

Integration of Agricultural Research, Education and Propaganda

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Introduction: This is a very important subject, for the consideration of which the present time is very opportune. The Agricultural College and Research Institute is celebrating its Golden Jubilee and the Agricultural Meteorology wing of the India Meteorological Department of the Government of India is celebrating in August, 1957 its Silver Jubilee. The All India Farmers' Forum had three conventions. The Indian Council of Agricultural Research conducted recently a seminar on Agricultural Education. So details are available in plenty for taking a final and useful decision on this very important subject of integrating agricultural research, education and propaganda, the adoption of which will certainly maintain steadily the high level of food production in India. The world population increases at the rate of 1,20,000 every day. So it is very essential that something tangible is achieved in this direction. In this paper some suggestions have been given with special reference to the role of the Meteorologists in Agriculture.

Agricultural Research: The main aim of Agricultural Research should be to maintain steadily the high level of crop production. The various means of achieving this laudable object are briefly listed below :

- (i) Evolution of improved strains of seeds.
- (ii) Improvement of agricultural implements.
- (iii) Planning of economic and useful method of manuring and cultivation of crops.
- (iv) Assessment of the barest minimum of water requirements of the major cultivated crops.
- (v) Utilisation of cheap sources of power like wind and sun.
- (vi) Formulation of suggestions for effecting reduction of loss to crops due to pests and diseases and also due to weather abnormalities.
- (vii) Production of rain to meet the dire needs of the crops.

In regard to the first three means the Crop Specialists and the Agricultural Engineers will be pronouncing their expert views in their papers on the subject. Coming to the assessment of water

requirements of crops, systematic work is yet to commence on an All-India basis. In America, for instance, much headway has been made in this direction. Experimentally the agricultural scientists in America have proved that for the irrigated corn crops, it is enough if they are irrigated during the three weeks period from tasseling to the milk stage. Similar useful findings have been drawn by workers in other countries in regard to wheat and tobacco. If useful data are collected on the critical growth phase of the major cultivated crops and the minimum number of irrigations that should be given to them during those critical growth phases, it will immensely add to the facility of the farmers to increase the area under irrigated crops with their existing slender irrigational sources.

Even today many farmers living in remotest villages are not having electric power for agricultural purposes. For them the only solution is to harness the energy from the inexhaustible sources, namely, sun and wind. As regards the tapping of solar energy for agriculture, the advancement made in countries like France and Russia, is worth noticing. Harnessing wind power for agriculture is a simpler process than the harnessing of solar energy. Very many countries like Denmark, France, Germany, Italy, Australia and Russia have succeeded in making wind power useful not only for agriculture but also for small scale industries. Very reliable and cheap windmills have been evolved in these countries. It is pleasing to note that the Planning Commission of India has provided an amount of Rupees seven crores for wind research with the intention of opening two research institutes, one in the North and one in the South. The team of the committee on Plan Projects for the study of Community Development and National Extension Blocks discussed the feasibility of harnessing wind energy for agriculture during their recent visit to Coimbatore.

Loss to crops by pests and diseases and also due to weather abnormalities like floods, droughts, cyclones, gales hurricanes etc., is to be prevented to the extent possible. Well organised research on an All-India basis is quite essential to have substantial success in this direction. The marvellous achievements made in Japan, America and Great Britain respectively in regard to paddy, wheat and potato are worth mentioning and the warning system that they have evolved are really worth copying. In Great Britain, for instance, the Meteorological Office issues the Potato Blight warning, as this disease spreads rapidly in warm moist weather. The Agricultural

Meteorology Section at Coimbatore has brought out the possibility of predicting the incidence of early blight of potato at Nanjanad from a knowledge of the prevailing temperature and rainfall conditions. It is, therefore, high time that intensive and well planned research is thought of in this connection.

So far as weather abnormalities are concerned, substantial work has been done in almost every country to have a successful system of affording protection to crops. Much progress in this direction is possible in India also in close collaboration with the Meteorological Department. A pilot scheme has been just sanctioned for the Madras State as per the recommendations of the Central Agricultural Information Committee and it is fervently hoped that the Agricultural Meteorology Section will, in the course of two or three years, be able to minimise the damage to crops in the State by the sudden and violent changes in weather. The 20 year - plan of Russia to reduce the loss to crops by hurricanes and gales by establishing effective shelter belts and wind breaks is already being considered with reference to India by the Forest Department.

