

## Impact of “Integrated Murrah Development Scheme” (IMDS) on dairy farmers of Haryana state of India

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### ABSTRACT

The present study was taken up to measure the impact “Integrated Murrah Development Schemes (IMDS) on socio-economic status of the beneficiaries as well as on productive and reproductive performance of the Murrah buffaloes of the beneficiaries. ‘Z’ test analysis indicated that there was significant difference in socio-economic status of the beneficiaries and non beneficiaries viz; milk consumption, milk sale at 5 % level of probability, while; herd size, type of animal shed, material possession, milk production, annual income from dairying, annual gross income of the respondents at 1 % level of probability. Similarly, there was significant difference in productive and reproductive performance of Murrah buffaloes of the beneficiaries and non beneficiaries viz; age at first calving, calving interval, at 5 % level of probability; while, number of AIs required per conception, lactation length, dry period, average lactation milk yield, average daily milk yield and peak yield at 1 % level of probability. Most of the beneficiaries (73.75%) had medium level overall impact of IMDS on socio-economic status of the beneficiaries followed by high (17.50%) and low (8.75%). Whereas, medium level overall impact of IMDS was found on the productive and reproductive performance of Murrah buffaloes of the majority beneficiaries (89.38%) followed by high impact on few (10.63%). Such development programmes should be promoted for the improvement of socio economic status of farmers as well as improvement of milk productivity of the animals.

**Key words:** Murrah, Productive performance, Reproductive performance, Socio economic status.

### INTRODUCTION

Haryana holds a special place in the field of milk production with total milk production 80% of which contributed by buffaloes alone. The state is home-tract of one of the best buffalo breeds of the world i.e. ‘Murrah’ buffalo called as black gold of India. Murrah buffaloes are great milk producers with high fat content in addition to being efficient feed converters even when fed on poor quality roughages. 18<sup>th</sup> Livestock Census of 2007 revealed that there were 59,53,000 buffaloes in Haryana, which included mainly Murrah buffaloes. Most of the states procure breeding stock from Haryana for upgradation of their low producing buffaloes. The germplasm of such well-defined breeds constitute valuable genetic resources which has been conserved on priority basis by ‘Integrated Murrah Development Scheme’ (IMDS) implemented in the state. This motivated the researcher to study the impact of the IMDS on the Murrah buffaloes as well as the dairy farmers. The present study was taken up to measure the impact of IMDS on socio-economic status of the beneficiaries as well as on productive

and reproductive performance of the Murrah buffaloes of the beneficiaries.

### MATERIALS AND METHODS

Haryana state comprises 21 district divided into the four divisions. Four districts namely, Kurukshetra, Mahendragarh, Bhiwani, Jhajjar were selected, from each of the four divisions of the state, purposively. Out of four districts, two blocks were selected from each district. Further, four villages were selected, purposively, from each block. Thus, a total of 32 villages from 8 blocks of 4 districts of Haryana state were the locale of study. In order to find out the impact of IMDS on the beneficiaries, five beneficiary Murrah owners and five non-beneficiaries Murrah owners from each village were selected, thereby making the sample size of 320 respondents (160 beneficiaries and 160 non-beneficiaries of IMDS). To measure the overall impact of IMDS on socio-economic status of the respondents as well as on productive and reproductive performance of the Murrah

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406 of faloes, an index was developed, respectively. The data were collected by using pre-tested structured interview schedule. The data collected were coded, compiled and analyzed using simple descriptive statistics and z- test.

## RESULTS AND DISCUSSION

### Impact of IMDS on socio-economic status of dairy farmers:

The changes occurred in socio-economic status of respondents due to “Integrated Murrah Development Scheme (IMDS)” were studied with respect to selected traits as given in table 1. The mean land holding of beneficiaries (5.51ha) was higher than the non-beneficiaries (4.95 ha). The mean difference (0.56 ha) indicated that there was a slight difference in land holding. With respect to herd size mean score of beneficiaries (6.63) was more than the non-beneficiaries (3.53). The mean difference (3.09) indicated that there was much difference in herd size. The reason might be that the IMDS, provided incentive and technical services to their beneficiaries, hence, the milk production was increased which increased their income and they were able to purchase more milch animals. The mean score on animal shed for beneficiaries (2.59) was higher than the non-beneficiaries (1.87), which indicated 38.50% difference in type of animal shed. This might be due to the fact that a large number of beneficiaries constructed animal shed for their animals. It shows the improvement in the management practices. The increased herd size demanded better management, which includes better housing, might have resulted in the construction of more number of animal sheds in the study area.

