection, Crop Chemistry and Soil Science Divisions. She has 15 research papers to her credit.
- Dr SV Sai Prasad, Principal Scientist joined at ICAR-IIRR on 25th September 2021 on transfer from ICAR- IARI Regional Station, Indore, he is involved in developing 27 improved varieties i.e., durum wheat (9), of bread wheat (13), fodder oats (2), field pea (1) and lentil (2). Associated in development of 18 improved wheat varieties including one durum wheat. He developed six genetic stocks of durum wheat as lead and associated in the development of 14 bread wheat genetic stocks, which were registered at NBPGR, New Delhi. His team has developed 6 bio-fortified wheat varieties i.e., HI 8663 (d), HI 8659 (d), HI 8777 (d), HI 1633, HI 1634 and HI 1636.



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



Published by
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