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A REVIEW

An overview on the status and strategy for improving pig farming in Arunachal Pradesh

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Key words :

Pig is one of the most efficient feed and feed–by- products converting animal among the domesticated livestock. It is the litter bearing animal with higher growth potential, short generation interval, high feed conversion ratio. Pig raising is very popular in developed part of the world while it is infancy in developed and under developed countries. On a worldwide basis, more meat is produced than any other species. In India pig rearing is confined to lower caste people and tribal people of northeast India. As per the latest Livestock Census, the pig population of the country increased from 13.29 million in 1997 to 14.14 million in 2003, with an annual growth rate of 1.25%. India ranks 17th position in total pig population comprising 2% of world pig population. The highest pig population is in Uttar Pradesh (26.79 lakhs) followed by West Bengal (13.01 lakhs) and in the North-east region, the highest population is in Assam around12.62 lakhs.

Status of pig population :

In Arunachal Pradesh the total population of pigs-3,29880 out of which the indigenous breed (Gahuri) - is 321878 and rest are crossbred 8004 (SDAH, 2003). Here, Pig and beef are major sources of animal protein for the tribal people, which constitute 79 % of the total population (Naskar and Das, 2007).The state has the highest number of pigs per household @1pig /house. (Sethi, 2004). Majority of the households rear pigs, for their domestic consumption as well as a subsidiary activity. At present there are four state pig farms and two regional pig breeding farms in the state for the entire population where exotic breeds like large white, Yorkshire, landrace are kept for breeding purpose for up gradation of the indigenous stock (SDAH,2003). But most of the farms are running loss due to lack of funding from the state department where most of the budget is spent for salary of the staff and running the administration.

For this reason, people are relying on desi breed, which is easily available from neighboring state like Assam.Each family on average rear 2 -3 pigs. Most of the work is done by the women folk followed by the other member of the family. The education level in the villages is very low (90%)of women are illiterate by (HRD, 1994). The method of raising the pig is based on traditional systems followed over the years. But those farmers near the town and where pig farms are located follow scientific rearing practices, and their socio economic status is better than in the villages. They usually do pig farming as a subsidiary source of income, feeding on concentrate and available kitchen waste.

Breeds of pig available in Arunachal Pradesh :

Mainly there are two types of breed available in Arunachal Pradesh the desi' *Gahuri/dhoon* and the cross bred. While few exotic breeds are available in state run government farms like large white Yorkshire and landrace which are used for up gradation of indigenous breed. Some of the characteristic features of desi breed are colour is dark brown to grey, having a long snout, short rib and long legs, with average litter size of 5 piglets with a dressing percentage of 69.64%,FCR 1:4.76 (AIRCP, PIGS). Though this breed is having low FCR but it is having high disease resistant than exotic breed and

