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An analytical study on the impact of animal husbandry on economic upliftment of Munger and Samastipur districts

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Abstract

Livestock has played an indispensable role in the Indian economy. Animal husbandry is culturally and economically integrated into the society. Livestock is a source of protein, livelihood and draught power. Diverse enterprises like Apiculture, Sericulture, and Pisciculture have been reared traditionally for many years. Indigenous stock has higher resistant to diseases and can better adapt to climate change. They act as a buffer to crop failure and sudden monetary losses. Rearing a wide variety of animals like yaks, camels and Mithun apart from cattle, sheep and goat are unique characteristics of animal husbandry in India. Technological backwardness, financial constraints, and inadequate veterinary services are few issues that hinder the progress in the sector.

Study was undertaken for identification of role of livestock towards sustainable livelihood of the two districts of Bihar. Livestock which play socially and economically very significant role in Indian agriculture and also have pivotal role due to providing multi-functional outputs like nutritive rich food and helps in supplementing family incomes vis-à-vis contribution to socio-cultural and livelihood security.

In this paper the authors tries to identify and prioritize the socio-economic condition of farmers in generating livelihood from livestock production systems and social and economical impact of livestock on the farmer livelihood. From 38 districts of Bihar state, Munger and Samastipur was purposively selected and from that two blocks each were selected randomly. A total of 120 farmers were selected as sample respondents for the present study. Data was collected by interview schedule, personal observations and participatory rural appraisal tools i.e transect walk, key informant interview, focus group discussion.

Keywords: Indian economy, animal husbandry, livestock, farmer

1. Introduction

India continues to be the largest milk producer in the world with an annual production of 188 million tonnes recorded in 2018-19. India is the leading milk-producing country in the world since the year 1997 and it contributes to around 20% of the world Milk has the highest value in the Indian agriculture and food sector, more than the combined value of wheat and rice. Milk contributes close to one-third of the gross income of rural households. The livestock sector contributes to 4% of India's GDP and the dairy sector engrafts the majority of the share. In short, Indian Dairy Sector plays a very important role in the Indian Economy. It is an undeniable fact that the role and contribution of Dairy Professionals in the growth and development of the Indian Dairy sector are enormous. Dairying and milk production is a main economic activity and has become a secondary source of income and employment in rural areas of Gujarat. Cooperatives play a significant role in the animal husbandry and dairying sector in India, which contributes about one-third of the agricultural GDP of the country.

Dairy development along the cooperative lines was considered to be the most effective strategy for helping the rural poor without altering the village social structure and providing a guaranteed market for milk at secure prices, provide cattle feed at a reasonable price and efficient veterinary and extension facilities. Dairy cooperatives all over Gujarat help Member Dairy Farmers in form of various socio-economic upliftment schemes.

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Animal husbandry makes a significant contribution in the national economy and socio-economic development of the country. In rural India, the livestock is the main source of livelihood to the farmers, where over 15- 20 percent families are landless and about 80 percent of the land holders belong to the category of small to marginal farmers. The farmer population, scattered across the country, is differently placed with respect to the politico-administrative structures existing in the country.

2. Objectives of the study

- To identify the socioeconomic profile of the Farmers
- To ascertain the awareness of Socio-Economic Upliftment Schemes available for Farmers

3. Scope of the study

The present research work has been taken up to explore the awareness of various socio-economic upliftment schemes among Farmers in Munger and Samastipur District, Bihar.

4. Materials and Methods

The present study was conducted in the state of Bihar. Bihar state constitutes 38 districts, out of which Munger and

Samastipur districts were selected randomly. Further, one block was selected randomly from each district and from each block two villages were selected randomly. From four selected villages 30 respondents each were selected randomly constituting a total number of 120 respondents. The criteria for selection of the respondents were that the respondents should belong to recognized farmers of Bihar and they must follow any livestock production systems as a source of livelihood. Data was collected by using PRA techniques like transect walk, social map, focus group discussion, key informants interview and personal interview using pre-tested structured interview schedule. The simple statistical tools such as mean, standard deviation, frequency and cumulative square root frequency were used for data analysis.

5. Analysis of data

Personal, socio-economic characteristics of livestock farmers Respondents are the basic unit of any social research expression. Hence, it is of paramount importance to describe the background of the respondents, as the socio-personal and socio-economic traits play an important role in livestock production system.

