

Pig Farming

1. Introduction

The challenges faced by our country in securing the food as well as nutritional security to fast growing population need an integrated approach in livestock farming. Among the various livestock species, piggery is most potential source for meat production and pigs are more efficient feed converters after the broiler. Apart from providing meat, it is also a source of bristles and manure. Pig farming will provide employment opportunities to seasonally employed rural farmers and supplementary income to improve their living standards. The advantages of the pig farming are:

- a. Pig has got highest feed conversion efficiency i.e. they produce more live weight gain from a given weight of feed than any other class of meat producing animals except broilers.
- b. Pig can utilise wide variety of feed stuffs viz. grains, forages, damaged feeds and garbage and convert them into valuable nutritious meat.

However, feeding of damaged grains, garbage and other unbalanced rations may result in lower feed efficiency.

- c. They are prolific with shorter generation interval. A sow can be bred as early as 8-9 months of age and can farrow twice in a year. They produce 6-12 piglets in each farrowing.
- d. Pig farming requires small investment on buildings and equipment.
- e. Pigs are known for their meat yield, which in terms of dressing percentage ranges from 65 - 80 in comparison to other livestock species whose dressing yields may not exceed 65%.
- f. Pork is most nutritious with high fat and low water content and has got better energy value than that of other meats. It is rich in vitamins like thiamin, Niacin and riboflavin.
- g. Pigs manure is widely used as fertilizer for agriculture farms and fish ponds.
- h. Pigs store fat rapidly for which there is an increasing demand from poultry feed, soap, paints and other chemical industries.
- i. Pig farming provides quick returns since the marketable weight of fatteners can be achieved with in a period of 6-8 months.
- j. There is good demand from domestic as well as export market for pig products such as pork, bacon, ham, sausages, lard etc.



2. Scope for pig farming and its contribution to national

The pig population of the country is 11.1 million as per the 2012-13 annual report of Animal Husbandry. Pork production in India is limited, representing only 7% of the country's animal protein sources. Production is concentrated mainly in the northeastern corner of the country and consists primarily of backyard and informal sector producers. According to 18th Livestock Census of India (2007), there was a marginal decline in total swine population. The Indian market for processed pork products is small, and the majority of this market is supplied through imports. Although there are some local companies which manufacture processed products such as sausages and bacon, quantities are limited and the industry is small. According to MoFPI, there are 3600 slaughter houses in India, although the majority of these facilities do not export. There are a small number of abattoirs in India which meet international standards. However, these facilities do not process pork.

The 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 management. Therefore, suitable schemes to popularise the scientific pig breeding cum rearing of meat producing animals with adequate financial provisions are necessary to modernise the Indian pig industry and to improve the productivity of small sized rural pig farms.

In view of the importance of pig farming in terms of its contribution to rural poor and possible potentials for pig rearing in our country, Government of India has initiated measures to promote the pig farming on scientific lines under its five year plans. In order to make available good foundation stock 115 pig breeding farms were established throughout the country.

3. Financial assistance available from banks / Nabard for pig farming

For piggery development schemes with large outlays, detailed project reports will have to be prepared. The items such as land development, construction of sheds and other civil structures, purchase of the breeding stock, equipment, feed cost up to the point of income generation are normally considered under bank loan. Other items of investment will be considered on need basis after providing the satisfactory information justifying the need for such items.

4. Project formulation for Bank Loan

4.1 The report normally should include information on land, livestock markets, availability of water, feeds, veterinary aid, breeding facilities, marketing aspects, training facilities, experience of the farmer and the type of assistance available from State Government Regional Pig breeding centres.

The report should also include information on the number of and type of animals to be purchased, their breed, production performance, cost and other relevant input and output costs with their

description. Based on this, the total cost of the project, margin money to be provided by the beneficiary, requirement of bank loan, estimated annual expenditure, income, profit and loss statement, repayment period, etc., can be worked out and included in the project cost.

4.2 The project should include the following information on technical, financial and managerial aspects in detail based on the type of unit and capacity

Technical:

- a. Nearness of the selected area to financing bank's branch.
- b. Availability of good quality animals in nearby livestock markets/ breeding farms.
- c. Source and availability of training facilities.
- d. Availability of concentrate feeds and kitchen/ hotel/ vegetable market waste and broken grains from godowns.
- e. Availability of medicines, vaccines and veterinary services etc.
- f. Availability of veterinary aid and marketing facilities near the scheme area.
- g. Reasonability of various production and reproduction parameters

Financials:

- a. Unit cost - The average cost of piggery breeding stock.
- b. Input cost for feeds, veterinary aid, insurance, labour charges, etc.
- c. Output costs i.e. sale price of fatteners, piglets and culled animals
- d. Income-expenditure statement and annual gross surplus
- e. Cash flow analysis.

