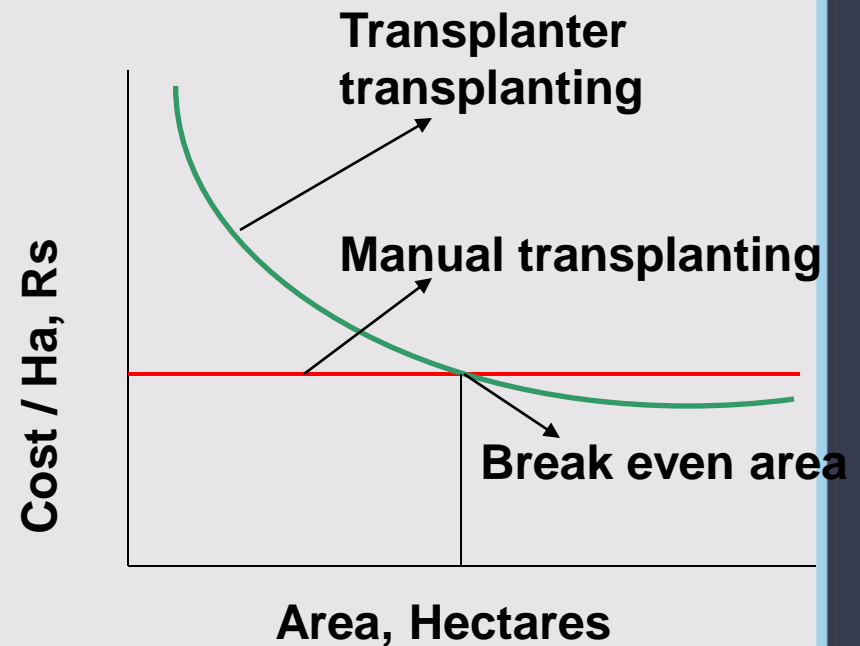
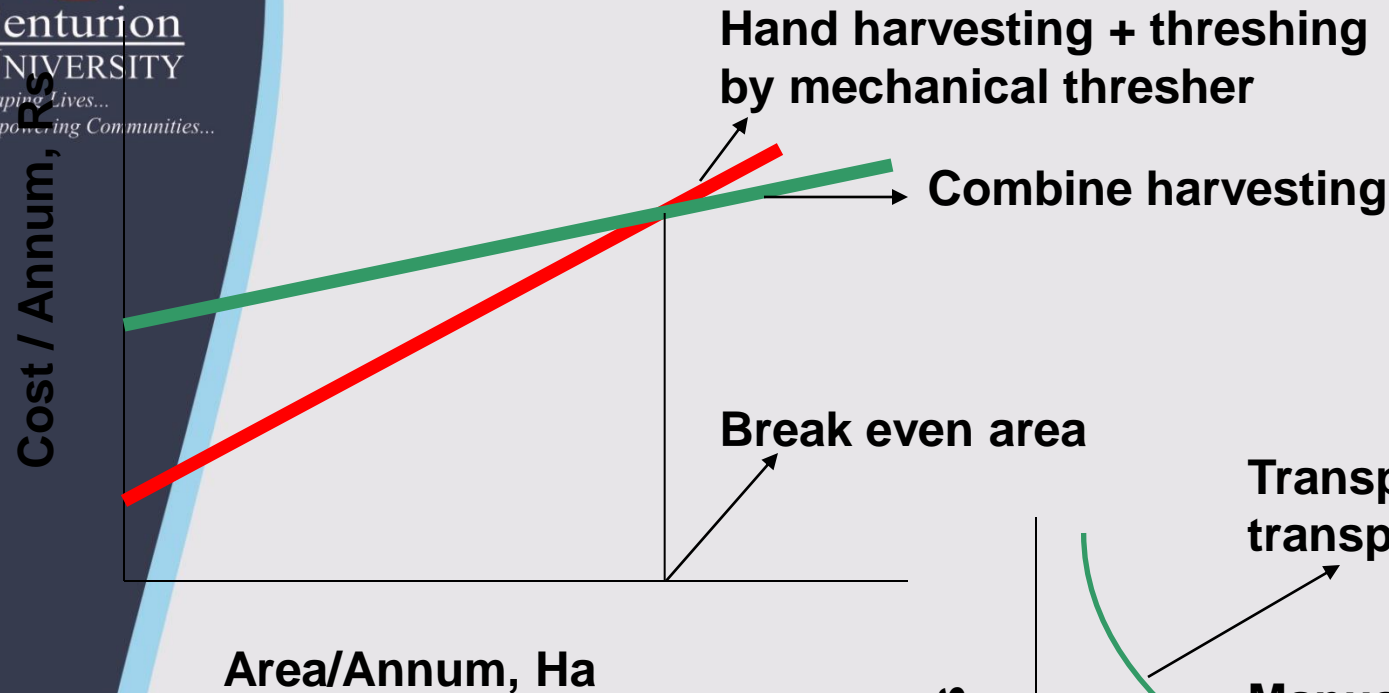


