



# DRR



## Directorate of Rice Research NEWSLETTER

Volume : 12, Number : 1

RICE IS LIFE

January - March 2014

### From Director's Desk...



Greetings! Wish You All A Happy New Year 2014.

The year 2013 had been a very productive year in terms of high rice production, man power development and recognition for the efforts that contributed for the success. The 2013 southwest monsoon started with a bang, surprising several experts with the intensity of rain witnessed in June. That set the tone for the remaining months as the season till September finally ended with 106% of the long period average rain. The season covered the entire country 15 days before schedule and June recorded 132% of the LPA over the country. The pace of advance of southwest monsoon this year had been the fastest since 1941, having broken over Kerala on time but covering the country a month in advance. But in the later part of the season two severe cyclonic storms, Phailin (October 8 – 14) and Lehar (November 23 – 28) had taken the major toll in states of Odisha and Andhra Pradesh resulting in 45 deaths. Despite these natural vagaries, it is evident through the Advance Estimates of Crop Production that India is likely to produce all time high of 263.2 million tonnes of food grains during 2013-14 (includes *Kharif* 2013 and *Rabi* crops in the field at present) compared to 257.13 million tonnes last year. This is 6 million tonnes higher than the production last year. Rice production is expected to touch 106.19 million tonnes.

DRR, in 2014 has entered the 50th year (Golden Jubilee year) of its service to the Nation. Since its inception in 1965 with its national headquarters at Hyderabad, it has been involved in

coordination of multi-location testing of genotypes and technologies for crop production and protection generated across the country. The Project was elevated to Directorate of Rice Research in 1975 with an added mandate of research in the thrust areas of irrigated rice. The Directorate continues its multi-location All India Coordinated Rice Improvement Programme (AICRIP) with active partnership of 47 funded cooperating centers affiliated to State Agricultural Universities (SAUs), State Department of Agriculture and other Research Institutes of ICAR. Besides, over 90 voluntary centers operate under AICRIP which also forms a part of the mandate of DRR. In addition, DRR has made significant strides in lead research also with network projects of national importance for the benefit of the farming community at large. It has also entered into public – private partnerships for popularization of its products. Over the years, the scientific strength also has been improved with 55 scientists presently on the rolls working on 10 thematic areas. The year 2013 was quite significant for DRR with four of our scientists receiving national awards for their significant scientific contribution, and 4 major network projects were sanctioned. It is heartening to note that renowned Rice Scientist, Dr M. Mahadevappa has been conferred with prestigious Padma Bhushan award by the Govt. of India.

This newsletter started 11 years ago, has fairly stood the test of time and is playing a pivotal role in the dissemination of "RICE NEWS" to the nook and corner of India. I wish the new team a great success in their endeavors in bringing out this issue.

(B.C. Viraktamath)

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## Research Highlights

### DRR Dhan 40 – With Yield Enhancing QTLs from Wild species



DRR Dhan 40 (IET 21542, RP Bio 4918-248 S), is recently released and notified by CVRC (vide Gazette Notification No S O 245E dated 24 Jan 2014) for commercial cultivation in the states of Maharashtra, Tamil Nadu and West Bengal. It is derived as a backcross inbred line  $BC_2F_8$  from the cross 'Swarna x *O.nivara* (IRGC 81848). It has excellent yielding ability, and gave more than 25% and 26% yield superiority over the national checks viz., Jaya and NDR 359 respectively. It showed the highest yield of 10.65 t/ha at Coimbatore in 2011. It has short bold grains with grain quality similar to Swarna. It is moderately resistant to leaf blast, neck blast, tungro, brown spot, sheath rot, leaf folder and stem borer. It also has high radiation use efficiency and can withstand Fe toxicity. It also showed significantly higher yield over national and regional checks in Bihar, Chhattisgarh and Gujarat for three years (17, 21, &



16 % over national check and 30, 19 & 6% over regional check during 2009, 2010 & 2011) respectively.

This variety emerged as a byproduct of a Department of Biotechnology funded project on mapping yield enhancing QTLs from wild species. Yield enhancing QTLs were mapped in 250  $BC_2F_2$  lines which were advanced to  $BC_2F_8$  to develop BILs. DRR Dhan 40 is BIL No 248 S and was found to have introgressions from *O. nivara* at nine loci out of 420 genome wide SSR loci used. The four flanking markers of two QTLs for *yield yld 9.1*, and number of filled grains *nfg 9.1* were from *O. nivara*.