Managerial:

Borrower's profile

- a. Individual/Partnership /Company / Corporation/ Co-operative Society /Others
- b. Capability in managing the proposed business
- c. Experience in proposed activity or others
- d. Financial soundness
- e. Technical and other special qualifications
- f. Technical/ Managerial staff and adequacy there of

Others:

- a. Name of the financing bank
- b. Assistance available from State/ Central Government

- c. Regulatory clearances, if any etc.

5. Appraisal of the project

The project so formulated considering the above mentioned aspects should be submitted to the nearest branch of the bank for availing credit facility for establishment of the broiler farm. The bank will then examine the project for its technical feasibility, financial viability and bankability.

6. Sanction of Bank loan and its disbursement

After ensuring technical feasibility and economic viability, the scheme is sanctioned by the bank. The loan is disbursed in stages against creation of specific assets such as construction of sheds, purchase of equipment and animals. The end use of the fund is verified and constant follow-up is done by the bank.

7. Lending terms – General

7.1 Unit cost and Outlay

Outlay of the project depends on the local conditions, unit size and the investment components included in the project. Prevailing market prices / cost may be considered to arrive at the outlay.

7.2 Margin Money

Margin depends on the category of the borrowers and may range from 10% to 25%.

7.3 Interest Rate for ultimate borrower

Banks are free to decide the role of interest within the overall RBI guidelines. However, for working out the financial viability and bankability of the model project we have assumed the rate of interest as 12% p.a.

7.4 Security

Security will be as per NABARD/RBI guidelines issued from time to time.

7.5 Repayment Period of Loan

Repayment period depends upon the gross surplus in the scheme. The loans will be repaid in suitable half yearly/annual instalments usually within a period of about 5-6 years with a grace period of one year.

7.6 Insurance

The animals may be insured annually or on long term master policy, where ever it is applicable.

8. Economics of Pig Farming

A model economics for pig farming with 20 sows and 2 boars is given below. This is indicative and applicable input and output costs and the parameters observed at the field level may be incorporated.

A. Project cost

| Sr.No | Particulars | Amount in Rs. | |
|------------|---|---------------|---------------|
| | | I Year | II Year |
| 1 | Buildings | | |
| A | Pig styes | | |
| i | for sow @ 20 Sq.ft per sow at Rs 150 per Sq.ft for 20 Sows | 60000 | |
| ii | For boar @ 70 Sq.ft per boar for 2 boars at Rs 180 per Sq.ft | 25200 | |
| iii | Farrowing pen at 80 Sq.ft per sow for 8 sows at Rs 150 per Sq.ft (Considering always 40 % of pigs in farrowing) | 96000 | |
| iv | For piglets @ 10 Sq.ft per piglet for 300 piglets at Rs 100 per Sq.ft | | 300000 |
| v | Store room 200 Sq.ft at Rs 150 Per Sq.ft | 30000 | |
| vi | Labour quarters 300 Sq.ft @ Rs. 200 per Sq.ft for 1 labourer | 60000 | |
| | Total | 271200 | 300000 |
| 2 | Piglets for breeding | | |
| a | Cost of 20 four months old gilt weighing about 40 Kg @ Rs 80 per Kg live | 64000 | |
| b | Cost of 2 six months old boar weighing about 50 Kg @ Rs 90 per Kg | 9000 | |
| | Total | 73000 | 0 |
| 3 | Feed (Concentrate and roughage at 50 :50 Basis) | | |
| a | 120 Kg concentrate +180 Kg roughage up to maturity for 20 gilts @ Rs 12/Kg Concentrate and Rs.1.50 /Kg roughage | 34200 | |
| b | 2.0 kg feed (1.00 Kg Concentrate+1.00 Kg Roughage) per day per adult sow at above prices | 32400 | 98550 |
| c | 300 Kg per boar (1:1 Con. & Rough) up to maturity | 4050 | |
| d | 2.0 kg feed (1 Kg Concentrate+1 Kg Roughage) per day per adult boar at above prices | 3240 | 19710 |
| e | 240 Kg per piglet up to marketable age for 200 pig lets - 240 days (1:1 Concentrate : Roughage) | | 324000 |

| | | | |
|-----------|---|---------------|---------------|
| | Total | 73890 | 442260 |
| 4 | Equipement Rs 200 per animal | 4400 | 0 |
| 5 | Equipments for piglets @ Rs. 20 for 300 piglets | 6000 | |
| 6 | Medicines & Vaccines @ Rs 100 per animal | 2200 | |
| 10 | Insurance charges @ 5 % of cost of breeding stock | 3650 | |
| 11 | One labour @ Rs 4500 /month/labour | 54000 | 54000 |
| 12 | Vehicle hiring for garbage collection | 54000 | 54000 |
| | Total | 124250 | 108000 |
| | Grand total | 542340 | 850260 |
| | Margin 25 % | 135585 | 212565 |
| | | 0.25 | |
| | Loan | 406755 | 637695 |

