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## **Entrepreneurship Development of Rural Women through Value Added Dairy Products**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author RD designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors SR and SK managed the analyses of the study. Author SK managed the literature searches. All authors read and approved the final manuscript.*

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### **ABSTRACT**

The most important trend of development in agriculture is increasing diversification of rural economy. Contribution of agriculture sector to total GDP of state is 26 Percent. Whereas livestock sector is contributing around 38 percent of Agriculture GDP (at current prices). Today dairy enterprise is practiced by 70 million rural households in India. Milk products generate cash income to farmers almost on daily basis, unlike other crops. Clean milk production by adopting the appropriate practices is urgent need to boost dairy industry and to meet obligations under Food Safety and standard Act, 2006. In Haryana, livestock production is more of women oriented, so their production potential can be enhanced through technical know how and support. Keeping in mind the contribution of women, the present study was undertaken in Hisar district of Haryana. 50 rural women of self help groups of Mangali and Muklan Villages (25 each) were selected purposively who were member of self help group from last one year, having need and interest in dairy farming and having at least two milch animals. A well planned five days training at CCSHAU Hisar, visit to dairy co-operatives, kit of mineral mixture and literature was provided to the participants. Knowledge gap reduction was found highest for paneer preparation 87.81 percent. For all three components, training effectiveness index ranged between 74.28% to 94.66% which shows that

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trainees perceived the intervention very useful and well covered. Overall training effectiveness index was 80.94 %. Highest perceived feasibility Index was found for Cultural compatibility (97.33%), followed by Physical compatibility practicability (93.33), Low initial cost (90.66%), Trial ability (88.00%) and Visibility of results (86.66%). Lowest perceived feasibility index was found for Cognitive simplicity 54.66 percent.

**Keywords:** *Entrepreneurship; clean milk; production; livestock; cognitive.*

## 1. INTRODUCTION

Rural women in India are closely linked and involved in livestock management. The dairy enterprise is practiced by 70 million rural households. In Haryana about 90% of rural women participate in dairy activities and livestock care. The most important trend of development in agriculture is increasing diversification of rural economy. Animal husbandry has been an integral part of that where women perform almost all the livestock rearing operations.

The country's milk production is estimated to have touched 132.43 million tonnes (mt) in the year 2012-13, which is higher than the estimated 92 mt for rice and 75 mt for wheat. Milk is one product that generates cash income to farmers almost on a daily basis, unlike other crops. The contribution of the dairy sector to the economy of state is progressively increasing at a faster rate as compared to other agriculture sectors. With this in mind, the National Dairy Development Board (NDDB) in Partnership with the Government of India and the World Bank has developed a National Dairy Plan (NDP) in order to increase productivity of dairy animals and to provide rural milk producers with greater access to the organized milk processing sector. The first phase of the Plan, NDP-I has a financial outlay of 416 million dollars (more than 20 billion rupees) and will be carried out between 2012 and 2017.

Agriculturists and nutritionists have generally agreed that developing the processing of milk and milk products is the fastest means of bridging the protein deficiency gap presently prevailing in the country. It is also a promising source of additional income and quick return of investment. It has been observed that there is a lot of scope for processing of milk and milk products.

Milk is the major constituent for making of paneer and any other sweets. It is a very profitable venture for the beginners. Vocational education is a means of creating employability and income generation which act as a driving force in

capacity building for sustainable dignified livelihood opportunities in rural India. Reflections from the current scenario indicate the vocational training has become the need of hour. Keeping this in view, the present investigation was undertaken with the objectives to organize vocational training on preparation of milk products for rural women and assess its impact.

## 2. METHODOLOGY

The present study was carried out in Hisar district of Haryana State. Well established self help groups (one each in two blocks) comprising 30 women each were selected from amongst women who were interested in receiving training, along with visits to research institutes/centre of excellence and had at least two milk animals. Further, intervention on dairy technology and milk processing was given in two phases.

**Phase I:** Implementation of intervention: Five days training-cum-intervention was provided along with a combination of a lecture, demonstration, media exposure, group discussion and literature was provided with the help of experts at HAU Hisar.

