Farmer Producer Organizations- Pathway to productivity improvement

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Community based Farmer Producer Organisations (FPO's) are a demonstrated pathway to successfully deal with a range of challenges that confront coconut farmers today especially small producers. Many a times, the income generated from coconut farming in small and marginal holdings does not provide enough for meeting the requirements of such families. Technology options for enhancing income from coconut farming in such poor rural communities do exist, but not fully realized in field situation. The fragmented holdings do not render themselves viable for the optimum utilization of resources and the adoption of improved technologies by the cultivators. To augment the production and productivity of such small and marginal holdings it was suggested to have group management of resources which help to overcome the inherent weaknesses of the fragmented holdings.Overcoming the constraints imposed by the small size of their individual holdings, the FPO members are able to supplement collective strength in implementing coconut productivity improvement programmes. It also helps to leverage bargaining power to access financial and non-financial inputs and services and appropriate technologies, reduce transaction cost, tap high value markets and enter in to partnership with private entities on terms that are more equitable.

The concept of organizing coconut farmers into Community Based Farmer Producer Organizations (FPOs) for sustainable income enhancement with efficient management of farmers' resources to reduce cost of cultivation and to increase productivity through integration of technologies even in very small farm holdings have been demonstrated by CPCRI in selected localities in 2001-02. The cluster approach was scaled-up by CDB among coconut farming communities through their development schemes. Farmer participatory community based FPOs served as ideal vehicle for carrying out the interventions in enhancing productivity. Significant impact could be made in all the indicators of socio-economic and food security/nutrition status due to the project interventions through collective efforts. Farmer participatory demonstration conducted by CPCRI shows that the income from coconut increased by 50 per cent and the area of intercrops doubled. The average yield of coconut has also doubled after technology package implementation for three years. Group approach can also successfully employed for the implementation programs for livelihood improvement of rural women through micro entrepreneurship in bio resource management and in coconut based homestead farming system. The cluster approach is being further strengthened by CDB among the farming community as three tier system, Coconut Producers Societies at bottom level, Coconut Producers Federation at middle level and

Producer Companies at top level. Some of the areas where farmer producers organization act as a path way for enhancing productivity of coconut are described below.

Farmer participatory Community based Coconut nursery

Use of poor quality planting materials is one of the reasons for low productivity. Although tall variety palms are presently used for harvesting tender nuts, short variety palms are more suitable for the purpose because of early bearing trait and easiness in harvesting. For ensuring regular availability of tender coconut in the domestic market planting of dwarf variety palms in new locations as well as in the existing gardens where space is not a constraint should be encouraged. It is also important to establish nurseries for producing planting material of dwarf cultivars. With a view to promote community activity in the production of disease tolerant planting material in severely disease affected areas, a decentralized community based coconut nursery programme needs to be strengthened at grass root level to make available disease resistant planting material to the farmers in their vicinity. The programme facilitates production of disease resistant seedlings from seed nuts procured from elite disease free mother palms in disease-prone areas.

In most of the coconut growing states, departmental nurseries are not producing enough seedlings to meet the local demand of quality planting material. As a result, the farmers have to depend on private nurseries for their requirement. The private nurseries, in general, do not maintain quality standards and are not certified by the competent agency. To satisfy this requirement, large number of decentralized nurseries are to be set up at different village levels by adhering to the recognized quality standards by farmer collectives. Decentralized community based model coconut nurseries for production of location specific varieties of coconut seedlings at Panchayat levels under the aegis of farmers group could be promoted with technical and financial assistance. The involvement of the private sector in the production of planting material has helped to reduce the gap between the local demand and supply. However, there is a need to introduce adoption of quality system by nurseries to ensure that spurious or inferior quality planting material is not supplied to the farming community. In order to ensure the quality of planting material produced and supplied by these nurseries a system of accreditation should be introduced under which standards are to be stipulated for seed nut collection, nursery management and distribution of planting material. For the purpose of accreditation, the Accreditation Agency shall take into account such infrastructure facilities like well-drained land, irrigation facilities, and the number of trained / qualified personnel to manage the nursery, etc. They have to make periodical visits to the site, set quality standards for each stages of operation and monitor the functioning of the nurseries closely and systematically. The criteria adopted by the nursery for the selection of seed nuts and the selection and source of the mother plants will be monitored. Those nurseries that adhere to the prescribed standards should be recognized as accredited as farmer participatory model nurseries with performance ratings as done by NHB under the quality certification of horticulture nurseries.

