



# ICAR-Indian Institute of Rice Research

## NEWSLETTER

Volume : 13 , Number : 2

RICE IS LIFE

April - June 2015

### From Director's Desk....



### Warm greetings to all

The second quarter of 2015 was a period of hectic activity at Indian Institute of Rice Research. The 50<sup>th</sup> Annual Rice Research Group Meetings cum Golden Jubilee Annual Workshop was organized from 11-15 April, 2015. The inaugural session was graced by Union Minister of Labour & Employment, Shri Bandaru Dattatreya and Dr S. Ayyappan, Director General, ICAR & Secretary, DARE, Govt of India. About 500 rice researchers across India participated in the workshop and deliberated on several issues concerned to rice production. An important recommendation of the workshop was that of the Variety Identification Committee which met on April 11, 2015 under the chairmanship of Dr J.S. Sandhu, Deputy Director General (Crop Sciences), ICAR and identified 3 hybrids and 14 varieties for cultivation under different ecosystems.

The XIX Institute Management Committee meeting of IIRR was held on 27<sup>th</sup> May to discuss and fine tune the requirements of the institute. The Research advisory Committee met on 28<sup>th</sup> May 2015 under the chairmanship of Dr Darshan Singh Brar, Former IIRRI breeder and Adjunct Professor, School of Agri Biotechnology, PAU, Ludhiana and made recommendations for effective implementation of research activities keeping in view the mandate and vision of the Institute. All the scientific staff of IIRR participated in the Institute Research Council Meeting organized from 1-2 and 17 June, 2015, and presented the progress of ongoing research activities, achievements and future line of work. IIRR organized a 10 day short course on "Transformative

approaches in Gender Mainstreaming, Gender Budgeting and Women Empowerment in Agriculture" during 8-17<sup>th</sup> June. Smt. Renuka Chowdhary, Former Minister of State for Women and Child Development, Gol was the Chief Guest at the inaugural session.

IIRR has been conferred the ISO 9001-2008 certificate for 'research, development and extension of technologies to enhance rice productivity, resource and input use efficiency without adverse effects on the environment'. On the research front, Dr B.Nirmala, Scientist (Agricultural Economics), was conferred on "Outstanding woman scientist award" by GKV Society, Agra and is also the recipient of Sri.G.Sriramulu Memorial Gold Medal for securing highest OGPA in Ph.D.

In the monsoon season, cumulative rainfall for the country as a whole during June, 2015 was 13% higher than Long Period Average (LPA). Rainfall (% departure from LPA) in the four broad geographical divisions of the country during the above period was higher by 20% in Central India, 15% in South Peninsula, 28% in North West India and lower by 1% in East & North East India. The prediction of IMD that the rainfall over the country as a whole is likely to be 92% of its LPA during July and 90% of LPA during August is a cause for concern and there is a need to be prepared with contingency measures and crop management options to confront the deficit rainfall.

I hope that the contents of the newsletter are informative and I welcome any feedback and suggestions for our subsequent issues. I wish and hope that our future newsletters will feature wider participation from members of our rice fraternity.

(V. Ravindra Babu)

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## AICRIP Centre Profiles

### Andhra Pradesh Rice Research Institute & Regional Agricultural Research Station, Maruteru, ANGRAU, Andhra Pradesh

Andhra Pradesh Rice Research Institute, Maruteru (16°38' latitude, 81°44' longitude, 5 m msl) was established during 1925 as Rice Research Station to cater to the needs of the rice growers of the Godavari delta. The Institute is situated in the typical deltaic soils in West Godavari district and it was upgraded as APRRI, Maruteru in 2005 and is the lead centre for rice research in A.P. with multidisciplinary approach involving Rodent Control and it is serving as the head-quarters for the Godavari Zone (East- and West Godavari districts) from 2007 onwards. The average rainfall at this station is 1268.3 mm. The mandate is to develop rice varieties/ hybrids suitable for different situations in Krishna – Godavari delta, soil and water management, post- harvest technology and testing suitability of green gram and black gram varieties for summer. There are 5 major research schemes viz., AICRIP on Rice, Integrated Farming Systems, Farm Implements and Machinery, AINP on Rodent Control, state plan and various collaborative projects are CSISA, STRASA, DBT, NRSA and RKVY are in operation.



### Significant Achievements

- The research station has released 47 varieties and two rice hybrids and most of them are resistant to brown planthopper.
- Three varieties released by this station viz., MTU7029, MTU1001 and MTU1010 occupy approximately 18-20% area under rice in the country and contribute about 22 m.t. of rice to the national food pool of 100 m.t.
- Eight planthopper resistant donors viz., PTB 33, Velluthacheera, Huru Honderwala, Rathu Heenati, PTB 12, Manoharsali, CRMR 1523 and ARC 6650 were identified. MTU IJ 206-7-4-1 (BM 71) has been identified as new resistant donor having strong field resistance to planthoppers.
- A small compact and handy device called “Burrow Fumigator” was designed and developed at the station which utilizes farm wastes like paddy straw for smoking the rodent burrows with the help of blower which causes rodent death due to suffocation.



### Varieties developed and released

S. No	Name of the Variety	Year of Release	Salient features
1	Gowthami (MTU 8002)	1976	Non-lodging, suitable for shallow submergence
2	Vasista (MTU 8089)	1976	Non-lodging, good cooking quality
3	Prabhat (MTU 3626)	1976	High yielding, blast tolerant, coarse grain, suitable for parboiling
4	Lakshmi (MTU 6024)	1982	Non-lodging, tolerant to BPH, more efficient in using native fertility
5	Swarna (MTU 7029)	1982	High adoptability, low nitrogen responsive, bacterial blight tolerant variety with stable yield.
6	Vijaya Mahsuri (MTU 4407)	1982	Non-lodging
7	Sowbhagya (MTU 4569)	1982	Non-lodging
8	Vajram (MTU 5249)	1986	first released BPH resistant variety in the country.
9	Pratibha (MTU 5293)	1986	tolerant to BPH, good grain quality, for single cropped areas.
10	Chaitanya (MTU 2067)	1988	high yielding, BPH tolerant, suitable for Krishna delta of Andhra Pradesh.
11	Krishnaveni (MTU 2077)	1989	high yielding, BPH tolerant, suitable for Krishna and Godavari deltas.

12	Nandi (MTU 5182)	1991	BPH tolerant, suitable for KC canal areas of Rayalaseema region.
13	MTU 9993	1993	Short duration, non-lodging, suitable for upland situation
14	Vijetha (MTU 1001)	1995	High yielding, BPH and blast tolerant, short duration, strong seed dormancy, suitable for both <i>kharif</i> and <i>rabi</i> . Sensitive to Zinc deficiency
15	Maruteru Sannalu (MTU 1006)	1997	Short duration, super fine grain, suitable for rainfed situation
16	Deepti (MTU 4870)	1997	multiple resistance to pests and diseases (BPH).
17	Cottondora Sannalu (MTU 1010)	1999	Short duration, high adoptability, tolerant to BPH and blast. Widely grown mega variety with Stable yields.
18	Tholakari (MTU 1031)	2002	Non-lodging, long duration, tolerant to BPH & BLB.
19	Godavari (MTU 1032)	2002	Non – lodging, long duration, tolerant to BPH & BLB.
20	Indra (MTU 1061)	2006	Long duration, fine grain, tolerant to BPH and salinity,
21	Pushyami (MTU 1075)	2008	Medium duration, BPH tolerant, non-lodging
22	Amara (MTU 1064)	2009	High yielding, non-lodging, long duration tolerant to BPH, BLB & submergence, suitable for low lying areas of Krishna and Godavari zone of A.P.
23	MTU 1153	2015	High yielding, non-lodging, short duration, multiple resistance, 2 weeks dormancy and high HRR.
24	MTU 1121	2015	High yielding, non-lodging, short duration, resistant to BPH and blast, good cooking quality.
<b>Varieties in Pipeline</b>			
1	MTU 2716		145-150 days long, non-lodging, BLB and BPH tolerance, fine grain, good cooking quality.
2	MTU 1078		150 days long, non-lodging, low shattering, fine grain quality, tolerant to BPH and BLB, 2 weeks dormancy.
3	MTU 1081		Short duration, non-lodging, non-shattering, tolerant to BPH and Blast, MS grain type. Suitable for <i>Rabi</i> season
4	MTU 1112		high yielding, non-lodging, MS grain type, low shattering, good cooking quality, 3 weeks seed dormancy, tolerant to BPH, BLB.
<b>Varieties in minikit testing</b>			
1	MTU 1166		high yielding, non-lodging, fine grain, 150 days long, 2 weeks dormancy, tolerant to BPH, good cooking quality.
2	MTU 1140		high yielding, non-lodging, flood tolerant, 145 days long, 2 weeks dormancy, tolerant to BPH, 2 weeks anaerobic germination.
3	MTU 1156		short duration (115 days), high yielding, non-lodging variety, tolerant to BPH and Blast, 2 weeks dormancy.

