

How best to translate the results of Research for the benefit of the average farmer*

By

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In all countries in the world, both advanced and less advanced, the State Agricultural Institutions and Service Organisations are the most outstanding helpers for farmers. These research and development institutions do many things for the cultivator which he cannot do himself, and this is particularly applicable to agricultural research, which pays big dividends to the rural community as a whole. Agricultural research is not a job for the cultivator and it seldom attracts private enterprise, partly because of the cost and uncertainty involved and partly because no one can monopolise the benefits. Agricultural Research is principally a job for Government institutions, Agricultural Colleges and Experiment stations. If such research is not taken up by the State, this will not be done at all.

Such new facts as are found by these researches should be made known to the farming community and others. This part of the educational and developmental work is as important as the research itself and the spread of useful information of agricultural and related subjects should also be intensively pursued by the Government agencies. In addition to the spread of such scientific information, provision should also be made for providing the necessary services and supplies at the various points from soil care to marketing and agricultural financing. The same services should also help the farmer in the development of new and wider uses of agricultural products and by-products, study human and animal nutrition, provide various living requirements, make surveys of foreign agricultural conditions, assist agriculturists in co-operative crop adjustments and help in the regulation of produce-markets. Assisting agriculturists to grow better plants and breed better animals, though the basic item, must have a counterpart in marketing help. The Department and other State agencies in addition to keeping a watch on agricultural production at home and abroad should also give facts to help the farmer to decide what to grow. The "What" is as important as the "How".

In order that the results of Research may spread among the cultivators on a popular basis, they must be of intrinsic economic value. This result could normally be achieved in two ways, either by effecting a saving in the existing methods of cultivation and other processing expenses that an agriculturist has necessarily to incur in raising a crop or it may be a means by which more yields than what would normally be obtained could be realised, by adopting certain new things. So far researches carried out by the Department have been more of a uni-purpose

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type and there have been very little of multi-purpose researches. For researches to be of greater utility and afford increased benefit to the cultivator, more items of the multi-purpose pattern need to be undertaken. Experimental investigations which aim at solving a combination of problems are bound to contribute in a large measure for the improvement of agriculture as such than an investigation that is expected to lead to solve only one aspect of a problem.

For research results to be readily applied on a popular basis by the cultivators, the problems should have some special relation or reference to the particular regions or areas. In other words, it means that the problems of the several districts each of which may have a peculiar bearing of its own, should be grouped and planned on a larger scale than others that may have a greater academic value and add merely to the scientific achievements. The various research branches should have combined comprehensive problems of an interrelated nature, involving team work and co-operative spirit, and these should be studied from all aspects so that the cumulative attempts of the different sectional workers may, when added together lead to quicker solutions and all-round benefits. At the moment each research section draws up its own research programme and this has led to a tendency for isolation and separatism among research workers without creating a corporate atmosphere so necessary for the advancement of scientific agriculture.

Similarly a closer and more intimate association than at present, of the officers connected with district work and the Research workers, is necessary. Even at the stage of drawing up the programmes for research, either on a three-year or on a five-year basis, the District Officers should be consulted to have the benefit of their local experience and knowledge, to have the basic outlines drawn on a comprehensive scale. Incidentally this will increase the scientific out-look of the District Officers, and enable them to have that sustained bent for developing their regions by the application of science to agriculture. In other words, it implies that there should be greater active contacts between the research workers and the development staff in the districts to create that foundation so very essential for the extension of scientific service among the rural population.

When drawing up a list of the items of research, the demands from certain ryots or even individual representative cultivators should be given first consideration, so that as soon as a solution is reached, there will be ready ground for their immediate application. In such cases, there will be no need to persuade cultivators to take up new things, as these are what they have been waiting for anxiously. The enthusiastic ryot is already existing, and the result or results could be readily demonstrated on his field. It will spread more quickly on a popular basis than other

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items for which the initial call did not originate from the cultivator himself. By adopting this procedure, cultivators themselves are brought directly on to the research and development sides of agricultural science, even at the preliminary planning levels.

