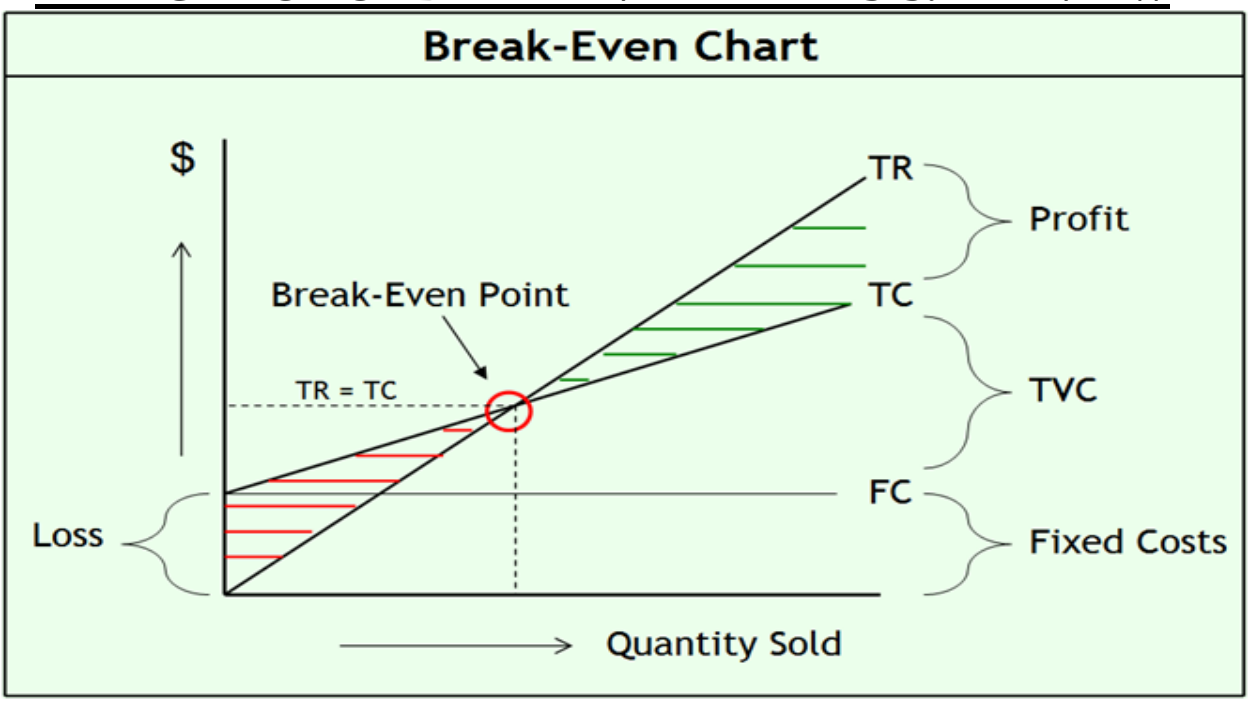
UNIVERSITY OF AGRICULTURAL SCIENCES
Gandhi Krishi Vignyan Kendra Bangalore - 560 065, Karnataka, INDIA

DEPARTMENT OF AGRICULTURAL EXTENSION

IV-SEMINAR REPORT
ON

APPLICATION OF BREAK-EVEN ANALYSIS: A REVIEW



Submitted to:
Seminar teachers:
Dr. N. R. Gangadharappa
Professor and HOD
Dr. Ganesamoorthi, S.,
Assistant professor
Dept. of Agricultural Extension
College of Agriculture, UAS, GKVK
Bangalore, 560065

SUBMITTED BY:
Abdul Sattar Fazely
PALB-2309
III year Ph. D. (Agril. Extension)

Academic year 2015-16

CONTENTS

LIST OF FIGURES

List of tables

APPLICATION OF BREAK-EVEN ANALYSIS: A REVIEW

Introduction:

Break – even analysis is a useful tool to study the relationship between fixed costs, variable costs and returns. A break- even point defines the value of output or benefit generated, will be equal to the total cost incurred. This is the no profit no loss point and if at all any profit is expected, the level or value of the output should increase above break-even point. This technique can be used to arrive at the level of production or benefit to generate for reaching the derived level of profit.

Break-even analysis is a technique widely used by production management and management accountants. It is based on categorizing production costs between those which are "variable" (costs that change when the production output changes) and those that are "fixed" (costs not directly related to the volume of production). Total variable and fixed costs are compared with sales revenue in order to determine the level of sales volume, sales value or production at which the business makes neither a profit nor a loss (the "break-even point"). Considering these aspects, the seminar has been conceptualized with the following objectives:

1. To understand the concept and definition of Break even analysis
2. To know and discuss about the application of Break even analysis
3. To review the case studies related to Break even analysis**.**

I. Concept and definition of Break-even Analysis

- **Break even analysis** is used to determine how much sales volume your business need to start making a profit.
- **Thus, Break even analysis** is especially useful when you are developing a pricing strategy, either as part of a marketing plan or business plan.
- **Breakeven point analysis** is a decision-making aid that enables a manager to determine whether a particular volume of sales will result in losses or profits.
- **In economic and business,** specifically cost accounting, the breakeven point (BEP) is the point at which cost or expenses and revenue are equal ; there is no net loss or gain, and one has "broken even" (Total cost=Total revenue= BEP)

Basic concept:

- **Fixed cost:** are those costs, which are incurred after the decision to enter into a business activity is made. These are expenses that do not vary or change according to

production. Whether there is production or no production, this cost will have to be incurred as long as the unit is functioning. The fixed cost includes depreciation on equipment and building, interest costs and taxes**.**

- **Variable cost:** are those cost which vary in the same proportion with variation in output. This includes expenses directly related to the production of an output or commodity.
- **Revenue** is the total income received.
- **Profit** is the money you have after subtracting fixed cost and variable cost from revenue.
- **Expected unit sales** are the number of units of the product projected to be sold over a specific period of time.
- **Unit price** is the amount of money changed to the customer for each unit of a product or service**.**
- **Total variable cost** is the product of Expected Unit Sales and Variable Unit Cost (TVC = EUS * VUC)
- **Total cost** is the sum of fixed cost and total variable cost for any given level of production.

