



## Research Article

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# Technological Empowerment of Tribal Women through National Agricultural Innovation Project

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## Abstract

The study was conducted with an objective to study the impact of National Agricultural Innovation Project (NAIP) on technological empowerment of tribal women with regard to improved animal husbandry practices. The study was conducted in eight villages of Kherwada panchayat samiti of Udaipur district in Rajasthan covering 120 tribal women. The results indicated that NAIP has made significant impact on technological empowerment of tribal women as the beneficiaries exhibited higher knowledge than non beneficiaries in all the components of improved cattle, goat and poultry rearing practices.

**Key words:** Animal husbandry practices, livestock, extension education, Krishi Vigyan Kendra

## Introduction

The economy of India is predominantly agrarian with more than 70 percent of its population living in villages and depending on agriculture and allied activities for their livelihood. India has the largest livestock population in the world and ranks first in cattle (with a population of 204.57 million) and buffaloes (84.21million) and second in goat (124.36 million). The poultry population in the country was 489 million<sup>1</sup> Indian livestock plays a vital role in improving socio-economic condition of rural masses. The livestock sector contributed 5.4 percent to total GDP in 2002-2003. Livestock sector provide regular employment to 11 million people in principal status and 9 million people in subsidiary status.

The credit of growth in the livestock sector goes to women. Tribal women besides performing household and agriculture work have been traditionally and predominantly engaged in animal husbandry. Animal husbandry is generally

considered as a job of women where number of animal husbandry activities are performed by them viz. chopping of fodder, feeding animal, cleaning, milking of animals, goat rearing, backyard poultry etc. In spite of active involvement of women in different animal husbandry activities, lack of exposure and access to new technology has restricted women to show their full potential for the growth of livestock sector<sup>2</sup>.

To assist the women, new strategies and innovative solutions are urgently required which in turn will require technological support. Hence recently World Bank aided National Agricultural Innovation Project (NAIP) led by ICAR has been initiated on 26<sup>th</sup> July 2006 to enhance rural livelihood and nutritional security through integrated approach. The Maharana Pratap University of Agriculture and Technology, Udaipur implemented a sub project entitled "Livelihood and nutritional security of tribal dominated areas through integrated farming system and technology models" under component III<sup>rd</sup> of NAIP on 20<sup>th</sup> October 2007 for the period of five years.

The success of any development programme depends upon continuous feedback received by conducting con-current evaluation studies. Merely formulation of plans and policies of the project is not sufficient unless it is evaluated to see the feasibility of the programme. The process of evaluation in terms of its impact would indicate to what extent the defined objective of the project have been achieved. Since the NAIP has already completed more than three years of its implementation in the state. It is right time to have the review of the project in terms of its impact on the technological empowerment of the beneficiaries. Therefore, the present study was undertaken with the objective to study the impact of National Agricultural Innovation Project (NAIP) on technological empowerment of tribal women with regard to improved animal husbandry practices.

## Experimental

The study was conducted in Udaipur district of Rajasthan State. In Udaipur District the NAIP project is implemented by Krishi Vigyan Kendra (KVK), Badgoan in six villages of Kherwara panchayat samiti namely Mahuwada, Amarpura, Shampura, Dholpura, Katev (Upali) and Katev (nichli) and all these villages were taken for the purpose of the study. For sample selection, a village wise list of tribal women who have been covered under animal husbandry activities of the project was obtained from KVK Badgoan. From the list, 15 women from each village were selected randomly to form a total sample of 90 tribal women. Two more villages i.e. Bichiwada and Garnala which were not covered under the project were also selected from the same panchayat samiti in order to select a sample of 30 tribal women for comparison of results. Personal interview technique was used for data collection.

Based on the content covered in the training programmes organized under NAIP, a number of questions related to cattle, goat and poultry were framed in the knowledge test. Four major components related to each animal i.e. breeding, feeding, management and health care were included in the knowledge test. The total score obtained by the respondents in different components were converted into mean percent scores for ease of comparison. On the basis of Mean Percent Score (MPS), the respondents were distributed in three knowledge categories which were formulated by dividing total score of 100 into

three equal class intervals i.e. poor (below 33.3), average (33.3-66.7) and good (above 66.7). Mean Percent Score and Z- test were used for analysis of data.

## Results and Discussion

### Background Information

Findings of the study reveal that majority of the beneficiaries and non beneficiaries were from 31-45 years of age, were married and illiterate. All the respondents belonged to scheduled tribe category and adopted agriculture as a main occupation and rearing of cattle, goat and poultry as a subsidiary occupation. Majority of the respondents were from nuclear family, owners of small herd size livestock and belonged to low socio-economic status.

