



# Swine production in India- prospects and challenges

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Swine husbandry has enormous potential and prospects because of its excellent attributes of high fecundity, prolificacy, short generation interval, quick body weight gain, high feed conversion efficiency and excellent dressing percentage compared to all other livestock. Among livestock, pigs are the only species reared solely for food purpose. It fits in extremely well with the mixed farming system and is complementary to intensive crop production operations. Its unique ability to efficiently convert garbage and agricultural by products into animal food source of high quality protein and other nutrients makes it the animal of choice for meeting the I.C.M.R. recommended meat consumption level of 24 g/head/ day, and for the most profitable livestock enterprise.

The swine industry in India has not yet developed like poultry, dairy and wool industries, because pigs are not generally used for meat purposes by majority of the meat eaters and they compete directly with human beings for cereal grains. The common village pigs in India are small sized scrub animal, which produces small litters, slow growth, and produce low quality pork. The only explanation to this is virtually

they are scavengers. This is perhaps the most remunerative system for the swine producers because with little input the return is better. Poor acceptance of pork by Indian people seems to have grown to the filth and unhygienic conditions of the traditional pig farming and unawareness of the nutritive value of pork and pork products.

Pig rearing as a commercial venture is still to be established in the country. The major constraints hampering pig production in India are insufficient availability of good quality stock, balanced feed at economic prices and absence of favourable market conditions. As rearing pigs is a traditional occupation of tribals and rural poor in India. It not only provides subsidiary income but also delicious meat to them. It is therefore, essential to plan the swine industry in such a way that it can bring economic upliftment of the weaker section of the society. It is well known that, regional factors play an important role in pig development. It is useful to examine the existing situation in relation to pigs in different regions of the country viz-a-viz an improvement in feeding, health coverage, breeding and other aspects (Singh *et al.* 1991).

Swine industry has remained under developed mainly due to religious taboos and social prejudices. However, the animal protein requirement of the rising human population can't be met by chicken, mutton, chevon and beef alone as emphasised by Paroda (2001) who stated that in the year 2000, the demand for meat was around 5.5 mt, where as in the year 2030, the total demand is likely to be 10 to 14 mt, the major part of which is likely to be met by pork (the quickest growing animal). In the wake of economic liberalization and WTO agreements, new vistas of prospects for export of pork, its products and by-products like bristle, bone and fat are opened in the international market. Among the developing countries, swine production in India has advantage of lower production cost and greater export possibility which can earn valuable foreign exchange for the country and provide gainful opportunities for unemployed rural and urban youth (Chhabra *et al.* 1989).





## Swine Wealth

According to FAO production year book (FAO Vol.53, 1999) the total pig population in India was 16.005 million, which is 1.75% of the world pig population of 912.708 millions. Large populations of pigs exist in Uttar Pradesh, Assam, Bihar, West Bengal and North Eastern Regions. Highest population density is in Goa (22.5 per sq.km) followed by Nagaland, Manipur and West Bengal. Among the Union territories Chandigarh has high density of 26 per sq.km indicating the market pull of the metropolitan city. With an annual compound growth rate of 4.10% (highest among livestock). Pig population in India has increased from 4.40 million in 1951 to 12.80 million in 1992 (Annual Report 1999-2000, Dept. of Animal Husbandry and Dairying, Govt. of India). The number of crossbreds increased from 1.11 million in 1987 to 1.86 million in 1992 (Review Committee Report AICRP, 1997).

### Swine Breeds in India

The desi pig (country hog) which has been evolved from gradual domestication of wild pig (*Suscrofa cristatus*) are small sized pigs with a body weight of 40-80 kg and are found in Uttar Pradesh, Bihar, Madhya Pradesh and Punjab states of India.

Besides this, 'Ghori' breed of pigs which has evolved from *sus salvanius hodgson* is found in Manipur, Assam, Arunachal Pradesh, Nagaland, Mizoram, Sikkim and Tarai Himalayan region and are called as 'Dome pigs' or 'pigmy hogs'. 'Ankamali' pigs evolved from domestication of *suscrofa andamansis blyth* are found in Kerala, Karnataka, Tamil Nadu and Maharashtra states of India (Mukundan and Usha, 2000).

Besides desi breeds, recognized exotic breeds e.g. Large White Yorkshire, Landrace, Duroc and Hampshire are also found in India. Recognising the importance of pigs in future, the state governments and union territories are running about 158 pig breeding farms throughout the country for upgradation of indigenous pigs with improved and exotic pigs.