Just as the different sections on the research side formulate their plans of work in advance for a few years on either a short term or a long term basis, it is necessary that the propaganda and developmental work in the several districts should also be planned in advance. The recent war has brought home to all nations that a modern State can only develop if its activities are co-ordinated on a planned basis in a common direction. Planning of agricultural development on a scientific basis is an immense task which will occupy the best human activities for many years and it must be carried out on a thorough and organised scale. In such developmental planning there must be a long term policy and a short term plan.

In the broadest sense, education brings some kind of State help and service, and functions such as commodity grading and seed certification require an educational basis. In the United States of America, the State Department of Agriculture has a number of educational agencies such as the Public Relations Office, the Extension Service, the Rural Electrification Administration and other subjects. Among the facilities offered are publications, press and radio services, motion pictures and exhibits, farmers' discussion groups, lectures, and correspondence. For example, the same State Department of Agriculture issues yearly 25,000,000 copies of farmers' bulletins, circulars, periodicals, publication lists, and other literature.

Some years ago, even of a country like the United States, it used to be said that farm practice in that land was many decades behind farm science. To-day the gap is not so wide and American agriculture has attained a high degree of efficiency. In 1943, American farms were said to produce only 47% more food than in 1918 after the first World War's peak food production. It is often mentioned that farmers in the advanced West are efficient because they strive to keep up with science and also because the Government and Departmental agencies carry agricultural science to them. Originally, the extension work in the western countries also dealt chiefly with only the agricultural production aspect. But now it has taken up every phase of agriculture and farm living. It is no longer confining its importance to mere production. They teach how to grow more per acre, how to get more meat and milk from their livestock for each pound of feed and also how to take care of their land. Nowadays extension work goes very much farther than furnishing mere information. It helps in arranging supplies of all kinds, in arranging for the storage of crops when the need arises, in drought relief measures, in rural relief and rehabilitation, and in numerous other ways. In many of these

activities educational and service help are rendered together on the principle that what the farmer understands will do more good to him than what he is not able to understand.

Another important extension work in the United States is the 4. H. Club. These clubs—whose name stands for works with Health, Heart, Head and Hands—have members to complete certain farm and home activities under the supervision of the State agency. Their projects include all elements of farming and home making, and include community activities as well. These members have become pioneers in their communities for better farming and better living. They have helped to enlarge food and fibre production, to store and preserve food, to relieve labour shortages on farms, and assist the local committees in the various campaigns.

To-day all national Governments have accepted the responsibility for ensuring that adequate supplies of food necessary to health are available to all members of the public, at reasonable prices and it is in accordance with the recommendations of the United Nations Conference on Food and Agriculture, held at Hot-Springs in 1943 for raising the standard of nutrition of the people. Great Britain's new long term policy for agriculture echoes on the national level, that of the Food and Agriculture Organisation of the United Nations on the international level. It also aims at developing and organising food production to provide diets on a health standard for the people and at stabilising agricultural prices at levels fair to producers and consumers alike.

In England the Agricultural Research Council is the State Department responsible for the fundamental research. For the application of scientific investigations to farming practice the Agricultural Improvement Council was set up in June, 1941. This same body was established on a permanent basis in July 1944. A National Agricultural Advisory Service was set up in October 1946 under the Agriculture (Miscellaneous Provisions) Act, July 1944. Advice on agricultural economics continues to be provided by staffs attached to the Universities and Colleges. The National Service includes all those concerned with advisory work to farmers at the Provincial and County centres. This arrangement is intended to facilitate general direction and guidance, securing of greater uniformity of work and co-ordination of specialist and general advisory activities. The programme of experimental work is drawn up under the guidance of the National Agricultural Improvement Council and steps are also taken to set up a series of experimental farms throughout the country.