  (Total Cost = Fixed cost + Total variable Cost)
- **Total Revenue** is the product of expected unit sales and unit price. (TR = EUS*UP)
- **Profit or loss** is the monetary gain (or loss) resulting from revenues after subtracting all associated cost. (P or L = TR – TC)

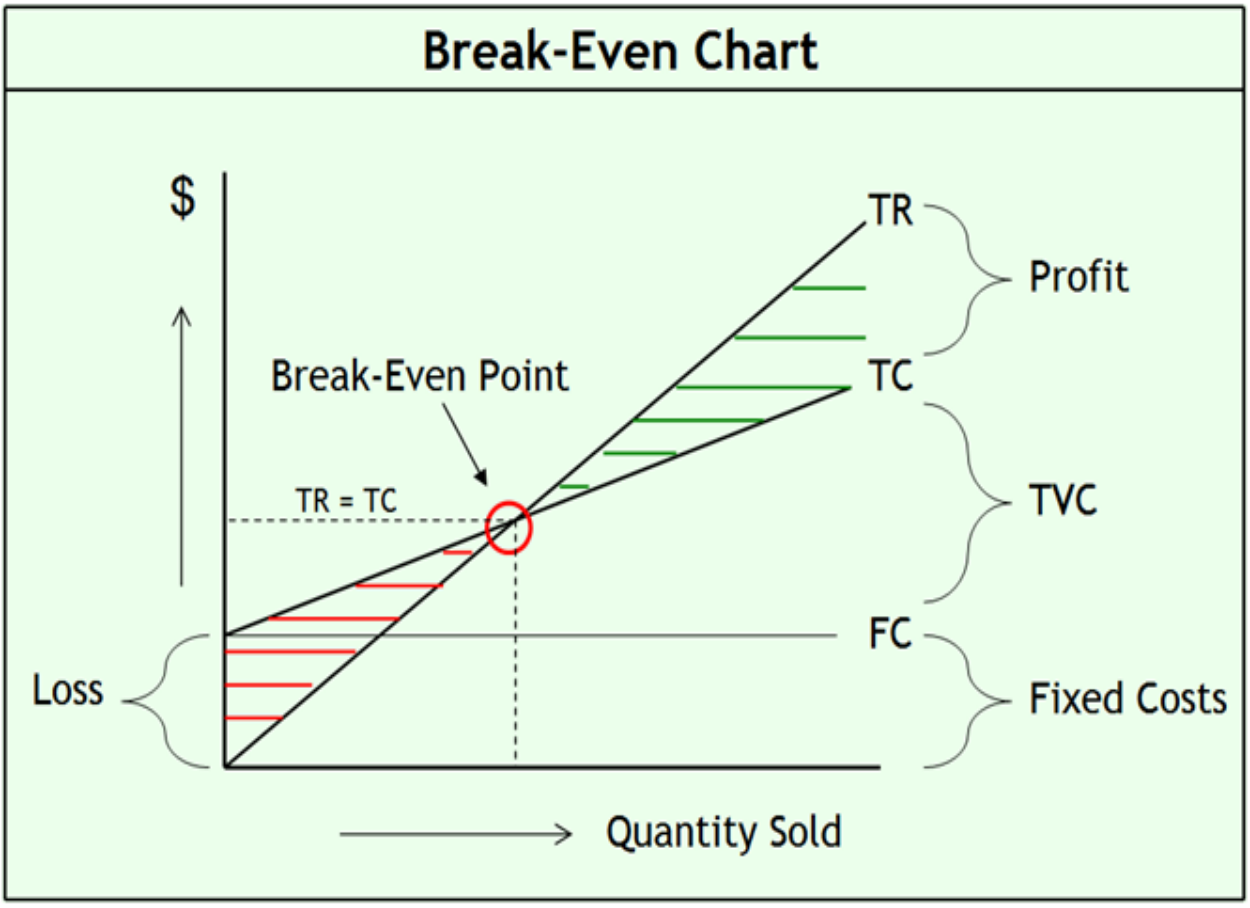


Figure 1: Breakeven chart

Theory of production:

1- Meaning of production

2- Production function

3- Factors of production

4- Law of variable proportion and law of returns to scale.

Meaning of production:

- Production is a process that creates/adds value or utility.
- It is the process in which the inputs are converted into outputs.
- Production refers to the transformation of inputs or resources into outputs of goods and services.

Input: the factors of production such as land, labour, capital, technology etc.

Output: the goods and service produced such as soap, shoes, car etc.

Production function

- It means the functional relationship between inputs and outputs in the process of production.
- It is a technical relation which connects factors inputs used in the production function and the level of outputs.
- Q = F (Land, labour, capital, technology, organization etc)

Factors of production:

According to classical economics the factors of production are as follows:

- Land/Natural resource: such as surface, air, rivers, sea, fauna and flora etc.
- Labour: Mental or physical effort done by a man.
- Capital: Man made goods used in the production process.
- Organization: Entrepreneur or coordinator of all other factors of production.

Law of variable proportion and law of returns to scale:

- **Under law of variable proportion:** only one variable input varies all other variables kept constant and it is for short period.
- **Under law of returns to scale:** all the variables inputs varies except the enterprise and it is for long period**.**

Table 1: Fixed inputs and Variable inputs

Fixed inputs	**Variable inputs**
Remain the same in the short period and in any level of output	In the long run all factors of production are varies according to the volume of outputs
The cost of these inputs are called fixed cost	The cost of variable input is called variable cost
Example: building, land etc.	Example: raw materials labour, etc

Various concept of production:

- **Total Product (TP):** Total physical product is equal to the total amount of output produced in physical units
- **Average Product (AP):** Total output divided by total units of input, means production per unit of input (AP = TP/L)
- **Marginal Product (MP):** The extra product or out put added by one extra unit of that input while other inputs are held constant.

(MP =ΔTP/ΔL **)**

Types of cost:.

- **Money cost:** The amount spend in terms of money for the production of the commodity is known as money cost.
- **Nominal cost:** It is the money cost of production
- **Real cost:** It is the mental and physical and sacrifices undergone with a view to producing a commodity.
- **Opportunity cost:** The real concept of production of given commodity is the next best alternative sacrificed in order to obtain that commodity
- **Implicit cost:** It is the cost of self-owned resources such as salary of proprietor.
- **Explicit cost:** It is the paid- out cost.
- **Accounting or business cost:** Cash payments which firms make for factor and non-factor input depreciation other book keeping entries
- **Social cost:** It is the amount of cost the society bears due to industrialization.
- **Entrepreneurs cost:** It is the cost of production in the sense of money cost or expenses of production.
- **Economic cost:** It is the cost related to the future, it is in the nature of the incremental cost
- **Direct cost:** It is the cost that have direct relationship with a unit of operation like a product- process or a department of the firm. Ex; Variable cost.
- **Entrepreneurs cost:** It is the cost of production in the sense of money cost or expenses of production.
- **Economic cost:** It is the cost related to the future, it is in the nature of the incremental cost

- **Direct cost**: It is the cost that have direct relationship with a unit of operation like a product- process or a department of the firm. Ex; Variable cost.

Types of Average cost:

- . **Average Fixed Cost:** It is the per-unit cost of the fixed factor (AFC=TFC/Q)
- **Average Variable Cost**: It is the per unit cost of the variable factors (AVC=TVC/Q)
- **Average Total Cost:** It is the total cost divided by the number of units produced (ATC=TC/Q)
- **Marginal Cost:** Change in the total cost resulting from the unit change in the quantity produced (MC=change in Q/change in TC)

II. Application of Break-Even analysis

Calculating Breakeven Output - Chart Method:

Using graph paper, it is possible to chart the financial data that allows the break-even output to be measured. Let's look at an example.

