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### Calculate the drudgery involved in the selected drudgery reducing technologies and factors responsible for non adoption modern technology in dairy farming

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#### Abstract

Farm women spent most of their time in activities which were non-mechanized and involved drudgery, while mechanization has been the domain of men. Pre and post test on awareness and knowledge related to selected women friendly technologies was conducted before and after the technologies were introduced. An improvement was observed in the awareness and knowledge status among the respondents.

**Keywords:** Drudgery, technologies, dairy farming

#### Introduction

Most of the animal farming activities such as fodder collection, feeding, watering and health care, management, milking and household level processing, value addition and marketing are performed by women. Despite their considerable involvement and contribution, significant gender inequalities also exist in access to technologies, credit, information, inputs and services probably because of inequities in ownership of productive assets including land and livestock. The rapidly increasing demand for livestock products creates opportunities for empowerment of women. Therefore, there is a need to correct gender bias in livestock sector, veterinary education, research and service delivery systems as to enhance the effectiveness of women-oriented livestock development programmes. This review covers the role of women in livestock and dairy sector.

#### Objective

1. To study the knowledge and awareness of farm women about selected drudgery reducing practices.
2. To calculate the drudgery involved in the selected drudgery reducing practices/technologies adopted by farm women.
3. To identify the inhibiting factors responsible for non-adoption of modern technologies in dairy farming.

#### Methodology

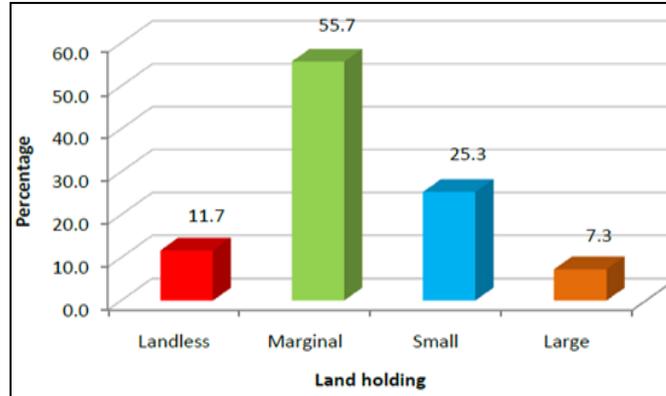
The study was conducted in Ambedkar Nagar district of U.P. Ambedkar Nagar district divided into five tehsils and ten blocks. In this study two blocks Tanda and Akbarpur were randomly selected. Out of the total 135 villages in Akbarpur and 96 villages in Tanda block, five villages were randomly selected from each selected blocks. Thus, total 10 villages were selected in the selected area. 300 farm women were selected in this study. Dependent and independent variables such as age, education, caste, time, drudgery, dairy enterprises etc. were used. The statistical tools such as rank, chi-square, Cr, adoption index etc. were used.

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**Results**

**Table 1:** Distribution of farm women according to land holding

Land holding	Frequency	Percent
Landless	35	11.7
Marginal	167	55.7
Small	76	25.3
Large	22	7.3
Total	300	100.0



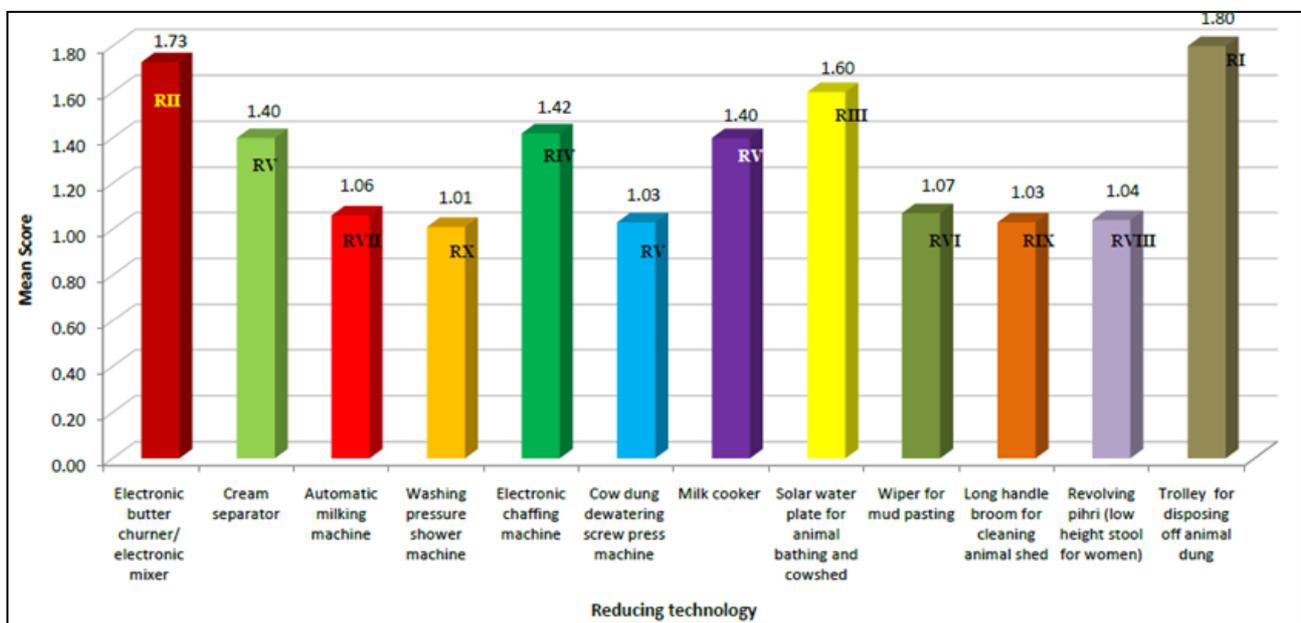
In rural areas a farmer is identified according to his land holding and his socio-economic status is measured with the size of land he possesses. Apart from landless farmers, all other farmers earn their living mainly through agriculture.

