

Socio-economic status and constraints faced by the indigenous cattle farmers of Manipur

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Abstract

Indigenous cattle have been an essential part of traditional agriculture and have contributed significantly from a social, cultural, emotional and ecological perspective in addition to their contributions to the economy and means of livelihood. The present study was undertaken to know the socio-economic profile and the constraints faced by 120 indigenous cattle farmers in four districts of Manipur. The ex-post facto research design was employed for the study, and the data were collected from July 2022 to October 2022. The study indicated that the majority of the respondents were female, belonged to the middle-aged group (35-50 years), with medium family size, and had nuclear family type (67.50%). It also revealed that a significant proportion of farmers (30.80%) had completed education up to the middle school level. The vast majority of the respondents resided in Assam-type katcha houses with agriculture and animal husbandry as their main occupation (89.20%) and had a medium level of experience in indigenous cattle farming. Nearly about all respondents (96.70%) were marginal landholders with medium herd size. The majority (75.00%) had low annual income levels. Most had medium exposure to mass media, while a significant proportion (55.80%) had limited contact with extension services. The main sources of information-seeking behavior for the respondents were fellow farmers (38.30%) and veterinary field assistants (VFA) (35.83%). The frequency of accessing resources and support services was at a medium level (48.30%). Low milk yield was ranked first among all the problems faced by the respondents, followed by high cost of concentrate feed and inaccessible to superior bulls.

Keywords: Indigenous cattle, Livelihood, Low milk yield, Problem conformation index

Highlights

- Most of the activities related to indigenous cattle farming were performed by women.
- Merely 0.5 to 3 liters of milk were produced by these indigenous cattle per day.

INTRODUCTION

The animal husbandry sector is home to a fantastic livestock wealth that plays a key role in providing supplemental to primary sources of income for the enormous number of cultivators, small farmers, marginal farmers and agricultural laborers. India primarily embodies an agrarian society wherein animal husbandry serves as the cornerstone of its agricultural economy. Livestock has consistently constituted an integral component of traditional agriculture and has played a crucial role in fostering overall social development by contributing to the production of milk, meat, hides, and draught power for agricultural activities. Among all the livestock species, cattle plays a very important role in the economy. As per the 20th Livestock Census (2019), the cattle population in the country is 193.46 million, which comprises indigenous-identified/descript or non-identified/non-descript animals and exotic crossbred animals. Exotic animals and their crossbreeds are

comparatively more prone to infectious and metabolic disorders, which can occasionally constitute an economic burden for smallholder farmers by putting many of them into debt. Nowadays, farmers have come to recognize the significance of raising native cattle breeds. Indian native cattle are hardy and adaptable animals that are specially adapted to the local climatic conditions and environmental conditions of each breeding tract. They have the capacity to endure high temperatures, be disease-resistant, and survive in conditions of intense environmental stress and deficient nutrition. Indigenous cattle are crucial for the livelihood stability and income creation of millions of farmers, particularly in areas that are prone to drought. Native cattle breeds have lower milk yields but are well adaptable to harsh climatic conditions. Indigenous cattle were well suited for the agro-climatic conditions and cropping practises of the region. Indigenous cattle resources have been integral parts of the livelihoods and

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traditions of several communities over the years, and loss of a defined breed is a loss of the cultural identity and heritage of that community (Belew *et al.*, 2016). While keeping these factors in mind, a study was conducted to evaluate the socio-economic profile and constraints faced by the indigenous cattle farmers of Manipur.

MATERIALS AND METHODS

The study was carried out in four purposively selected districts, namely Imphal East, Imphal West, Bishnupur and Churachandpur. These districts were selected for the study due to the presence of a higher indigenous cattle population, familiarity with the local language, easy transportation and the potential for efficient data collection with limited time and resources being taken into account. The collection of primary data from eight developmental blocks (two blocks from each district) based on the number of indigenous cattle farms villages (5 villages from each development block) were randomly selected, and from each village, 3 farmers engaged in indigenous cattle rearing were randomly selected; therefore, the total number of respondents for the study became 120, i.e., thirty (30) respondents from each district. The study utilized an ex-post facto research design, as the selected variables had already occurred, and the data were collected through a structured interview schedule specifically developed and administered for the study.

