Role of Food Processing Training and Exposure Visits in Empowering the Rural Women Community

** K. Malleswari*
*** Dattatraya Patil*
**** G. Sridhar*
***** B. Nagendra Prasad*

Abstract

An impact study on food processing training and exposure visits conducted by the Krishi Vigyan Kendra (KVK) during the year 2011-2013 was evaluated. The total number of trainees who attended the programme during 2011-2013 was 200 (including on campus and off campus). The food processing trainees were trained out in the areas such as sorting, grading of agricultural commodities, post harvest technology aspects, making different kinds of pickles and curries, and preparing value added products from different field crops. Four groups, each containing 50 rural women having a minimum educational qualification of 10th (SSC) pass, were selected from the entire district including high altitude and tribal areas. The study revealed that the trainees were able to upgrade their knowledge in different areas of food processing . The study shows that the knowledge of the trainees in the different areas of food processing increased from 36.5% to 87.7%.

Keywords: **food processing, training, knowledge level, self employment, food processing industry**

JEL Classification: O1, O150, Q1

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India is having one of the biggest food processing industries in the world, playing a vital role in strengthening the agricultural growth rate. India ranks first in the world in production of fruits and second in vegetables, accounting roughly 10% and 15 % respectively, of the total global production. Presently, 2.2% of the produced fruits and vegetables are processed, even as the country ranks second in the world in terms of production (Hema, Sangeetha, Nithya, & Vidhya, 2010). It can be further strengthened if the post harvest losses at fields and at different places are reduced. The growing population of India as well as of the world has made it necessary for us to search for a new Green revolution. Though the country has reached the 250MT of food grain production, still, we are struggling for sustainable food production. Food is a basic necessity of life. In order to survive, grow, work, reproduce and lead a full life, mankind must regularly consume foods that contain a considerable amount of carbohydrates, proteins, as well as essential minerals and vitamins (Singh, 2011).

It can be said that today, we are in a better position, wherein women's participation in the field of entrepreneurship is increasing at a considerable rate. Efforts are being taken at the policy level to bring equal opportunities in all spheres to the Indian women. Unfortunately, the government sponsored development

* *Subject Matter Specialist (Home Science),* BCT Krishi Vigyan Kendra, BCT Farm Complex, Haripuram, Rambilli Mandal, Visakhapatnam District - 531 061, Andhra Pradesh.
** *Subject Matter Specialist (Agricultural Engineering),* BCT Krishi Vigyan Kendra, BCT Farm Complex, Haripuram, Rambilli Mandal, Visakhapatnam District - 531 061, Andhra Pradesh. E-mail : dvpatil.iari@gmail.com
*** *Programme Assistant,* BCT Krishi Vigyan Kendra, BCT Farm Complex, Haripuram, Rambilli Mandal, Visakhapatnam District - 531 061, Andhra Pradesh.
**** *Subject Matter Specialist (Plant Protection),* BCT Krishi Vigyan Kendra, BCT Farm Complex, Haripuram, Rambilli Mandal, Visakhapatnam District - 531 061, Andhra Pradesh.

activities have benefited only a small section of women, that is, the urban middle class women. According to Goyal and Parkash (2011), women comprise of nearly 45% of the Indian population. Their study depicted that the process of development can be visualized with two different types of entrepreneurial activities. Entrepreneurship can emerge either as a result of individual efforts or collective and cooperative efforts. The first type of entrepreneurship is a potent source of development. The experience of India has shown that public or cooperative techno structures established in backward regions have initiated entrepreneurial efforts, leading to the development of townships, but have failed to initiate the process of development in the real terms (Latha, Madhavaiah, & Murthy, 2008).

