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What Next in Agricultural Extension?

by S. N. VENKATARAMAN,
B. A., B. Sc. (Ag.)
Head-quarters Deputy Director of
Agriculture (Extension), Madras

In considering the future for agricultural extension work in the Madras State as well as in India it is well to remember that in the next five years the whole country will be organised in the Community and National Extension Blocks. In the Madras State 498 such Blocks will be spread over the entire State. The impact of these Blocks on agricultural extension work has also to be considered. It is well to emphasise that so far as agricultural extension is concerned it is very necessary that in these Blocks work should be on a more and more intensified character and on a much larger scale, with increased agricultural production, as well as improvement of agricultural standards.

There are many aspects of agricultural extension work which are receiving attention in greater detail in these days. The Government of India have sent out a few teams under the Indo-American Programme to make recommendations regarding the steps to be taken for the co-ordination of agricultural research and agricultural extension. Unlike in other countries where agricultural extension is largely devoted to education of the ryots, in India the problem is to spread agricultural improvement on a mass scale among a class the bulk of whom are illiterate. The problem, therefore, is one of work in these areas so that the intensified effect on agricultural extension work is brought home to every field, as well as every villager. As the work of agricultural extension is more important, I propose to confine myself here with its essential features apart from any administrative or patterns which may be employed, since the actual work is the most important and requires the utmost attention. In considering work, it may be relevant to consider what has been achieved and what more can be achieved. In Madras State, due to a number of reasons consequent on the need for intensified production to meet the deficits, there has been expansion in many lines of activities. At present, improved strains of paddy has spread over $2\frac{1}{2}$ million acres or 44% of the area. *Sesbania* as

a green manure has spread from a practically negligible area to nearly 1·4 million acres. The consumption of ammonium sulphate has increased from 25,000 tons five years ago, to nearly 75,000 tons. Improved strains of cotton have occupied about 5.3 lakhs of acres or 63% of the total cropped area. In millets the progress has not been much. We have achieved only about eight lakhs of acres, which is less than 16% of the total millet area. In groundnut also, progress has been only about 15% or three lakhs of acres. In sugarcane the effect has been phenomenal, as 95% of the area or about 1,10,000 acres are under improved varieties.

With this background of achievement, it may be possible to plan for the future with a specific object of meeting the needs of the State as well as of the Nation. In the Second Five Year Plan, the deficit of foodgrains in the Madras State has been estimated at about 7 lakhs of tons, and it will be our endeavour in the short period of five years to completely wipe out this deficit. For this purpose, it is very necessary that the area under improved strains should be increased from 2·5 to 5·1 million acres or nearly 80% of the area. In millets where the progress has been much less it is necessary to increase the area from about 8 lakhs of acres to 2·6 million acres. The supplies of ammonium sulphate to food crops has to be increased from 60,000 tons to one lakh and fifty thousand tons and to all crops to 1,75,000 tons. In addition, as organic matter is the most important and cheapest way of adding fertility to the soil, it is necessary to increase the area under green manure, *Sesbania*, from 1·5 to 2·5 million acres. The production of oilseeds has further to increase by 1,30,000 tons in the plan period and of cotton by one lakh of bales, while sugarcane production has to be increased by ten lakhs of tons on the assumption that about eight factories proposed will come into operation.

All these require much careful planning, as well as high efficiency in the execution of work. For this purpose it is necessary that the method of extension should be so adapted and the work co-ordinated so that the largest possible result can be utilised in the smallest time. The most important items in this respect are the supply of seeds, manures, and irrigation resources by mechanical means or otherwise.

