



Facilitation Unit
Rice-Wheat Consortium for the Indo-Gangetic Plains
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Rice-Wheat Information Sheet

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News

New Executive Director appointed in Nepal

His Majesty's Government of Nepal has appointed Mr. Dhruva Joshy to the position of Executive Director of the Nepal Agricultural Research Council (NARC) for the next four years. The Executive Director is the Administrative Head, the Chairman of Executive Board and the Member Secretary of the Governing Council of NARC.

Mr. Joshy was born on 4 June 1945 in Sarlahi Nepal. He has been constantly involved in agricultural research and development for the last thirty-five years with various managerial and technical positions.

Mr. Joshy obtained an M.Sc. in Soil Science from the United Kingdom in 1974 has held the positions of Acting Executive Director of NARC; Director for Planning and Coordination of NARC; Chief of Soil Science Division; Coordinator of National Agricultural Research Institute (NARI); and the National Coordinator, HMG/FAO Fertilizer Project. He also has experience with international agencies as a specialist and consultant of FAO to Afghanistan, Indonesia Madagascar and Lao PDR in promoting biogas technologies. Mr Joshy an awardee of "Suprabal Gorkha Dakshin Bahu" from His Majesty in 1998 was also awarded with the "FAO Fertilizer Program Commemorative Medal" for his active involvement in implementing the FAO Fertilizer Program in the country to promote the use of fertilizer for increasing food production.

Raj Gupta joined as Facilitator

Raj K Gupta joined as the new Facilitator of the Consortium on 20th January 2000 and will be located at the CIMMYT Office in New Delhi. He can be contacted at our Office and his email is r.gupta@cgiar.org. He will be the new full time Facilitator and will be assisted by Peter Hobbs (p.hobbs@cgiar.org) who will be the Co-Facilitator 50% of his time.

Changes in Contact numbers at FU

The phone, fax numbers, and email addresses at the CIMMYT Office in New Delhi and the Facilitation Unit have changed and are as follows:

Telephone: +91-11-582-2940 and +91-11-582-2938
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Ram C Iyer, Administrator (r.iyer@cgiar.org)
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CIMMYT Office (cimmyt-india@cgiar.org)
Facilitation Unit, RWC (rwc@cgiar.org)

Competitive Grant Fund (CGF)

The following three projects under CGF have been approved for funding:

- Video on the **Technique of mechanical surface seeding and mulching rice straw for wheat after rice** in Sichuan, China to be executed by Prof. Hang Gang, Director of Crop Institute, Sichuan academy of Agricultural Sciences, Chengdu, Sichuan, China.
- Video on the **techniques of broadcasting rice seedling in Sichuan, China** to be executed by Prof. Zheng Jiaguo, Director of Crop Cultivation Department, Crop Institute, Sichuan Academy of Agricultural Sciences, Chengdu, Sichuan, China.
- Video on the techniques of dry seedbed rice seedling in Sichuan, China to be executed by Prof. Zheng Jiaguo, Director of Crop Cultivation Department, Crop Institute, Sichuan Academy of Agricultural Sciences, Chengdu, Sichuan, China.

The videos on rice will be completed in June and wheat video will be finished in December.

Happenings

Survey on Plant Parasitic Nematodes of Nepal

An exploratory survey of plant parasitic nematodes in the rice-wheat based cropping system was conducted in 12 districts of Nepal in October 1999. The nematode diversity in 35 randomly selected locations was assessed. Incidence of a root-knot nematode (*Meloidogyne graminicola*) was observed at four locations in the Dhading and Kathmandu districts. Yellowing of plants in several patches was observed. The root tips, swollen and hook-shaped, were seen in these fields. The disease incidence was severe in fields that were in valleys and where soil was deposited from the forests on the hills during rains. It seems reasonable to speculate that the nematode naturally exists on vegetation in the forests and movement of soil may be a cause for prevalence of this nematode in fields where this soil was deposited. The survey also showed presence of agriculturally beneficial nematodes that may have a role in decomposition of organic matter.

Fourteen locations had infestations of the cyst nematodes. The cyst nematodes, one of the highly damaging groups of nematode, have apparently not yet been reported from rice-based cropping systems in Nepal. Some of the important species included, the maize cyst nematode, *Heterodera zae* (preferred host maize), *H. gaminis*, and *H. mothi*.