Table 1: Personal, socio-economic characteristics of livestock farmers

Character	Category	Frequency	%
Age	Young age (<35 years)	18	15.00
	Middle age (35-50 years)	86	71.67
	Old age (>50 years)	16	13.33
Education status	Illiterate (can't read and write)	10	08.33
	Functional literate	13	10.83
	Primary education	43	35.83
	Middle education	44	36.67
	Secondary education	7	05.83
	Higher secondary	3	02.50
	Graduate and above	0	0
Family education status	Low (<2)	63	52.50
	Medium (2-3)	47	39.16
	High (>3)	10	08.34
Family size	Small (<6)	25	20.84
	Medium (6-8)	67	55.83
	Large (>8)	28	23.33
Family type	Nuclear family	40	33.33
	Joint family	80	66.67
Annual income	Low (<32500)	36	30.00
	Medium (32500-41800)	61	50.83
	High (>41800)	23	19.17
Mass media exposure	Low	39	32.50
	Medium	59	49.17
	High	22	18.33
Extension contact	Low	27	22.50
	Medium	65	54.17
	High	28	23.33
Social participation	Low (<3)	69	57.51
	Medium (3-7)	46	38.33
	High (>7)	5	04.16

Source: Primary data

5.1 Age

The age of respondents is an important factor, which determines the maturity of an individual and has a bearing on thinking, experience, decision making and exposure of a person. The data in the (Table 1) indicates that the highest percentage of the livestock farmers (71.67%) belonged to middle age category, i.e. 35-50 years, followed by 15.00

percent in young age category and rest (13.33%) belonged to old age category. It was observed that minimum age was 24 years and highest age was 73 years. Balakrishna (1997) [14], Sabapara *et al.* (2014) [8] also found that majority of respondents were in middle age group. It could be observed from (Table 1) that maximum number of owners of small-scale livestock farmer lies in age group 35-50 years. About

87% owners of small-scale livestock farmer lie in age group 18-50 years. Therefore, it may be said that small scale livestock farms are mainly run by young to middle age people. It can be concluded from the (Table 1) that middle age category prefer livestock farming for maintaining their livelihood.

5.2 Education status

The data shown in (Table 1) revealed that 52.51% of the respondents' family belongs to low education status followed by medium and low which account 39.16 percent and 8.33 percent, respectively. Rural literacy rate among the farmers is far below than urban. It is also reflected in the present study. The (Table 1) reveals that 36.67% of the respondents had acquired education up to middle school level and almost similar i.e. 35.83% of respondents had acquired primary level of education. 52.50% of respondents had low level of family education status.

In similar studies Garai (2007) ^[9], Verma (2012) ^[10] has also reported low education status among the tribal people. Low level of education status may be on account of less schools and distant location of the schools in the locality and frequent destructions of school building due to insurgency.

5.3 Family size

The family size of the farmers in the study area that are shown in (Table 1) indicated that more than half (55.83%) were of medium family size ranging from 6 to 8 members, followed by 23.33 percent in high and 20.84 percent in small family size category. This is lower than the observation of Rao (1986) ^[11]. Family size influences various activities in term of family labour availability, annual income of family etc. It was also observed that in majority the livestock are maintained by all the family members collectively. Similar findings were revealed by Gupta (2011) ^[12].

5.4 Family type

Data from the (Table 1) indicates that majority (66.67%) belonged to joint type family and 33.33 percent of tribal respondent had nuclear type family. The majority of the family in the research area was found joint type because farmers live in their own settlement pattern and having knit group pattern.

5.6 Annual income

Income is a crucial variable, which influences the farmers' investment in farming activities. The income obtained from various sources, viz crop, livestock and others as reported by the respondents were considered in order to calculate the gross annual income per family. The data in (Table 1) revealed that the annual income of 50.30 percent of the respondent was ₹ 32500 to ₹ 41800, followed by 30 percent of the respondent had less than ₹ 32500 annual income and 19.70 percent respondent had more than ₹ 41800 annual income. It might be due to the fact that farms and livestock give more annual income for farmers as compare to other sources like wages employment, remittance and shop keeping and selling other non-timber products.

5.7 Mass media exposure

Frequency data analysis in (Table 1) indicates that exposure to various media helps a farmer to acquire latest information on livestock farming, dairy farming, market information and

policies of government. Exposure to mass media indicates the degree of progressiveness of the farmers. Information on latest farming practices are spread through various media like magazines, newspaper, radio, television, internet, telephone etc. So, it's become imperative to investigate about the level of media exposure. A perusal of the (Table 1) reveals that 67.50 percent of the respondents had medium to high level of exposure to mass media, followed by 32.50 percent of the respondents who belonged to low level exposure of mass media. In general, it is observed that majority (81.67%) of the livestock owners possessed low to medium exposure to mass media which might be due to their low to medium level of awareness regarding importance of various mass media in improving their knowledge.

