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TECHNOLOGICAL NEEDS OF FARMWOMEN IN PROCESSING AND PRESERVATION OF FRUITS

Neha Tiwari[1], Jiju N. Vyas[2] and V. N. Gohil[3]

1 Scientist, KVK, JAU, Amreli - 365601
2 Associate Professor, SDAU, Dantiwada - 385506
3 Research Scientist, ARS, Amreli - 365601
Email : nehatiwari@jau.in

ABSTRACT

The study was conduct purposively in Amreli district of Gujarat state. Eleven villages from Amreli Taluka was selected using purposive sampling method. Random sampling method was used for selection of 110 farm women (ten farm women from each village). Interview technique was used to collect data and interview schedule was developed for extent of participation and knowledge. Frequency, per cent, mean per cent scores, mean weighted scores and other tool & techniques were used to analyse thedata.Overall mean weighted score of participation of rural women in different fruit processing and preservation practices was 0.45. Majority of them (68.18%) were in the category of poor. The overall knowledge gap in fruit processing and preservation practices was 66.85 percent.

Keywords : *Fruit, preservation, processing, farm women and technological need.*

INTRODUCTION

India is known to be a fruit basket of the world. After China, India has been considered as the second largest producer of fruits and vegetables in the world with 74.877 million metric tonnes production of fruits and 146.554 million metric tonnes production of vegetables for the year 2010-11 (Minister of State for Food Processing Industries (www.blogspot.com). The total production of fruits and vegetables in the world is around 370 metric tonnes. But there is considerable gap between the gross production and net availability of fruits and vegetables due to heavy post -harvest losses. It is a fact that fruits and vegetables are extremely good for us and diet rich in fruit and vegetables can lower the risk of cancer and prevent number of serious illness and health problems such as high blood pressure and cardio vascular disease. To get maximum health benefits expert recommended eating a variety of fruits and vegetables along with other natural foods. Apart from this, fruits are good appetizers and add flavor and diversity to the diet. We enjoy eating seasonal fruits when the cost is affordable and varieties are available in the market. But we miss the same during off season. There is nothing like consuming fresh foods, they have better taste, appearance, color etc. but foods, like fruits and vegetables so called perishable foods tends to get spoilt soon. Even under most cautious conditions, we cannot manage to keep them fresh for too long time that is why processing and preservation is done to lengthen their shelf life. The roles that women play in agriculture vary from region to region and country to country. Women are responsible for the more time- consuming and labor-intensive tasks of crop and livestock production: sowing, application of fertilizer, weeding, harvesting, transporting, threshing, winnowing, cleaning, sorting, grading and bagging. These tasks are carried out manually or with simple tools. Women participate in the production of more than 50% of food worldwide, they also perform the overwhelming majority of the work in food processing in developing countries. Women process and preserve the fruit and vegetable produce from their home gardens and from theforests.

Fruit processing and preservation activities are an integral part of the food production system in which women play a dominant role. An estimated average of 80 per cent of the handling work is done by women. Since, women are the major contributor in fruit processing and preservation activities and due to their inadequate knowledge and skills losses are very high. To minimize these losses, it is important to equip them with latest fruit processing and preservation technologies by providing adequate access to information. So it is necessary to find out the specific areas in which knowledge of rural women is lacking. Thus the present study entitled "Technological Needs of farm women in Processing and Preservation of Fruits" was an attempt to know whether the fruit processing and preservation technologies have reached to the rural women, whether they have knowledge about these technologies or not and to identify the technological needs of rural women for fruit processing and preservation technologies.

OBJECTIVES

(1) To find out the participation of farm women in activities related to processing and preservation offruits

(2) To assess the knowledge of farm women about techniques of processing and preservation offruits

(3) To identify the technological needs of the farm women in processing and preservation of fruits

METHODOLOGY

The study was conduct purposively in Amreli district of Gujarat state. Eleven villages from Amreli Taluka was selected using purposive sampling method. Random sampling method was used for selection of 110 farm women (ten farm women from each village). Interview technique was used to collect data and interview schedule was developed for extent of participation and knowledge. Data was collected by the investigators themselves. frequency, per cent, mean per cent scores, mean weighted scores and other tool & techniques were used to analyse thedata.

