DR-2270
[1-6]

RESEARCH ARTICLE Asian Journal of Dairy and Food Research

Effect of Farmer FIRST Program on the Adoption of Animal Husbandry Practices in Haryana

Manjeet[1], Joginder Singh Malik[2], Simran[3], Vatsala Saharan[1]

10.18805/ajdfr.DR-2270

ABSTRACT

Background: Agricultural development programs in India are crucial for promoting modern animal husbandry practices, enhancing livestock productivity, increasing rural incomes and ensuring food security. However, barriers such as lack of awareness, limited access to quality inputs, feed and veterinary services financial constraints, cultural beliefsand infrastructure deficiencies hinder the adoption for many smallholder farmers of these practices. So in this context, an attempt to assess the effectiveness of the farmer FIRST programme (FFP)

Methods: Present study was conducted in the deliberately chosen districts of Karnal and Hisar, in the state of Haryana during 2018-2019. A total of 240 farmers, using random sampling, 120 farmers from each district were chosen, 60 farmers from each of the adopted and non-adopted villages, who were the beneficiary and non-beneficiary of FFP and the same was implemented by NDRI, Karnal and CCSHAU, Hisar.

Result: The effect of the programme was assessed, which revealed that in the adopted village, maximum adoption was recorded with respective artificial insemination (A.I.) practices (2.97), followed by feeding concentrate mixture to animals based on milk production (2.76), providing adequate open space to the animal (2.84), treatment for infertility, repeat breeding, anestrus cases by the veterinarian (2.91), clean milking practices (3.0). The study revealed significant differences in farmers' adoption of advised animal husbandry practices, including breeding, reproduction, feeding, health careand overall animal practices, between adopted and non-adopted villages. The study recommends that the government expand the program's scope to enhance livestock farming and improve the socio-economic conditions of the farmer's community.

Key words: Animal husbandry practices, Farmer FIRST.

INTRODUCTION

The livestock sector is a significant component of India's agriculture sector, where small and marginal farmers predominantly engage in farming to support their families. Agriculture and livestock production are intertwined, mutually dependentand essential to ensuring global food security.

India produces 23.67% of the world's milkand its milch cattle population is the greatest in the world. In India, farm-fresh milk makes for about 50% of all milk consumed. Dairy is India's most productive agricultural sector, contributing 5% of the country's GDP and directly employing over 8 crore farmers (FAOSTAT, 2021; Economic Survey, 2022)

There is no doubt that overall livestock production increased manifold after independence due to the white revolution and other programmes for dairy sector *i.e*., Key Village Scheme, Intensive Cattle Development Project, Operation Flood (OF). The broad objective of all these programmes was to increase the milk production.

Even though the Indian dairy sector is the world's largest producer of milk, individual animal milk production is far lower as compared to that in developed countries (Parihar *et al*., 2020). The dairy business in India is growing more swiftly, yet it is struggling because of inefficient management, marketing, breeding, feedingand healthcare practices. Farmers dealt with problems such as systematic breeding, a shortage of green fodder, inappropriate shelter management, inadequate feeding, insufficient animal health care practices, lack of refrigerated storageand delayed vaccination (Patil *et al*., 2009; Acharya *et al.,* 2022). For the socioeconomic development of dairy farmers, it is necessary to strengthen their connections through cooperatives or other similar organizations (Mandi *et al.,* 2022). To satisfy their daily necessities, many farmers are leaving the livestock farming and turning to alternative forms of income since they are unable to keep up with evolving trends. Poor livestock producers who dedicate a lot of time to animal care and rearing are let down by the poor

[1]SGT University, Gurugram-122 505, Haryana, India.
[2]CCS Haryana Agricultural University, Hisar-125 004, Haryana, India.
[3]Nutritionist, Steadfast Nutrition, Noida-201 301, Uttar Pradesh, India.

Corresponding Author: Manjeet, SGT University, Gurugram-122 505, Haryana, India. Email: manjeetpanwar365@gmail.com
ORCIDS:0000-0002-2694-7409, 0000-0002-1289-940X

How to cite this article: Manjeet, Malik, J.S., Simran and Saharan, V. (2025). Effect of Farmer FIRST Program on the Adoption of Animal Husbandry Practices in Haryana. Asian Journal of Dairy and Food Research. 1-6. doi: 10.18805/ajdfr.DR-2270.