A total of fourteen variables were selected for this study, viz., age, sex, educational status, family type, family size, occupation, land holding, farming experience, herd size, annual income, media participation, extension contact, information-seeking behaviour, access to resources and support service. Frequency and percentages were used to interpret the data.

The problem conformation index (PCI) score was followed to analyse the constraints perceived by the indigenous cattle farmers. The ranking was given according to PCI (Afrin *et al.*, 2016). A four-point rating scale was used. For each problem, the score of 3, 2, 1 and 0 was assigned to indicate high problem, medium problem, low problem and no problem. Problem confrontation in indigenous cattle farming was studied using the following index:

Problem Confrontation Index = $Ph \times 3 + Pm \times 2 + Pl \times 1 + Pn \times 0$

Where,

Ph = Number of local cattle farmers having high problem (score 3)

Pm = Number of local cattle farmers having medium problem (score 2)

Pl = Number of local cattle farmers having low problem (score 1)

Pn = Number of local cattle farmers having no problem (score 0)

Thus, PCI of any problem could range from 0 to 360, 0 indicating 'no' problem confrontation and 360 indicating 'high' problem confrontation.

RESULTS

Socio-economic profile of the indigenous cattle farmers of Manipur

Age: The age of respondents ranged from 30 to 77 years, and the average age was 50 years. It was observed from Table 1 that more than half (53.30%) of the respondents belonged to the middle age group, followed by 41.70% in the old age category and 5.00% in the young age category.

Gender: More than half (56.70%) of the respondents were in the female category, whereas 43.30% belonged to the male category.

Educational status: Table 1 revealed that the majority of the farmers belonged to middle school (30.80%), followed by primary school (21.60%), secondary school (20.80%), higher secondary school (15.80%), functionally literate (5.80%), graduate and above (3.30%) and illiterate (1.70%).

Family type and size: More than two-thirds of the respondents (67.50%) had a nuclear family, while 32.50% were from a joint family type. The study revealed that the majority (56.70%) of the respondents had medium-sized families, followed by small (28.30%) and large (15.00%), respectively.

Type of house: The majority (87.50%) of the respondents were living in Assam-type katcha houses, followed by reinforced cement concrete houses (12.50%).

Occupation status: It is clearly noted that the majority (89.20%) were engaged in indigenous cattle farming along with agriculture and other livestock, 7.50% constituted business as their primary source of occupation, 2.50% of the respondents had private jobs, and only 0.80% of the respondents were engaged with government service.

Total land holding: Almost all the respondents (96.70%) were marginal farmers, and only 3.30% were landless category.

Farming experience: About 45.00% of the respondents

Table 1. Profile of indigenous cattle farmers in four districts of Manipur. (n = 120)

SL.No.	Variables	Categories	Frequency	Percentage (%)
1	Age	Young (<35)	6	5.0
		Middle (35-50)	64	53.30
		Old (>50)	50	41.70
2	Gender	Male	52	43.30
		Female	68	56.70
3	Educational status	Illiterate	2	1.70
		Functionally literate	7	5.80
		Primary school	26	21.60
		Middle school	37	30.80
		Secondary (up to class X)	25	20.80
		Higher secondary (up to class XII)	19	15.80
		Graduate and above	4	3.30
4	Family type	Nuclear	81	67.50
		Joint	39	32.50
5	Family size	Small (<5)	34	28.30
		Medium (5-7)	68	56.70
		Large (>7)	18	15.0
6	Occupation	Agriculture + Animal Husbandry	107	89.20
		Govt. service	1	0.80
		Private sector	3	2.50
		Business	9	7.50
7	Type of house	Assam type katcha	105	87.50
		Reinforced cement concrete (RCC)	15	12.50
8	Landholding	Landless	4	3.30
		Marginal (below 1 ha)	116	96.70
		Small (1-2 ha)	0	0
		Semi-medium (2-4 ha)	0	0
		Medium (4.0-10.0 ha)	0	0
		Large (10.0 ha & above)	0	0
9	Farming experience	Short (less than 20 Years)	50	41.70
		Medium (between 20 to 30 years)	54	45.00
		Long (more than 30 Years)	16	13.30
10	Herd size	Small (below 4)	32	26.70
		Medium (4-6)	78	65.00
		Large (above 6)	10	8.30
11	Annual income	Low (below Rs. 67,080)	90	75.00
		Middle (between Rs. 67,080 – Rs. 80,073)	20	16.70
		High (above Rs. 80,073)	10	8.30
12	Media participation	Less (below 16)	37	30.80
		Medium (16-18)	51	42.50
		High (above 18)	32	26.70
13	Extension contact	Low (below 8)	67	55.80
		Medium (8-9)	30	25.00
		High (above 9)	23	19.20
14	Information seeking behaviour	Consult veterinary doctors	12	10.00
		Consult VFA	43	35.80