But, dairy is one of the occupations that can be adopted even by landless farm women from which they can start with even one cattle and feed their children and family.

**Table 2:** Knowledge and awareness about drudgery reducing practices in dairy farming

Sl. No.	Drudgery reducing Technologies	Yes	No	Mean score	Rank
1.	Electric butter churner	220(73.3)	80(26.7)	1.73	II
2.	Cream separator	120(40.0)	180(60.0)	1.40	V
3.	Automatic milking machine	18( 6.0)	282(94.0)	1.06	VII
4.	Washing pressure shower machine	4( 1.3)	296(98.7)	1.01	X
5.	Electric chaffing machine	125(41.7)	175(58.3)	1.42	IV
6.	Cow dung dewatering screw press machine	8( 2.7)	292(97.3)	1.03	IX
7.	Milk cooker	120(40.0)	180(60.0)	1.40	V
8.	Solar water plate for animal bathing and cow shed cleaning	180(60.0)	120(40.0)	1.60	III
9.	Wiper for mud pasting	20( 6.7)	280(93.3)	1.07	VI
10.	Long handle broom for cleaning animal shed	8( 2.7)	292(97.3)	1.03	IX
11.	Revolving Pihri (low height stool for women)	12( 4.0)	288(96.0)	1.04	VIII
12.	Trolley for disposing off animal dung	240(80.0)	60(20.0)	1.80	I

(Figures in parentheses denotes the percentage of respective values)



In fact, drudgery is termed for hard work, monotony, time consuming, and use of traditional tools with inappropriate working posture in field. So, one way of reduction of drudgery can be through quantifying the particular field operation. For example, if work is being performed by farm women with traditional tools in bending/ squatting posture, which was reduced by providing women friendly farm

equipment (equipment assessed/developed considering gender-perspective). So the physiological workload of same work by both the methods can be evaluated and assessed based on output. To further add the work, a subjective scale can also be used for performance as well as their feedback. In combination to these, drudgery can be assessed in quantifiable term.

**Table 3:** Awareness of farm women about selected drudgery reducing technologies

Sl. No.	Technologies	No. of days/year	Hours/day	Total hrs. involved in a year	Drudgery
1.	Electric butter churner	98	0.45	44.1	119 (39.7)
2.	Cream separator	25	0.45	11.2	73 (21.0)
3.	Automatic milking machine	11	0.50	5.5	130 (43.3)
4.	Washing pressure shower machine	8	0.25	2.0	121 (40.3)
5.	Electric chaffing machine	86	0.30	25.8	135 (45.0)
6.	Cow dung dewatering screw press machine	2	0.15	0.3	43 (14.3)
7.	Milk cooker	6	0.28	1.7	73 (24.3)
8.	Solar water plate for animal bathing and cow shed cleaning	8	0.30	2.4	78 (26.0)
9.	Wiper for mud pasting	125	0.45	56.2	132 (44.0)
10.	Long handle broom for cleaning animal shed	130	0.35	45.5	123 (41.0)
11.	Revolving Pihri (low height stool for women)	50	0.10	5.0	80 (26.7)
12.	Trolley for disposing off animal dung	185	0.20	37.0	210 (70.0)

(Figures in parentheses denotes the percentage of respective values)

In today's world almost all agriculture, dairy and household equipments that are being designed and developed are based on the end user whether the male or the female will use it. Such technologies are being adopted that are familiar to the user, easy to adopt, reduce drudgery and are also time saving. This further enhances the working capacity, saves lot of time and energy and increases working efficiency of the farm women. Reduced time taken to do a particular work gives the home maker some time for leisure and this entire time she can use to improve her mental and physical health. Farm women have to play a dual role in agriculture and dairy along with caring of children and household chores. She is so occupied in

all these activities that she cannot afford to think of her own self. She does not have time to do any other activity for her personal earning. But, on the contrary, women in urban areas live a completely different life just because they use modern technologies and drudgery reducing equipments. It can be said that if women start using modern drudgery reducing technologies in dairy sector, they can run it as a profitable enterprise. To run a profitable dairy enterprise farm women should have proper knowledge about various technologies, should know how to use them and have expertise in using such technologies.

