

THE PHILOSOPHY AND SOCIAL PURPOSE OF IARI
RESEARCH AND EDUCATION

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A. RESEARCH

1. Higher and more stable yields

Agricultural research aims to bring about a continuous rise in the economic yield of crops per unit of area, time, and water, without detriment to the long term productivity of the soil. Besides aiming to bring about such a continuous upsurge in productivity, research should also help to increase the efficiency of farming, as reflected by the return a farmer gets from his investment on inputs. The scientific destruction of all factors causing instability in food production, other than those related strictly to natural phenomena, should also be a major objective of our agricultural research, since with the growing population, frequent and violent instability in production could lead to disastrous consequences. The steps needed to develop disease and pest warning and control systems hence receive particular attention at IARI.

2. Increasing the income and employment potential of small holdings

Indian agriculture is characterised by the preponderance of farm holdings less than two hectares in size and farm families containing more than six members.

It is, therefore, essential that research should find ways of maximising the income and employment potential of small holdings. For this purpose a technology which can make the best use of the favourable features of our agricultural situation such as abundant sunlight, reasonable water resources and robust soils and which can help to banish under-employment and unemployment in rural India should be developed. The present research programmes of IARI aim to meet this need.

3. Dry Land Farming

A large proportion of the area under cultivation has limited rainfall and no assured irrigation facilities. In many of these areas, a greater proportion of landless labour lives. Whenever the rains fail, crops also fail creating widespread unemployment and misery. The development and deployment of a new technology for dry land farming is hence an urgent social and economic necessity. Hence, a special centre for dry land farming research is being set up at the IARI.

Increase in productivity per se does not imply improvement in economic conditions. In several dry districts of India, the farmers are economically better off than in delta districts which practise a mono-culture of rice. The nature of crop planning which is essential for using agriculture as an instrument of economic prosperity should, therefore, be studied. The research programmes including those in agricultural economics should be geared to achieve this objective.

4. Post-harvest problems and Nutrition :

In addition to studying problems connected with agricultural production, research on all aspects relating to the loss and waste of food from the time the grains are harvested to the time they are consumed should be intensified. The steps needed to minimise the gross national waste of food have to be specified.

Besides solving the problem of shortage of calories, the qualitative aspects of the nutrition problem need solution. The research programmes concerning the improvement of protein nutrition need to be examined and steps suggested to achieve a rapid elimination of protein malnutrition, particularly, in pre-school children, pregnant mothers and labour classes.

The policies and principles concerning the fixation of prices for food grains need examination. Methods of introducing criteria of classification of grains based on nutritional and scientific considerations may be suggested in order to avoid the perpetuation of market classification systems based upon prejudices.

All aspects relating to post-harvest technology need examination and the adequacy of the steps taken to meet the challenge of higher productivity needs to be studied.

Problems relating to research on vegetables, fruits and flowers should receive more intensive investigation.

5. Ecology-cum-Economics Based Crop Planning

Research programmes are underway for evolving an ecology-cum-economics based crop planning which would help to maximise the benefits of a given ecological environment and minimise the ecological risks. It is only in this way that the mistakes committed by the developed nations in polluting their environment with excessive use of pesticides can be avoided. The Multiple Cropping Programmes recommended at present need scrutiny from this view point. The aim should be to use crop rotations as a potent instrument of avoiding epidemics of pests and diseases.

Detailed examination is being made of the research programmes in crops with an export potential with a view to making improvement of their quality and yield. In particular, the reasons for the declining trend with regard to the competitive nature of Indian produce such as jute in the world market are being studied.

New approaches are being developed for the improvement of productivity of animals with particular reference to milk products.

The linkages now existing between research, extension and development need careful examination with a view to identifying the weaknesses of the existing developmental chain.

The adequacy of the efforts in the fields of extension education and mass communication as related to the rapid transfer of information on the new technology of farming is being studied.

6. Basic Research .

Good basic research is the foundation on which effective applied research programmes can be erected. The contributions that I.A.R.I. can make in path-breaking research therefore receive special consideration.

B. EDUCATION

I would like to define our philosophy in the field of education by two words- "Relevance" and "Excellence". I would like to briefly refer to the methods by which we are seeking to achieve these two goals.

