



IARI NEWS



Vol. 23, No. 4

October–December 2007

IARI Develops Gravity Feed Aqua-ferti-seed Drill

The Institute designed and developed a gravity feed nine-row aqua-ferti-seed drill suitable for sowing winter crops in dry land areas. The drill enables the user to apply aqueous fertilizer along side of the seed in moisture deficit fields at the time of sowing. The design of the machine consists of a main frame, a metering system for both seed and aqueous fertilizer, a furrow opener, a ground wheel drive and a power transmission system. The aqueous fertilizer metering was attained by designing a suitable pumping system to



A tractor drawn gravity feed aqua-ferti-seed drill

deliver a measured quantity of aqueous fertilizer. Two storage tanks of 395 mm

diameter and 160 litre capacity were mounted on both sides of the pumping system. The prototype was tested using a 45-hp tractor, which supplied power for operating different functional components of the machine. With enhanced aqueous fertilizer rates, both growth and yield parameters registered increase. The use of aqua-ferti-seed drill is economical keeping in view its advantages. This easy to use machine is a modified version of the peristaltic pumping based aqua-ferti-seed drill developed by the Institute earlier.

IARI Hosts International Conference on “Emerging and Re-emerging Viral Diseases of the Tropics and Sub-tropics”

The Institute hosted an international conference on “Emerging and Re-emerging Viral Diseases of the Tropics and Sub-tropics” organized by the Indian Virological Society at IARI from December 11 to 14, 2007. Threatening viral diseases affecting humans, plants, animals, fish and bacteria were discussed during the conference. Three hundred and eighty-six delegates including 45 foreign delegates from countries such as USA, UK, Germany, Italy, New Zealand, Canada, France, and Australia, attended the conference. Dr. Mangala Rai, Secretary, Department of Agricultural Research and Education (DARE) & Director-General, Indian Council of Agricultural Research (ICAR) was the chief guest.

Seminar

The Nuclear Research Laboratory (NRL) of IARI organized a seminar on “Advances in Physical Techniques for Growth of Agriculture and Food Security”

to commemorate its Foundation Day on November 29, 2007. The seminar was inaugurated by Prof. M.S. Swaminathan, Chairman, M.S. Swaminathan Research Foundation, Chennai, who also delivered the Foundation Day Lecture. Dr. Anil Kakodkar, Chairman, Atomic Energy Commission & Secretary, Department of Atomic Energy, who was the Guest of Honour, delivered the Presidential Address. Dr. S.A. Patil, Director, IARI delivered the Introductory Address while the Welcome Address was delivered by Dr. P.S. Datta, Project Director, NRL. Dr. Bhupinder Singh, Organizing Secretary, proposed the vote of thanks. The seminar was attended by over 200 researchers and students.

Animal Health Camps

• The Krishi Vigyan Kendra (KVK), Shikohpur, organized an animal health day-cum-clinical camp, sponsored by NFL, at Jodi village, Gurgaon district, Haryana on November 23, 2007. In all, 147 animals were diagnosed and treated for different ailments. Medicines were provided free of cost to the animal owners.

• The Centre for Agricultural Technology Assessment and Transfer (CATAT) organized three animal health care camps: the first at Sandhal Khurd village, Sonapat district, Haryana on December 17, 2007; the second at Galibpur village, Najafgarh Block, Delhi on December 18, 2007; and the third at Asanda village, Jhajjar district, Haryana on December 19, 2007. The participants were made aware of improved health care, feeding and management practices for increased milk production from dairy animals. The animals were attended for treatment/advice for health and fertility related problems.

Field Days

The KVK, Shikohpur, organized two field days in different villages of Gurgaon district: the first on *moong* at Alimuddinpur village on October 24, 2007 and the second on *arhar* at Teekli village on October 30, 2007.

Function on “Farmwomen in Agriculture”

The KVK, Shikohpur, organized a function on “Farmwomen in Agriculture”

on December 4, 2007. Dr. H.S. Gaur, Dean and Joint Director (Education) was the chief guest. On this occasion, various educational and cultural programmes were performed by school children and rural women. About 75 girls and farm women participated.