These farms are rearing about 29,000 pigs of which 5,500 are exotic pigs of breeds like Large White Yorkshire and Hampshire. These farms breed pigs and supply piglets, boar and sows to the farmers for crossbreeding and improvement of desi stocks. The farms also run short courses and training programmes for pig rearers. The pigs in these farms are prone to inbreeding and require fresh input for genetic upgradation.

The central Govt. has sponsored a scheme "Assistance to States for integrated Piggery Development" for

strengthening the infrastructure of pig breeding farms and marketing facilities of pig products in India and to assist them in genetic upgradation of their breeding stocks. In consultation with the state govt., 300 exotic breeds of pigs are being imported from abroad which would significantly assist in the development of Piggery in the country. During 1999-2000 an amount of Rs. 1.70 crores has been released to various state governments under the schemes and 23% of the grants released as on November 1999 have been for the North Eastern Region (Annual Report 1999-2000, Dept. of Animal Husbandry and Dairying, GOI).

### Production

Piggery enterprise contributes about 5.9% of the total revenue from livestock production (Agricultural statistics at a glance, 1999). According to Basic Animal Husbandry statistics (A.H.S. series-7) 1999 published by the Department of Animal Husbandry and Dairying, G.O.I., the total pork out put was 469 mmt in 1998.

The production of pig meat in India has increased from 80 million metric tons in 1982 to 469 million metric tonnes in 1998 (FAO production year book Vol 53: 1999) indicating a six-fold increase in pork production in the past 14 years.

The export potential of pig meat and its products have not been fully realized and efforts have not been made for export-oriented production. About 934 tons of pork and pork products were exported during 1995-96. The value of pork and pork products exported was only Rs 262 Lakhs against the total volume of Rs. 61,604 lakhs on account of meat and meat products export. There is a need to rear, slaughter and pack the pig and pig products which could satisfy international standards and norms of sanitation (Yhota 1999). Keeping this in view the Govt. of India has initiated a centrally sponsored scheme titled "Assistance to States for improvement/ modernisation of abattoirs/ establishment of carcass utilization centres" being implemented in the ninth plan period (Annual Report 1999-2000, Dept. of Animal Husbandry and Dairying, GOI).

### Research and Development in Swine

Very little attention was given to Piggery sector up to the II<sup>nd</sup> Five-year Plan. From 1959-60, towards the end of the II<sup>nd</sup> Five-year Plan the government of India initiated a "comprehensive Piggery development programme". During the III<sup>rd</sup> plan, 7 Regional Pig breeding stations, 8 bacon factories, 55 pig breeding





units and 140 Piggery Development Blocks were established. During the IV<sup>th</sup> Five-year Plan 'All India Coordinated Research Projects on Pigs' (AICRP) was undertaken by the ICAR and they started functioning from 1971 at four Research Centres viz. I.V.R.I. Izatnagar, Assam Agricultural University Ghanapara, Jawaharlal Nehru Krishi Vidyalaya Jabalpur and Acharya NG Ranga Agriculture University Tirupathi, involving Landrace and Large White Yorkshire as the exotic breed. During 1993 two more centres were added Kerala Agricultural University, Mannuthy and Tamilnadu University of Veterinary and Animal Sciences, Kattupakkam. The current research programme is on the studies on performance of indigenous pigs under improved management conditions and their genetic improvement through selection.

### Challenges in piggery sector

#### Feeding Challenges

In the present rearing system, pigs are allowed to scavenge in the courtyard and near by jungle with little or no concentrate feed. Since feed cost makes up about 70-80% in swine husbandry, formulation of economic and nutritionally adequate diets for pigs, keeping in mind the nutrient requirement will be the major challenge. Pigs being omnivorous can be fed varieties of hotel wastes, by-products from agriculture, industry and grasses. Thus, costly cereal grains can be saved for human consumption.

#### Housing Challenges

No scientific housing systems are practiced except in case of a few commercial Piggery. Mostly pigs are maintained in back-out room of the house or in some discarded room of the house which is really hazardous in the zoonotic point of view. It is high time to develop indigenous system of housing using locally available materials, which are economical, hygienic and safe.

#### Breeding Challenges

AICRP has shown that exotic pigs of Landrace and Large White Yorkshire and their crosses can be successfully raised under optimal management conditions. These breeds have superior feed conversion abilities and desired type of carcass quality than that of indigenous pigs (Yadav *et al.*, 1991), but at present crossbreds are not reared by Indian producers at large scale. So there is an urgent need for dissemination of superior quality germ plasm to meet the challenge. Artificial Insemination in pigs if introduced can go a long way in the genetic up gradation of indigenous pigs.

