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PROMISING TECHNOLOGIES

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PROMISING TECHNOLOGIES

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Technology Generated for Organic-Cotton Cultivation

Organized efforts to commercially cultivate organic-cotton without the use of chemical insecticides, prohibited amendments, chemical fertilizers and plant-growth regulators began in around 1990.

Several cultivators distressed with the deleterious effects of chemical fertilizers on soil health and ineffectiveness of pesticides for pest suppression were on the look out for alternative strategies. The resource-poor farmers growing cotton on shallow and marginal soils were experiencing unstable yields and rise in production costs. Simultaneously, growing awareness in the west, particularly in Europe, about the environmental pollution and hazards of toxic molecules present on the cotton-fabrics affecting human health, has created a market for organic-cotton.

Addressing these demands, research work at the Central Institute for Cotton Research, Nagpur, was translated into an organic-cotton production technology, focussing on on-farm recycled soil amendments and

biocontrol based pest management. Organic-cotton production requires a careful and strategic planning, beginning with the selection of the site and cultivars, till the certification of the produce. Some key ingredients of the technology developed for organic-cotton production at the CICR are in the box on p.2.

With careful planning and execution, yields at a par with conventional cotton- production technology could be obtained within 3 years of the switch over to organic-production system.

There is also a continuous build up in soil organic-carbon, available P and microbial biomass in the organic system, resulting in the improvement of the hydro-physical environment. An interesting observation and inference of 3 years is the reduction of jassids multiplication rate on the highly susceptible cotton variety LRA 5166 grown under organic environment *vis a vis* that under conventional production system; it is a major highlight. There is also a build up of natural enemies such

Proprietary rights in agriculture often pertain to patent, plant variety protection and trademark. India is already a signatory to the Convention on Biological Diversity (CBD), International Undertaking on Plant Genetic Resources, and the Agreement on Trade-Related Aspects of the Intellectual Property Rights (TRIPS), under the World Trade Organization (WTO), established as a consequence of the General Agreement on Tariffs and Trade (GATT). As per the GATT agreement, a suitable system will have to be in place before 1 January 2000 not only for the intellectual property protection but also for the patent protection in the fields not yet covered by the IPR protection. The CBD provisions of national sovereignty on germplasm, its conservation, sustainable utilization, fair and equitable sharing of benefits, technology transfer and capacity-building call for a comprehensive biodiversity legislation to capitalize through benefits accruing therefrom. Accordingly, the Indian Patent Law needs a revision to accommodate comprehensive patenting, right from process patents to product patents. In the TRIPS, there is also a provision of protection of geographical indication. The evident examples of geographical appellation are Champagne from Champagne district in France and Havana cigars from Cuba. India has a number of unique commodities/products which need to be brought under geographical appellation; these may include Basmati rice, Darjeeling tea and Dashehari mango.

Another concern is attempted patenting of the designated germplasm, being held in trust in CG centres on behalf of the FAO. One of our chickpea line from Andhra Pradesh, referred to as King Kong in the ICRISAT inventory, was attempted to be patented in Australia. This patenting could be timely abandoned by proactive role of the certain agencies. But, this necessitates revision of the existing FAO-CGIAR agreement on designated germplasm, ending in October 1998. Simi-

larly, the material transfer agreements (MTAs) of the CG centres require a relook. Meanwhile, the CGIAR Chairman, Dr Ismail Serageldin, has called for "voluntary moratorium" on patenting of designated germplasm. This is a positive step in this direction.

There is a wealth of both coded and uncoded traditional knowledge which is being patented advertently for commercial reasons in a number of countries. Rights of holders of traditional knowledge and practitioners thereof, including farmers, should be ensured and for which necessary legal framework would be required on a priority.



Dr R.S. Paroda, Director-General, ICAR

The ICAR has, from time to time, undertaken major initiatives in regard to agrobiodiversity in general and plant genetic resources (PGR) in particular. Three National Bureaux on Plant Genetic Resources (NBPGR), Animal Genetic Resources and Fish Genetic Resources have been established. A Bureau on Agriculturally Important Micro-organism is contemplated to be established during the IX Plan. A National Genebank with a capacity to preserve one million accessions was established at the NBPGR, New Delhi, on 18 November 1996. The National Research Centre for DNA Fingerprinting was established in 1995 with a mandate to characterize all genetic resources including plants, animals and fish, by using most modern techniques. Also a single window system has been provided for global exchange of plant genetic resources.

Special provisions worth Rs 250 million

are being made under the World Bank-aided mega project 'National Agricultural Technology Project (NATP)' for exploration, collection, evaluation, characterization, conservation and utilization of plant genetic resources for sustainable crop production. Two special projects, National Facility for Plant Tissue Culture Repository and Genebank for Medicinal and Aromatic Plants are also functioning at the NBPGR.

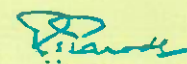
For transgenics, import and early handling mechanism has been provided, and containment facilities are envisaged as further strengthening.

For implementation of the proposed

Plant Variety Protection Act, the ICAR is having preparedness for likely mandatory DUS testing, varietal characterization and to provide other needed facilities and support. Meanwhile, a mechanism has already been put in place for registration of plant germplasm, strains and parental lines with the NBPGR as the nodal agency. A post of Assistant Director-General (IPR) has been created at the ICAR headquarters, New Delhi. An Intellectual Property Rights Cell with all modern facilities is also contemplated. Guidelines on

patenting have also been developed. Sanitation and phytosanitation, including quarantine, are the major concerns in the new global scenario of the enhanced world trade. A National Plant Quarantine System is envisaged in our endeavour on priority.

Thus, all needed means, methods and regulatory mechanism to manage new IPR requirements are being put in place expeditiously. At present a mass IPR-literacy campaign, through publications and dialogues, to have a wider coverage and to ensure our preparedness for the new IPR regime, is required. I believe an affirmative and quick action from all components of the NARS will be forthcoming for evolving, and eventually implementing IPR system in agriculture.


(R.S. Paroda)