EXTENSION STRATEGY AND THE METHODOLOGIES ADOPTED IN POPULARISATION OF COCONUT BASED FARM MODELS IN INDIA

By

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The first line transfer of technology for accelerating agricultural production in India are being implemented through the Agricultural Research Institutes (ICAR), Agricultural Universities, State Department of Agriculture or Horticulture and also some of the voluntary organizations involved in agriculture and rural development. The Research Institutes have their own set up for transfer of technologyg., The Agricultural Scientists and Extension Persons of these Institutions are required to play first line extension role through organising demonstration, training etc. on a limited scale.

The extension programmes are designed to (i) organising first line demonstration by Scientists to show maximum production/potentiality of the crops through the latest agricultural technologies developed at the Institute (ii) organisation of extension programme to selected areas specially around the Institute (iii) free testing technologies in the field codition (iv) serving the farming community by helping them to increase their production and productivity.

The transfer of technology at the national level is being implementaed through (i) the National Demonstration Project (ii) Operational Research Projects (iii) Krishi Vigyan Kendras and (iv) Lab to Land Programme.

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1. National Demonstration Project

The concept of the National Demonstration Project is to test the known technology under uniform design and pattern. It differs from routine demonstration in the following aspects

(1) there is a specific yield traget and there is no separate control near the demonstration (2) the area of the demonstration is about one hectare so that the feasibility of raising the crops can be demonstrated convincingly (3) the farmers in whose plot the demonstrations are laid out are actual cultivators and specifically small holdings (4) the agricultural scientists conduct the demonstration directly with the help of local framers.

2. Operational Research Project

ORP is primarily devoted to demonstrating impact of new technologies on a large scale involving whole village or clusters of villages at a time. The basic concept is the need for inter-institutional and inter-disciplinary approach. The thrust is on influencing the farm families with the yearly income of less than Rs. 1,000/-. The ORP has two kinds of problems. One is the common agricultural problems affecting the farming community requiring group or community action. The second is total resource development of the water-shed area. The specific objectives of ORP are (i) to test, adopt and demonstrate the new agricultural technology on farmers' field in a whole village for water shed areas (ii) to determine the feasibility of the new technologies and their pace of spread among the farmers (iii) to identify the constraints, both technological as well as socio-economic barriers and (iv) to demonstrate group action as a method of popularising the modern technologies.

3. Krishi Vigyan Kendra

The Indian Council of Agricultural Research

established Krishi Vigyan Kendras (Farm Science and Technology) as innovative institutions for imparting vocational training to the farmers and field level extension workers. The KVK concept does not intend to impart training to progressive degree and diploma holders. The basic concept is to impart need based and skill oriented training to the practicing farmers and in-service field level extension workers. The Kendra will impart learning through work experience. There will be no syllabus for the Kendra and programme of each Kendra will be delivered according to the field needs and natural resource available.

4. Lab to Land Programme

The Lab to Land Programme was launched by the Indian Council of Agricultural Research in 1979 as part of the celebration of the 50th year of the establishment of ICAR. The objective was to adopt the small and marginal farmers and landless agricultural labourers and to educate then about the latest agricultural technology and thereby improve their economic and social status. Under the programme small and marginal families and landless agricultural labourers with priority to the weaker sections of the society were selected. The programme aimed to assisting these selected farmer families in developing and implementing individual farming for improving the entire farming system and thereby generating more employment and income.

Among the four systems of transfer of technology under the Indian Council of Agricultural Research described above, only the Operational Research Programme and Lab to Land Programme have been utilised as means for popularisation of coconut based farming in India.

The Operational Research Project for integrated land use in general and specifically for coconut based farming system was initiated in mid 70s and continued for 10 years in two areas in Kerala.

The Kerala Agriculture Department and other Institutions and Organizations involved in rural development co-operated with CPCRI in implementing the programme. An impact study taken up in 1982-83 revealed that the villagers had taken up proper management practices in coconut based farming system and animal husbandry. The fertilizer consumption in the area had increased by about 200 percent during the period. The total number of coconut palm per house-hold and the numbers of bearing palm per house-hold have increased. Ninety seven percent of the cultivators use organic manures for coconut. The use of inorganic manuers is only 29% in the case of coconut. While only 20.2% of coconut farmers were practicing inter-cropping in 1974, the percentage increased to 26.1 by 1983.

