

## Challenges and Opportunities of Pig Farming and Feeding Strategy in Gondar Town, Ethiopia

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**Abstract:** Pigs are farm animals that have not always been considered its economic contribution and as sources of food in developing country. Hence, the research is paramount important to see the farming practice and associated constraints of pig farming in the study area. Therefore, the objectives of the study were to examine the economic contribution and opportunity of swine farming and to identify the major challenges and feeding strategy of pig production in the town. The study was undertaken in Gondar, Amhara National Regional State (ANRS) of Ethiopia, from March to May 2015. The research mainly focused on three purposively selected kebele's (kebele 18, 19 and 20) and was assessed and identified all the three (3) pig farm owners using semi-structured questioner to collect data through interview, focused group discussion and personal observation in each pig farms. Observation was also made to monitor the feeding, housing and other pig farm management practices used by each swine owners. The research result depicted that, the purpose of pig production was mainly targeted to get additional income and profit making for the household via sold in the local market to foreigners coming from different areas of the world. Also the study showed that pig keepers were non-farmers which belong to small land holding members of the community and in parallel, with other types of work. The major feed source of the farm was University of Gondar offal's, followed by grazing and ELFORA wastages. The findings of the research was identified that, the most economically important constraints of pig production were inbreeding problem, lack of improved feed sources, cultural and religious taboo towards the use of pork and finally poor market linkage.

**Key words:** Challenges • Opportunities • Feeding Strategy • Gondar • Ethiopia

### INTRODUCTION

Swine production forms an integral part of farmer's economy in many parts of the world. Many countries practice different kinds of production approaches. Swine production is increasing from time to time in many parts of tropical countries. An increased demand on international market, due to increased number of pork consumer and the profit obtained from the sector make the production to increase rapidly [1].

The growth of population, urbanization and rising income in many parts of the developing world is believed to result in a growing demand for animal products. Consequently, there has been a rise in the production of animal products, particularly from poultry and pigs in the world. Pig farming is an important task which provides opportunity as an income generating activity for small-scale farmers, especially in developing countries [2].

According to Lekule and Kvsgaard [3] high fecundity rate and feed conversion efficiency, early maturity, presence of short generation interval, relatively small space requirement and ability to produce maximally under varied management were some of the advantages of pig production as compared to other livestock rearing. However; studies showed that pig production in developing countries is contributing little benefits due to many production constraints including; under developed infrastructure, poor genetic performance of local breeds, inadequate nutrition, poor management and husbandry practices, shortage of trained man power, cultural and religious taboo on marketing and consumption of pork and wide spread diseases [4].

Pig production in Ethiopia is to be in its infant stage. The pig population in the country is estimated to be 29,000 heads representing 0.1% of African pig population [5]. In many rural parts of Ethiopia, pig production was

characterized by extensive production system whereby animals are allowed to scavenge at backyard and municipal garbage dumping sites [6]. On the other hand, extensive husbandry system coupled with poor environmental hygiene and voracious feeding behavior of pigs has been indicated as a major risk factor for infection of pigs with helminthes and gastrointestinal parasites where pigs may act as potential reservoir hosts of human gastro-intestinal parasites such as ascaris [7]. The domestic pig is an animal which has been very much neglected by the scientific community in Ethiopia. Although pig production is less common in Ethiopia, small scale farmers with few pigs are common in towns and cities of Ethiopia [2].

## MATERIALS AND METHODS

**Area Description:** The study was undertaken in Amhara National Regional State (ANRS) in and around Gondar town and conducted from March to May 2015. Gondar town is found 739 km north of the capital city Addis Ababa, 60km East from Lake Tana, 175 Km from Bihar Dar. The altitude of the area is 2220 masl, with mean annual rainfall of 1172mm and 19.7°C average annual temperature. The town also has a total surface area of 1286.18 km<sup>2</sup> [8].

**Data Collection and Sampling Techniques:** The research was conducted in three purposively selected kebeles (18, 19 and 20) which are found in Gondar town. All swine farms were selected and sampled to generate primary information in the study area. The survey were used both closed ended Open ended questionnaire in all swine farms to make the data more reliable but only primary data were undertaken in order to conduct the research finding.

**Research Designs and Data Analysis:** The primary source of data was obtained through direct interview of farm owners using both open and closed ended questioner. In addition, interview was also used from general manager to obtain more reliable information and farm workers. The data was administered and manage properly using excel spread sheet and analyzed by the statically software of Gondar Town Agricultural Office [9].

## RESULTS AND DISCUSSIONS

**Demographic Characteristics:** The majority of the respondents were between ages 30 and 39 years of old showed in (Table 2). The range was found the working age with careful analysis and also would include those who had gone to seek on-farm activities in urban area and peri-urban area of the research.