Submitted: 21-08-2024 **Accepted:** 22-11-2024 **Online:** 08-02-2025

financialgains from their labour. An open and flexible design can be more attentive to stakeholders' interests, experiencesand viewpoints as well as allow room for the negotiation of methodologies, experimentsand technology adaptation. (McDougall and Braun, 2003). In addition to increasing farmer awareness of subsidy schemes and climate change advice, respondents proposed new agricultural technologies such as laser field levelers, zero tillage, seed treatment, water conservation, micro irrigationand poly houses. (Manjeet *et al.,* 2018).

To tackling the problems faced by the dairy farmers, a bottom-up strategy was used by ICAR by implementing Farmer FIRST Programme (FFP), a nationwide programme for the agricultural community since 2015. To prioritize smallholder agriculture and the complex, variedand risk-prone circumstances of the majority of farmers, ICAR's new approach through this programme attempts to go beyond production and productivity by enhancing the farmer-scientist interaction through a participatory mode. So, keeping the importance of the Farmer FIRST programme in the livestock sector, present study was conducted to find its effectiveness.

MATERIAL S AND METHODS

The current study was undertaken in during year 2019-20 in two areas of Haryana, Hisar and Karnal, where the CCS Haryana Agricultural University and the ICAR-National Dairy Research Institute, respectively, are implementing the Farmer FIRST initiative. In the Karnal district, Garhi-Gujran and Samora were seen as adopted and non-adopted villages, respectively. Gurana, in Hisar, was regarded as an adopted village, whereas Datta was regarded as a non-adopted village. A total of 240 farmers were chosen, 120 from each district and 60 from each adopted and non-adopted village. Personal interviews of the sampled farmers were conducted for the collection of data. The independent factors included age, education, socioeconomic status, irrigation source, extension contact, mass media exposure, scientific orientation, economic status, risk orientation and farming system. The data were analysed using standard statistical procedure and the paired t-test were employed as statistical methods for the data analysis. The Farmer FIRST program's impact was assessed by contrasting the replies of respondents regarding livestock husbandry techniques from adopted and non-adopted villages.

RESULTS AND DISCUSSION

Animal breeding and reproduction practices

The impact of FFP on adoption of animal breeding and reproduction practices is shown in Table 1. In the adopted village, maximum adoption was recorded with A. I. practices (2.97) which was followed by the practice of taking the animal for A. I. within 12 hours after detection of heat (2.96) and keeping watch on oestrous cycle heat symptoms (2.75). Contrastingly, in the non-adopted village, the level of adoption was found relatively low for the preferred practices by the farmers, *viz*., A. I. practices (2.88) followed by taking the animal for A. I. within 12 hours after detection of heat (2.78)and improved breed (2.60). Similar finding reported Sharma Ramavatar (2022) by Breeds and breeding practices in milk shed areas were greatly enhanced by the Operation Flood Program.

The artificial insemination become general breeding practice among dairy farmers, who are innovative as well as having more extension contact. Whereas, low adoption of A.I. and improved breed among the farmers in non-adopted villages might be due to their unfavourable attitude towards A.I. It could be seen that there is a clear difference regarding adoption of breeding practice in the adopted village as compared to the non-adopted village. The results of Madhavan *et al*. (2022) provided support for these conclusions, as they discovered a significant disparity in the degree of adoption of scientific pig production practices, such as breeding, between the two groups of small-scale pig farmers in Assamese adopted villages. About 88.33 percent of respondents in non-adopted villages fell into the low adoption category, compared to 50.56% of farmers

Table 1: Impact of FFP on adoption of animal breeding and reproduction practices. N=240

Practice	Weighted score n=120	Adoptedvillage (WM)	Weightedscore n=120	Non-adopted village (WM)
Improved breeds	321	2.67	312	2.60
A. I. Service	357	2.97	346	2.88
Keeping watch on oestrous cycle heat symptoms	330	2.75	276	2.30
Allow the animal to mate within 3 months after parturition	317	2.64	301	2.50
Taking the animal for A.I. within 12 hours after detection of heat symptoms	356	2.96	334	2.78
Getting animal diagnosed for pregnancy	310	2.58	240	2.00
Taking animal for regular check-up during pregnancy.	320	2.66	282	2.35

WM- [Weighted mean].

in adopted villages who fell into this category. Dairy farmers in experimental villages were given access to the A.I. facility by NDRI project workers. This might be the cause of the experimental villages' increased adoption of scientific breeding techniques compared to the control villages. Similar finding reported by (Mandi *et al*., 2022) that better management techniques, prompt veterinarian care, high-quality feedand instruction from JMF members all improved the performance of cooperative dairy animals, according to the study.

