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Scientific adoption level of buffalo farmers in Madhepura district of Bihar, India

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Abstract

Buffalo plays an important role in Indian dairy sector. It holds the greatest promise for food security and sustainable development in the typical farming system of India. The buffalo is one of the major livestock species contributing to the livelihood security of the farmers in our country. However, due to unawareness and some other factors scientific buffalo farming practices are not adopted at desired level by majority of buffalo farmers in many areas of our country. With this background a study on adoption level of scientific buffalo farming practices was taken up to identify the present status of buffalo farming and to reveal the adoption level of scientific buffalo farming practices along with factors associated with it. The study was conducted in Madhepura district of Bihar with a sample size of 100 buffalo farmers. The result reveals that majority of the farmers did not adopt most of the scientific buffalo farming practices due to unawareness, lack of training and some other factors. Considering the importance of buffalo farming regular awareness camps and proper training must be organized to improve the socio-economic status of the farmers by helping them to adopt scientific buffalo farming practices. 26 items from different aspects of improved buffalo farming practices viz. Feeding practices, management practices, health care and control practices and breeding practices was developed to ascertain the adoption level of the respondents. Under feeding practices colostrum feeding rank 1st. Under management practices navel cord cutting practices rank 1st. Under health care practices maggot treatment rank 1st. and in case of breeding practices regular pregnancy diagnosis ranks 1st that was interesting followed by heat detection which ranks 2nd.

Keywords: Buffalo farmer, Madhepura, adoption, Bihar

1. Introduction

India is predominantly an agrarian country with animal husbandry playing significant role in accelerating the growth of rural economy and thus it is a backbone of agricultural based farming sector. Out of the total agricultural GDP of India, livestock sector contributed about 27.25 per cent during 12th five year plan, 2012-13, of which maximum contribution was from dairy sector (Anonymous, 2014) [1].

The buffalo (*Bubalus bubalis*) holds the greatest promise for food security and sustainable development in the 21st century as these animals form an integral part of the typical farming system in India. In India, the buffalo has been the backbone of the rural economy. It is the mainstay in the production of butter and ghee. Not only this, the buffalo is also considered more useful for reasons of higher fat content in milk, its ability to utilize agricultural by-products more efficiently and requirement for fewer kilo calories to produce 1 litre milk. The buffalo has been the friend of small farmers, often their largest capital asset.

The buffalo is one of the major livestock species contributing to the livelihood security of farmers in villages. It can thrive in adverse climatic conditions using sparse vegetation. The major buffalo breeds are Murrah, Surti, Nili Ravi, Jafravadi and Mehsana. Buffaloes are mainly reared by socially and economically backward people of the society for whom they act as a store of wealth of high liquidity, a resource for meeting the household nutritional security and a source of regular income.

The farmers rear buffalo mainly in an extensive management system using traditional management practices relying on common pasture land for grazing. Buffaloes in India are spread over almost all parts of the country with varying population density, majority being concentrated in the north and western state where most of milch breeds of buffalo are found and holds strategic place in overall livestock economy and serve three important purposes such as milk, meat and draught power supply (Cockrill, 1974) [2].

Buffalo can efficiently utilise the roughages and crop by-products into high quality milk suitable for a wide range of dairy products including butter, milk powder, mozzarella, cheese, khoya, curd, yoghurt etc. India's livestock sector is one of the largest sectors in the world. Dairy farming is one of the important activities of the rural population of our country. Dairy is the most suitable production system that has enormous potential to improve the socioeconomic status of the large percentage of the rural population. The bulk of milk production is in the hands of numerous landless, marginal and small farmers scattered all over the country. For farmers, livestock are becoming an increasingly important source of income. Dairy farming had contributed as food basket, nutrition security, and household income of the farmers and play a significant role in generating gainful employment in the rural areas throughout the year. India ranks first in the world with annual milk production of 155.5 million tones. Most of the milk produced is by animals reared by small farmers and landless labourers. The per capita availability of milk was an average of 337 g per day in India and Bihar ranks 16th with 184 g per day (BAHS, 2010-11). As per CPCB 2013 there are 907 slaughter house in India of which only 3 in Bihar. Meat production in India from buffaloes is 805 thousand tonnes from 6890 thousand slaughtered buffaloes and Bihar ranks 6th with 42 thousand tonnes meat production from 677 thousand slaughtered buffaloes (FICCI survey, 2013). In India Uttar Pradesh holds 1st rank in buffalo population with 28.17 per cent of total buffalo population and Bihar ranks 6th with 6.96% of total buffalo population and in terms of number it is 7567.23 thousand. Among the districts of Bihar Madhepura district has the highest buffalo population (10.84%). The second and third position belongs to Madhubani and Motihari with share of buffalo population of 5.02 and 4.5 per cent respectively. In order to augment milk production, increase productivity and income, as well as animal health is universally recognised to generate self employment, adoption level of farmers were studied. In this study four practices were included these are feeding practices, managemental practices, health care and diseases control practices and breeding practices. The generated data will act as the backbone of the future strategies to be taken by different stake holders for the benefit of the buffalo farmers in the study area as well as in similar situations.