## Seed Production

During 2014-15, 116 tons of breeder seed worth Rs. 71.34 lakhs and 530 tons of foundation seed worth Rs. 159.00 lakhs was produced and distributed to stake holders and farmers.



MTU 1061



MTU 1064



MTU 1075



MTU 1121



MTU 1153



Swarna



Vijetha



MTU 1010

## Rice Research Centre (Rrc), Agricultural Research Institute

### Rajendranagar, PJTSAU, Hyderabad, Telangana

Agricultural Research Institute (ARI) was first established in 1928 to develop suitable varieties for the Hyderabad State and in 1950 separate Rice Section was created and headed by Rice Specialist. In 1965 the All India Coordinated Rice improvement programme (AICRIP) was implemented strengthening research work in disciplines like Breeding, Agronomy, Plant pathology and Entomology catering to rice research needs of Southern Telangana Zone covering Ranga Reddy, Mahabubnagar & Nalgonda Districts and it is the networking centre for rice research

in Telangana State. RRC is located (17 .19 N' Latitude and 78 .23E' Longitude 542 m above mean sea level) in Rajendranagar area of Hyderabad, Telangana State. This centre has an area of 7 hectares irrigated by open wells, the soils are predominantly black (vertisols) with a pH of 8.2 to 8.5 and the annual rainfall is 595 mm.

The mandate of the centre is to develop high yielding rice varieties with multiple resistance to biotic (BPH, Blast and BLB) and abiotic (cold tolerance) stresses, high yielding aromatic short and long slender grain varieties for *kharif*,

### MAJOR ACHIEVEMENTS

#### Varieties developed and Released

S.No.	Name	Parentage	Duration	Characters	Year of release
1	<b>Hamsa</b>	HR 12 / T (N)1	115	Tolerant to cold	1968
2	<b>Tellahamsa (RNR 10754)</b>	HR 12 / T (N)1	110	Tolerant to cold	1971
3	<b>Mahsuri</b>	T65/Mayang Ebos 80 / Mayang Ebos 80	150	Fine grain	1972
4	<b>Rajendra (RNR 12392)</b>	IJ 52 / T(N)1	110	Suitable for I.D.	1976
5.	<b>Saleem (RNR 29692)</b>	GEB 24/Sigadis/IR8/ RNR 8102	135	Resistant to blast	1987
6	<b>Satya (RNR 1446)</b>	Tellahamsa/Rasi	120	Tolerant to cold	1987
7	<b>Chandan (RNR 74802)</b>	Sona/Manoharasali	145	Tolerant to BPH & Blast	1989
8	<b>Sagar Samba (RNR 52147)</b>	IR 8/Siam 29/IR 8/Ptb 21	150	Resistant to blast and tolerant to GM	1993
9	<b>Rajavadlu (RNR 99377)</b>	Rajendra / IR 30	135	Resistant to blast	1993
10	<b>Early Samba (RNR M7)</b>	Mutant of Samba Mahsuri	135	Excellent cooking quality	1999
11	<b>Sumati (RNR 18833)</b>	Chandan / Pak basmati	140	Scented	2002
12	<b>Taramati (RNR 23064)</b>	BPT - 5204/ Tellahamsa	135	Medium slender	2009
13	<b>Sugandha Samba (RNR 2465)</b>	RNR M7/ RNR 19994	135	Medium slender / Scented	2010
14	<b>Krishna (RNR 2458)</b>	Chandan /BPT 5204	135	Fine grain, moderately resistant to blast	2011
15	<b>Shobhini (RNR 2354)</b>	Early Samba/ RNR 19994	135	Aromatic short slender, moderately resistant to blast	2014
<b>VARIETIES IN PIPELINE</b>					
16	RNR 15048	MTU 1010/JGL3855	125	Blast resistant, Fine grain variety	
17	RNR 15038	JGL 3855/MTU 1010	135	Blast resistant, Fine grain	

- Breeder/foundation seed of 600-800 quintals is produced every year.
- The crop protection section has screened several entries for resistance to biotic stresses, identified effective pesticides, and generated information on insect pest incidence across different rice cultivation systems.

### Awards and Recognition

- **Best AICRIP centre award from the ICAR** in the Golden Jubilee Annual Rice Group Meeting (ARGM) 2015 at IIRR Hyderabad.
- **Best AICRIP Centre Award in the 49<sup>th</sup> Annual Rice Group Meeting (ARGM) 2014**
- **Best AICRIP Agronomy discipline award (Dr P Raghurami Reddy) in the 49<sup>th</sup> Annual Rice Group Meeting (ARGM) 2014.**
- **Best ACRIP Plant Pathology Centre award (Dr R. Jagadeeshwar) in the 48<sup>th</sup> Annual Rice Group Meeting (ARGM) 2013.**

### Scientific Staff

- Dr Ch. Surender Raju, Principal Scientist (Rice) & Head (G&PB), Dr R. Jagadeeshwar, Principal Scientist (Pl. Pathology), Dr N. Rama Gopala Varma, Senior Scientist (Entomology) Dr Ch. Damodar Raju, Senior Scientist (G&PB) & Agronomy (i/c) and L. Krishna, Scientist (G&PB)

### Varietal Gallery



## Regional Agricultural Research Station (RARS)

### Warangal, PJTSAU, Telangana

This Research station was first established at Aleru and subsequently shifted to Warangal (268.5 m above mean sea level, 79.28° E longitude and 17.58°N. latitude) in 1933. Initially, the station was established with two research assistants one for experimental cultivation and another for horticulture development. Subsequently, research station was strengthened in the erstwhile Hyderabad government by adding number of schemes like grow more food and seed multiplication. On 1-7-1966, the station along with schemes was transferred to Agricultural University. The Research station is situated at an altitude of The total experimental farm area is 56.5 ha with a cultivated area of 33.8 ha and 18.3 ha of this is irrigated. The centre has both red and black soils and the source of irrigation is wells and a tank.