Table 1: Respondents selected from the villages of Amreli talika for the study (n=100)

Sr. No.	Name of Village	No. of respondents
1	Sajiyawadar	10
2	Devadiya	10
3	Babapur	10
4	Shedubhar	10
5	Mota akadiya	10
6	Jaswantgandh	10
7	Mota mandawada	10
8	Pania	10
9	Chital	10
10	Vankiya	10
11	Sarambhada	10

RESULT AND DISCUSSION

Personal profile of the respondents

Respondents were asked to indicate their age, education, landholding, occupation, annual income, farming experience, mass media exposure and social participation at the time of interview and classified them in different categories as shown in Table 2.

Table 2: Personal profile of the farmers (n=110)

A	Age	Frequency	Per cent
1	Young age group (up to 30 years)	26	23.60
2	Middle age group (between 31 to 50 years)	69	62.70
3	Old age group (above 50 years)	15	13.60
B	**Education**	**Frequency**	**Per cent**
1	Illiterate	10	9.09
2	Primary (1^{st} to 7^{th} standard)	23	20.90
3	Secondary (8^{th} to 10^{th} standard)	38	34.54
4	Higher secondary (11^{th} to 12^{th} standard)	30	27.27
5	Graduate and above (above 12^{th} std.)	09	08.18
C	**Land holding**	**Frequency**	**Per cent**
1	Marginal farmers (up to 1.00 ha)	12	10.90
2	Small farmers (1.01 to 2.00 ha)	37	33.63
3	Medium farmers (2.01 to 3.00 ha)	35	31.81
4	Large farmers (More than 3.00 ha)	26	23.63
D	**Occupation**	**Frequency**	**Per cent**
1	Farming	50	45.45
2	Farming + Animal Husbandry	26	23.63
3	Farming + Business	28	25.45
4	Farming + Animal Husbandry + Business	06	05.45

E	**Annual Income**	**Frequency**	**Per cent**
1	up to ₹ 1,00,000/-	59	53.63
2	₹ 1,00,001 to 2,00,000/-	32	29.09
3	Above ₹ 2,00,000/-	19	17.27
F	**Farming experience**	**Frequency**	**Per cent**
1	Low level of experience (up to 8 year)	43	39.09
2	Medium level of experience (8 to 15year)	48	43.63
3	High level of experience (more than 15 year)	19	17.27
G	**Mass media exposure**	**Frequency**	**Per cent**
1	Low mass media exposure	30	18.18
2	Medium mass media exposure	66	50.90
3	High mass media exposure	14	12.72
H	**Social participation**	**Frequency**	**Per cent**
1	No social participation	42	38.18
2	Poor social participation	44	40.0
3	Moderate social participation	11	10.0
4	Good social participation	13	11.81

Age

Majority of the respondents 62.7 per cent were found in middle age group, whereas 23.6 per cent and 13.6 per cent of them were in the young age group and old age group respectively.

Education

The information regarding formal education availed by the respondents were classified in to five categories and observed that 34.54 per cent of the respondents had secondary education followed by 27.27 per cent and 20.9 per cent of the respondents had higher secondary education and primary level of education, respectively. Only 8.18 per cent of the respondents were graduate and above.

Land holding

The data pertaining to size of land holding of respondents showed that 33.63 per cent of the respondents had small land holding, followed by 31.81 per cent 23.63 per cent and 10.90 per cent with medium land holding, large land holding and marginal land holding, respectively.

Occupation

The data pertaining to occupation indicated that 45.45 per cent of the respondents were engaged in farming whereas 25.45 per cent and 23.63 per cent of the respondents were engaged in farming with business and farming with animal husbandry, respectively. Only 5.45 per cent of the respondents were engaged in farming with animal husbandry and business.

Annual income

Majority of the respondents (53.63%) earning annual income up to ₹ 1,00,000/- followed by 29.09 per cent and 17.27 per cent of them who were having annual income in between ₹ 1,00,001 to 2,00,000/- and above ₹ 2,00,000/-, respectively.

