

Study on status of small scale pig rearing in upland tribal areas of North East India

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Abstract

Pig rearing is one of the important components of animal husbandry in the upland districts of Manipur which gives a sustainable livelihood for the tribal farmers as it provides additional income to small, marginal and landless tribal farmers. A survey was conducted randomly on 400 households rearing more than two pigs from 20 villages from 4 tribal development blocks of Senapati district of Manipur. The data collected was analyzed statistically. The result showed that the majority (98.75%) of the farmers do not practice integrated farming system model with pig as one of the components except a few (1.25%) progressive farmers but not in recommended scientific ways. It was also revealed that the majority (80.75%) of pig farmers of the study area reared pigs for fattening while only 19.25% reared for breeding purpose. It was observed that the majority of the tribal farmers (59.75%) preferred crossbred pigs more than local pigs (35.00%) and exotic (5.25%). The preference of pig farmers for black colored varied from 92 to 96% in the different blocks with a pooled value of 93.25% and only 6.75% have no preference for coat colour. The study also depicted that only natural mating was practiced as there is no facility for artificial insemination of pigs in the study areas. It was also recorded that about 63.25% pig farmers had no breeding boars, so, used breeding boars reared by another farmer within the locality on hired services. About 36.75% pig farmers had their own boar, but the quality was not up to the mark. In case of source of procurement of pigs, 56.75% were purchased from local markets and followed by only 43.25% from their own village itself. The study also revealed that the majority (62.50%) of pig farmers do not weaned their piglets at the right time while only 37.50% farmers weaned piglets at two months of age. The majority pig farmers (79.75%) castrate their piglets while 20.25% do not castrate the piglets. About 98.25% of pig farmers maintained their pigs on kutcha type housing while only a few (1.75%) maintained their pigs on pucca type of housing. It is concluded from the present findings that there will be great a scope for enhancing the pig production in the upland tribal areas of Manipur for the livelihood of villagers. The study will also help in identifying the technological gaps and to recommend the appropriate intervention based on their resources and problems.

Key words: small scale pig rearing; upland tribal areas, low income.

Introduction

Animal Husbandry is an inseparable part of economy for the tribal farmers in the upland areas of Manipur as it provides additional income to small, marginal and landless tribal farmers. Small scale pig rearing is one of the most important parts of animal husbandry in Eastern (Das et al 2021) as well as North-East Indian states of India (Borah et al 2022) including Manipur. The total pig population in India, as per the 20th Livestock Census of India (<http://dahd.nic.in>), is 9.06 million which is about 1.7% of the total livestock population (DAHD, 2019). The total pig population of Manipur is about 2,77,215 of which Senapati district contributes about 44,139 pigs i.e. about 15.92 % which is the highest amongst all the hill districts of the state (DoES, 2018). The total pig population (2,77,215) of the state constitutes about 32.24 % of total livestock population (8,59,870) of the state. Pork (6,945 tonnes) contributes about 33.55 % to the total meat production (20,701 tones) of the state (DoES, 2018). It is evident from the data that rearing of pig is more popular than rearing of other livestock. Non-availability of good breeds of pig coupled with limited knowledge on improved pig rearing practices, poor management practices such as housing, feeding and health care measures etc. are the major reasons for low productivity of pigs in the upland districts of the state. Therefore, this study was carried out with an aim to observe the status of pig farmers in tribal upland areas of Senapati district of Manipur.