For more information, please contact Dr SB Sharma [sbs_nema@amil.iari.ernet.in or sbs_nema@hotmail.com], Head, Division of Nematology, Indian Agricultural Research Institute, New Delhi 110012, India or Dr S Pande, [s.pande@cgiar.org] Senior Scientist, ICRISAT Patancheru, India.

Field visits to Haryana

The Facilitation Unit organized a one-day field visit to the rice-wheat areas in Haryana, where farmers are practicing zero-till technology. The participants included Drs John Duxbury, Julie Lauren (Cornell University), Peter Hobbs, Raj Gupta (CIMMYT), Sarwat Hussain (World Bank), P Das, RL Yadav (ICAR), etc. The visit was organized by the Department of Agriculture, Government of Haryana and coordinated by Drs RS Mehla and JK Verma, both Joint Directors in the Department and Dr RK Malik, Professor at the Haryana Agricultural University, Hissar.



Wheat sown in a Farmer's field using Zero Till (Haryana, India): 1999-2000

Dr RS Mehla, Joint Director (Agriculture) identifies the constraints for the stagnation in productivity of wheat as follows:

Late planting of wheat due to excessive tillage; emergence of new weeds; *Phalaris Minor* menace; poor ground water quality, and receding ground water table. In addition some other problems were also identified like depletion of underground water, excessive tillage and emergence of new weeds.

Dr Mehla emphasised that zero till technology offers an integrated solution to the complex problem of overcoming the stagnation in wheat productivity. Mr Sarwan Singh, Director (Agriculture), Haryana remarked that in view of the fact that this technology is simple and farmer friendly for easy adoption, the State Department has decided to propagate the Zero Till cum Fertilizer Drill in the State.

The sowing can be done immediately after the harvest of paddy in the residual moisture and with the paddy stubble intact in the field, thus saving a precious 10-15 days. The delay can be easily avoided with the added advantage of conservation tillage and residue management. The zero till seed-cum-fertilizer drill saves fuel, irrigation water, and tractor costs (spares), and also INR 600-800/acre. The drill ensures placement of seed and fertilizer at a desired depth and in desired quantities that takes care of low plant population. All out efforts are now made to popularise the use of Zero Till Seed cum Fertilizer Drill among the farmers of the State to break the barriers of stagnation in wheat productivity.

The farmers also rose to the occasion and have been proactive in adopting the zero till technology for wheat and the area covered under this technology has

risen to 10,000 acres in the current season. The response is encouraging and the farmers have started investing their own resources in the zero till drill and are hoping to increase their yield. The Team interacted with the farmers and listened to their experiences and fielded questions.

The field trip was video recorded by Mr RS Sharma of COMPRO also interviewed the Team Members, State Department functionaries, and farmers and a 30-minute program (Series on *Mitti Ka Mehak* meaning "Smell of the Soil") was telecasted by Doordarshan (India's National TV Channel). The visit strengthened the fact that zero till technology works and it is in national interest to promote this at an accelerated pace for improving the income of farmers. However, the bottlenecks so far are:

- Unavailability of good quality seed drills in sufficient numbers
- Small sector manufacturers are unable to maintain consistent quality standards due to lack of quality input
- Problems of present seed drill in fields with loose residue following combine harvesting if burning is not done.

Forecasting Regional Wheat Production by Dynamic Growth Model and Remote Sensing¹