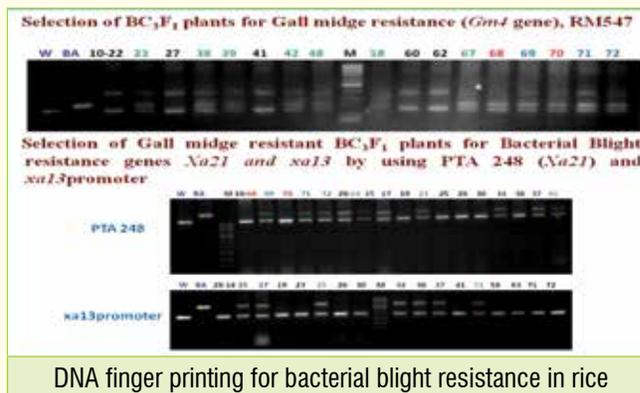
Rice gall fly research at Warangal was initiated during 1959–1960 with one Assistant rice specialist and this was strengthened in 1965 with a rice breeder and supporting staff for developing high yielding rice varieties

with gall midge resistance. In the year 1969, this station was recognized as a National centre for breeding gall midge resistant varieties. All India Coordinated Rice Improvement Project (AICRIP) started with an Entomologist in the year 1969. In 1976, All India Coordinated Pulses Improvement Project and in 1998, Research scheme on Irrigated Cotton were also added. From 1-1-2007, the Research station was upgraded as Regional Agricultural Research Station, to cater to the needs of farming community of Warangal, Khammam and Medak districts.



## Research Accomplishments:

- \* Sixteen high yielding, pest and disease resistant varieties were released from the research station. They are Kakatiya (1974), Surekha (1976), Pothana (1985), Divya (1989), Kavya (1991), Erramallelu (1991), Orugallu (1993), Bhadrakali (1994), Shiva (1996), Keshava (1966), Varalu (2002), Warangal Samba (2005), Warangal sannalu (2006), Ramappa (2009), Siddhi (2012) and Sheethal (2012).
- \* Released the first gall midge resistant variety “Kakatiya”, in India. Sheethal (WGL-283) and Erramallelu are cold tolerant, Varalu is an extra early variety highly suited to contingency situation and multiple cropping system.
- \* Three high yielding entries viz., WGL-347, WGL-482 and WGL-32183 have completed minikit testing. Three high yielding entries viz., WGL-401, WGL-505 and WGL-558 are in minikit testing now. Three hybrids are in verification trials.
- \* Confirmed shift in gall midge biotype 1 to 4 M. Developed a gall midge resistant CMS line (WGL-MS-1A) through conversion programme. Successfully transferred gall midge resistant gene (*Gm4*) and BLB resistant genes (*xa13+Xa-21*) in to Warangal sannalu and Tellahamsa through Marker Assisted Selection (MAS) breeding. These lines are in PVT stage.



- \* Gall midge resistant donors viz., Eswarakorra, HR-22, PTB-18, PtB-21, D. Jalita, Jhitpiti were identified RP-4643-51-2-1037, 4883-332-1-684, 4684-35-2-746, 4687-30-1-648, 4687-52-2-1192, 4687-52-2-1197, JGL-17653, NRC-17468, INRC-7470 were identified as resistant to new gall midge biotypes 4M and are in use in breeding programmes.
- \* The centre is involved in seed production of rice varieties.

## Scientific Staff:

Drs. S. Malathi Entomology, N. Lingaiah Plant Breeding (AICRIP), A. Venkat Reddy Entomology, V. Venkanna, K. Rukmini Devi, B. Satish Chandra (Plant Breeding) and Y. Hari Biotechnology.

## Regional Agricultural Research Station

POLASA, JAGTIAL, PJTSAU, Karimnagar, Telangana

The Regional Agricultural Research Station, Polasa, Jagtial was established in 1980 to conduct research on all aspects of agricultural and horticultural crops such as rice, maize, pulses, oilseeds, turmeric and mango in order to improve their productivity, quality and utility. It is located (18 49' 40" latitude, 78 56' 45" longitude with 243.4 m altitude)

in Polasa village in Karimnagar district at a distance of 8 km from Jagtial and 56 km from Karimnagar. The research station has an area of 61.67 hectares of which 48.96 ha is being utilized for research activities. The average annual rainfall is about 850 mm.

The mandate is to develop suitable efficient cropping systems, and/or patterns for the command areas under Sri Ram Sagar and Nizam Sagar Projects, to do basic research relevant to efficient use of irrigation water management, to develop and manage information systems on short range weather forecasting and agro advisory, production and supply of breeder/foundation seed of different crop varieties.

- Pioneering results were accomplished by identifying the differential reaction pattern against rice gall midge population prevalent at various locations as Biotype 3 (in Karimnagar, Adilabad and Nizamabad districts). A large number of rice germplasm accessions are being evaluated every year for gall midge/WBPH and BLB resistance and these donors are being utilized in breeding programme for developing multiple resistant varieties.
- Huge quantity of breeder / foundation seed is being produced.



### Varieties developed and released

### Scientific Staff:

Dr Y. Chandra Mohan, Dr S. Thippeswamy  
Dr B. Srinivas Dr D. Padmaja Plant breeding, Dr B. Rajeshwari Plant Pathology, P. Madhukar Rao Agronomy, G. Kiran Reddy Soil Science, S. Omprakash Entomology.



S. No.	Variety	Year of release	Duration(days)	Salient Features
1	Polasa Prabha (JGL 384)	2002	135-150	Resistant to gall midge, fine grain
2	Jagtial Sannalu (JGL 1798)	2002	125-140	Res gall midge, fine grain
3	Jagtial Sambha (JGL 3844)	2009	120- 140	Res gall midge, tolerant to panicle mite, fine grain
4	Manair Sona (JGL 3828)	2009	135-150	Res gall midge, tolerant to rice tungro, fine grain
5	Karimnagar Sambha (JGL 3855)	2010	135- 140	Res gall midge, tolerant to blast, super fine grain
6	Jagtial Mahsuri (JGL 11470)	2010	135-140	Res gall midge, tolerant to blast, super fine grain
7	JGL 11727 (Pranahita)	2012	135-140	Res to gall midge, fine grain
8	JGL 11118 (Anjana)	2012	115-135	Res to gall midge, tolerant to BLB & cold, fine grain
9	JGL 17004 (Prathyumna)	2012	95-120	Res to gall midge, cold, tolerant to blast, fine grain. Suitable for late planting under contingency situations
VARIETIES IN PIPE LINE				
1	JGL 18047	Through SVRC		Long slender grain, Gall midge resistant, tolerant to BPH, Blast, cold, 3 weeks seed dormancy.
3	JGL 19621	2 <sup>nd</sup> year of minikit testing		Super fine grain, suitable for low input management, tolerant to gall midge Biotype 3
4	JGL 20171	2 <sup>nd</sup> year of minikit testing		Long slender grain, resistant to gall midge, tolerant to BPH, cold
5	JGL 21002	1 <sup>st</sup> year of minikit testing		Long slender grain, tolerant to gall midge, blast, BPH, cold

## Research Highlights

### Exploration and gene-pool sampling of endemic rice (*Oryza sativa* L.) genetic resources from bio-diversity rich pockets of Karnataka

S.R. Pandravada<sup>1</sup> and P. Senguttuvel<sup>2</sup>

<sup>1</sup>NBPGR Reg. Station, <sup>2</sup>IIRR, Rajendranagar, Hyderabad-500 030

Rice is one of the most important cereal crops in India which is the centre of origin and diversity for rice and is bestowed with tremendous variation both in terms of qualitative and quantitative traits. The farming groups have contributed immensely in the origin, evolution and accumulation of very significant diversity in several landraces through selection process over a long period of domestication. However, the landraces under cultivation are insidiously being replaced by HYVs at an alarming rate especially in Karnataka. Hence, a region specific and crop specific collaborative survey was undertaken during November/ December, 2014 in different parts of Karnataka for the collection and salvaging endemic landrace diversity in Paddy. The survey covered 38 sampling sites in 29 villages belonging to 16 district sub-divisions and 35 farmers and 111 accessions of germplasm with passport data belonging to 73 landraces were collected.