Methodology

The present study was carried out at Senapati district of Manipur (Fig.1) where majority of the population are tribal whose major occupations are agriculture and livestock rearing. The district is located in the northern part of Manipur between 24° 30' N to 25° 45' N latitude and 93° 30' E to 94° 30' E longitudes with an altitude of 1061 to 1788 meters above sea level and has an area of 3271 sq.km. The upland hills run along the north south direction and gradually slope down towards south and meet the Imphal valley. The temperature ranges from 3.36 °C to a maximum of 34.14 °C with a humidity range of 76% to 92%. The annual rainfall ranges from 671 mm to 1454 mm per annum with a rainy season generally from June to September. About 80% of the land surface is forest land and 20% is arable land (AAR., 2004). The study area falls under both temperate sub-alpine and mild tropical hill agro-climatic zone characterized by warm summer and cool winter. The major soil formations in the area include shallow to very deep, loamy, lateritic, red and yellow soils. Some of the major crops grown in the area are rice, maize, oilseeds, pulses, cabbage and potatoes. The national highway no. 2, the life line of the state, passes through the district connecting with other parts of the state and rest of the country. The district has a total population of 4,79,148 comprising 2,47,323 male and 2,31,825 female with literacy rate of 63.60% as per 2011 census (DoES., 2018). The district has 6 tribal development blocks covering 136 villages. A total of four tribal development blocks of Senapati district namely Willong, Paomata, Purul and Mao Maram were randomly selected for the study during 2018-19. The study was carried out at 20 randomly selected villages from each tribal development blocks. Five households from each village were selected randomly leading to 400 households rearing pigs. One household rearing more than two pigs represents one respondent. The data were collected and tabulated for statistical analysis as per Snedecor and Cochran (1989).

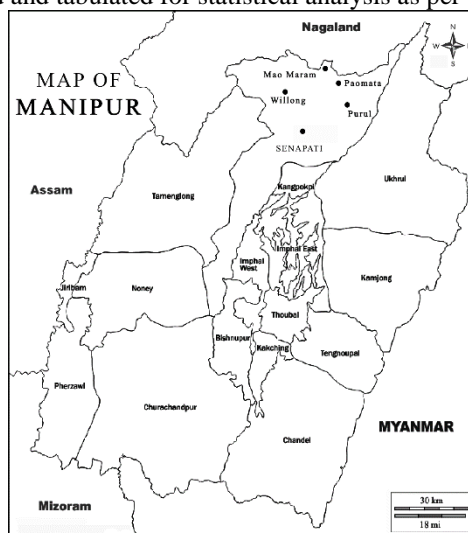


Fig. 1. Map of Manipur

Results & discussion

The present study was conducted to examine the existing pig rearing practices of the tribal farmers in Senapati district. Pig is an important component of livestock subsystem in the tribal regions of the state. Apart from providing employment and income to the rural tribal people, pig production has great scope for meeting the animal protein requirements in the diet. The results are discussed as under different subheads:

Integrated pig farming system

It was observed that majority (98.75%) of the farmers do not practice integrated farming system model with pig as one of the component. Only a few (1.25%) progressive farmers do it but not in recommended scientific ways. The farmers should be encouraged to take up integrated farming system with pig as one component to increase subsidiary income as well as household food production as population is increasing while the land resources is constant and also there is increased food demand.

Integrated approach of farming system with different livestock and poultry through availability of quality germplasm will lead to economic development of region resulting into increased livelihood and nutritional security of resource poor tribal farmers. In integrated farming system, two or more livestock species are reared together and each species supplement the other. In fact it can be said that this type of farming is symbiotic in nature. Various types of livestock integration are practiced in our country such as pig-fish integration, poultry-fish integration, pig-poultry-fish integration, pig-poultry-duck integration. In this type of livestock rearing, the waste products of one species are utilized by the other therein enhancing the productivity of both the species in terms of waste utilization and lower expenditure on feed.

Purpose of pig rearing

Table-1 revealed that majority (80.75%) of pig farmers of the study area reared pigs for fattening while only 19.25% reared for breeding purpose. The present findings are in line with the findings of Kumaresan et al. (2006) which reported 88.75% of pig farmers of Mizoram reared pigs for fattening while only 11.25% farmers reared pigs for breeding purpose.