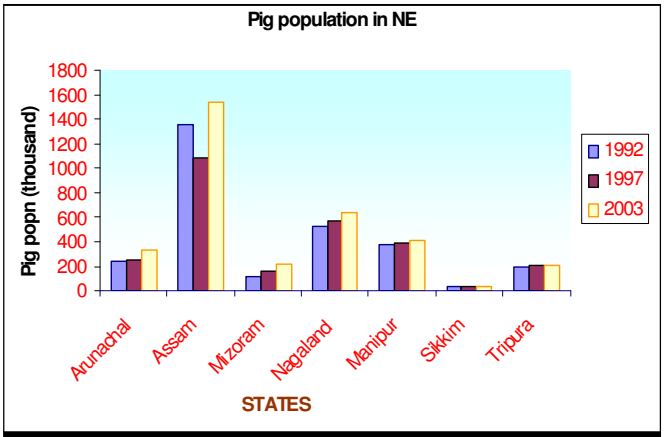

Fig. 1 : Status of pig population in North East region of India

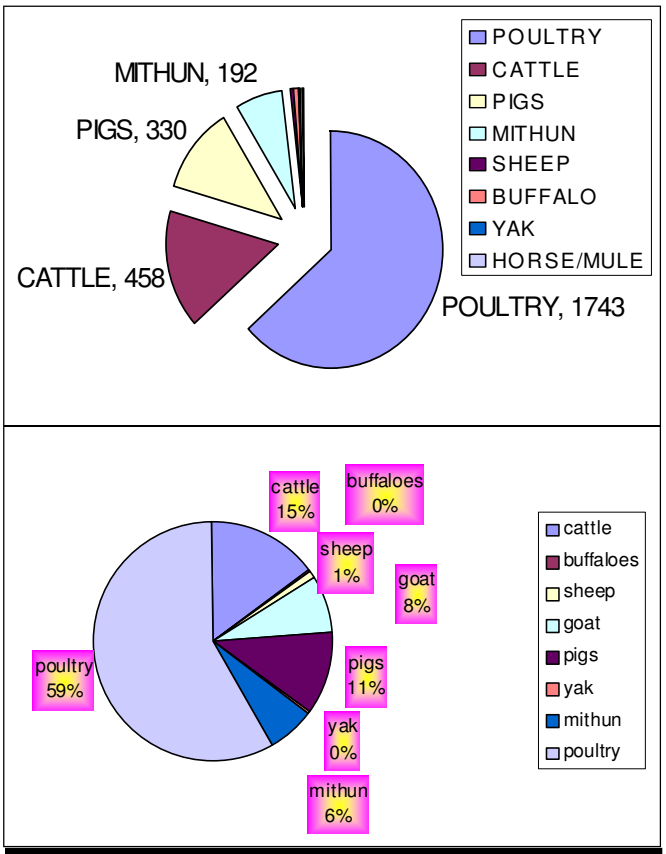

Fig. 2 : Livestock population in Arunachal Pradesh

can be easily managed with available resources with almost negligible cost for the pig farmer in rural areas. Breed improvement is important in obtaining improved and high yielding animals. The main purpose of breed improvement is to introduce a positive characteristic into a local breed. For example: by crossbreeding an indigenous sow with an exotic boar; the offspring is likely to inherit the body shape and good growth rate from boar and the tolerance to environmental stress from its sow. For this region, the desi bred was crossed with the exotic landrace boar in many of the the state department farms to produce the F_1 crossbred. This breed of pig is usually dark grey in colour having an average litter size seven(7) piglet, F.C.R1:4.2. The litter size at weaning six piglet at weaning with a pre weaning mortality rate of 24% and post weaning mortality weight of 17.36%(Kumar,1999).

Pig raising system adapted in Arunachal Pradesh :

– Free range scavenging.
– Semi-intensive (confined within a large area).
– Intensive (confined to a pig pen).
– Integrated pig and fish farming.

Free range scavenging :

These traditional systems predominate in large areas of the state, especially in the rural village. Indigenous or local pigs will forage for the bulk of their food around homesteads, kraals and adjacent areas and receive some form of supplementary feed later in the day, often in the form of cassava, cracked cereal grains or household scraps. Productivity of these village pigs is generally low, with litter sizes of three to five piglets and low growth rates. The potential of these basic production systems for wealth creation is limited, but makes a significant contribution to the livelihoods of resource of poor people.

Advantages:

– Low cost of inputs and low use of labour.

Disadvantages:

– Requires a large area and may destroy cash crops.
– Pigs are difficult to control and can be infected easily with diseases.
– Low output and public nuisance.

Intensive (confined to a pig pen):

This system is adapted by farmers with a sense for improved pig production. Often, these farmers are found in areas where they have access to commercial feeds and near to town. Usually these farmers are in semi-urban areas and raise exotic and crossbreed pigs for the local market.

Advantages:

– Easy to handle (feeding, water supply, monitoring health, detecting heat, farrowing,etc.)
– Easy to undertake vaccinations and treatments.
– Low risk of diseases when the farmer adheres to good sanitation practices.

– The environment is kept clean and crops are not destroyed by scavenging pigs.

– The manure can fertilize fish ponds or fertilize the field crops (or garden) of the farmer.

Disadvantages:

– High costs of inputs (housing material, feeds and labour).

– Farmer requires more management skills.

Semi-intensive (confined within a large area):

The semi-intensive system (confined within a large area) is found in suburban areas or with communities specialized in fattening local pigs.

Advantages:

– Simple pig housing (only shelter against rain and sun).

– Low cost of inputs as by-products and kitchen wastes are used for feeding the pigs.

Disadvantages:

– Low output and requires a large area.

– Pigs are difficult to control (e.g. catching for veterinary treatments).

– Pigs can easily be infected with diseases (especially when new pigs are introduced into the same area).