**Phase II:** Exposure visits were planned to different dairy co-operatives, women dairy co-operatives and innovative dairy farms. A brain-storming session was held at the campus with the help of scientists and experts after intervention. A mineral mixture kit along with literature was provided to each participant for reinforcement of all messages delivered during training and exposure visit. A training effectiveness index (TEI) was computed to quantify the utility and coverage of training as perceived by respondents with the help of formula given below:

$$TEI = 100 \text{ (Obtained utility score) / (Total obtained scores)}$$

Perceived feasibility was tested on five attributes, namely, relative advantage, physical compatibility, cultural compatibility, simplicity

**Table 1. Effectiveness of training as perceived by respondents (n=50)**

<b>A. General Information</b>	<b>Utility</b>			<b>Coverage</b>				
	<b>Score</b>	<b>WMS</b>	<b>Rank</b>	<b>Score</b>	<b>WMS</b>	<b>Rank</b>	<b>TEI</b>	<b>Rank</b>
• Marketing of milk products	54	2.16	II	60	2.4	III	76.0	II
• Formation of self help group	60	2.4	I	66	2.64	I	84.0	I
• Funding Agencies & machineries	52	2.08	III	62	2.48	II	76.0	II
<b>B. Entrepreneurship information</b>								
• Scope in agriculture / dairy production	68	2.72	II	62	2.48	IV	86.66	III
• Cost benefit analysis	61	2.44	IV	67	2.68	III	85.33	IV
• Milk processing techniques	70	2.8	I	72	2.88	I	94.66	I
• Entrepreneurial qualities	63	2.52	III	68	2.72	II	87.33	II
<b>C. Technical Information</b>								
• Preparation of carrot burfi	42	1.68	VI	70	2.80	III	74.66	VII
• Preparation of Khoya burfi	70	2.8	II	74	2.96	I	82.28	II
• Preparation of Gulab jamun	43	1.72	V	72	2.88	II	76.66	V
• Preparation Butter	65	2.60	III	65	2.66	V	74.28	VIII
• Preparation Ghee making	68	2.72	II	73	2.92	II	80.57	III
• Preparation Rasgulla	72	2.88	I	74	2.96	I	82.42	I
• Preparation Kalakand	62	2.48	IV	70	2.80	IV	75.42	VI
• Preparation Cake	68	2.72	II	73	2.92	II	80.57	III
• Preparation Bajra muffins	65	2.60	III	72	2.88	III	78.28	IV
<b>Overall Training Effectiveness Index: 80.94 %</b>								

complexity and triability index. Triability index was calculated on the formula given below:

$$PFI = 100 (ERA+PC+CC+SC+Tr) / (PRA+PC+CC+SC+Rr)$$

Where,

PFI = Perceived feasibility index (for innovation)

E = Extent to which innovation was rated feasible

P = Maximum limit to which innovation was rated feasible.

**Table 2. Perceived feasibility of value added dairy products (n=50)**

Sr. No.	Attribute	Agree Score	Undecided Score	Disagree Score	WMS	PAFI (%)	Rank
1.	<b>Relative Advantage</b>						
	Low initial cost	60	6	02	68	90.66	III
	Monetary benefit	54	4	05	63	84.00	VI
2.	<b>Compatibility</b>						
	Cultural compatibility	69	4	00	73	97.33	I
	Physical compatibility	66	2	02	70	93.33	II
3.	<b>Simplicity complexity</b>						
	Cognitive simplicity	06	24	11	41	54.66	XI
	Application simplicity	48	10	03	61	81.33	VII
	Resource simplicity	33	24	02	59	78.66	VIII
4.	<b>Trial ability/ Observability</b>						
	Communicability	24	26	04	54	72.00	IX
	Visibility of results	54	10	02	66	86.66	V
	Trialability	54	10	02	66	88.00	IV
	Provision of modification	12	30	06	48	64.00	X
<b>Overall PFI 89.87%</b>							

**Table 3. Adoption status of respondents on value added milk products**

A	Adoption level	No.	%
	Adopted value added milk products for household purpose	42	84.0
	As income generating activity	06	12.0
	Not adopted	02	4.0
B	Purpose of Adoption		
	To earn money	06	12.0
	To serve variety of food to family members	36	72.0
	To utilize surplus milk	32	64.0
	Interest	13	52.0
	Time utilization	05	20.0
	Encouragement & motivation during training	18	72.0