Table 1. Distribution of pig farmers according to purpose of pig rearing, preference of breed and colour preference

Distribution of pig farmers according to		Willong Block (%)	Paomata Block (%)	Purul Block (%)	Mao Maram Block (%)	Pooled
Purpose of rearing pig	Breeding	19	22	16	20	19.25
	Fattening	81	78	84	80	80.75
Preference of breed	Indigenous	38	38	33	31	35.00
	Exotic	6	4	6	5	5.25
	Crossbred	56	58	61	64	59.75
Preference of colour	Black	93	92	96	92	93.25
	No preference	7	8	4	8	6.75

Pigs are usually reared for fattening purpose as it requires less investment on pig sty construction and can be reared on limited floor space of housing system. Rearing pigs for breeding purpose involved intensive labour and high feeding cost coupled with provision of more floor space to breeding sow. Above all they have inadequate knowledge of breeding pigs.

Breed and colour preference

It was observed from Table-1 that majority of the tribal farmers (59.75%) preferred crossbred pigs over local pigs (35.00%) and exotic breeds (5.25%). The present findings were also in agreement with the findings of Kumaresan et al. (2006) which also reported that majority (47.50%) of pig farmers of Mizoram preferred crossbred pigs while 37.50% only preferred local pigs and few (15.00%) preferred exotic pigs. This may also be due to the fact that there is non-availability of exotic pigs in the state coupled with high cost of production involved in rearing exotic breed. Again local breeds are not preferred because of its low productivity.

Tribal upland farmers, in the present study areas, had earlier reared indigenous pigs. But the indigenous pigs had gradually been replaced by crossbred nowadays, due to increase in demand for pork and its role in income generation. Crossbred pigs give higher return to the farmers with low inputs coupled with lesser incidence of diseases and their wide adaptability for the local environment with faster growth rate and reproductive performance. Mainly they were rearing crosses of indigenous pig with Hampshire and Large black pigs due to their black coat colour. Burmese breed which are also commonly found in Manipur having black colour was also reared by pig farmers in our study areas. Some phenotypic characters of Burmese pigs were similar with that of Large Black and Ghungroo pigs. The head is broad with short and curved snout, undulated drooping large ears which nearly close the face. The adult body weight of Burmese pig is about 120 - 180 Kg. However, scientific systematic breeding has not been followed by

farmers resulting into increased in level of inbreeding of the stock. As a result of this high mortality with reduced productivity was noticed in the study areas.

Pig farmers of the study areas preferred black colour coat of pig since time immemorial and on aesthetic point of view. It was also narrated that the black coloured pigs are less susceptible to parasitic diseases. The preference of pig farmers for black colored pigs in study areas varied from 92 to 96% in the different blocks with pooled value of 93.25% (Table-1). Only 6.75% of the pig farmers have no preference for coat colour as evident from Table-1. The present findings are also supported by Kumaresan et al. (2006) who also noticed that majority (61.88%) of pig farmers of Mizoram preferred black colour coat pigs while 28.13% farmers preferred white colour coat and 9.99% could not give their preference of colour coat of pigs.

Method of breeding practices

Table-2 depicted that only natural mating was practiced in the study areas. There was no facility for artificial insemination of pigs. Hence natural mating was the only source for breeding their sow. A systematic pig breeding practice avoiding inbreeding should be advocated for profitable pig farming. However, there was no defined systematic and scientific breeding approach coupled with non-availability of quality breeding boars in the study areas. Both boars and sows are used for breeding for 3-5 years. Thereafter, the parent stock is replaced by its own progeny resulting into increased level of inbreeding among the pig stock.

Table-2 revealed that about 63.25% of pig farmers in the study area had no breeding boars. This is in agreement with the finding of Kumar et al. (2006) which showed that 71.75% of pig farmers of NE states do not maintained breeding boars while only 28.25% pig farmers maintained breeding boars.. Hence, our pig farmers hired services of breeding boars reared by another farmer within the village or locality by paying Rs. 500/- per service or giving a piglet after farrowing at approximately 2 months of age. However, about 36.75% of pig farmers had their own boar but the quality was not up to the mark (Table-2). The farmers of the study areas have been rearing pig since a long time but there is no maintenance of records on estrous cycle, castration, heat period, farrowing etc.