Cont. Table 1.

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SL. No.	Variables	Categories	Frequency	Percentage (%)
		Ask fellow farmers	46	38.40
		Discuss with family	19	15.80
		Consult the NGO/ cooperative personnel	0	0
15	Access to resources and support service	Low (below 4)	25	20.80
		Medium (4-5)	58	48.30
		High (above 5)	37	30.80

were found to have a medium level, followed by 41.70% in the low level and 13.30% in the high category. These findings were in accordance with the results of Kavithaa *et al.* (2021).

Herd size: Nearly two-thirds (65.00%) of the respondents had medium herd size, followed by 26.70% having a small herd size and only 8.30% with large herd size.

Annual income: The respondents were categorized into low, middle, and high income groups based on the poverty line and average monthly per capita consumer expenditure (MPCE). Considering a household of five members, Rs. 67,080/- was the poverty line and Rs. 80,073/- was the state per-capita expenditure. More than three-fourths (75.00%) of the respondents belonged to low income category (< Rs. 67,080/-) followed by medium (16.70%) and high (8.30%) income categories with Rs. 67,080/- Rs. 80,073/- and above Rs. 80,073/- of annual income, respectively.

Mass media exposure: About 42.50% of the respondents had a medium level, followed by a low level (30.80%) and a high level (26.70%) of media exposure.

Extension contact: Table 1 showed that the majority (55.80%) of the respondents had low extension contact, followed by 25.00% and 19.20% being medium and high extension contact, respectively.

Information-seeking behavior: The majority, 38.40% of the respondents, consulted fellow farmers to obtain information, followed by 35.80% of the respondents who asked for veterinary field assistant (VFA), 15.80% of them who discussed with their family to gather information and 10.00% of the respondents consulted veterinary officer (VO).

Access to resources and support services: On categorizing, 20.80% of the respondents had low, 48.30% of them had medium and 30.80% of the respondents had high access to resources.

DISCUSSION

The present study investigated the socio-economic status of farmers maintaining indigenous cattle of Manipur and found that the majority of the farmers were of middle-aged farmers. This might be due to the fact that opportunities in getting into dependable government or private sector were minimal at this age. Besides, the younger people were looking for a more regular income generated from crossbreed or exotic cattle in the form of milk production. Athilakshmy *et al.* (2021) and Pasare *et al.* (2022b) also reported that the majority of the farmers were in the middle age group. When considering the gender of the respondents, it is intriguing to observe that almost entire activities, so far as washing and cleaning of cattle sheds and feeding, were being performed by the women, which is in consonance with the findings of Gopi *et al.* (2020) who also reported that more than half of the farmers were female. Male members were used to take decision in selling or purchasing cattle. On the other hand, Chandrasekar *et al.* (2017) reported that the majority of the farmers belonged to the male category. It is clear that more farmers were concentrated in the groups of people with moderate or lower levels of education. Indigenous cattle farming was restricted to low or middle-literate farmer groups in the areas examined since those with greater education had more possibilities to find employment. The findings of the present study were more or less supported by the findings of Mahesh *et al.* (2020). The study's findings for the majority being nuclear family type and medium size were in line with Pasare *et al.* (2022b). It may be an indication of the current practice of limiting family numbers within economically feasible ranges as well as the trend of urbanization's effect. As the Government of India launched a national-level family planning programme to reduce fertility and improve the quality of life, the impact can be seen in the state too. Additionally, individuals in their middle and young ages tend to relocate for employment opportunities in non-agricultural sectors and establish their lives in those workplaces. This could be one of the factors contributing to the increasing prevalence of nuclear families. The

