



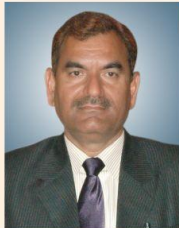
# WEED news



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## From Director's Desk



It is my privilege to present this issue of Weed News after joining as Director of the Directorate of Weed Science Research. Weeds are just like our 'Uninvited Guests', both in cropped and non-cropped lands, and cause enormous hidden losses to agricultural produce, human and animal health, biodiversity, and environmental quality. Despite development of effective management technologies and their adoption on farmers' fields over the last 3-4 decades, weed problems have actually increased due to modern agricultural production systems characterized by intensive cultivation, introduction of short-statured high-yielding varieties/hybrids, fixed crop rotations, and indiscriminate use of agrochemicals including fertilizers. The problem has been compounded by discontinuation of some traditional practices, such as mulching, intercropping, green manuring, rotational cropping, etc. In the recent times, widespread infestation due to alien invasive weeds, development of herbicide resistance in weeds like *Phalaris minor*, perceived effects of climate change favouring more aggressive crop-weed competition, adverse effects of herbicides on food chain and environment, dangers of globalization by allowing exchange of foodgrains and seed material have caught the attention of Weed Scientists. All these require location-specific, eco-friendly, and sustainable weed management solutions for improving productivity, profitability, environmental and livelihood security of the farming community.

Research, development and extension programmes of this Directorate are being geared to meet the emerging challenges of weed management. We need to revisit our priorities and plan more focused, multi-disciplinary and collaborative research programmes in the XII Plan, so as to show a greater impact and visibility of our efforts to the stakeholders. This Directorate has excellent infrastructure including well-equipped laboratories for herbicide residue analysis, climate change studies, biological weed control, phytoremediation, and a well laid out experimental farm. Highly dedicated, qualified and trained staff are conducting high quality research on different aspects of weed management. Besides, there are 22 centres of the All India Coordinated Research Project on Weed Control in different agricultural universities for tackling location-specific weed-related problems. I am sure that the Directorate will play an effective role in developing and disseminating weed management technologies for improving livelihood security of Indian farmers.

Dr. A.R. Sharma

## Research notes

### Weedy Rice Biosimilars

Weedy rice, a rising problem in direct-seeded rice, is derived from either spontaneous mutation of domesticated rice or hybridization with wild *Oryza* species. The infestation of weedy rice has been reported to varying extent in different states: Madhya Pradesh (1-45%), Uttar Pradesh (5-20%), Punjab (5%), Chhattisgarh (10%), Himachal Pradesh (50-60%), Assam (17%), Jharkhand (10-45%), Orissa (10-15%), West Bengal (10-15%), Tamil Nadu (5-10%), Kerala (30-60%) and Gujarat (5-10%). It is essential to discover and document the genesis of such lines in the country. Hence, their molecular fingerprinting along with wild and cultivated rice is planned. Several (41) weedy rice germplasm accessions have already been collected from different states across the nation. Early shattering,

asynchronous maturity, varying hull color, and presence/absence of awns are few characteristic features of these weedy rice biosimilars.



M. Rathore, B. Kumar, R. Singh  
and V.S.G.R. Naidu

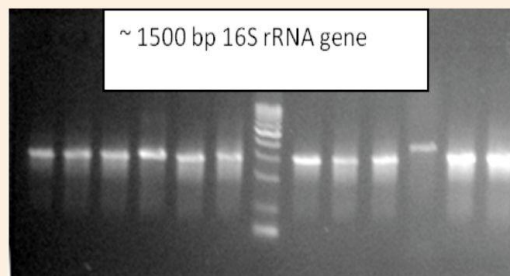
A NEWS LETTER OF DIRECTORATE OF WEED SCIENCE RESEARCH, JABALPUR



## Standardization of molecular tool to identify heterotrophic bacteria

Studies on standardization of molecular tool for characterization of heterotrophic bacteria in agricultural environment revealed that molecular tool based on 16S rRNA gene has been standardized for characterization of heterotrophic bacteria in agricultural environment. Bacteria associated with aquatic and terrestrial weeds were isolated and characterized using biochemical tests and 16S rRNA gene approach. Gene sequences determined in this study have been deposited in the GenBank database. The accession numbers for the gene sequences are from JN638742 through JN638750, and JN944746 through JN944751. Heterotrophic bacteria have also been isolated from weedy and herbicidal agricultural soils, and characterized using 16S rRNA gene approach. The accession numbers for the gene sequences are from JN944752 to JN944773. Adoption of molecular techniques led to the

realization that indigenous bacteria associated with weeds and agricultural soils are much more diverse and are not affected adversely by herbicide application.