After briefly touching upon what is known to be done in two of the leading agriculturally advanced countries of the World, the direct question as to what extent and how such scientific associations could be linked up

with our own Provincial programme, may now be taken up. The national slogan, as in other parts of the world, has to be "Full efficient production at home for as long as we can possibly foresee". While providing for stability, there must be sufficient flexibility to enable adjustments to be made to meet changing needs. Reliance has to be placed on advice and price mechanism, to steer production in the direction desired by national policy, subject to one exception — national emergency. The Government's policy both to save foreign exchange and for good farming, should be to switch our production, as rapidly as the cereals position permits, from the production of crops for direct human consumption to the production of other commodities. Local agriculture should be made not only capable of producing the regional requirements but should in addition produce such part of the food supply as may be desired in the national interest.

The position in respect of our own Province may be finally summarised as follows. The 'Grow More Food' campaign was originally started in 1943. This was enlarged on a long-term basis and expanded in a comprehensive manner early in 1947 into the 'First Five Year' programme for stepping up food production in the Province to conform to the National schemes. Recently this has been further altered into a 'Two Year' plan aiming at still greater production. One factor that clearly emerges out of these several plans is that changes and alterations have been more prominent than continuance and stabilisation of current and running items. For any substantial and progressive achievement, steadiness and sustained effort are absolutely essential, and the finally forecast results cannot be achieved at too early a stage. These however may be taken as the first stages of concerted large-scale national efforts attempting to raise the level of agricultural production in the country as a whole. In all these national plans, large-scale application of science to agriculture formed the basis for food production increases.

Just over a decade back, the question of the condition of higher agricultural education was seriously considered. It was observed that teaching, separated from research as it then existed, was not giving of its best to the students, and an amalgamation of teaching and research was effected. By this combination the students were enabled to get the latest researches taught to them by the research workers. This combination resulted in a certain amount of betterment. The present day position of agricultural development and propaganda may be taken to occupy an analogous position with the research workers not having that close mutual touch that they should have. In the same way as students were not getting their best, the ryots may, in this position, not be getting the best from scientific agriculture. It is not enough if these two agencies alone are brought together. There is a third and more important active link that has to be made to participate in a connected manner in these development programmes, and that is the owner of the land or the actual tiller of the

soil. The cultivator's willing co-operation is the most essential thing for achieving practical results, and hence close and intimate contacts between the Departmental Officers and the cultivating public on a more intensive scale than at present are essential.

A practical way of attempting to realise this is to locate the research workers and the district workers at one and the same centre, so that they may have constant mutual contacts and discussions about their several problems. The research problems for these stations, as stated already, should be drawn up with particular reference to the requirements of the concerned regions and tracts so that the solutions may immediately be taken up by the cultivators for application to their lands. By centralising the location of the district and research workers, visiting ryots to such centres will also be given an opportunity to go round the experimental station and get into touch with the scientific atmosphere which could later be incorporated in their own lands. It will at the same time afford greater opportunities to the public, to meet both the research workers and the district officers frequently at a common meeting place. The research stations that are at present tackling only experimental problems should be made to serve a dual purpose. They should be converted into combined experimental and demonstration farms. Such a change will make the farms serve the ryots and science together on a popular basis, and will also increase their utility to the public who can see clearly and understand the scientific side and the advantages of scientific agriculture applied in bulk to the land. Such a modification in the existing district and research organisations is sure to contribute to the filling up of the existing gap between the research findings and developmental plans on the one hand, and between scientific agriculture and the cultivating public on the other. By thus bringing the regional public to associate actively with the work and workers of the Department at such centres, there will be increased interest evinced in the development of agricultural science as a whole and a fuller realisation of its advantages by the cultivators.

I would therefore suggest that in each district the research workers and the developmental officers discuss this amalgamation question and devise ways and means as to how far such a combination is feasible and how soon it could be implemented if practicable. This appears to be one of the ways by which the existing deficiencies could be remedied. It would at the same time be appropriate if in formulating the proposals for the combined working at a central place in the district, sufficient thought is bestowed to the setting up of a permanent exhibition at each place modelled on the latest lines and incorporating the principles of public relations that are now adopted on a world-wide basis in all Information Services.