

Value addition

Making small farms smarter

Anithakumari P

Value addition can be achieved through simple practices. Cooperation, coordination, convergence, inclusiveness of communities and handholding by a premier research institute resulted in successful social innovation in Pathiyoor Panchayat region in Kerala.

Sesamum revived after many years of discontinuation



Family farms produce 80 percent of world's food from 70.80 percent of farm land. By 2050 food grain production needs to grow 330 MT per year. The small family farms are ecological and play a big role in promoting food security and nutritional support.

In the state of Kerala, the average land holding size is only 0.2ha. Mostly, they are coconut based homesteads. The biggest challenge faced by small farmers is making them profitable. Thus, the focus of Farmer FIRST Programme (FFP) in Pathiyoor panchayath promoted since 2016 by Indian Council of Agricultural Research - Central Plantation Crops Research Institute, Kayamkulam was on integrating technologies for improving farm livelihoods and incomes. This was to be done through participatory interventions in crop, horticulture, livestock, natural resource management, value addition and IFS among 1000 farm families.

A brief timeline of the interventions included Rapid rural analysis followed by Participatory Rural Analysis (PRA), formal pre project survey among 750 sample respondents, Focus Group Discussion (FGD) in all the 19 wards involving ward representatives and stakeholders, for prioritizing problems, delineating solutions and farmer's aspiration and program objectives were completed in 2016. Strategies were designed to address the following challenges: Small size of farm/coconut plots; the rapidly changing social and economic challenges of farming including non viable scale of production. Also, the other factors and challenges recognized included: poor extension outreach to small farmers, especially women, farmer's limited resources and incomes. One of the useful strategies identified was, value addition. However, it was essential to define, refine, design, develop and humanize the 'value addition extension strategies' suitable for small and marginal farmers of the panchayath.

The post harvest as well as processing arrangements enabled women farmers as economic contributors to society and families.

Mrs. Radhakumari, Chairperson, Community Development Society (CDS), ward-1 is a proud participant and evolved as a leader in group farming. "We all are very much motivated and highly confident as farmers through Farmer FIRST Programme (FFP) interventions. The success of sesamum cultivation in the last 5 years continuously lead us to revive paddy cultivation also before sesamum after first year onwards. We as a group were rated as one of the best farmers achieving highest productivity of 500 kg/ ha among the 68 women groups of 19 wards of the FFP panchayath. We also attained expertise in organic farming of tubers, pulses, spices, vegetables, millet and fodder crops. We earn an average of Rs. 10,000 – 12,000 per women in the crop season, as additional return besides MGNREGS wages. The fresh products contributed to the diet of our own family, besides the marketable surplus. This ensured support from family members including our children who happily became part of farming activities, especially in the Covid period. The real addition in our lives is recognition as farmers, earners and practitioners irrespective of our age'

In the situational study and analysis the farming communities, the people's representatives (ward members and panchayath local bodies), the coconut farmer producers' societies, SHGs of women farmers, MGNREGS laborers, livestock and poultry farmers and rural youth were involved. The analysis reiterated that the multidimensional aspect of small farmers production systems was not being adequately addressed. Possible interventions were designed which included productivity improvements through better varieties and preferred cropping systems, adoption of better agricultural practices, revival of farm ponds, better processing and marketing efforts. The following were identified as critical bottlenecks - lack of value addition, planned marketing efforts, high costs of labour and input, fragmented marginal holdings, shrinking of homesteads to home plots.

Initially, the household level farm planning was facilitated to enable farmers to draw/map draw/map their homestead plots indicating the present scenario, crops, integrated farming components, water bodies, land, soil type, investments being made and profit/loss being currently realized. The following aspects were documented: the crop yields with special reference to coconut, the levels of recycling resources, the access to advisory services, the support schemes being availed

from local bodies, the constraints for as well as visioning for value addition.