The majority of India's agricultural produce is consumed domestically, with only a very tiny portion processed into value added products. Manufactured products account for about 2% of the total agricultural produce. This figure is very low as compared to other countries (where it is 30-80%). The growth potential of food processing industries in India is enormous. The demand for semi processed and processed food is likely to multiply significantly in the coming years. The requirement of food by the consumers and their food habits are changing with modernization. With the change in lifestyle and scarcity of time due to involvement of both the family partners in job, people need convenient food and, therefore, the demand for processed foods is increasing rapidly. The food processing sector plays a vital role in increasing the income of the farmers, meeting agricultural productivity, reducing wastage of perishable produce, consuming surplus produce for quality products, providing employment opportunities, diversifying the rural economy, and resulting in faster rural industrialization. Various food processing techniques have been published on fruits, vegetables, spices, cereals, pulses, oil seeds, sugarcane, milk, meat, and so forth (Singh, 2011).

Kumbhar (2013) discussed about the issues concerning women entrepreneurship in rural India. According to the author, the responsibility of the state and the society, absence of a definite agenda in life, absence of a balance between family and career obligations, poor degree of financial freedom for women, absence of direct ownership of property by women, a paradox of entrepreneurial skill and finance in economically rich and poor women, no awareness about capacities, low ability to bear risks, problems of working with male workers, negligence by financial institutions, lack of self-confidence, lack of professional education, mobility constraints, and lack of interaction with successful entrepreneurs are the major problems plaguing women entrepreneurship development in India. Mishra and Hossain (2000) examined the role of Krishi Vigyan Kendra in diffusion of farm and allied technology among farmers of Kalahandi district in Orissa. The paper made an attempt to assess the effectiveness of the Krishi Vigyan Kendra, Kalahandi on diffusion of farm and allied technologies among the trained farm families in the adopted villages.

Aaijaz, Ibrahim, and Ahmad (2012) examined the relationship between entrepreneurship education and university student's inclination towards entrepreneurship. This study also examined the moderating effects of demographic characteristics and family business background on budding entrepreneurs undergoing entrepreneurship education. A self administered questionnaire was used in this study to collect data from the sampling population. The results showed that the role of the university in promoting entrepreneurship had a statistically significant relationship with the student's inclination towards entrepreneurship. According to Ray and Ray (2012), to facilitate the access to funds for women entrepreneurs, it is necessary to create and develop some funding schemes with subsidized interest rate, and provide advantageous credits to women wishing to develop their business, in compliance with the conditions related to the field of activity, investment, added valued, competitiveness, and so forth. Rehman and Elahi (2012) discussed the importance and role of entrepreneurship for the Indian economy. They also discussed about the challenges with regards to the role of educational programs and the delivery systems for disseminating the entrepreneurship educational programs. B-Schools have a significant role to play in the growth of India as a nation because they are the breeding grounds for future entrepreneurs. They have the potential to develop not only winning personal qualities, but also provide an opportunity to create employment for the self and for others. Entrepreneurship, self-employment, and enterprise creation provide a solution to the crises of both unemployment and under-employment.

Nachimuthu and Gunatharan (2012) discussed the differences between women employed in other forms of enterprises and the self-help groups, and attempted to identify the strength of these two forms of enterprises in

empowering women. The results showed that the profitability of the enterprise, loans availed, confidence of women entrepreneurs to succeed are the important determinants of the growth of the enterprises of SHG women over the years of their existence. Entrepreneurship of women has enhanced their economic status and decision making power. Women entrepreneurs are aware of the opportunities available to them, but there is scope for improvement in it. Economic status, self worth, self confidence, and social status of women entrepreneurs are the variables that define empowerment of women. The study revealed that women entrepreneurs in SHGs are more empowered than other (non- SHGs) entrepreneurs.

The national policy aims to increase the percentage of food being processed in the country to 25% by 2025. Keeping all the afore-mentioned points in mind, the present study focuses on how women can be empowered by engaging them in the food processing industry to alleviate the human resource problems and meeting the target of quality food production.