**Table 4:** Degree of tiredness in using drudgery reducing technologies in dairy farming practices

Sl. No.	Technologies	No. of days/ year	Hours/day	Total hrs. involved in a year	Drudgery reducing index		
					Low	Moderate	Excess
1.	Electric butter churner	98	0.45	44.1	61(20.3)	120(40.0)	119(39.7)
2.	Cream separator	25	0.45	11.2	101(33.7)	136(45.3)	63(21.0)
3.	Automatic milking machine	11	0.50	5.5	126(42.0)	44(14.7)	130(43.3)
4.	Washing pressure shower machine	8	0.25	2.0	73(24.3)	121(40.3)	106(35.4)
5.	Electric chaffing machine	86	0.30	25.8	50(16.7)	115(38.3)	135(45.0)
6.	Cow dung dewatering screw press machine	2	0.15	0.3	43(14.3)	152(50.7)	105(35.0)
7.	Milk cooker	6	0.28	1.7	121(40.3)	73(24.3)	106(35.4)
8.	Solar water plate for animal bathing and cow shed cleaning	8	0.30	2.4	138(46.0)	78(26.0)	84(28.0)
9.	Wiper for mud pasting	125	0.45	56.2	52(17.3)	116(38.7)	132(44.0)
10.	Long handle broom for cleaning animal shed	130	0.35	45.5	41(13.7)	136(45.3)	123(41.0)
11.	Revolving Pihri (low height stool for women)	50	0.10	5.0	122(40.7)	80(26.7)	98(32.7)
12.	Trolley for disposing of animal dung	185	0.20	37.0	30(10.0)	60(20.0)	210(70.0)

(Figures in parentheses denotes the percentage of respective values)

Dairy farms today face challenges and opportunities fuelled by rapidly rising energy costs and concerns about environmental impacts. Dairy farms use more energy than almost any other agricultural operation. Energy is used in the milking process, and for cooling and storing milk, heating water, lighting and ventilation. Determining the best energy efficiency and energy management opportunities for dairy farms will help reduce energy costs, enhance environmental quality and increase productivity and profitability. Energy efficiency is often an inexpensive, quick and simple way to

save money. Opportunities for cost savings and improved processes include the implementation of variable speed drives for milk vacuum pumps and milk transfer systems, plate pre-coolers, heat recovery systems, energy-efficient light fixtures and efficient ventilation systems. Rising energy costs and environmental concerns are causing dairy farmers to alter their management practices. Dairy farmers are analyzing their energy inputs and investing in cost-effective energy conservation and energy efficiency measures.