Dr. H.S. Gaur, Dean and Joint Director (Education), IARI giving away a certificate to a participant at a function on "Farmwomen in Agriculture" organized by the KVK, Shikohpur, Gurgaon

Hindi Workshop

A Hindi workshop was organized at the Institute from November 27 to 28, 2007 at the Division of Agricultural Extension to promote scientific writing in Hindi. The workshop was chaired by Dr. H.S. Gaur, Dean and Joint Director (Education) and the Chairman of Evaluation Committee. Fifty scientists of the Institute participated in the workshop.

Trainings

- The Division of Seed Science & Technology organized the first short-term certificate course on "Plant Variety Protection & Related Issues" (for professionally qualified personnel) from August 21 to October 27, 2007 under the project on "Centre of Excellence for Training of Professionally Qualified Persons". The course, attended by 17 participants, was formally launched on October 22, 2007 by Dr. S. Nagarajan, Chairperson, Protection of Plant Varieties and Farmers' Rights Authority. Dr. S.P. Tiwari, Deputy Director-General (Education), ICAR gave away certificates to the participants on the completion of the training course, and delivered the valedictory address.
- The Division of Biochemistry conducted a training programme on

"Advanced Biochemical and Molecular Techniques" under the auspices of the ICAR Centre of Advanced Studies in Biochemistry from September 18 to October 8, 2007. Eleven participants attended this programme.

- The KVK, Shikohpur organized three vocational training courses: the first on "Motor Winding" from October 29 to November 7, 2007 for 10 unemployed rural youths of the area; the second on "Dress Designing & Tailoring" from November 5 to December 4, 2007 for 25 rural girls and women; and the third on "Preservation of Seasonal Fruits & Vegetables" from November 30 to December 10, 2007 for 26 school girls.
- The CATAT organized four on-campus training programmes for agricultural officials and progressive farmers of Delhi state: (i) on "Mushroom Cultivation" on November 6, 2007, which was attended by 23 participants; (ii) on "Rabi Crops" from November 26 to 27, 2007, which was attended by 20 participants; (iii) on "Integrated Nutrient Management" on December 7, 2007, which was attended by 30 participants; and (iv) on "Post-harvest Management" on December 27, 2007, which was attended by 30 participants.
- The Division of Agricultural Engineering organized a training programme on "Motor Rewinding" jointly with the KVK, Shikohpur and Nehru Yuva Kendra from November 29, 2007 to December 7, 2007. Ten youths from Mahendragarh district of Haryana participated.
- The Division of Agricultural Extension organized a 21-day training programme on "Empowerment of Rural Youth through Participatory Extension Methodology" under the auspices of the Centre of Advanced Studies from November 29 to December 19, 2007. Twenty participants comprising extension professionals from various SAUs and ICAR institutes attended the programme. The valedictory function was chaired by Dr. P.L. Gautam, Deputy Director-General (Crop Sciences), ICAR.

- The Centre for Protected Cultivation Technology (CPCT) of the Institute, conducted three training programmes – each of one week duration – on "Protected Cultivation of Horticultural Crops", for the horticultural officers of Uttarakhand and Haryana during the months of November and December, 2007.

The CPCT also conducted a 12-day on-the-spot training course on "Advances in Protected Cultivation of Vegetables" in collaboration with the Government of Israel from December 10 to 21, 2007, which was attended by 17 trainees from different research organizations and private sector.

- The CATAT organized three one-day women training programmes: the first at Sandal Khurd village, Sonapat district on December 17, 2007; the second at Galibpur village, Najafgarh Block, Delhi on December 18, 2007 and the third at Asanda village, Jhajjar district on December 19, 2007 on "Preservation of Aonla and Tomato".

Winter School

The Division of Agricultural Physics organized the 15th Winter School on "Remote Sensing Application in Agriculture with Special Emphasis on Crop Growth Monitoring System" sponsored by the Department of Space from December 1 to 24, 2007. Twenty-five participants from different ICAR institutes and state agricultural universities participated.