Table 1: Age Structure of the Respondents

| Age         | Frequency (N=16) | Percent | Cumulative% |
|-------------|------------------|---------|-------------|
| Valid 20-29 | 3                | 18.8    | 18.8        |
| 30-39       | 13               | 81.3    | 100         |
| Total       | 16               | 100     |             |

Table 2: Educational Status of Respondents in the area

| Educational status     | Frequency (N=16) |         | Cumulative |
|------------------------|------------------|---------|------------|
|                        | Frequency        | Percent | Percent    |
| Valid Illiterate       | 4                | 25      | 25         |
| Basic writing &reading | 4                | 25      | 50         |
| Elementary             | 3                | 18.8    | 68.8       |
| high school            | 2                | 12.5    | 81.3       |
| diploma & above        | 3                | 18.8    | 100        |
| Total                  | 16               | 100     |            |

Remark: Tables 2 & 3 have 16 numbers of respondents; vary from other tables, because there are one farm which is association (13 members) later these members represented by one person.

The group member was combined in to pig farming. The advantage of these types of age groups engaged in livestock activities through technology transfer easily as adults were focused to a new techniques and applications in the study area.

**Educational Characteristics of the Respondents:** The educational status of pig keepers in the study area was showed in (Table 3) in which the majorities of pig producer in the study area were illiterate. They accounted (50%) and some of them were elementary completed and goes up diploma level which was found (37.5). Few of them were at high school level (12.5%) and the kinds of educational status may facilitate the implementation of more appropriate farming techniques in the area.

**Status of Livestock and Pig Ownership:** The proportion of animal species owned by respondents was showed in (Table 4) the pig ownership per household was found the first rank followed by dairy cows. As we compared the pig ownership with other livestock species which in turn indicated that, pig production was an alternative form of animal production in the study area was generated only household incomes. This was due to the fact that pigs were highly prolific; require less land and capital and new ventures of livestock production which improve the socioeconomic condition of the community in the study area.

**Management Practice and Pig Farm opportunities:** Pig keeping in Gondar town was a recently introduced activities in which (75%) of respondents had the experience of pig keeping from since 2012. The average

Table 3: Livestock Holding Capacity of the Respondents

| Livestock holding |              | Frequency (N=4) | percentage | Cumulative percent |
|-------------------|--------------|-----------------|------------|--------------------|
| Valid             | Mixed system | 4               | 100        | 100                |
| Total             |              | 4               | 100        |                    |

Table 4: Opportunities of Pigs for Respondents

| Opportunity type in rank |                          | Frequency (N=4) | Percent | Cumulative Percent |
|--------------------------|--------------------------|-----------------|---------|--------------------|
| Valid                    | Less capital requirement | 2               | 50      | 50                 |
|                          | Prolificacy              | 1               | 25      | 75                 |
|                          | less land requirement    | 1               | 25      | 100                |
| Total                    |                          | 4               | 100     |                    |

experience of the owners reached about 5 years. This indicates that pig keeping was an emerging and newly established activities, this may be due to the cultural taboo of the community in which feeding of pork and related products were the basic constraints of swine production in the area. Almost all of the respondents (100%) were assured that the purpose of pig keeping in the study area was for profit and to generate additional income to their family. With regard to the advantage of pig farming, the majority of respondents ranked on less capital (50%) as first followed by prolificacy (25%) and less land requirement (25%). All pig owners were against the slaughter of pigs for home consumption but they would search other customers to sell their animal in the vicinity. The finding indicated that, in Ethiopia, religion, culture and social taboo played an important role in the pig production sector [10, 11]. Hence, pig production and consumption of pork were not completely practiced in the study area. The findings was in agreement with the finding of Gondar Town Agricultural Office [9] and in contrast to the situation in Namibia, Uganda and Kenya where consumed pork which also used as sources of income [12, 13].

**Reproductive Management:** The overall average litter size was 7 piglets per sow ranging from 2 to 14 which was similar to other studies for semi-intensive pig production systems. The majority of pig keepers (75%) were used weaning practice while the remaining (25%) did not. The weaning age of piglet varied between 1 and 3 weeks and castration of animal was common (75%) in which castration mainly practiced for the purpose of fattening and eliminating the boar odor (25%).

**Feeding and Watering Management:** The major feed resources of pig were ranked via keepers were also used university of Gondar (UoG) offal which accounts (50%) followed by grazing (37.5%) and ELFORA wastage were showed (12.5%) showed in (Table 6) below. Pig feeding of using offal from UoG was common in both dry and wet seasons of the yea. Pig were observed confined in the confinement and feeding on UoG offal and sometimes ELFORA wasted materials as a resources diet and sometimes they allow to graze in the field as supplementary feed.

**Pig of Housing Management:** All pig keepers were used (100%) house in which animals were kept in-door during the night to protect them from predation and theft. From the total pig house (25%) was separate by age and /or physiological stage of pig, the other 50% was only practiced as separate the piglets and the remaining 25% did not separate by age and physiological stage of pigs. The types of houses used by pig keepers were corrugated iron sheet roof (100%) with wooden wall and mud floor. Figure 3 showed that traditional housing of pigs on mud floor and wooden wall and most of the pig producers clean their pig house once in a day (75%) and the remaining experienced every two days (25%) [14]. The integration of pig farming into the traditional mixed farming system might contribute to disease transmission taking the role of pigs as reservoirs of some types of diseases. However, separation of various age and sex groups and classes of pigs had great advantage in feeding and management that would improve growth of swine and avoid the competition among animals [15].

