



Rice wheat Information sheet

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RWC Review

The RWIS is a half yearly newsletter aimed at providing the information about various activities, projects, technologies developed and other events of significance in rice-wheat arena. It is brought to you by the Rice-Wheat Consortium for the Indo-Gangetic Plains (RWC), an ecoregional program of CGIAR.

You are welcome to provide us the feedback to improve the functionality of this newsletter. Please send your comments to The Editor, RWIS, s.prabhakar@cgiar.org.

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A comprehensive futuristic review of RWC has been commissioned by the Regional Steering Committee Executive of the Consortium. Led by Dr Ashok Seth, who superannuated from the World Bank, the team comprising of Dr Jock Anderson, Advisor, The World Bank; Prof. D Jha, National Professor, NCAP, India; and a Natural Resource Management Specialist, Dr Ken Fisher, ex-Deputy Director General, IRRI, Philippines would assess the performance of the Consortium in various aspects of participatory research and development. Nominated representatives from national programs and representatives of the participating CG Centers and Coordinating Unit of the Consortium would support the review process. The review process include a desk study of selected past work and outputs, interview of key stakeholders in NARS, IARCs and ARIs, field visits to see the activities on the ground, ascertaining the feedback from the selected donors and private industry representatives, and a case study of the representative areas in western and eastern Gangetic plains.



The review team interacting with farmers at Balia, UP, India during the field visit

The team has already completed desk review and is in the process of visiting various rice-wheat sites. Dr. Ken Fisher would be visiting various sites in Pakistan and Prof. Jha in Bangladesh. The team members would also interact with RSC-RTCC in Nepal. Earlier, the team has visited Varanasi and Balia districts in eastern Gangetic Plains, and Haryana, Punjab and western Uttar Pradesh in Oct 2002. The review team has also mounted a study to evaluate the impact of the resource conserving technologies (RCTs) in two village clusters in each of the member country. First review of the consortium, conducted in 1999, had rated the RWC as 'the best ecoregional program of CGIAR.'

Bed planters and zero-till drills tested for CHTs

The two-wheel tractor use was diversified in 1995 when CIMMYT-Bangladesh imported two-wheel power tiller operated multi-crop seeder and a reaper from China. Since then, initiatives were taken to develop two-wheel tractor based accessories like zero-till drill, cage wheels, bed formers, potato planters, moldboard plows, etc. Looking at the growing popularity for the two-wheel tractors in Bangladesh, BARI, BRRI and CIMMYT-Bangladesh are developing a power tiller operated bed planter and zero-till drills. Earlier, RWC had exported the animal drawn zero-till drill to Bangladesh. The national scientists have attached the animal drawn zero-till drill to the CHT after making necessary modifications in the drill.



Animal drawn zero-till drill being hitched with CHT in Bangladesh

In the last seven years, 52 seeders, 14 reapers and 3 bed formers were delivered to the farmers for experimentation and field evaluation. CIMMYT-Bangladesh also has been organizing agricultural machinery fair and training for the operators, farmers, manufactures and local artisans/mechanics. As a result, during 2002-03, the farmers have purchased 13 seeders and other accessories like reapers, cage wheels, bed formers, and mouldboard ploughs. Contact: c.meisner@cgiar.org.

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Residue management technology from ICRISAT

Burning of rice straw leads to loss of both nitrogen and sulfur along with other nutrients, says Dr OP Rupela, Microbiologist from ICRISAT. He tells that the farmers in Haryana produces and burns 40 lakh ton of straw every year and releases about 5.2 million tons of CO₂ into the environment, which can be dangerous to the environment.

According to Dr Rupela, composting of rice straw will not only protect the environment but also increases the yields of most crops. In a *Dhan Mela* (Rice Fair) held on 09 Sept 2002, demonstrations on composting of rice straw was organized jointly by Dr OP Rupela, AP Gupta and KK Kapoor together with Department of Agriculture, Government of Haryana. The district commissioner Kaithal and Dr Raj Gupta, Regional

Are rice-wheat yields declining?