Step 1

The first step is to produce two axes:

The vertical axis shows the value of sales & costs

The horizontal axis shows the output

So here is what the blank chart would look like:

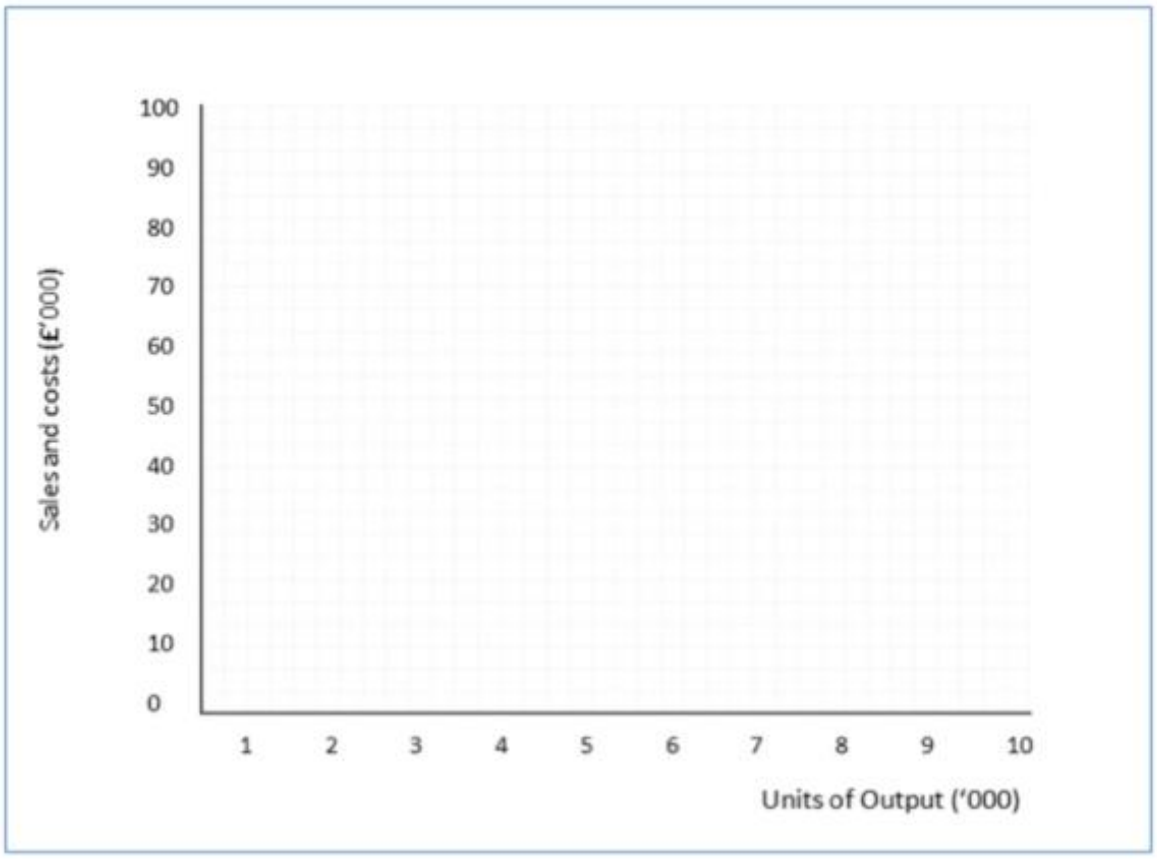


Figure 2: First step of breakeven chart

Step 2

The next step is to add the fixed cost line. Remember that we assume fixed costs don't change with the level of output. So the fixed cost line (in red below) is a horizontal line, showing £40,000.

