

# **Indian Agricultural Research Institute**

## **Post Graduate School Golden Jubilee Lecture**

### **Higher Education in Agricultural Sciences in India : 50 years and Beyond**

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1. I joined IARI as a Post-graduate student in Genetics and Plant Breeding towards the end of September 1947. From 1923, IARI was organizing a two-year Post-Graduate Diploma Course leading to the award of the Associate IARI Diploma. This Diploma was highly regarded in the scientific world since IARI had outstanding faculty and facilities. Upto 1957, 903 candidates have taken Associate IARI Diploma in eight major disciplines. Following the empowerment of the University Grants Commission (UGC) under the UGC Act of 1956 for conferring the status of a University on outstanding research and educational institutions, Dr C D Deshmukh, then Chairman of UGC suggested that IARI should become a Deemed University under the UGC Act. The other institution considered for such a recognition was the Indian Institute of Science, Bangalore. Both IARI and the Indian Institute of Science were conferred the status of University in 1958. IARI was also the host to the Central College of Agriculture during 1949-57 for educating students upto the B.Sc., Ag. degree. Many scholars who took the Associate IARI Diploma or the B.Sc., Ag Degree of the Central College of Agriculture, later became eminent agricultural scientists and teachers. The Associate IARI Diploma was largely based on thesis work until 1947 when Dr J N Mukherji, the then Director introduced course work and formal examinations.

2. The IARI PG School had the benefit of support of the Rockefeller Foundation for bringing outstanding scientists like Dr E C Stakman of the University of Minnesota and many other US Universities as Visiting Professors. Similarly the Rockefeller Foundation provided the services of Dr Ralph W Cummings of the University of North Carolina to serve as the Acting Dean of the IARI PG School in its formative period. Dr Cummings helped not only IARI to develop a strong course-credit system of education, but also helped Agricultural Universities in developing their programmes on the US Land Grant Educational model. Dr Cummings was followed by Dr A B Joshi who organized the educational programmes of IARI on the twin principles of academic excellence and social relevance. The next Dean Dr K Kanungo also provided outstanding leadership to the educational and training programmes and helped to establish a Staff College for providing inservice training to Professors from Agricultural Universities as well as development administrators. IARI also developed joint training programmes leading to the Ph.D degree with leading US Universities. The course-credit system helped students to audit additional courses

which will help them to overcome deficiencies in their early educational career. Until 2008, 2548 M.Sc., scholars and 3,359 Ph.D scholars have taken their degrees from IARI PG School in about twenty disciplines. By linking research, education and extension training in a mutually supportive manner, IARI became the flagship of education for agricultural advance and agrarian prosperity.

3. We are indebted to both the successive Directors of IARI who have served as Vice-Chancellors of the Deemed University and Deans and Joint Directors (Education) for their monumental contributions to take IARI to a leading position in the world in the field of research and education during the last fifty years. Besides a dedicated and distinguished faculty, among the other endowments of IARI, the most important one is its unique Library which is probably the best agricultural library in Asia. The Institute has adopted a dynamic approach to curriculum development, adding new courses designed to bring to the students the benefits of the latest advances in both disciplinary and inter-disciplinary science. In the field of extension also, IARI pioneered technology sharing innovations like the National Demonstrations, Lab to Land Programmes and whole village projects. Several inter-disciplinary departments like the Nuclear Research Laboratory, Water Technology Laboratory, Cereal Laboratory and Pulses Laboratory were also set up to ensure an end-to-end approach in technology development and dissemination.

4. Where do we go from here? The 50<sup>th</sup> anniversary of PG School provides an opportunity to look back and look forward. A very important role of IARI so far has been to provide trained faculty members for Agricultural Universities and competent scientists for various ICAR institutes and projects. Human resource development for scientific agriculture has been a very important contribution of IARI. Had IARI PG School not existed, the country would not have progressed so fast in the development of a national grid of agricultural universities. Now that there are 47 outstanding Agricultural, Horticulture, Veterinary and Fisheries Universities in the country, IARI PG School in my view should move even more upstream in the area of training in frontier technologies like Nanotechnology, Information Communication Technology and Space Technology. At the same time, IARI should develop non-degree training programmes in areas of importance to overcoming the technology and extension fatigues now prevailing in several parts of our country.

5. Some of the non-degree training programmes which in my view are worth considering for being undertaken by the IARI PG School are the following (these are more illustrative and not exhaustive).

A. *Policy Makers (in collaboration with the Lal Bahadur Shastri National Academy of Administration, Mussoorie):*

- Bridging the yield gap – constraints analysis (for Project Heads of the Rashtriya Krishi Vikas Yojana)
- Bridging the knowledge gap – eg. ATMA (course for District Collectors)
- Biosecurity and Biosafety
- Conserving Agrobiodiversity (Chief Wildlife Wardens)

B. *Farmers and Field Extension Workers (in collaboration with the Indira Gandhi National Open University)*

- Distance Education leading to certificate / diploma courses in areas such as the following:
  - Defending the gains in green revolution areas – conservation farming and green agriculture
  - Extending the gains to rainfed areas – water harvesting and watershed management
  - Make new gains through post-harvest processing and value addition
  - Managing drought, food and natural calamities

C. *Legal, Nutritional and Genetic Literacy of Panchayati Raj Members:*

- Plant Variety Protection and Farmers' Rights Act
- Biodiversity Act
- Genetically Modified Crops
- Food based approach to overcoming hidden hunger caused by the deficiency of iron, iodine, Vitamin A, zinc etc., in the diet

6. Indian Agriculture is at the cross-roads. On the one hand, we have enormous untapped production reservoir even at the currently available levels of technology. On the other hand the cost, risk and return structure of farming is becoming adverse with the result that nearly 40% of the farmers interviewed by NSSO would like to quit farming, if there were other alternatives. Young men and women, even educated at Agricultural Universities do not wish to take to farming as a career. Self-employment opportunities like Agri-clinics and Agri-business Centres have not proved to be attractive to farm graduates. On the other hand, it is clear that it is only a technological upgrading of farm operations that can help to improve the productivity, profitability

and sustainability of small holdings. Over 80% of our farmers belong to the small and marginal farmer categories and unless IARI helps to bring about a small farm management revolution, our agriculture will tend to make inadequate progress in relation to the growing demands for farm products both as a result of increase in population and improvement in purchasing power. One of our great challenges is to create more jobs in the farm and non-farm sectors. Modern industry promotes jobless growth; only agriculture can stimulate job-led growth. Therefore accelerated agriculture progress is vital both for food and livelihood security. We should therefore accord the highest priority to agricultural research, education, extension and development. IARI can accelerate the dissemination of information relevant to scientific agriculture by combining distance education techniques with conventional pedagogic methods.

7. If farm ecology and economics go wrong, nothing else will go right in agriculture. Therefore IARI PG School should help to mainstream environmental criteria in technology development and dissemination. The next 50 years will prove to be very challenging to the farm graduates of IARI and of other agricultural universities. Our population may climb to 1.5 billion. The percapita availability of arable land and irrigation water will shrink. Biotic and abiotic stresses will expand. Under these conditions, it is only new knowledge and new technologies that can help us to face the emerging challenges and ensure that food for all and ever becomes a reality in our country.