N. Sarla

National Professor  
DRR, Hyderabad

### Genepool Sampling of Wild Rice Germplasm from Andhra Pradesh for *Ex-situ* Conservation, Diversification and Utilization in Crop Improvement Programmes

Crop wild relatives form an important genetic resource not only as a source of resistance against biotic/ abiotic stresses but also for improving several quantitative traits as well. However, habitat destruction and other insidious biotic interventions are leading to erosion of inter and intra specific diversity in wild/ weedy relatives. It is timely to intervene to check this insidious development and salvage these wild relatives to the extent possible. In this regard, a collaborative survey involving NBPGR Reg. Station, Hyderabad and DRR was undertaken during December, 2013 in parts of Khammam, Medak, Nizamabad and Ranga Reddy Districts of Telangana region of Andhra Pradesh primarily to assess the species diversity and population structure and conserve the wild gene pool to utilize the collected germplasm in rice improvement programmes. Important distribution pockets in and around cultivated fields, forest areas and tribal habitats were surveyed and representative diversity was collected through a grid sampling from 28 villages belonging to 14 Mandals (District Sub-Divisions) in four districts covering 1,642 km during the exploration undertaken. A total of 47 accessions belonging to *Oryza rufipogon* and seven accessions belonging to *Oryza sp.* (Introgressed forms/ *O.nivara*?) were collected (Live plants and/or Seed) during the survey. As it is for the collection of wild species, the method followed for

augmenting in most of the cases has been from the population employing non-random selective sampling strategy. Mandals Chintur and Bhadrachalam in Khammam, Lingampet in Nizamabad and Medak in Medak district are the vibrant and rich pockets where maximum population and diversity has been observed in *O.rufipogon*. It is vernacularly referred to as *Doosa/ Doosodlu/ Garaka* in Telugu. Variability was observed in plant height (very tall),



*Oryza rufipogon* and *Hygrophila auriculata* growing together in Pocharam sanctuary, Medak District.

tillering ability, vigour/ robustness, leaf length and width, flag leaf orientation (erect), nodal pigmentation (green), inter-nodal colour (light purple), panicle length (large), panicle branching (good), panicle compactness, apiculus colour (purple/ green/ straw), glume colour (straw), grain size (short/ medium), kernel colour (brown/ light red/ red), awn colour (light purple/ purple/ deep purple/ green) and length (short/ medium/ long) and tolerance/ resistance to water logging and moisture stress.

Interestingly, in all the surveyed pockets, Marsh Barbel (Telugu-*Jangyalam/ Neerugobbi*) (*Hygrophila auriculata*) is found as an associated species in almost all the habitats enabling to assume

that, it may be an indicator plant for occurrence of *O.rufipogon*. The other species found in the habitat is *Ipomoea aquatica*.

A set of all the collected wild *Oryza* species germplasm (Live plants &/ or Seed) was shared with NBPGR Reg.Station, Hyderabad and DRR for initial establishment, maintenance, characterization, evaluation and utilization as DRR is the NAGSite and has the national responsibility for maintenance of rice/ wild *Oryza* germplasm collections. There is a dire need for intensive fine grid surveying in the above pockets for sampling and conservation of rare diversity.

S.R. Pandravada  
NBPGR Reg. Station, Hyderabad.

V. P. Bhadana  
DRR, Hyderabad.

## IGKV Scientists Reach Farmers Field for Providing Advisory Services



Scientists from IGKV, Raipur are on frequent surveys to farmers' fields and identifying their problems and providing appropriate advice. They are also warned of the lacuna in technology adoption and its long term effects. The *Kharif* 2013 was good in terms of high rainfall but this has created several problems to farmers. Prolonged rainfall at the reproductive stage had increased the problem of plant hopper, unfilled grains and crop lodging. During our surveys we observed planthoppers in alarming proportions in the entire plain region of Raipur, Durg, Dhamtari, Bilaspur districts.

Severe gall midge incidence was observed from the forest adjoining areas particularly in light soil textured fields. Gall midge was the major problem at Kanker, Gariaband, Mahasamund, Balodabazar,



Raigarh and Kabirdham districts. In Gall midge prone area the farmers had recognized this problem very late after maximum tillering stage. The damage varied from 10-84% in 16 varieties grown in 11 villages of 4 districts. During our visit to farmers' field, we were informed about failure of granular insecticide, which may be due to poor response of granules in light soil. The control measures taken up at this stage are not useful and it was observed that maximum number of silver shoots was parasitized. While visit to these areas, group discussions were organized and farmers were advised for remedial measures of gall midge and planthopper. They were also warned for mixing of 3-4 insecticides and wrong way of insecticide spraying for planthopper management.

