

Indigenous pigs of Arunachal Pradesh: outstanding prospective for pork production-preliminary observations

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ABSTRACT

The paper provides preliminary observations on various aspects of indigenous pigs of Arunachal Pradesh. Arunachal Pradesh is entirely a hilly state inhabited by a large number of tribes. The people of Arunachal Pradesh rear pig not only for food but also for sacrifice for ritual purposes. Pig is the main animal in this region and it can be maintained easily without much care and cost intensive management practices. Rural people consume pork meat as an easy source of protein being produced from backyard farming. Arunachal local pigs are compact, small in size, pot bellied in appearance, hairy coat, mostly black body color with white spots on legs, around shoulder region, at belly, and at fore head. Arunachal local pigs show extensive disease resistance or tolerance capacity against infectious and non infectious diseases. Male and female attain their sexual maturity at very early age in comparison to other variety and breeds of pigs in the country. The approximate price of an adult pig with live body weight of about 40 kg ranges from Rs 7000/- to Rs 9000/-, irrespective of the sex. There is a definite need to characterize and evaluate this unique germplasm, accredit it as a new pig breed of the country and initiate programmes for its improvement and sustainability.

Key Words: Indigenous pig, backyard farming, disease resistance, sexual maturity, unique germplasm

Arunachal Pradesh: Arunachal Pradesh is a hilly state. The state is situated in the North East extremity of India, in the trans-Himalayan region lying between the latitude of 26°28'N and 29°33'N and longitude 91°31'E and 97°30'. Depending upon the topography and altitude of the land, climate shows wide variations. It ranges from subtropical to temperate depending on the altitude of the land. In the lower belt region, hot and humid temperature prevails. The average temperature in this region goes upto 40°C during summer, 15°-20°C during winter, and 22°-30°C during monsoon. The middle belt region of Arunachal Pradesh is cooler and shows a micro thermal climate. In the higher altitude region largely alpine climate prevails. Snow fall can be seen in this region during the winter season. The state experiences heavy rainfall during May to September. Average rain fall recorded in Arunachal Pradesh is 300 Cm with the range of 80 Cm to 450Cm. Among all the North-eastern states (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Tripura, and Nagaland), Arunachal Pradesh is geographically the largest comprising of 83743sq km area and inhabited by 3863 villages.

Arunachal Pradesh is exclusively a tribal state. It has 25 major tribes and a number of minor tribes. Inhabitants of all the tribes /sub tribes of the state consume pork and also rear pig. The people of Arunachal Pradesh rear pig not only for food but also

for sacrifice for ritual purposes. Names are given depending upon the area or tribe, rearing the pig (e.g. Adi- Ek; in Adi belt). People of Arunachal Pradesh mostly maintain pigs in small units under backyard rearing system and also in free ranging system in the villages.

Indigenous pig of Arunachal Pradesh: is an important animal for rural people as these pigs can be maintained easily without much care and cost intensive management practices. Rural people consume pork as an easy source of protein being produced from backyard farming without investing much. Besides the local populace prefer pork over chicken to celebrate different occasions linked with ritual and traditional cultural celebrations where meat is an essential and compulsory food item to be consumed than Chicken. Chicken is costlier and difficult to get in required quantity at right time due to shortage of supply. In such situations, slaughtering of one pig from own backyard farming can easily fulfil the required quantity.

Unlike the other pure and cross bred, the Indigenous pig can grow without much investment for feed and housing. The Arunachal Pradesh local pig subsists on free ranging /scavenging with locally available non-conventional feed found in the locality or provided by the owner. This system of feeding reduces the rearing cost for feed to a larger extent. This local pig requires less space in comparison to other heavier

breeds, thus housing can be provided cheaply with locally available material. Sometimes without separate housing, these pigs are also reared under the traditional "chang-ghar" made by the tribal people. Under the diversified and variable topography with varying altitudes, the crossbred and other pure bred pigs are difficult to grow in this region due to their lower physiological adaptation and lower resistant capacity against the locally prevailing diseases. But this difficulty is not encountered for Arunachal local pigs because they are indigenous and well adapted to the local climatic conditions. The local pigs have developed unique phenotypic characteristics over centuries as compared to the crossbred and other pig breeds.