Sustainability of the rice-wheat systems has always been a topic of debate in the South Asian region. Dr JK Ladha and his associates have attempted to answer this vexed question in their recent papers 'How extensive are the yield declines in long-term experiments in Asia?' and 'Productivity and nutrient trends in long-term rice-wheat experiments in Asia' in *Field Crops Research Journal* and *ASA Special Publication* respectively (both are in print). These papers have brought out that rice and wheat yields are stagnant in 72 and 85% of the LTEs respectively in the region. Rice yields have declined in 22% of LTEs while wheat yields have dropped in 6% of LTEs. The authors have opined that the depletion of soil C, N and Zn and reduced availability of P, delay in planting, decrease in solar radiation and increase in minimum temperatures are the potential causes of yield decline and that a more efficient, integrated strategy with detailed data collection is required to identify the specific causes of yield decline. The study was based on the data from 33 LTEs out of which 23 are within the IGP. A historical data from past 15 years was used in this study. There is a strong feeling that scientists must have a re-look on the design and format of the LTEs to be able to answer contemporary long-term effects of RCTs on the productivity and quality of the resource base and the environment. Contact: j.k.ladha@cgiar.org. j.k.ladha@cgiar.org.

Facilitator, RWC have participated in the demonstrations. Later on, the HAU scientists together with Dr Rupela have also initiated live demonstrations on the method of composting rice-straw in farmers' fields. Of the potential benefits of composting, Dr Rupela informed that, it would improve soil organic matter, help plants tolerate pests and eventually result in economic benefits to farmers. Research is also being conducted for *in situ* decomposition of the crop residues.



Dr OP Rupela training on straw composting

Contact: o.rupela@cgiar.org

LCC: A quick journey from Haryana to Punjab

After a successful introduction of the leaf color chart (LCC), a simple, inexpensive and farmers' friendly method of N management in rice, in the state of Haryana, India in 2001-2002, IRRI has introduced it in six more districts of Indian Punjab. In the *kharif* 2002, 107 farmers were trained by a team of scientists and extension staff of PAU, Ludhiana (Drs Bijay Singh, Yadvinder Singh, CS Khind, MPS Gill, Mehrban Singh and GPS Sodhi) and the IRRI, Philippines (Drs JK Ladha and V Balasubramanian) on how to use the LCC for N management in rice. The participatory studies made by farmers have revealed a net saving of 40 kgN/ha or 25% in applied N fertilizer when compared to conventional

application of 154 to 220 kg/ha while obtaining the similar yields. The farmers could still obtain 6 t/ha on an average with LCC! With these encouraging results, LCC is all set to go for wide scale adoption in this state. Contact:

j.k.ladha@cgiar.org



Farmers being taught about using LCC charts in a training

New Initiatives

Water, water everywhere...

IWMI has successfully launched a new project on comprehensive assessment of water management in agriculture to generate new knowledge base to help policy makers to take positive decisions. The project aims at developing a unique set of information on water use in agriculture and provides conceptual and analytical

Do not go where the path may lead, go instead where there is no path and leave a trail.

Ralph Waldo Emerson

tools. The project would help capacity building at national and community levels and initiate a global level dialogue on water, food and environment. Keeping pace with these developments, IRRI has proposed a sub project on potentials of water saving technologies in rice production. It is a known fact that rice cultivation is demanding major allocation of water resources in Asia and any savings here means a substantial impact on the overall agriculture in this continent. This subproject would take stock of current, field- and farm-level water saving technologies in rice production and quantify their biophysical and socio-economic potentials and farmer-adoptability.

CROP+ crop monitoring system in India

Identifying those factors responsible for producing maximum economic yield in a sustainable manner is one of the aims of the "CROP PLUS" crop-monitoring system, now being trialed on wheat crop in the Haryana district of northern India. Currently, a pilot program monitoring wheat crops has been introduced to a limited number of farmers by the Haryana Agricultural University (Drs Ashok Yadav and RK Malik), as well as Dr Randhir Singh from the Directorate of Wheat Research, Karnal. Also supporting the program is the Rice-Wheat Consortium in New Delhi, with backing from a project funded through the Australia-India Council. Expertise from Australian farmers is being utilized in the project, with input from the University of Adelaide (Prof David Coventry), and PIRSA Rural Solutions (Mr Jay Cummins). There are plans to expand the CROP PLUS monitoring system to other crops such as rice and pulse crops. Crop monitoring cards for wheat crop were printed in English and Hindi versions. The project has strong elements of on-farm participatory research and development and aims to extend the uptake of new technologies like zero-tillage. As part of the project, Dr. Ashok Yadav, HAU has visited Australia and gained knowledge on various crop-monitoring activities in vogue there. Contact: Cummins.Jay@saugov.sa.gov.au