K.K. Krishnani, A. Dixit,  
D.K. Pandey and M.S. Raghuwanshi

## News

### Kisan Mela

Directorate organized a *Kisan Mela-cum-Kisan Sangoshthi - 2012* on the occasion of its Foundation Day. Dr. Gautam Kallu, Vice Chancellor of Jawaharlal Nehru Agricultural University, Jabalpur was the Chief Guest, and Dr. A.K. Singh, Deputy Director General (NRM), ICAR presided over the function. Dr. A.R.G. Ranganatha, Director, DWSR welcomed the invited guests and farmers. On the occasion, Technical Extension Calendar was released by the dignitaries. Twenty-five progressive farmers belonging to different villages of M.P. were also felicitated during the Kisan Mela.

During the inaugural function, Dr. Kallu emphasised on the shifting of traditional farming to modern one. To him farmers should learn the modern system of farming in order to minimize the crop losses due to several factors. Farmers should optimize the use of seeds, fertilizers, pesticides, and water. He appreciated the ongoing research programmes taken up by the Directorate, and suggested the farming community to learn the modern weed management techniques to enhance the crop productivity. Dr. A.K. Singh advised the farming community to go in for a safer weed management by harnessing modern technologies like application of low-dose herbicides and ensure optimum utilization of resources in their farms. Dr. Singh emphasised the importance of proper communication between farmers and scientists, and requested the farmers to be in touch with the Directorate. He informed about different programmes to be taken up in XII Five Year Plan for agricultural development. Dr. A.R.G. Ranganatha explained the research and extension activities of the Directorate and 22 centers spread all over the country. Dr. P.K. Singh, Programme Co-ordinator, proposed vote of thanks.

*Kisan Mela* was visited by more than 5000 farmers, who used the opportunity to know the latest technologies displayed through 42 stalls put up by different research and development organizations, State Department of Agriculture, Horticulture, Forestry, industrial houses, banks, NGOs, etc. A *Kisan Sangoshthi* and field visit were also arranged, in which, scientists/SMS interacted with the farmers, discussed and clarified the queries related to agricultural problems including weed management.



Dr. G. Kallu inaugurating Kisan Mela



Farmers visiting field demonstrations



## Stakeholders' Consultation and Innovative Farmers' Meet

On the occasion of *Kisan Mela*, a simultaneous session on interface meeting between the stakeholders including farmers, executives from industries and researchers was convened on January 23, 2012. Scientists of DWSR, Zonal Project Directorate, KVVs, IFFCO, NGOs, representatives from the industries, and forty progressive farmers participated in the meet. Farmers raised genuine problems, which were discussed critically under the Chairmanship of Dr. A.K. Singh, DDG (NRM). It was decided that the issues raised in the meet should be suitably incorporated in the research programmes being formulated for the XII Plan.



Discussion among stakeholders

## QRT visits OUAT, Bhubaneswar and ANGRAU, Hyderabad

The Quinquennial Review Team (QRT) was constituted under the Chairmanship of Dr. S.C. Modgal, former Vice Chancellor, GBPUA&T to review the work done during 2006-10 at the Directorate of Weed Science Research, Jabalpur and All India Coordinated Research Project on Weed Control. The team visited OUAT, Bhubaneswar from January 10-12, 2012 and ANGRAU, Hyderabad from February 01-02, 2012 to review the work done by coordinating centres, viz. AAU, Jorhat; VB, Sriniketan; RAU, Pusa; BAU, Ranchi; IGKV, Raipur; and OUAT, Bhubaneswar and AAU, Anand; MAU, Parbhani; DBSKV,



QRT members interacting with farmers

Dapoli; and ANGRAU, Hyderabad, respectively. An interactive meet with farmers, district agricultural officers, ICAR institutes was also held. During the visit, QRT emphasized upon the coordinating centres to follow the approved technical programme without any major modification. The team advised to generate safety information for herbicide use especially in vegetable crops. It appreciated the efforts of the centres' extension work through effective linkages with other departments. Dr. R.P. Dubey, Member Secretary, QRT coordinated these programmes.

## Farewell to Dr. A.R.G. Ranganatha

Dr. A.R.G. Ranganatha, Project Coordinator (sesame and niger) and Director-In charge of the Directorate since 22.6.2011 was given a grand farewell after the joining of Dr. A.R. Sharma as Director. Dr. Ranganatha made notable contributions during his brief tenure, and reorganized different activities. All appreciated his efforts for restoring discipline, work culture, and a sense of responsibility among the staff members.