Animal feeding practices

Data from Table 2 show how FFP has impacted the adoption of animal feeding practises. Maximum adoption was observed in the adopted village with continuous colostrum feeding to new-born calves up to five days after its birth and giving animals the necessary amount of green feed (2.98), followed by adopting an animal to stall feed (2.85). In case of non-adopted village, maximum adoption was with feeding colostrum continuously to new-born calves up to five days of its birth (2.90) followed by providing recommended dose of green fodder to animals (2.88), adopting animal to stall feeding (2.83); while minimum adoption was observed with feeding concentrate mixture to animal on milk production (1.70), feeding advance pregnant animal with extra 1-2 kg concentrate over and above maintenance (1.65) and feeding without chaffing of green fodder to animal (1.25). Table 2 shows higher adoption of all the feeding practices in the adopted village, which might be due to more exposure of dairy farmer. According to a similar study, beneficiaries and non-beneficiaries had mean adoption scores for dairy animal feeding practices of 5.27±0.19 and 4.20±0.12, respectively, according to (Garai *et al*., 2017). Finding explains dairy farmers in experimental villages adopted scientific dairy animal feeding procedures significantly earlier than non-beneficiaries in control villages.

Animal management practices

Data regarding the impact of FFP on adoption of the animal management practices are presented in Table 3. It is evident that maximum adoption was observed in the

Table 2: Impact of FFP on the adoption of animal feeding practices. N=240

Practice	Weighted score n=120	Adopted village (WM)	Weighted score n=120	Non-adopted village (WM)
Feeding colostrum continuously to new born calves up to 5 days of its birth	358	2.98	349	2.90
Feeding concentrate mixture to animal on the basis of milk production	332	2.76	204	1.70
Feeding advance pregnant animal with extra 1-2 kg concentrate over and above maintenance ration	337	2.80	199	1.65
Providing recommended dose of green fodder to the animal regularly	358	2.98	346	2.88
Adopting animals to the practices of stall feeding	342	2.85	340	2.83
Prefer chaffing of the green fodder	184	1.53	150	1.25

WM- [Weighted mean].

Table 3: Impact of FFP on adoption of animal management practices. N=240

Practice	Weighted score n=120	Adopted village (WM)	Weighted scoren n=120	Non-adopted village (WM)
Providing adequate open space to the animal	341	2.84	339	2.82
Keeping your animal in ventilated shed / house	338	2.81	327	2.72
Protecting animal from severe cold and hot wave	360	3.00	360	3.00
Providing timely supply of water and feed to the animal	352	2.93	350	2.91
Practice of animal castration	325	2.70	340	2.83
Practice of weaning in cattle calves	349	2.90	339	2.82
Practicing de-worming in cattle calves	352	2.93	342	2.85
Clean milking practices	360	3.00	353	2.94
Proper disposal of dung	357	2.97	346	2.88
Keeping your advanced pregnant animal separate from herd	337	2.80	323	2.69
Proper sanitation in animal shed	343	2.85	333	2.77
Taking buffalos to pond for wallowing	328	2.73	324	2.70

WM- [Weighted mean].

adopted village with preventing their animal from severe cold and hot waves (3.00) and clean milking methods (3.00), followed by suitable dung disposal (2.97). Whereas in non-adopted village, the same level of adoption was found in case of protecting their animal from severe cold and hot waves with (3.00) whereas clean milking practices (2.94), provide timely supply of water and feed to animal (2.91), proper disposal of dung (2.88) found lower than that in adopted village. Findings could be a result of the regular animal health camps held in the adopted village under FFP. Additionally, greater extension interactions and a focus on science among the farmers in the adopted village would be another good justification. The above study is supported by the finding of (Garai *et al*., 2017) studied that Beneficiary farmers had considerably higher knowledge ($p<0.01$) than non-beneficiary farmers regarding dairy animal management practices.

