

The background of the slide is a reproduction of the painting 'The Starry Night' by the Dutch Impressionist painter J.M.W. Turner. The painting depicts a night scene with a turbulent, swirling sky filled with stars and a bright, glowing moon. In the foreground, a dark, jagged, cypress-like tree stands on the left, and a small village with a church spire is visible in the distance. A large, solid blue triangular shape is overlaid on the right side of the image, pointing towards the top right corner.

Be Safe Get to Know Your COP

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Introduction

- **The cost of production (COP) is the costs associated with production divided by the number of units produced.**
- **What is difficult about that?**
- **Single versus joint product enterprises**
- **A joint product enterprise is one in which two or more products are produced from one production process**

Introduction (cont)

- **Is there a difference between price per unit and income per unit?**
- **We will look at 3 methods for calculating the cost of producing milk.**
- **But first we will give you an opportunity to do the calculation your way.**

Text Problem

- Milk Income per cow = \$3,520 (22,000 pounds)
- Other Dairy Income per cow = \$480
- Milk Price is \$16.00 per hundredweight

- Purchased Feed \$800 per cow
- Paid Labor \$300 per cow
- Interest Paid \$200 per cow
- Other \$1340 per cow
- Total Operating Costs \$2,640 per cow

- Unpaid Labor and Management \$400 per cow
- Depreciation \$300 per cow
- Interest on Equity Capital \$400 per cow
- Total Overhead Costs \$1,100 per cow

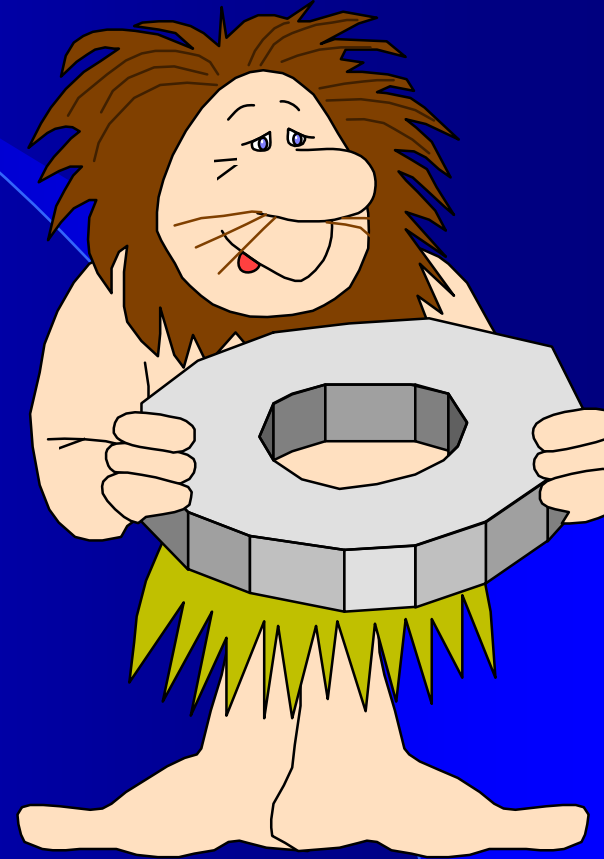
- Total Costs \$3,740.00 per cow

Questions on Text Problem

- What is the feed cost per hundredweight of milk?
- What is the total cost of production per hundredweight of milk?
- What is the profit per cow?
- What is the return to unpaid labor, management and equity capital per cow?

Methods – Per Unit Sold

- Feed per 100 lbs = \$3.64 ($\$800 / 220$)
- Total cost = \$17.00 ($\$3,740 / 220$)
- Income per 100 lbs sold = \$18.18.
- \$18.18 income/unit - \$17.00 cost = \$1.18 profit per unit
- \$1.18 times 220 = \$260 profit per cow
- \$260 profit + \$400 unpaid + \$400 = Return to Unpaid L&M and equity



Method: Residual Claimant



- Income from the sale of the joint product(s) is subtracted from the total cost
- \$3,740 cost - \$480 of other income = \$3,260 of residual costs
- Feed Costs per unit = ???
- Total Cost: $\$3,260 / 220 = \14.82
- Profit per cow: $(\$16.00 - \$14.82) * 220 = \$260$
- Return to Unpaid L&M + equity = \$1,060

Method: Per Equivalent Unit

- Total Enterprise Income (from all products)
Price of Major Product
- $\$3,520 + \$480 = \$4,000$ Total Income
- $\$4,000 / \$16.00 = 250$ equivalent units