Au revoir! Dr. A.R.G. Ranganatha

## Dr. A.R. Sharma takes over as Director, DWSR

Dr. A.R. Sharma joined DWSR as the Director on 12.3.2012. Born on 13.4.1960 to a farming family in Hamirpur district of Himachal Pradesh, Dr. Sharma obtained B.Sc. Agri. (1981) from HPKV, Palampur; M.Sc. Agronomy (1983) from PAU, Ludhiana; and Ph.D. (1988) from IIT, Kharagpur. He proved his academic excellence by securing first rank throughout his schooling and higher education. He served as Scientist (1987-1996) at CRR, Cuttack; Agronomist at PAU, Ludhiana (1996-1998); Senior Scientist at CSWCRTI, Dehradun (1998-2001); and Principal Scientist (2001-2011) and Professor (2010-2012) at IARI, New Delhi. Dr. Sharma made outstanding research contributions, and specialized in diversified field of resource management including nutrient management, tillage and weed management, and conservation agriculture. His 150 research publications in highly rated journals, and awards

including Jawaharlal Nehru Award of ICAR for best Ph.D. thesis, KRIBHCO Award for Outstanding Research, Pran Vohra Award for Young Scientist from Indian Science Congress Association, Hooker Award of IARI, and some more prove his dexterity and prudence in agronomic research and management. He was conferred the prestigious 'Fellowship' of the National Academy of Agricultural Sciences in 2004. Dr. Sharma has established himself as a sincere dedicated researcher and teacher, and won appreciation from the Directors at all institutions he served. DWSR family assures full support in his endeavours, and wishes him a successful tenure as Director.

## Personalia

**Dr. V.S.G.R. Naidu, Dr. P.K. Singh, Dr. A. Dixit and Dr. A.R.G. Ranganatha** were conferred the 'Best Poster Presentation Award' on the occasion of the International Conference on 'Climate Change, Sustainable Agriculture and Public Leadership' held during 7-9 February, 2012 at the National Agricultural Science Centre, New Delhi.

**Dr. K.K. Krishnani**, Principal Scientist, Organic Chemistry, DWSR, was relieved on 25.1.2012 to join as Head, Division of

Edaphic Stress Management, National Institute of Abiotic Stress Management, Baramati, Maharashtra.

**Mr. R.K. Meena**, Technical Assistant (T4) was transferred to Central Sheep and Wool Research Institute at Avikanagar, Rajasthan on 15.2.2012.

**Mr. Dibakar Ghosh** joined as Scientist (Agronomy) through ASRB on 24.12.2011.

**Dr. A.R. Sharma** joined as Director, DWSR on 12.3.2012. He was previously working as Professor (Agronomy) at the Indian Agricultural Research Institute, New Delhi.

## Distinguished Visitors

**Dr. S.S. Baghel**, former Vice-Chancellor, Central Agricultural University, Imphal and Assam Agricultural University, Jorhat on 19.3.2012.

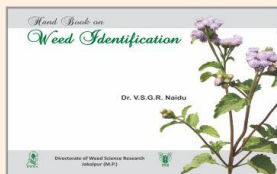
**Dr. R.P. Thakur**, Principal Scientist (Retd.) (Cereals Pathology), ICRISAT, Patancheru, Andhra Pradesh on 19.3.2012.

**Dr. T.V. Muniyappa**, Member, Board of Management, UAS, Dharwad and President, Indian Society of Weed Science on 26.3.2012.

## Publications

### Hand Book of Weed Identification by V.S.G.R. Naidu

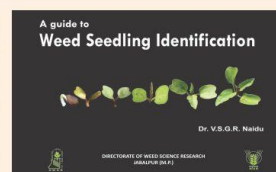
The first step in effective weed management is the accurate identification of weeds, which help in selecting right management practices to control a particular weed. This publication with compilation of 337 weed species would be a useful companion to all research workers and students.



### A Guide to Weed Seedling Identification by V.S.G.R. Naidu

This book is a compilation on characteristic features of 137 weed seedlings. This will help in identifying the weeds

at an early stage to manage them effectively. The inclusion of photographs on progressive stages of each weed species renders this book a different dimension. It would be of great help to scientists, researchers, quarantine officials, academicians and students.



### Ousadhiya Kharpatwar (in Hindi) by Chandra Bhanu and V.S.G.R. Naidu

This book is a useful compilation of 302 weed species of medicinal value. The simple and precise information contained in this book is likely to attract a wide range of readers.



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