The extent to which these methods have been adopted and are to be adopted in future are indicated below:—

To cover an increased area of nearly 2½ million acres under paddy and 2 millions under millets it will be necessary at the end

of the plan period to organise distribution for over 90,000 tons of paddy and millets over 12,000 tons. Several methods of seed distribution have been evolved in the past, in multiplying seeds from the nucleus stage on to the producer. Formerly we used to supply every year 1,000 to 1,500 tons of primary seed from seed farms to be multiplied and to 6,000 or 7,000 tons of secondary seeds to be distributed to ryots. This method involved not only the handling of considerable quantity of seed, stocking and financial difficulties, but it was found that beyond a certain stage extension was comparatively slow. In order to get over the difficulty, a new plan has been introduced in the Madras State, whereby each village will have its own seed farm to cover the entire area in the next year by primary seed as every pound of seed can be multiplied about 40 to 50 times. A quantity of primary seed equal to one pound per acre of the village area is distributed in the village itself in order to cover the whole area by the next year. The multiplied seed is not procured but exchanged immediately with bulk seed from other ryots, through the Village Associations, of which there are about 16,200 established in the Madras State. During the first year of the operation, it was possible to cover about 7,000 villages for paddy and about 2,000 villages for millets under this scheme. In the coming years it is necessary that the entire State is covered with Village Seed Farm seeds, i. e. about 20,000 villages in the Second Five Year plan period. It should be the endeavour of all agricultural extension workers, both in the Community and National Extension Blocks and outside to see that every important village is covered with improved seeds of paddy and millets from the Village Seed Farm. Equally important is the application of manure. If the supply of ammonium sulphate is pushed up to 1,50,000 tons, the increased production will be about 3,00,000 tons of rice, which is quite substantial. Ammonium sulphate is comparatively costly and its application is decided by economic considerations. It is, therefore, necessary to have also a cheap manure, and particularly so as South Indian soils require organic manure in large quantities, especially paddy lands. The future expansion in this respect is to cover nearly 2½ million acres with *Sesbania* as against 1½ million acres at present. Of all green manures tried, *Sesbania* has been found to be the cheapest. As a line crop it gives upto 5,000 lb. of green leaf per acre closely planted around borders of paddy fields and it is enough to manure the field, the cost being hardly one anna per acre for seed. Besides, as a pure crop, *Sesbania* gives about

50,000 lb., enough to cover ten times the paddy area, and this is also economical. But *Sesbania* is an annual crop. It is further necessary to have a permanent arrangement for supply of organic matter in the form of green leaf. For this purpose, *Gliricidia maculata* or *Indigofera teysmanii* planted on the high borders and bunds of the field have been found very efficacious, giving two cuttings per year, enough to manure that area under paddy. The area under *Gliricidia* has expanded from a very small beginnings five years ago, to nearly 40,000 acres at present and the total area so far covered is nearly a lakh of acres. It should be our endeavour to see that by the next five years another lakh of acres is covered, so that the problem of supply of organic matter is solved and a permanent supply of green leaf is assured on a large scale. Altogether, the green-leaf programme gives about 10% to 15% extra yield in paddy and estimated to give permanent increased produc- by 1,34,000 tons of rice at comparatively very little cost to the ryot by the end of the Second Year Plan.

It is necessary in agricultural work to have some easy methods of approach to the ryots and intimate contact is required, and it is for this purpose the Department has organised Village Associations in every village. There are now about 16,200 associations so formed, in the State as against a total of 20,000 villages. The next and most important step in this connection is to make these associations work efficiently, so that they form a compact medium for the spread of agricultural improvements in each village by discussion amongst themselves and with local officers of the Agricultural Department. They should be made to work as media for communicating requirements in seeds, manures etc. required for each village and also for other improvements like introduction of new plants, implements, horticulture and other improved cultivation practices. Apart from other types of village organisations it is found that such an organisation devoted more or less exclusively to the agricultural improvements and extension in each village serves a more useful purpose rather than a generalised organisation. In the future, for extension work these organisations will be made to work in its fullest capacity. There have been discussions about the way in which the ryot is to be approached in regard to agricultural improvements. There are also differences of opinion in this connection as methods of foreign countries are also freely discussed for adoption. It is, however, well to remember in this

connection that the pattern of agricultural extension is to be developed to suit the needs of each locality, particularly in Madras State, where a large body of ryots are illiterate, and have only small holdings. It is necessary to have a direct and factual approach to the actual needs of crop. In this respect personal contact is the most important, and it is that which has to be developed to the fullest extent.