Table 6: Housing System of Swine in the Study Area.

| Separate housing |                           | Frequency (N=4) | Percent | Cumulative Percent |
|------------------|---------------------------|-----------------|---------|--------------------|
| Validity         | separate only for piglets | 2               | 50      | 50                 |
|                  | separate by age           | 1               | 25      | 75                 |
|                  | no separation             | 1               | 25      | 100                |
| Total            |                           | 4               | 100     |                    |

Table 7: Major Challenges of Swine Production in the Study Area

| Challenges   | validity | Rank          | Frequency (N=4) | Percent | Cumulative Percent |
|--|----------|---------------|-----------------|---------|--------------------|
| Religious Taboo against pigs<br>Farrowing management | Valid    | very high     | 4               | 100.0   | 100.0              |
|  |          | Fair          | 1               | 25.0    | 25.0               |
|  |          | not practiced | 3               | 75.0    | 100.0              |
|  |          | Total         | 4               | 100.0   |                    |
| Market status<br>Skilled man power                   |          | Lack          | 4               | 100.0   | 100.0              |
|  |          | Limited       | 3               | 75.0    | 75.0               |
|  |          | Unavailabe    | 1               | 25.0    | 100.0              |
|  |          | Total         | 4               | 100.0   |                    |
| Feed cost  |          | High          | 2               | 50.0    | 50.0               |
|  |          | Low           | 2               | 50.0    | 100.0              |
|  |          | Total         | 4               | 100.0   |                    |
| Improved feed  |          | Unavailable   | 4               | 100.0   | 100.0              |
| Feed shortage  |          | Yes           | 3               | 75.0    | 75.0               |
|  |          | No            | 1               | 25.0    | 100.0              |
|  |          | Total         | 4               | 100.0   |                    |



Fig. 1: Shows the feeding strategy in Selam millennium farm.



Fig. 2: Indicates the living house and the feeding place in G.A Park.

**Pig Health Management:** All of local producers 100% had access to veterinary services, about 75% of the owners did not have access due to sickness and the remaining 25% used veterinary service in and around the area. But pig keepers did not use similar management practice on sick pig. From the total of respondents (75%) keep waiting without doing anything and the rest 25% consult the veterinary services and culling their animals through selling and mortality of pig in the study area was not common problems. All of the respondents were not

affected by distance from veterinary clinic and 25% are constrained by lack of veterinary drugs and medicine for pig treatment. Another problem was farrowing difficulty and crushing of piglets at farrowing was very common observation in many of pig keepers. This might be due to inappropriate feeding, housing and health care systems applied to pregnant sows and insufficient management during farrowing respectively.

**Challenges of Pig Farming:** The major constraints to pig production in the study areas reported according to their order of importance include feed unavailability and cost, shortage of feed, shortage of water, cost and availability of medicine, shortage of market, religious taboo and lack of skilled veterinarians on pig diseases. Similar production constraints were reported in Uganda [16, 17] and Mecha district in northwestern Ethiopia [2]. The production constraints like difficulty at farrowing time and poor management might hinder improvement to productivity of pigs, because sows make up and down during farrowing this was result crushing of piglets, the finding analogous with Wabacha *et al.* [18]. According to Ayele *et al.* [19] alleviating constraints to marketing, improving marketing and market information and upgrading marketing infrastructures would potentially increase the welfare of pig producers and urban consumers and improve the national balance of payments. According to the findings of workers in Ethiopia [6] the government should also work on cultural and behavioral change of the people and also formulate an appropriate policy regarding pig production in the livestock production strategy because do not eat the pork as well as do not like to be produced by others and also they try to kill pig.

Also during key informant discussion it was reported that because of religious taboos for pork consumption in the country, producers have fear of poor domestic marketing potential. The government should also work on cultural and behavioral change of the people and also formulate an appropriate policy regarding pig production without delay and should be incorporated in the national livestock development program [6, 12].

### CONCLUSION

Pig production is a recently introduced activity in Gondar town with traditional management based on confined in houses and poor feeding. The production system of pigs in the area was mixed farming; however, lack of proper pig husbandry practices such as feeding, housing, health care and overall management efforts was common. The study revealed that the main purpose of production is to get additional income for the household and in achieving securing food security at individual level, but they were against to consumption. Pig farming was also used as self-employment for landless and unemployed people in the study area. The research was first in its kind and had a number of limitations. As pigs were among the animal species which are expected to fulfill the growing demand of meat in the nation, thus changing of the feeding habits of the community through awareness creation and extension would be the mandatory of the scientific community.

**Recommendations:** In-depth studies on the types of feeding trials, diseases and parasites occurring in the study area would be crucially important. On-station and on-farm level scientific feeding management, housing and dealing with their reproductive performance were highly recommended. The government should do awareness creation and made proper policy regarding to pig production and consumption for the sustainable securing of food self sufficiency.

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