2. Material and Method

The present study was conducted in Madhepura district of Bihar, as the buffalo population was highest as per 19th livestock census in Bihar. Two blocks namely Madhepura and Kumarkhand was purposively selected as these two blocks had largest population of buffalo in Madhepura district. From each blocks, 5 villages were selected randomly. Therefore, a total of 10 villages were selected for the present study. From each village 10 buffalo farmers were randomly selected, thus forming a total sample size of 100. Respondents were interviewed personally with the help of pre-structured schedule developed for the study. The structured schedules were administered to the respondents for data collection. In this regard buffalo farmers were requested to give their response against each specified question and by investigators there adoption level were categorized as not adopted, partially adopted and completely adopted based on their daily practices. Each major practices (4 practices) comprises of several sub heads, thus operation making total of 26 farm

practices in selected area for study purpose. The statistical method used for data analysis is frequency and Pie chart.

3. Result and Discussion

3.1 Adoption level in feeding practices

It is evident from Pie chart 1 that with regard to feeding practices majority of the respondents (53%) belonged to non-adoption category followed by partial adoption (37%) and completes adoption (10%) only. Regarding dry matter intake, green fodder feeding and colostrum feeding it was observed that all practices were not adopted by 83, 56 and 57 percent respondents respectively. From table:1 it was also clear that colostrum feeding to new born ranks 1st in terms of adoption level under feeding practices.

The findings of salt feeding and mineral mixture feeding are supported by Manohar *et al.* (2014) [3].

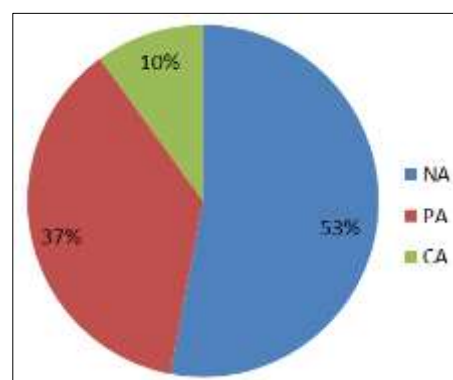


Chart 1: Feeding practices overall adoption level

3.2 Adoption level in management Practices

A persual of Pie chart 2 reveals that a great majority of the respondents (56%) were in the non-adoption category followed by partial adoption (33.45%) and very few (10.44%) were under complete adoption categories. Regarding proper housing, breeding care, newborn care, navel cord cutting and lime used for sanitation it was observed that all practices were not adopted by 83, 80, 60, 59 and 59 percent respectively (Table 1). The observation of adoption of naval cord cutting practices are in line with the findings of Singh *et al.* (2014) [4] who found 33.33 percent in the hill region of Senapati and Thoubal districts of Manipur state of India. Regarding navel cord cutting practices 28 percent respondents were found in complete adoption category, the findings of navel cord cutting are in line with the findings of Singh *et al.* (2014) [4]. From Table: 1, knowledge level of respondent farmers for naval cord cutting ranks 1st and for calf care is least.

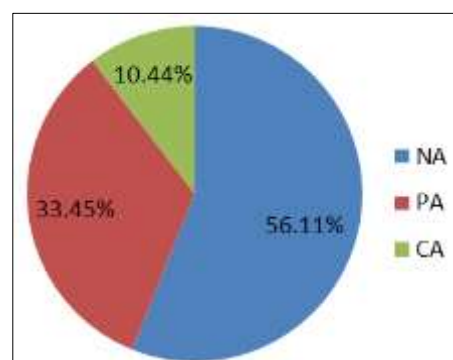


Chart 2: Management practices adoption level

3.3 Adoption level in health care and diseases control

It is obvious from Pie chart 3 that with regards to health care and disease control practices 43.86 percent of the respondents belonged to non-adoption category followed by partial adoption (35.85%) and complete adoption (20.29%). Regarding deworming schedule, vaccination schedule and sick animal isolation from herd and parasite control it was found that all practices were not adopted by 60, 59, 57 and 56 percent respondents respectively. In case of anoestrous animal treatment 37 percent respondents were in non-adoption category followed by partial adoption (36%) and complete adoption (27%) (Table 7). The findings of partial adoption of anoestrous animal treatment are in line with the findings of Singh *et al.* (2014). Table; 1 reveals maggot treatment knowledge ranks 1st.