Phenotypic characteristics of Arunachal local pig/ Indigenous pig: Arunachal local pigs are compact, small in size, pot bellied in appearance, hairy coat, mostly black body color with white spots on legs, around shoulder region, at belly, and at fore head. Occasionally red color pigs without any spot are also seen in the state. Forehead contains thick dense bristle. Ears are short and erect. Legs are short. They attain sexual maturity at an early age. Generally males acquire sexual maturity earlier than the females. In free ranging system, females give first birth at 6-7 months of age in natural conditions. They have small litter size and litter weight and produce 8-9 piglets in 3rd - 4th farrowing. Young gilt generally produce only one or two piglets at first farrowing. They have shorter farrowing interval in comparison to crossbred and pure breed pigs reared commercially in the country.



Fig 1. Typical local pig of Arunachal Pradesh (left) maintained under scavenging conditions (right)

Arunachali pigs exhibit both domestic as well as wild behavioural characteristics. This helps not only for their self care but also to sustain and adapt with their natural as well as social habitation. Thus the local pig of Arunachal Pradesh is behaviourally distinct than other crossbred and purebred pigs reared in the state. Local pigs, like majority of local pigs in the country, mainly prefer free ranging/ scavenging life for getting food than confinement. They are not completely dependent on

owner for feeding like the commercial crossbred and purebred pigs which are totally dependent on owner for feeding.

These local pigs are much alert, active in gait and reflexes, aggressive and even bite when they are scared or attacked by others than owners. They like muddy area during summer and uses snout for digging of soil for food searching. These are adept in walking through stiff hilly upward route for searching food which is not possible in case of large sized crossbred and heavier commercial pig breeds. They are endowed with very low back fat thickness and produce fat-less meat in their carcass, which is highly desirable. Additionally, this characteristic helps them to get comfort during summer or hot and high-humid climate.

Care and managerial practices: The local pig of Arunachal Pradesh requires little care and management in comparison to the other commercial pig breeds and is dependent totally on owners care and management. For food they can manage by themselves through scavenging in villages as well as in surrounding forest. Owners /farmers provide only once/ twice a day, prepared from non conventional feed stuff or kitchen waste. In case of free ranging system, pigs generally use the space below the owner's "chang ghar" as shelter during night to protect themselves from heat and rain. For breeding female pigs select their mate naturally and prefer the male which is superior to other males available in the population. Male pigs may mate with their own daughters and even with their mother. Thus a homogenous gene frequency is maintained in the population. Females generally give birth to their piglets without any assistance from owners. The pigs which are reared in intensive system are provided with local pig food "the sty" prepared with locally available material with a minimum cost.

Arunachal local pigs show extensive disease resistance or tolerance capacity against infectious and non infectious diseases. They have the habit of eating a wide variety of wild grasses, shrubs and herbs while scavenging which may possess medicinal properties and help them to endure different diseases as well as the parasitic infestation to a great extend.

Housing System: Arunachal local pigs usually do not require special housing system. Farmers generally prepare common temporary traditional tribal type of housing system for pigs. This type of housing systems is prevalent since ancient times, continued generation after generation with slight modifications depending upon the availability of local housing material. Such

