

Original Research Article

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Sustainable Food Processing Activities for Food and Livelihood Security among Rural Women in Dharwad District of Karnataka

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ABSTRACT

In rural India, the percentage of women who depend on agriculture for their livelihood is as high as 84%. Apart from participation in actual cultivation; women participate in various forms of processing and marketing of agricultural produce. Women accounted for 93% of total employment in dairy production. To begin with training programmes were started to self-help groups (SHG) on labour saving equipment, processing, value addition and storage of grains followed by model processing units establishment in rural areas. Workshops and melas were also conducted for empowerment of women in SHGs. Realizing the various benefits of forming SHG the women of Harobelavadi formed a “Sri. Veerabhadreshwara Raita Mahileyara Swa Sahaya Sangha” comprising of 10 likeminded farm women in the group which started Roti making as an income generating activity. The income per woman gradually increased from Rs 3600/ month in 2011 to Rs. 13, 333/month during 2015. Vermicelli production activity was taken up by Shri Padmavati SHG, Garag. The Vermicelli activity was carried out in the months of January to May. Total quantity of vermicelli produced during the first year was 75 kg with a profit of Rs. 82, 000 and at the end of the year 2015 production was around 130 kg and the total net income generated was Rs. 1, 30, 000/- in a span of 4 months. The Bhagalaxmi Home Products group underwent the training of millet products and started the preparation of the products and participating in the exhibitions. Different products viz., Foxtail millet and Finger millet products like murukku, Laddu, Nippattu, Bajara Nippattu and Roti etc., were prepared and sold. In a span of five years the production raised to 450 kg by the group and the net income realized was Rs.29, 250/-in 2015 as an additional income from IGA.

Keywords

Self help groups, Millet's vermicelli, Economics, Roti making

Article Info

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Introduction

In rural India, the percentage of women who depend on agriculture for their livelihood is as high as 84%. Women make up about 33% of

cultivators and about 47% percent of agricultural laborers. These statistics do not account for work in livestock, fisheries and various other ancillary forms of food production in the country (Rao and Krishna,

2006). In 2009, 94% of the female agricultural labor force in crop cultivation were in cereal production, while 1.4% worked in vegetable production, and 3.72% were engaged in fruits, nuts, beverages, and spice crops (Singh and Sengupta, 2009). Women's participation rate in the agricultural sectors is about 47% in tea plantations, 46.84% in cotton cultivation, 45.43% growing oil seeds and 39.13% in vegetable production. (Boell foundation, 2009)

In some of the farm activities like processing and storage, women predominate so strongly that men workers are numerically insignificant. About 60 percent of agricultural operations like sowing of seeds, transportation of sapling, winnowing, storage of grain etc are handled exclusively by women, while in other jobs they share the work with women. Apart from participation in actual cultivation, women participate in various forms of processing and marketing of agricultural produce. Women accounted for 93% of total employment in dairy production. (Aggarwal 2003).

However, women are also interested to take up food processing activities to earn additional income to meet their needs. Food processing activities like cleaned grains, dehusked millet rice, millet products, flour, papads, composite flour, millet vermicelli etc. have high returns and around 30 to 40 per cent net income can be received.

Materials and Methods

In the adopted villages the needs, requirements, potentials and constraints faced by women in agriculture were identified by PRA techniques like focus group discussions. Lack of labour for agriculture activities like weeding, transplanting, harvesting, stripping and decortication of groundnut, exposure to dust & husk during threshing were some of the

problems faced by women. The transfer of technology through Front line demonstrations, OFT and Training programmes and other extension activities were framed based on the PRA technique. To begin with training programmes were started to SHGs on labour saving equipment, processing, value addition and storage of grains followed by model processing units establishment in rural areas. Workshops and *melas* were also conducted for empowerment of women in SHGs.

The beneficiaries were identified through linkages with farm women groups (Stri Shakti group, WYTEP group), grama panchayats, NGOs, departments officials. The urgent need of the farm women was income generating activities to boost their income along with routine activities and demanded for hands on training for processing activities, value addition, packaging and registration of SHG's in the DIC for getting loan facilities and branding of their products. Initially around 240 women participated for training programmes from villages Yadawad, Marewad, Mangalagatti, Garag, Dharwad, Kurubagatti. However, intensive training was given to around 55 members.

The novel packing materials like stand up pouches were introduced for first time in Northern Karnataka. Training on packing equipments and materials, printing of labels, contents in a label, price fixing and registration through DIC, innovative activity like market led extension approaches, branding and marketing included training on branding and trade license was given.

The marketing skills were developed by their participation in exhibitions, workshop, and food fest programmes in campus, melas, milletmelas, etc. 'Food fest' was a innovative activity, initiated in the University campus where women who were trained through KVK could participate with the products they

produced and could sell their produce. This helped in enhancing communication skills, packaging abilities and account keeping. Hands on training on processing and packing of foods to different SHGs like Shri Padmavati SHG, Garag, Shri DurgaYavati Mandal Mangalagatti, Bhagyaxmi home products, M/s Bhavana Home products and Shri Laxmi Home products from Dharwad.