Convergence and consolidation

The number of households to be reached out per hectare was 4 to 10, hence technology dissemination and adoption demanded strong and purposeful linkages and convergence of social institutions. The local self government extended support, involvement and local leadership in mobilizing society in all the 19 wards by the ward members. There was convergence with MGNREGS towards food security interventions. Dr. Madhuri, Veterinary surgeon of veterinary clinic under the panchayath offered field level project expertise in designing interventions in poultry and livestock. The cooperation with local self government steered the action research towards planned and focused interventions, avoided duplication, and offered triangulation of social and technological experimentation and innovations for faster awareness and result based large scale adoption among the small and marginal farmers. High visibility of women farmers as MGNREGS labourers as well as farmers could be established through women leadership as ward members, CDS /ADS of kudumbasree and as joint liability group (JLG) leaders.

In conclusion, consolidation of labour, time, land and knowledge was a *value addition* innovation in FFP, especially for women farmers with meager access to land for cultivation. With average holding size of women farmers being only 10-15 cents (0.04-0.06 ha), organizing them for cluster/group cultivation was necessary. This helped in achieving marketable surpluses, better bargaining power and higher visibility for women farmers. This was achieved through mutually agreed and consensual land consolidation in public places (temple premises, government office etc) as well as individual farmers plots to obtain a contiguous area of cultivation with a minimum of one to 2 acres. Thus, it was a value addition to 250 ha fallow lands being made to be productive.

Choice of Sesamum as niche crop and value addition

The programme begun by facilitating participatory introduction and experimentation with water saving, nutrient rich climate resilient crops like finger millet, pulses, maize, sunflower and ground nut in the

Mr. C. K. Unnithan, President, Coconut Producers Society, Ward 16 of Pathiyoor panchayath opined that 'expert based choice of appropriate tools and machinery is as important as advisory services in today's agriculture for small and marginal farmers communities to tide over labour shortage and low productivity. Increasing productivity smartly requires value added services through mechanization, ICT and knowledge based innovations'

panchayath. Involving 248 women SHGs 16 varieties of the crops were put under participatory experimentation and evaluation in 19 wards. Following this, the evaluation was done as a social process involving the participating farmers, general public and researchers of Indian Council of Agricultural Research - Central Plantation Crops Research Institute and linked agencies/institutions. Sunflower was evaluated as not suitable and discontinued.

Sesamum and finger millet emerged as the most accepted crops in terms of low resource need, nutritional produce, high demand, very low incidence of pests and diseases. Also, the 250 ha area wide cultivation helped in adding soil nutrients and crop residues to enable carbon sequestration.

Sesamum is a traditional crop of this 'Onattukara soil tract' which is predominantly sandy loam. It is traditionally cultivated in paddy fields as second crop after paddy. The pre - project survey showed that sesamum (which will be declared as GI crop shortly) and paddy were the most discontinued crops in the panchayath. Thus, revival and rejuvenation of sesamum was the most successful value addition intervention as part of 'value addition extension strategy' (VAES). The participatory evaluation of high yielding varieties released by KAU for the specific tract (Kayamkulam-1, Thilak, Thilathara, Thilarani and Thilothama) was the first year intervention in 2016. Initially beginning with 2.04 acres in 2016, the coverage was improved to 188 acres in the consecutive years by women groups. Kayamkulam-1 & Thilak were preferred based on evaluation by 68 groups in 19 locations. The evaluation brought out that Kayamkulam -1 had oil content up to 46 - 48 percent and Thilak with 38 percent and other varieties had lower oil content. Both these varieties also exhibited tolerance and low incidence of phyllody disease which causes crop loss. Thus, women groups built their own capacities to choose crop varieties

which are suitable to their needs and local situation.

Five to 8 MT of indigenous sesame per annum is being produced as a 'niche product'. It is in demand fetching Rs.250-300/kg. The sesame is sold fresh after cleaning and packing in the panchayath as well as neighbouring panchayaths. Locally branded sesame oil 'pathiyoor karshaka ellenna' meaning 'pathiyoor farmers' sesame oil' is being sold at Rs.900-1000 per litre.