Preparation of Different Value Added Products at the BCT KVK Unit

(1) Millet Products (Ragi Laddu): Fry gingelly (sesame) and groundnut without oil. Fry the ragi powder with a little ghee on a pan. Prepare a jaggery mix with water in another utensil. When the fried ragi powder emits a good fragrance, add gingelly and groundnuts, and mix. After 2-3 minutes, remove the jaggery solution off the stove and prepare small laddus as the mixture is hot. Mix dalda (Vanaspati ghee), sugar powder, pineapple essence, biscuit, salt, and water one by one. Finally, add ragi powder and maida (flour), and make it in a round shape like a ball (see Figure 1). Convert these ragi balls into a chapatti shape having rough thickness and further cut them into pieces and keep them in the oven for drying. Biscuits taken out from the oven will have a sweet and good taste. The prepared products like ragi laddu, ragi biscuits, and ragi chapatti are much useful for diabetics and people with heart problems.

(2) Different Types of Pickles (Ripened Chilli Pickle and Brinjal Pickle): Clean and graded chillies are dried on a clean cloth. The petioles and seeds of tamarind are removed and it is soaked in half litre boiled water. After soaking for about 30- 40 minutes, grind the tamarind softly and add turmeric powder, salt, and chillies (petioles removed). Add garlic paste in the grinded mixture and store it in a clean and dry jar. After following these steps, the grinded mixture can be fried, which is heavenly to taste. Brinjal pickle can also be prepared in the same manner. Remove the petioles and soak the tamarind in boiled water and grind it. Add chilli powder, salt, fenugreek powder, turmeric powder, garlic, and again grind it. The grinded Brinjal paste can be fried for 5 minutes. After 4 days, the fried spices can be added into the Brinjal paste and the produced pickle is useful for 6 months (Figure 1).

Figure 1. Training on Preparation of Value Added Millet Products

➲ **Imparting Practical Knowledge and Elaborating Business Ideas on an Inter-State Exposure Visit to IICPT and KVK, Thanjavur**

➲ **Pasta Making Machine :** The pasta making machine is ideal for preparing pasta of different shapes and is also used for making cheese ball snacks, noodles, and so forth. The cost of the machine is around ₹ 100000 (Figure 2).

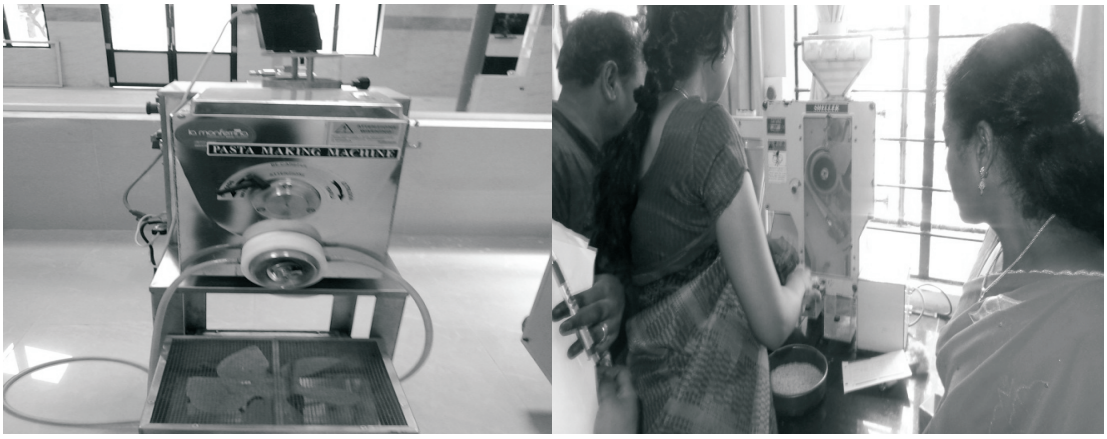
➲ **Rice Sheller:** This paddy sheller provides a rapid, easy, and efficient method of shelling (Figure 2). It can shell 400gm of paddy per minute (20% husk approx.).

- ➲ Safety features prevent damage by small rocks or metal objects.
- ➲ Suitable for both dry and wet samples of any variety.
- ➲ Simple and trouble free mechanism.
- ➲ Is equipped with a rubber roll sheller and aspirator to separate the husk.
- ➲ It is used to de-husk paddy samples in the laboratory for testing purposes.
- ➲ Husk collector is used to save husk from each sample.
- ➲ Power supply: 220V, 50Hz AC.
- ➲ The machine cost is approximately ₹ 50000.