Farming experience

The data on farming experience showed that 43.63 per cent of the respondents had medium level of experience followed by 39.09 per cent and 17.27 per cent had low level of experience and high level of experience, respectively.

Mass media exposure

Majority of the respondents (50.90 %) had medium mass media exposure followed by 18.18 per cent and 12.72 per cent of them had low mass media exposure and high mass media exposure, respectively.

Social participation

The data on social participation indicated that 40.0 per cent of the respondents had poor social participation followed by 38.18 per cent, 11.81 per cent and 10.0 per cent of them had no social participation, good social participation and moderate social participation, respectively.

Participation of rural women in activities related to processing and preservation of fruits.

Table 3: Distribution of the respondents by their extent of participation in activities of fruit processing and preservation

(n=110)

Sr. No.	Activities	Participation						Mean weightedscore
		Independently		Jointly with male members		No participation		
		Frequency	Per cent	Frequency	Per cent	Frequency	Per cent	
1	Fruit selection	32	29.09	78	70.90	0	0	1.28
2	Washing	0	0.00	52	47.27	58	52.72	0.47
3	Grading	20	18.18	23	20.90	67	60.90	0.56
4	Calculating cost of input to output	0	0.00	0	0.00	110	100	0.00
5	Purchasing of raw material	0	0.00	8	7.27	102	92.72	0.07
6	Preparation of preserved products	30	27.27	0	0.00	80	72.72	0.54
7	Packaging	25	22.72	21	19.09	64	58.18	0.64
8	Storage	0	0.00	32	29.09	78	70.90	0.29
9	Marketing	0	0.00	26	23.63	84	76.36	0.23
							Overall MWS	**0.45**

Perusal of the table 3 depicts that fruit selection was jointly performed by 70.90 per cent and independently by 29.09 per cent of the respondents with MWS of 1.28. It was further found that in washing of fruits 47.27 per cent of respondents were participating jointly with male members with MWS of 0.47. However, in other activities namely grading, packaging, storage and marketing 7.27-29.90 per cent of respondents were participating with male members, independent participation of women in these activities was very low due to the reasons that these activities are technical in nature in which very sound knowledge is required and women did not had knowledge regarding these aspects. Majority of the respondents were not involved in calculating cost of input to output, purchasing of raw material for preparing products and in preparation of preserved products either at domestic or commercial level this was due to the lack of knowledge regarding these aspects. Goyal (2006) and Dubey (2013) who concluded that majority of the respondents were not involved in processing of fruits either atdomestic or commercial level. Similar findings were reported by Hada (2017) that Overall MWS of participation was 0.44. Majority of the respondents (62%) were under the category of low participation while 38 per cent respondents belonged to medium level of participation.

Overall knowledge of respondents about techniques of processing and preservation of fruits

Table 4: Distribution of the respondents by their overall knowledge about fruits processing and preservation techniques (n=110)

Sr. No.	Knowledge Category	Frequency	Per cent
1	Poor (1-33.3%)	75	68.18
2	Average (33.4-66.6%)	33	30.00
3	Good (66.7-100%)	02	01.18

To know the knowledge level of the respondents

about fruits processing and preservation practices, they were grouped in three categories of knowledge namely poor, average and good on the basis of their mean per cent scores. Perusal of the Table 4 indicates that the respondents had poor knowledge about processing and preservation techniques of fruits. Distribution of the respondents in different categories of knowledge depicts that majority of them (68.18%) were in the category of poor knowledge whereas, 30.0 per cent belonged to the average knowledge category and only 1.18 per cent of the respondent had good knowledge regarding fruit processing and preservationpractices.Sharma *et.al.* (2013) in their study reported that majority, (i.e., 72.50 per cent) of Trainee Farm-Women (TFW) were having medium level of knowledge regarding fruits and vegetables preservation technology, followed by those (20.00 per cent e and 7.50per cent) having high and low level of knowledge, respectively. Whereas, in case of Non-trainee farmwomen, all of them had low level of knowledgeregarding fruits and vegetables preservation technologies .

