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## Small holder pig farming practices of rural livelihoods in Makdi block of Kondagaon district in Chhattisgarh

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### Abstract

1.7% of total livestock population in India is contributed by pigs with a population of 9.06 million (20<sup>th</sup> livestock census) [7]. Chhattisgarh holds a population of 5.26 lakhs with majority being the nondescript one. Pig farming is one of the indispensable components of livestock sector as pig is most efficient converter of feed. The present research was undertaken to discover the basic management habits viz. housing and breeding practices adopted by villagers was carried out using questionnaire in Makdi block of district Kondagaon, Chhattisgarh. The study indicated that the basic housing of temporary shelter is majorly consisting of wooden housing (80.83%). It was also observed that majority of villagers 90% uses mud floor for keeping their animal so as to avoid heating of floor during summer season. Separate shed was made neither for keeping sick and pregnant animal nor for mating pen as reported by respondents. Most of the farmers provided good light 70.83% and ventilation 86.66% in the pig sty. No farmers kept breeding records of the animals. The average litter size and average litter weight was found to be 5-7nos. (59.16%) and 3-5 kg (68.33%) respectively. The litter farrowed by sow was twice a year (80%) as informed by farmers. The pre weaning mortality was found in 75.83% of household.

**Keywords:** Housing practices, breeding, pig farmers, field survey, Chhattisgarh

### Introduction

Indigenous breeds forms the major component of pig population in India, comprising 76% of the total population. The majority of the pig population in India is of indigenous breeds, which comprises 76% of the total population. Eastern and northeastern regions contributes majorly in the country, which is around 63%. (20<sup>th</sup> Livestock census 2019) [7]. Pigs are farmed primarily for the production of pork. The non-descript pigs or desi pigs has been the backbone of pig production in scheduled area for a long period of time, improved breeds are now being used for grading up to enhance production performance. Pork marketing is not prevalent in organized retail outlets. Consumption of fresh local meat is more popular in the north eastern and eastern parts of India, in the tribal areas of Uttar Pradesh and Bihar, and also in Kerala and Punjab [4]. Pig farming in India is closely related to caste-based cultural practices. In Chhattisgarh, pigs are mainly raised by local communities, especially the tribes that contribute to their livelihood. However, it is now popular in other parts of the state as well. Along with broilers, pigs are the most potential source of supply for meat producers, with high feed conversion rates and a wide variety of feeds available. Transforms grain, green fodder, spoiled fodder, food scraps and garbage into valuable and nutritious meat. Contradictory to all this slow growth of indigenous pig, religious taboo, and lack of knowledge among farmers and poor infrastructure, lack of scientific knowledge hinders effective farming. Livestock development is not only ensure additional income, but also provide protein-rich foods such as milk, eggs, meat to improve nutritional status and organic fertilizers for agricultural production [2]. In addition to providing protein for humans, pigs are often one of the main sources of cash income in rural areas and provide fertilizer for crops. Pig farming promotes self-sufficiency and food security for urban households and increases income [13]. Small-scale pig farming sector appears to have greater potential for poverty alleviation [11].

### Materials and Methods

The purpose of this study is a household survey at Makdi block of district Kondagaon of north Chhattisgarh during April 2021 June 2021 was undertaken to (1) Housing facility of pig

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farming and (2) Breeding practices adopted by the rearer in Kondagaon of Chhattisgarh. The block lies at 19.60 latitude and 81.66 longitude in the southern part of Chhattisgarh state. The district covers an area of 956 km<sup>2</sup> with 98 villages and a total population of 99,714. From Makdi block 12 villages namely Binjoli, odargaon, taraibeda, deogaon, turrebeda, Deurbal, Engra, Kotbel, nalajhar, gumdi, chhote sohanga, mirminda of block Makdi, district Kondagaon of Chhattisgarh were randomly selected. Ten pig farmers representing a sample of 120 respondents were randomly selected from each village. Prior to data collection, a semi-structured questionnaire aligned with the study objectives was designed ex. Housing and breeding practices followed. A draft questionnaire was pre-tested on her five households in Makadi Village, and the questionnaire was refined according to respondents' needs, responses, and feedback. Interviews were conducted in the local language Halbi/Chhattisgarhi and were supported by key informants and the authors themselves.

