

# Rural Backyard Pig Farming Constraints Faced by Tribal Farmers

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## Abstract

Pig farming plays a significant role in the global livestock industry, providing a valuable source of meat and by-products for human consumption. However, like any agricultural endeavor, pig farming faces numerous challenges that can hinder productivity, animal welfare, and environmental sustainability. This research paper aims to analyze the existing socio-economic status of pig farmers along with major constraints faced by pig farmers, exploring the factors affecting their profitability, sustainability, and overall well-being. The study on socio-economic profile revealed that the majority of the households had annual income of Rs75001-105000.00 per annum with agriculture and livestock (46.68%) as major source of income. The respondents were mostly belonging to nuclear family with average land holding of >1.0 ha (46.40%). The respondent ranked non-availability of quality pig germplasm as the most severe constraints among different breeding constraints identified with mean score of 74.68%. The different feeding constraints in pig farming showed that the high cost of pig feed and feed ingredients was identified as the single most major constraints. Amongst the health care related constraints, non-availability of vaccines against most harmful diseases of pigs was ranked I with mean score of 75.26 by the respondents. Similarly, 76.91 of the respondents perceived lack of organized marketing facility as most severe marketing constraints.

**Key words:** Pig farming, Profitability, Sustainability, Constraints

Pig farming holds significant importance in the rural economy of Assam, India, especially within tribal communities. For centuries, pig rearing has been an integral part of their livelihoods, culture, and traditional practices. In the context of Assam's diverse tribal population, pig farming plays a vital role in providing sustenance, income, and nutritional support [1]. Pig farming has been a key pillar of the livestock sector for centuries. Its importance in providing high-quality meat and various by-products has steadily grown due to increased demand for pork worldwide [2]. Pig farming, or swine production, is an integral part of agriculture and livestock rearing in many regions worldwide. In particular, pig farming plays a crucial role in the livelihoods and cultural traditions of tribal communities. Tribal pig farmers often depend on pig rearing for their subsistence, income generation, and social ceremonies [3]. However, despite the cultural significance and economic importance of pig farming, tribal pig farmers encounter various constraints that hinder their productivity, profitability, and overall well-being [4].

Pig farming holds profound cultural significance in many tribal communities, serving as more than just an economic activity. Pigs are integral to traditional rituals, ceremonies, and social events. Tribal pig farmers possess a rich

repository of traditional knowledge and expertise in pig rearing passed down through generations. This knowledge encompasses breeding, feeding, healthcare, and housing practices tailored to local ecological conditions [5]. Tribal pig farmers often characterized by small scale backyard system of rearing to free-range systems, sometime allowing pigs to forage naturally in the forest and surrounding areas to a very few intensive rearing. This practice not only reduces feed costs but also capitalizes on the natural resources available. Limited access to commercial feed necessitates the utilization of locally available feed resources such as kitchen waste, agricultural by-products, and forest forages, making pig farming more cost-effective [6]. Recently, a community-based cross-sectional study was carried out to know about pig farming patterns, ethnoveterinary knowledge and practices among various tribal pig farmers in Karbi Anglong district of Assam, India [4]. The pig farming although an age-old practice and considered as profitable enterprise is yet to make inroads in terms on commercial scale.

This research article aims to investigate the socio-economic status of pig farmers and major constraints faced by tribal pig farmers in Karbi Anglong district of Assam for sustainable development. The study draws on primary data

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gathered through household surveys, direct interviews, and on-site observations from selected tribal communities engaged as part of livelihood option.

## MATERIALS AND METHODS

The present study was conducted in Karbi Anglong district of Assam, one of the seven sisters of the Northeast Region of India. Assam is a state in northeastern India, and it is bounded by Arunachal Pradesh to the north, Nagaland to the northeast, Manipur to the east, Mizoram to the southeast, Tripura to the south, Meghalaya to the southwest, West Bengal to the west, Bhutan to the north and northwest, Bangladesh to the south. It covers a geographical area of 78,438 sq. km and lies between 24.6637° and 28.2721° Latitude North and 89.8718 and 96.0217 Longitude East. The altitude ranges from 40m to 2000m with climatic condition is mainly tropical monsoon rainforest climate, with high levels of humidity and rainfall. The annual rainfall in Assam is about 2352 mm occurring over the period of seven months from April to October. The temperature ranges between 8°C - 47°C [7].