Integrated pig and fish farming :

This system is adapted by farmers which have access to fish pond in the villages. Fish ponds can be fertilized with pig manure, algae are produced which can be utilized by the fish. As long as sufficient water is available for the ponds. Pig sties are constructed above the pond so that the manure drop straight into the water, or nearby the ponds so that the slurry can be channeled into the ponds. The various species of fish are Tilapia, the most commonly used fish, often mixed with a small population of carp and catfish. It has been estimated that a stocking of five to ten 10-kg pigs per 0.16 ha fish pond (31–62 pigs/ha) is most suitable for a stocking rate of two thousand 3–5 cm tilapia or tilapia cum striped catfish fingerlings (12,500 fingerlings/ha). About 60% of the total revenue from this integrated system is cash costs, leaving 40% net income for the farmers (Wannakul, 1983).

Pigsty building and materials :

Here pigsty is constructed cheaply by using locally available materials according to climatic conditions and the type of pig production system. Pens with raised slatted floors are usually made from locally available bamboo, wood or timber and cane rope. The roof of the pigsty is made of toko leaves, grass thatch, bamboo sheets, galvanized iron sheets, etc. Roofs made of toko leaves and bamboo sheets are cheap and good for ventilation, but have to be changed after certain period. Though costs of galvanized iron roofs are high, but these roofs last along time.

Feeds used for the pig :

The feed accounts for 60 % of the cost. The available feeds are rice bran, broken rice, maize, cassava,sweet potato vegetables and waste products. Distillers' residues are often used in pig feed. Different feeds are mixed and boiled to make the pig feed more palatable. There are mainly two types of traditional processing: Mixing all different feeds together (rice bran, broken rice, crushed maize and crushed cassava, etc) in proportion and giving it directly to the pigs. And the other method is, cooking the different raw materials together to improve digestibility and to breakdown toxins from some feeds.The rule of thumb, to know whether full fed is he/she feeds the pigs till they are satisfied and do not scream anymore. When the farmer is rearing fattening pigs, one scoop extra is fed. The different types of feed are as follows :

Rice bran :

Rice bran is very suitable for pig feeding. It contains 11% protein and can be used as the main ingredient. Rice bran can be kept no longer than 1 month because it can become mouldy.

Broken rice :

Broken rice is very suitable for pig feeding as it is available from rice mill. It can be mixed with other feeds.

Maize :

Maize is a very good animal feed, but due to it higher cost, few pig farmers fed on it only those doing scientific and near the town give as pig feed.

Cassava (or tapioca) :

Cassava is a root crop which is widely available in almost of all areas and is used for pig feeding. It is mixed with other feeds. First it is peeled and washed and then sliced, dried and ground before use.

Vegetables :

Vegetables are used as supplementary feeds for pigs by boiling and mixing with other feeds such as rice bran, broken rice, cabbage, spinach, sweet potato, wild taro (needs boiling), banana stem.

Alcohol - rice distilling residues/Apong/yonkgin :

Popular form of pig feeding is distillery waste from rice. Mixed with other feeds, such as rice bran and broken rice mainly for feeding boar for fattening. The following mixing ratio is commonly used in combination with distillery waste: Rice bran (2 kg),+ broken rice (1 kg)+ distillers' residues till gravy.

Methods of pig breeding:

Usually pigs are let lose in their natural environment by mixing a boar with five sow there is no any artificial insemination done, they are breed in natural condition. In some areas the boar is made to breed with the sow by bringing to the pen, *i.e.,* intensive system of rearing.

Marketing of pig :

Marketing of pig is unorganized. There is no government institution to control the production and marketing of meat and by products. It is entirely in the hand of middle men, who round up the majority of share of consumer rupee. The local village traders, they tie up with the village producer, purchase the animal meant for meat in bulk from the producers and redistribute in the urban areas, in some areas the retail butcher themselves have some tie up with village level producer. There is no organized houses for pig, the butcher follows traditional system in which there is loss of meat, detoriate the quality for longer storage and sometimes if improperly done can possibly cause ailment in human either through consumption of meat or those person handling the meat. The cost of meat ranges between Rs. 100 to 160 per kg and the by product the price varies with the product ranging from Rs. 20 per kg.

Constraints :

Lack of superior germplasm :

The indigenous pig population still occupies more than 92% of total population in this region, even after implementation of various pig improvement programmes. The region has been importing pigs from outside this region to fulfill the demand of this region because of high rate of consumption.

Lack of systematic breeding programme :

The pig breeding farm established to improve the indigenous pigs through upgrading with exotic breeds like landrace, large white Yorkshire. But expected results were not achieved due to lack of systematic breeding plans. This approach has led to mixture of crossbred pigs without a fixed percentage of inheritance.