New Projects Sanctioned

- "Studies on Impact of Atmospheric Brown Clouds (ABC) on Agriculture" funded by the United Nations Environment Programme RRC, AP Bangkok. Amount: US \$ 100,000. Principal Investigator: Dr. Usha Kiran Chopra, Division of Agricultural Physics.
- "Development of Low Cost Effective Formulation of *Bacillus thuringiensis* for Integrated Pest Management Purposes" funded by the Department of Biotechnology. Amount: Rs. 41.28 lakhs. Principal Investigator: Dr. Vishwajeet Pal, Division of Entomology.
- "Genetic Enhancement of Soybean for Charcoal Rot Resistance through

Molecular Techniques” funded by the Department of Biotechnology. Amount: Rs. 17.80 lakhs. Principal Investigator: Dr. Akshay Talukdar, Division of Genetics.

- “Mapping and Marker Assisted Selection for New Genes for Resistance to White Rust (*Albugo candida*) in Indian Mustard (*Brassica juncea* (L.) Czern. & Coss) funded by the Department of Biotechnology. Amount: Rs. 17.02 lakhs. Principal Investigator: Dr. D.K. Yadav, Division of Genetics.
- “Tagging Genes for Resistance to Wilt in Lentil” funded by the Department of Biotechnology. Amount: Rs. 18.38 lakhs. Principal Investigator: Dr. Harsh Kumar Dikshit, Division of Genetics.
- “The Development of Adapted Germplasm for India with High Levels of Provitamin Carotenoids” funded by the USAID. Amount: Rs. 20.76 lakhs. Principal Investigator: Dr. A.K. Singh, Division of Genetics.
- “Functional Analysis of diNo80, a Chromatin Remodeling Protein through P Element Excision and RNAi Mediated Gene Silencing Using Transgenic Approach” funded by the Council of Scientific and Industrial Research. Amount: Rs. 1.44 lakhs. Principal Investigator: Dr. Shanti Chandrashekar, Division of Genetics.
- “Multitrophic Interaction in the Rhizosphere and the Management of Nematode Pests and Diseases” funded by UKIERI Programme, UK. Amount: Rs. 73.66 lakhs. Principal Investigator: Dr. H.S. Gaur, Division of Nematology.
- “Development of Safe Chaff Cutter” funded by the Department of Science & Technology. Amount: Rs. 8.90 lakhs. Principal Investigator: Dr. Adarsh Kumar, Division of Agricultural Engineering.
- “Biosystematics and Molecular Characterization of Indigenous Entomopathogenic Nematode Biodiversity” funded by the Department of Science & Technology. Amount: Rs. 26.87 lakhs. Principal Investigator: Dr. (Mrs.) Sudarshan Ganguly, Division of Nematology.

- “Development of Human Resource in Blue Green Algae and *Azolla* and their Promotion in Agriculture” funded by the Department of Science & Technology. Amount: Rs. 24.32 lakhs. Principal Investigator: Dr. Sunil Pabbi, Centre for Conservation and Utilization of Blue Green Algae.
- “Spatio-temporal Biophysical and Socio-economic Linkage with Simulation Models for Land Use Planning and Agri-production Estimates in Western Uttar Pradesh” funded by the Department of Science & Technology. Amount: Rs. 23.35 lakhs. Principal Investigator: Dr. Debashish Chakraborty, Division of Agricultural Physics.
- “Development of Provitamin A Rich Indica Rice Varieties through Marker Assisted Backcross Breeding using High Carotenoid Golden Rice as Donor Lines” funded by the Department of Biotechnology. Amount: Rs. 99.564 lakhs. Principal Investigator: Dr. A.K. Singh, Division of Genetics.
- “Development of STMS and SCAR Markers in Bitter Gourd (*Momordica charantia* L.) and their Utilization for Genetic Characterization and Tagging of Gynoecious Traits” funded by the Department of Biotechnology. Amount: Rs. 0.35 lakhs. Dr. T.K. Behera, Division of Vegetable Science.
- “Livelihood and Nutritional Security of Tribal Dominated Areas through Integrated Farming System and Technology Models” funded by the National Agricultural Innovation Project/ICAR. Lead Centre: MPUAT Udaipur Agricultural Technology Information Centre; Cooperating Centre: IARI. Amount: 31 lakhs. Cooperating Centre Principal Investigator: Dr. J. P. Sharma, Incharge, Agricultural Technology Information Centre.
- “Establishment of Consortium for e-Resources in Agriculture (CeRA) of Component-I (O&M)” funded by the NAIP. Lead Centre: Unit for Simulation and Informatics, IARI, New Delhi. Amount: 938 lakhs. Principal Investigator: Dr. H. Chandrasekharan, Incharge, Unit for Simulation and Informatics.