An educational system, if it is to be useful, has to be relevant to the needs of the students and that of the community which supports it. With regard to students, the educational system has to aim at remedying the deficiencies in their past educational career on the one hand and at equipping them for fulfilling their aspirations for the future, on the other. Both these aims can be achieved only by a continuous reappraisal of courses and a considerable flexibility in the systems of educational management adopted by the University. At the I.A.R.I., the programme of courses prepared for each student is an unique one, formulated by taking into account the strengths and weaknesses in the student's previous educational background and what he wishes to do in the future. This kind of flexibility is enabled by the trimester system of course organization. In addition to the attention paid to the problems of course formulation, there is a constant examination of the value of each course

given at the I.A.R.I. New courses are added when the situation demands it. For example, we have added courses on tubewell technology and on rural credit in view of the enormous interest taken by farmers in the last few years in sinking tubewells and in view of the nationalised banks going in a big way in supplying agricultural credit. In this manner, the courses are constantly made relevant to the needs of the country.

We receive nearly 2,000 applications every year for admission and we admit less than 150 students. Our process of selection has several interesting features, the foremost among them being the assessment of the entire academic record of the student and not judging his merits solely by his performance in the last university examination.

I would now like to refer to working towards excellence in educational programmes. In achieving excellence, it is essential that the faculty is encouraged and enabled to give its very best. We not only attempt to get the best out of our own faculty which comprises of about 265 members, but we also try to benefit ~~from~~ sister institutions. We started a collaborative programme of post-graduate education with our neighbouring institute, the Indian Institute of Agricultural Research Statistics which has some of the eminent statisticians of our country on its staff. We have also made collaborative arrangements with other institutions of the Indian Council of Agricultural Research such as the Central Rice Research Institute, Central Potato Research Institute etc. for

providing our students with facilities to do a part of their thesis work in such institutions. Finally, through the Agricultural Universities Association of India, we have arranged for the introduction of a transfer-credit system through which we can help the sister universities and at the same time profit by their special strengths.

In order to give our students the very best education that we can arrange for, we entered into a collaborative agreement with U.S.A.I.D. by which 10 to 12 teachers belonging to our Agricultural Universities could spend one year at a U.S. University and complete the rest of the programme at the I.A.R.I. We have found this arrangement to be very helpful in enlarging the vision and research horizons of our students. We have recently entered into an agreement with the International Rice Research Institute in the Philippines with financial assistance from the Rockefeller Foundation, to provide an opportunity to three of our students, two drawn from India and one from some other country in South Asia, to do a part of their thesis work at I.R.R.I. We are now entering into a similar agreement with the International Institute of Seed Pathology in Denmark since we attach great importance to this science. Seed-borne diseases are becoming very important in India and hence we felt that we must give the best possible training to our students in seed pathology. It would be our aim to develop similar bridges with sister institutions all over the world.

To provide the best possible research facilities and to inculcate among the students the spirit of interdisciplinary collaboration in research we have established a Nuclear Research Laboratory with assistance from U.N.D.P. (special fund) and a Water Technology Centre with Scientific assistance from the University of California and financial support from the Ford Foundation. These two centres are outstanding exercises in inter-institutional and interdisciplinary collaboration.

I would like to end by once again stressing the vital necessity for the educational system being relevant to the needs of the community for which it operates. For example, in India it has been calculated by the Manpower Planning Unit of the Ministry of Food and Agriculture that about 4,660 post-graduates will become surplus by 1973 when viewed against possible job opportunities. This is a matter for great concern and we are hence trying to devise procedures by which our students can increasingly employ themselves. For example, we do not any more take out patents for our new agricultural implements and machinery but we supply detailed manufacturing drawings with which an agricultural engineering student can take up the manufacture and sale of such new implements. Nationalised banks are coming forward to supply credit to such students. By evolving procedures of this kind we hope that we will not have to adopt the negative outlook of trying to curtail opportunities for higher education to those who long for it.

Education is the foundation of progress and the prime mover of economic growth. If we constantly strive to make our educational programmes relevant and excellent, I am confident that there need be no going back on the expansion and strengthening of our universities.