➲ **Vacuum Packaging:** Vacuum drying has been used in the manufacturing process of plastic resins, chemicals, food products, and pharmaceuticals for many years (Figure 3). The Low Pressure Dryer (LPD) is a revolutionary device that uses vacuum to accelerate the drying process. The use of vacuum provides many processes and cost benefits compared to conventional drying technology. This technology is used in the industry to maintain the quality of food products and storage life of the product increases. The market cost of the machine is ₹ 60000.

➲ **Value Addition on Banana:** Value addition on Banana is also one of the important activities that has been started by this KVK recently. The BMT KVK is supported by the National Horticulture Mission fund for processing of bananas. A food processing unit of this KVK has got a good command on preparing value added products from bananas which include banana health drink (ORS), banana powder, banana juice, banana jam, banana fruit pickle, banana decorative pieces, and banana chips (Figure 4). The processing and packaging machineries required for preparation of the above mentioned products are available in the Home Science department of this KVK.

Figure 2. Demonstration on Pasta Making Machine and Model Rice Shelling Unit at IICPT, Thanjavur



Food Processing Training at BCT Krishi Vigyan Kendra

The main/key role of the Krishi Vigyan Kendra is to transfer the technology from the research institutes to the farmer's fields. ICAR has given one Krishi Vigyan Kendra to every district of India. So, presently, 632 KVKs are working under the apex body ICAR. The BCT Krishi Vigyan Kendra, Visakhapatnam, since its inception in 1994, has conducted training programmes for farm families on Crop Production, Home Science, Horticulture, Plant Protection, Agricultural Engineering, Animal Science, Fishery, and Extension education. Besides these, front-line demonstrations on oilseeds and pulses, and demonstrations on other crops and allied activities, and on-farm testing for farmers and farm women have been conducted. The ICAR sponsored food processing training programme is one of the important training programmes for the rural and urban women as they can undergo training to become (from home makers) entrepreneurs in the food processing industry. The Food Science and Nutrition unit was established in 1996 and is equipped with sophisticated facilities. A well furnished trainee hostel and guest house is available in the campus for lodging and boarding of the trainees. Women living in rural areas do not have facilities for their empowerment and for alleviating their economic dependency. Such training programmes go a long way in enabling them to create entrepreneurial opportunities for themselves.

➲ Need for Conducting the Food Processing Training for the Rural Women

(1) Less land holdings ultimately hamper the overall income of the family,

(2) Lack of knowledge about the food processing industry results in less opportunities to work in the food processing industry,

(3) Availability of few educational centres for providing education related to food processing in rural areas,

(4) Low awareness about starting a small scale agricultural and allied business.

➲ **Sponsorship for the Programme:** The food processing programme is sponsored by NIMSME to encourage the rural people for undergoing training about the food processing industry. ICAR also sponsors various training programmes on the post harvest technological and value addition aspects.

➲ **Food Processing Unit at Visakhapatnam BCT KVK:** KVK has a food processing unit having 4 staff members, including 1 scientist and 3 supporting staff. The unit is having the best infrastructure to conduct extension and research activities, and is equipped with a small scale ragi machine, two refrigerators, a dry oven, a nutrition gardening unit, soybean processing machinery, cashew processing, different pickle preparation units, banana value added products, and a Sugarcane crusher.

➲ **Identification of the Rural Women for Training:** BCT KVK conducted a survey in the nearby 20 villages for selecting 200 rural women having educational qualification till Class 10 (SSC). For this survey, KVK tied up with an NGO and a proforma was made for the evaluation of the data. One CEO (community education officer) from an NGO was selected for surveying the 5 villages, and the overall work was distributed to 5 CEOs. After the evaluation of the data received from the CEOs at the KVK, a list was prepared for the final selection of the trainees (Flow chart 1). The trainees were grouped age wise, that is, trainees in the age group of 20-25 years, trainees in the age group of 25-30 years, trainees in the age group of 30-35 years, and trainees in the age group of 35-40 years. The number of trainees was equally distributed across all age groups.