Maize harvest

The oil pressing facility set up under the programme for a young entrepreneur, paved way for procuring sesame in an institutional arrangement. Women farmers have emerged as local experts in sesame cultivation. The post harvest as well as processing arrangements enabled women farmers as economic contributors to society and families. A solid value addition indeed! besides enabling purposeful and effective farmer to farmer knowledge dissemination.

The women farmers were guided to maintain 'Farming diary' to record data, growth stages, period pests/diseases, yield, problems faced. The whatsapp groups enabled wider sharing of experiences, suggesting solutions to problems by scientists and fellow farmers, showcasing their achievements through pictures, videos, messages and podcasts. The pulsating dynamics of the entire value addition process was empathetically brought out by themselves. Using simple ICT tools enabled them to manage their time better, increasing spread of technologies, minimizing crop losses besides empowering them, mutually.

Coconut and other produce – Value addition

Rural life is simple in terms of daily life, behaviour, attire, social relationships, ecological friendliness etc. Simplicity is easily understood in terms of simple innovations resulting from generational experiential learning of communities.

One of the notable achievement is the formation and active ground work of Farmer Producer Company

among farmers, since 2019. Procurement of fresh farm products from farmers generated much enthusiasm which included copra, turmeric and tubers. Some of the challenges faced and the way they were addressed by the FFP NABARD Odanad Farmer Producer Company Ltd's is highlighted below.

Value addition was initiated after increasing the production of coconut, sesamum, and turmeric to marketable surplus level. Value addition can be as simple as harvesting at right time. In case of coconut, for effective marketing, harvesting should be done in the seventh month of the nut. The company could not ensure uniformity and quality drying of copra to be procured. The Farmer First programme intervened through introduction of Copra Moisture Meter at a cost of Rs. 3500-4000 per piece. The procurement process was finalised by ensuring 6 percent moisture level for the quality copra. They could ensure the moisture content by taking a sample of copra cups, inserting the knob and recording the reading.

Later, coconut oil units, two Virgin Coconut Oil (VCO) and coconut based food product units and one turmeric boiler, dryer and powdering unit were established in the FFP. The scale of coconut is around 25000 nuts at present. In turmeric, processing of turmeric powder involved 3 tons of fresh turmeric. The sesamum marketing and sesamum oil marketing has been done to the tune of Rs. 15-20 lakhs per year.



Women groups built their own capacities to choose crop varieties which are suitable to their needs and local situation

In 2020, FPO focused on Pathiyoor Farmers brand. The products being marketed under the brand name are: Virgin Coconut oil (VCO), turmeric to turmeric powder, sesamum to sesamum oil, cowdung to shade dried cow dung and vermicompost from farm organic residues, Ghee and butter from desi cows. A rural 'agrimart' was opened for procuring and selling of these products, planting materials, cowdung, other bio inputs, vermicompost etc., under the FPO. The FPO could initiate small support during Covid pandemic in procuring farm produce on call and door delivery on demand.

The major lessons learnt have been that value addition is achievable through simple practices, through cooperation, coordination and convergence and inclusiveness of communities and how a premier research institute can promote social innovation. The major challenges confronted in this period are: acute shortage of skilled coconut climbers, mobility

restrictions during covid situations, climate change induced untimely heavy rains: socio economic changes leading to rapid conversion of paddy lands to housing areas resulting in drainage problems and fragmentation. However, farming interventions remained as the silver lining during covid period with active farming, active and continued interactions through mobiles and income generation.

Anithakumari P

Principal Scientist (Agrl.Extn.)

ICAR Central Plantation Crops Research Institute (CPCRI)

Kayamkulam, Kerala 690 533

E-mail: anithacperi@gmail.com