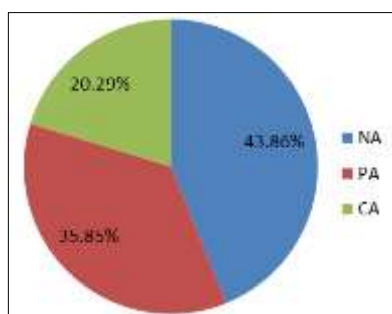


Chart 3: Health care and disease control practices adoption level

3.4 Adoption level in breeding practices

From Pie chart 4 it is clear that with regard to the breeding practices 47.67 percent of the respondents belonged to non-adoption category followed by partial adoption (31.67%) and complete adoption (20.66%). Regarding breeding at proper age majority of the respondents (92%) were found in non-adoption category. Similarly in case of regular pregnancy diagnosis it was found majority of the respondents (45%) were in non adoption category (Table:1) but also from the Table:1 it is clear that majority of respondents follow regular pregnancy diagnosis, this variation may be due to their threat of false diagnosis or unconformity diagnosis by the practitioner.

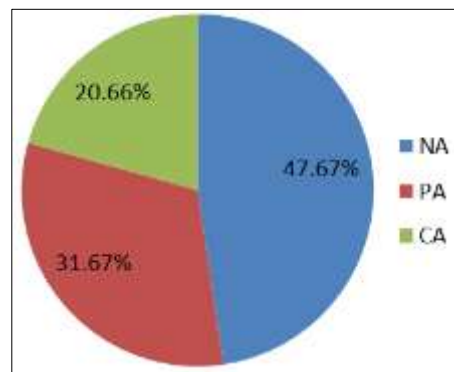


Chart 4: Breeding practices adoption level

Table 1: Distribution of scientific adoption level of respondent farmers in different fields of practices

Sl. No.	Adoption practices	Categories	Adoption level (%)			Overall adoption level (%)			Mean ± SE	Ranking as per CA
			NA	PA	CA	NA	PA	CA		
1.	Feeding practices	Dry matter feeding	83	13	04	53	37	10	4.44 ± 0.915	IV
		Green fodder feeding	56	42	02					V
		Mineral mixture in feed	23	52	25					II
		Salt in feed	49	43	08					III
		Colostrum feeding	57	14	29					I
		Special feed to lactating animal	48	50	02					V
		Special feed to pregnant animal	55	45	00					VI
2.	Management practices	Proper housing	83	14	03	56	33.45	10.44	6.17 ± 0.45	VI
		Daily cleaning of shed	48	32	20					II
		Lime used for sanitation	59	38	03					VI
		Protection in adverse environment	38	54	08					V
		Breeding care	80	20	00					VII
		Pregnant animal care	35	50	15					IV
		Before and after parturition	43	40	17					III
		Calf care	60	40	00					VII
3.	Health care and disease control practices	Navel cord cutting	59	13	28	44	35.85	20.29	5.58 ± 0.56	I
		Deworming schedule	60	20	20					IV
		Vaccination schedule	59	21	20					IV
		Parasite control	56	16	28					II
		Maggot treatment	24	47	29					I
		Anoestrous animal treatment	37	36	27					III
		Sick animal isolation from herd	57	34	09					V
4.	Breeding practice	Treatment of sick animals	14	77	09	48	31.67	20.66	2.19 ± 0.16	V
		Breeding at proper age	92	05	03					III
		Sign of heat	06	66	28					II
		Regular pregnancy diagnosis	45	24	31					I

4. Conclusions

The results revealed that there is a need for conducting more number of needs based and well tailored training programme suited to buffalo farmers which would in turn help them to

have more extension contact and to uplift their knowledge to increase production, animal health and their own income as well as their life style, under scientific way of farming. For mass adoption of improved buffalo farming practices and to

uplift the socio-economic status of the buffalo farmers periodical training and awareness camp should be organized by the different stake holders including government and NGOs.

5. Acknowledgements

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