Because of this reason they might not have shown their expected interest in useful programmes broadcasted and telecasted on radio and television, respectively, as well as from literature published by different agencies. The findings of this study are supported with the findings observed by Dhaka *et al.* (2011) ^[6]. Extension contact Data depicted in (Table 1) reveals that more than half (54.17%) of the livestock farmers have medium level of extension contact, followed by 23.33 percent high extension contact and rest 22.50 percent with low level of extension contact. Thus, it can be concluded that majority (76.67%) of the respondents had low to medium level of extension contacts. The reason for this might be that, various extension agencies like training and visit system of state agriculture department, state animal husbandry department were involved for various extension activities. In the study area majority of farmers were less literate so, they might have created awareness about how to make contact with these extension agencies. These findings are similar to the findings revealed by George and Chauhan (2004). Social participation The data in (Table 1) illustrates that all of the respondents had social participation. Among them, 57.51 percent of them reported to have 'low' level social participation and 38.33 per cent of them reported to have 'medium' level of social participation followed by 4.16 percent in high level social participation.

The level of participation was low, as they were tribal people living in far off, isolated geographical region and they do not participate much in the various social organizations like Panchayats, political organizations, and other societies. These finding are supported by other researchers like Bhoite and Bharve (1984) ^[3], Khatik (1994) and Das (2003) ^[5] in their respective study areas.

Table 2: Land and livestock holding

Character	Category	Frequency	%
Land holding	Marginal farmer (upto 2.5 acres)	120	100
	Small farmer (2.6 to 5 acres)	-	-
	Large farmer (>5 acres)	-	-
Livestock holding	Low (<8)	35	29.16
	Medium (8-12)	64	53.33
	High (>12)	21	17.51

Source: Primary data

5.8 Land holding

Land is an important and crucial scarce factor of production. Operational land holding indicates the economic well-being of rural household. Regarding the land holding of livestock farmers, it was observed in (Table 2) that all (100.00%) of the respondents were marginal farmer i.e. less than 1 hectare land. These findings are in accordance with the finding of Gupta (2011) ^[12]. Livestock holding It is apparent from the (Table 2) that majority of the respondents (53.33%) belong to medium category of livestock holding, followed by 29.16 percent in low category. Farmers reared livestock generally for their family consumption or self sustenance. Similar findings were observed by Verma (2012) ^[10] in their study areas.

Table 3: Distribution of respondents as per the occupation

Occupation	Dhanbad	Ranchi	Total
Livestock + Crop farming	32 (26.67)	35 (29.17)	67 (55.83)
Livestock + Crop farming + Selling forest product	11 (9.17)	8 (6.67)	19 (15.84)
Livestock + Labour	7 (5.83)	9 (7.50)	16 (13.33)
Livestock + Shop	8 (6.67)	4 (3.33)	12 (10.00)
Livestock + Shop + Labour	2 (1.67)	4 (3.33)	6 (5.00)
Total	60 (50.00)	60 (50.00)	120 (100)

Source: Primary data

5.9 Occupation

Data presented in (Table 3) reveals that more than half (55.83%) of the respondents possessed agriculture and livestock as their livelihood and the others (15.84%) were engaged in livestock, crop farming and selling of forest products, (13.33%) were engaged in livestock and labour as their occupation or livelihood options, followed by (10.00%) in livestock shop and (5.00%) in livestock, shop and labour. It can be concluded that majority of the respondents had farming with dairying as a main source of income for their livelihood. This finding is more or less similar to the results of Ahiwar *et al.* (2009) ^[1], Sabapara *et al.* (2014) ^[8] whereas Patel *et al.* (2005) ^[13] reported that in Patan district of North Gujarat 74 percent of farmers depend on the livestock for their livelihood.

Table 4: Distribution of respondents as per the employment generation

Livelihood activities	No. of persons employed per year	%
Crop farming	24	20.00
Crop farming + Livestock rearing	49	40.83
Crop farming + Non-farm	31	25.83
Non-farm	16	13.33

Source: Primary data

5.10 Employment generation

Results in the (Table 4) shows that 40.83 percent of the respondents were involved in crop farming and livestock rearing as their livelihood, 25.83 percent followed crop

farming and non-farm, 20 percent followed crop farming and 13.33 percent respondents were engaged in non-farm activities for their employment generation. The tribal people are mostly residing in rural areas, and farming and livestock rearing is the part of their life. Similar finding were confirmed by Verma (2012) ^[10] in their respective study areas on tribal people.