The Lab to Land Programme was strated in June, 1979 and continued in different places with a view to transferring low cost agricultural and allied technology specifically pertaining to coconut farming system to small and marginal farmers and agricultural labourers. The farmers were provided with agricultural inputs such as superior planting material, fertilizer, pesticides, agricultural implements, fish fingerline etc. of cost not exceeding Rs. 500/- each.

Scientific cultivation of coconut based crops through inter and mixed crops like tapioca, banana, pineapple, cocoa etc. was demonstrated convincingly.

The increase in yield of coconut ranged from 53% to 148% over the control. Additional income ranging from Rs. 7,175/- to Rs. 13,125/- per ha was achieved. Even in the root(wilt) disease affected garden, increased income was Rs. 5,250/- per ha.

Research-cum-demonstration plots maintained in the farmers' field to demonstrate the advantages of coconut based farming systems showed an increase of 41.4% and 17.3% yield of coconut under mixed farming and coconut based farming system, respectively over control. The net income from mixed farming system consisting if coconut, pepper, pineapple and banana was Rs. 11,356/- per ha during 1989.

Other Extension Agencies involved in extension work pertaining to coconut and coconut based farming system besides the Institute under the Indian Council of Agricultural Research, are the Coconut Development Board, the Directorate of Extension at national level and agricultural/horticultural departments in the State level. Publication of extension literature by the research Institutes and State Agricultural Universities and the training programmes organised are the linkage between research and extension systems. Though there exists a certain level of information flow between the research and extension system at the lower level functionaries, this does not happen at the Policy Makers level, mainly because compartmentalisation of organisation. Because of the weak linkage among the research, extension, technology utilization and support system, a wide yield gap exists with respect to the national average yield (5,249 nuts/ha) and in the better managed coconut garden (23,100 nuts/ha).

Conclusion

Coconut based farming system has been in existence in coastal Kerala and Karnataka for many decades. CPCRI through demonstration plots has shown that it is possible to raise net income from unit area through coconut based mixed and inter-cropping. In areas were land under coconut cultivation is already sown with other crops, the realization of maximum potential yields would depand on createing optional conditions such as spacing and increased use of fertilizers. Adoption of improved farming technique with respect to coconut based farming for raising the productivity of land and thereby income depands not only on land improvement but also reducing the density of population with the compatible cropping combination.

In India, most of the coconut based cropping system models have been tested only in research Institutes, but the emphasis should be given to the on-farm testing of newly developed models to resolve the location specific requirements of the complex systems. Because the choice and the arrangement of the species

are influenced by the factors such as the farmers' requirement, age and spacing of the palms, availability of the irrigation fecilities and local conditions for processing and marketing.

The major challenge to technology transfer on coconut cropping system come from the existing traditional homestead gardens of Kerala where the mixed system is rather a common practice. Coconut gardens are already overcrowded with an average palm density of 229/ha. Added to this, high canopy species such as mango, jack and breadfruit are planted in between, besides low canopy crops like cassava, cocoa and seasonal vegetables. There are reduced light intensity on lower storey crops while higher storey crops suffer from an increased competition for moisture and nutrients.

In order to layout the demonstration trial, the homestead gardens need to be totally reorganized. All the incompatible high canopy species have to be removed and coconut density is to be brought to the optimum level of 175/ha, before planting the compatible species. But the farmers generally show resistance to remove even the senile, diseased and unproductive palms from their gardens. The extension agencies have to make serious efforts to motivate the farmers towards the necessity of reorganizing the home-stead gardens.

Besides these, the Government and financial agencies should provide incentive packages in the form of subsidies, free supply of quality planting materials etc. for promoting the coconut based cropping systems.

In KVKs, TTCs and farmers training centres, there should be training programmes on " Technology on coconut based cropping system " so that the farmers and extension staff can be equipped with technical know-how and do-how. The State Government Agricultural Department and Coconut Development Board should layout large number of demonstration plots on proven technologies to popularise them in different regions. Those demonstration plots will provide diffusion effect as well as the feed-back to research Institutions by which second generation experiments can be planned to find out the possible answers to the limiting factors.