### Gall midge incidence on various varieties grown in Chhattisgarh during *Kharif* 2013

S No.	Date	District	Village	Varieties affected by gall midge	Silver shoots (%)
1.	10-Sep	Gariaband	Nagabuda	Swarna	45
				MTU 1001	25
				Hybrid	50
				Punjab Swarna	20
				BPT 5204	50
			Maroda	KRH-2	50
				MTU 1010	20

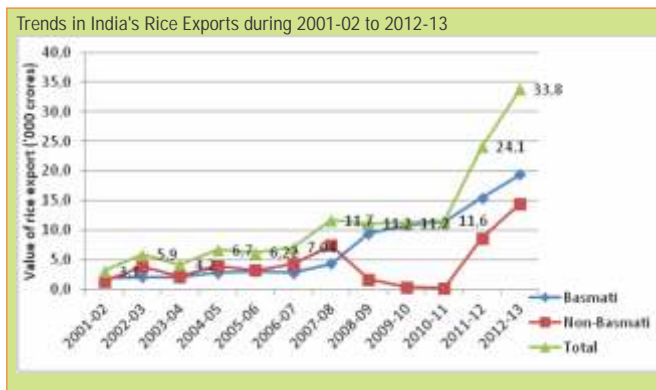


			Kokadhe	Samleshware	10
2.	17-Sep	Kanker	Kurrutola	MTU 1001	25
				MAHSURI	75
				IR 64	84
				Jai Shri Ram	50
				Hy- 501	30
				MTU 1010	30
			Kanker	Swarna	40
3.	27-Sep	Baloda bazar	Chandan	Bamleshwari	25
				Swarna	30
			Dumarpali	MTU 1001	30
			Kush bhat	KRH-2	60
			Chata	MTU 1010	50
				Swarna	40
				Hybrid	60
4.	10-Oct	Mahasamund	Bhethedih	MTU 1001	30
				HMT	40
				Karma mashuri	25
				Wild rice	30
	1-Nov		Kosrange	Swarna	30
				MTU 1001	40

Sanjay Sharma  
IGKV, Raipur.

## Trends in Rice Exports from India

India is the largest exporter of cereal products in the world. India's export of cereals stood at Rs. 52,567.81 crores during the year 2012-13. Rice occupies the major share in India's total cereals export with 64.40% during the same period. This is the second time in a row that India has emerged as biggest exporter of rice globally. India is the leading exporter of the Basmati Rice to the global market. The country has exported 34,59,898.92 Metric Tonnes (MT) of Basmati, worth of Rs. 19,409.38 crores during the year 2012-13. Iran, Saudi Arabia, United Arab Emirates, Iraq and Kuwait were the major destinations for export of Basmati rice during the last year. The country has exported 66,87,990.85 MT of non-Basmati Rice, worth of Rs. 14,448.87 crores during the year 2012-13. The major export destinations for non-Basmati rice during 2012-13 were Nigeria, Senegal, Benin, Cote D Ivoire, South Africa and United Arab Emirates. The exports rose from Rs.3,000 crores in 2001-02 to Rs.33,000 crores in 2012-13. There is a drastic decline in export of non-Basmati rice from 2008, mainly due to the ban imposed by the Government of India in 2007 on the export of non-Basmati rice to ease the domestic supply. The ban was lifted in 2011 and India emerged as the leading exporter of rice during 2012-13 for the second time. To sustain the rice exports, there needs to be



an improvement in both productivity as well as quality aspects of rice, which are more acceptable to the consumers at the global level. Thailand and Vietnam are the major competitors for India in the rice exports. Low cost of production may be one of the reasons for these to act as big players in international rice trade. Hence, lowering the cost of production, either through enhancing productivity or through better technologies to ensure higher resource use efficiency are of vital importance for India to maintain and enhance its share in international trade.

B. Nirmala  
DRR, Hyderabad.

## Center Profiles

### Division of Genetics, Indian Agricultural Research Institute, New Delhi

The genetic improvement of Basmati rice was initiated at IARI in the early 1960s' to combine the Basmati quality in high yielding background under the leadership of eminent scientist Dr. MS Swaminathan. Noteworthy contributions made through research on Basmati rice spanning five decades has led to breakthrough in productivity and enhancement of grain quality leading to the release of several improved high yielding Basmati rice varieties.

Genetic improvement of Basmati rice at Indian Agricultural Research Institute (IARI) has led to the development of number of high yielding Basmati/aromatic rice varieties and hybrids (Pusa Basmati 1, Pusa Basmati 1121, Improved Pusa Basmati 1, Pusa Basmati 6, Pusa Basmati 1509, Pusa Sugandh 2, Pusa Sugandh 3, Pusa Sugandh 5, Pusa 1612 and hybrid Pusa RH 10), wherein the duration of traditional Basmati rice varieties has been reduced from 160 days to 115-140 days with enhancement of productivity from 2.5 tons/ha to 6 tons/ha in improved Basmati varieties (Fig. 1).