Unfortunately the area covered by each extension worker is comparatively large; roughly it worked to about 1,00,000 acres in the year 1953. From December 1954 the Department has been re-organised to have a demonstrator with a depot and complementary staff for every two firkas and adding the staff employed in the Community and National Extension Blocks, the present area to be covered by an Agricultural Demonstrator is something like 70,000 acres.

It is understood that the area is about the size of a county in Tennessee, which acts as an extension centre for that area. In Madras we have for each Demonstrator a jurisdiction more or less akin to the Tennessee University. Our methods should, therefore, be adapted to the jurisdiction of each agricultural extension worker. A new method was tried in the National Extension Block in Tanjore District where a demonstrator was employed for every firka or about 30,000 acres. The result was that it is possible to extend agricultural improvement practically throughout the area even in the first two years of working. It has been possible to extend green manures over 60% of the area, Village Associations in every village and improved strains in nearly 70% of the area; the intention being that the entire area should be covered in the course of three years. With the introduction of 498 Community and National Extension Blocks in the Second Five-Year Plan, it may be possible to have for each Demonstrator a jurisdiction of the order of 30,000 acres, with greater intensification of work. But one thing is necessary and that is the intensive programme already being carried on should be on a much more amplified scale in these Blocks. For this purpose, it is very necessary to have technical supervision of the highest order.

A further development which has been proposed in the All-India Second Five-Year Plan is the intensification of seed multiplication. It has been proposed to have in Madras about 500 seed-farm blocks of 25 acres each in areas contiguous to

Community Projects and National Extension areas. With these additional 12,500 acres exclusively devoted for multiplication of pure seed, it may be possible to have a large quantity of pure seeds which can be used for every crop to be developed for expansion in the Village Seed Farms in the whole cultivated area. This will be a great step in the improvement, as the Department will then produce the entire requirement of nucleus seed.

A further step contemplated in the Second Five-Year Plan is the introduction of plant protection centres in four places in the State where complete equipment with 400 sprayers, 400 dusters and power sprayers will be available for large-scale operations. It is possible that the Government of India will also be starting one regional plant protection centre for operations against pests and diseases for large-scale use, including aeroplanes. The present work of plant protection covers about 300,000 acres every year, in addition to a large number of fruit plants. In order to take efficient and prompt action in advance, before the pest or disease breaks out in any serious manner we are having in Madras State a weekly forecast of pests and diseases which are likely to occur or which have occurred and are likely to spread in some areas. This information is broadcast through the Radio. It is necessary that the fullest use is made of this information and plant protection measures taken in this State sufficiently in advance, so that the damage by pests and diseases is minimised to the fullest extent possible.

With a view to help the ryots with a permanent source of supply of water, and to help the existing sources of irrigation, the Agricultural Department launched the filter-point scheme. So far about 1,873 filter points have been sunk. In areas with a sandy sub-stratum. The programme is to increase this by 2,000 filter points in the year 1955–56, and another 3,000 in the Second Five-Year Plan, altogether 6,900 filter points capable of irrigating permanently about 69,000 acres would be available in Madras at the end of the Five-Year Plan period, A cheap coir filter point, costing only one-sixth of the ordinary brass filter, has also been devised and introduced. This work on filter points should be pushed through, as it forms an entirely new source of supplementing the existing water supplies and enables raising of crops even in summer, where other sources fail.

I have so far discussed the most important features of agricultural extension in the Madras State in relation to actual

requirements of work and what can be achieved. It will be very difficult to formulate or forecast what changes may occur in the pattern of the organisation for extension work or in the methods of approach, but it should be such that the requirements of ryots are individually met from field to field, aud it should be our endeavour to see that each ryot is made to know and carry out all improvements possible. Personal contact is most important in this respect. If the programme I have just indicated of Agricultural Extension work on the production and improvement side is carried out with vigour, it will be a great improvement in the future of agriculture in Madras State, whatever the pattern or set-up may be in the organisation employed.