Non-availability of pig feed :

Most of the rural farmers manage with the available resources which is available for maintaining the desi bred but for exotic and crossbred, a good quality feed is required for maintenance and production. More over, there is only one feed mixing plant in the state which is supplying feed to the government run pig farms that is insufficient for the public. So, only those farmers near to town and capital import feed from neighboring state at a higher cost.

Insufficient number of breeding farms :

In the whole state, there is only two breeding farms that is insufficient to meet the growing demand of pig and also supply crossbred and exotic breed to the needed pig farmers.

Lack of organized slaughter house :

The region lacks organized slaughter house for humane slaughter and hygienic packaging of pork products for proper marketing throughout the region. Still pigs are slaughtered with traditional method without maintaing any hygiene.

Poor transport facility due to the topography :

The region is mostly hilly due to which the transportation of pig from outside state takes a longer time than other places. The pig farmers are located in the interior places so, its difficult them to transport regularly to the market. Moreover, during the monsoon seasons there is heavy landslide in these areas, which in in turn further aggravates the communication condition.

Poor marketing information system :

Due lack of marketing information the farmers are not aware of ground realities of demand and product.

Technical constraints :

The majority of the pig farmers are in the rural areas. The education level is low. They follow the traditional practice done over the ages. Secondly, due to lack of extension efforts by the state department to all the areas to bring a change in the knowledge, attitude, skill of the farmers.

Lack of easy credit facility :

Most of pig farmers are small and marginal. So, they do not have sufficient capital investment for establishing infrastructure as housing base etc. Negligence of bank to provide loans in livestock enterprise, for applying loan, it takes a lengthy procedure.

Strategy of pig rearing in Arunachal Pradesh :

Breeding policies :

The Government should encourage commercial pig farming with improved exotic breed. Attempt to boost commercial pig farming of crossbred of different breeds and also indigenous breeds may be made in same way. Upgrading of indigenous breeds with exotic breeds should be done in keeping the interest of the farmers. At the same time, measures should be taken to conserve the indigenous pig germplasm *i.e.* improvement should be done through selective breeding.

Alternative feed resource :

The emphasis should be given for use of non-conventional feed resources like cassava leaves, potato leaves, water hyacinth, banana stems and there should be establishment of a compound feed manufacture for efficient utilization of non-conventional feed resource as a source of pig feed. Presently, much interest in tropical countries in the use of cassava leaves as a replacement for soybean meal and fish meal in pig diets. Fresh cassava leaves can be fed at 41% of the diet, DM with no apparent signs of toxicity (Du Thanh Hang, 2005).Water spinach (*Ipomoea aquatica*) does not appear to contain anti-nutritional compounds and has been used successfully for growing pigs as the only source of supplementary protein in a diet based on broken rice.

Modern disease diagnostic laboratory :

There should be one modern disease diagnostic laboratory with branches in all districts to keep strict vigilance on diseases and their prevention.

Establishing pig cooperatives involving women entrepreneur :

Developing or establishing pig cooperatives societies like the dairy involving Govt. and local NGOs, so that Government can purchase the products and give to the producer, the amount in remunerative price.

– Infrastructure development of existing pig farms and establishing more new farm in each district like cattle farm.

Marketing infrastructure :

It should be created at the primary markets in rural areas and regulated markets in district level, where the price of pig depends on breed, its FCR. The price of breeder should be 25% more than porker.

Scheme for pig insurance :

Provision for insurance to pig farmers in case of sudden death of pig, in case of any epidemic condition and during any natural calamities like flood, etc.

Establishment of livestock extension service for pigs:

Livestock extension services seek to impart the necessary skills to the farmers for undertaking improved animal husbandry operations, to make available timely information and improved practices in an easily understandable form suited to their level of literacy and awareness and to create in them a favourable attitude for innovation and change. Establishment of cyber livestock communication system for faster dissemination of information through communication information centre which is located in each district as it saves money, time and effort.

Conclusion :

The state being an agricultural rural based, the scope for piggery production has high potential, because of the food habit of the in habitants, being mostly non -vegetarian (about 90%). Moreover, there is no religious taboo for consumption of pork meat. Apart it has significance in many spheres of the life of people *viz.*, public functions, social gathering, religious ceremonies. So, the traditional local pig rearing which is being followed in most of districts of Arunachal Pradesh should be gradually transformed to scientific rearing practices to harness the maximum production potential of this species and improve the quality of meat and its by products by state government and state local NGOs, so that it can meet the growing demand in the urban towns of the state, and also can be exported to the neighboring states. Thereby uplifting the socio economic status of the pig rearers and overall development of the state.

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