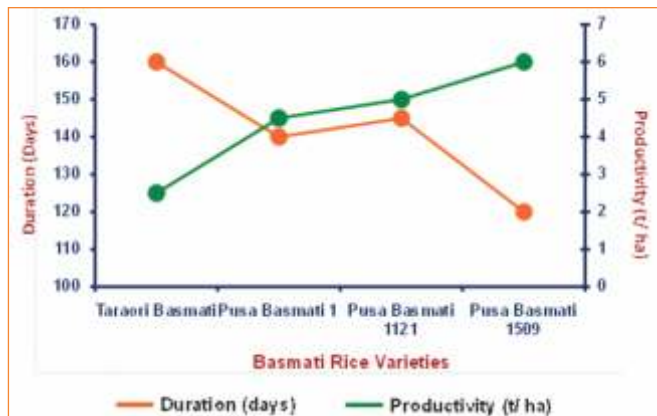


Fig. 1. Combining high yield with short duration in Basmati Rice

Till date, IARI has developed and released 29 rice varieties, out of which 17 varieties were central releases while 12 varieties were state releases. Besides this, a total of 15 unique genetic stocks of rice have been registered with NBPGR, New Delhi. Besides developing high yielding Basmati rice varieties, IARI has also developed a landmark non-Basmati rice variety Pusa 44, which brought a revolution in rice-wheat cropping system. Pusa 44 has

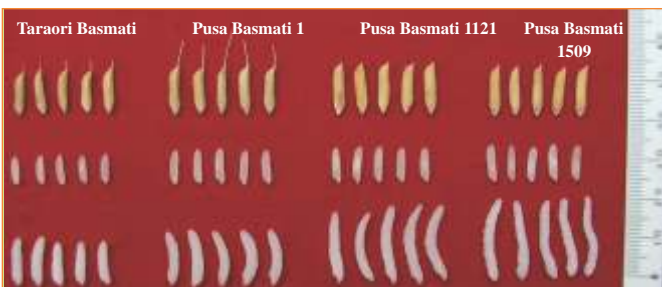


Fig. 2. Improvement in grain and cooking quality of Basmati rice varieties

sturdy culm, non-lodging habit and suited for combine harvesting, it yields on an average 8 t/ha and is still the most sought after variety in non-Basmati group.

Through intensive breeding efforts, the grain and cooking quality traits of improved Basmati rice varieties has shown a marked improvement (Fig. 2). The cooked kernel length of Taraori Basmati is 12 mm, while it was improved to 14 mm in Pusa Basmati 1. Further, the breakthrough was made by developing the exceptionally long cooked kernel variety Pusa Basmati 1121 with cooked kernel length of 20 mm. Further, the shape of the cooked kernel was improved in Pusa Basmati 1509 with cooked kernel length on par with Pusa Basmati 1121.

IARI developed Pusa Basmati 1, the first semi dwarf high yielding variety with shorter growth duration and longer milled rice kernel length (7.6 mm) and better cooked kernel elongation ratio (2.15) in 1989. Due to its high yield, longer kernel length, faster ageing and better cooking quality compared to traditional Basmati varieties, Pusa Basmati 1 soon became a landmark variety. In the mid-nineties, Pusa Basmati 1 became very popular in the trade and the forex earnings through export of Basmati rice increased from Rs. 294 crores in 1990-91 to 854 crores in 1995-96. Further, IARI developed Pusa Basmati 1121 in 2003 which recorded the cooked kernel length of up to 20 mm and five times volume expansion on cooking. (Fig.3).



Fig. 3. Forex earnings through export of Basmati rice since 1990.

Recently, IARI achieved another landmark through the development and release of "Pusa Basmati 1509", which combines semi-dwarf stature, early maturing and better grain, cooking and eating quality at par with Pusa Basmati 1121 (Fig. 4). The cultivation of Pusa Basmati 1509 has given an unprecedented return of Rs. 100,000/acre to the farmers during *Kharif* 2013 (the average yield being 25q/acre and average price being Rs.4,000/q of paddy).

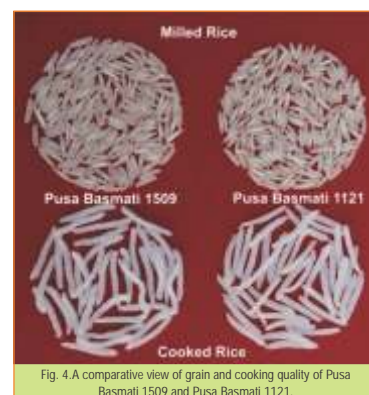


Fig. 4.A comparative view of grain and cooking quality of Pusa Basmati 1509 and Pusa Basmati 1121.