Coming to the last, but the most important portion of agricultural research is the production of rain to save the withering crops, particularly in rain-fed areas. Action is being taken in this connection both at the Centre as well as in Madras State. Days may not be far off when something substantial is achieved in this line of agricultural research to the great relief of the farmers at large.

Agricultural Propaganda : Every State has got a well organised propaganda wing in its Agricultural Department. Organisation of State Seed Farms is a new approach to render timely supply of improved strains of seeds to the farmers. In modern days facilities like radios, news papers in regional languages, cinema houses, recreation clubs and what not are available in plenty to function as effective disseminating media. What is wanted is a good organisation. The Government alone cannot do much in this direction. The active co-operation of the public is essential. The suggestion in this connection is the formation of Agricultural Co-operative Societies to protect the interests of the every tiller of the soil from the village level to the State level with different graded facilities and responsibilities. The noble example set by China is enough to imbibe sufficient faith in the utility of organising such co-operative bodies for the production and marketing of agricultural commodities.

Agricultural Education : When once the main policies of agricultural research and agricultural propaganda activities of the Agricultural Departments in the various States are decided and directed to proceed on an all India basis, with slight deviations to suit the local conditions, then the question of having suitably qualified personnel comes in for a serious consideration. It is no doubt a fact that a number of agricultural graduates are being produced in India by the different Colleges of Agriculture. But a calm and dispassionate analysis of the mode of training adopted in different Colleges of Agriculture will reveal that there is yet a considerable amount of spade work to be done to bring them all to an uniform level of efficiency. This is, in fact, the object with which the Indian Council of Agricultural Research has recently conducted a seminar on agricultural education at Trivandrum. At this seminar, in which the Principals and Senior Professors of the various Colleges of Agriculture in India took part, a number of useful suggestions have emanated after prolonged and detailed discussions. The most important point stressed at this seminar is that the students should gain a first hand knowledge of the reaction of the existing agricultural research and extension activities of the Department of Agriculture on the farmers and as to how they welcome and receive them.

The suggestion, which is offered in this connection with reference to Madras State, is that the agricultural education may be advantageously formulated as follows. With the institution of pre-professional course a student has to put in four years of course in Agriculture before he qualifies himself for a degree in Agriculture. These four years may be divided into two periods of two years each, with an University Examination at the end of each year. In the first period of two years the trainees should be taught the basic principles of agriculture and all allied subjects. Based on the 'Rating scale' card, as in U. S. A. and approved by the Seminar at Trivandrum, the natural aptitude of the student should be decided as to whether he is suited more for research or for propaganda work. In the second period of two years he is to be given intensive training either in research or propaganda as the case may be. The training in the fourth and final year should be highly practical in nature, if not entirely practical, so that he may fit in efficiently in service after graduation. The chances for promotion in service in both these wings, namely, research and propaganda, should be practically of the same nature.

Means of Integration : Having dealt with in a brief manner the frame work of ideal research and propaganda organisation and also the manner of producing eminently qualified personnel for the department, the question of integration comes in. Organisation of Regional Councils with officials of both research and propaganda branches of the department and a few non officials, who are practical farmers, is a suggestion made in this connection. Each Regional Council should not comprise more than three or four districts. There should be a similar council for the State as a whole, in which there should be at least two non-official representatives from each Regional Council. Functioning of any council either solely for research or for extension should not be encouraged. There should be an integration of research and propaganda at every stage of the activity of the department. When the Research Officers actively collaborate with the officers of the propaganda side, who, in turn, are aware of the immediate and real needs of the farmers, then shaping of research to meet the farmers' demands will be easy. Equally easy it will be to evolve suitable graduates in agriculture.

Conclusion : When the above suggestions are implemented it should be possible, as stated in the introductory portion, to bring every inch of the available land under cultivation and also to maintain the high level of crop production. Further the loss to crops due to weather abnormalities and pests and diseases may also be reduced considerably.