Productivity improvement through integrated nutrient management

Productivity in coconut is influenced by a variety of factors. Adoption of integrated nutrient management is the best method to increase productivity of coconut palms. The application of fertilizer to coconut has declined consistently over the years due to high cost of fertilizer and scarcity of labour. Purchase and application of fertilizer on commodity basis based on soil test result would help to reduce the cost of fertilizer and its application. Due to high labour cost involved, frequency of application may be reduced to once in a year ie, during the tail end of the high rain. However, proper nutrient management is the key for the sustained productivity. The balanced nutrient management with emphasis on organics, basin management with green manure crops on scientific lines is necessary not only for enhancing the productivity but also to prevent the recurrence of pest and disease. The response of coconut palm to different management practices has proved that the yield of coconut palms could be doubled when compared to neglected garden. Regular manuring right from the first year of planting is essential for good vegetative growth, early flowering and high yields. Integrated management practices involving application of fertilizer @ 500gm Nitrogen, 320gm Phosphorus and 1200gm Potash,

besides adequate quantity of bulky organic manure at 50 Kg per palm is generally recommended. This not only provides some of the micronutrients needed by the palms but also improves the soil physical conditions including water-holding capacity.

There is a growing awareness among farmers about importance of application of organic manures in coconut farming. However, lack of availability of quality organic manure is a major difficulty experienced by farmers. Adoption of composting of organic wastes available on community basis in the farm by farmer groups would be a potential way to overcome this difficulty. Continuous coconut cropping without recycling the plant biomass results in depletion of soil nutrients and drop of top soil organic matter in traditional coconut growing states. In such soils, the application of organic matter is very important to enhance productivity. First of all organic recycling, application of organic nutrients and inorganic fertilizers should be judiciously incorporated in coconut gardens to improve the soil health for enhancing the productivity.

Production of vermi compost/ coir pith compost coconut leaves is a waste material now available in plenty in coconut gardens can be converted in to high quality compost by certain earthworm. Technology has been standardized at Central Plantation Crops Research Institute (CPCRI) for the production of vermicompost as quality organic manure using coconut leaves. The earthworm, *Eudrilus* spp that is suitable for speedy compost making even hardy material like coconut leaves are available to farmers and large number of farmers in various parts of the country has started vermicompost production using on farm wastes including coconut leaves.

Technologies are available for bioconversion of coir pith a waste material in coir industry having a high C:N ratio to acceptable organic manure with the help of biopolymer degrading micro-organisms.*Pleurotus sajor caju* and *Trichoderma* inoculations are effective in production of quality compost from coir pith. Large scale composting of coir pith has been standardized with amendment of lime and rock phosphate at 0.5 per cent level each and Glyricidia leaves (10per cent) and fungal inoculation at 0.2 per cent level. The raw coir pith with a C:N ratio of 100:1 is converted to acceptable manure with a C:N ratio of 17:1 within a period of 40-45 days. Production and distribution of these high quality organic manure on group action basis would help to increase productivity by improving the soil health and also get additional income to the farmers. Community based farmer collectives can also promote self help groups for the large scale production of bio fertilizers, (Azosprillum & Phosphobacteria).

