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Integration of Research, Education and Extension in Relation to Paddy Cultivation

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From the days of Adam, man has been striving hard to better his lot, with food figuring as the first and foremost item in his programme, as this is an essential article required for maintaining his very existence. In a broader sense, the different nations of the world have been vying with one another in improving their economy for providing better living conditions. This issue has been followed from generation to generation and to-day Agriculture stands in the economy and prosperity of a nation as a very important subject. In the formulation of India's Five Year Plan, provision for enough food for the people has figured as an item of great import. With the progressive increase in the population and rise in the standard of living of the working classes, leading to an increase in the number of people consuming rice or wheat in post war period, have imposed on the Union, the responsibility of further increased production of rice and wheat to meet the growing demands.

In Madras, where the principal food is rice, the State Government, in spite of launching in recent years a number of major and minor irrigation projects and thereby not only bringing new area under paddy but also increasing the production in the existing regions, it has not been able to raise the production to such a level as to maintain self sufficiency in rice. It has therefore, fallen to the lot of the Paddy section, in main, to tackle from all aspects, the problem in increasing rice production in the State.

The Paddy section has been carrying on intensive research with a view to step up the production of rice in the State but still the rice position is unsatisfactory not because the standard of research that is carried on is imperfect or in any way inferior to the work in other parts of the world, but because the defect lies in carrying the results of research to the farmer. It is understood that it is necessary that the extension staff who have been trained and educated in different aspects of Agriculture, should be in a position to put forth the results of research in an effective way to catch the imagination of the cultivator. In the present set up, the extension officers are doing their best but it is not always their inherent

capacity alone that makes the work easy. If the farmer is not educated enough to understand him, he would find the job extremely difficult. The Agricultural Demonstrator who takes the role of a teacher will be able to carry out his task satisfactorily only when there is adequate reaction on the part of the learner. Therefore, to carry the results of research to the cultivator, it seems necessary that not only that the Agricultural Demonstrator should be educated in the art of extension work, but the farmer should have enough education to understand him. Many a fine example of departmental activity has failed to attract the attention of the peasant, because the teacher was either too timid about calling attention to the departmental achievements or the peasant was not receptive to his call. Good farmers often lacked the technique of teaching others to do likewise. It therefore appears necessary that the farmer should be educated so that he may understand the principle underlying the methods recommended and also be able to make others understand him. This could be effectively carried out if the sons of the farmers are given Agricultural education even from the early stages in the High Schools by employing staff very well trained in Agriculture instead of pressing into service a teacher of natural science as is often seen in some of the schools. It is also desirable that the text books in all the branches of the subject are made available in the regional languages so that the principles involved could be easily understood. At present only some of the high schools in the State are teaching agriculture and as such the progress is rather slow. If only there are sufficient men on the extension side and at the same time if the farmers are also educated, with the available results of research done by the Agricuiture Department, the State would have attained self-sufficiency in respect of agricultural commodities much earlier.

The Paddy Section has to its credit outstanding achievements. It has so far evolved seventy two improved strains, 62 by pureline selection and 10 by hybridisation to suit the different parts of the state and for different soil and climatic conditions and these strains have given 10% to 30% more yield per acre than the local varieties, but they have covered only about 50% of the total area under paddy giving an additional production of at least 2·4 lakhs tons of paddy valued at Rs. 8·4 crores. If through propaganda the whole area is covered with improved strains, the additional production would have doubled. For supplying sufficient improved seeds to the farmers, 360 state seed farms are contemplated in the Second Five Year Plan to facilitate rapid spread of the strains so as to cover at least 85 per cent of the area by the end of the Second Plan period.

Of the hybrid strains, there are for *blast resistance.* Blast is a very serious disease causing less of produce ranging from 10% to 100%. In the Tanjore delta, the granary of South India, this disease is a serious menace. By replacing the susceptible varieties, these strains have covered nearly four lakhs of acres with an estimated extra produce of 0·8 lakh tons valued at nearly 2·8 crores of rupees.

Certain *Agro-commercial varieties* are preferred in the markets for their quality and fetch a premium price and these are usually long in duration. Most of the short duration varieties are not of the preferred quality. The section has produced new varieties combining short or medium duration with good quality rice and these have now become very popular with the cultivators. These have covered about 5 lakhs of acres contributing to an additional production of 0·5 lakh tons valued at about 1·75 crores of rupees.

There are *Introduced and Acclimatized* types like S. R. 26-B from Orissa and Patna varieties from Bengal and these are occupying over 20,000 acres giving high yields.

Besides these, substantial increase in production has been obtained by adopting *agronomic improvements.* Improved practices like economic planting, production and use of green manure and extended use of ammonium sulphate and super phosphate as practised in the modified Japanese method of paddy cultivation, are estimated to be followed in 50% of the area. The additional production from this may be estimated at 2·4 lakh tons valued at Rs. 8·4 crores. If these improved methods could be extended to the whole area, the additional production would be doubled.

In addition, the Section is carrying on intensive research in the evolution of drought resistant strains, short duration blast resistant strains, short duration strains with seed dormancy, high fertility strains, saline resistant strains and stains for deep water conditions.

Madras could very well hope to become a surplus State in respect of rice, if the results of the research are carried to the cultivator in an effective way. Effort is now made by the extension staff in the right direction to teach by example rather than by precept to demonstrate improvements in his own village and under village conditions. Besides demonstrating the results of research in cultivators' holdings, the farmers are induced to see the demonstration

plots and also research stations were improved methods of cultivation are demonstrated. This has been very necessary as the mere words do not appeal to the bucolic mind of the cultivator. If he is uneducated, he is often slow in grasping a point and sometimes becomes suspicious of the intentions of the officials. But there is vast improvement in the attitude of the farmers since independence and the work of the extension staff has consequently become easier.

The extension work will become much more effective and easy if the improved agriculture could be brought home to the farmer not only through magazines, bulletins, posters and circulars, but also through visual aids like motion picture films, film strips, lantern slides, flip books, flash cards etc.

Therefore, it may be said that a solution of the rice position of the State could be made possible only by the integration of research, education and extension.