Table-1 further revealed that the mean score in case of material possession of beneficiaries (19.14) was slightly more than non-beneficiaries (14.05), which indicated that quite difference in material possession and shows the

improvement in the socio-economic status of beneficiaries, which might be due to effect of IMDS. Further it could be revealed that the purchase of these farm and non-farm goods might be due to the increased income and awareness about comfort in living standards. The mean difference in score of social participation (0.61) indicated that there was slight difference in social participation.

There was significant difference in the mean score of milk production (15.09), milk consumption (2.53) and Milk sell (12.48), respectively. The increase in milk production of beneficiaries was obviously due to the increased number herd size, better management of animals, accessibility to technical inputs and services delivered by Animal Husbandry officials as a result of implementation of IMDS. The increase in milk production of beneficiaries further improved milk consumption as well as sale of milk. This ultimately affected on the annual income of beneficiaries from dairying (mean difference - Rs. 43503.13/annum) which led to increase in total family income (mean difference - Rs. 59990.63/annum).

‘Z’ test analysis to see the significant differences between beneficiaries and non-beneficiaries in their socio-economic status has shown in Table 1. Calculated ‘Z’ value

**TABLE 2:** Overall impact of IMDS on socio-economic status of the respondents

Impact Category	Beneficiary (n=160)	Non-Beneficiary (n=160)
Low	14 (08.75%)	94 (58.75%)
Medium	118 (73.75%)	62 (38.75%)
High	28 (17.50%)	04 (02.50%)

**TABLE 1:** Percent change and Impact of “Integrated Murrah Development Scheme (IMDS) on socio-economic status of the respondents

Socio-economic Variables	Beneficiary (n= 160)	Non-Beneficiary (n= 160)	Mean difference (d)	Percent change	‘z’ Value
	Mean score				
Land holding (Hectares)	5.51	4.95	0.56	11.31	0.45
Herd size (In LU)	6.63	3.53	3.09	87.54	6.94**
Type of animal shed	2.59	1.87	0.72	38.50	5.62**
Material possession	19.14	14.05	5.09	36.23	3.36**
Social participation	5.97	5.36	0.61	11.38	0.14
Milk production(Litres/day)	27.07	11.98	15.09	125.96	8.81**
Milk consumption (Litres/day)	8.61	6.08	2.53	41.61	2.05*
Milk sale(Litres/day)	18.45	5.97	12.48	209.04	2.53*
Annual income from dairying (Rupees/annum)	54246.88	10743.75	43503.13	404.91	7.14**
Annual gross income (Rupees/annum)	280675.00	220684.00	59990.63	27.18	7.78**

\*\* Significant at 1 percent level of probability

\* Significant at 5 percent level of probability

indicated that there was positive significant difference in socio-economic status of the respondents *viz*; milk consumption, milk sale at 5 per cent level of probability, while; herd size, type of animal shed, material possession, milk production, annual income from dairying, annual gross income of the respondents were highly significant at 1 per cent level of probability, whereas no significant difference was found in social participation and land holding.

It indicated that IMDS had created a great impact on their beneficiaries. The high socio-economic status of the beneficiaries over the non-beneficiaries might be due to the financial help in the form of incentive money for their domestic and income generating activities to enhance their standard of living and technical services to the beneficiaries of IMDS such as trainings, veterinary check-up of their animals, A.I. facilities at their doorstep, insurance cover for their buffaloes, linkage with A.H. Departments, A.I. centers, etc. to improve their knowledge and awareness regarding scientific dairy farming practices. The non-beneficiaries were deprived of such vital support and services which were essential to enhance the income, naturally lag behind their counterparts in socio-economic status. It could be inferred that the livestock development programmes should be implemented to improve socio-economic status of rural people. These findings are in agreement with the study of Reddy *et al.* (2000), Tiwari and Arya (2001), Nachimuthu (2002) and Ghosh *et al.*, (2009).

**Overall impact of IMDS on socio-economic status of the dairy farmers:** The overall impact of IMDS on the socio-economic status of the dairy farmers is presented in the Table 2. Most of the beneficiaries (73.75%) had medium level overall impact of IMDS on socio-economic status of the beneficiaries followed by high (17.50%) and low (8.75%).

Whereas, in case of non-beneficiaries, 58.75% respondents had low level of impact followed by medium (38.75%) and high (2.5%). Thus, findings of this study clearly revealed that IMDS created a positive impact on socio-economic status of dairy farmers.

**Impact of IMDS on productive and reproductive performance of the Murrah buffaloes:** The ultimate goal of any livestock development programme is to increase the productivity of milch animals; which, in turn, depends upon their productive and reproductive performance. The percent difference in the productive and reproductive performance of the Murrah buffaloes of beneficiaries and non-beneficiaries showed in Table 3.