Results and Discussion

Each group was divided into 50 trainees and after analyzing the data, the following observations were made :

Figure 3. Vacuum Packaging Machine for Enhancing Storage Time and Quality of Food Products

Figure 4. Training on Value Added Products Prepared from Banana at Exposure Visit

➲ **Self Employment :** It was found that 60% of the rural women started their own business by making bakery products at home and by supplying them to nearby bakery shops and five star hotels. Some of them started by preparing value added products from different crops like banana chips, potato chips, soybean cake, soya paneer, and so forth at their home and succeeded in marketing them also. Most of the self employed trainees were in the age group of 30-40 years. Since they had to deal with fieldwork and also look after their homes, they did not prefer to go local companies for manufacturing their products on a large scale.

➲ **Employment in Local Companies:** The study showed that there is tremendous scope for the young women (who are in between 20-30 years of age) (Table 1) to work in local industries. Some of them were not married and did not have much responsibility at home (Figure 5). The well established APSEZ provides ample opportunities (18.5% out of the 200 women trainees) for these women to work in the companies.

➲ **No Employment:** The study revealed that 21.5% of the trainees gained a lot of knowledge after attending the training programmes, but neither were they self employed nor were they employed in local companies due to unavoidable reasons. A reason for their not entering the workforce or starting entrepreneurial ventures was because most of them were in the middle age group and had to look after their homes and were also saddled with the responsibilities of looking after their farmlands and agriculture.

Flow Chart 1. Flow Chart for Programme Conducted by the KVK for the Trainees

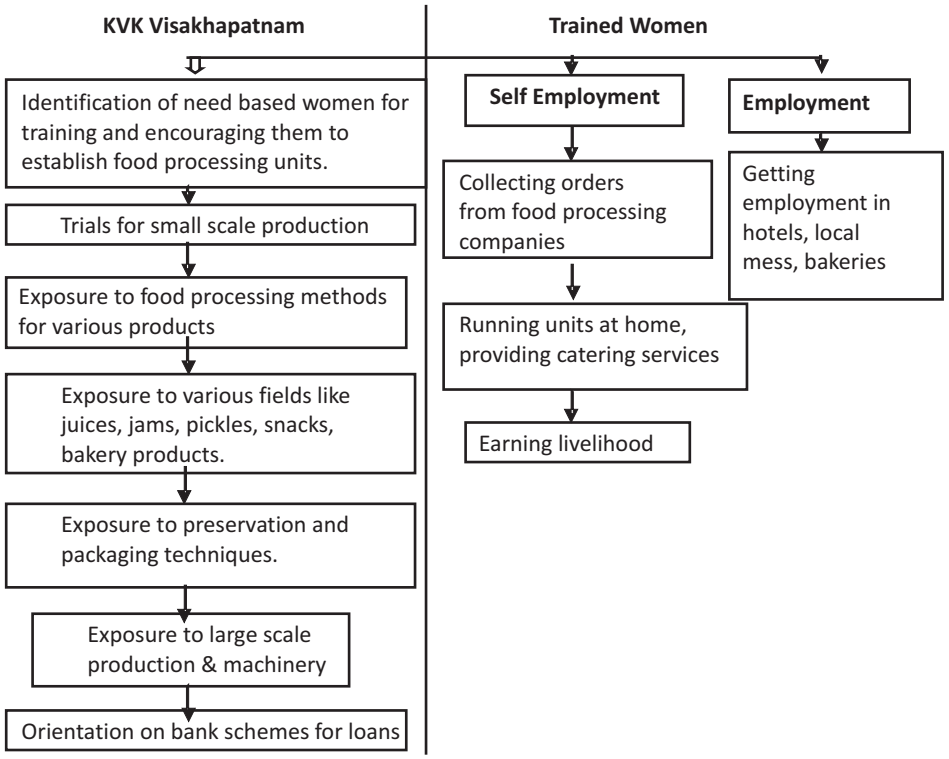


Table 1. Comparison of Employment Status in Different Age Groups

Sr. No.	Age Group	No. of Trainees	No. of persons self employed	No. of persons employed	No. of persons with no employment
1	I(20-25) yrs	50	35	12	3
2	II(25-30) yrs	50	32	10	8
3	III(30-35) yrs	50	28	8	14
4	IV(35-40) yrs	50	25	7	18
5	**Total**	***N* = 200**	**120**	**37**	**43**
6	**Total (%)**		**60%**	**18.5%**	**21.5%**