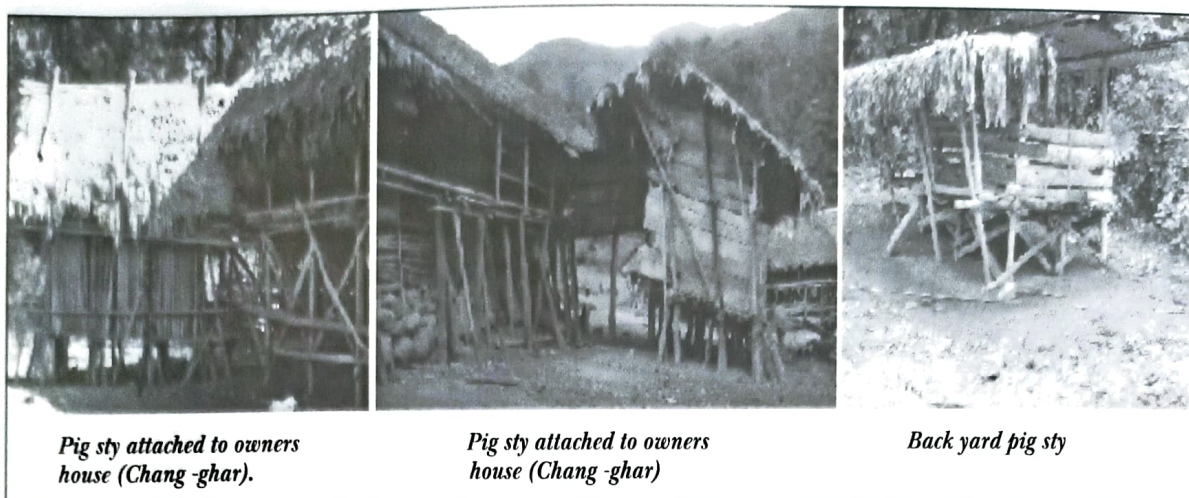


Fig. 2. Traditional housing provided for pigs in Arunachal Pradesh

modifications are common only in towns or in villages located in the vicinity of township areas. In the remote villages the centuries old type of traditional housing system is still in practice (Fig 2).

Selection of site for pig house: Selection of site is very important to minimize the labour for management practices for rearing of pigs. So farmers generally prefer sloppy area. The slope helps in the passage of excreta downwards away from the sty. Many farmers in villages generally prepare pig sties which are attached on the back side of farmers' own house with a bridge which is an extension of the floor of the farmers "Chang-Ghar" for easy monitoring/ management of the animals. Some farmers also utilize the space below the elevated floor of the "Chang-Ghar" for shelter of pigs at night and in bad weather as well.

In traditional housing system, the floor is constructed as raised platform using bamboo or wooden planks. It is about 3-4 feet above the ground, keeping a small gap of about 1-2 inches between the planks for better drainage of the excreta as well as waste feed and water which helps in keeping the floor dry. Roofs are made mostly from tree leaves most commonly the "Toko -patta" tree which is commonly available. In some town areas tin and plastic sheets are also used. Bamboo wood is generally used for pillar/post of the pig sties. Bamboo is more often used than wood for construction of walls. Some times 1-2 inches gap is kept in between the bamboo / wooden planks for ventilation of air. In this type of housing system the floor spaces provided to animal is very less as compared to recommended scientific housing system. However, the local pigs are well adapted with less floor space and grow very well without any perceptible problem whereas the heavier crossbred/commercial breed pigs face many difficulties when housed in this

type of housing system. Feeder/ waterer are generally prepared from local wooden planks. Some farmers also use piece of vehicle tyre as feeder/ waterer to feed their animals.

Feeding management: Scientific feeding, barring the governmental pig farms, is generally not practiced. They are basically reared on traditional feeding system. Unlike standard system, feeding of local pig is different in Arunachal Pradesh as compared to other states of the country. Farmers widely use the feeds which is available in the vegetation of forest surrounding their habitation. The type of feed availability for pigs may thus slightly vary in different localities due to the difference in the availability of vegetation at different altitudes of the place.

Almost all farmers use kitchen waste, rice polish, wild colocasia (tuber, leaves, stem), papaya (leaves, stem, fruit) "Tashat" (*Wallichia densiflora*), sweet potato for preparing the feed for pigs. Wild colocasia, papaya, sweet potato are cut into pieces are mixed kitchen wastes and little rice polish and sufficient water. This mixer is then cooked in wood fire as slurry and is then given to their pigs 2 or 3 times a day (Fig 3). In higher altitude a tree locally named "Tashat" is available. Many farmers use the stem of the plant. After removing the scale the required amount of the feed is obtained from the stem by cutting into small pieces using a sharp object and remaining part is kept for future use (daily feeding). The cut pieces are cooked in wood fire and offered to pig twice a day. Some farmers also offer these cut piece of "Tashat" tree as such without cooking (Fig 3). This practice of feeding of "Tashat" to local pigs is generally prevalent in the remotely and comparatively higher altitude areas/ villages where transportation to the main road is very far and other feeds are not easily available.



Preparation of feed with kitchen waste

Feed obtained from Tashat Tree.

Kitchen waste with Rice polish

Figure 3. Preparation of different types of local feeds for Arunachali pigs

Reproduction and breeding management: This small unique animal does not need much human intervention for reproduction. Male and female attain their sexual maturity at very early age in comparison to other variety and breeds of pigs in the country. Females have very good mothering instinct and are also very aggressive for the care of their piglets specially after farrowing. Generally females select their mate for breeding. Strong and superior males in the group get preference for mating. Mating precedes sexual play (Fig. 4).