Technological needs of rural women regarding processing and preservation of fruits

Technological needs or gap were identified on the basis of knowledge of the respondents regarding different fruit processing and preservation activities. In order to know the aspects in which knowledge of the farm women was lacking, technological needs or gaps were identified on the basis of mean per cent score calculated for knowledge of the respondents in different aspects of fruit processing and preservation practices. Technological needs of the respondents in different aspects of fruit processing and preservation is depicted in Table5. Similar study was reported by Hada (2017) that the overall knowledge gap in fruit processing and preservation practices was 63.16 per cent. Component wise highest knowledge gap was observed in the storage (83.70%), marketing (78%) and packaging (73.72%). A wide knowledge gap was found in the components- processing and preservation (70.68%),grading (63.45%) and washing (56.75%). Least knowledge gap was found in the component fruit selection (29.66%).

Table 5 : Knowledge gap of the respondents in different fruit processing and preservation practices (n=100)

Sr. No.	Components	Knowledge		
		MPS (%)	Gap (%)	Rank
1	Fruit selection	68.78	31.22	VII
2	Washing	59.54	40.46	VI
3	Grading	33.23	66.77	V
4	Processing and preservation	16.88	83.12	II
5	Packaging	23.76	76.24	IV
6	Storage	7.63	92.37	I
7	Marketing	22.22	77.78	III
Overall Knowledge Gap			**66.85**	

Table 5 divulges that the overall knowledge gap in fruit processing and preservation practices was 66.85 per cent that shows the average knowledge of the respondents in all the processing and preservation activities. Component wise knowledge gap focuses that highest gap was observed in the storage 92.37 per cent, processing and preservation 83.12 per cent, marketing 77.78 per cent and packaging 76.24 per cent which were ranked I, II, III and IV, respectively. Similarly, a wide knowledge gap was found in the components - grading 66.77 per cent and washing 40.46 per cent. Medium knowledge gap was found in the component fruit selection 31.22 per cent. This gap may be due to the reason that women were participating in these activities with male members. According to Sandhya and Dashora (2010) in their study revealed that the technological knowledge possessed by the farm women about post-harvest practices of grains was inadequate as their overall mean score for knowledge and adoption was less than 40 per cent.

CONCLUSION

Overall mean weighted score of participation of rural women in different fruit processing and preservation practices was 0.45. Independent participation of women was found in fruit selection (29.09 %), preservation (27.27 %), packaging (22.72 %) and grading (18.11 %). Joint participation of men and women was found in fruit selection (70.90 %), washing (47.27 %), storage (29.09 %), marketing (23.63 %), grading (20.90 %) and packaging (19.09 %). No participation of women was observed in processing and preservation (72.72 %), marketing (76.36 %), storage (70.90%), grading (60.90 %), packaging (58.18 %) and washing (52.72 %). Majority of them (68.18%) were in the category of poor knowledge whereas 30.00 per cent belonged to the average knowledge category and only 1.18 per cent of the respondent had good

knowledge regarding fruit processing and preservation practices. The overall knowledge gap in fruit processing and preservation practices was 66.85 percent. Thus the conclusion of the present study suggest that proper training facilities in order to groom the farmers as well as processors of fruit and vegetable items about advanced production and processing techniques is required at a large scale in the state. In this connection it may be suggested that mobile skill development and training centres should be organized to impart the required technical knowledge and expertise to the farmers' and food processors. Government's participation is highly needed to provide financial assistance through bank for creating cold storage facilities in the state. The state government should promote research and development for processing sector. Further, establishment of training centre for processing activities, at least one in each block in the district, technical course on food processing under various educational institutions would help food processing in Gujarat .

RECOMMENDATIONS

(1) Specialized on campus as well as off campus training programmes should be organized on fruit processing and preservation practices exclusively for rural women at university as well as government level.

(2) Women must be motivated for participating in processing and preservation of fruits at commercial level. For that government should provide subsidy especially for women for purchasing the raw material, equipments and other facilities related to develop of fruit processing and preservation enterprise.

CONFLICT OF INTEREST

There is no conflict between author.

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