The method of collection in most of the cases has been random and non selective sampling was adapted as the targeted species is cultivated in nature. Significant variability was observed for base, stem, culm, tillering, peduncle, nodes, inter-node, boot leaf, leaf, leaf sheath, plant height, flag leaf, lodging, maturity, panicle exertion, compactness, weight, length, branches, seeds/ panicle branch grains/ panicle seed weight, 100 seed weight, shattering, aroma, apiculus, glume colour, grain shape, kernel, kernel belly, awns, rice recovery, yield and tolerance/ resistance to different biotic (blast, loose smut) and abiotic (moisture, drought) stresses. Wherever possible notes on associated indigenous traditional knowledge and ethno-botanical knowledge were recorded.

The Paddy diversity which is endemic in the surveyed region with specific landrace name and useful in different cultivation scenarios/ ITK are enlisted below.

#### Abiotic Stresses

**Salt tolerance** (Arya, Bili doddi, Bili kagga, Burma, Dodda byaranellu, Dodda gerasalu, Hola bhatta, Kagga, Kari doddi, Kari kagga, Karse mullu nellu, Mullunellu); **Drought tolerance** (Akkala sali, Dodda bhatta, Doddiga, Gumkadale, Kare bhatta, Kari akkala Sali, Kari kalavi, Mattalaga, Marnamy budda, Shankara poonam); **Deep water/ Low lands/ Flood**

**/ Submergence tolerance** (Bili hegge, Burma, Hanasu, Kare bhatta, Mattalaga, Mysore olya, Voltgya); **Acidic soils tolerance** (Hanasu, Karri bhatta, Mullare); **Lowland rainfed** (Mattalaga, Farm saali); **Withstands heavy rainfall** (150-200 inches) (Mullare).

#### Specialty rices

**Aroma after cooking** (Gumkadale); Biryani (Hanasu); Chapathi (Mullare); **Flakes** (Bili kagga, Dodda bhatta); **Good satiety/ fullness for long hours** (Dodda bhatta, Karse mullu nellu); **Good for Parboiling** (Baliga halaga, Bili kagga, Mattalaga, Putta bhatta, Farm saali); **Good for rice** (IET, Natti kiruvanna, Sanna IET, Padma rekha); **Kernel nutritionally superior with huge volume expansion at 1:8 ratio** (Dodda bhatta); **Medicinal value and improves health gives more heat and strength** (Karse mullu nellu); **Payasam** (Govind bhog); **Porridge** (Karse mullu nellu); **Puffs** (Akkala Sali, Dodda bhatta); **Scented** (Gamand bhatta, Gandhasale, Govind bhog, Kari Basmathi, Parimala sanna); **Sticky** (Karse mullu nellu); **Tastes good** (Akkala Sali, Mattalaga, Raja mudi, Farm saali); **Very sweet** (Malakanthi, Padma rekha, Karse mullu nellu).

#### Special traits/ situations

**Seed weight more** (Farm saali); **Early and short duration** (Marnamy budda); **Good early vigour, deep root system and tolerance to weeds** (Doddiga); **Good for Fodder** (Mallige, Mullare, Padma rekha); **Under cultivation since at least 40-100 years** (Natti kiruvanna, Sidda sanna, Dodda bhatta, Sampige); **Intercropped with Pigeon pea** (Kari kalavi); **Purple landrace** (Dambar Sali); **Resistant to biotic stresses** (Mudigere sanna); **Seed dormancy** (Kagga).

A set of the collected germplasm is shared with IIRR which is the NAGSite and has the national responsibility for maintenance of Paddy germplasm collections.



## Genes encoding cell wall integrity protein, iron-sulphur cluster binding-protein, and fertility restorer homologue protein contribute to heat stress tolerance in rice

Satendra K Mangrauthia, B. Sailaja, V. Vishnu Prasanth, K. N. Swamy, N. Sarla, S.R. Voleti, D. Subrahmanyam and V.P. Bhadana

Indian Institute of Rice Research, Rajendranagar, Hyderabad - 500030

High temperature is detrimental to rice growth and metabolism, heat stress at reproductive phase leads to high percentage of sterile spikelets and severe losses in grain yield. Considering the alarming effects of elevated temperature on rice crop, efforts have been made to identify the genes involved in heat stress tolerance.

Bioinformatics and genome-wide approaches helped in identification of three genes- *OsfD* (an iron-sulphur cluster binding-protein), *CWIP* (cell wall integrity protein) and *FRH* (fertility restorer homologue) which showed distinct expression in heat tolerant and sensitive rice cultivars under elevated temperature. The expression studies were conducted in different tissues (root, shoot, leaf, and panicle) and growth stages (seedling, vegetative, reproductive) to assess their role in heat stress tolerance. Heat stress (42°C) was given for short duration (SDS 24h), long duration (LDS 5 days), and continuous (transplanting to maturity) in polyhouse. The stress treatments were imposed in plant growth chambers as well as under field conditions. The expression studies were performed initially in N22 (heat tolerant) and Vandana (heat sensitive) varieties, and later validated in other genotypes identified in NICRA program (Fig 1 & 2).

While comparing the gene expression at different growth stages, differential expression pattern was observed in seedling and reproductive phases in sensitive and tolerant genotypes. However, no variation in expression pattern of these genes was recorded at vegetative stage either in

N22 or Vandana. Further, a distinct expression pattern was observed in root and reproductive tissue, while shoot did not show differential expression. The expression of *FRH* gene was studied in reproductive phase only considering its role in fertility restoration. It showed very high expression in N22 during heat stress. The study has given an indication of important role of these genes in heat stress tolerance in rice. These genes are being characterized functionally to ascertain their role and the mechanisms involved in rendering genotypes tolerant to heat stress. Vandana x N22 mapping population is also being studied to establish linkage of these genes with any heat tolerance related trait. Identification and characterization of such useful genes will help in developing rice genotypes resilient to elevated temperature. These genes can be deployed either through conventional breeding or transgenic approaches to improve high temperature tolerance of popular rice varieties.

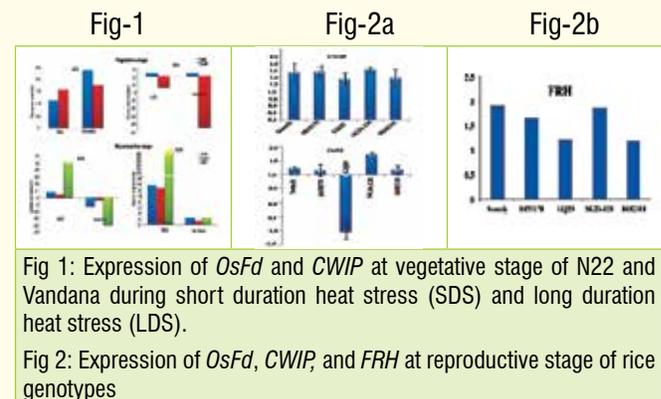


Fig 1: Expression of *OsfD* and *CWIP* at vegetative stage of N22 and Vandana during short duration heat stress (SDS) and long duration heat stress (LDS).

Fig 2: Expression of *OsfD*, *CWIP*, and *FRH* at reproductive stage of rice genotypes

## Weed management in Aerobic rice to increase Productivity

B. Sreedevi, PC Latha, T Ram, V Ram Murthy, N Somasekhar, R Mahendra Kumar, P Senguttuvel, Sandhya Rani and V. Rama Murthy<sup>1</sup>

Indian Institute of Rice Research, Rajendranagar, Hyderabad-500 030, <sup>1</sup>NBSS and LUP Bangaluru

In the present scenario of increasing water scarcity, aerobic rice is one of the contingent production systems. Weeds are a major concern for high productivity in aerobic rice and effective weed management depends on several factors such as timeliness of control operations during early growth stage and good control in preceding crops. In transplanted rice, weeds are controlled just before transplanting and the crop has a significant and competitive advantage over subsequently emerging weeds whereas aerobic rice has no such advantage and yield losses due to weed competition may be as high as 90% in poorly

managed fields. Integrated approach with multiple tactics and knowledge of site-specific field conditions are essential to increase the efficacy and sustainability of weed control.