### Demography of the study area

Demographically, district Karbi Anglong is one of largest and most backward tribal dominated hill district of Assam. The Karbi Anglong district is named after the Karbi people, who are the indigenous inhabitants of the region. The Karbi people have their own language and rich cultural traditions. They make up a significant portion of the district's population. In addition to the Karbis, Karbi Anglong is also home to various other ethnic communities, including Dimasas, Bodos, and Adivasis (Tea Tribes) communities, among others. These groups contribute to the district's cultural diversity. The majority of the population in Karbi Anglong follows indigenous animist and tribal religions. However, like the rest of Assam, there are also Hindu, Christian, and Muslim communities in the district.

### Distribution of pig population

According to 20<sup>th</sup> livestock census, the district has pig population of 1,88,380 No's in contrast to 1,62,295 nos of pig during 19<sup>th</sup> livestock census with overall increase in almost 16 per cent from 2012 to 2019.

The study on pig farming practices, socio-economic status of the respondents and different constraints perceived by tribal pig farmers were conducted during the period from July 2022 to June 2023 in Karbi Anglong district, Assam; covering four development blocks. From each Community Development Block, 2 villages were purposefully selected for collection of field data. Altogether, 8 villages were selected for collection of data covering 80 pig farmers from the district. The villages are selected randomly based on the existence of tribal pig farmers and geographical locations. The methodology for data collection consists of direct interviews with the practicing pig farmers through pre-tested questionnaires, direct on-site observations, and field visits. Altogether, 80 respondents were selected based on the attributed study.

The different socio-economic profiles of the pig farmers such as age, education, gender, land holding was calculated and tabulated from the questionnaire and the data was analyzed. For collection of different pig farming related constraints, the most probable eight field constraints were enlisted irrespective of study area comprising of five broad area namely breeding, feeding, housing, health care and marketing. The overall ranking of the constraints was analyzed statistically as per method described by Garrett and Woodworth [8].

## RESULTS AND DISCUSSION

Pig farming is one of the most profitable livestock farming. It is reared for mostly for meat purpose in Northeast states of India (NEI). Pig farming contributes an important role in socio-economic development amongst tribal rural households. Pig farming is an age-old traditional practice and integral part of rural livelihoods security and nutritional support.

### Socio economical profile of the respondents

The studies on socio-economic profile of respondents revealed that majority of the farm family have family size of 5-8 members and mostly nuclear family (78%). The study on education showed that most of pig rearers were below Class X. Though pig rearing is one of the most profitable avocations but with increasing in education level results low adoption of pig farming. The respondents of the study area were mostly land holding of marginal farmers (46.40%) followed by small farmers (24.10%) and least by large farmer (4%) where majority of the farmers falls under the annual income of average family income of Rs. 75001-105000 per annum. This finding is in corroboration with the observation of Sudarshan *et al.* [9] who reported 65% of the respondent belongs to marginal group. This suggests that majority of the pig farmers are low-income group of people and need special attention on promotion of scientific pig farming for betterment of the livelihood.

Table 1 Socio economical profile of the respondents

Variables	Categories	Percent
Family size	Up to 4 members	23.00
	5-8 members	68.80
	More than members	08.20
Family type	Nuclear	78.00
	Joint family	22.00
Land holding	Marginal (<1.00 ha)	46.40
	Small (1.0-2.0 ha)	24.10
	Semi-medium (2.0-4.0 ha)	17.50
	Medium (4.0-10.0 ha)	08.00
	Large (> 10.0 ha)	04.00
Education	Illiterate	22.00
	Below class X	46.0
	Up to class X	18.00
	Class XI and XII	08.00
	Graduate and above	06.00
Income source	Agriculture	28.52
	Agriculture and livestock	46.68
	Service	12.40
	Business	08.40
	Others	04.00
Annual family income (Rs)	Less than 45000	09.80
	45001-75000	17.68
	75001-105000	36.80
	105001-135000	13.72
	135001-165000	13.80
	165001 and above	08.20
Access to veterinary services	Yes	33.42
	No	66.58

### Constraints faced by the tribal pig farmers

Pig farming hold an important role in socio-economic upliftment among the rural women folk especially low-income group. In rural areas, almost every household rear minimum of 1-2 pigs which helps in supplementary income source. The different constraints faced by the pig farmers in Karbi Anglong district of Assam were broadly classified into four subgroups and discussed as follows.