A. K. Singh, Gopala Krishnan, S., P.K. Bhowmick, Nagarajan, M<sup>a</sup>, K. K. Vinod<sup>a</sup>

Division of Genetics, Indian Agricultural Research Institute, New Delhi;  
<sup>a</sup> Rice Breeding and Genetics Research Centre, Aduthurai, Tamil Nadu.



## Crop Research Station, Ghaghraghat, Bahraich

The Crop Research Station, Ghaghraghat (81.2° E and 27.5° N, 112 MSL) formerly known as Agriculture Flood Research Station was established in 1958 and was transferred to university in 1976-77. This centre is situated near left bank of Ghaghra River in Bahraich district about 70 km from Lucknow, the capital of the U.P. state.

The centre has an area of about 40 ha, of which 1/3 area is under research experiments and the remaining 2/3 under seed production and commercial cultivation. The soil is predominantly sandy loam with pH varying from 7.5 to 8.5. The research carried out at research station is primarily problem oriented and are being conducted under different flood prone rice ecosystems, viz., deep-water, semi deep water and intermittent flash flood (2-3 flashes of flood of varying duration).

### Research Accomplishments

#### Crop Improvement

Initial research work on varietal improvement at Ghaghraghat involved collection of land races and their systematic evaluation and recombination breeding was initiated subsequently. Salient achievements of the center are as follows:



- Due to intensive testing of materials at centre seven varieties viz., JALMAGNA and JALNIDHI for deep water, CHAKIA-59 and JALPRIYA for semi deep water and MADHUKAR and BARH AWARODHI for flash flood condition of eastern Uttar Pradesh, were developed. The newly developed variety NDGR-201 was released and notified by C.V.R.C (2013) for semi deep water areas of Uttar Pradesh and Bihar.

#### Crop Production

- The herbicide penoxsulam @ 20 g.a.i. ha<sup>-1</sup> applied at 8-12 DAT was effective and comparable to two hand weeding. Pre emergence spray of pendimethlin @ 3.3 lit/ha + rice & dhaincha 1:1 +1 hand weeding at 60 DAS produced highest grain yield, however, pre emergence spray of

pendimethlin @ 3.3 lit/ha + 2 mechanical weeding at 20 and 40 DAS caused lowest weed density and dry weight.

- Site specific nutrient management was superior to blanket fertilizer dose and farmer practice. Rice productivity improved by 5-17% with corresponding increase in nutrient uptake. The study suggests scope for further improvement in rice yields through realistic assessment of soil nutrient supply and efficiency of soil and fertilizer nutrients.

#### Crop Protection

- Two species, viz., yellow stem borer and pink stem borer have been identified. However, only one species of leaf folder, i.e. *Cnaphalocrocis medinalis* has been observed. Growing of trap crop *Pusa Basmati 1* along with main crop Jalpriya in 1:9 ratio significantly reduced stem borer infestation and increased the yield of main crop.
- The bio-pesticides Biofer @ 1.5 ml/lit and Trichogen-T @ 5 kg/ha (soil treatment) were effective against leaf and neck blast.



DWR Variety, Jalnidhi Sowing Elongation at CRS, Ghaghraghat

Nitendra Prakash, S.S. Prasad, R.A. Singh, Sushil Kumar,  
A.L. Upadhaya, J.P. Mishra and A.K. Shahi  
Crop Research Station, Ghaghraghat, Bahraich

## Important Events

### AICRIP Hill Trials Review Meeting

The first ever AICRIP Group meeting for Hill region (a satellite rice workshop) was held at CSKHPKV, Palampur on February 25, 2014. The meeting was organized mainly to overcome to problem of late receipt of the seed to the hill locations and also to review the progress of work of these locations as during the normal rice workshop the time spent on discussion on the hill trials programme, about the constraints and strategies to overcome them, is insufficient. Dr. K.K. Katoch, Honorable Vice Chancellor and Dr. S.P. Sharma, Director of Research, CSKHPKV graced the Inaugural



function and complimented DRR, Hyderabad for conceptualizing the satellite workshop for hill trials and hoped that this will lead to development and identification of promising genotypes for Hill ecology at a faster rate and will eventually contribute to the increased rice production and productivity in the Hill region. The DRR team for this meeting was led by Dr. BC Viraktamath, Project Director, and a team of seven DRR scientists participated in the deliberations. In the daylong meeting, the hill research centers presented the research activities in their stations, the performance of entries in the hill trials were reviewed, promotion/deletion of entries were discussed and trials for *Kharif* 2014 were constituted.