FAO-Roles of Agriculture

The Food and Agriculture Organization (FAO), Rome has launched the Roles of Agriculture Project (ROA) in Sept 2002. The project studies various roles of agriculture in developing countries. The ROA project will undertake a series of country case studies (a dozen countries) where it will identify, quantify and evaluate the various major roles of agriculture. The project has modules such as policy review, poverty reduction, food security, role of buffer food stocks, cultural role and perception. The project has chosen the rice-wheat systems and impact of newly introduced RCTs on the socioeconomics of its stakeholders. Thus,

An update from Bangladesh

Dr Matiur Rahman, the rice-wheat Coordinator in Bangladesh, reports that the raised beds improved the yield of wheat and maize compared to the flat beds due to better water and nutrient use efficiency. Yields of potato and sweet gourd were not influenced by the establishment techniques but sweet gourd production was higher when grown after potato. Minimum tillage has been the preferred choice by the farmers here. Farmers also preferred the strip tillage as it minimizes the seeding time. In genotype x tillage interaction studies, the varieties BAW 916, BAW 969, BAW 1004, BAW 1006 and BAW 1008 and Satabdi were found suitable for bed planting. The application of dolomite as a source of lime supplied Mg to crops and made soil P available to crops by increasing the soil pH. The inclusion of mungbean in the cropping patterns practiced in Chuadanga, Nashipur and Dinajpur and incorporation of its residues in the soil improved the soil health. Contact: baridss@btb.net.bd

RWC/CIMMYT will help the project by providing orientation to RCTs and their impact. A workshop involving the stakeholders in the project would decide about the specific sites for case studies in eastern and northwest IGP. Contact: s.parwez@cgiar.org.

Reaping benefits: A new project with CABI

CAB International and CIMMYT South Asia Office on behalf of the Rice-Wheat Consortium developed a project titled 'Assessing the impact and facilitating the uptake of RCTs in the rice-wheat systems of the Indo-Gangetic Plain'. The project will work directly with farmers, through participatory processes, to explore the positive and negative biological and socio-economic impacts of these agronomic interventions over a range of widely contrasting agro-ecological and livelihood systems. The program will examine mechanisms by which communities and particularly women learn new technologies and will work with the communities concerned to identify their priorities for new technologies and support their participatory development.

Through discussion with the DFID-CPP, direct cross-linkage with a program on weed management in rice systems in the Indo-Gangetic Plain will enable weed aspects of the study to be strongly addressed via CPP funding. CIMMYT wish to establish a linkage with their DFID-PSP funded work on participatory variety selection in wheat. DFID-funded work on mungbean (with AVRDC) will also be linked with the program. Contact: m.holderness@cabi.org.

New Appointments

New rice-wheat Coordinator for Bangladesh



Dr Matiur Rahman, formerly the Director of Oil Seed Research Centre of BARI, has joined as Director, Research, BARI and National Coordinator (Rice - Wheat Systems) on 2 Nov 2002. He is a Plant Breeder by profession. Earlier, he also served as Director, Pulses Research Centre and Head, Genetic Research Centre of BARI. Dr Rahman has extensive experience in breeding for pulse and oil seed

crops and developed 22 modern cultivars in different pulse crops released by BARI, which occupy large tracts of Bangladesh.

Dr NI Bhuiyan is DG, BRRI

Dr Nurul Islam Bhuiyan, a renowned agricultural scientist, has joined the Bangladesh Rice Research Institute (BRRI) as Director General (DG). Dr Bhuiyan started his career as a Lecturer, Department of Soil Science, Bangladesh Agricultural University (BAU). Later in 1970, he joined BRRI as scientist and worked there in different positions.

During 1997-2000, he was appointed as Member-Director (Soil) of the Bangladesh Agricultural Research Council (BARC), Director (Common Service) and Director (Horticulture) of the Bangladesh Agricultural Research Institute (BARI), and Soil and Agriculture Expert of the Environment and GIS Support (EGIS) Project under the Ministry of Water Resources. He also served BRRI as Director General for seven months and worked as adjunct faculty member of the Bangabandhu Sheikh Mujibur Rahman Agricultural University, Salna, Gazipur.

He has made significant contributions to agricultural development in the country through applied and basic research on agro-ecological zone based soil and fertilizer management. He also played major role in the preparation of the Fertilizer Recommendation Guide for the crops and cropping patterns of the country.