Table 5: Distribution of respondents as per livestock production systems

Livestock production system	Frequency	%
Cattle + Goat	21	17.51
Cattle + Goat + Pig	43	35.83
Cattle + Buffalo + Goat	22	18.34
Cattle + Buffalo + Goat + Poultry	14	11.66
Cattle + Buffalo + Goat + Pig	13	10.83
Cattle + Buffalo + Goat + Pig + Poultry	7	5.83

The (Table 5) clearly indicated that Cattle + Goat + Pig was the most prevalent livestock production systems in the research area. The systems prevalent in the research villages varied from place to place and farmer to farmer. The villages possessed systems as per their resources endowments, production and marketing prospects and the level of motivation and positive attitude among the farming community. Farmers generally take decisions on the systems to be adopted on the basis of cost, risk and return calculations apart from social factors in preferring crops for home consumption. The production system wise distribution of sample respondents shown in the table identifies the existing Livestock Production Systems in the study area. The major LPS identified were Cattle + Goat (17.51%), Cattle + Goat + Pig (35.83%), Cattle + Buffalo + Goat (18.34%), Cattle + Buffalo + Goat + Poultry (11.66%), Cattle + Buffalo + Goat + Pig (10.83%) and Cattle + Buffalo + Goat + Pig + Poultry (5.83%).

The use of one or more animal species reduces the vulnerability to economic set-backs. The value of animals in identified systems was also related to their multi-functional role. Livelihood options It is evident from the contents in (Figure 5.1) that more than half of the respondents 55.83 percent had livestock and crop farming as their livelihood option, 15.84 percent were engaged in livestock, crop farming and selling of forest products, 13.33 percent were engaged in livestock and labour as their occupation or livelihood options, followed by 10.00 percent in livestock shop and 5.00 percent in livestock, shop and labour. It is interesting to note that livestock + crop farming formed an integral part of the occupation for majority of the respondents in spite of whatever main occupation they were pursuing. Gupta (2011) ^[12] also stated that more than half of the respondents had agriculture and dairy farming as their main occupation.

6. Improvement Strategies

- With the help of conducting camp in villages through which motivate the farmers to adopt improved livestock management practices.
- Development of local institution such as co-operative societies, SHGs which provide financial support and credit to the farmers during critical conditions.
- Development of common fodder resources which reduce the shortage of fodder during scarcity period.

- Timely deworming and vaccination of animal help to decrease the chance of infection

7. Future Prospects

Livestock improves food and nutritional security by providing nutrient rich food products, generate income and employment and act as a cushion against crop failure, provide draught power and manure inputs to the crop subsector and contribute to foreign exchange through exports (BIRTHAL and Rao, 2002). Besides, providing great potential and outstanding contribution to the agricultural sector over the past years, the livestock sector is performing well in the manner of production, value addition and export of different livestock products. Livestock helps in women empowerment and provides livelihood to many marginal farmers. Both the national economy as well as the socio-economic growth of rural India is backed by the livestock sector.

So, in general we can clearly mention that the role of livestock is immortal and immense in today's scenario and in the coming future. It is going to pump-up the socio-economic status of the rural families and hence secure the national food and economic security. Livestock is already catering the various employment opportunities and the day is not far when livestock will be an essential asset for every agricultural farmer.

8. Conclusion

Agriculture and animal husbandry have been a part of Indian economy since long. India has one of the largest populations of livestock and stands first in milk production. Livestock helps in women empowerment and provides livelihood to many marginal farmers. In Agriculture based economy real development can be achieved only by developing farming community who raise livestock as the main component. Poverty alleviation programmes of the government won't be successful until and unless the focus on investment of the governmental policies is not agriculture and animal husbandry. India's real development will be achieved only when agro- livestock sector receives highest investment priorities with latest technologies incorporated with traditional knowledge.

It can be concluded that livestock give more annual income for farmers as compared to other sources like wage employment, remittance, shop keeping etc. The results reveals that majority of the respondents had medium level of extension contacts and mass media exposure. The level of social participation was low, as they were tribal's living in far off, isolated geographical region.

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