Animal health care practices

The impact of FFP on adoption of animal health care practices is provided in Table 4, which demonstrated that in the adopted village, the largest impact was observed with improved adoption of treatment for infertility, repeat breeding and anoestrus cases by veterinarian (2.91) followed by practicing timely vaccination against contagious disease like, Foot and Mouth Disease (F. M. D.) (2.86), identification of mastitis and udder infection symptoms and timely treatment (2.82). In the non-adopted village, maximum adoption was with practicing timely vaccination against contagious diseases like Foot and Mouth Disease (F. M. D.) (2.84) followed by treatment for infertility, repeat breeding and anoestrus cases by veterinarian (2.76), identification of mastitis and udder infection symptoms and timely treatment (2.74)and timely treatment of sick and weak animals by Veterinary Doctors (2.53). The frequent animal health camps held under FFP may be the reason why more health practises are being accepted in the adopted village. Similar type of result is reported by (Garai *et al*., 2017). According to this finding, farmers in experimental villages had considerably higher knowledge of dairy animal health ($p<0.01$) compared to non-benefiting farmers in control villages.

Marketing of dairy product

Table 5 depicts the impact of FFP on adoption in marketing of the dairy product. In the adopted village, highest impact was found with marketing of milk (2.70) followed by purchasing of freshly calved animals (2.40), getting market information (2.34), preparing of value-added products of

Table 4: Impact of FFP on adoption of animal health care practices. N=240

Practice	Weighted score n=120	Adopted village (WM)	Weighted score n=120	Non-adopted village (WM)
Timely treatment of sick and weak animals by Vet. Doctors	337	2.80	304	2.53
Segregation of diseased animals suffering from contagious diseases	338	2.81	296	2.46
Practicing timely vaccination against contagious diseases like Foot and Mouth Disease (F. M. D.) *etc.*	344	2.86	341	2.84
Treatment for infertility, repeat breeding, anestrus cases by veterinarian	350	2.91	332	2.76
Identification of mastitis and udder infection symptoms and timely treatment	339	2.82	329	2.74

WM- [Weighted mean].

Table 5: Impact of FFP on the information of marketing of dairy product. N=240

Practice	Weighted Score	Adopted village (WM)	Weighted Score	Non-adopted village (WM)
Marketing of milk	324	2.70	321	2.67
Preparing value-added products of milk	279	2.32	275	2.29
Getting market information	281	2.34	276	2.30
Selling products to wholesale market	277	2.30	270	2.25
Selling dung cake and manure	247	2.05	245	2.04
Purchase freshly calved animals	289	2.40	279	2.32

WM- [Weighted mean].

Table 6: Overall impact of FFP on adoption of animal husbandry practices. N=240

Practices	Mean		Mean difference	Percentage of difference	t- value
	Adopted village	Non-adopted village			
Animal breeding and reproduction practices	19.235	17.418	1.817	9.446	12.627**
Animal feeding	18.753	16.016	2.737	14.594	11.806**
Animal management	34.675	34.141	0.534	1.540	0.389Z
Animal health care	19.316	16.850	2.466	7.832	15.381**
Marketing of dairy products	14.111	13.890	0.240	1.700	0.194
Over all Animal practices	112.114	103.955	08.159	07.275	20.038**

** Significant at P<0.01.

milk (2.32), selling products to the wholesale market (2.30) and lowest adoption was with selling dung cake and manure (2.05).

Overall impact of FFP on adoption of animal husbandry practices

Table 6 indicates the overall impact of FFP on adoption of animal husbandry practices in the adopted and non-adopted villages. The adoption of animal husbandry practices, including breeding, feeding, management, animal health careand marketing, was assessed. The data show that animal husbandry interventions in the study area had a significant impact on the adoption of animal breeding and reproduction practices with 't-value' (12.627) followed by animal feeding (11.806), animal health care (15.381) and overall animal husbandry practices (20.038). The overall impact of FFP in the study area showed more adoption of innovative dairy practices in adopted villages. A study by Chadda *et al*., (2024). that Knowledge Index of beneficiaries was greater (61.46) than that of non-beneficiaries (56.68), suggesting that self-help groups had a major positive impact on rural women's socioeconomic circumstances.

CONCLUSION

The study's findings showed how the Farmer FIRST Program affects the adoption of Animal Husbandry Practices in Haryana. It is clear that there was a considerable difference between adopted and non-adopted communities in all facets of scientific dairy farming practice. It can be observed that there was a clear difference regarding breeding practices, feeding practices, animal management practices, animal health care practices with higher adoption in the adopted village when compare to non-adopted village shows positive effects of Farmer First Programme due to farmers possessed better knowledge for breeding, feeding, animal health care practices.