Further, the Padmavati group was promoted for vermicelli preparation and the production unit was purchased by the group. Technology on hygienic, quality vermicelli preparation and millet vermicelli was given to Sri. Padmavati SHG in Garag village of Dharwad taluk/district. Incorporation of finger millet and foxtail millet flour (50%) to the chiroti (wheat) suji dehydration and packing technology was also given.

Results and Discussion

Some of the training programmes which had an impact on women empowerment were preparation, packing and marketing of little millet/ Foxtail millet product like chakkuli (Murukku), nippattu, laddus, millet vermicelli, sorghum/ bajra roti and finger millet products like chakkuli, laddu and flour, roti preparation. So the commodity groups based on value addition to cereals, millets, pulses, fruits and vegetables etc. were developed. The women were further in need of proper technology for product development, packaging, labelling details, registration and marketing.

Some of the model processing units developed were Roti making, vermicelli making and millet products preparation. The women were trained regarding SHG concept and advantages of forming SHG. Realizing the various benefits of forming SHG the women of Harobelavadi formed a “Sri. Veerabhadreshwara Raita Mahileyara Swa Sahaya Sangha” comprising of 10 likeminded

farm women in the group. The group also received Rs. 3000/- seed money from WYTEP. The women in the group are actively involved in cultural activities such as giving programmes in the AIR, FM Radio and also they have taken up sale of ‘Urja Stove’. The women underwent ‘Agarabathi training’ on large scale in the village through KVK, Dharwad. They also prepared Agarabathi and sold in the village and neighbouring villages. On an average each women gained Rs.600-00 per month. The women later shifted to food processing activities and started preparing roti. Initially rotis prepared were not attractive and thin. The women were guided regarding quality standards, storage and appearance. The women prepared khadak roti from jowar and bajra. Roti group had active 6 women in the group. Veerabhadreshwar WYTEP group was interested in preparing Roti. For every kg of bajra/ jowar 25 gm of black gram dhal and 50 gm of rice re added during milling for preparation of kadak roti.

The Scientist of, KVK, Dharwad also provided market linkage to to the members of the SHG. The members then started supplying kadakjowarroties, to the hostel on very Thursday. On festive days and occasionally they provided bajra roti to the hostel, khanavali and office staff. Successively the demand for soft roties increased and every week they supplied soft roties to the staff and khanavali. During marriage season, the SHG members regularly sold soft as well as khadakrotis. To meet the demand of large number of production the members have purchased Roti making machine. Now the members are interested in taking up associated activities like vegetable pickling and chutney powder making.

The economics of Roti making activity is presented in Table 1. The income per woman gradually increased from Rs 3600/ month in 2011 to Rs. 13, 333/month during 2015. From

the year 2013 onwards the roti machine was purchased. The share of profit in 2014 & 2015 increased to 40 per cent as the production of rotis was made using machine. Vermicelli preparation activity by Shri Padmavati SHG, Garag is presented in Table 2. The Vermicelli activity was carried out in the months of January to May. Total quantity of vermicelli produced during the first year was 75 kg with a profit of Rs. 82, 000/- and later with the experience the efficiency of production was increased year by year. The activity was continued and production was also increased looking to the increased demand and at the end of the year 2015 production was around 130 kg and the total net income generated was Rs. 1, 30, 000/- in a span of 3-4 months. Foxtail and finger millet vermicelli by incorporating 50 per cent millet flour to *chirotis* emolina and millet vermicelli were popularized through Krishi mela and millet melas. There was a lot of demand for the millet vermicelli. In the millet mela organized 1 q of vermicelli was sold. Millet Products Preparation by Shri Bhagyalaxmi Home Products, Dharwad Cost and Profit is presented in the Table 3.

The Bhagyalaxmi Home Products group underwent the training of millet products preparation and slowly started the preparation of the products and participating in the exhibitions organized by the extension functionaries of the University and development department. In the beginning the products were prepared in small quantity and the public were not much interested to purchase. As the awareness was created through trainings the demand for the millet products started increasing. Different products viz., Foxtail millet muruku, Laddu and Nippattu, Finger millet Laddu and Muruku, Bajara Nippattu and Roti etc were prepared and sold in the exhibition, market and further, started supplying against advance booking. During the year 2011 the sales momentum

was increased and the group was able to sell 340 kg of millet products with a profit of Rs.23, 800/- net income per year. The production and sales information was collected for five years and in a span of five years the production raised to 450 kg by the group and the net income realized was Rs.29, 250/- as an additional income from IGA. Similar results were presented by Vijayalaxmi *et al.*, in 2010 where the value added products, were first commercialized by the SHGs during the *Krishi Mela* (farmers' fair) festival held on 16-19 November, 2008 at the UAS Campus, Bangalore and then at Chintamani, where an event organized on 4 December 2008, by the University witnessed a large participation of both rural and urban people. As a result of increasing demand of the products, these were sold in retail outlets of Chintamani, general stores and health care centers under the brand name established by the SHG. Shrinidhi Balaji and Seekal. Further Lina *et al.*, 2008 reported that agro-processing was the major income generating activity of the SGSY-SHG in Thrissur District. The highest percentage of agro-processing SHGs was found in Mullassery (72.2%), followed by Thalikkulam (50.0%), Cherpu (42.8%), Chavakkad (32.6%) and Wadakkanchery (32.5%).