### DRR participated in Krishi Vasant

DRR team comprising of Dr. B.C. Viraktamath, Project Director, Dr. G.R. Katti, Principal Scientist & Head (Crop Protection), Dr. R. Mahendra Kumar, Principal Scientist & Head (Agronomy), Dr. L.V. Subba Rao, Principal Scientist (Seed Technology), Dr. P. Muthuraman, Principal Scientist & Head (TTT) and Dr. S. Arun, Scientist (TTT) participated in the Krishi Vasant Programme organized at CICR campus, Nagpur. The programme was held from 09-12, February, 2014 and organized by the Ministry of Agriculture, Govt. of India and ICAR. Inaugural ceremony chaired by Mr. Sharad Pawar, Union Minister of Agriculture, GOI and the inaugural address was delivered by Shri Pranab Mukherjee, President of India. DRR was allotted stall No. 65 for display of DRR technologies and research achievements for the benefit of rice farmers visiting from

different regions of the country. There were 1000 such stalls representing different organizations related to Indian Agriculture in the programme. There were farmer-scientist interaction programmes for all the states at different meeting halls arranged for the benefit of farmers. The DRR rice bran oil based health products viz., pain balm and moisturizer were also sold for the benefit of visitors.

### DRR Stall



### Brain storming session on Pre-breeding and Resistance gene resourcing

A special meeting was organized on 18.3.2014 at DRR to discuss about research strategies on Pre-breeding and resistance gene resourcing. DRR scientists (Crop Improvement Section, Crop Protection Section) led by the Project Director Dr. B.C. Viraktamath and a team of four CRRRI scientists led by the Director, CRRRI, Dr. T. Mohapatra participated in this brain storming session and discussed in detail about the ongoing pre-breeding activities at both the institutes and decided to further strengthen the activities by



proposing a Network Project on Pre-breeding involving wild species, land races, mutants etc. The status of resistance sources against major biotic stresses were also discussed in detail, resistant genes for different rice growing regions were identified and special committees were formed to monitor the pests' virulence across the country.



## Panorama of Institutional Activities

The year 2014 started with a bang in the form of great celebrations. There was a New Year Welcome function on January 01st, 2014 and Foundation Day on January 04th, these events were celebrated with full of excitement and joy.

### New Year Celebrations

All employees of the institute celebrated New Year, 2014 on 1st January 2014. Project Director Dr. B.C. Viraktamath congratulated all DRR staff for significant achievements of the institute and



emphasized to continue the sincere efforts and take DRR to new heights. Project Director felicitated various award winners on this occasion.

### DRR Foundation Day

DRR Foundation Day was celebrated on 4th January, 2014 in a joyous atmosphere. About 250 members (DRR staff and their family members) enthusiastically participated in the cultural evening. A plethora of cultural activities like songs, skits, games were organized which kept all the children and adults hooked to their seats. The Project Director appreciated the splendid efforts of the Recreation Club in bringing out the latent talent of the DRR and the project staff in making the DRR family having a memorable evening. On this occasion, he felicitated the Best employees in different categories viz., Dr. Ch. Padmavathi - Scientific category; Mr. K. Ramulu - Technical category; Mr. B. Ramesh - Administrative category and B. Narsimha, SSG III, supporting staff category of the institute. The function ended with vote of thanks by Dr. Chitra Shanker, Secretary, DRR Recreation club.



### Comercial Launch of Rice Healthcare Products

On the occasion of DRR Foundation Day, two herbal health care products namely 'Rice Riche Moisturizing Lotion' and 'Rice Riche Pain Relieving Gel' developed by Dr. M. M. Azam, Senior Scientist, CIS, DRR, have been launched for sale.

Moisturizing Lotion is a skin care product made from rice bran oil and aqueous brown rice extract as key ingredients and is suitable for normal and oily skin. The product has also anti-aging property on





account of oryzanol. The Pain Relieving Gel contains rice bran oil as a carrier and is highly effective for relieving minor aches and pains of muscles and joints associated with simple strains, bruises and sprain. It also contains analgesic ingredients like camphor, menthol, methyl salicylate, eucalyptus oil.

### Republic Day Celebrated

Republic day was celebrated with great enthusiasm on 26th January, 2014 both at DRR and ICRISAT campus. All the DRR staff participated in the Republic day celebrations. At DRR, the National Flag was hoisted by Dr. B.C. Viraktamath, Project Director, DRR and at ICRISAT farm campus, by Dr. N. Shobha Rani, Project Director in his message narrated the salient achievements made by DRR and thanked all the DRR staff for the good work done during the last year. He also emphasized that the entire DRR staff should strive for further excellence of the institute and for enhancing the rice productivity and production.

