

# Economics of Managed Grazing

Paul Dietmann

Sauk Co. UW-Extension Agricultural Agent

February, 2006

# Economics of Grazing

- How does grazing compare to conventional?
- Profitability and the MIG advantage
- Sample budgets for various classes of livestock

# Grazing vs. Conventional

Best recent study—

Kriegl's work summarized in Pastures of Plenty: Financial Performance of Wisconsin Grazing Dairy Farms

(UW-Madison Center for Integrated Agricultural Systems)

# Kriegl's Conclusions

- Graziers were more profitable per cow than confinement dairies
  - 4,000 to 5,000# less milk
  - Three-year avg NFIFO/cow \$661 vs \$349
  - Even without labor cost, MIG more profitable
  - Larger farms had least profit/cow
  - Least profitable graziers \$30,000+ NFIFO/farm
  - Least profitable confinement negative NFIFO

# Large vs Small Graziers

- Large grazing farms (more than 100 cows)
  - 3x as many cows
  - 10% less milk
  - $\frac{1}{2}$  of the NFIFO/cow
  - Results similar to large vs small confinement
  - Diseconomies of scale

# Profitability in Depth

The background of the slide features a series of overlapping, semi-transparent blue rectangles. These rectangles are arranged in a staggered, grid-like pattern that recedes into the distance, creating a strong sense of depth and perspective. The rectangles are oriented horizontally and are set against a dark blue gradient background that transitions from a lighter shade at the top to a darker shade at the bottom.