### Challenges in health management

Disease is an important cause of loss of swine production. Pigs are susceptible to a number of diseases. The diseases commonly encountered in different parts of the country in swine are Swine Fever, Swine Pox, Pasturelosis, Tuberculosis, F.M.D., Liptospirosis, Listerosis, Parasitic and Mycotic disease. They also acts as carriers of important zoonotic disease like Japanese Encephalitis (Murti *et al.*, 1986). In addition to these many emerging diseases are posing additional problem like PMWS ( Post weaning multisystemic waisting syndrome and PRRS ( Porcine respiratory and reproductive syndrome)

The three strategies of disease management, prevention of disease outbreak in susceptible population, control of disease by treating the existing cases and their contacts and finally up rooting of disease from an area, can be chosen based on past experience and nature of disease. Through the use of latest veterinary biologicals the losses due to various infective disease can be considerably reduced. Effective vaccination programs, development of diagnostic kits for emerging diseases and their effective treatment are the major challenges in pig health.

The maintenance of hygienic conditions at the pig farm plays a great role in prevention and control of disease. The pig shed need to be cleaned regularly and washed with standard disinfectants such as Quiclime, Bleaching powder, 2.5% Cresol, 3% Phenol, 1% Formalin, 1-2% NaOH and potassium permanganate etc. A proper drainage system should also be developed to avoid soiling of floor.

### Challenges in marketing

Trade in Piggery sector is not well organised in our country. The middlemen have a big role in this trade. The price of animal is fixed by bargaining haphazardly. Some rough judgement of animals weight may be made by holding the animals. The prices are invariably unremunerative to the producers. There is virtually no grading or sale of meat as per 'cuts' as is done in the west. Other important marketing problems are transportation of animal, transport losses and selling policy.

Formation of adequate marketing facilities would increase the demand and sale of pork and pork products and based on the market demand appropriate marketing strategy must be adapted. (Mallikeswaran *et al.* 1985).

### Challenges in food processing and food choice

There are varieties of pork products like cured ham, bacon, pork sausages, pork pickle, pork tikkas, pork





patties, pork burger etc. which doesn't have much popularity in India.

It is only with the diversification created by modern food processing industrial technology, that the choice between alternatives becomes real. The rate of consumption of pork and their products has been related to psychological dimensions such as preference and religious taboos. Consumption of pork and pork products is very low in Hindu community and Muslims have religious taboos towards the consumption of pork. Therefore, it seems to be a big challenge in the development of pig industry in future. Unless and until we can escape from these barriers there is least possibility to have swine production as mass production. In this respect, a well-planned extension strategy is very urgent to change the out look, knowledge and attitude of the Indian people.

#### Meeting the challenges

To meet the challenges, greater emphasis need to be placed on areas of pork production, processing, marketing and research. Since indigenous pigs have very poor economic traits, they have to be upgraded by cross breeding with exotic breeds taking into consideration those areas where pig production is popular. In general following strategies should be followed to meet the challenges:

1. Testing at village level the breeding and other technologies developed so far.
2. Studies on behavioural and physiological attributes of indigenous pigs.
3. Studies on suitable housing systems and various marketing and transportation system and their advantages and disadvantages.
4. Studies on recycling of pig farm waste for reducing the cost of pig production and mixed farming by combining Piggery with Poultry and Fish farming.
5. Establishment of modern slaughter houses at places of high population density of pigs and transportation of carcass in refrigerated vans to places of high demand and high price.
6. Research to find out effective therapeutic and preventive measures against diseases of swine (C.B.Tiwari and R.L.Arora, 2000).
7. Research should be oriented towards the emerging needs i.e.; development of low cost ration and maintainable native breed.
8. Introduction of Artificial Insemination in pigs which can upgrade the local scrub animals to crossbreds

of high productivity and augment the dissemination superior germ plasm far and wide.

9. Co-ordination between research by Governments and other institutions, industry and farmers.

10. There is a wide gap in dissemination of latest information, extensive extension work need to be taken up to propagate latest management practices to the farmers.

11. Encouragement towards scientific pig breeding and rearing.

12. Government support in terms of credit, health coverage and supply of super breeding stock (Biswas, 2000).

13. There is also a need to build up basic infrastructure facilities like power, transport, mobility, cold storage and cold chain system.

14. Stepping up of quality-based immunological production their storage and transport facility to provide health coverage and increase in number of trained personnel and facilities required to cope with new emerging diseases.

The impact of the growing population on our economy is very serious. India at the time of independence had only a population of approximately 350 million and today it has crossed one billion. Over population, in fact, leads to increasing pressure on land and over exploitation of our source and depleting resources. In the midst of inflation and over crowding in cities, swine husbandry will play a major role in ensuring food security in the days to come.

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