Improved management practices for enhancing productivity of piggery farm

Ram Singh[1], Ashok Kumar[2], P. C. Jat[3] and R. K. Dewry[4]

[1]Associate Professor, School of Social Sciences, CPGS, CAU, Barapani; [2]Scientist, Division of Livestock Production ICAR Research Complex for N.E.H. Region, Barapani, [3]Senior Scientist, ICAR-ATARI, Barapani and [4]Research Associate, Division of Livestock Production ICAR Research Complex for N.E.H. Region, Barapani

Introduction

Pig farming constitutes the livelihood of rural poor belonging to the lowest socio-economic strata and they have no means to undertake scientific pig farming with improved foundation stock, proper housing, feeding and other management. In India pig rearing is very popular amongst the tribal backward and weaker section of the society, especially North Eastern region (NER). Moreover, pig farming fits very well with the integrated farming and also be complementary to intensive crop production programme. NER also has the tremendous potentiality of improvement of pig production through scientific management, as in NER the deficit is aggravated due to traditional ways of pig rearing like feeding of locally available feed stuff and scavenging, improper breeding, sizeable population of non descript pigs and non availability of good quality pig germplasm always remains matter of concern. In spite of the excellent opportunities prevailing for the development of piggery of an industrial scale, the region is still non self sufficient in pork production and depends on imports from outside the region to meet the ever increasing demand. Therefore, it is urgent need to aware the tribal farmers about scientific piggery farming to uplift their socio-economic status by fulfilling their domestic demands.

Selection of pig Breeds

Different pig breeds are presently available in the region *viz,* non-descript, *Hampshire and their crossbreds*. The selection is based on consumer preference, growth rate and meat quality. For example black skin pig is more preferable than other pigs. However, ICAR Research complex for NEH region have developed upgraded pig having 50 per cent,75 per cent and 87.5 per cent *Hampshire* blood and were found to be very much suitable for the region due to faster

growth rate, high meat quality and disease resistance capacity. Therefore, quality pigs should be procured from known Research and developmental agencies, State Veterinary Department, NGOs and other breeder farmers. Normally pigs that have acclimatized in the area need to be chosen.



Fig1. Hampshire Khasi local Ghungroo

Breeding management

Indigenous pigs normally reared by farmers are bred indiscriminately without much choice of male. Moreover, during the process of scavenging, there is no control over breeding. Reproduction is the main component limiting the productive efficiency of pig industry. Successful reproduction is the outcome of a series of closely linked events. The gilt must grow rapidly to attain sexual maturity, initiate estrous cycle, ovulate and be mated by a fertile boar or inseminated with fertile semen. The female pig becomes sexually mature between 8-10 months depending on the breed and nutrition level. But the local pig attains maturity at 5-6 months. The length of the estrous cycle averages approximately 21days (18-24 days). Signs of heat are restlessness, loss of appetite, increased vocalization, frequent urination, red swollen vulva, riding other females, elevation of tail, arched back *etc*. If the female is in heat she will remain stand still when pressure is applied on the loin region with the palms of both hands (standing reflex). It is always better to leave one or two estrous cycle in case of the gilt and breeding may be done during the third cycle depending on the physical condition of the gilt. The best time for AI of sow/gilt is 15-24 hours after the onset of estrus. She should be bred on the second day if she is still in standing heat. If the female does not conceive, it will repeat its heat symptoms after 21

days. Those who do not repeat are presumed to be pregnant which, however, needs to be confirmed/ diagnosed with the help of a veterinarian.

Fig 2 Artificial Insemination and litter size in crossbred pigs

Care during pregnancy and farrowing

After breeding, the sow should be kept in dry clean and hygienic enclosure in comfortable place. It should be closely observed for estrus symptoms around 20 days after breeding to assure the non-return of estrus and expect the conception. Pregnant sow should be shifted to a clean farrowing house before 3 weeks of farrowing. Clean and dry bedding material preferably of dry paddy straw/hay has to be provided in the pen. The pregnant animal should be fed individually. In most of the cases no assistance is required during farrowing. New born piglets are active and within two minutes each piglet reaches a teat and attempt to suck milk. Sometimes respiration is delayed in newborn piglets. To stimulate the respiratory activity of the piglet the mucous should be removed from nose and mouth. The weaker piglets should be assisted to the teat so that they can suckle the first milk (colostrums).The placenta may be expelled during the phase of delivery as single mass after the birth of last piglet. Care should be taken to avoid crushing of newborn piglets during and after farrowing.

Feeding management

The growth and mortality of pigs largely depend on their feeding regime. Pig is the most efficient animal in converting feed to meat. About 70-75 per cent of the total production cost of the pig farm is due to the feed cost. Generally farmers want to rear pigs with zero inputs like

kitchen waste as well as vegetable waste mixed with rice polish/ wheat bran only. However, with this feed it is not possible to get desired body weight and other production norms. It is therefore, very much important to feed the animals with economical but balanced feed which will contain all the nutrient requirements for growth and to support the life. Generally two types of feeding are practiced. They are (a) Concentrated feed computed with different feed ingredients (Table 1); (b) Concentrated feed mixed with other locally available agro-industrial by-products, tuber crops like sweet potato, tapioca, colocasia, vegetables and kitchen waste *etc*.