# Five Important Financial Goals

**Liquidity**

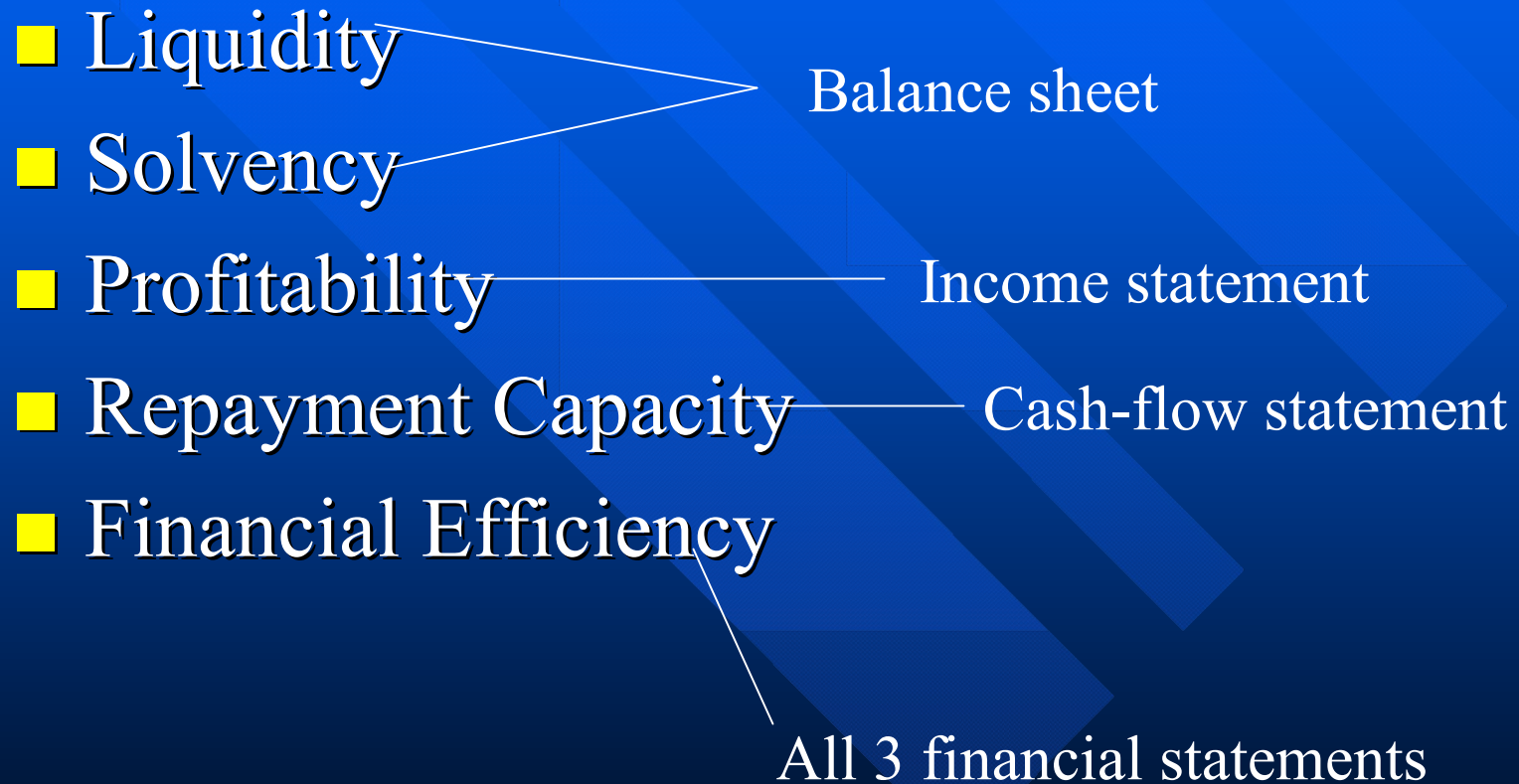
**Solvency**

**Profitability**

**Repayment capacity**

**Financial efficiency**

# Financial Measures & Statements



# The Balance Sheet

A snapshot of how funds are invested in the farm business (**assets**) and the financing methods used (a combination of **liabilities** and **owner's equity**) at a given point in time.

- **Assets** – Everything that is owned by or payable to the business as of the date the balance sheet is prepared
- **Liabilities** – All obligations owed by the business as of the balance sheet date
- **Owner's Equity or Net Worth** – Total assets minus total liabilities

<u>Current Assets</u> Cash \$100 Checking \$2,000 Accounts Rec. \$500 Feed inventory \$10,000 TOTAL \$12,600	<u>Current Liabilities</u> Coop bill \$1,000 Principal due \$3,162 TOTAL \$4,162
<u>Intermediate Assets</u> Breeding livestock \$40,000 Machinery \$75,000 TOTAL \$115,000	<u>Intermediate Liabilities</u> TOTAL \$0
<u>Long Term Assets</u> Farm \$350,000 TOTAL \$350,000	<u>Long Term Liabilities</u> Farm loan bal. \$246,838 TOTAL \$246,838
Total Assets \$477,600	Total Liabilities \$251,000 Net worth \$226,600

# The Income Statement

A structured way of comparing one year's income and expenses, and determining how much of that revenue was retained by the business.

**Income** – Includes cash sales of farm products, government payments, custom work income. Also includes changes in the inventory of feed, crops, and livestock.

**Expenses** – Includes all cash operating expenses including interest (but not principal) payments. It also includes depreciation.

## Income

Calf sales \$28,000

Custom work \$1,000

Change in feed inventory \$2,000

GROSS FARM INCOME \$33,000

## Expenses

Feed \$3,000

Breeding \$750

Vet \$2,000

Supplies \$1,000

Interest on farm loan \$15,000

RE taxes \$4,000

Misc. \$500

TOTAL CASH FARM EXPENSE \$26,250

Net CASH Farm Income \$6,500

Depreciation \$5,000

NET FARM INCOME \$1,500

# Useful information provided by the income statement

## Profitability measures

- **Net farm income** – The return for your unpaid labor, management, and financial investment in the farm
- **Rate of return on farm assets** – The “interest rate” being earned on all of the investments in the farm
- **Rate of return on farm equity** – The “interest rate” being earned on your investment in the farm
- **Operating profit margin** – \$ return on farm assets divided by value of farm production. Measures business efficiency.