Table 2. Distribution of pig farmers according to method of breeding, availability of breeding boar, source of procurement of pig and weaning of piglets

Distribution of pig farmers according to		Willong Block (%)	Paomata Block (%)	Purul Block (%)	Mao Maram Block (%)	Pooled (%)
Method of breeding	Natural mating	100	100	100	100	100
	Artificial Insemination	0	0	0	0	0
Availability of breeding boar (within the village)	Yes	38	42	32	35	36.75
	No	62	58	68	65	63.25
Source of procurement of pig	Local market	55	52	61	59	56.75
	Within the village	45	48	39	41	43.25
Weaning of piglets	Yes	39	31	42	38	37.50
	No	61	69	58	62	62.50

Source of procurement of pig

The procurement of pigs from different sources had been presented in Table-2. Perusal of table indicated that 56.75% pigs were purchased from local market while only 43.25% had been purchased from their own village itself. This finding is similar to those of Kumaresan et al. (2006) who also noticed that 90.00% of pig farmers of Mizoram procured pigs from local market while only 10.00% of farmers procured from other sources.

It was observed that the main source of procurement of piglets was from local markets or neighbour household within the villages. In such case it is believed that they can check the health status, age of piglets and discuss the price. Piglets are also purchased from the weekly markets of the locality which generally comes from other districts of the state.

Weaning of piglets

Table-2 revealed that majority (62.50%) of pig farmers do not weaned their piglets at right time while only 37.50% farmers weaned piglets at two months of age. But, this is also not done in proper scientific manner. The results of the present study are in agreement with the findings of Kumar et al. (2002) who also reported 70% of pig farmers of NE states do not wean piglets while only 30% farmers do so but not in appropriate time resulting into high pre and post weaning mortality. Sometime piglets are sold before the appropriate age of weaning resulting into poor growth with high mortality.

Castration of piglets for fattened purpose

The block wise distribution of pig farmers according to numbers of castration of piglets is presented in Table-3. The table revealed that majority (79.75%) of pig farmers of the study area castrates their piglets while 20.25% do not castrate the piglets. This finding is in agreement with the findings of Kumar et al. (2002) which reported that 70.75% of pig farmers of NE states castrated their pigs while 29.75% of farmers do not castrate piglets.

Castration of piglets is very commonly practiced by the pig farmers since pigs are reared for fattening purpose. But this is seldom done scientifically at right time or by the experts. This is generally done by local untrained persons without consideration of septic measures. It is some time done at an older age of piglets which is detrimental to the health of piglets which sometime lead to death of piglets causing economical lost to the pig farmers.

Housing management

Table-4, showing distribution of pig farmers according to type of housing, revealed that majority (98.25%) of the pig farmers maintained their pigs on Kutcha type housing while only a few (1.75%) maintained their pigs on pucca type of housing. Pig sty was constructed with locally available housing materials available with them. The floor and wall of the pig sty was made up of either wood or bamboo. However, covered roof was made up of either thatch or plastic sheet. This type of pig sty come under kutcha type housing while pig sty constructed with cement floor and cement wall with tin roof had been considered as pucca type housing. The present findings are in agreement with the findings of Kumar et al. (2002) and Kumaresan et al. (2006). Kumaresan et al. (2006) which reported that majority (98.12%) of pig farmers of Mizoram maintained temporary type housing while only 1.88% is permanent type housing.

Proper housing management is an important aspect in pig rearing. Generally, it was observed under the study areas that the pig housing condition was not properly planned and as such does not meet the prescribed standards leading to insanitary conditions in the sheds. Majority of the pig farmers keep the pigs at the backyard of their houses. It was constructed with locally available wood or bamboo, thatch roof as per availability and affordability of the farmers. There were minimum inputs in pig sheds. The feeding trough was made of wooden planks where feed and water are given together. The floor was made up of wooden planks or bamboo poles which are raised up to about 1 – 1½ feet from the ground for easy cleaning and protection of the pigs from cold during winter. Proper flooring, floor space, air space, flooring and roofing materials were not taken into consideration.