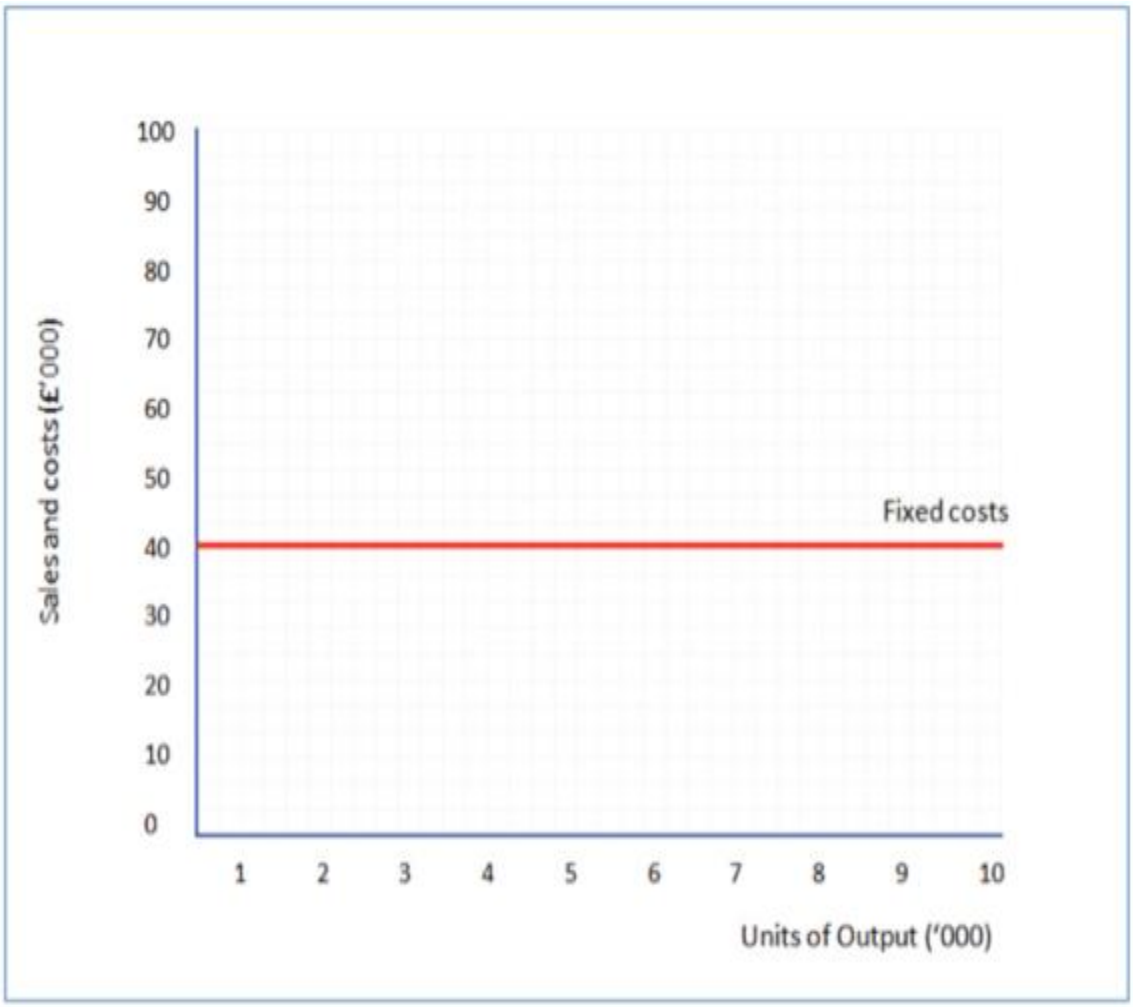


Figure 3: Second step of breakeven chart

Step 3

Next we add the variable costs. We assume that variable costs vary directly with output. In our example, the variable cost per unit is £4. So variable costs for 1,000 units will be £4,000, and at 5,000 units they will be £20,000. Remember that you only need to plot a couple of points to be able to draw the straight line (in yellow below).

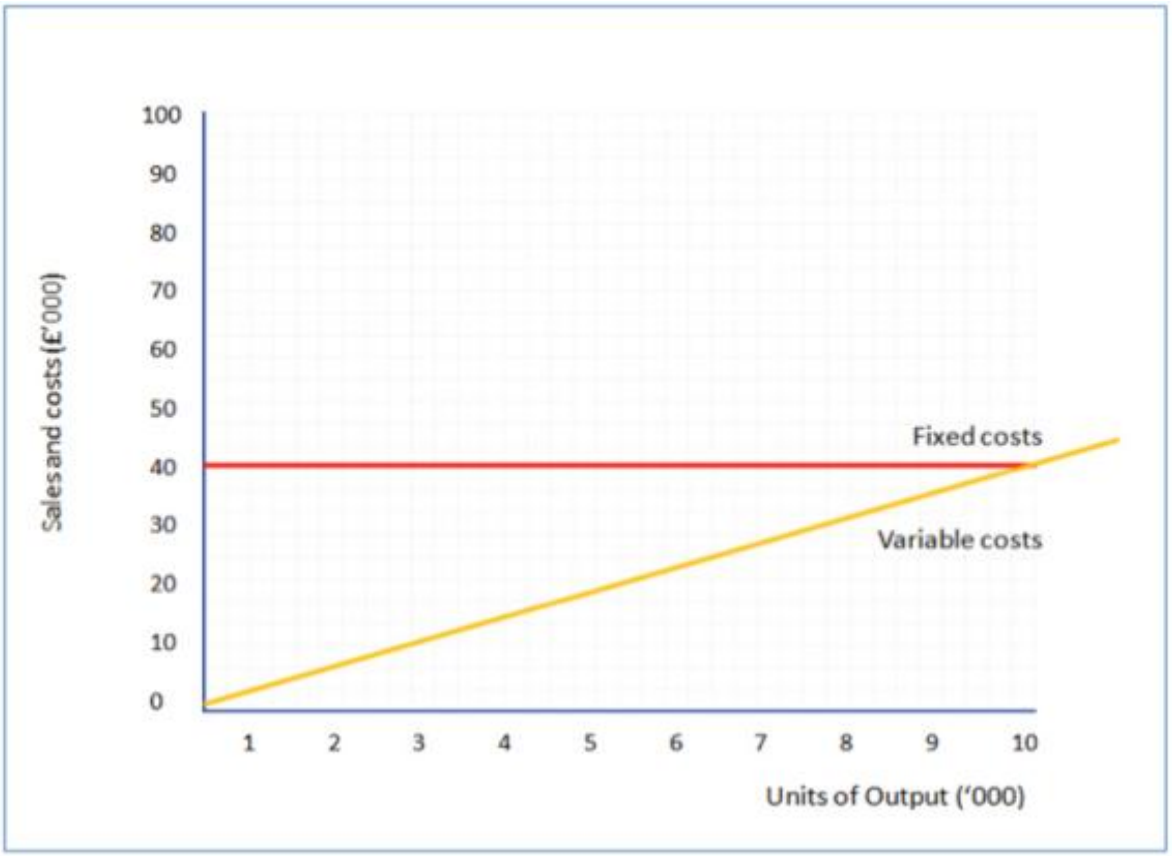


Figure 4: Third step of breakeven chart

Step 4

Next step is to add the variable costs to the fixed costs for each level of output. This is important. Remember that to calculate break-even we need to know total costs. The total cost line is shown in green on the chart.

