

Some aspects of the transmission of the results of research into general farming practices

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Introduction: The ultimate aim of research in any branch of science is translation of its results into productive action. Most of the general public are interested in what is known as applied research alone and not in the fundamental work that must have preceded and been responsible for the results which are capable of direct application to specific purposes.

2. Agricultural Research cannot be spectacular: The results of agricultural research have got to be carried to a huge number of cultivators scattered over large areas and with varying economic status, and cultural development, unlike in the case of industrial research in which only a few resourceful and capable industrial magnates are primarily interested. Hence, the problem of translation of the results of agricultural research into productive action is very difficult. In many cases the benefits of the application of agricultural research are seldom spectacular and they are never immediate in the sense that they can be seen next day. For instance, by reducing seed rate in paddy and sugarcane the immediate benefit to an individual ryot is not spectacular. From about 80 lbs. of paddy seed sown in 8 or 10 cents to plant one acre, if it is reduced to 35 or 40 lbs. the saving of 40 lbs. costing at the present rate Rs. 4/- to 5/- is a mere nothing to the cultivator. But when the cumulative result of all the ryots adopting this method is visualised, the real benefit to the community in terms of the vital grain so urgently needed can be appreciated. For planting the 1,00,00,000 acres of irrigated paddy in this province about 10,00,000 acres of nurseries have to be sown. By adopting the improvement suggested, above 4,00,00,000 lbs. of paddy grain can be diverted for human consumption without merely going to waste. Similarly, in the case of sugarcane, reduction and seed rate from say 20,000 to 15,000 sets per acre results in a saving of 5,000 sets weighing about a ton. A ryot who is spending upto Rs. 1,000/- towards cost of cultivation does not feel the pinch of the extra expenditure of Rs. 40/- or 50/- towards cost of one ton of cane seed and hence may not bother to change his usual methods. But from the point of view of the province there will be a saving of 2,70,000 tons of cane (according to the latest available cane area) costing over rupees 121.5 lakhs. Thus if all the cultivators view this in such a perspective it is easy to spread this improvement and the agricultural prosperity of the country can be enhanced.

3. **More research and demonstration farms necessary:** This is a country of distances. Some of the districts in this Presidency are as big as some of the kingdoms of Europe and yet we do not have an agricultural research station for each district at least. Results achieved at a central research station cannot be applicable to distant places. For instance Co. 421 classified as a midseason maturing cane at Anakapalle was found to mature earlier in the Bobbili area. As a rule, cane varieties are earlier to mature at Gudiyattam than at Anakapalle. But the performance of the varieties in the Chodavaram area which is very near to the Sugarcane Research Station, Anakapalle, is practically similar to their behaviour on the research station. Hence the results achieved at any station can be straight away recommended for adoption only in neighbouring localities. But the research stations in this Province are few and far between and the improvements recommended by any station have to be further tested in the locality where they are sought to be introduced and in this process of testing and retesting a large amount of avoidable delay is caused. This delay is a check to the process in the popularisation of these results and increase the national prosperity, which will accrue by the adoption of these improvements. It is necessary to have at least a main research station for each district with liaison farms or demonstration farms in each important locality of the district to ensure easy and quick spread of the results of research into general farming practices. In this connection starting of farms like the Sugarcane Liaison farms is a very welcome feature. Important results achieved at the main research stations can be demonstrated here on field scale and problems of local importance tackled. If there are enterprising ryots or industrialists of the locality who are prepared to co-operate in the working the liaison farms their help may be sought for that purpose.

4. **Raising of economic status of cultivators is crux of the problem:** As mentioned in para two, the results of agricultural research have to be translated into farming practices by the cultivators who differ very widely with regard to their educational attainments and economic status. Education apart, it can be said emphatically that our ryots are more than shrewd, to understand the benefits accruing from a really good improvement. It is their economic status that mostly cripples their initiative to adopt some of the improvements suggested by the department. Nanavati and Anjaria, writing in the Indian Rural problem, held that nearly 70% of the holdings are uneconomic units in this country. Moreover, a large number of the cultivators are only tenants who have no permanent interest in the land they till. Writing about the Punjab peasantry in an article entitled 'Some thoughts on yield', Martin Leake said that the greatest handicap for the popularisation of results of agricultural research, was the low economic status of the peasants. The Punjab peasant is probably the richest man when compared to cultivators of the other provinces since he has organized irrigation and other facilities.

