

What Next in Agricultural Research?

by DR. K. C. NAIK,

B. Ag. (Bom.), M. Sc., Ph. D. (Bristol),
Head-quarters Deputy Director of
Agriculture (Research), Madras*

A retrospect of the work done in the field of agricultural research in this State for nearly six decades is bound to present us with a store-house rich with experiences of successes and failures, hopes and frustrations. The monumental "Memoirs of the Madras Agricultural Department" published recently, as well as the "Basic Records of Experimental Work" also compiled recently in each research centre in this State, constitute not merely valuable records of the past achievements, but also a medium to detect many a void or imperfection in our agricultural knowledge and practices. At a time when nationwide attention is being focussed on the outlines of the Second Five-Year Plan, the availability of these factual accounts of the track covered and of the sign-posts for the future is of invaluable benefit to keep us off from paths that may end in a blind alley.

From the administrative angle certain policies have been recently adopted and measures taken in this State, which are also expected to have a profound bearing on the course and content of our agricultural research work in future. The net effect of these has been that the purely administrative and routine duties of our research workers have been eliminated, so that our research personnel are no longer tied down to their office tables and are free to devote their full energies and talents to the work for which alone they were chosen and intended. With the clearing of the deck we have virtually set the stage, therefore, to mingle our efforts with those of others in the country for the next spurt towards the national goal.

The basis of all agricultural research is rooted in the conception that the prevailing crops and cropping practices are capable of considerable improvement. The fact that agricultural crops and cropping practices are not the same in all parts of the country, stands to interdict the use of steam-roller methods either in the research programme or objectives. We have had experience in this State of the projects and trials of horse-drawn implements imported

* Now Principal, Agricultural College and Research Institute, Coimbatore.

from Great Britain, electro-culture methods borrowed from Uttar Pradesh, introduction of milk-yielding trees, etc., which had to be abandoned or had to run their weary course, to confirm the view that borrowed ideas or hypotheses do not always transplant well in a new environment.

The trend towards co-ordinated research is a noticeable development after the establishment of the Indian Council of Agricultural Research and the various Commodity Committees. In the Indian Council of Agricultural Research, the scientific committees are composed only of representatives of technical personnel, and these are charged with the preliminary scrutiny of research projects as well as the detailed scrutiny of technical programmes and reports, while in the Commodity Committees the technical or technological or agricultural research sub-committees are generally made up of both non-officials and technical personnel. It is possible that the association of non-official elements in these Scientific Committees may help the former to gather an idea of the work under way, but it is a moot point if their co-operation is essential in the scrutiny of these technical programmes and reports, to judge the soundness of the technique, appropriateness of the analysis of data or the validity of inferences in the progress reports.

The promotion of research through Central and Regional Research Stations being one of the primary objectives of these Commodity Committees, a substantial fillip has been given in recent years to the establishment of a network of research centres by these Commodity Committees either on their own initiative and resources or with the collaboration elicited from the State Governments. While all these are apparently to the benefit of the country, a question may be raised as to whether there has been a corresponding upgrading in the standard of research, and therefore, in the net contribution through research to the welfare of the country. Co-ordination to be effective and efficient has necessarily to embrace all technical work on subjects or crops which are allied in so far as techniques are concerned. If the research programmes and reports on crops and subjects requiring similar techniques are dealt with by independent bodies, and the research projects on allied problems are tackled in centres totally unconnected with each other, though at times situated near to each other, there is the danger of overlapping activities or the emergence of conflicts, which are not conducive to research, especially in schemes for which provision exists only for the appointment of juniors on the lowest scales of pay.

No research programme or project can ever reach the requisite standard if assigned to persons living in a subsistence wage level, even while high attainments and qualifications are expected of them. These, as well as the uncertainty of tenure which characterises the research posts associated with a number of research projects, may not help to attract the best talents to the scientific fields. Difference in emoluments and prospects as between the research personnel in the States and the Commodity Committees or the Central Government or as between the technical personnel of these bodies and those engaged by Agricultural Departments in the same State and working at times in the same town, may also have repercussions on the morale of the less fortunate sections of our public service, at the same time shutting out the best of the country's talents from the research fields in the States. Upgrading of research may require, therefore, not merely organisational changes but also a change in the service conditions of research personnel at all levels.

With the establishment of the Indian Council of Agricultural Research and Commodity Committees, the State Governments have been left to cater to their research projects through the aids to be obtained under certain specified conditions for temporary periods from these central bodies. Naturally enough, this may tend to induce the States to think of only local problems as distinct from extra-State problems or fundamental research. An accentuation of the awareness of administrative divisions rather than the universality of science or the fundamental requirements of the country as a whole is a feature that has to be prevented. Any change in our agricultural research set-up has necessarily to consider these features, so that fundamental research which is the life-giving stream for applied research as well as for regional or national interests, are not allowed to become the victims in the clash of ideals, and excessive stress on local or other extra-scientific problems may not at times simmer and froth over the larger interests of the country.