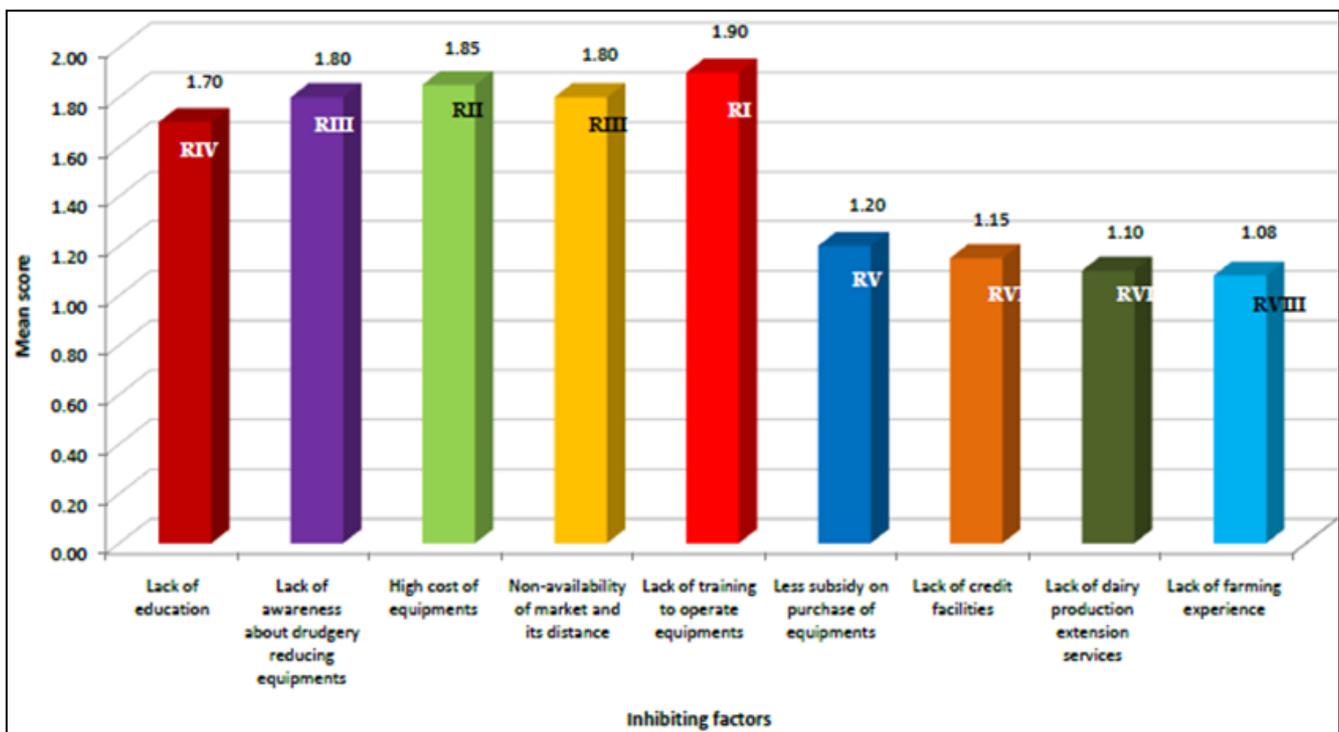
**Table 5:** Inhibiting factors responsible for non-adoption of technologies in dairy farming

Sl. No.	Inhibiting factors	Yes	No	Mean score	Rank
1.	Lack of education	210 (70.0)	90 (30.0)	1.70	IV
2.	Lack of awareness about drudgery reducing equipments	240 (80.0)	60 (20.0)	1.80	III
3.	High cost of equipments	255 (85.0)	45 (15.0)	1.85	II
4.	Non-availability of market and its distance	240 (80.0)	60 (20.0)	1.80	III
5.	Lack of training to operate equipments	270 (90.0)	30 (10.0)	1.90	I
6.	Less subsidy on purchase of equipments	60 (20.0)	240 (80.0)	1.20	V
7.	Lack of credit facilities	45 (15.0)	255 (85.0)	1.15	VI
8.	Lack of dairy production extension services	30 (10.0)	270 (90.0)	1.10	VII
9.	Lack of farming experience	24 (8.0)	276 (92.0)	1.08	VIII

(Figures in parentheses denotes the percentage of respective values)

Education plays an important role in the adoption of innovations/ technologies in dairy farming. Further, education is believed to improve the readiness of the household to accept new ideas and innovations, and get updated demand and supply price information which in turn enhances producers' willingness to produce more and increase milk

market entry decision and volume of sale. In developing countries like India, small and marginal farmers do not adopt even a low cost technology in some regions. They need zero cost technology or management type of interventions which is not always possible. If one gives financial support, they will agree otherwise chances of adoption become meagre.



## Conclusion

Dairy farmers operate in constantly changing physical and market environments. Implementing good dairy farming practice is about being adaptive to change. Dairy farmers should implement new technologies and practices that are consistent with their goals. Examples include different fodder crop varieties or irrigation practices that are more appropriate to a changing climate. Feed and labour are significant costs to most dairy farm businesses and so improvements in these areas have the largest impact on the financial sustainability of the enterprise. Sustainable businesses are adaptive to change and are prepared to seize opportunities to improve their operations as they arise. If the new technology is not available in the nearby market place farm women are not able to search for that technology as they are not able to move to markets outside the village for purchase. If dairy farming has to be encouraged among farmers as an enterprise then they should be imparted proper training through KVK's, NGOs and female extension workers. If small and marginal farmers are provided more subsidies on dairy equipments then they will be encouraged to adopt the modern drudgery reducing

equipments and earn good profit through their dairy enterprise. Credit relaxes the financial constraint of the household to invest on dairying.

## Recommendation

1. The main problem in the unorganized dairy sector is quality, which creates a serious threat to the health of consumers. Unsanitary local conditions, unhygienic containers, substandard processing equipment, poor handling methods etc. contribute to poor quality and at times unsafe milk in the unorganized dairy sector. To bring about structural changes in this sector, measures like processing at village level, process and market pasteurized milk in a cost effective manner, quality up-gradation of traditional technology to commercial sale using modern equipment and management skills are needed
2. Cooperative banks and other national banks should come forward to extend liberal credit facilities to the farmers particularly small and marginal farmers for the development of dairy enterprise.

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