The mean score difference (0.35) between number of AIs required per conception of Murrah buffaloes of beneficiaries and non-beneficiaries showed that there was a decrease in number of AIs required per conception of Murrah buffaloes of beneficiaries as compared to Murrah buffaloes of non-beneficiaries. In case of service period, the mean score difference (17.51) indicated that there was a decrease in service period of Murrah buffaloes of beneficiaries as compared to Murrah buffaloes of non-beneficiaries. The mean score difference (3.26) indicated that the age at first calving of Murrah buffaloes of beneficiaries was lower as compared to Murrah buffaloes of non-beneficiaries.

The mean score difference (31.78) indicated that there was an increase in lactation length of Murrah buffaloes of beneficiaries as compared to Murrah buffaloes of non-beneficiaries. Whereas, the mean score difference (9.48) indicated that there was a decrease in dry period of Murrah buffaloes of beneficiaries as compared to Murrah buffaloes of non-beneficiaries. Similarly, there was a decrease in calving interval of Murrah buffaloes of beneficiaries

**TABLE 3:** Percent change and Impact of IMDS on productive and reproductive performance of the Murrah buffaloes

Productive and Percent change	Beneficiary	Non-Beneficiary	Mean difference (d)	Percent change	'z' Value
	'z' Value	(n= 160)			
	Mean score				
Number of AIs required per conception (In Nos.)	1.85	2.20	0.35	15.90	7.60**
Service period (In days)	116.12	133.63	17.51	13.10	1.19
Age at first calving (In months)	42.02	45.28	3.26	07.20	2.38*
Lactation length (In days)	303.06	271.28	31.78	11.72	4.42**
Dry period (In days)	102.02	111.49	09.48	08.50	6.40**
Calving interval (In days)	421.75	433.75	12.01	02.77	2.11*
Average lactation milk yield (In liters)	2648.13	1910.31	737.81	38.63	3.10**
Average daily milk yield (In liters)	14.27	7.71	6.56	85.34	4.92**
Peak yield (In liters)	18.04	11.03	7.01	63.55	5.91**

\*\* Significant at 1 percent level of probability

\* Significant at 5 percent level of probability

as compared to Murrah buffaloes of non-beneficiaries (mean score difference 12.01).

The difference in mean score of average lactation milk yield (737.81 liters), average daily milk yield (6.56 liters) and peak yield (7.01 liters) indicated that the average lactation milk yield, average daily milk yield and Peak yield of Murrah buffaloes of beneficiaries was higher than the non-beneficiaries. This might be due to the technical services, regular health check-up, timely A.I facilities, regular vaccination and deworming, maintaining of proper health as well as productive and reproductive parameters record, timely advice by A.H. officials under IMDS.

Calculated 'Z' value (Table 3) indicated that there was significant difference in productive and reproductive performance of Murrah buffaloes *viz*: age at first calving, calving interval, at 5 per cent level of probability; while, number of AIs required per conception, lactation length, dry period, average lactation milk yield, average daily milk yield and peak yield at 1 per cent level of probability. Whereas, no significant difference was found in Service period. The findings corroborated the past researchers observations of Verma (1993), Rao *et al.* (2000), Natchimuthu (2002), Babu (2007), Prakash (2009) and Vitthalrao (2010) that productive and reproductive performance of dairy animals of various dairy development programmes beneficiary farmers was more as compared to non-beneficiary dairy farmers.

**Overall impact of IMDS on productive and reproductive performance of the Murrah buffaloes:** The overall impact of IMDS on productive and reproductive performance of the Murrah buffaloes is presented in Table- 4. The IMDS had medium level

**TABLE 4:** Overall impact of IMDS on productive and reproductive performance of the Murrah buffaloes

Impact Category	Beneficiary (n=160)	Non-Beneficiary ( n = 1 6 0 )
Low	---	72 (45.00%)
Medium	143 (89.38%)	83 (51.88%)
High	17 (10.63%)	5 (03.12%)

overall impact on productive and reproductive performance of Murrah buffaloes among the majority of beneficiaries (89.38%) followed by high impact (10.63%). Whereas, in case of non-beneficiaries, (51.88 %) Murrah buffaloes had low level of impact followed by medium (45.00%) and high (03.12%).

## CONCLUSION

It is obvious from the findings of the study that IMDS had overall positive impact on socio-economic status of beneficiary dairy farmers. The overall productive and reproductive performance of the Murrah buffaloes owned by beneficiary dairy farmers was better than the non beneficiary dairy farmers. This reflects the effect of the technical services, regular health check-up, timely A.I facilities, regular vaccination and deworming, maintaining of proper health as well as productive and reproductive parameters record, timely advice by A.H. officials under IMDS. The government of India as well as other states should initiate such more schemes for the livestock as well as dairy development as it ultimately helps in upliftment of socio economic status of dairy farmers in rural areas and ensure food security by increasing milk production through productivity improvement.

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