# Break even analysis



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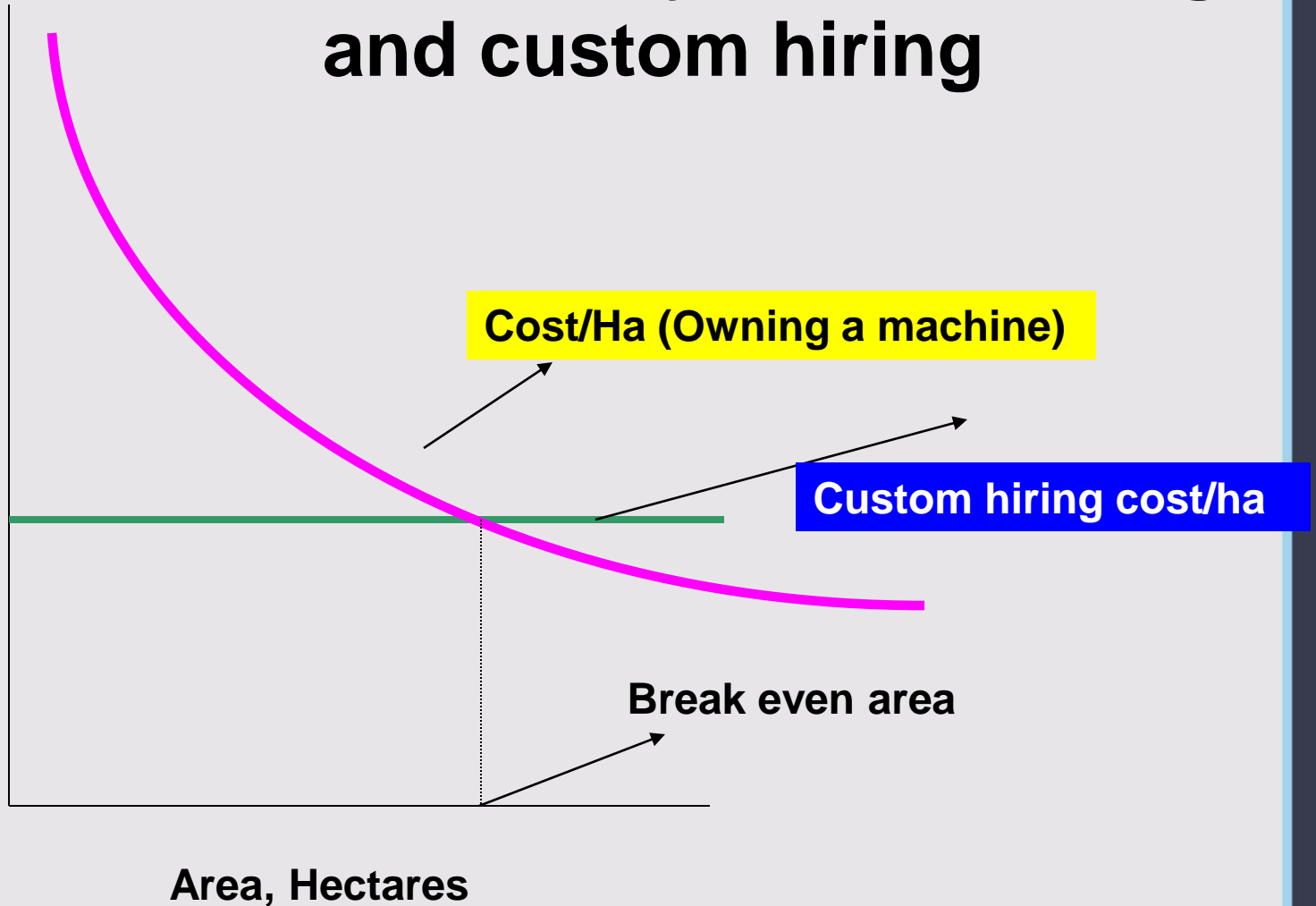