Table 1: Feed formula for different categories of pigs

Ingredients	Weaner (18-20%) protein	Growers(15-17%) protein		Gilt/Sow/boar (14-16%) protein
		12th weeks to market age	9-12 months	
Maize	55	58	60	15
Ground Nut Cake	17	15	8	30
Wheat bran	20	20	25	20
Rice polish	-	-	-	10
Fish meal/Soya meal	6	5	5	5
Mineral mixture	1.5	1.5	1.5	1.5
Salt	0.5	0.5	0.5	0.5
Total	100	100	100	100

The poor and marginal farmers in the villages who cannot afford to provide the above feed, they can fed their pigs with sweat potato (60%), protein source, vitamins and minerals. Besides the above the pigs can also be maintained with vegetables waste and kitchen waste consisting of cooked rice, vegetables etc. and also with brewery waste and other feed waste. A good feed ration should contain the required nutrient in right proportion as per the need of body weight along with ad lib drinking water (Table 2).

Table 2: Feed requirement in pig

Particulars	Body Weight (Kg)

	Below10	10-20	20-30	30-60	Above 60
Growth stage	Creep	Grower	Grower	Developer	Finisher
Required protein level %	20	18	16	16	13
Conc. Feed required per day (kg)	0.5	1.0	1.5	2.0	2.5

Feeding of pregnant animal

The demands resulting from pregnancy and need for conserving nutrients for ensuing lactation are accelerated during the later stage of pregnancy. The increased needs are for proteins, vitamins and minerals. Mature sows gain 30-35 kg and gilts 40-45 kg during pregnancy. Feed should be so regulated that sows and gilts are never over fat or thin. Feed lightly with bulky laxative feed immediately before and after farrowing. Bring the sow to full feeding in 10 days. Plenty of greens may be provided. Feed allowance may be calculated as 2.5-3 kg/100 kg body weight plus at the rate of 0.2 kg feed per piglet with the sow. Thus, a sow weighing 100 kg with 8 piglets should receive 4.6 kg feed per day. The piglets may be provided with special nourishing diet called creep feed separately

Creep feeding

The practice of self-feeding concentrates to young piglets in a separate enclosure away from their mother is known as creep feeding. Creep feed should be given when piglets are two weeks old. Each active and healthy piglet may consume about 10 kg feed before reaching the age of 8 weeks and two-third of this consumed between 6-8 weeks.

Orphan pigs

When a sow dies or fails to produce milk or does not claim her pigs, the piglings should be promptly shifted to a foster mother. Some sows may refuse to suckle alien piglings. Care should be taken to simulate the conditions including the odour and body size of piglings when admitted to a foster mother or another suckling sow. Cow's milk is the best substitute for sow's milk for hand feeding if a lactating mother is not available. Buttermilk or sweet skim milk can also be

used. Each pigling may consume 300-500 ml milk per day. Best results may be secured by feeding 5-6 times a day for the first few weeks and thereafter the frequency may gradually be reduced to 2-3 times. Any standard vitamin preparation two or three times the quantity used for infants may be administered to the piglings until they start taking feed. Injectable iron preparation (e.g. Imferon) may be given as usual. A 60-Watt electric bulb may provide enough warmth for the piglings during the early days of life.

Flushing:

It is the method of increased feeding to sows and gilts before breeding to enhance litter size. A good grower ration fed to pigs for seven to ten days before breeding to increase ovulation rate in them. After breeding animals should be fed a limited but well balanced ration until the last six weeks of pregnancy and then full feeding should be resumed to avoid pregnancy complications.

Housing

While selecting the site for pig farm, it must be near to town/city to avoid transportation cost of feed or other requirements and to avail marketing facilities. Housing is required for the animals to protect them from rain, wind, storm, and sunlight, cold and extreme climate. The pigsty may be constructed with locally available materials like wooden plunks, jungle post, bamboo and thatch grasses or the houses may be of brick wall, RCC post and with Corrugated Galvanized Iron/asbestos sheet roofing. Floor should be cemented for easy cleaning and hygienic point of view. Pig can be kept under two systems and indoor system. A combination of both may be followed. It is easy to manage animals in indoor system compared to open air system. However in open air system more areas needed for animals, that is limitation particularly in NE Region. Further in open air system, possibilities of contamination of diseases are more than indoor system. Each animal of different categories requires a minimum floor space for housing (Table 3).