Table 3. Distribution of pig farmers according to castration of piglets.

Castration of piglets	Willong Block (%)	Paomata Block (%)	Purul Block (%)	Mao Maram Block (%)	Pooled (%)
Yes	81	76	83	79	79.75
No	19	24	17	21	20.25

Table 4. Distribution of pig farmers according to type of housing for pigs, type of floor of pig sty, type of wall of pig sty, type of roof of pig sty, sanitary measures and nature of management

Type of housing Management		Willong Block	Paomata Block	Purul Block	Mao Maram Block	Pooled
		%	%	%	%	%
Housing type	Pucca	2	1	2	2	1.75
	Kutcha	98	99	98	98	98.25
Floor type	Wooden/bamboo	2	1	2	2	1.75
	Cemented	98	99	98	98	98.25
Wall type	Wooden/ bamboo	2	1	2	2	1.75
	Cemented	98	99	98	98	98.25
Roof type	Tin roof	2	1	2	2	1.75
	Roof with thatch, plastic sheets, etc.	98	99	98	98	98.25
Sanitary measures	Yes	11	16	21	17	16.25
	No	89	84	79	83	83.75
Nature of Management	Open (scavenging)	6	4	4	3	4.25
	Closed (intensive)	94	96	96	97	95.75

Hence optimum productions were not obtained due to non-scientific housing management. The wall was again made up of wooden planks or bamboo pole. The roofs are made of thatch or plastic sheets, polythene sheets, hard boards or sometime with broken tin sheets. Majority of the pig sties were of temporary type. Only a few affordable pig farmers maintained permanent type of housing with concrete floor and walls with tin roof. It was observed during the study that there was ample space for air ventilation since heights of the walls was generally of about 3-3½ feet only. It was

also observed that the pigs were reared in a very congested space as they do not follow scientific floor space. The floor spacing was done as per their affordability, numbers of animal and availability of land area in their homesteads. This restricts the free movement of pigs and thus resulted in more fattening of the pigs. There was also a very poor maintenance of pig sties. Sometimes adult pigs, due to their heavy body weight and poor maintenance of the pig sty, slip their legs in between the gaps on the floor and breaking their legs rendering pigs unproductive. Such pigs with broken legs are never given any veterinary treatment but slaughtered for meat purpose. This is also one of the reasons of economic loss to the farmers as desired returns are not obtained at desirable time. It was also observed that piglet mortality was high due to disease and crushing of new born piglets by sow as the pig sty was small and congested.

During the study, it was also noticed that the majority of the pig farmers reared pig in intensive system i.e. the pigs are confined and housed all the time inside the pig sties. The feed and other management were done within the pig sty. Animals are not allowed to go out of the sty. This made the farmers to have a full control over the pig management. Very few farmers in remote areas allow the pigs to scavenge outside for food and only night shelter was provided to the pigs. Scavenging of pigs, though, were practicing earlier, it has changed to confined i.e. intensive housing due to the ban imposed by the village authorities. Pigs when allowed to scavenge create nuisance, destroy standing crops and make unhygienic surroundings.

The distribution of pig farmers according to different housing management conditions have been presented in Table-4. It was evident from the provided table that the housing management practices were poor and not up to the standard system in the study areas.

Conclusion

On the basis of present findings, it may be concluded that there will be great scope for enhancing the pig production in upland tribal areas of Manipur provided that proper scientific approaches are adopted by the upland tribal pig farmers. Pig rearing is an important component of livestock subsystem in the upland tribal areas of the state. It has the potentiality to economically substantiate the poor socio-economic condition of the upland tribal farmers. Apart from providing employment and income to the rural upland tribal people, pig production has great scope for meeting their animal protein requirements. The basic understanding of the existing pig farming practice will certainly help in identifying the technological gaps and to recommend the appropriate intervention based on their resources and problems.

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