### Motivational address by ICAR Woman Scientist Awardee



Dr. Radha Prasanna, Principal Scientist, Division of Microbiology, IARI, New Delhi and recipient of the ICAR Panjab Rao Deshmukh Outstanding Woman Agricultural Scientist Award interacted and motivated the women scientists of all ICAR Institutes at Rajendranagar on 6th February, 2014.

### PPVFRA Training cum Awareness Organized

One day Awareness cum training Programme on "Protection of Plant Varieties and Farmers' Rights Act 2001 and Its Provisions"

was organized at DRR, Rajendranagar, Hyderabad on 5th March, 2014. This programme was sponsored by PPV&FR Authority (New Delhi) to create awareness among the Agricultural Officers of Department of Agriculture, Assistant Professors/Scientists from



SAUs, NGOs and progressive farmers. The Programme covered various aspects related to IPR with emphasis on functions of PPV&FRA, guidelines for registration of crop varieties particularly in Rice. Various case studies of successful registration of farmers' varieties, Commercialization of technologies, GI protection and ITK in Agriculture were discussed. More than 100 members participated in the programme.

### IRRI Scientist visits DRR

Dr. Jauhar Ali, Project Coordinator (GSR-Asia), IRRI visited DRR on 12th February, 2014 and reviewed the progress on Green Super Rice Project (Phase II) with the DRR Scientists.



## Staff Activities

### Awards

Dr. S. R. Voleti, Principal Scientist (Plant Physiology) was conferred with Prof G. V. Joshi memorial award of Indian society of Plant Physiology, New Delhi for the year 2013, at the National Conference of Plant Physiology organized by DGR, Junagadh (Gujarat) during December, 2013 and he delivered an invited lecture on 'Developing towards nutrient efficient and heat tolerant rice genotypes' on the occasion.



Dr. V. Ravindra Babu, Principal Scientist (Plant Breeding) has received "Spandana Best Scientist for 2013" award for his contribution to the rice research in general and developing high zinc genotypes in particular on 30.12.2013 at Sri Prakash Educational Institutions, Payakaraopet, Tuni, A.P.



Society for Scientific Development in Agriculture and Technology, Meerut, UP, India, conferred 'Distinguished Scientist Award' in the field of Soil Science and Plant Breeding to Dr. Brajendra and Dr. V P Bhadana, Senior Scientists, DRR, respectively during the 'National



Conference on Emerging Problems and Recent Advances in Applied Sciences: Basic to Molecular Approaches' during 8-9th February, 2014 at CCS, University, Meerut.

Dr. P. Revathi, Scientist (Hybrid Rice), has secured two Gold Medals in Women's High Jump and Long Jump events at ICAR Inter Zonal Sports Meet-2013, organized by NAARM during December 17-20,



2013. DRR staff is proud of her achievement.

Dr. Divya Balakrishnan, Scientist, ICAR National Professor Project, received a Commendation Certificate from Directorate of Sorghum Research, Hyderabad for her outstanding performance in the Winter School training on 'Molecular breeding approaches for the genetic enhancement of millet crops' sponsored by the Division of HRD, ICAR during January 06 - 26, 2014.

Dr. Jyothi Badri, Scientist (Plant Breeding) received Sri Vaddadi Narasimha Swamy Memorial Gold Medal at the 44<sup>th</sup> Annual Convocation of ANGRAU, Rajendranagar, Hyderabad held on 20-03-



2014 for securing highest OGPA in Ph.D. (for the year 2010) in the Department of Genetics and Plant Breeding in the Faculty of Agriculture."

### Best Paper and Poster Awards

Dr. R. Mahendra Kumar, Principal Scientist and his team received 'Best research paper' award for their paper entitled 'Assessment of different methods of rice (*Oryza sativa L*) cultivation affecting growth parameters, soil chemical, biological and microbiological properties, water saving, and grain yield in rice - rice system', in DRR Foundation day celebrations on January 4, 2014.

Dr. L V Subba Rao received the best paper and best poster awards for his papers 'Identification and development of core set of rice germplasm for effective utilization of rice genetic resources' and 'Assessment of Genetic Divergence in Farmers' varieties of rice (*Oryza sativa L*) from the Eastern region of India' respectively, at the International conference on Biodiversity, Bio resources & Biotechnology held during January 30-31, 2014 at Mysore.

Dr. M.B.B. Prasad Babu, Senior Scientist (Soil Science) received First Prize for Best Poster Award for the poster on "Spectral signatures of wheat, little seed canary grass and wild oat" which consisted of a Certificate and a cash prize of Rs. 1000 during the Biennial Conference of the Indian Society of Weed Science held during February 15-17, 2014 at Jabalpur.