Dr Mangala Rai is DG, ICAR & Secretary, DARE

Dr Mangala Rai took over as Director General, Indian Council of Agricultural Research (ICAR) and Secretary, Department of Agricultural Research and Education (DARE)

Dr JK Ladha elected as ASA Fellow



Dr JK Ladha, Soil Nutritionist at IRRI, Philippines was elected Fellow of American Society of Agronomy for his outstanding research contributions in the fundamental and applied aspects of biological nitrogen fixation in particular and of soil fertility and system sustainability in general. His most recent discoveries include identification and expression of legume nodulation genes in rice and expression of a rice homologue of the nodulation gene in legumes. Dr Ladha, an Indian, specializes in soil fertility, plant nutrition and biological N₂ fixation and rice-wheat systems. He first worked at IRRI as a Postdoctoral Fellow in 1980-83. Subsequently, he joined IRRI as an Associate Soil Microbiologist in 1984, and Soil Microbiologist in 1999. His current research responsibility is rice-wheat research in South Asia. He is also regional editor of *Biology and Fertility of Soils* and member of editorial board of *Nutrient Cycling in Agroecosystems*, *Japanese Journal of Soil Science and Plant Nutrition*, and the *Indian Journal of Microbiology*.

Government of India on 9 Jan 2003. Dr Rai, born in eastern UP, has graduated in agriculture in 1967 and earned his Ph.D degree in 1973. Starting his career as Plant Breeder-cum-Reader in 1973, he worked his way up the ladder, Project Coordinator (Linseed), Assistant Director General (Seeds), Assistant Director General (Policy & Perspective Planning) and Deputy Director General (Crop Science). He has the rare distinction of serving as interim Director (Oilseeds Technology, TMO, GOI), National Director (NATP) and Agriculture Commissioner, GOI.



Dr Rai has published over 200 wide ranging papers in the areas covering various facets of genetics, biometrical genetics, salinity tolerance, pest resistance, quality enhancement, mutation breeding, genetic resources, seed technology, biotechnology, and bio-energy. His vision reflected in policy papers relating to GATT, WTO and IPR has helped the National Agricultural System to deal with the current and emerging challenges. He has also authored books on topical subjects including *Transgenics in Agriculture*, *Hybrids in Crops*, and *Oilseeds Research and Development* etc. infusing new dimensions to contemporary and future research.

New staff at FU

Two new staff has joined the Facilitation Unit. Mr Bharath Krishnan, an MA in Economics and B Tech in Computer Systems, would work as Systems Administrator for the FU. He would administer the Consortium web sites and coordinate various IT related project components of the RWC. Mr. Krishnan carries with him a rich experience of working with private sector IT industry in Chennai, Tamil Nadu, India. Contact: b.krishnan@cgiar.org.



Mr. Md. Shahid Parwez, a Nepalese national from Rautahat district, obtained his Masters degree in Agricultural Economics from UAS, Bangalore, India. Before joining the FU, he worked with National Research Centre for Sorghum, Hyderabad. He would work as Consultant in the socio-economic project being initiated by the Consortium. Contact: s.parwez@cgiar.org.

Trainings and Workshops

Laser land leveling training held

Rice-Wheat Consortium with the help of Mr. Joe Rickman, IRRI has conducted a weeklong training course on laser aided land leveling at the Water Technology Center, IARI, New Delhi from 29-31 July 2002. The training was for the research technicians, farmers, artisans and service providers. During the course, 42 partici-



Mr. Joe Rickman fixing laser system and teaching its operation

pants were given hands-on training and field experience in various principles of land leveling and use of laser-aided systems in land leveling such as conducting topographic survey, recording the survey measurements, leveling filed with laser guided systems, calibration of laser systems, troubleshooting and calculation of time and cost involved in the leveling operation. A comprehensive notes was distributed to the participants during the training. Later, RWC has printed a technical bulletin on laser leveling. Contact: j.rickman@cgiar.org.

IRRI-IRC-RW workshop

A workshop on Improving the Productivity and Sustainability of Rice-Wheat Systems was organized at the International Rice Congress in Beijing, China from 16-20 Sept 2002. The workshop convened by Dr JK Ladha (IRRI) and co-convened by Prof Zheng Jiaguo (Sichuan Academy of Agric. Sciences) and Dr RK Gupta (RWC) was devoted to discussing the challenges facing the sustainability of rice-wheat systems, learning about the innovations in rice and wheat system and identifying areas of collaborations between China and South Asia. Followed by a panel discussion, moderated by Drs Craig Meisner, CIMMYT-Bangladesh; RK Gupta, RWC, India; Prof Zheng Jiaguo and Prof Zhang Xiufu, CNNRI have presented keynote papers. Contact: j.k.ladha@cgiar.org.