An experiment was conducted in Randomized Block Design with three replications, with different weed management practices given in the table. The experimental field was naturally infested with weeds, such as *Echinochloa colona*, *Cyperus difformis*, *Cyperus iria*, *Eclipta alba*, *Ammania baccifera*, *Paspalum* spp etc. Conversion of inventory into energy was done as suggested by Nassiri and Singh (2009).

The grassy weeds dominated the weed flora followed by broad leaf weeds (BLW). Most of the herbicides used in the study controlled BLW and grassy weeds. Sedge population was low in Butachlor + 2, 4-D Na salt treatment (table1). Mechanical weeding recorded significantly higher BLW population and hand weeding recorded lowest weed biomass. Among the herbicides, Pendimethelin fb Bispyribacsodium or Chorimuron + Metsulfuronmethyl and Butachlor fb Bispyribacsodium recorded significantly low weed biomass, low Weed index, high weed control efficiency and high grain yield indicating the comparable effectiveness. The energy input was lowest in unweeded check followed by mechanical weeding

treatment. The energy output and energy ratio were highest in need based hand weeding, followed by Pendimethelin fb Bispyribacsodium treatment. The specific energy was higher with need based hand weeding and Pendimethelin fb Bispyribacsodium, Pendimethelin fb 2,4-D Na salt. From this study it is confirmed that, sequential herbicide application of Pendimethalin @ 1 kg a.i./ha or Butachlor @ 1.5 kg a.i./ha 3-4 DAS); fb Bispyribacsodium @35 g at 2-4 leaf stage of mixed weed flora or Chlorimuron + Metsulfuronmethyl @40 g a.i./ha at 25-30 DAS (for annual sedges and BLW) helps in realizing higher grain yields, higher energy output and energy ratio, that were comparable to or closer to need based hand weeding.

**Table 1: Effect of different weed control practices on weed, Yield and Energy parameters in Aerobic rice**

Treatment	Grain Yield (t/ha)	Panicle/ m (No.)	Panicle Weight (g)	Weed dry weight (g/m)	Weed control efficiency	Weed index	Energy input (MJ/ha)	Energy output (MJ/ha)	Energy ratio	Specific energy (MJ/Kg)
Pendimethalin (30EC)@1.00 kg a.i./ha(3-4 DAS) + Bispyribacsodium (10%SC)@35 g.a.i./ha (15-20 DAS)	3.9	265	2.2	29.7	72.8	3.7	20714.4	57036	2.8	5.3
Pendimethalin (30EC)@1.00 kg a.i./ha(3-4DAS) +2,4 D,Na salt (80WP) @0.06 kg.a.i./ha (20-25 DAS)	3.5	244	2.2	37.9	65.3	12.9	20786.1	51597	2.5	5.9
Pendimethalin (30EC) @ 1.00 kg a.i./ha (3-4 DAS) + Ethoxysulfuron (15WSG) @ 15 g.a.i./ha (25-30 DAS)	3.4	256	2.2	38.5	64.8	15.4	20845.6	50127	2.4	6.1
Pendimethelin (30EC) @ 1.00 kg a.i./ha (3-4 DAS) + (Chorimuron + Metsulfuronmethyl) 20WP @ 40 g.a.i./ha (25-30 DAS)	3.4	240	2.2	32.9	69.9	16.1	20647.36	49686	2.4	6.1
Butachlor (50EC)@1.5 kg/a.i./ha (3-4DAS) + Bispyribacsodium (10%SC)@35 g.a.i./ha (15-20DAS)	3.8	266	2.1	32.2	70.6	6.7	20714.4	55270	2.7	5.5
Butachlor (50EC)@1.5 kg/a.i./ha (3-4DAS) + 2,4-D,Na salt (80WP) @ 0.06 kg.a.i./ha (20-25 DAS)	3.4	240	2.2	47.9	56.2	16.8	20786.1	49245	2.4	6.2
Pretilachlor (30EC) @ 1.00 kg a.i./ha (3-4 DAS) + Ethoxysulfuron (15WSG) @ 15 g.a.i./ha (25-30 DAS)	3.3	247	2.1	48.2	55.9	17.4	20845.6	48951	2.4	6.3
Pretilachlor (30EC) @ 1.00 kg a.i./ha (3-4 DAS) + (Chorimuron + Metsulfuronmethyl) 20WP @ 40 g.a.i./ha (25-30 DAS)	3.4	237	2.1	37.4	65.8	16.4	20647.36	49539	2.4	6.1
Mechanical weeding/weeders at 20&45 DAS	3.5	259	2.3	27.1	75.2	13.7	19943.78	51156	2.6	5.7
Need based hand weeding (4 at 15 day interval)	4.0	287	2.1	20.5	81.2	0	20866.22	59241	2.8	5.2
Un weeded	1.9	162	1.6	109.3	0	52.4	19770.18	28224	1.4	10.3
C.D. (0.05)	0.3	20	0.5	4.9	NA	NA	NA	NA	NA	NA



# Quorum quenching activity of a *Rhizobium* sp. isolated from the rice rhizosphere

P. C. Latha, M.B.B. Prasad Babu, B. Sreedevi, C. Chandrakala and K.V. Prasad  
Indian Institute of Rice Research, Rajendranagar, Hyderabad-30.

The phenomenon of quorum sensing is a population dependant communication signalling mechanism employed by bacteria to regulate activities involved in microbe - microbe and microbe - plant interaction like motility, virulence, production of secondary metabolites and biofilm formation. The chemical agents produced as biocommunication signals are in the form of diffusible compounds, which in many Gram-negative bacteria, is a N-acylhomoserine lactone (AHL) molecule. Quorum quenching activity on the other hand, is a process where quorum sensing is inhibited either by interfering in the synthesis or perception of quorum signal molecules or by their enzymatic destruction.

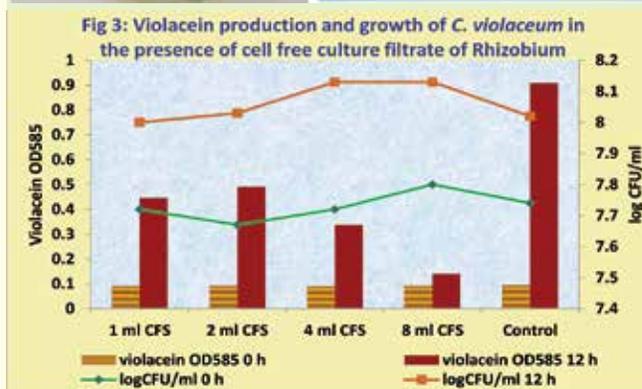
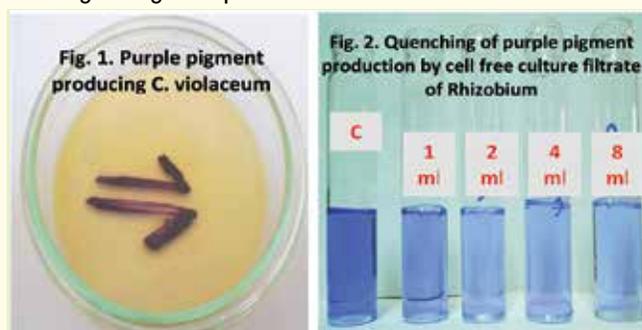
Several plant associated bacteria belonging to both growth promoting as well as pathogenic categories use quorum sensing in their interaction with plants. Disrupting the quorum sensing networks of pathogenic bacteria by quorum quenching is considered a more advantageous alternative method to control bacterial diseases than the current antibiotic based antibacterial measures. This is mainly because bacteria have the ability to evolve resistance to all known antimicrobials, and quorum quenching results in the reduction of virulence in a manner that is impervious to bacterial resistance mechanisms. Since quorum quenching does not control bacterial growth, it is thought there is reduced selective pressure on the pathogen for developing resistance.