### Breeding constraints

The (Table 2) revealed that among the eight (8) identified major constraints, non-availability of quality pig germplasm was most perceived as most severe constraints faced by the pig farmers with a mean score of 74.68 and ranked I among the different breeding constraints. Among the other major breeding constraints, non-availability of improved pig breed was ranked

as second major constraints with mean score of 71.53 followed by lower productivity of indigenous animals (51.91), non-availability of artificial insemination (A.I) service (51.51), non-availability of improved pedigree boar for natural service (46.53), inability to rear improved boar for breeding (41.01), higher cost of natural service by improved boar (40.82) and lack of knowledge in detecting heat (32.07). Studies of Islam *et al.* [10] reported similar result when assessed in Sibsagar district of Assam. Another study conducted in Erode district of Tamil Nadu reported that the non-availability of improved breeding buck was most important constraints faced by the farm women [11]. The second most important constraint was the lower productivity of the indigenous animals. The farmers mostly reared indigenous pigs due to non-availability of improved germplasms of pigs. Low productivity of animals was the prime constraints faced by dairy farmers of Vidarbha region [12].

Table 2 Breeding constraints faced by tribal farmers of Karbi Anglong district

S. No.	Major constraints	Garrett's total score	Garrett's mean score	Garrett's rank
1	Non-availability of A.I. service	4121	51.51	IV
2	Non-availability of improved pig breed	5704	71.53	II
3	Lack of knowledge in detecting heat	2566	32.07	VIII
4	Non-availability of quality pig germplasm	5975	74.68	I
5	Higher cost of natural service by improved boar	3266	40.82	VII
6	Lower productivity of indigenous pig germplasm	4153	51.91	III
7	Inability to rear improved boar for breeding	3281	41.01	VI
8	Non-availability of improved pedigree boar for natural service	3723	46.53	V

### Feeding constraints in pig farming

The different feeding constraints faced by the respondents are presented in (Table 3). The study showed that high cost of pig feed and feed ingredients was identified as single most major constraints with mean score of 74.25 and ranked I under different feeding constraints in pig farming practices, and such findings are also supported by the studies of Tochwang *et al.* [13], that reported high cost of feed as one of the most serious socio-economic constraints of pig farmers in Aizawl district of Mizoram. In contrast to the above findings, Nanda *et al.* [14] reported that lack of knowledge of feeding balanced ration was the most important constraints followed by

nonavailability of balanced commercial pig feed. The knowledge on traditional feeds was ranked least important constraints with mean score of 33.71 (ranked VII) among the different feeding constraints. The non-availability of balanced commercial pig feed was ranked as II followed by lack of knowledge of feeding balanced ration (3<sup>rd</sup> rank). However, studies of Islam *et al.* [10] indicated that the non-availability of balanced feed was ranked 1<sup>st</sup> position. Similarly, inadequate knowledge about the quantity of concentrates to be fed to various age groups of animals received 4<sup>th</sup> rank, while lack of knowledge of feeding green forages etc. received 5<sup>th</sup> rank and lack of knowledge of feeding mineral mixture received 6<sup>th</sup> rank.

Table 3 Feeding constraints faced by tribal farmers of Karbi Anglong district

S. No.	Major constraints	Garrett's total score	Garrett's mean score	Garrett's rank
1	High cost of pig feed and feed ingredients	5940	74.25	I
2	Lack of knowledge of feeding balanced ration	4826	60.32	III
3	Non-availability of balanced commercial pig feed	5257	65.71	II
4	Lack of knowledge of feeding mineral mixture	2637	32.96	VI
5	Lack of knowledge of feeding green forages etc.	3338	41.72	V
6	Inadequate knowledge about the quantity of concentrates feed to be fed to various age group of animals	3788	47.35	IV
7	Inadequate knowledge about feeding of traditional feeds	2697	33.71	VII

