

Lecture No.13

Management of Important Farm Resources

The farm problems can be classified according to the major factors of production - land, labour, machinery, equipments and buildings.

i) Land Management

Land is a permanent resource, which does not depreciate or wear out provided soil fertility is maintained and appropriate conservation measures are used. It includes soil management, farm layout, and crop rotation and management.

a) Soil fertility can be replenished by:

- 1) Proper cultivation and fallowing.
- 2) Addition of manures and fertilizers.
- 3) Growing leguminous crops.
- 4) Eradication of weeds.
- 5) Leveling and bunding.
- 6) Drainage in water - logged soils.
- 7) Land reclamation in saline and alkali soils.

b) Efficient Lay-out

Layout of a farm refers to the manner in which a farm is divided into fields and the location and arrangement of other fixtures such as irrigation and drainage system, buildings and sheds, roads and fencing. Layout of a farm directly affects the costs and efficiency in the use of farm resources. An efficient layout is the one which takes into consideration the topography of the land, fits in well with the enterprises and crop rotations, leads to the saving of labour and ensures efficient checks and controls on farming operations.

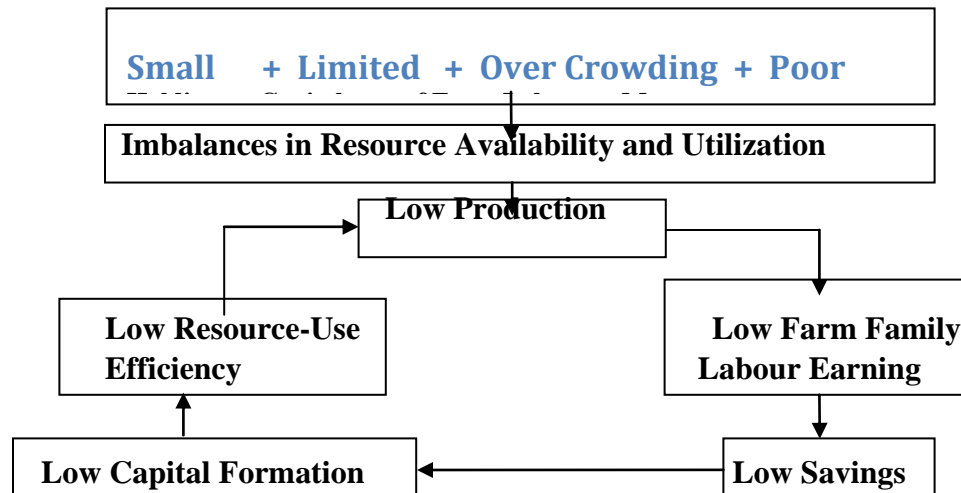
c) Crop rotation plays a major role in depletion and improvement of soil fertility. Inclusion of leguminous crop improves soil fertility. Cropping system refers to the sequences of crops grown to maintain the fertility of soil.

ii) Farm Labour Management

Labour efficiency in agriculture refers to the amount of productive work

accomplished per man on the farm per unit of time. Inefficient labour also results in low production, which in turn means low wages for the labour.

On Indian farms, land is limited and labour is abundant. The resource availability on the farms is, thus, imbalanced leading to a low production and in turn results in low farm family labour earnings.



a) Classification of Farm Labour: In India, farm labour can be classified into:

1. Farm manager labour: Indian farmer is a manager, capitalist and a labourer.
2. Family labour
3. Permanent hired labour.
4. Casual labour.

b) Improving the Efficiency of Farm Labour: In order to increase the overall production and also to improve the resource use efficiencies of other resources, the efficiency of farm labour has to be improved. Labour efficiency can be improved by:

- 1) Enlarging the size of farm business - expansion of land area, adding more labour intensive enterprises.
- 2) Planning labour distribution -enterprise combination (mixed farming).
- 3) Improving farm lay-out (defective lay-out results in wastage of labour in operations like ploughing, planting, etc.
- 4) Improving labour management with incentive and training of the workers.