Mid-term review meeting of IAEA/RCA

The mid-term review meeting of IAEA/RCA on Restoration of soil fertility and sustenance of agricultural productivity in rice-based cropping system was held at Department of Applied Radiations and Isotopes, Faculty of Science, Kasetsart University, Bangkok, Thailand from Nov 18-22 2002. National project coordinators from Bangladesh, China, India, Indonesia, Malaysia, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam have participated in this meeting. Dr G Keerthisinghe, Technical Officer, IAEA, Vienna, Coordinated the meeting. Dr Roland Buresh, IRRI, Manila, Philippines participated as an expert. Participants from Bangladesh, China, India and Pakistan presented their work, which pertained to rice-wheat production system and involved crop residue management, efficient use of fertilizer N and use of short duration legume crops for substituting part of fertilizer N. Besides technical support, IAEA helps in providing short-term training, expert service, fellowship and small material help in the form of tagged fertilizer and research equipment. Contact: priigur-gaon@sify.com.

Forthcoming Events

Traveling seminar-Winter 2003

Keeping with the tradition, RWC in coordination with CIMMYT is organizing a traveling seminar in rice-wheat system areas of Nepal, Bangladesh and eastern India from 26 Jan to 5 Feb 2003. The traveling seminar would focus on small tractor attachments for the conservation tillage in eastern Indo-Gangetic Plains. Thirty

RWC Publications

Bellinder, R., and R.K. Malik. 2002. Spray techniques-Tips for improving accuracy and efficiency. Extension leaflet. Rice-Wheat Consortium for the Indo-Gangetic Plains, Cornell University, NATP and HRAC/ICPA.

Rice-Wheat Consortium for the Indo-Gangetic Plains. 2002. Proceedings of the International Workshop on Developing an Action Program for Farm-level Impact in Rice-Wheat Systems of the Indo-Gangetic Plains. New Delhi, India. 25-27 Sept. 2000. Rice-Wheat Consortium Paper Series 14. Rice-Wheat Consortium for the Indo-Gangetic Plains, New Delhi. pp 148.

Rickman, J.F. 2002. Manual for laser land leveling. Rice-Wheat Consortium Technical Bulletin Series 5. Rice-Wheat Consortium for the Indo-Gangetic Plains, New Delhi 12, India. pp 19.

Yadav, A., R.K. Malik, N.K. Bansal, R.K. Gupta, S. Singh, and P.R. Hobbs. 2002. Manual for using zero-till seed-cum-fertilizer drill and zero-till drill-cum-bed planter. Rice-Wheat Consortium Technical Bulletin Series 4. Rice-Wheat Consortium for the Indo-Gangetic Plains, New Delhi 12, India. pp. 24.

delegates, comprising of agricultural engineers, mechanics, agronomists, and farmers are expected to participate in the traveling seminar that would start from Kathmandu. The participants would travel to various rice-wheat system sites at Birganj, Dhaka, Jessore, Chuadaga, Bogra, Dinajpr, Patna and Pusa. Contact: c.meisner@cgiar.org.

DGs of CIMMYT and IRRI to visit rice-wheat areas

For the first time, Dr Masaru Iwanaga is visiting the South Asian region as Director General, CIMMYT from 21 Feb to 8 March 2003. He would be joined by Dr

Ronald P Cantrell, DG, IRRI. The visit starts from Pakistan from 23-25 Feb; India from 26 Feb to 3 March; and Nepal from 3-6 March. During the visit, the DGs would interact with a wide range of administrative and research heads of various organizations and visit rice-wheat system research sites at Modipuram, Karnal, Patna, and Varanasi districts focusing on wheat crop in RCTs, boro rice and intercropping in eastern India, Bhariahawa and Rampur in Nepal and witness the tillage revolution happening in the region. Subsequently, the Director Generals would join the RSC-RTCC sessions on 5 and 6 March 2003. Contact: tamojit.c@cgiar.org.

RSC-RTCC in Nepal

The Consortium is organizing a three-day meeting of Regional Steering Committee and Technical Coordination Committee meetings at Kathmandu, Nepal from 4-6 March 2003. These meetings have been helping the Consortium to take stock of the current situation on rice-wheat research in the region and plan for the years to come. RTCC discusses on technical aspects of the rice-wheat research while the RSC endorses the administrative decisions of the Consortium. Contact: rwc@cgiar.org.

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