That research cannot be restricted to a groove, either in the sense of space or in terms of restriction of knowledge, is axiomatic. When research projects and programmes are shaped with the knowledge gained in a particular centre or region, the scope, standard, efficiency and applicability of research are narrowed down to the level of the mental horizon of those who have shaped the project or programmes. The Scientific Committees of the Indian Council of Agricultural Research are intended to out across such inhibitions and

restrictions, but these Committees can effectively discharge their functions only if they are free from the domination of loyalties other than to science. The constitution of these scientific committees firstly on a regional basis, and then, at the ultimate national level, with the representatives of the best available talent, may be a pre-requisite for neutralising these extra loyalties and affiliations, though the ultimate discussion on the committees' recommendations and the acceptance of the same may rest with the appropriate bodies composed of both official and non-official representatives. Thus, while a thorough discussion by all the concerned authorities and public representatives is guaranteed, full freedom for a scientific approach and scrutiny both on a regional and national basis is also ensured by the arrangement suggested above.

In respect of most of the agricultural crops grown in this country, rainfed cultivation continues to be dominating feature. Evolution of hardy, drought-resistant, high-yielding, quality strains to suit the eminently risky conditions of culture of unirrigated crops has not been commensurate with our requirements in the past. Such work entails the need to comb the wilds, semi-wilds, and the vast unirrigated regions of cultivation for spotting out material with a wide array of desirable attributes. Explorations of regions outside the country and examination of the collections maintained in breeding centres elsewhere may also be helpful and even necessary, if a comprehensive, economic and fruitful approach is intended. As it is, when such work is handled by a multiplicity of State agencies, generally with meagre resources, the net result may be a partial approach that may lead to misleading indications. All these deserve to be replaced by co-ordinated action in the field of agricultural research.

The system of conducting crop research in the States with their generally meagre resources and with similarity of a host of problems, may inevitably lead to the tagging of research on crops of diverse peculiarities to a single agency in some of the States. This may further limit the possibility of pursuing research at the highest possible standard in respect of all such crops and subjects. Meagre, piecemeal and part-time attention at a multiplicity of centres on crops and subjects of diverse requirements may not only be prejudicial to the interests of research but it may also generate a false sense of feeling that all what is possible is being done for research.

According to the present practice, release of improved strains is being effected in each State after certain tests in cultivators' lands. The procedure adopted in the conduct of these tests is not always standardised. Scattered block trials are taken up in some cases,

while for others only rough observational trials are conducted. In any case, ryots' fields chosen at a few places cannot be the best medium for affording a reliable clue. It can never be as reliable as tests conducted under a standard plan in stations located in all the typical regions and in every soil-climatic zone, under standard agronomic practices. This is the system followed in Japan and can well be emulated by us. The plea that our Government farms are not representative of ryots' holdings seems to be a worn-out plea. Firstly, the ryots' land is not a static conception. It has to improve and it has improved greatly in recent years. What we have to aim is to improve the pattern of cultivation and have our improved strains ready to suit such improved conditions. We do not have to try our strains under primitive conditions, as that would mean our acceptance of the view that Indian agriculture will be always primitive.

One of the greatest evils in research to be guarded against, is the contingency of its degenerating to a mere routine, such as testing of a few methods or practices copied from elsewhere or of a few proprietary substances, or aimless crop selections from any available bulk. Though such an eventuality may be a remote one, it is by no means unexpected when the facilities provided for research are meagre and the personnel insufficient or ill-equipped. To wrench oneself from old moorings and traditions is often as difficult for a scientist as for a layman. The solution to all such problems is a bold policy whereby research is conceived, planned and built up on a scale to enlist the best of the nation's talent to work under a system of unified and co-ordinated guidance with ample facilities for both fundamental and applied research to suit the needs of every region, free from all unnatural restrictions such as those imposed by State barriers.

Methods and policies being of crucial importance for the improvement and success of the future of agricultural research in this State and in the country, it has been found necessary to dwell at some length on a few of the more outstanding features of the prevailing system. As important as any of these is the delineation of problems in all branches of agricultural research, which deserve attention in the immediate and distant future. This is a matter on which the Crop and Subject Specialists are expected to, and should rightfully give the lead. In the present note no endeavour is made to anticipate these recommendations or suggestions of the Crop and Subject Specialists.