Young male and female preparing for mating

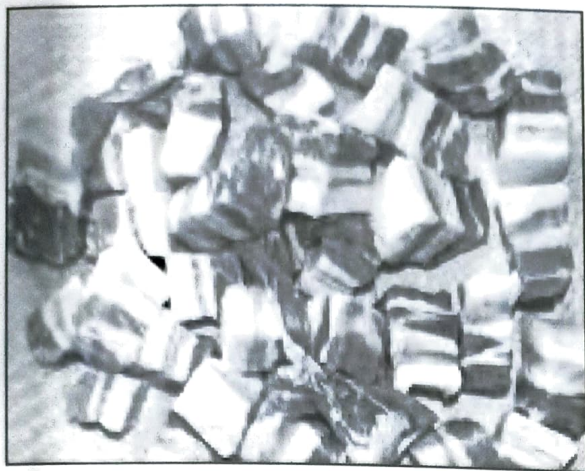
Pregnant sow hardly requires additional attention for maintenance during gestation. They normally give birth of their piglets without any assistance of the owner. The pregnant female (normally in the villages), leave the village 10 - 15 days ahead of her farrowing and move to the nearby forest area and prepare a nest with tree leaves and climbers. Such type of nest is very secure, strong, and comfortable. The nest is able to protect the piglets from rain, sunlight, strong winds and even

maintains warmth during winter. The mother sow and her piglets join the owner and other pigs after spending few days in the forest.

Marketing of piglets and pork: There are no market / haat in village/rural areas; hence pigs are directly sold from farmer's house. In case of large towns pigs are sold in market but in small numbers. Farmers generally use gunny bags and bamboo basket to carry and transport the animals from farmers own house to market/ selling place. The approximate price of an adult pig with live body weight of about 40 kg ranges from Rs 7000/- to Rs 9000/-, irrespective of the sex. The price of 4-5 months old piglets may vary from Rs. 800/- to Rs. 1200/-, depending upon the body growth and health condition. As the numbers of local pigs are very less in towns, the pig meat is in short supply despite intense demands. In rural areas meat is abundantly available for local use. Traditionally, three to five households slaughter a pig and distribute the meat in equal parts to avoid wastage. After consumption of fresh meat, excess meat is preserved as dry meat utilizing the heat and smoke of fire wood.

Pattern of consumption and common meat preparation: Almost 99% population of Arunachal Pradesh consumes pork. It is most preferred than any other meat. Pork plays an important role in various festivals /Social activities. Pork is important and convenient source to fulfil the food needs and celebrate various social occasions in their life. Both fresh and preserved meat of pig is consumed by the people. Traditionally they consume boiled meat using the spices like "bamboo shoot", Zinger, and green chilly.

Boiled pork: Pork is also preserved by drying using the heat and smoke of burned firewood. In this process



Pieces of pork ready to boil

fresh meat is cut in to pieces of a size 4-6 inches x 3-4 inches. (Size may vary according to personal choice). These pieces are kept 3-4 feet above the fire coming out of their traditional kitchen. The pieces of meat become dry and can be preserved for future use up to seven to ten days (depending upon the time and frequency of use of fireplace). After drying, meat pieces are kept in a bamboo basket and preserved. The preparation of dry meat is similar to that of fresh meat using the same spices by boiling. The large pieces of meat are cut in to small pieces and put it along with spices (salt according to taste) in boiled water. During winter coriander leaves are also added in to the preparation of pork. Depending upon the availability in various seasons of the year, variety of green leaves like mustard green is mixed with pork preparation.

Roasted pork: Roasted pork is prepared from dry as well as fresh meat. Small pieces of meat are fit into a thin bamboo stick of an arm length. Now this loaded stick is placed over fire. Care is being taken not to place the stick directly into the fire. Only heat is utilized to get the roasted meat. When the pork pieces become golden colored it is ready to eat.

Pork cooked in a Bamboo sleeve: A clean bamboo sleeve is taken from a fresh bamboo tree. The small pieces of clean fresh/dry pork are kept inside the sleeve along



Roasted pork ready to eat

with bamboo shoot, ginger, and green chili and salt. This loaded sleeve is closed with a plaque of banana tree leaves/ekkam patta (a Local tree of Arunachal Pradesh) and placed directly over fire or burnt on charcoal. The steam present inside the sleeve cooks the meat within 15 to 20 minutes leaving a pleasant aroma.

The local pigs of Arunachal Pradesh are thus adapted to the local conditions and reared under a traditional system since centuries and are economically very significant for the livelihood of their owners. There is a definite need to characterize and evaluate this unique germplasm, accredit it as a new pig breed of the country and initiate programmes for its improvement and sustainability.

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