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IMPACT OF VALUE ADDED TOMATO BASED PRODUCT FOR INCOME GENERATION OF FARM WOMEN

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Abstract

In India, tomato ketchup is very popular and is being manufactured on an increasingly large scale, mostly in small units. As tomatoes are available practically throughout the year, there is scope for setting up small or large scale processing units. To ensure the reduction of losses and increase in the profit of farm women involved in tomato cultivation, through processing. Value added products of tomato are women friendly, because the assessment of technology increases gross profit by 22.95% and output of product per unit increases 8.33% over traditional practice. This is a kind of women empowerment as farm women earn the money by processing of fruits and vegetables.

Key words : Income generation, tomato based product, farm women, sensory parameter.

Introduction

Value-added agriculture has attracted considerable attention in recent years as a means to increase and stabilize farm income and to rejuvenate primary agricultural and the rural economy. In India, value addition has come to the forefront of agricultural policy agenda to strengthen small farm and farmers to survive in an era of agricultural liberalization, privatization and globalization. This can be attributed that agriculture in India is in the hands of millions of peasant households. Approximately, 80 per cent of farmers has less than 2.0 hectares of farmland and contribute in 41 per cent national grain production (Singh *et al.,* 2002). Tomato is grown in our country in abundance; both in summer and winter seasons, but those grown in winter are superior in quality because they contain more total solids. They are good source of vitamin "C" fresh tomatoes are very refreshing and appetizing but cannot be stored for a longer period. But owing to its perishable nature and due to lack of cold chain storage and processing units nearly 25-40 % of the produce worth Rs 25- 30 thousand crores is gutted, which is a great national loss (Shriwastav, 2004). Such losses can be avoided by converting tomatoes into delicious products like tomato ketchup and sauce etc. In India, tomato sauce and ketchup are very popular and are being manufactured on an increasingly large scale, mostly in small units. The purpose of the study was to determine the impact of value addition of tomato ketchup for income generation of farm women in district Mandsaur (M.P.), India.

Materials and Methods

The study was conducted in Mandsaur district of M.P., India. Two villages *i.e*. Guradiya Dida and Mohammadpura were selected for conducting the On Farm Testing and Front Line Demonstration for preparation of tomato product. Both the villages are situated in the periphery of 05 and 15 Kms from Krishi Vigyan Kendra, Mandsaur. Tomato growers were identified and 15 farm women were selected randomly. The selected group represented the marginal and small land holding farm women. The interview schedule and questionnaire was developed to study demographic parameters and extensive review of the value addition training of respondent of villages. Demonstration of value added product of tomato (Ketchup) has been prepared as per norm of FPO specifications. The following equipments and other materials were used for making tomato ketchup product. Items used are tomato pulper, cooking utensils, hand refractometer, measuring cylinder, weighing balance, muslin cloth, glass bottles and chemical preservative- II Sodium Benzoate etc. Preparation of tomato ketchup from fully ripe tomato (juice/ pulp)

ingredients spices, salt, sugar, vinegar, onion, and garlic and contains not less than 12 per cent tomato solids and 25 per cent total solids as per FPO specification for ketchup Datta *et al.* (2015). Product was evaluated for Sensory parameters *viz*; taste, colour, texture, flavour overall acceptability and shelf life. Data were analyzed and simple mean percentage were calculated as formula is given below:

(1) BC Ratio = Total benefit in Rs / Total cost in Rs.

FP (farmer practice) -

IP (improved practice) -

BCR (Benefit Cost ratio)-

(2) Income increases (%) : Output – Input/ Input × 100

$$\text{(3) Additional income (\%)} = \frac{\text{Higher income} - \text{Lower income}}{\text{Lower income}} \times 100$$

Results and Discussion

Demographic profile of family

It was (table 1) clearly evident that majority (42%) of the participants had formal systems of education up to primary school and had family annual income less than Rs 10,000/-. Similar results are reported by Roy *et al.* (2013). It was evident (table 3) Cost of input per kg was Rs. 1000 in farm women traditional practice and Rs. 1100 in improved practice. Improved practice increases production per unit 8.33%. The net return for Improved practice Rs 280 per unit production over traditional practice. The benefit cost ratio was found in improved practice (1.36) and (1.22) in traditional practice, where gross profit was increased by 22.95% compare to traditional method, similar result are also reported by Tiwari *et al*. (2013). The data (table 4) revealed that sensory parameters *viz*., colour, texture, flavor, taste and overall acceptability were found superior in improved

Table 1 : Demographic profile of the family.