A bacterial isolate from rice rhizosphere exhibiting multiple plant growth promoting traits like IAA production, aminocyclopropane carboxylate deaminase activity and the ability to solublize insoluble sources of silica, phosphorus and zinc was also found to possess N-acylhomoserine lactone inactivating ability. This isolate from IIRR, Rajendranagar farm which was identified as *Rhizobium* sp through sequencing of 16s rDNA, was assessed for quorum quenching activity against *Chromobacterium violaceum*, which produces purple violacein pigment (Fig. 1) and is an indicator bacteria for monitoring quorum quenching activity.

Cell free culture filtrate of *Rhizobium* sp was found to inhibit violacein production by *C. violaceum* in a concentration dependent manner demonstrating the ability to inhibit the quorum signaling molecule produced by *C. violaceum* (Fig. 2). The percentage of inhibition of violacein production was 42.98%, 57.24%, 74.66% and

89.59% respectively in the presence of 1, 2, 4 and 8 ml of cell free supernatant without a concomitant reduction in population of cells (Fig. 3). Further characterization of the quorum quenching activity revealed that the inhibition was due to the presence of the lactonase enzyme which hydrolysed the acyl homoserine signal of *C. violaceum*. Confirmation of the presence of lactonase was proved by the recyclization of the opened lactone ring in acidic pH, leading to restoration of production of purple pigment.

Though the use of quorum quenching as a viable, new disease management strategy is still in its infancy, this disruption of quorum sensing by *Rhizobium* has the potential to be exploited as a novel preventive and curative biocontrol mechanism against several species of plant pathogenic bacteria that utilize homoserine lactone quorum sensing to regulate processes related to their virulence.



## Rice in Dream Heralds Success

Amtul Waris

Indian Institute of Rice Research, Rajendranagar, Hyderabad - 500 030

Rice is a good omen in a dream and is often associated with prosperity, luck, fertility, new beginnings, sharing, companionship, and success. To see rice in a dream is a very good omen bringing with it joy and happiness. Rice in a dream symbolizes being taken care of on a multitude of levels. Eating rice is a sign of nutrition and sustenance, and that you have what you need. Rice provides a positive energy, associated with luck, prosperity, fertility, fresh new beginnings, success and sharing. To see rice in our dream simply means that we are in the right track of achieving our goals. Rice is a symbol of coming together because it is often thrown at weddings. When you throw rice at a wedding, you are representing your own happiness and joys for others in your life which indicates a receptive personality.

- Rice is good to see in dreams, as it foretells success and warm friendships. Prosperity to all trades is promised, and the farmer will be blessed with a bounteous harvest.
- To eat it, signifies happiness and domestic comfort.
- To see it mixed with dirt or otherwise impure, could denote sickness and separation from friends.
- For a young woman to dream of cooking it, shows she will soon assume new duties, which will make her happier, and she will enjoy wealth.
- In a dream, rice pudding means celebrations, a reception, a wedding, a contract, knowledge, or prosperity.
- Rice flour means a blessing or a favour.
- To see grains of rice in your dream, symbolizes success, prosperity, luck, fertility and warm friendships.
- To dream that you are eating rice denotes happiness and domestic comfort.
- For a sick person to see rice in dreams means return to health slowly.
- For an unmarried man, rice in dreams denotes an early marriage.
- To see ripe paddy fields foretells great wealth and happiness. Should the paddy corns be rotten or dead, it indicates dreary prospects.
- A dream about cooking rice means you will adopt certain responsibilities that shall bring you satisfaction and happiness.
- Should you be harvesting the field, it means your hard work and creativity will be rewarded.

- Should you see rice with a lot of mud and stones in it, beware of sickness and ill-health.
- Seeing lots of individual grains of rice could represent lots of physical, mental, emotional, or spiritual "nutrition" delivered in many tiny amounts.
- To see of buying or taking rice in your dream may represent that you will receive a recompense for your works as soon as possible.
- To see of eating raw rice in your dream means that you will reach a knowledge or property which everyone spends too much money for.
- To see of buying rice in your dream indicates that you will make a friendship with a reliable person and you will be very successful with this friend.
- To see that you sell rice in your dream suggests that you will buy a more profitable property by selling a commodity or property which provide regular income to you.

(According to the ancient dream books and from 10,000 Dreams interpreted by Gustavus Hindman Miller, Dream Interpretation .co., Dreaming the dreams,)



### Panorama of Institutional Activities

#### Golden Jubilee Annual Rice Group meeting held at IIRR, Hyderabad

The Golden Jubilee Annual Rice Group meeting (ARGM) was conducted at the Institute during 11-15 April, 2015. About 500 rice researchers across India representing ICAR institutions, State Agricultural universities, private seed companies and Scientists from IRRI, Philippines participated in the meeting. The inaugural session was graced by Shri Bandaru Dattatreya, Union Minister of labour and Employment, Dr S Ayyappan, Director General, ICAR & Secretary, DARE, Dr Robert S Zeigler, Director General, IRRI, Dr JS Sandhu, Deputy Director General (Crop Science), Dr M Mahadevappa, Former Chairman ASRB, Dr V Ravindra Babu, Project Director IIRR and Dr G Katti, Principal Scientist and convener of 50<sup>th</sup> ARGM. The meeting was chaired by Dr S Ayyappan, DG, ICAR.



Dr V Ravindra Babu briefly presented the highlights of the progress of research under the AICRIP and lead research at IIRR. The chief Guest Shri Bandaru Dattatreya, Union Minister of labour and Employment, Govt of India urged the Scientific community to develop low cost farm friendly technologies that can give maximum yield, minimize water use and improve profits to the farming community. Dr S Ayyappan stressed upon the importance of RICE IS LIFE -a sacred source of material in all the important celebrations of the county. He complimented the role of scientists in development of rice lines rich in protein and Zinc. Dr JS Sandhu DDG (CS) remarked that rice production was 60.3 mt in 1970s which increased to 104 mt in 2014 without significant increase in rice area and despite declining ground water in many rice growing areas. Dr Robert S Zeigler DG IRRI congratulated the staff of IIRR and appreciated the efforts of Indian Scientists for their contribution to IRRI's success in using cutting edge science to help bring food security, economic growth through their dedicated research. On the occasion of Golden Jubilee celebrations, former Directors of IIRR, 12 retired scientists, 10 technical officers, 4 technical assistants and 5 administrative staff were felicitated. Seventeen farmers hailing from various states were also felicitated in 50<sup>th</sup> ARGM. Nine publications were released and website for SAAR and International Rice symposium-2015 were released. Six leading centres of SAUs viz., APRRI & RARS, Maruteru, AP; Mountain Research Centre for Field Crops, Khudwani, J&K; Paddy Breeding Station, Coimbatore, Tamil Nadu; Rice Section, PAU, Ludhiana, Punjab; Rice Section, GBPUAT, Pantnagar, Uttarakhand; Rice Section, IGKV, Raipur, Chhattisgarh were identified for their prominent role and immense contribution to the AICRIP and the staff of these centres were felicitated.

This was followed by presentation of disciplinewise progress of work in the general session.

The varietal identification committee met under the chairmanship of Dr JS Sandhu, DDG (CS), ICAR on

11 April, 2015 and identified 3 hybrids and 14 varieties viz., IET 23420(RP 5333-41-2-3-IR 83383-B-B), IET 23409 (MTU 1153), IET 22565 (TKM-13), IET 23088 (NP- 9381), IET 21842 (R-1536-136-1-77-1), IET 23189 (CR 2713-35), IET23193 (CRL 74-89-2-4-1), IET 23467 (CR 3695-1-1), IET 23449 (IR 83376-B-B-130-2-85-2-CR-1-2), IET 23466 (CR 3632-1-2), IET 23448 (CR3629-1-5-IR83372-B-B-94-3-79-1-CR-1-5), IET 23832 (RP 5886-HP 3-IR80463-B39-3, IET 24780 (CR 2829-PLN-37), IET 22984 (RCPL 1-412), IET 22937 (PRSH 9090), IET 22938 (KPH-460), IET22402 (KRH 4).