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**Cost/Ha, Rs**

# Break even analysis for owning and custom hiring

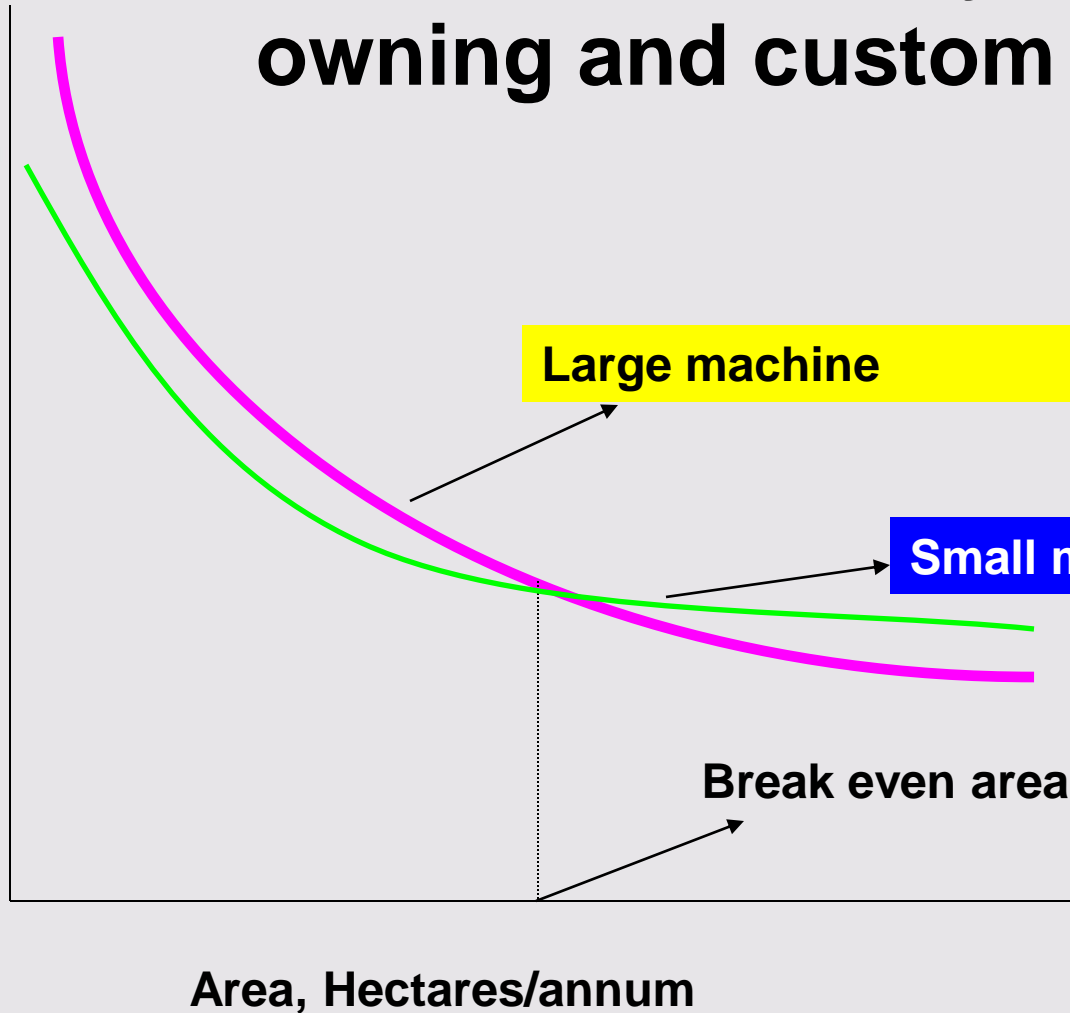




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**Total Cost/Ha, Rs**

# Break even analysis for owning and custom hiring





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TOTAL FIXED COST/ANNUM

**MANNUAL COST/HA- VARIABLE COST/HA**

# BREAKEVEN AREA/ANNUM



## **Advantages of custom hiring**

**If machines are available for operation, then custom hiring is economical for small and medium farms**

**Timeliness of operation is important**

**For large farms partial ownership and partial hiring may be economical**



# Machinery selection

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For selection of machinery we need

**Field capacity**

**Field efficiency**

**Timeliness cost**

**Annual Cost of Operation**



# COST OF OPERATION

## Fixed cost

Depreciation [ $D = (P - S)/L$ ]

Interest

Insurance, tax and shelter (3.5 % of the purchase price/ annum)

## Variable cost

Labour cost

Fuel, oil and lubricant

Repair and maintenance cost



# Determination of fixed cost percentage

## Annual Depreciation

$$\text{AD} = (P - S)/L = (P - 0.1P)/L = P * 0.9/L$$

## Interest

$$\text{INT} = i (P + S)/2 = i (P + 0.1P)/2 = i * 0.55 * P$$

## Taxes, insurance and shelter

$$3.5\% \text{ of the purchase price} = 0.035P$$

$$\begin{aligned} \text{Total Fixed cost (TFC)} &= P * 0.9/L + i * 0.55P + 0.035P \\ &= P (0.9/L + i * 0.55 + 0.035) \end{aligned}$$

$$\text{Fixed cost \% of purchase price} = (TFC/P) * 100$$

$$= 100 * (0.9/L + i * 0.55 + 0.035)$$