### Visits Abroad

Dr. Shaik N. Meera, Senior Scientist, TTT was deputed to Australia to participate in the 'Rice Check Group Meet' during 2<sup>nd</sup> to 14<sup>th</sup> January, 2014.



Dr. P. Senguttuvel, Scientist, Hybrid rice (Crop Improvement) was deputed to IRRI, Philippines as a "Visiting Collaborator" during 5<sup>th</sup> to 25<sup>th</sup> March, 2014.

### Promotions and staff additions

- ♦ Mr. U. Chaitanya joined as T-6 (Communication Specialist) on 30.12.2013.
- ♦ Mr. Koteswara Rao joined as T-3 (Field Farm Technician) on 3.01.2014.
- ♦ Mr. Bidyasagar Mandal joined as T-3 (Field Farm Technician) on 09.01.2014.
- ♦ Mr. S. Narsing Rao and Ms. K. Kausalya were promoted to the post of Assistant Administrative Officer w.e.f. 12.01.2014.

### Retirements

- ♦ Mr. K. Satya Priya, Assistant Administrative Officer, retired from Council's service on attaining the age of superannuation on December 31<sup>st</sup>, 2013. He rendered an excellent service to the DRR administration.
- ♦ Dr. K.V. Rao, Principal Scientist & Head Crop Production retired from Council's service on attaining the age of superannuation on 31<sup>st</sup> January, 2014. He made significant contributions in the field of long term soil fertility



management in rice based cropping system and rice regions.

- ♦ Mr. D. Venkataiah, Supporting Staff, retired from Council's service on attaining the age of superannuation on January 31<sup>st</sup>, 2014. He is a silent and sincere worker.



All the staff of DRR wishes them and their family members a very happy and healthy retired life.

## Interesting News on Rice

### Algiculture: Double Bonanza for Paddy Farmers

Ms. Abitha, a Ph.D. student at the Indian Institute of Science, Bangalore, has devised a technique to grow an oil-producing algae along with paddy without affecting yield of main crop i.e. Rice and incurring additional cost. Growing algae in paddy field is termed as Algiculture. In the new technique, algae rise as floating 'flocs' that are harvested every afternoon and sent for drying, oil extraction and for preparing cattle feed supplement. In two months, it produces nearly six tonnes of algae that can be used as bio-fuel in a number of ways, as algae is looked upon as a source of renewable bio-fuel. Ms. Abitha has successfully completed a pilot project at Tumkur in Karnataka. Following its success, farmers in the area are now keen to follow it, as it is not only financially beneficial but also enriches their land with nutrients.

Source: <http://www.thehindu.com/news/cities/Hyderabad/heres-a-double-bonanza-for-paddy-farmers/article5690215.ece>

### Effect of Deep-Fat Frying on Fatty Acid Composition and Iodine Value of Rice Bran Oil Blends

Rice bran oil is nutritionally superior oil as compared to other

common vegetable oils. In the present study, six rice bran oil blends were prepared in two ratios i.e., 80:20 and 70:30 and the effect of deep-fat frying was studied by assessing changes in iodine value and fatty acid composition. Results showed that the minimum iodine value was found in the blend of rice bran oil and palm-olein oil as 107.3 g (70:30) and 107.0 g (80:20) at fresh conditions which decreased by 1.6 and 1.3 % after second frying and by 2.7 and 4.5 % after third frying respectively. The saturated: mono-unsaturated: poly-unsaturated fatty acids in the deep fried products prepared using the blend of rice bran oil and palm-olein oil was close to the recommendations as 1:1.9:1.4 and 1:1.2:1.7 in the ratio of 80:20 and 70:30 respectively. The present study concluded that the blend of rice bran oil and palm-olein oil in both ratios was the most stable frying medium among all rice bran oil blends based on changes in iodine value and fatty acid ratio under frying conditions.

Monika Choudhary, Kiran Grover, Mohammed Javed, *Proceedings of the National Academy of Sciences, India Section B: Biological Sciences, March 2014.*

## Rice Scientist Honoured

Dr. Madappa Mahadevappa, Renowned Rice Breeder has been recently conferred with prestigious 'Padma Bhushan' award by the Govt. of India in recognition of his excellent contributions in the agricultural research and education that benefitted the society in general and Indian farming community in particular. The whole AICRIP community is very happy that one of its members is chosen for this prestigious honor and congratulates Dr. Mahadevappa on this occasion.



## Forth Coming Events

- ♦ 49th Annual Rice Group Meetings April 5-8, 2014 at Directorate of Rice Research, Hyderabad.

## BOOK POST

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