study area reflects the current trend in India, where nuclear families are becoming more common. The type of housing in which the respondents resided at the time of the interview serves as a good indicator of the respondents' socioeconomic standing. This might be due to the fact that the majority of the respondents belong to the low-source of the income category.

In the present study, it was found that the farmers possessed different occupations, and the majority were engaged in agriculture and other livestock farming. The findings were similar to the results of Mahesh *et al.* (2020), who stated that agriculture was the primary occupation for a majority of the respondents. It is clear that most of the respondents having moderate or lower levels of education settled with agriculture and other animal husbandry activities for their livelihood. Also, other remaining respondents from the selected locations of the state were rearing indigenous cattle traditionally from past generations considering their cultural and aesthetic value and are being continued henceforth. The reason behind the majority of the respondents having marginal land holdings might be due to the fact that majority of the respondents belong to low socio-economic status. The present findings are similar to the observations made by Kalaivani *et al.* (2017), who reported that most of the respondents had marginal land holding, i.e., below 1 hectare. Most of the respondents had a moderate level of experience in cattle farming. These findings can be linked to the age distribution of the respondents, as a larger proportion of indigenous cattle farmers belonged to the medium to old age group. Additionally, the traditional style of raising native cattle in specific communities could also contribute to these results.

There has always been a lack of availability of resources as well as a lack of superior bulls in rural areas, which possessed resources only to sustain a medium-

sized herd, which is in line with the findings of Dabhi *et al.* (2018). As the majority of the respondents had marginal land holdings, i.e., below 1 hectare, they received meager income from crop farming and other sources. Also, farmers were not adapted to any scientific management; as a result, farmers could maintain only a small number of cattle and obtained very low milk yield. This might be the reason for the low level of annual income. These results have similarities with the findings of Mahesh *et al.* (2020). The main sources of media in the study area were newspapers, television, radio and mobile phones. There had not been any exposure regarding the fair/exhibition or any farm publication. The reason might be due to farmers' lack of awareness about fairs/exhibitions or lack of knowledge and inability to read or unavailability of farm publications in their area. The findings were in consonance with the findings of Kavithaa *et al.* (2021), who found that the majority of the Kangayam cattle farmers of Tamil Nadu had a medium level of media exposure. In the present study area, the lack of change agents' availability to be reached by farmers in rural areas may be a contributing factor to the low extension contact, which is similar to the findings of Kalaivani *et al.* (2017). The respondents in the study area had not obtained or consulted any NGO/ Cooperative personnel or read any books to get information about indigenous cattle farming in the state. As per the present study, access to resources and support services include the availability of a public water supply system, mostly by ponds and potable water reservoirs; farmhouse connections with roads; accessibility to any veterinary service or clinic; vaccination drives; electricity in cattle sheds; and any transporting facilities available for their cattle.

Constraints faced by the farmers in rearing indigenous cattle: Among all of the issues listed in Table 2, low

Table 2. Problem conformation in rearing indigenous cattle (n= 120)