5) Simplification of farm work (Its objective is a more efficient use of labour and other resources by improving work methods so that more and higher quality of work is accomplished in less time with less energy).

iii) Management of Farm Machinery

Due to seasonal nature of agricultural operations, the farmers are facing difficulty in timely and successful performance of agricultural operations, especially during the peak labour use periods; at the time of sowing, harvesting and threshing. In order to smoothen these peaks, labour saving devices can be introduced by mechanizing some selected agricultural operations. Then, the farmer has to decide how much capital he should invest in machinery and which machines he should buy, whether to hire rather than buy a machine.

a) What cost to take into account?

Only additional costs involved should be considered when making decisions on machinery investment. For example, for implements drawn by bullocks, feed costs can be ignored because bullocks have to be fed any way. Only where the bullocks are fed more, because the new implement demands that, feed costs can be added. Partial budgeting technique is used to calculate the economics of buying a machine in this case.

b) Rate at which costs are to be charged?

Since the farmer purchases future services when he buys a machine, he should consider expected future costs of fuel, oil, taxes, interest, etc rather than past or present costs. If a farmer borrows money to buy a machine the actual interest rate paid is the appropriate charge to make. The opportunity cost of capital should be considered to assess the interest charges on the machine, if the farmer has severe financial constraints.

c) Selection of size of machine to buy: The key points to be considered while deciding upon the size of a machine are as follows: 1) The difference in the initial cost of the large and small machines, 2) The annual use to be made of the machine and 3) The amount of additional labour saved by the large machine.

d) Break Even Analysis: Break-even point is the minimum size of operation required to meet the total costs. At this point, the total cost and total revenue break even, i.e., the profit is equal to zero. For deriving the break even point:

$$Q = \frac{F}{P - V}$$

Where Q = quantity of output.

F = Annual fixed cost.

P = Custom charges per unit of output.

V = Variable cost per unit of output.

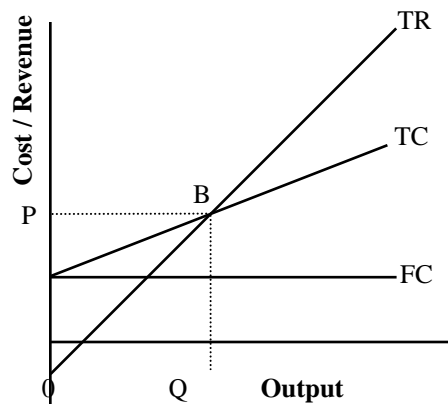


Fig.18.2 Break-Even Output

If $F = \text{Rs.}3,500$, $P = \text{Rs.}8$ for threshing one quintal of paddy and $V = \text{Rs.}3$, then the break even point for a paddy thresher is given by : $Q = 3,500 / [8.00 - 3.00] = 700$ quintals. In order to cover the total costs, the thresher has to thresh 700 quintals of paddy per year. Unlike in the break-even analysis for direct production investments, in this case, P is taken as custom charges (instead of price); because if the farmer does not buy this machinery, he should have to hire the machinery for which some rate is charged. So the custom charge is taken as the price of the particular operation per unit time. Break-even point is graphically represented in the figure 18.2. Here, OQ is the break-even output level.

iv) Management of Farm Buildings

The main purpose of farm buildings is to store farm equipments, to maintain and preserve stored products, provide shelter to the livestock and ensure efficiency of operations. Building has to be constructed only, if there is an urgent need for it. Buildings have to necessarily increase the efficiency of other farm operations and thereby the farm income. Economy in construction and management and sanitary and comfortable conditions are essential requirements of a building. Some important steps to be followed in attaining these objectives are: a) determination of the functional requirements of the structure; b) designing of the structure for flexibility to meet changing demands; and c) designing for the least economical method of construction which should meet the standards for particular structure. For every farm situation, one has to decide:

- 1) What should be the type of building?
- 2) Whether to construct a new building or to remodel the old one?
- 3) What should be the optimum size and design of the building?
- 4) To what extent the farm building should be flexible in design?

After deciding the above points, careful decisions have to be made on location, orientation with respect to sun and wind, sequence of operations, hygienic conditions etc.

a) Buildings as an Input

Buildings like machinery, livestock, labour and land are a resource essential to the farm production. As it is used along with the other resources, marginal investments made on farm buildings must bring the highest returns to the farmer. Farm buildings increase income of the farm through saving labour, increasing the quantity of production and improving the quality and time value of crop and livestock products. Buildings, therefore, must be provided, where the operations can be carried on efficiently.