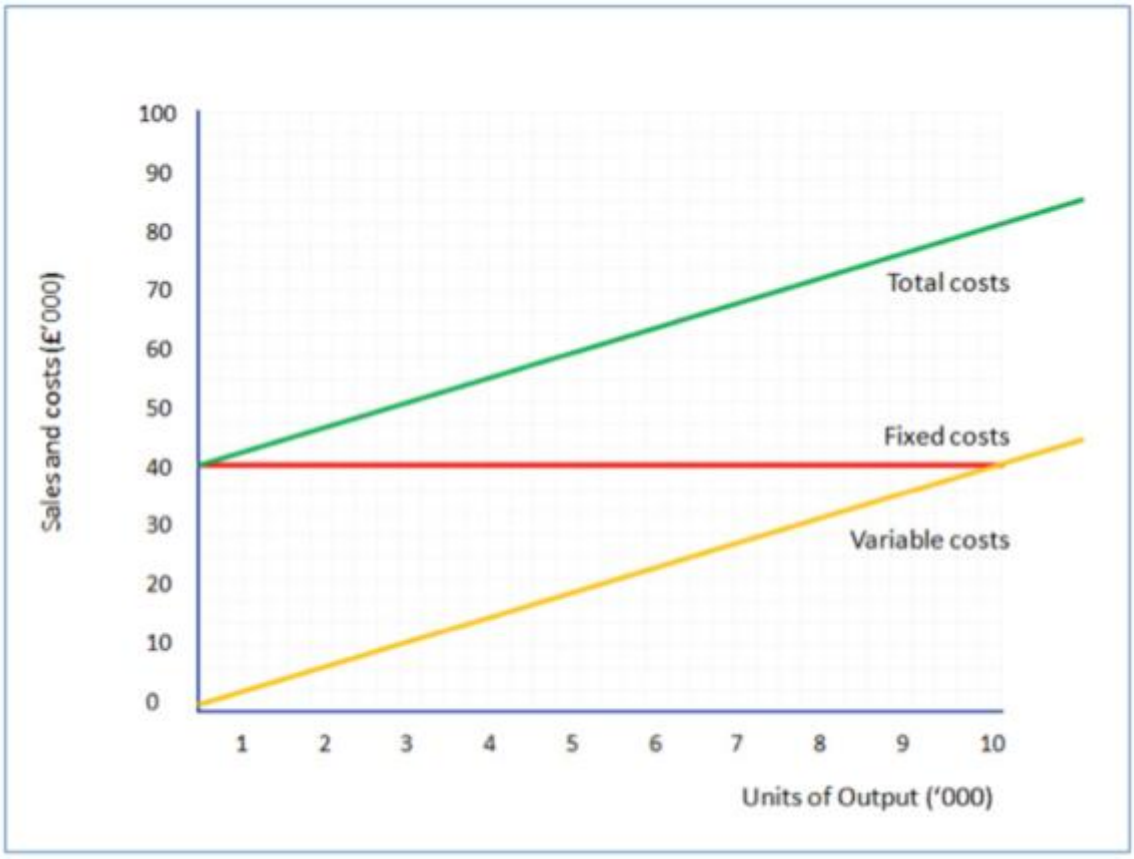


Figure 5: 4th step of breakeven chart

Step 5

Having dealt with costs, we can now draw the line for total sales. Remember that we assume that all output is sold for the same selling price (in this case - £10 per unit). So total sales for 2,000 units will be £20,000; 10,000 units will make £100,000 of sales. The total sales line is drawn in blue below.

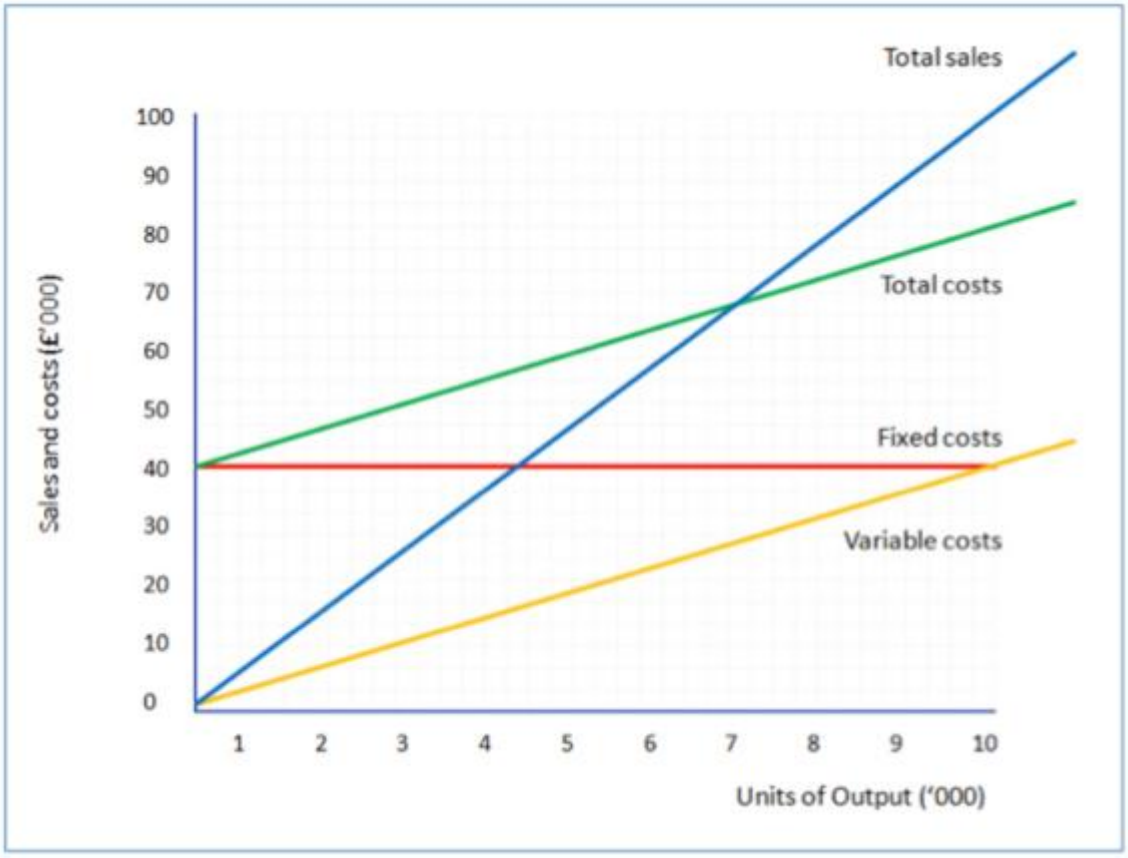


Figure 6: 5th step of breakeven chart

Step 6

Almost there! The last step is to use these lines to identify certain information from the chart.

First, the break-even output. Remember this is the point where total sales = total costs. So the output is the point where the total sales line crosses the total costs line (e.g. where the blue line crosses the green line). Find this point on the chart and then follow a vertical line down to the output (horizontal) axis. You can see this brings us to 6,666 (approximately, since our chart isn't drawn perfectly to scale!).

Another thing you can notice from the chart is the over a range of output, total costs are higher than total sales (green line higher than the blue line). That means that in this range, the business is making losses. This is the **loss-making range of output**.

If the actual output is more than the break-even output, the business will be making a profit. In our example, any output more than 6,666 units will mean profits are earned.

The difference between the actual output and the break-even output is known as the "margin of safety". For example, if actual output were 8,000 units, then the margin of safety = 8,000 units less 6,666 units = 1,334 units

Uses of Break-Even Analysis

- Break-even output price can be used as a sample risk management tool to evaluate the impacts of marketing decisions under the price variability.
- Break-even yield analysis can be used to find the maximum potential yield losses due to detrimental weather condition
- Break-even input price can be used to determine the price prevailing in the market.
- Input requirement break-even analysis can be used to study the economic impact of input requirement during unfavorable season to avoid yield losses.

Sample Problem (1):

- Assume you own a business selling burgers.

  It costs Rs. 7.00 to make one burger.

  That's your V or Variable cost.

  You sell each burger for Rs. 12.50

  That's your P or price per unit.

Your cost for rent utilities, overhead, etc. is Rs. 100,000 per month. That's your F or Fixed cost

- **Answer**

  Given: V = Rs 7.00

  P = Rs 12.50

  F = Rs 100,000

  Solution: X= F/(P - V)

  X= 100,000/(12.50 – 7)

  X= 100,000/(5.5)

  X= 18,181.818 = 18,182

  To break-even you would need to sell 18,182 burgers

Sample Problem (2):

- Assume you own a lemonade stand. It costs you Rs. 1.50 to make cup of lemonade.
- You sell your lemonade for Rs. 5.00. It costs you Rs. 5,000 to rent for the space of your lemonade stand.
- How many cups of lemonade do you have to sell to breakeven?
- Given: V = Rs 1.50
- P = Rs 5.00
- F = Rs 5,000
- Solution: X= F/(P - V)
- X= 5,000/(5 – 1.50)
- X= 5,000/(3.5)
- X= 1,428.57 ≈ 1,429

You would need to sell 1,429 cups of lemonade to breakeven

Margin of safety:

- Margin of safety defined as the percentage of excess production over break-even point to the actual production. It indicates to what extend the production may decline before the firm starts incurring losses. In the break-even point, the distant between break-even point and the point of actual production indicates the margin of safety.