### Knowledge of the respondents regarding improved animal husbandry practices

Animal husbandry has been included as one of the important aspects in village based trainings organized for women under the project. Under the project the women were exposed to improved management practices with respect to cattle, goat and poultry rearing. In order to know existing knowledge of the women about improved animal husbandry practices, four major aspects viz. breeding, feeding, management and health care have been identified and knowledge of the respondents was judged in light of these. The knowledge of the respondents is discussed under following heads:

### Knowledge of the respondents regarding improved cattle rearing practices

#### *Overall knowledge of beneficiaries and non beneficiaries about cattle rearing practices*

Data presented in Table 1 depict that majority of the beneficiaries and non beneficiaries were in the category of average knowledge. Data also show that nearly one third of the non beneficiaries fell under the category of poor whereas in case of beneficiaries none of the respondents fell in this knowledge category. None of the non beneficiaries possessed good knowledge but 34.45 percent beneficiaries had good knowledge about improved cattle rearing practices.

Perusal of Table 2 reveals that beneficiaries had higher knowledge than non beneficiaries regarding improved cattle rearing practices as the overall mean percent score (MPS) of the beneficiaries was found to be 63.25 as compared to 38.30 MPS in case of non beneficiaries.

**Table 1.** Distribution of respondents by their overall knowledge about cattle rearing practices (n= 120)

Categories	Beneficiaries (n=90)		Non Beneficiaries (n=30)	
	f	%	f	%
Poor (below 33.3)	0	0	9	30
Average (33.3-66.7)	59	65.55	21	70
Good (above 66.7)	31	34.45	0	0

f = frequency

**Table 2.** Comparison of knowledge of the respondents regarding cattle rearing practices

S.No.	Component	MPS		Z value
		B	NB	
1.	Breeding	64.11	36.47	12.02**
2.	Feeding	62.45	35.86	13.95**
3.	Management	81.74	53.09	14.32**
4.	Health care	53.94	29.48	9.08**
	Overall	63.25	38.30	18.37**

\*\*Significant at 1 percent level of significance  
 B – Beneficiaries; MPS- Mean Percent Score;  
 NB – Non beneficiaries

Component wise knowledge score also indicate that beneficiaries scored higher than non beneficiaries in all the four components i.e. breeding (MPS 64.11 beneficiaries, 36.47 non beneficiaries), feeding (MPS 62.45 beneficiaries, 35.86 non beneficiaries), management (MPS 81.74 beneficiaries, 53.09 non beneficiaries) and health care (MPS 53.94 beneficiaries, 29.48 non beneficiaries). Thus, it is clear that the beneficiaries possessed higher knowledge in all the components than the non beneficiaries.

To judge the significance of difference the 'Z' test was applied and it was found that 'Z' values related to four practices viz. breeding, feeding, management and health care were recorded to be 12.02\*\*, 13.95\*\*, 14.32\*\* and 9.08\*\* per cent which were statistically significantly at 1 per cent level. Furthermore, overall 'Z' value (18.37\*\*), was found

to be highly significant at 1 per cent level. It means that there was highly significant difference in the existing knowledge about improved practices of cattle rearing practices between beneficiaries and non beneficiaries. In other words, beneficiary women possessed comparatively higher knowledge than non beneficiary women. The higher knowledge of the beneficiaries could be attributed to their exposure to the training programme organized under NAIP, whereas in case non beneficiaries none of them had attended any training programme related to animal husbandry.

Findings are supported by study<sup>3</sup> there was a highly significant difference between beneficiaries and non beneficiaries of "Central sector scheme women in agricultural" with regard to improved cattle rearing practices.

### Knowledge of the respondents regarding improved goat rearing practices

#### *Overall knowledge of beneficiaries and non beneficiaries about goat rearing practices*

Table 3 depicts that more than half of the beneficiaries fell under the average knowledge category and 43.33 per cent of them were in the good category. None of the beneficiaries have poor knowledge regarding improved goat rearing practices. Further, it was found that majority of the non beneficiaries (83.33%) fell in the poor category and only 16.67 per cent of them were in the average knowledge category. None of the non

**Table 3.** Distribution of respondents by their overall knowledge about goat rearing practices  
n - 120

Categories	Beneficiaries (n=90)		Non Beneficiaries (n=30)	
	f	%	f	%
Poor (below 33.3)	0	0	25	83.33
Average (33.3-66.7)	51	56.67	5	16.67
Good (above 66.7)	39	43.33	0	0

f = frequency

**Table 4.** Comparison of knowledge of the respondents regarding goat rearing practices

S.No.	Component	MPS		Z value
		B	NB	
1.	Breeding	67.51	23.92	16.46**
2.	Feeding	64.44	24.78	20.72**
3.	Management	79.52	34.76	17.12**
4.	Health care	50.34	16.41	12.11**
	Overall	65.63	25.02	23.25**

\*\*Significant at 1 percent level of significance  
B – Beneficiaries; MPS- Mean Percent Score;  
NB – Non beneficiaries

beneficiaries had good knowledge regarding improved goat rearing practices.