# Useful information provided by the income statement

## Profitability measures

- **Net farm income** – GOAL: Personal satisfaction level
- **Rate of return on farm assets** – GOAL: At least the rate of interest on borrowed money.
- **Rate of return on farm equity** – GOAL: Should be higher than the rate of return on farm assets
- **Operating profit margin** – GOAL: Should be at least 20%, but ideally 35% or better

# Breaking Down Costs

## ■ Overhead Costs

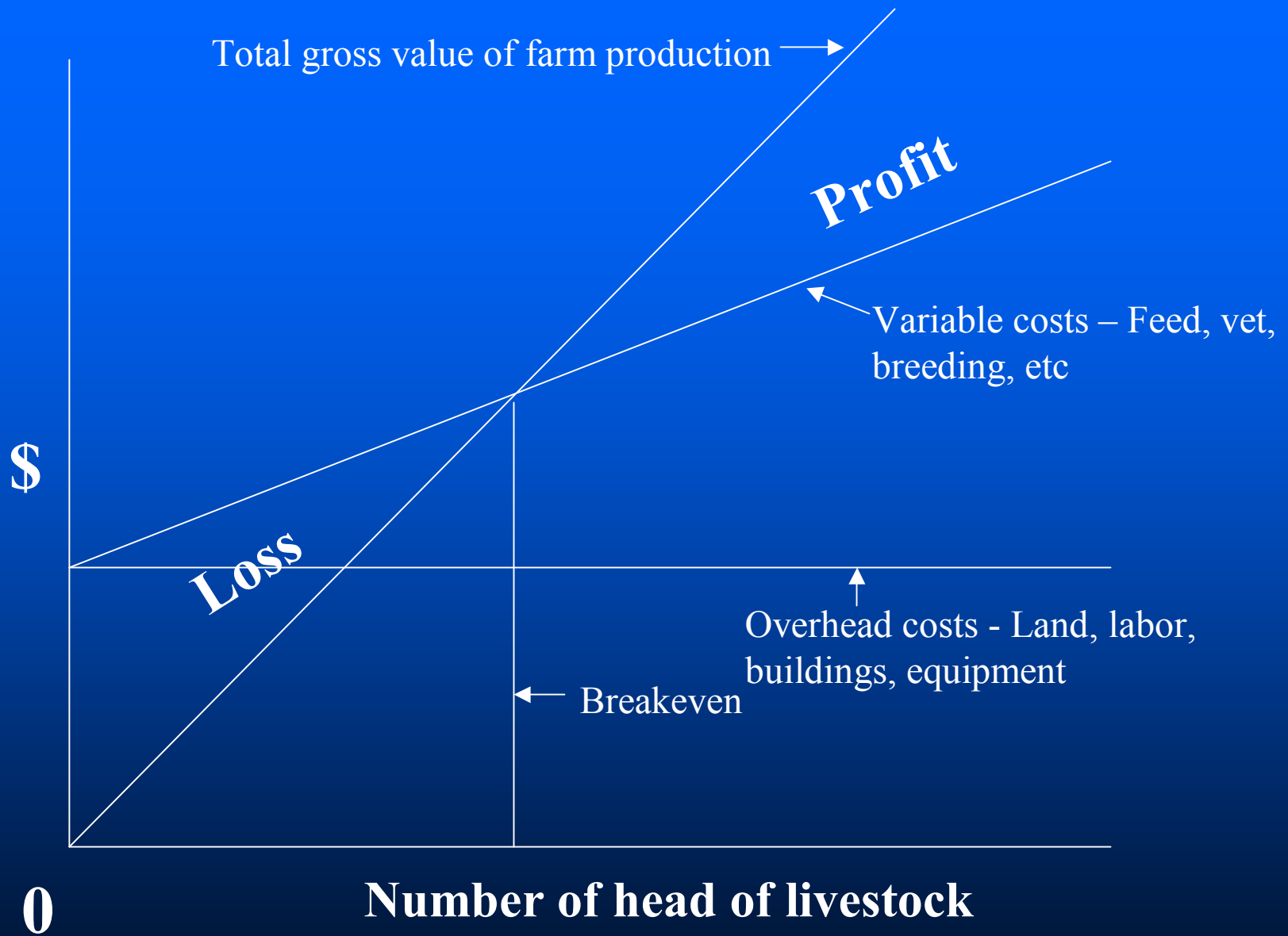
- Costs that exist on the farm whether or not anything is being produced
- Can include mortgage, taxes, depreciation, labor