➲ **Success of the Training:** The success of the training programme was gauged in terms of the knowledge gained by the trainees before and after attending the training (Figure 6). A questionnaire (in local language) consisting of 10 questions was prepared and was given to the trainees and the number of trainees who answered correctly was calculated (Table 2).

Research Implications

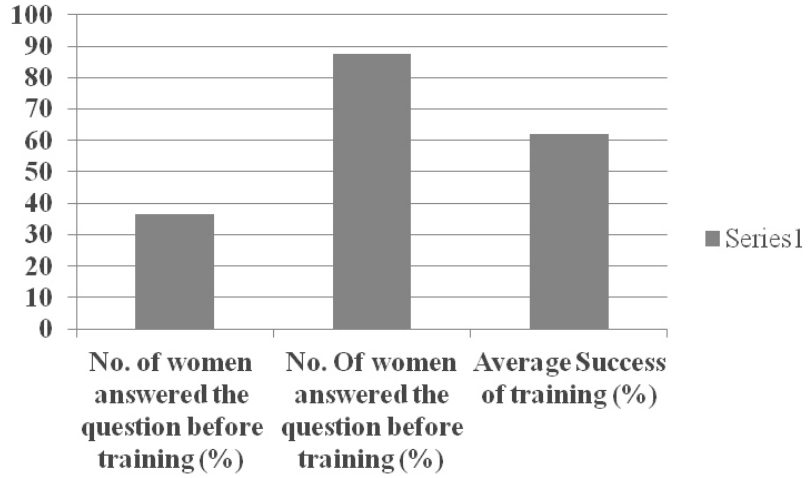
The present study has emphasized on raising the socioeconomic status of the rural women community by organizing various training programmes and thus creating better employment opportunities for them. The study revealed that training and exposure visit programmes were helpful in bringing about attitudinal changes in the trainees, and they were encouraged to take up jobs or start their own entrepreneurial ventures in food processing, so that their financial status changed from low or no earning to self-dependency.

Figure 5. Employment Status for Different Age Groups Against Total No. of Women Trained

Table 2. Knowledge Level of the Trainees Before and After Attending the Food Processing Training Programme

Question No.	Before Training (No. of Women answered out of 200)	Percentage of women who answered the question before training (%)	After Training (No. of Women answered out of 200)	Percentage of women who answered the question before training (%)	Average Success of training (%)
I	45	22.5	165	82.5	60
2	65	32.5	172	86	53.5
3	62	31	180	90.0	59
4	75	37.5	170	85	47.5
5	52	26	160	80	54
6	96	48	195	97.5	49.5
7	48	24	152	76	52
8	80	40	188	94	56
9	87	43.5	190	95	51.5
10	120	60.0	182	91	31
Average in increase of success (%)		**36.5**		**87.7**	**62.1%**

Figure 6. Percentage Change in the Knowledge Level of Trainees Through Pre and Post Evaluation (Percentage of Success of the Food Processing Training Programme)



Conclusion

➲ Food processing trainings were helpful for uplifting the socioeconomic status of the rural women community. It was found that out of the total trainees, 60 % women started their own business, whereas 18.5% got a job in the local food processing industry.

➲ It was observed that trainees between the age group of 20-25 years got more advantage (in terms of job opportunities) than the trainees in the other three age groups, whereas women in between 35-40 years of age received less knowledge and job opportunities. The average gain in knowledge from different groups after completion of trainings increased upto 62%.

➲ The training organized by KVK was a great success and exposure visits for enhancing the economic conditions of the rural community and villagers received a good response.

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