Patents Filed

- Precision seeder for plug tray nursery
- Development of entomopathogenic nematode-based termite bait and a technique to disseminate the bait for attracting and killing subterranean termites
- Solid-state digesters for anaerobic fermentation of organic wastes for biogas and manure

Technologies Commercialized

- Process for production of formulation of reduced azadirachtin
- Improvement of end use efficiency through nitrification inhibitors
- Development of novel high absorbent hydrogel
- *Trichoderma virescens*
- Biopesticidal NemaGel

Awards/Honours

- Dr. Anupam Varma, former Dean and Joint Director (Education), IARI and former ICAR National Professor received the Prof. Kameshwar Sahai Bhargava Award 2007 of the Indian Virological Society for his outstanding contributions to the field of plant virology.
- Dr. R.K. Jain, Head, Division of Plant Pathology was elected Fellow of the Indian Virological Society.
- Dr. Pritam Kalia, Principal Scientist of the Division of Vegetable Science, was selected by the Asian Productivity Organization (APO), Japan to participate in a study meeting on “Quality and Safety Standards for Fruits and Vegetables” held in Kaohsiung, Taiwan, ROC from November 12 to 16, 2007.
- Dr. S.S. Tomar, Principal Scientist, Division of Agricultural Engineering, received the third prize (Rs. 1500/-) for his outstanding presentation in the National Scientific Hindi Seminar organized by the Ministry of Earth Sciences, Government of India on November 12, 2007.
- Dr. Anjani Kumar, Programme Coordinator, KVK, Shikohpur, was awarded the ISEE Fellow Award-2007.
- Dr. N.P. Singh, Senior Scientist, Division of Agricultural Economics, was awarded the prestigious Associateship of the National

Academy of Agricultural Sciences for the period 2008-2012.

- Dr. R.N. Padaria, Senior Scientist, Division of Agricultural Extension was awarded the Dr. K.N. Singh Memorial Award in recognition of the excellence achieved by him in extension research.
- Dr. Robin Gogoi, Senior Scientist, Dr. Ramcharan, Technical Officer (T-7/8) and Dr. R.K. Sharma, Senior Scientist, Division of Plant Pathology, received the first prize for their scientific poster presentation in the Hindi Workshop held at IARI from November 27 to 28, 2007.
- Mr. Rahul Tripathi, Dr. R.N. Sahoo, Dr. V.K. Sehgal and Dr. R.K. Tomar of the Division of Agricultural Physics received the Best Paper Award in the general category (oral) for their research paper entitled "Radiative Transfer Modeling of Plant Biophysical Parameters for their Retrieval from BRDF through Inversion" at the National Conference on "High Resolution Remote Sensing and Thematic Applications" held at Kolkata from December 18 to 20, 2007.
- Shri V.K. Chaturvedi, Technical Officer, Division of Agricultural Extension received the ISEE Appreciation Certificate for his outstanding contribution to the successful organization of the ISEE Seminar held at UAS, Dharwad, Karnataka from December 18 to 20, 2007.
- The Institute participated in a *Kisan Mela* and *Pashu Vigyan Pardarshini* organized by the Indian Veterinary Research Institute (IVRI), Izzatnagar (U.P.) from November 1 to 3, 2007, where IARI stall was adjudged as the best institutional stall.