If he himself could not adopt all the improvements suggested by the local agricultural department, it can easily be realised that there is less scope for the Madras ryot, who is more often than not a tenant cultivator, to take up all the improvements. Leake was referring to the average yields of wheat after thirty years of agricultural research in the Punjab. In spite of evolution of several high yielding strains and their spread to some extent the provincial average yield per acre did not go up, and was on the other hand slightly less than what it was three decades back. So unless the economic condition of ryots is generally improved they will be unable to adopt the suggestions given by the department to the fullest extent.

5. **Publicity is not enough:** It is recognised on all hands that advertisement is a fine art which needs a thorough training. There is no institution in the Province which trains persons in the arts of propaganda and publicity. It is a vital necessity to start such an institution and train suitable technical personnel for popularising the results of research and translating into general farming practices. To supplement the grow more food journals which are now primarily engaged in publishing the results of research in a popular manner in the regional languages the output of leaflets and pamphlets has to be increased to a great extent. These should be on the lines of the Farmer's Bulletins published by the United States Department of Agriculture dealing in detail with some aspects of cultivation in non-technical language in the local vernaculars.

6. **Role of vested interests:** There are instances of enactment of laws to control pests and diseases such as groundnut caterpillar, sugarcane smut and wheat rust. Similarly in some extreme cases, legislative compulsion seems to be necessary to push through agricultural improvements in certain localities. For instance in the vicinity of a big sugar factory of this province simple cultural improvements which are within easy reach of the cultivator are not taken up to increase the sugar recovery percent. There is the instance of sugar factories delimiting areas under high yielding and less rich canes. Thus, when there is a clash of interests the more powerful and resourceful person is getting the better of the other and thwarting the popularisation of really good improvements of national interest. More sugar per unit area is the main aim of the department, and more cane per acre is the aim of the factory ryot, whereas more sugar per ton of cane is the aim of the sugar factories. Legislation to control the activities of interested individuals or institutions who do not care for the larger good of the country has to be passed for translating the results of research into general cultivation practices with the ultimate aim of increasing production.

7. **Starting of co-operative societies:** Improvements involving investment of large sums of money can be popularised only by providing cheap credit to the needy cultivators. It is best done by encouraging and

helping formation of co-operative societies. For instance, purchase of manures or insecticides or implements in a collective manner just in time for utilisation at the opportune moment, is possible through a co-operative society. New, anxious cultivators who wish to manure their crops early are being exploited by designing money lenders, by the imposition of exorbitant conditions attached to the loan. The ryot is in many cases forced to sell his produce at comparatively cheaper rates to the money lender himself. Instances in abundance of such cases can be seen in Chodavaram and Anakapalle area in the Vishakhapatnam district. These irregularities can be avoided and even small ryots who are unable to manure their crops due to want of finance can also be benefited by becoming members of such societies. Another type of help which the co-operative societies can render to the farmers is construction of godowns and warehouses for storing produce to be sold at an advantageous price after some time. Jaggery manufacturing ryots knew to their cost how they lost heavily this season by selling their produce in December—January at 40 to 50 rupees per candy of 500 lbs. instead of at over 100 rupees per candy in May—June. By building warehouses as per departmental advice and giving advances on produce sold, the societies not only help in the spread of agricultural improvements but also help to raise the economic status of the cultivators which is a vital necessity for the rapid spread of the results of research into the general farming practices.

Summary and conclusions: The results of agricultural research have got to be carried to wider and a heterogeneous population unlike that in the case of other types of research. Agricultural research is less spectacular and the economic status of the ryots in many cases does not permit of their taking up certain improvements in the opportune time. Hence it is more difficult to translate the results of agricultural research into practical channels than in the case of other types of research. Many more research stations have to be started in representative localities for solving problems of local importance and facilitating recommendation of the results of research in the neighbouring tract. Liaison or demonstration farms have to be set up in as many places as possible for demonstrating the useful results achieved at the main research stations and quicken the popularisation and spread of the various improvements. Just as in the case of some diseases and pests legislation has to be passed if necessary for spreading certain improvements. Formation of co-operative societies will facilitate collective purchase of useful implements, manures, and insecticides etc. and will help in the spread of certain cultural practices recommended as a result of research over a number of years.