Margin of Safety = Actual output-BEP/

Actual output × 100

Higher margin of safety indicates the financially soundness of the company.

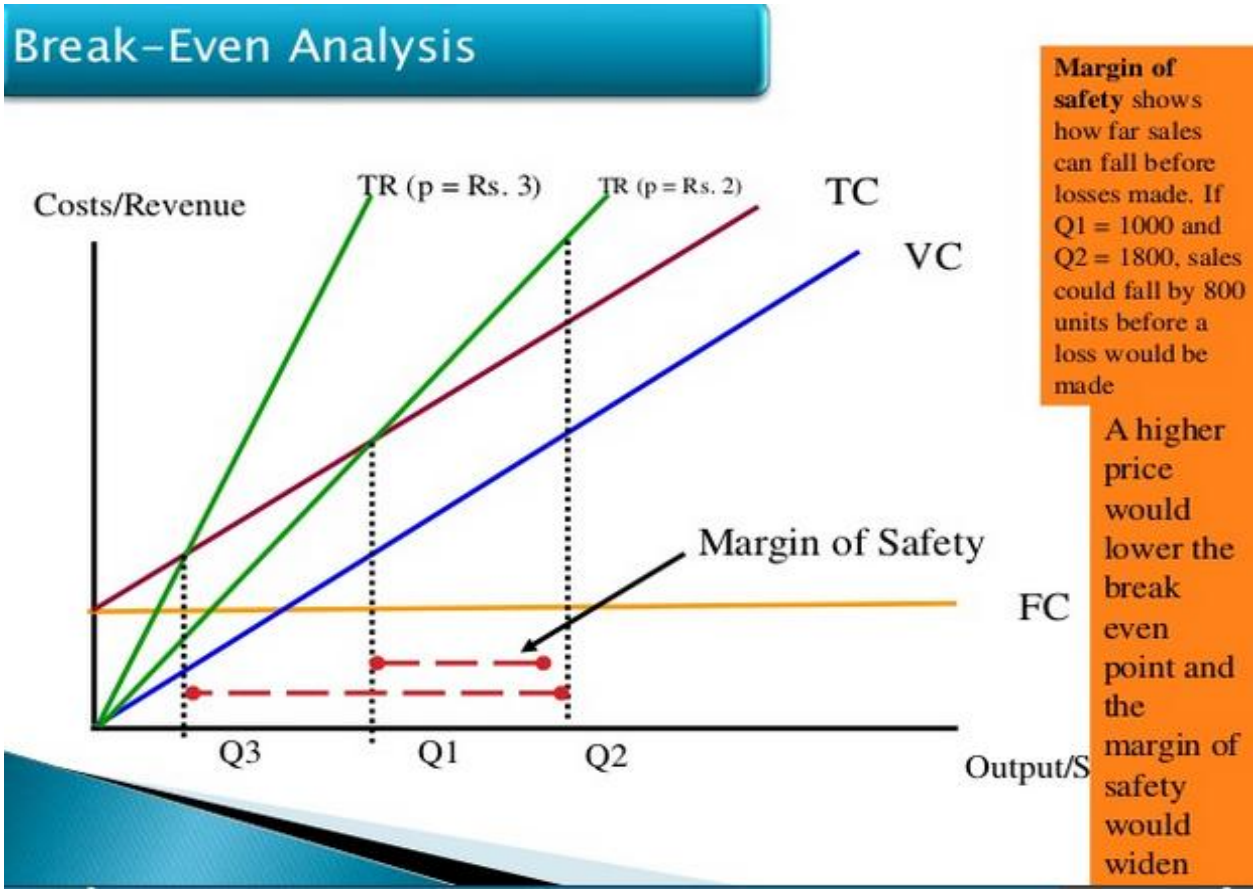


Figure 7: Margin of safety in breakeven analysis

Advantages of break-even analysis:

The main advantages of break-even analysis are:

- It explains the relationships between cost and output level.
- The technique is useful to determine changes in the profit level whenever there is change in fixed cost, variable cost, and prices of commodity.
- It indicates the lowest amount of business activity to prevent losses.
- This technique is also used to determine the viability of project at the particular point of time.

Uses of Break Even Point:

- Helpful in deciding the minimum quantity of sales.
- Helpful in the determination of tender price
- Helpful in examining effects upon organization's profitability.

- Helpful in sales price and quantity
- Helpful in determining marginal cost.

Limitation:

- It is best suited to analysis of one product at a time.
- There should be no change in the investment of fixed assets.
- Variable cost should remains constant per unit.
- Productivity of workers remains constant, i.e. method of production and efficiently of men and machine remain unchanged.

III. Review of Case Studies

CASE STUDY (1):

This study was taken from entitled "Project Appraisal by break-even analysis : case study of a dairy project " undertaken by: C. Kannpiran.

In this study the practical utility of the break-even analysis with reference to dairy project is discussed.

The details of the cattle are:

- Cross-bred cows were purchased immediately after calving in 2 stages of 5 animals each at an interval of 6 months**.**
- The average milk yield is 10 liters/day/animal and sale price is Rs. 4/liters of milk.
- Average day-in milk 10 months and dry-day 5 months
- Feeding cost per animal details is presented in the table below

Table 2: Details of feeding cost for animals

Sl. No.	Details	Maintenance of all animals	Production ration for milking animal
1	Concentrate feed for maintaining at 1 kg/animal	2.5	
2	For milking animal at 1 kg for every 2.5 litre of milk yield (4)		10.0
3	Green fodder 25 kgs× 0.1	2.5	
4	Dry fodder 5 kgs × 0.20	1.0	
	Total	6.0	10.0

The dairy project should carefully analyze the cost considered. These cost include capital cost and operating **cost.**

A. Capital cost (Investment cost):

Capital costs are those cost incurred for creation of goods that are capable of producing economic wealth is termed as capital assets. In case of dairy projects, the investment made on building (cattle shed), equipments and animals are considered. The investments cost in the dairy projects is presented in the Table, 3.