- Feed cost = $\$3.20$ ($\$800 / 250$)
- Total cost = $\$14.96$ ($\$3,740 / 250$)
- Profit = $\$260$ ($(\$16.00 - \$14.96) \times 250$).
- Return to Unpaid L&M + equity still $\$1,060$

Comparisons

- Units Sold:
 - Total cost = \$17.00 ($\$3,740 / 220$)
- Residual Claimant:
 - Total Cost = \$14.82 ($\$3,260 / 220$)
- Equivalent Unit:
 - Total cost = \$14.96 ($\$3,740 / 250$)

Conclusions

- When individuals see a cost of production value they immediately compare it to the price of the product.
- The “Equivalent Production” method is the best for joint product enterprises
- Remember if an enterprise has only one product, all methods produce identical results.

Problem 1: 110 cows

- Milk Income = \$387,200 (22,000 pounds / 100 X \$16.00 X 110)
- Other Schedule F Income = \$52,800
- Cull Cow Income from Form 4797 = \$13,750
- Increase in Dairy Herd Inventory = \$16,500

- Purchased Feed = \$88,000
- Paid Labor = \$33,000
- Interest Paid = \$22,000
- Other = \$147,400
- Unpaid L & M = \$44,000
- Depreciation = \$33,000
- Interest on Equity Capital = \$44,000



Answers – Problem 1

- Units Sold:
 - Total cost = \$17.00
($\$411,400 / 24,200$)
 - Versus \$19.43
 - ($\$4720,250 / 24,200$)
- Residual Claimant:
 - Total Cost = \$13.57
($\$328,350 / 24,200$)
- Equivalent Unit:
 - Total cost = \$14.00
($\$411,400 / 29,391$)



Problem 2: 250 cows

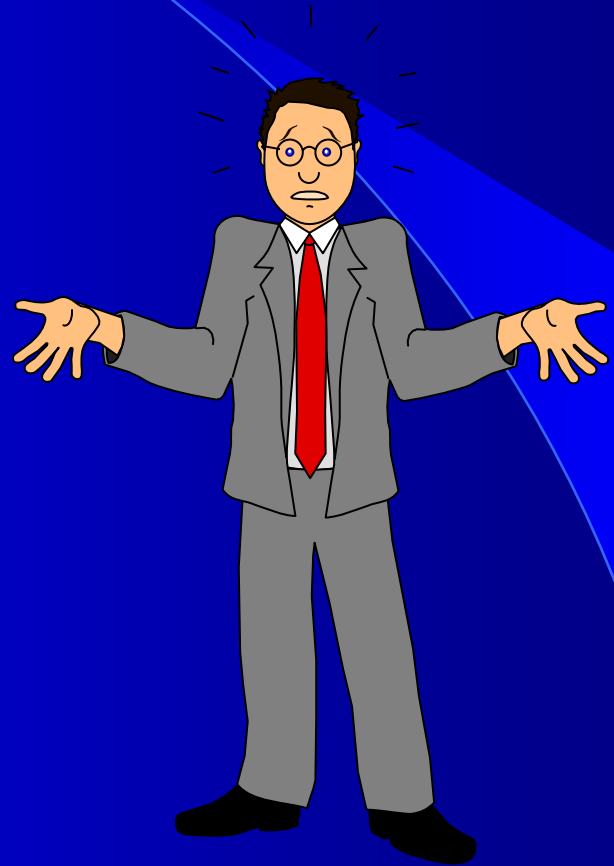
- Milk Income = \$880,000
(22,000 pounds / 100 X \$16.00 X 250)
- Other Schedule F Income = \$25,000
- Cull Cow Income from Form 4797 = \$37,500
- Purchased Feed = \$225,000
- Paid Labor = \$125,000
- Interest Paid = \$75,000
- Other = \$425,000
- Unpaid Labor and Management = \$100,000
- Depreciation = \$87,500
- Interest on Equity Capital = \$100,000



	Beginning	Ending
● Feed Inventory	\$300,000	\$287,500
● Dairy Cattle Inventory	\$525,000	\$550,000
● Accounts Payable	\$25,000	\$0
● Prepaid Expenses	\$20,000	\$70,000

Answers – Problem 2

- Units Sold:
 - Total cost = \$19.32
($\$1,062,500 / 55,000$)
 - Versus \$17.36
 - ($\$955,000 / 55,000$)
- Residual Claimant:
 - Total Cost = \$17.95
($\$987,500 / 55,000$)
- Equivalent Unit:
 - Total cost = \$17.80
($\$1,062,500 / 59,687.5$)



Thoughts - Comments



- Thank You for your attention.