### Health care constraints of pig farming

Various health care related constraints perceived by the different pig rearers are summarized in (Table 4). The table indicates that non-availability of vaccines against most harmful diseases of pigs was the largest concern amongst the health care related constraints and was ranked I with mean score of 75.26. The farmers revealed that the animals almost every year encountered various infectious diseases such as classical swine fever (CSF), Haemorrhagic septicemia (HS) and in the recent

times with highly contagious African Swine Fever (ASF) leading 100 per cent mortality especially during summer season thereby resulting in a major loss. Although farmers are aware about vaccine against CSF and HS it is opined that they are not readily available in the nearby market and government dispensaries. Since they are very less exposed to veterinary services, they were ranked at III. Similar results were reported in, yet another study conducted in Nagaland [15]. Similarly, Islam *et al.* [10] reported that inadequate veterinary services as

constraint that was ranked II. Farmers express a lack of access to veterinary services, leading to difficulties in obtaining information about and access to vaccines. The non-availability

of vaccines, coupled with the frequent occurrence of infectious diseases and limited access to veterinary services, poses significant health care-related constraints for pig rearers.

Table 4 Health care constraints faced by tribal farmers of Karbi Anglong district

S. No.	Major constraints	Garrett's total score	Garrett's mean score	Garrett's rank
1	Lack of knowledge about the important diseases of pigs	5411	67.63	II
2	Higher mortality of pig due to unidentified contagious diseases	3957	49.46	IV
3	Higher mortality of piglets before weaning	2257	28.21	VII
4	Non-availability of vaccines against most harmful diseases of pigs	6021	75.26	I
5	Lack of knowledge about the biosecurity of piggery	3569	44.61	V
6	Inadequate veterinary services	4521	56.51	III
7	Inadequate knowledge about deworming of pigs	2504	31.30	VI

#### Marketing constraints of pig farming

The various marketing related constraints perceived by the pig farmers of Karbi Anglong district are enlisted in (Table 5). The table represents that 76.91 of the respondents perceived lack of organized marketing facility as the most severe marketing constraints (rank I). The exploitation of farmers by the middlemen during marketing with a mean score of 70.08

and received rank at II. The unauthorized supply of pork and its products for neighboring states was given a rank III with a mean score of 55.53. Our observations in the current study are similar with previous findings of Patra *et al.* [15]. Consistent with the findings of Islam *et al.* [10], our findings also revealed similar results that indicated lack of organized marketing facilities as a major constraint that was ranked at 1<sup>st</sup> position.

Table 5 Marketing constraints faced by tribal farmers of Karbi Anglong district

S. No.	Major constraints	Garrett's total score	Garrett's mean score	Garrett's rank
1	Unauthorized supply of pork and its products from neighboring states	4443	55.53	III
2	Exploitation of farmers by middlemen during marketing of pig, piglets, etc.	5607	70.08	II
3	Unhygienic practices in slaughter of pig	4264	53.30	IV
4	Lack of organized marketing facility	6153	76.91	I
5	Making availability of quality feed ingredients	3862	48.27	V
6	Social taboos	1852	23.15	VIII
7	Consumption of pork causes diseases like measly pork etc. in human	2388	29.85	VII
8	Seasonal demand of pork and its products	3120	39.00	VI

## CONCLUSION

Pig farming is a vital component of the rural economy, particularly among tribal communities in Assam, India. The practice of pig rearing is deeply entrenched in their cultural traditions and plays a pivotal role in their socio-economic well-being. However, the constraints faced by tribal pig farmers, as highlighted in this research article, necessitate targeted interventions and policy support to ensure sustainable development and improved livelihood outcomes. To address these constraints, efforts should be made to provide training and education to tribal pig farmers, improve the access to quality breeding stock and veterinary services, develop better infrastructure, and also enhance market linkages. Government and non-governmental organizations play a crucial role in

supporting and empowering tribal pig farmers to overcome these challenges and improve their livelihoods through sustainable pig farming practices. By recognizing the significance of pig farming in tribal communities and addressing the identified constraints, policymakers can foster an environment that enhances the resilience, productivity, and overall welfare of tribal pig farmers in Assam. The integration of statistical data with qualitative analysis provides valuable insights for informed decision-making and the formulation of effective policy measures. The study advocates for acknowledging the importance of pig farming in tribal communities, addressing the identified constraints through targeted interventions, and involving government and non-governmental organizations in supporting sustainable development for tribal pig farmers in Assam.

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