Table 3: Investment cost in dairy projects

Sl.No.	Particulars	Cost (Rs.)
1	Cost of 5+5 dairy animals at Rs. 6000 each	60,000
2	Cost of construction of cattle shed, i.e. 700 sq. ft at Rs. 50 per sq. ft.	35,000
3	Cost of equipments (buckets, milking vessel, etc.	5,000
	Total capital cost	1,00,000

B. Operating cost:

Fixed cost: they are expenses that are not varying or changing according to the production, whether there is production or no production. These cost are incurred as long as the unit is functioning. In dairy projects, the following are the fixed costs such as permanent labour wages, land taxes, electricity bills, maintenance ration and depreciation. The wages, taxes, electricity bills, are to be paid and may not vary according to the quantum of milk production. In cases of maintenances ration, each animal should be feed with this quantity of feed to maintain and it will not vary according to milk production. Even for the dry animals without any milk production the maintenance ration is must. Hence, the dry-days increases or when the total milk production decreases this overhead cost or fixed cost per liter milk will increase. In case of depreciation of animals, the age of the animals are considered if the cattle is properly maintained, the production may not be affected by its age, so the author is of the view that even if in case of livestock, where the value of animal will be depreciating with age irrespective of productivity of animal. Depreciation of cattle shed, equipments and veterinary are included under fixed costs

Variable cost: Are those cost, in which milking animal ration and special veterinary care are considered. The milch or milk ratio is 1 Kg of concentrate feed for every 2.5 liters of milk yield and this varies according to the production of milk. The cost incurred during the maintenance of the dairy projects is presented in Table 4.

Table 4: Annual Operating cost in dairy projects

Sl. No	**Particulars**	**Cost (Rs.)**
A.	**Fixed cost**	
1	Maintenance cost of ration for all animals ($10\times 365\times 6$)	21,900
2	Labour charges (permanent labours)	6,000
3	Taxes, electricity, etc.	1,200
4	Veterinary care (average Rs. 50/animal/year)	500
5	**Depreciation**	
a)	On animal 15%	9.000
b)	On equipment 10%	500
c)	On sheds 2%	1,200
	Total fixed cost	40,300
B.	**Variable cost**	
1	Cost per liter	1

Benefits:

The income obtained by the sale of milk. The milk flow chart are presented in the next table.

Milk flow chart:

The milk flow chart will indicate the days-in-milk and days-dry of all teh animals and the total quantity of the milk produce.

Table 5: Milk flow chart

Year / Animal batch	I	II	III	IV	V	VI	VII
1st animal	10(2)	9(3)	7(5)	7(5)	7(5)	10(2)	9(3)
2nd animal	6	7(5)	7(5)	10(2)	9(3)	7(5)	7(5)

The details of the total milk production are presented in the table below:

Table 6: Details of the total milk production

Years	1st batch animal (5)		2nd batch animal (5)		Total days		Total milk production (liters)
	Milk days	Dry days	Milk days	Dry days	Milk	Dry	
I	1500	300	900	-	2400	300	24000
II	1350	450	1050	750	2400	1200	24000
III	1050	750	1050	750	2100	1500	21000
IV	1050	750	1500	300	2550	1050	25500
V	1050	750	1350	450	2400	1200	24000
VI	1500	300	1050	750	2550	1050	25500
VII	1350	450	1050	750	2400	1200	24000

Break-even analysis:

1- Break-even level for production = Fixed cost / (Sale price/unit – variable cost/ unit) =

40,300/(4-1) = 13,433 liters/year

2- Break-even level for sales = Fixed Cost × Sale price/unit /(Sale price/unit – variable cost/unit)= 40,300×4/(4-1)= Rs. 53,732/yp

The study indicates that the dairy projects will be at break-even point at a milk production level of about 13,433 liters per year or when the total sales is about Rs. 53,732. Further, if the milk price increases and thereby the total sales accounts for Rs. 53732, then it will be at break-even level at lower production level itself. Comparison of the projected milk production with the break-even level production will indicate the viable of the project in a better way.

Break-even milk production

Break-even milk production = 13,433 liters per year

Sensitivity analysis: Sensitivity analysis can be carried at and may observe that, if the production and price of the milk is reduce by 10 per cent then the break-even level production and value will be as below:

Break-even production = 15500 liters / year. Hence the application of the break-even technique indicated that dairy project is viable projects.

3- Margin of safety = Actual output – BEP/AO×100 = 21000-13433/21000×100 = 56.33%

The margin of safety of dairy project was 56.33% at 21000 liters of milk production. Hence the dairy project was profitable.

CASE STUDY (2):

Application of breakeven analysis in Vanilla cultivation as intercrop in areca garden. By: Carl R. Dillon (1993).

Vanilla is a climbing orchid and commercially grown species is *vanilla planifolia*. Vanilla can be grown as intercrop as well as pure crop. Hence here, only vanilla grown as intercrop in areca garden is considered. The details of grooving vanilla as intercrop in areca garden is taken the study. The cost element used in breakeven analysis is classified into:

A. Establishment cost
B. Cost of cultivation and Return of vanilla

A- Establishment cost:

These cost incurred for establishing vanilla in areca garden. These costs are non-recurring costs. The establishment cost include fixed cost and variable cost. The establishment cost for establishing vanilla in areca garden is presented in the Table below:

Table 7: Establishment cost of vanilla as inter crop in areca garden

Sl. No.	Particulars	Units	Per Hectare		
			Quantity	Cost	Percentage
A.	Variable cost				
I	Labour cost				
1	Digging pits for planting cutting	days	31	1,860	1.10
2	Manure and Silt application	days	56	3,360	1.99
3	Mulching	days	132	7,920	4.69
4	Weeding	days	126	7,575	4.49
5	Watch and ward	days		5,600	3.32
6	Other expenses	Rs.		800	0.47
7	Total labour cost	Rs.		27,115	
II	**Material cost**				
8	Manure	Tons	47	23,500	13.94
9	Silt	Tons	8	1,000	0.95
10	Planting materials	No.	2207	110,350	65.46
11	Mulching materials	Rs.		1,500	0.88
	Total variable cost (I+II)	Rs.		1,62,465.00	96.98
B	**Fixed cost**				
1	Rental value of land	Rs.		4,650	2.75
2	Land revenue	Rs.		50	0.02
3	Depreciation	Rs.		386.33	0.22
	Total fixed cost	Rs.		5,086.33	3.01
	Total establishment cost(A+B)	Rs.		1,67,401.33	100

B- Cost of cultivation and Return of vanilla

The cost are recurring and incurred darning cultivation of vanilla. These include the variable cost and fixed cost.

i) Variable cost: Mannering, silt application, mulching, weeding, watch & ward, purchase of manure, interest on working capital.

ii) Fixed cost: Rental value on land, land Tax, Depreciation, Annual repair, interest etc.

Table 8: Annual cost of cultivation of vanilla as intercrop in areca garden

Sl. No.	Particular	Units	Per hectare
A.	**Variable cost**		
I	Labour cost	Rs	57,372.45
II	**Material cost**		
1	Manures	Tones	23,000
2	Silt	Tones	1,000
3	PPC application	Rs.	500
4	Mulching	Rs.	1,750
III	Interest rate on working capital	Rs.	9,238.07
	Total variable cost	Rs.	93220.52
B.	**Fixed cost**		
1	Land rental value	Rs.	4,650
2	Land revenue	Rs.	50
3	Depreciation	Rs.	319.18
4	Interest on fixed capital	Rs.	13,800
5	Fixed capital	Rs.	12427.9
6	Annual repair (Rs.)	Rs.	760
7	Amortized establishment cost	Rs.	13,028.39
	Total Fixed cost	Rs.	46,154.8
	Total cost (A+B)	Rs.	1,39,375

The yield and return of vanilla are given below in the Table 9. The average number of vines per hectare was 2207 vines. The average yield per vine was 2 Kg/vine.

