Foreword

During the bygone year, drought-like situation in some parts of the country posed serious challenges before agriculture but the technological backstopping and timely advisories by the Indian Council of Agricultural Research System helped farmers to overcome the setback. The record production of the foodgrains during the year is a testimony to the technologies developed by the institutes under the Council that contributed significantly towards agricultural growth and competent human resource. India achieved a record production of foodgrains, fruits, vegetables, milk, eggs and fish with a compounded growth rate of 3.3% during the recently concluded XI Five Year Plan.

Among various inputs, quality seed and planting material are the prime requirement for the success of agriculture. In this endeavour, over ninety improved varieties/hybrids of different crops were released for different agro-climatic regions of the country and nearly 9,840 tonnes of breeder seed and 40 million planting material were produced to meet the indents from different states. Sugarcane bud-chip technology was developed and standardized for quick multiplication of quality seed-cane as well as to reduce seed-cane requirement per unit area. A unique Microsatellite Database of Pigeonpea (Pipemicrodb) has been prepared (http://cabindb.iasri.res.in/pigeonpea/). In order to manage natural resources more effectively and efficiently, an innovative model of groundwater sharing was developed for enhancing water productivity.

The ICAR Breed Registration Committee recognised nine new breeds and as such now there are 144 registered indigenous livestock breeds. Our scientists successfully used the Ovum Pick-Up technique for the first time in India and produced a female Sahiwal calf named Holi. This technique has the potential to harness germplasm from live infertile and aged dairy cattle. Maiden success was achieved in producing a male mithun calf, christened Mohan, from cryopreserved embryo using embryo transfer technology. Through an active participation in the global initiative on eradication of rinderpest and concerted R&D efforts, India is now declared free of this dreaded disease of livestock.

In a bid to enhance quality of agricultural education and human resource, strengthening of agricultural universities was continued through implementing schemes on modernization of library services, formation of digital library and excellence in teaching, research and consultancy. A total of 327 e-courses for undergraduate programmes in agricultural and allied sciences were developed on Moodle (an e-learning platform).

During the year, five new Krishi Vigyan Kendras, one each in Andhra Pradesh, Jammu and Kashmir, Odisha, Maharashtra and Karnataka, were established, raising their total number to 631 across the country. Under the National Initiative on Climate Resilient Agriculture (NICRA), technology demonstrations were conducted in 100 vulnerable districts of the country. Training programmes were organized for farmers and extension personnel to improve their knowledge and skill required for facing the current challenges.

To utilize the strength of electronic media as a fast and effective mode of sharing knowledge, the *e*-publishing platform of the Council facilitated the online availability of research publications that are being accessed from over 180 countries. Similarly, in order to strengthen the Agricultural Knowledge Management System in the country, a National Agricultural Bioinformatics Grid (NABG) was developed for hosting different types of applications related to bioinformatics. In continuum with current IPR regime, 96 patent applications were filed to protect technologies generated by our scientists.

International Co-operation activities of the ICAR in agricultural R&D gained strength with hosting of the 2nd ASEAN-India Ministerial Meeting on Agriculture & Forestry, BRICS Agri-experts'of Consultation, CGIAR-ISPC Meet, International Meet on FMD, ICAR-APAARI Expert Consultation on Trans-boundary Diseases, 3rd International Agronomy Congress on Agriculture Diversification, Climate Change Management and Livelihoods, and Indo-ASEAN Farmers' Exchange Programme. The ongoing initiative on Africa Focus got further emphasis during the year through the award of 15 international fellowships and study visits organized for the African nationals. Work Plans were signed between ICAR and two CGIAR institutes, namely International Water Management Institute and International Rice Research Institute.

It is strongly felt that India needs to enhance public and private investments from present level of 0.7% to 1% of AGDP in the near future and gradually increase it to 2% for sustainable development of agriculture and allied sectors. Considering the need for planning our research and competent human resources to meet the future challenges, several new initiatives have been contemplated and Vision 2050 documents are being drafted in respect of the ICAR institutes. I am confident that the *DARE/ICAR Annual Report 2012-13* will provide useful guidance in formulation of future policies and planning for sustainable growth in agriculture.

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President
ICAR Society