The main activities undertaken by these SHGs included processing of rice powder, copra and fish and making of ready-to eat items, pappadam and curry powder. All these activities were categorized under four major groups according to the product-mix as follows: Category -1: Fish processing (FP) Category-2: Copra processing (CP) Category-3: Powder making (PM) Category-4: Ready-to-eat items making (RM) Category-5: Non-performing (NP) Socio-economic Profile. Non-conventional energy and rural development (NERD) society Coimbatore stated that through the skill development programmes SHG have started bakeries, canteen and food processing.

Table.1 Economics of roti making activity by Sri Veerabhadreshwar WYTEP group of Harobelavadi village

Year	Total number of Rotis Sold	Rate	Income Received (Rs.)	Net Income	Income per Woman
2011	36,000	2.00	72,000.00 *	21,600/-	36,000/-
2012	36,000	2.75	99,000.00 *	29,700/-	4950/-
2013	40,000	3.50	1,40,000.00 *	42,000/-	7000/-
2014	44,000	4.00	1,76,000.00 **	70,400/-	11733/-
2015	50,000	4.00	2,00,000.00 **	80,000/-	13,333/-

*30 % profit**40% profit

Table.2 Economics of vermicelli making activity by Shri Padmavati SHG, Garag

Year	Total quantity of Vermicelli produced (q)	Cost of production (Rs/q)	Total Cost of production	Rate per quintal (Rs)	Gross Income (Rs.)	Net Income (Rs)
2011	75	2900	217500	4000	300000	82500
2012	90	2900	261000	4000	360000	99000
2013	110	3200	352000	4200	462000	110000
2014	120	3200	384000	4200	504000	120000
2015	130	3200	416000	4200	546000	130000

Table.3 Economics of millets products by Shri Bhagyalaxmi Home Products

Year	Total quantity of Millet Products (Kg/year)	Average Cost of production (Rs/Kg)	Total Cost of production (Rs.)	Rate per Kg (Rs)	Gross Income (Rs.)	Net Income (Rs)
2011	340	130	4,4200	200	68,000	23,800
2012	350	130	4,5500	200	70,000	24,500
2013	380	130	49,400	200	76,000	26,000
2014	410	145	59450	210	86,100	26,500
2015	450	145	65250	210	94,450	29,250

Table.4 Capacity building of women through various parameters on 10 point scale (n=55)

Sl. No	Parameters	Average score Before intervention	Average score After intervention
1	Communication skills	4.2	8.2
2	Conscious of timings	3.8	7.6
3	Awareness of Government programmes	2.8.	8.4
4	Ability to approach Departments, Institutions and NGOs	2.4	7.8
5	Ability to move freely outside village	3.2	7.6
6	Awareness of income generating activities	2.4	8.6
7	Skill of value added products-recipe	2.8	8.8
8	Technology of registration, branding, labeling	1.6	6.4
9	Technology of costing, marketing, packaging	2.8	9.0
10	Nutrition of millets	3.4	9.2
	TOTAL	23.8	81.6
	MEAN	2.38	8.16

Different parameters of Capacity building were studied on a 10 point scale before and after interventions (Table 4). There was a rapid increase of the score with respect to communication skills, Conscious of timings, Awareness of Government programmes, ability to approach Departments, Institutions and NGOs, ability to move freely outside village, awareness of income generating activities, skill of value added products-recipe, technology of registration, branding, labeling, Technology of costing, marketing, packaging and nutrition of millets. Before the interventions average mean score was 2.38 which increased to 8.16 after the interventions. Vijayalaxmi *et al.*, also stated that as a result of capacity building interventions to enhance local skills in value addition, SHG women were able to generate substantial income and use this towards their own family welfare developments. The training interventions by the University played a strategic role by increasing self-confidence of SHGs in undertaking small scale food processing of value added products of finger millet at the village and city level.

The food processing activities like Roti

making, vermicelli production, millet products are all sustainable and can be carried out by rural women groups along with routine activities. Institutional capacity building programmes help in promoting skills and confidence building which ultimately help in increasing family income based on locally available food grains.

Application of research

Applied to agriculture labourers and cultivators for women to save the workload.

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