### Results and Discussion

In this study, interviews were conducted with a total of 120 pig farming households belonging to the tribal community of Makdi block, Kondagaon district, Chhattisgarh. The collected data are shown in Table 1.

Households were mostly run by women and some by men. The pigs were raised in the backyard, so there was a lot of female participation <sup>[18]</sup>. Free range system or extensive system of pig rearing was almost seen in every village, this is also similar to result reported by <sup>[19]</sup> which states that in 58.8% of urban areas and 45.45% of peri-urban areas in Guwahati, free-range/cleaning systems for pig farming are most commonly used, followed by semi-centralized systems (outdoor pens) and centralized systems (indoors). This

contradicted the findings of other researchers <sup>[16]</sup> and <sup>[1]</sup> due to the fact that pig farming is usually restricted to tribes. However intensive system of housing is also common having a temporary piggery/house built using locally available wood and bamboo resources. The roofing material consisted of plastic cover and thatched roof, as well as hardwood Indian pine cover, very similar to housing patterns observed elsewhere in the north eastern region <sup>[6]</sup>. The present study is also consistent with the following results <sup>[9]</sup>. Stated that the farmers kept their pigs either under a tree tying with a rope (39.32%), or in a temporary shelter like a small enclosure with bamboo or cut woods (53.93%). The current study shows, farmers raised pregnant sows in addition to other pigs. However, <sup>[3]</sup> describes the segregation of pigs (25%) according to age and/or physical stage, the remaining 50% are performed only as piglet segregation, the remaining 25% pigs were not were not separated according to Age and physical stage. Separating different age and sex groups and classes of pigs had significant advantages in feeding and husbandry and helped improve growth due to reduced competition between animals <sup>[2]</sup>.

In the present study, piggery/barn floors were typically concrete (10%) or clay soil (90%). This study was supported by other studies <sup>[15]</sup>, as the floors of the pigsty, the place of residence of the Nagaland, were either concrete or mud/kaccha. The study had no bamboo or wooden floors. The mud was provided to farmers in these areas because the economic situation deteriorated, especially among those who adhered to traditional farming systems. Most farmers used locally available materials to make inexpensive floor coverings for their pig pens. Sand and stone made it cheaper to build.

**Table 1:** Existent housing management practice adopted by pig farmers in block Makdi, Kondagaon

S. No.	Parameters	Description	No. of farmers	Percent
1.	No housing	-	-	-
2.	Temporary Shelter	Wooden housing	97	80.83
3.	Permanent Shelter	Concrete housing	23	19.16
4.	Location of sty	Attached to human house	92	76.66
		Provision of separate shed	28	23.33
5.	Pig sties wall	Bamboo	99	82.5
		Wood	15	12.5
		Concrete	06	5.0
6.	Pig sty roof	Thatch roof	81	67.5
		Plastic cover	00	0.0
		Bamboo	29	24.16
		Longleaf Indian pine	10	8.33
7.	Drainage facility	Kucca	112	93.33
		Pucca	08	6.66
8.	Provision of shade from trees	Yes	110	91.66
		No	10	8.33
9.	Separate shed for sick and pregnant animal	Provided	120	100.0
		Not provided	-	-
10.	Ventilation	Good	104	86.66
		Poor	16	13.33
11.	Light facility	Adequate	85	70.83
		Inadequate	35	29.16
12.	Floor type	Mud floor	108	90.0
		Cement concrete	12	10

Pigsty walls were made of bamboo (82.5%), wood (12.5%), or concrete (5.0%) <sup>[15]</sup> also reported that the pigsty walls of Nagaland tribal homes were made of bamboo, wood, or concrete. Most pig farmers used locally available materials

such as bamboo and wood. Most farmers lived below the poverty line and could not afford concrete construction materials. The rest of the peasants mainly used locally available sand and stone to build less economical walls. The

study found that the roof of the pigsty was made of straw (67.5%), bamboo (24.16%) and the ceiling was made of Indian pine (8.33%). However [12], observed that pig farmers in north-western Ethiopia used tin roofs (80%), bamboo roofs (13.3%) and thatched roofs (6.7%). Farmers used thatched

roofs made from locally available materials such as straw and long-leaved Indian pine. Almost all of the people who rear pigs were neither very well educated nor aware about scientific methods of pig rearing.