Perusal of Table 4 reveals that beneficiaries had higher knowledge than non beneficiaries regarding improved goat rearing practices as the overall mean percent score of the beneficiaries was found to be 65.63 as compared to 25.02 MPS in case of non beneficiaries.

Component wise knowledge score also indicate that beneficiaries score higher than non beneficiaries in all the four component i.e. breeding (MPS 67.51 beneficiaries, 23.92 non beneficiaries), feeding (MPS 64.44 beneficiaries, 24.78 non beneficiaries), management (MPS 79.52 beneficiaries, 34.76 non beneficiaries) and health care (MPS 50.34 beneficiaries, 16.41 non beneficiaries). It was found that 'Z' values related to four practices viz. , breeding, feeding, management and health care were recorded to be 16.46\*\*, 20.72\*\*, 17.12\*\* and 12.11\*\* per cent which were statistically significantly at 1 per cent level. Furthermore, overall 'Z' value (23.25\*\*), was found to be highly significant at 1 per cent level. It means that there was highly significant difference in the existing knowledge about improved practices of goat rearing practices between beneficiaries and non beneficiaries. In other words, beneficiary

**Table 6.** Comparison of knowledge of the respondents regarding poultry rearing practices

S.No.	Component	MPS		Z value
		B	NB	
1.	Breeding	72.42	20.74	20.04**
2.	Feeding	84.44	45.74	6.35**
3.	Management	51.84	18.88	9.07**
4.	Health care	43.17	13.80	12.11**
	Overall	63.45	22.94	22.79**

\*\*Significant at 1 percent level of significance  
B – Beneficiaries; MPS- Mean Percent Score;  
NB – Non beneficiaries

women possessed comparatively higher knowledge than non beneficiary women.

### Knowledge of the respondents regarding improved poultry rearing practices

#### Overall knowledge of beneficiaries and non beneficiaries in poultry rearing practices

Perusal of Table 5 indicates that majority of the beneficiaries (60%) were in the category of average knowledge as compared to only 6.67 per cent non beneficiaries in this category. Similarly 40 per cent beneficiaries exhibited good knowledge of improved poultry rearing practices whereas none of the non beneficiaries did fall in this category. Data further reveal that majority of non beneficiaries (93.33%) were found in the poor knowledge category. The results are in concordance with the study<sup>4</sup> that majority of the poultry farmers (82%) had low knowledge regarding recommended poultry rearing practices.

Perusal of Table 6 reveals that there was significant difference in the knowledge of beneficiaries and non beneficiaries in the all the components of poultry rearing as 'Z' value were significant at 1 per cent level of significance. The beneficiaries exhibited better knowledge in all the

**Table 5.** Distribution of respondents by their overall knowledge about poultry rearing practices  
n - 120

Categories	Beneficiaries (n=90)		Non Beneficiaries (n=30)	
	f	%	f	%
Poor (below 33.3)	0	0	28	93.33
Average (33.3-66.7)	54	60	2	6.67
Good (above 66.7)	36	40	0	0

f = frequency

components as compared to the non beneficiaries. Review of mean scores in different components indicates that the beneficiaries had good knowledge in the components breeding and feeding with mean percent score's of 72.42 and 84.44, respectively. Whereas non beneficiaries had poor knowledge in these components with mean percent score of 20.74 and 45.74, respectively. Similarly the beneficiaries had average knowledge regarding management (51.84 MPS) and health care (43.17 MPS) components whereas the non beneficiaries had poor knowledge of these components with MPS of 18.88 and 13.80, respectively.

The overall MPS's of the beneficiaries was found to be 63.45 whereas in case of non beneficiaries it was only 22.94. Thus, it could be concluded that beneficiaries possessed better knowledge of improved poultry rearing practices as compared to the non beneficiaries.

### Conclusion

Based on the findings it could be concluded that NAIP has made significant impact on technological empowerment of tribal women as knowledge of the beneficiaries was found to be higher than non beneficiaries in all the components of cattle, goat and poultry rearing practices.

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