ACKNOWLEDGEMENT

The present study was not supported by any agency.

Disclaimers

The views and conclusions expressed in this article are solely those of the authors and do not necessarily represent the views of their affiliated institutions. The authors are responsible for the accuracy and completeness of the information provided, but do not accept any liability for any direct or indirect losses resulting from the use of this content.

Informed consent

All animal procedures for experiments were approved by the Committee of Experimental Animal care and handling techniques were approved by the University of Animal Care Committee.

Conflict of interest

The authors declare that there are no conflicts of interest regarding the publication of this article. No funding or sponsorship influenced the design of the study, data collection, analysis, decision to publish, or preparation of the manuscript.

REFERENCES

Acharya, K.K., Malhotra, R., Sendhil, R., Mohanty, T.K. and Sahoo, B. (2022). Adoption of sustainable dairy management practices among peri-urban dairy farmers in Odisha. Indian Journal of Extension Education. 58(3): 120-125.

Chadda, A., Jadoun, Y.S., Singh, J. and Kansal, S.K. (2024). Comparative analysis of beneficiaries and Non-beneficiaries about scientific livestock farming practices. Indian Journal of Animal Research. 58(4). doi: 10.18805/IJAR.B-4404.

Economic Survey, (2022). Economic Division, Department of Economic Affairs, Ministry of Finance, Government of India.

FAO, (2021). Statistical Yearbook-World Food and Agriculture

Garai, S., Garai, S., Maiti, S., Meena, B.S., Ghosh, M.K., Bhakat, C. and Dutta, T.K. (2017). Impact of extension interventions in improving livelihood of dairy farmers of Nadia district of West Bengal, India. Tropical animal health and production. 49(3): 641-648.

Kharga, B.D., Saha, A., Pradhan, K. and Roy, R. (2021). Focusing the relationship of net profit with the determinant attributes of rural entrepreneurs. Indian Journal of Extension Education. 57(2): 135-138.

Mandi, K., Chakravarty, R., Ponnusamy, K., Kadian, K.S., Dixit, A. K., Singh, M. and Misra, A.K. (2022). Impact of Jharkhand

State Cooperative Milk Producers' Federation on Socio economic Status of Dairy Farmers. Indian Journal of Extension Education. 58(2): 47-52.

McDougall C. and Braun, A. (2003). Navigating complexity, diversity and dynamism: Reflections on research for natural resource management. In Managing natural resources for sustainable livelihoods: Uniting science and participation. London: Earthscan. 20-47.

Madhavan, M.M., Mohan, N.H., Barman, K., Gupta, V.K., Pator, S., Chutia, P. and Chetri, T.K. (2022). Adoption of scientific pig production practices by small scale pig farmers in Assam: A Comparative Analysis. Indian Journal of Extension Education. 58(4): 46-50.

Manjeet, Singh Nasib, Malik Singh Joginder (2018). Role of extension personal for transfer of information on climate change in agriculture: A case study of Haryana, India. Agricultural Science Digest. 38(3): 197-200. doi:10.18805/ag.D-4770.

Mandi, K., Chakravarty, R., Ponnusamy, K., Kadian, K.S., Dixit, A. K., Singh, M. and Jha, B.K. (2023). A comparative analysis of reproductive and productive performance of Jharkhand State Cooperative Milk Producers' Federation. Asian Journal of Dairy and Food Research. 42(4): 580-585. doi: 10.18805/ajdfr.DR-1973.

Nirmala, G. (2015). Impact of good agricultural practices on small farm development: Knowledge and levels of farm women of rain fed areas. Indian Research Journal of Extension Education. 15(4): 153-156.

Parihar, K., Verma, J. and Kumar, A. (2020). Extent of adoption of scientific dairy farming practices in Khargone district of Madhya Pradesh. International Archive of Applied Sciences and Technology. 11(3): 40-44.

Patil, A.P., Gawande, S.H., Nande, M.P. and Gobade, M.R. (2009). Constraints faced by the dairy farmers in Nagpur district while adopting animal management practices. Veterinary World. 2(3):111-112.

Sharma, R. (2022). Study on Dairy Cattle, Breeding Management Practices in Milkshed and Non-milkshed Areas of Bikaner District (Rajasthan). Agricultural Science Digest. 42(2): 228-232. doi: 10.18805/ag.D-5308.