Panel Discussion was organized for Preparing Road Map for Future Rice Improvement (for Aligning AICRIP in changing scenario for improving rice yield potential). The panel members include Dr M. Mahadevappa, Dr E. A. Siddiq, Dr V. P. Singh, Dr P. K. Agarwal, Dr Parminder Virk, Dr Arvind Kumar and Dr N. K. Singh. Dr EA Siddiq emphasized on short term and long term strategies for bridging gap in yield barrier. Dr Mahadevappa spoke on Overall strategy for improving rice. Dr N. K. Singh stressed on Genome based strategy to break yield potential, Dr Parminder Virk listed the characters of future plant types, Dr Arvind Kumar spoke on breeding for stress tolerance, Dr P. K. Agrawal emphasized that Yield in hill ecology should be targeted.



A special session on ICAR-IRRI Collaboration chaired by Dr Gurubachan Singh, Chairman, ASRB and co-chaired by Dr J.S. Sandhu, DDG (CS) ICAR was conducted. The chairman in his opening remarks appreciated ICAR - IRRI joint programs and collaborative research in linking the global rice science with the national programs. Dr J.K. Ladha, IRRI representative for India and Nepal, gave an overview of ICAR- IRRI work plan and collaborative research activities. Dr Sudhir Yadav, Scientist- IRRI, spoke on "System Agronomy and higher productivity with sustainability". Dr T. Ram, IIRR deliberated on "Developing stress tolerant rice varieties: Joint efforts key to success" Dr M. Variar, from CRURRS (ICAR), Hazaribag, gave a detailed account of success story on "ICAR- IRRI Collaboration on Stress Tolerant Rice. Dr K.K. Jena, Principal Scientist, IRRI, presented the work plan and progress under theme 2 on Accelerating the development, delivery and adoption of improved rice varieties. Dr M.S. Ramesha, IRRI stressed on "Genetic improvement of Rice for dry direct-seeded rice condition" Dr N.K. Singh, National Professor & BP Pal Chair presented on "Did Green Revolution Select Against Drought Tolerance". Aravind Kumar, IRRI spoke on "Directions for IRRI South Asia Hub". Dr P. G. Chengappa, former Vice Chancellor, UAS, Bangalore and National Professor of ICAR presented on "Rice strategy for India". Dr Samarendu Mohan deliberated on "India Reaches the Pinnacle in Rice Exports".

A special committee chaired by Dr MP Pandey was constituted to resolve the issue related to quality parameters for the entries tested in AICRIP trials. All the committee members, the members from Private Companies (Dr N.P. Sharma, Dr B. S. Dahiya, Dr V. Shenoy) agreed that the present system and the quality parameter criterion for promotion is correct and as per the international norms.

The plenary session was chaired by Dr J. S. Sandhu, DDG (CS), ICAR and co-chaired by Dr I. S. Solanki, ADG (FFC) in which respective principal Investigators presented the proceedings including the technical programme for 2015-16 and recommendations of the concurrent sessions. Six scientists due for retirement during the current year

were felicitated for their long service and outstanding contribution to AICRIP.



### IMC Meeting 27-05-2015

The XIX Institute Management Committee meeting of IIRR was held on 27.05.2015 to discuss and fine tune the requirements of the institute. The meeting was attended by the experts viz., Dr I S Solanki, ADG (FFC), ICAR, New Delhi, Dr Raji Reddy, Director of Research, Prof. Jayashankar Telangana State Agricultural University; Dr B. Dayakar Rao, Principal Scientist, IIMR; Dr (Mrs) Mayabini Jena, Principal Scientist and Head, Crop Protection, NRRI, Cuttack, Dr A.K. Singh, Principal Scientist and Head, Division of Genetics and Plant Breeding, IARI, New Delhi; Shri Athmakuri Brahmaiah, Shri M. Vittal Reddy, Farmer representatives; Shri H Ganesha, Finance & Accounts Officer, IIOR; besides the Project Director, Administrative Officer, Finance & Accounts Officer, IIRR and Heads of various sections of IIRR and convenor Dr D. Krishnaveni, Principal Scientist, Plant Pathology, IIRR.



### Research Advisory Committee Meeting Organised

The fourth meeting of the Research advisory Committee was held at IIRR on 28<sup>th</sup> May, 2015 under the chairmanship of Dr Darshan Singh Brar, Former IRRI breeder and Adjunct Professor, School of Agri Bio-technology, PAU, Ludhiana. The other members include Dr I.S. Solanki, ADG (FFC), ICAR, New Delhi, Dr A.K Singh, Principal Scientist & Head (Division of Genetics & Plant Breeding), IARI, New Delhi, Dr Rabindran, Professor, Plant Pathology & Registrar, TNAU, Coimbatore, Dr Raji Reddy, Director (Research),

PJTSAU, Hyderabad, Dr Randhir Singh, Principal Scientist, IIWBR, Karnal, Shri M. Vittal Reddy and Shri A. Brahmaiah (Farmer representatives) and Dr R Mahendra Kumar, Principal Scientist and Member Secretary, RAC, IIRR. At the outset Dr Ravindra Babu Director welcomed the Chairman and all the members and presented an overview of IIRR research activities and accomplishments covering crop improvement, crop production, crop protection and transfer of technology and training sections. Dr Mahendra Kumar presented the proceedings of the RAC 2014 and action taken report. This was followed by detailed presentation of research accomplishments of each discipline by respective heads of sections.



### Administrative Block Inaugurated

Administrative block was inaugurated by Dr DS Brar, Former IRRI breeder and Adjunct Professor, School of Agri Bio-technology, PAU, Ludhiana.



### Institute Research Council Meeting Organized

Institute Research Council Meeting was organized from 1-2 and 17 June, 2015 under the chairmanship of Dr V Ravindra Babu, Project Director, IIRR. All the Scientific Staff of IIRR participated in the meeting. At the outset, Dr V Jhansi Lakshmi, Principal Scientist Entomology and Secretary IRC welcomed the chairman and members of the IRC. The chairman in his opening remarks highlighted the importance of IRC and the sequential system of conducting QRT, ARGM, IMC, RAC and IRC before *kharif*

season starts. The chairman welcomed the new Scientists who joined IIRR. This was followed by presentation of the work done during 2014-15 by individual Scientists of each discipline. Each presentation was thoroughly discussed by the members. Nine new projects were approved by the IRC. In his concluding remarks the Chairman emphasized that a) The entries/lines with special traits should be registered with NBPGR. b) The entries/cultures identified with special traits should be collected from the respective sections and multiplied in alternate years and retested by the concerned Scientists. c) Network projects on hybrid rice, Entomology, Pathology, Biotechnology, Pre-breeding, direct seeded rice can be prepared. The meeting ended with vote of thanks by Dr B Sreedevi, Principal Scientist, Agronomy and Joint Secretary, IRC.



### ICAR-Sponsored Short Course on Gender, 8-17 June, 2015

The 10 days short course on, "Transformative approaches in Gender Mainstreaming, Gender Budgeting and Women Empowerment in Agriculture" was conducted at IIRR during 8-17 June, 2015. The participants of the course comprised of SMS-Home Science, Scientists-Agricultural Extension and Assistant Professors representing 8 states of the country. The Chief Guest at the inaugural session was Smt. Renuka Chowdhary, Former Minister of State for Women and Child Development GoI. The objectives of the course were to impart knowledge and skills for application of tools and techniques of Gender analysis, gender mainstreaming, gender budgeting and empowerment of women in agriculture.