Table 9: Yield and returns from vanilla in areca nut garden

Sl. No.	Particular	Years			
		III	IV	V	VI
1	No. of vines	2,207	2,207	2,207	2,207
2	No. of yielding vines	1,850	1,980	2,207	2,207
3	Yield per vine (Kg)	0.5	1	1.5	2
4	Total yield (Kg)	925	1.980	3,310.5	4,414
5	Sale price (per Kg)	250.00	250.00	250.00	250.00
6	Return by sale of bean (Rs.)	2,31,250	495,000	8,27,625	11,03500

By applying the break-even analysis, the following results are obtained:

Total of both Fixed Cost= 46154.8+5o86.33= 51241.13

Total of both Variable Cost =162465.00+93220.52=255685.52

i) Breakeven production= 51241.13/(250-115.85)

= 381.97 Kg/year

ii) Breakeven sale level= 51241.13 × 250 / (250-115.85)

= Rs. 95492/yr/hectare

FINDINGS OF THE STUDY :

The study indicates that the vanilla as inter crop in areca garden will be at break-even point at production level of about 381.97 kg per year or when the total sales is about Rs. 95492 per year/hectare. Further, if the vanilla price increases, thereby the break-even level will reach at lower production level itself.

CONCLUSION

- ✓ The break-even analysis can be used as one of the important appraisal technique for the agricultural projects.
- ✓ This analysis does not only include the time value of money, but it can also be more realistic as it measures the viability of project at a particular point of time. However, the inflation if any, will affect both the benefit and cost.

References

BERRYMAN, C.W., AND NOBE, M.D. 1999. Practical business application of break-even analysis in graduate construction education. J. Constr. Ed. **4**: 26-37.

CARL DILLON, R., 1993, Advanced break-even analysis of agricultural enterprise budget. Agricultural Economices, **9:** 127-143.

DEFRA. 2001. A review of the potential of giant grasses for UK agriculture. Research and development—final project report NF **0419**: 2001. URL.

HUISMAN W., Venturi P. AND MOLENAAR J. 1997. Costs of supply chains of Miscanthus giganteus. *Industrial Crops and Products* 6(3):353–66.

JAIN, A. K., M. KHANNA, M. ERICKSON, AND H. Huang. 2010. "An Integrated Bio-geochemical and Economic Analysis of Bioenergy Crops in the Midwestern United States." *Global Change Biology BioEnergy* **2** (5): 217-234.

KANNPIRAN C., 1987, Project appraisal by break-even analysis: Case study of a dairy projects. Journal of Rural development, **8** (5): 537-544.

POLLACK, B. 1995. Break-even analysis: The third leg of the underwriting stool. Real Estate Review **25**: 43-6.

http://mathslover.hubpages.com/hub/Breakeven-analysis
http://www.tytir2u.net/business/production/break_even.html

Questions posed during the discussion hour:

1-Question : What is the use of Break-even Analysis in Agriculture?

Ans: On most area of agriculture we can use the Break-even Analysis method especially in Agricultural Marketing, Dairy, Poultry etc. to estimate if our project is profitable or not.

2-Question: Can we use this technique in other area?

Ans: In all economic aspect we can use this technique, this is the best way to realize if our business is profitable especially in the point of break-even, because we can see our profit or losses.

3-Question: What is the application of this technique in agricultural extension?

Ans: Mostly we use Break-even Analysis for solution of community problem and rural development projects. It is an action orientation technique for government and non-government organizations as well as private sectors. Even we can use it for estimating of many extension programmes.

UNIVERSITY OF AGRICULTURAL SCIENCES, BANGALORE
DEPARTMENT OF AGRICULTURAL EXTENSION
GKVK, BANGALORE-560 065

Name: Abdul Sattar Fazely
ID No: PALB 2309
Class: III.Ph.D.

Date : 12.12.2015
Time : 10:00 am
Venue:Prof.K.A. Jalihal Hall

IV - SEMINAR ON

APPLICATION OF BREAK-EVEN ANALYSIS: A REVIEW

SYNOPSIS

Break – even analysis is a useful tool to study the relationship between fixed costs, variable costs and returns. A break- even point defines the value of output or benefit generated will be equal to the total cost incurred. This is the no profit no loss point and if at all any profit is expected, the level or value of the output should increase above break-even point. This technique can be used to arrive at the level of production or benefit to generate for reaching the derived level of profit. Considering these aspects, the seminar has been conceptualized with the following objectives:

1. To understand the concept and definition of Break even analysis
2. To know about the application of Break even analysis
3. To review the case studies related to Break even analysis.

Concept and definition

Break even point analysis is a decision-making aid that enable a manager to determine whether a particular volume of sales will result in losses or profits.

Basic concept:

- Fixed cost
- Variable cost
- Revenue
- Profit

Theory of production

- Meaning of production
- Production function
- Factors of production
- Law of variable proportion and law of returns to scale

Various concepts of production

- Types of product
- Types of cost
- Types of average cost

Application of Break-even Analysis

- Uses of Break-even Analysis
- Sample problem (example #1)
- Sample problem (example #2)
- Margin of Safety
- Advantage of Break-even Analysis
- Limitation

Case studies

Kannpiran C. (1987) indicated that the dairy project having break-even point at a milk prodution level of 13,433 litters per year and break-even level of Rs. 53,732 per year's production for sales and the percentage of 56.33% on Margin of safety, is a viable and profitable project.

Carl Dillon R. (1993) concluded that the vanilla as inter crop in areca garden will be at break-even point at production level of about 381.97 kg per year/hectare and the total sales is about Rs. 95492 per year/ hectare. Further, if the vanilla price increases, thereby the break-even level will reach at lower production level itself.

Conclusion

The break-even analysis can be used as one of the important appraisal technique for the agricultural projects. This analysis does not only include the time value of money, but it can also be more realistic as it measures the viability of project at a particular point of time. However, the inflation if any, will affect both the benefit and cost.

References

CARL DILLON, R., 1993, Advanced break-even analysis of agricultural enterprise budget. Agricultural Economices, **9:** 127-143.

KANNPIRAN C., 1987, Project appraisal by break-even analysis: Case study of a dairy projects. Journal of Rural development, **8** (5): 537-544.

http://mathslover.hubpages.com/hub/Breakeven-analysis
http://www.tytir2u.net/business/production/break_even.html