Sl. No.	Problems identified by the farmers	PCI= Ph X 3+Pm X 2+Pl X 1+Pn X 0	Rank
1	Low milk yield	360	1
2	High cost of concentrate feed	350	2
3	Inaccessible to superior bulls	344	3
4	Scarcity of fodder during lean season	340	4
5	Lack of grazing ground	331	5
6	Scarcity of concentrate feed	330	6
7	Transportation problem	323	7
8	Water scarcity	110	8
9	Non- availability of veterinary doctor / VFA when needed	82	9
10	Diseases	79	10
11	Marketing/ selling of cattle	32	11

milk yield ranked first, having a PCI score of 360, as hardly 0.5 to 3 litres of milk were produced by these indigenous cattle per day. This is basically because these animals have been chosen for their ability to survive, and they have formed adaptations to the environment in which they are expected to thrive and generate offspring. Feed cost was ranked second because it consumed a larger portion of their profit. Furthermore, dry fodder is scarce because farmers in hilly areas practise jhum cultivation and burn the dry fodder after harvesting paddy. The respondents prioritised the third most severe constraint as being inaccessibility to superior bulls. As the farmers let the indigenous cattle graze freely in open fields, natural mating systems do occur at random, and there has not been any attempt to improve productivity, such as through selective breeding. Moreover, there is a lack of availability of progeny bulls for breeding. The fourth problem was the scarcity of fodder during the lean season. It was discovered that all farmers relied on locally available feeds and fodder, with only a few farmers engaging in fodder cultivation. Only a few farmers were able to afford dry fodder during this particular season. Lack of grazing ground was identified as the fifth most important problem by the farmers. Due to encroachment and inadequate maintenance, common grazing land has deteriorated and become less productive. The respondents prioritised scarcity of concentrate feed as the sixth-ranked problem condition. Because the villages were dispersed and the villagers spent a significant amount of time gathering the concentrate feeds, they were unwilling to pay transportation fees. Transportation problem was identified as the seventh most important problem by the respondents. Though most of the farms were located in places where roads passed through them, due to a lack of transport vehicles and financial constraints, farmers were not able to get essential commodities. The eighth most important difficulty in raising indigenous cattle in the study area was a lack of water. The majority of the water sources were ponds, rainwater, tap water, etc. These sources become insufficient during the winter or dry season, limiting the amount of water available to the local cattle farmers. One of the most pressing issues is a lack of water for both domestic and agricultural use. Another important problem confronted by the farmers was non-availability of Veterinary Doctor/ VFA when needed by the farmers. Although there were some locations with Veterinary health care services in the form

of dispensaries or private clinics, there were not enough Veterinarians or VFAs to reach all the farmers when they were in need. Diseases were ranked as another major constraint by the respondents. In the study area, FMD, HS, and BQ were prevalent and needed to be vaccinated during sponsored vaccination campaigns organised by NGOs or the State's Animal Husbandry Department. Respondents ranked marketing or selling of cattle as the eleventh important problem, having a PCI score of 32. A lack of an organised market and proper price regulation for the cattle to be sold might be the reason for their constraints. The present findings are more or less in line with the findings of Anjali and Senthilkumar (2020), Rajkumar and Kavithaa (2021) and Pasare *et al.* (2022a).

The study provides a glimpse of the socio-economic profile of farmers maintaining indigenous cattle in Manipur and ascertains their socio-economic status, which shows that there is potential for further improvement. Understanding the socio-economic attributes of farmers holds significance in making informed policy decisions. As a result, it becomes imperative for the Government, Veterinary Universities, and other extension agencies to collaborate and actively share knowledge about livestock farming practices. This collective effort will ultimately contribute to the growth and advancement of animal husbandry. Various problems faced by the farmers in rearing indigenous cattle should be emphasised by recognising the importance of community members and their cooperation and coordination in conservation. Hence, efforts must have been made to arrange training programmes for the indigenous cattle farmers.

Conflict of interest: Authors have no conflict of interest in this study.

Author's contribution: SP: Participated in the investigation, data generation and preparation of the original draft; SR: Involved in conceptualization, data calculation, supervision and final editing.

ACKNOWLEDGEMENTS

The authors are thankful and extend their gratitude to the esteemed Vice Chancellor of CAU, Imphal, for the invaluable support provided throughout. Additionally, we would like to express our appreciation to the Dean of CVSc & AH, Aizawl, Mizoram, as this work would not have been accomplished without their assistance.

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