# Life & Repair and maintenance cost

Table 2.1. LIFE AND REPAIR COSTS OF MACHINES

Machine	Years Until Obsolete	Wear-out Life, Hours	Hours per Year for Wear-out Life to Equal Obsolescence Life*	Repair Costs, Percent of New Cost	
				Average per Hour	Total During Wear-out Life
<b>Tractors</b>					
Wheel-type	10	10 000	1 000	0.010	100
Track-type	15	15 000	1 000	0.007	105
<b>Tillage implements</b>					
Cultivator	12	2 500	208	0.048	120
Disk harrow	15	2 500	167	0.048	120
Disk plow	15	2 500	167	0.048	120
Moldboard plow	15	2 500	167	0.080	200
Spike-tooth harrow	15	2 500	167	0.040	100
Spring-tooth harrow	15	2 000	133	0.060	120
<b>Seeders</b>					
Grain drill	15	1 200	80	0.075	90
Row-crop planter	15	1 200	80	0.075	90
<b>Harvesting equipment</b>					
Bale wagon, automatic	10	2 000	200	0.040	80
Combine, self-propelled	10	2 000	200	0.025	50
Corn picker	10	2 000	200	0.038†	75
Cotton picker	10	2 000	200	0.035†	70
Cotton stripper	10	2 000	200	0.030†	60
Field chopper, pull-type	10	2 000	200	0.040	80
Hay baler, aux. eng.	10	2 000	200	0.030	60
Hay baler, PTO	10	2 000	200	0.040	80
Mower	10	2 000	200	0.150	300
Rake, side delivery	10	2 500	250	0.060	150
Sugar beet harvester	10	2 500	250	0.030	75
Windrower, self-propelled	10	2 500	250	0.040	100
<b>Miscellaneous</b>					
Fertilizer equipment	8	1 200	150	0.100	120
Forage blower	12	2 000	167	0.030	60
Wagon (rubber tired)	15	5 000	333	0.018	90

\*When average annual use exceeds this number of hours, machine will wear out before it becomes obsolete.

†If machine is mounted type, add total of 1% of new cost for each time machine is mounted and dismounted (normally once a year).