**Table 2:** Existent breeding management practice adopted by pig farmers in block Makdi, Kondagaon

S. No.	Parameters	Description	No. of farmers	Percent
1.	Criteria considered for 1 <sup>st</sup> time mating/service	If any	11	9.16
		No	109	90.83
2.	Average litter size	3-5	45	37.5
		5-7	71	59.16
		7-9	4	3.33
3.	Litter weight (Kg)	3-5	82	68.33
		6-8	26	21.66
		9-11	12	10.0
4.	Provision of farrowing shed	Yes	-	-
		No	120	100.0
5.	Weaning	Practiced	-	-
		Not practiced	120	100.0
6.	Systems of farrowing	Two litter a year	96	80
		One litter a year	24	20
7.	Availability of mating pen	Yes	-	-
		No	120	100.0
8.	Pre weaning mortality	Yes	91	75.83
		No	29	24.16
9.	Keep breeding records	Yes	-	-
		No	120	100.0

The assessment of reproductive performances of indigenous pigs majorly for Ghungroo, Niang-Megha and Agonda Goan have been done for different parts of India and it show limited variation [5]

The study found that the litter size of desi pigs at birth varied between 4 and 10 pigs, with 59.16% of respondents having an average litter size of 5-7 pigs [10] analyzed that the litter size at birth ranged from 7.40±0.40 in normal domestic pigs to 10.44±0.59 in her Large White Yorkshire pigs [17] reported that the litter size of Ghungaroo and Niang Megha pigs in Meghalaya was 10.02±0.35 and 6.5±0.21, respectively [8]. Litter size at birth was significantly larger in Ghungaroo (8.7±0.25) and crossbreds - HS × GH - 8.5±0.48 and HS × NM - 8.2±0.55 compared with other groups, Niang Megha (6.34±0.26), [14] also reported the litter sizes at birth of Sikkim local pig as 4.3±0.45.

Since, Scavenging system is most popular for rearing of non-descript pigs usually they encounter adverse environmental conditions and this has massive impact on litter size. Litter weight at birth of desi pigs ranges from 3 to 10 kg [5] and [17] reported litter weights at birth of 3.00±0.45 kg (non-descript swine from Sikkim region), respectively, 6.40±1.43 kg and 9.5±0.23 kg for Ghungaroo pigs, and 4.23±0.29 kg for Niang megha pigs. Nutritional feature before farrowing has significant effect on litter weight at birth. The present study revealed 75.83% of pre weaning mortality occurred (Table 2) [6] reported pre-weaning mortality as 29.73% in any local Mizoram pig. Mortality in piglet is due to poor management, low nutrition and the failure to address the diseases, lack of hygiene and sanitation.



Temporary shelter (Wooden Housing roof with longleaf Indian pine)



Rearing of Nondescript pig





Rearing of some improved/upgraded breeds



Permanent Shelter (Concrete Housing with open area)

### Conclusion

Pig farming is still operated on a small scale production system in the tribal areas of Chhattisgarh. Traditional pig farming is associated with zero to minimal investment. Pigs have a lot of potential for development to contribute to sustainable pig production and livelihoods. Desi pigs are a valuable source of protein, vitamins, minerals and a secondary source of income for rural people. Due to the high demand for pork in the region, there are enormous opportunities for improving pig production in the tribal areas of Chhattisgarh through the application of science-based interventions in management, routine management and health care delivery.

### Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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