Table 3: The floor space for different categories of pigs

Category	Covered area/pig (Sq.ft)	Open space/pig (Sq.ft)
Weaner	10-15	15-20

Grower	12-20	20-30
Dry sow	20-30	30-50
Lactating sow	70-100	70-100
Boar	35-50	50-70

Important points for pig housing

- Construct shed on dry and properly raised ground.
- Avoid water-logging, marshy and heavy rainfall areas.
- The side walls of the sheds should be 4-5 ft. high and remaining height should be fitted with GI pipes or wooden poles.
- The walls should be plastered to make them damp proof.
- The roof should be at least 8-10 ft. high.
- The pig sty should be well ventilated.
- The floor should be pakka/hard, even, non-slippery, impervious, well sloped (3 cm per metre) and properly drained to remain dry and clean.
- A feed trough space of 6-12 inches per pig should be provided. The corners of feed troughs, drains and walls should be rounded for easy cleaning.
- Provide adequate open space for each animal which should be double of covered area
- Provide proper shade and cool drinking water during summer season.

Deep litter housing

Deep litter housing is a type of pig housing where the floor is filled with sawdust 2-3 feet in the both open and covered area, which is well suited for high rainfall and high altitude area. The floor of the pen remains clean and dry due to the sawdust. The pig house also provides better micro-environment in summer and winter as well as better physiological adaptation. This model provide 2-3 times higher manure than that conventional concrete floor pigpen.

Advantages of deep litter housing

- Deep litter housing is well suited for high rainfall and high altitude area.
- The floor of the pen remains clean and dry due to the sawdust.
- The pig house also provides better micro-environment both summer and winter, better physiological adaptation.

- This model provide 2-3 times higher manure than that conventional concrete floor pigpen.

Diseases and health Care

Health care measure to be followed in a pig farm is one of the most important factors and if not followed properly, farmer may incur a heavy loss. The pigs can be infected with a number of internal parasites, skin infections and other bacterial and viral diseases, which in turn will result in poor growth and even death of pig. In general, illness in pig is characterized by dullness, loss of appetite, declination to move or sluggish movement, rough body coat, constipation or diarrhea, dull eyes, dull skin and hair, separates itself from the rest *etc*. The piglet should be dewormed once in three months. Worms from pigs may infect human being also. Most commonly found parasitic disease in NEH region are Ascaries, Strongyl infection, Coccidiosis and mange mite infection. Drugs like Piperzine@250-300mg/kg b.wt in feed and water, Fenbendazole @5mg/kg b.wt in feed (Single dose) or Ivermectin @0.3mg/kg b.wt (s/c) are useful against parasitic infection in pig. The pregnant sow should be treated before farrowing.

Another commonly occurring ailment in pig is the skin infection which may be caused by ticks, mites and lice. Mange caused by mites may occur around the head, ears, legs and tails which subsequently spread all over the body. Tick and lice feed on the skin and irritate the pigs which will scratch its body. The skin infection caused by the external parasites can be treated by spraying. Dipping or painting with Butox-1% solution spray or dipping or painting or Deltamethrin @50-75ppm (two application at 10 days interval or Ivermectin @0.3mg/kg b.wt (s/c) should be done regularly. Other diseases like piglet diarrhoea, salmonellosis, mastitis *etc*. can be treated when it occurs in consultation with the veterinarian. The important infectious diseases of pigs are:

Classical swine fever or Hog cholera is one of the most important and devastating viral diseases of pigs. The disease affects both domesticated and wild pigs under natural conditions. It is characterized by fever, multiple generalized petechial and ecchymotic hemorrhages giving rise to visceral and skin lesion. Symptoms of tremor, incoordination and paralysis and occasionally

peracute death without any signs may also be observed. Farmers should be advised to vaccinate the animals against swine fever about 20-30 days before breeding.

Respiratory disorder/ Pneumonia: it is frequently caused by Pasteurella, it is considered to be an important disease of pigs. Symptoms like affected pigs are apathetic, anorexia, high fever, coughing and sneezing, difficulty in breathing, red eyes with discharge. The treatment is more effective if appropriate antibiotic is used based on the drug sensitivity of the isolated bacteria.

Colibacillosis (piglet diarrhoea): It is caused by pathogenic strains of *Escherichia coli* and is a disease primarily of the newborn or young pigs. The disease may be manifested by diarrhea, respiratory distress and arthritis. Thorough sanitation, adequate feeding of colostrums and milk during the first few hours after birth is important to reduce the problem. Oral rehydration therapy along with specific antibiotics is useful for the treatment of the affected piglets.

Occurrence of most of the diseases can be prevented by following strict hygienic measure and by timely vaccination of pigs. A separate house should be there to keep the animals suffering from contagious diseases.

Other managemental practices:

- **Culling of animals:** Unproductive with very less litter size or with very high interfarrowing period, repeat breeders, aged animals, unproductive boars etc. are to be culled and sold out for meat purpose.
- **Castration of piglets:** Male piglets which are unwanted and not fit for breeding purpose are to be castrated just after weaning and may be kept in the farm as fattener animal which later on may be sold for meat purpose.
- **Segregation of diseased animal:** A separate house should be there to keep the animals suffering from contagious diseases.
- **Record Keeping:** The ultimate profit or loss in a farm can only be found out by keeping proper records in the farm which includes data sheet of individual animal, total stock of animals, feed register, expenditure statement etc.