## Exhibition: International Day for Biological Diversity - 22 May, 2015

On the occasion of International Day for Biological Diversity on, 22 May, 2015 (to reaffirm our resolve to safeguard the precious, heritage of bio-resources for the future generations) an exhibition stall was put up depicting the various Research, Extension and Training activities of IIRR at Indira Priyadarshini Auditorium, Public Gardens, Nampally, Hyderabad. It was organized by the Telangana Biodiversity Board, Govt. of Telangana. The chief guest for the occasion was Honourable Minister for Environment, Forests, Science & Technology, Sri Jogu Ramanna, Dr Amtul Waris, Dr B. Sreedevi, Dr B. Nirmala, Sri S. Sadanand and Chaitanya were involved in the organization of the exhibition stall.



## Medical Camp by Care Hospitals

A medical Camp was organized by the recreation club of IIRR on 9<sup>th</sup> June, 2015 and the specialists from Care Hospital including general physician and Cardiologist participated in the Camp and examined the IIRR staff for blood Pressure, diabetes and heart problems. The Doctors gave consultancy based on the problems and nearly 150 staff members participated in the camp.



## Exposure trip of the Philippine rice achiever awardees to IIRR

A 15 member delegation from the Philippines visited IIRR on 23<sup>rd</sup> June, 2013 under the Philippines-IIRRI partnership program on the Food staple sufficiency program.

The delegation consists of the Philippines rice achievers mostly affiliated to the government of Philippines. They were exposed to the achievements, on-going programmes and future plan of work of IIRR. The delegates visited Rice museum, glass houses and the laboratories and interacted with the Director and the heads of the sections. They were provided with the publications of IIRR.



## Yoga day celebrated

Recreation Club of IIRR conducted a programme on YOGA to sensitize about Yoga and its importance in commemoration of first "International Yoga Day – 21 June, 2015" at IIRR. Dr Debnath, Medical Doctor, NAARM and Yoga practitioner Dr Mahabir Singh (Retd Head of Extension, IIRR) were chief guests of the day. Dr Debnath stressed on the importance of Yoga followed by demonstration of the Aasanaas and Pranayama. Dr Mahbir Singh informed about daily yoga routine and keeping mental and physical fitness of the body by regular practice. All the staff members participated in the programme and the programme ended with vote of thanks by Dr R. Mahender Kumar, Chairman, IIRR recreation club.



## World Environment day 5-6-2015

World environment day was celebrated at IIRR and planting of saplings was done at various places in the Institute premises.



## Swatcha Bharath Abhiyan

Swachh Bharat Abhiyan activities were regularly carried out by Indian Institute of Rice Research every week on Saturday from 3-4 PM. The Project Director and all the IIRR Staff actively participating in this activity. As a part of this activity, the office premises were thoroughly cleaned by the IIRR staff. The collected waste material was converted into vermicompost. Planting of saplings was also taken up during Swatcha Bharath activity at various places in the premises.



## Distinguished visitors

**Mrs Renuka Chowdary MP Rajyasabha and Member of Parliamentary Committee (Agriculture) visited IIRR.**

Mrs Renuka Chowdary MP Rajyasabha and Member of Parliamentary Committee (Agriculture) visited IIRR on 8<sup>th</sup> June, 2015. She has visited rice museum, other IIRR facilities, inaugurated training programme on 'Transformative approaches in Gender Mainstreaming, Budgeting and Women Empowerment in Agriculture', interacted with IIRR scientists and participated in the planting of saplings.



## Dr David Bergvinson Director General ICRISAT visited IIRR

Dr David Bergvinson the Director General of ICRISAT had made a maiden visit to IIRR on 18<sup>th</sup> May, 2015 on the occasion of Golden Jubilee year celebrations. He had visited IIRR research farm, museum and interacted with the Scientists. He had extended his help in popularizing the IIRR technologies, village adoption programmes and improving facilities in IIRR farm at ICRISAT.



## Staff Activities

### Awards and recognitions

#### IIRR receives ISO 9001-2008 certificate

Integrated Quality certification Pvt Ltd certified that the quality management system of Indian Institute of Rice has been assessed and conforms to the quality management systems ISO 9001-2008. It is certified that the scope of research, development and extension of technologies to enhance rice productivity, resource and input use efficiency are without any adverse effects on the environment. The certificate is valid from 26-5-2015 to 25-5-2018.



Dr B. Nirmala, Scientist (Agricultural Economics), received Sri.G.Sriramulu Memorial Gold Medal for securing highest OGPA in PhD in the Faculty of Agriculture from Dr Daniel Gustafson, DDG (Operations), FAO, during 45<sup>th</sup> Convocation of ANGRAU held in Tirupati on 4<sup>th</sup> April, 2015.

Dr B. Nirmala, Scientist (Agricultural Economics), was conferred on "Outstanding woman scientist award" by GKV Society, Agra during the two days National Conference on Reinvigorating Agricultural Innovations for Farmers' Empowerment and Development, RAINFED - 2015' organised at PJTSAU, Hyderabad on 3-4 May, 2015.



**IIRR team receives sports medals**

IIRR team consisting of Dr M.N. Arun and Dr R. Mahender Kumar received gold medal (1<sup>st</sup> position) in table tennis men’s team event for the first time in the ICAR – Inter-Institutional Tournament (South Zone) held at ICAR- CIFT, Kochi during 25-29 May, 2015.

IIRR woman’s team consisting of Dr K. Surekha and Dr G. Padmavati received gold medals (1<sup>st</sup> position) in both the singles and doubles table tennis event. In the woman high jump event Dr P. Revathi received silver medal (2<sup>nd</sup> Position). In the overall score points, IIRR got 23 points and placed in the sixth position in the south zone meet.

**Promotions**

The following staff were promoted to the next higher grade

S No	Name	Promoted			w.e.f.	Portrait
		From	To			
1	Dr MBB Prasad Babu	Senior Scientist	Principal Scientist	5-7-2013		
2	Dr RM Sundaram	Senior Scientist	Principal Scientist	28-3-2014		



**Retirements**

Dr GSV Prasad, Senior Scientist, Plant Breeding retired from the service upon superannuation on 30 April, 2015. He made significant contributions in the rice plant breeding and associated in the development and release of many rice varieties.



## Staff additions

S No	Name	Designation	Transferred from	Joined IRR on	
1	Dr P Ananda Kumar	Principal Scientist Biotechnology	NRCPB Delhi	29-4- 2015	
2	Dr DVK Nageswara Rao	Principal Scientist Soil Science	NIASM Baramati	25-5- 2015	
3	Dr P Jaya Kumar	Senior Scientist Entomology	NCIPM Delhi	27-06-2015	
4	Dr C Kannan	Senior Scientist Plant Pathology	DWR Jabalpur	01-05-2015	
5	Dr Y Sridhar	Senior Scientist Entomology	DSR Indore	24-4-2015	
6	Mr. Bandeppa	Scientist Microbiology		10-4-2015	
7	Mr. Satish Namdeo Chavan	Scientist Nematology		9-4-2015	

8	Dr P Valarmathi	Scientist Plant Pathology		9-4-2015	
9	Mr. Sh. Soumya Saha	Scientist Agronomy		9- 4-2015	
10	Dr M.N. ARUN	Assistant Chief Technical Officer (T-7-8)	IHR Bangalore	11- 4 - 2015	

### Forthcoming events

- Innovative rice farmers meet 29-8-2015.
- ICAR sponsored ten days Short Course on “Quality Improvement, Bio-fortification and Product Development in Rice for Nutritional and Financial Security of Rice Farmers” to be organized at IIRR during 1-10 September, 2015.
- International Symposium 18-20 November, 2015.

## BOOK POST

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