Visitors from Abroad

During the period, October-December, 2007 four delegations – one each from Canada, Iran, United States and Israel – visited the Institute. The Canadian delegation was led by Her

Dr. A.K. Singh Appointed Deputy Director-General (NRM), ICAR



Dr. A.K. Singh

DR. ANIL KUMAR SINGH joined the Indian Council of Agricultural Research (ICAR) as Deputy Director-General (NRM) on September 28, 2007. Before joining the Council, he was working as the Project Director, Water Technology Centre of IARI since 1999.

Born on April 29, 1952, Dr. Singh obtained his M.Sc. and Ph.D. from IARI and a diploma in On-farm Water Management from USA.

During his more than 31 years of service, he has been working in the field of water management of crops under varying water availability and quality situations (irrigated and rainfed) with particular emphasis on soil-water-plant-atmospheric interactions under both field and laboratory conditions. For his academic and professional achievements, Dr. Singh received several awards and recognitions. He was awarded National Science Talent Search Scholarship in 1967, Post Doctoral Fellowship by the International Rice Research Institute (IRRI), Manila, Philippines in 1993, German Academic Exchange Service (DAAD) Fellowship in 1982, Best Teacher Award, IARI in 2005 and Gold Medal by the Soil Conservation Society of India in 2006. He was elected Fellow of the Indian Society of Soil Science in 1999, Fellow of the Indian Water Resources Society in 2002, Fellow of the National Academy of Agricultural Sciences in 2006, and Fellow of the Indian Society of Water Management in 2007. He was President of the Agriculture and Forestry Sciences Section of the 91st Session of the Indian Science Congress in 2004 and Vice-President of the Indian Society of Soil Science for the years 2001 and 2002 and Secretary, Indian Society of Water Management since 1999. He is a Chairperson/Member of several national and international committees and has visited more than a dozen countries in his professional capacity. Dr. Singh has more than 240 publications to his credit in the form of research papers, books/bulletins, seminar/symposia proceedings, popular articles, manuals and technical reports.

Excellency Rosann Wowchuk, Deputy Premier and Minister of Agriculture, Food and Rural Initiatives, Manitoba, Canada. Others who visited the Institute include: Dr. Abdul Rashid, Director-General, National Agricultural Research Centre, Faisalabad, Pakistan; Dr. Indrajeet Chaubey, Associate Professor, Purdue University, USA; His Excellency Barry Todd, Honourable Deputy Minister of Agriculture, Food and Rural Initiatives, Manitoba, Canada; Mr. Ivanov Audrey,



Dr. K.R. Koundal, Joint Director (Research), IARI welcoming Dr. Abdul Rashid, Director-General, National Agricultural Research Centre, Faisalabad, Pakistan, at IARI



Dr. S.A. Patil, Director, IARI (centre) presenting a memento to Mr. Ivanov Audrey, Vice-President, Russian Academy of Agricultural Sciences

Vice-President, Russian Academy of Agricultural Sciences; Dr. Stephen W. Muliokela, Director, Golden Valley Agricultural Research Trust, Lusaka, Zambia; Dr. Ramano M. Kiome, Permanent Secretary, Ministry of Agriculture, Zamia, Zambia; Dr. Keith Davies, Senior Nematologist, IACR Rothamsted Research, Harpenden, UK; and Her Excellency Montse Huget-Guell, President-Prodeca, Spain.

Published quarterly by the Publication Unit on behalf of the Director, Indian Agricultural Research Institute (Indian Council of Agricultural Research), New Delhi 110 012; laser typeset by Xpedite Computer Systems, D-20, 2nd Floor, Ranjit Nagar Commercial Complex, New Delhi 110 008 and printed at Royal Offset Printers, A-89/1, Naraina Industrial Area, Phase-I, New Delhi 110 028. Website: www.iari.res.in
Joint Director (Research) & Incharge (Publication Unit): Dr. K.R. Koundal; **Editor:** C. Thomas