

C. Profitability Analysis

Net farm income obtained in the income statement measures the profit for the accounting period. Profitability is concerned with the size of profit relative to the value of resources used to produce the profit. A business may have positive profit but have a poor profitability if this profit is small relative to the value of resources used. For example, two farms with the same net farm income are not equally profitable if one uses much more capital

as compared to the other. Various measures can be used to evaluate profit and profitability. These are discussed below.

- a) *Net cash income*: It is obtained by deducting the total cash operating expenses from total cash receipts.
- b) *Net farm income*: It is obtained from net cash income, adjusted for changes in inventory and depreciation. It is the money available for family living, debt repayment and new farm investments.
- c) *Farm earnings*: These are calculated by adding the value of farm products consumed at home to net farm income.
- d) *Family labor earning*: It is obtained by deducting interest charges on farm capital from farm earnings.
- e) *Return to Capital*: The return to capital or the return on investment is obtained by dividing the return to total capital by total farm assets. It can be written as:

$$\text{Rate of return to capital} = \frac{\text{Return to total capital}}{\text{Total farm assets}} \times 100$$

This is determined using the following steps.

1. deduct interest paid on debt capital to net farm income to obtain adjusted net farm income;
2. obtain return to total capital by subtracting opportunity cost of labor and management from the adjusted net farm income; and

3. convert the return to total capital into a percentage by applying the above equation.

In the income statement (Table 5.25),

Net farm income	= Rs. 6000
Interest paid	= Rs. 1000
Adjusted net farm income	= Rs. 5000
Opportunity cost of labor and management (assumed)	= Rs. 2000
Return to capital	= Rs. 3000
Total farm asset (assumed)	= Rs. 35000

$$\text{Rate of return to capital} = \frac{3000}{35000} \times 100 = 8.57\%$$

f) *Return to Labor and Management:*

This represents the net farm income which remained to be paid to farm labor and management after capital is paid a return equal to its opportunity cost. It is obtained by subtracting the opportunity cost of capital from the adjusted net farm income. If the opportunity cost of capital is 10 percent, the opportunity cost on total capital is Rs. 3500. Therefore, return to farmer's labor and management is Rs. 1500 (Rs. 5000 - Rs. 3500).

g) *Return to Labor:*

Return to labor can be computed by subtracting the opportunity cost of management from the return to labor and management:

Return to labor and management	= Rs. 1500
Opportunity cost of management (assumed)	= Rs. 1000
Return to labor	= Rs. 500

h) *Return to Management:*

Return to management can be found by deducting the opportunity cost of labor from the return to labor and management:

Return to labor and management	= Rs 1500
Opportunity cost of labor	= Rs. 900
Return to management	= Rs. 600

It may be noted that net farm income was not sufficient to provide labor, management and capital a return equal to their opportunity cost.

FARM EFFICIENCY MEASURES

Efficiency measures are of two types i.e., Physical and economic. Each of these measures can be computed using various methods, but most commonly used are discussed in this section.

Analysing the physical measures related to input and output levels, the economic principles for determining the profit maximizing levels of input and output levels should always be kept in mind. It should be noticed that physical efficiency measures could be very high but the farmer may be operating much below the profit maximizing point. The economic measures are either in rupee value or some rate or percentage relating to the resource use.

Overall performance of the cropping system can be evaluated using various methods, which are explained below.

1. *Crop Yield Index.* Crop yield index refers to the overall productivity level achieved on the farm in relation to the productivity level attained in the area. This requires information about the acreage and yield of each crop on a particular farm and on other similar farms (Table 5.26).

Table 5.26 Crop Yield Index

Crop	Acres	Yield on a particular farm (in 40 kg)	Yield on other farm	Yield of particular farm relative to other farm yield (%) 4= (2/3) X 100	Adjusted value 5=1x4
	1	2	3		
Wheat	6	30	25	120	720
Cotton	4	25	20	80	320
Sugarcane	1	450	500	90	90
Maize	1	30	20	67	67
Total	12	-	-	-	1197

$$\text{Crop yield index} = \frac{1197}{12} = 99.75$$

2. Comparison of actual yield to potential yields.
3. Gross value of output per acre (GVOPA) which can be calculated as

$$GVOPA = \frac{\text{Value of Crops Produced}}{\text{crop acres}}$$

4. Cost of production: One should use the farm given in Table 5.27.

Table 5.27 Cost of Production

(Rupees)

Item	Cost on a Particular farm		Cost on Average Area	
	Total	Per acre	Total	Per acre
Seed				
Fertilizer				
Pesticide				
Machinery				
Others				
Total				

5. *Crop return per Rupee invested (CRPRI).*

It can be computed as

$$CRPRI = \frac{\text{Total value of crops}}{\text{Total cost of production}}$$

Return to per rupee invested should be at least Rs. 2.00

Efficiency Measure For Each Crop Enterprise

Various efficiency measures for crops can be computed as given in Table 5.28.

Table 5.28 Efficiency measures for crop enterprises

Item	Particular farm	Average of of the area
Crop yield per acre: Main product		
By Product		
Quantity of fertilizer used/acre.		
Nitrogenous		
Phosphate		
Potash.		
Quantity of pesticide used		
Value of pesticide applied		
Quantity of weedicide applied		
Value of weedicide applied		
Number of canal irrigations		
Number of tubewell irrigation		
Total tractor hours used per acre		
Total bullock hours used per acre		
Total manual hours used		
Quantity of seed used		
Price per kg of output: Main product		
By - product		
Gross income per acre		
Gross income per acre		
inch of water		
Variable cost per acre		
Gross margin per acre.		
Total cost per acre:		
Net income per acre		
Return per rupee invested		
Return to labour		
Return to capital		

Efficiency of Livestock Enterprises

Overall efficiency of livestock enterprises can be measured by using the following measures.

- 1) *Net value of livestock increase*: This shows the total income from livestock sales, their products and net increase in inventory value, minus livestock purchases.
- 2) *Return per 100 rupee feed fed*: It is computed by dividing the net value of livestock increase by the value of all feed fed and then multiplying 100.