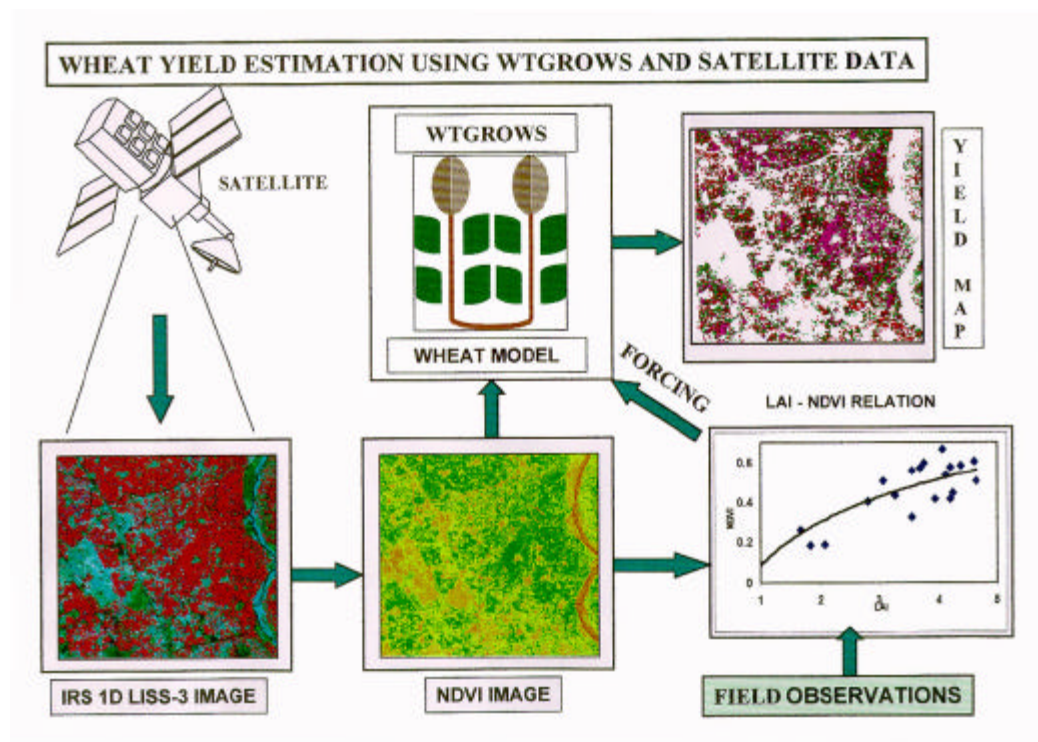
An accurate crop production forecast before harvest is important for national food security. The crisis of onions and other vegetables in 1998 (in India), which triggered some unprecedented socio-economic and political impact, has re-emphasized the value of assessment of crop growth condition and yield before actual harvest. The currently used methods for this are not very successful because these are empirical, location, and time specific and do not explicitly specify the cause-effect relation between crop yield and yield forming characters. Dynamic crop growth models are very useful tools that relate plant processes, growth and yield with biotic and abiotic stresses on spatial and temporal scale. A methodology has recently been developed at the Indian Agricultural Research Institute (IARI), New Delhi in collaboration with the Space Application Center to forecast wheat production for different meteorological sub-divisions of India. In this approach, forecasts are provided every week after 1 January till harvest date. WTGROWS model is run in a GIS environment for the real time weather data of different met-divisions using inputs of past and current applications of fertilizer, regional distribution of sowing dates, variety, and irrigation. The model was modified to include the inputs of leaf area and phenology as computed from satellite signatures. Area of wheat planted in the season is also determined through the signatures of remote sensing satellites IRS-1C and I-D. The complete methodological linkages are shown in the figure below.

Studies were conducted in the farmers' fields in Alipur Block of Delhi and Bhopal to generate relationship between leaf area/intercepted photo-synthetically active radiation with NDVI, a spectrally derived index, to assess phenology from remote sensing inputs derived through IRS-1C and 1D. Another study in the same region showed that the approach used provides correct estimates of regional production. The prototype methodology at the whole country level was also satisfactorily tested for the first time in 1998-99.

The IARI Team is now developing a computer based spatial decision support system that will assist agricultural officials to assess crop growth conditions before actual harvest of different crops. This will also be useful for understanding

¹ Kalra, N., Aggarwal, P.K., Dadhwal, V.K. (Center for Applications of Systems Simulation, IARI, New Delhi, India), Sehgal, V.K., and Harit, R.C. (Space Application Center, Ahmedabad, India)

yield potentials of crops, quantification of yield gaps, strategies to bridge these gaps as well as for sustainable land use planning.



Publications

Sustaining Rice-Wheat Production Systems: Socio-Economic and Policy Issues. Pingali, P.L. (Ed). 1999. Consortium Paper Series 5

The PDF version of the document is available on Consortium web site at <http://www.cgiar.org/cps.htm> but if you need a hard copy please email us (rcw@cgiar.org) with your postal address.

Food for thought

Education is the process of driving a set of prejudices down your throat.
- Martin H. Fischer

Obituary

Dr Farhad passed away

Dr. Jameel Farhad, Director of Research at BRRRI, passed away on 26 Dec 99 because of a stroke. He was to be transferred to Singapore for further treatment, but apparently he was not able to make it. We deeply regret that we missed a great opportunity to work with Dr Farhad who was a very fine scientist and person. We will miss him.