**Table 4. Changes in entrepreneurial traits of rural women (n=50)**

Traits (Total score)	Pre exposure mean	Post exposure mean	Difference	t-value
Self Confidence (33)	17.8	29.7	11.9	4.12*
Managerial ability (24)	15.6	19.2	3.6	2.68*
Assertiveness (15)	11.3	12.8	1.5	1.06
Risk taking (15)	6.6	7.5	0.9	1.37
Motivation (24)	11.2	21.4	10.2	4.06 *
Hard work (15)	13.5	14.6	1.1	1.42
Interpersonal relations(30)	25.4	26.7	1.3	1.48

\* Significant at 5 per cent level of significance

### 3. RESULTS AND DISCUSSION

#### 3.1 Effectiveness of Training as Perceived by Respondents

Effectiveness of training was assessed in terms of utility and coverage of subject matter covered during intervention. For each aspect scores were

obtained on a three point continuum and total scores were computed. Training Effectiveness Index was computed using following formula:

TEI= Obtained utility score + obtained coverage score / Total obtainable score X 100

To assess effectiveness of training as perceived by respondents, three components were covered viz. General information, entrepreneurial information and technical information. Table 1 reveals that as regards general information, highest training effectiveness index was observed for Formation of self-help groups (84.0%) followed by Marketing of milk products and Funding Agencies and machineries (76% each). Regarding entrepreneurial information, Milk processing techniques received maximum score (94.66%), followed by Entrepreneurial qualities (87.33%). Among technical components, maximum score was obtained by Preparation of *Rasgulla* (82.42%), followed by Preparation of *Khoya burfi* (82.28%), Preparation of Cake and *Ghee* (80.57% each). However for all the three components, training effectiveness index ranged between 74.28% to 94.66% which shows that trainees perceived the intervention very useful and well covered. Overall training effectiveness index was 80.94%. Similar results were reported by Dahiya [1] and Singh and Khare [2].

### 3.2 Perceived Feasibility of Value added Dairy Products

Table 2 shows that overall perceived feasibility of value-added dairy products was found to be 89.87%. All the four attributes namely relative advantage, compatibility, simplicity, Complexity and Trial ability/ Observability of Value-added Dairy Products scored above 50%. However, highest perceived feasibility Index was found for Cultural compatibility (97.33%), followed by Physical compatibility practicability (93.33%), Low initial cost (90.66%), Trial ability (88.00%) and Visibility of results (86.66%). Lowest perceived feasibility index was found for Cognitive simplicity (54.66%). This might be due to cognitive difficulties regarding technology and women needed more exposures on technical messages. Similar trends in results were observed by Dahiya & Dhanda [3] and Dahiya & Kundu [4].

### 3.3 Adoption Status of the Respondents

Results presented in Table 3 indicate the status of respondents about adoption of entrepreneurial development of women through value added dairy products. It was observed that majority of the respondents (84.0%) adopted the activity for household purpose only. Only 12.0% of them adopted the activity as an enterprise, while 4.0% of them did not adopt the activity at all. While

assessing the reason for adoption, the majority of them reported that they got motivation and encouragement during training & intervention given to them and to serve variety of food to family members and to utilize surplus milk (72.0 % each), followed by To utilize surplus milk (64%) and Interest (52%). However, a few of them (20.0%) also wanted to adopt the activity as time utilization. However, all those who adopted as entrepreneurial activity adopted for earning income. Similar trends were observed by Babel et al. [5] and Sabharwal et al. [6].

Results in Table 4 indicate entrepreneurial traits of rural women before and after training exposure. The t-values indicate that there were significant increases in the self confidence, managerial ability and motivation of rural women after training. However, no significant difference was observed in other traits.

## 4. CONCLUSION

Overall training effectiveness index was 80.94 %. Highest perceived feasibility Index was found for Cultural compatibility (97.33%), followed by Physical compatibility practicability (93.33%), Low initial cost (90.66%), Trial ability (88.00%) and Visibility of results (86.66%). Lowest perceived feasibility index was found for Cognitive simplicity 54.66 percent.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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