Promotion of adoption of cultural practices

Cultural practices such as crown cleaning, taking yearly basins, cutting and removal of senile and unproductive palms and soil and moisture conservation have been abandoned now by farmers due to high labour cost. Non-adoption of regular crown cleaning is one of the reasons for high incidence of pest and diseases now prevalent in traditional coconut growing states. Removal of senile unproductive palms is another most important neglected practice. The economic life of the tree is 60 years. The yield begins to decline thereafter and touches as low as less than 10 nuts per annum. Maintaining coconut palms yielding less than 10 nuts is not economical and they need to be replanted. In all the traditional coconut growing states, a sizeable percentage of the palm population is senile and unproductive. This is one of the major factors for the continuing stagnation or decline in productivity of coconut in the country despite the adoption of various productivity-oriented measures. Besides, large number of palms remaining in the root (wilt) disease advanced stage in the southern districts of Kerala that yield less than 10 nuts need removal and replanting. A centrally sponsored scheme for rejuvenation and replanting coconut gardens has been implemented by CDB for promoting massive removal of such palms and replanting. Community mode farmer participatory implementation of the programme, on a contiguous area on group action basis helped largely to massive removal of disease advanced senile and unproductive palms. Financial assistance is extended to the farmers under the scheme after cutting and removal of palms only. Small holders are financially weak, since they own and manage only small piece of land, they are not in a position to meet the cutting charges in advance if the number of palms to remove are more. Hence, they are constrained to remove all the palms identified for removal. The community approach helps the farmers to remove all the palms with a reasonable cost. In some areas,

farmers could remove the palms without spending any money and they got some revenue from the sale of the wood after deducting the cutting charges from the cost wood while under taking this activity on community basis.

Integrated Management of Pest and diseases

One of the factors affecting the productivity of coconut is the prevalence of pest and disease in coconut. Farmers are unaware of the symptoms of pest and diseases and its management practices. Further control measures are not taken at the appropriate time for want of trained personnel for the treatment. Besides being, a perennial crop coconut is more susceptible to attack of several pests all round the year. These pest and diseases are capable of causing considerable damage to the palm resulting in reduced yield. Even though several pests and diseases exist, in coconut, only few are causing serious problems and technologies are available to control the attack effectively. The adoption of pest management approaches need a community approach to bring down the population growth of disease causing pathogens and pests of coconut. Since coconut holdings are contiguous in traditional states and the pest and diseases are migrating from holding to holding, adopting management strategies on a community basis through farmer collectives on area basis is required for suppressing the pest and disease problems. They can undertake normal prophylactic control measures against common pest and diseases affecting the coconut gardens like bud rot, leaf rot based on a calendar of operation prepared in advance on a community basis with the technical and financial support of research and development organizations. Large-scale production of bio control agents (Trichoderma & Pseudomonas, Goniozus nephatidis, Elasmus nephatidis, Brachon hebator, Brachymeria nosatoi), other parasitoids, Insects/ disease management aids (Verticillium, Metarhizium, Beveraia Bassiana) also can be taken up by the farmer groups on community basis for the biological management of pests and diseases.

Production of vermit compost

The few observations that mentioned here are some of the challenges that Farmer Producer Organizations (FPOs) can mitigate successfully through collective strength which will help to enhance coconut productivity. Involvement of participatory farmers in group action basis is essential to face the challenges in coconut farming. FPOs are being formed by Coconut Development Board under three tire system in major coconut producing states with detailed policy and process guidelines. However, strengthening and funding viability of these organizations is essential to diversify their activities. Recognizing the need for strengthening funding viability, the honorable Union Finance Minister in his budget speech 2013-14 announced two major initiatives to strengthen the FPOs. The Government of India will provide a matching equity grant upto Rs. 10 lakhs to double the share capital of FPOs and the credit guarantee fund with a corpus of Rs.100 crores will be created in SFAC to provide cover to finance institutions. The Department of Agriculture and Co-operation also direct the state government to promote FPOs during 12th plan by deploying fund from the Rashtriya Vikas Yojana (RKVY) scheme. These measures are expected to further strengthen the prospects and viability of FPOs. The community-based efforts through these organizations suggested above will help to reduce the cost of production and boost the productivity of coconut gardens. ■