S.no.	Parameters	Villages	
		Guradiya-dida	Mohamma-dpura
1.	No. of Household	439	286
2.	Gender	Male - 1041 Female - 942	Male - 725 Female - 691
		Total - 1983	Total - 1416
3.	Type of family		
	a. Nuclear	75%	77%
	b. Joint	25%	23%
4.	Literacy level		
	a. Illiterate	16%	4%
	b. Primary	40%	42%
	c. Middle	20%	22%
	d. Higher secondary	20%	19%
	e. Graduate	03%	102%
	f. Post graduate and above	01%	01%
5.	Income of the family/ month		
	Less than Rs 10000	87%	85%
	Rs 10000-20000	11%	12%
	Rs 20000-30000	01%	01%
	More than Rs. 30,000	01%	01%

Table2 : Ingredient used for formulation of tomato ketchup.

S. no.	Ingredient	Quantity
1.	Tomato (ripen red)	50.000 kg
2.	Garlic	0.500 kg
3.	Onion	4.000 kg
4.	Ginger	1.500 kg
5.	Cumin	0.750 kg
6.	Clove	0.050 kg
7.	Cardamom (big)	0.100 kg
8.	Cardamom (small)	0.050 kg
9.	Cinnamon	0.100 kg
10.	Jawitri (flower)	0.050 kg
11.	Black pepper	0.150 kg
12.	Dalchini	0.100 kg
13.	Red chili (powder)	0.250 kg
14.	Sugar	5.000 kg
15.	Salt	0.800 kg
16.	Color (cherry red) liquid	0.025 ml
17.	Glacial acetic acid	0.050 ml
18.	Sodium Benzoate @ per kg product	750 PPM

Table 3 : Economic parameters of processed product of tomato ketchup.

Particular	FWP	IP
No. of trials	15.00	15.00
No. of farm women involved	15.00	15.00
Cost of input in Rs.	1000.00	1100.00
Output of Production kg/day	24.00	26.00
Cost of produce/kg in (Rs.)	41.66	42.30
Gross profit in Rs.	1220.00	1500.00
Net return in Rs.	220.00	400.00
Income increase (%)	22.00	36.36
Benefit Cost Ratio (BCR)	1.22	1.36

Table 4 : Sensory parameter :
Organoleptic evolution of the processed product of tomato ketchup.

Product	Sensory attributes					
	Colour	Texture	Flavour	Taste	Overall acceptability	Shelf life (days)
(Farmers Practice)	4.7	4.5	5.4	5.8	5.5	90
(Improved Practice)	6.2	5.5	6.7	7.2	6.4	360

practice method as compared to the traditional method.

(1) BC Ratio = Gross profit / Cost of Input

FP = 1220/1000 = 1.22

IP = 1500/1100 = 1.36

(2) Income increases % - (Gross Profit – Cost of Input/ Cost of Input) × 100

FP - (1220-1000) /1000 × 100 = 22.00%

IP - (1500-1100) /1100 × 100 = 36.36%

$$\text{(3) Additional income (\%)} = \frac{\text{Higher income} - \text{lower income}}{\text{Lower income}} \times 100$$

IP = (1500-1220)/1220 × 100 = 22.95%

Conclusion

Value added product of tomato ketchup may increase the income of farm women and it could be a start up for small scale entrepreneur for rural area. The benefit cost ratio was (1.36) found in improved practice and (1.22) in traditional practice, where additional gross profit was increased by 22.95% compare to traditional method. Farm women earn the money by processing of fruits and vegetables. The processing can be helpful to control market price fluctuation and losses of fruits and vegetables.

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