B. TECHNO ECONOMIC PARAMETERS

| Sl. No. | Particulars | |
|---------|--|------|
| 1 | No. of sows (6-7 months old) | 20 |
| 2 | No. of boars | 2 |
| 3 | No. of batches | 2 |
| 4 | Purchase price of sow in Rs. | 3200 |
| 5 | Purchase price of boar in Rs. | 4500 |
| 6 | Sale price of culled sow in Rs. | 4500 |
| 7 | Sale price of culled boar in Rs. | 5500 |
| 8 | Interval between two batches (months) | 3 |
| 9 | No. of farrowings per year | 2 |
| 10 | No. of piglets per sow per farrowing | 11 |
| 11 | Mortality among piglets (weaners) | 20% |
| 12 | Mortality among fatteners | 10% |
| 13 | Mortality among adults is not considered as insurance cover is available | |
| 14 | Weaning period (months) | 2 |
| 15 | Space requirement (s.ft.) | |
| 16 | Boar | 70 |
| 17 | Lactating sow with it's piglets | 80 |
| 18 | Dry sow | 20 |
| 19 | Fattener of 3-5 months age | 10 |
| 20 | Fattener of 6-8 months age | 15 |
| 21 | Store room (s.ft.) | 200 |
| 22 | No. of gunny bags per ton of feed | 13.3 |
| 23 | Income from gunny bags (Rs./bag) | 10 |

| | | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|---------------|
| Insurance charges @ 5 % of breeding stock price | 6050 | 6050 | 6050 | 6050 | 6050 | 6050 |
| Vehicle maintenance and garbage collection | 54000 | 54000 | 54000 | 54000 | 54000 | 54000 |
| Total | 205940 | 898310 | 898310 | 898310 | 914110 | 898310 |
| Gross Income | 13400 | 215550 | 750090 | 639690 | 746640 | 663690 |

E. Repayment schedule

| Year | Loan outstanding | Gross income | Interest | Principle | Total Repayment | Surplus |
|------|------------------|--------------|----------|-----------|-----------------|---------|
| 1 | 406755 | 13400 | | 0 | 0 | 13400 |
| 2 | 1044450 | 215550 | 174145 | | 174145 | 41405 |
| 3 | 1044450 | 750090 | 125334 | 300000 | 425334 | 324756 |
| 4 | 619116 | 639690 | 74294 | 200000 | 274294 | 365396 |
| 5 | 344822 | 746640 | 41379 | 200000 | 241379 | 505261 |
| 6 | 200000 | 663690 | 24000 | 200000 | 224000 | 439690 |

F. NPV,IRR

| ITEM | YEARS | | | | | |
|---|-------------|----------|----------|---------|----------|----------|
| | I | II | III | IV | V | VI |
| Capital cost | 542340 | 850260 | | | | |
| Recurring cost | 205940 | 898310 | 898310 | 898310 | 914110 | 898310 |
| Capitalised costs | 198140 | 550260 | | | | |
| Total cost | 550140 | 1198310 | 898310 | 898310 | 914110 | 898310 |
| Benifits | | | | | | |
| Income | 21200 | 779600 | 1648400 | 1538000 | 1660750 | 1562000 |
| Capitalised costs | | | | | | |
| Net benefits | -528940 | -418710 | 750090 | 639690 | 746640 | 663690 |
| DF at 15% | 0.869 | 0.756 | 0.657 | 0.571 | 0.497 | 0.432 |
| NPW of costs | 478071.66 | 905922.4 | 590189.7 | 512935 | 454312.7 | 388069.9 |
| NPW of benefits | 18422.8 | 589377.6 | 1082999 | 878198 | 825392.8 | 674784 |
| NET PRESENT VALUE at 15% DF | 7,39,672.66 | | | | | |
| BCR at 15 % DF | 1.222157193 | | | | | |
| Internal rate of return (irr) of the scheme | 46% | | | | | |

DISCLAIMER

The views expressed in this model project are advisory in nature. NABARD assume no financial liability to anyone using the report for any purpose. The actual cost and returns of projects will have to be taken on a case by case basis considering the specific requirement of projects