## ■ Variable Costs

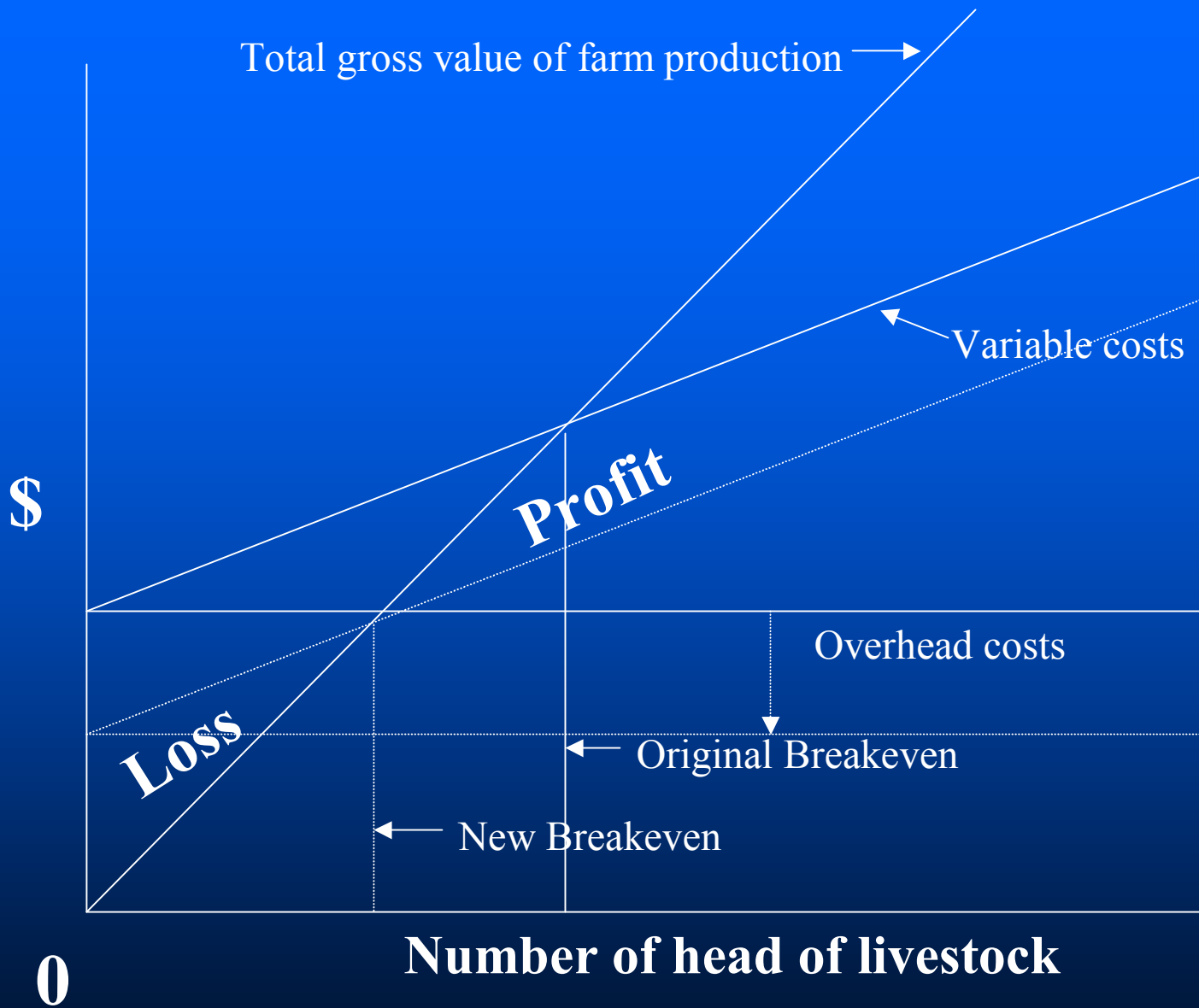
- Costs that increase as farm production increases
- Can includes seed, feed, fertilizer, vet expenses, utilities

# 3 Ways to Increase Profitability

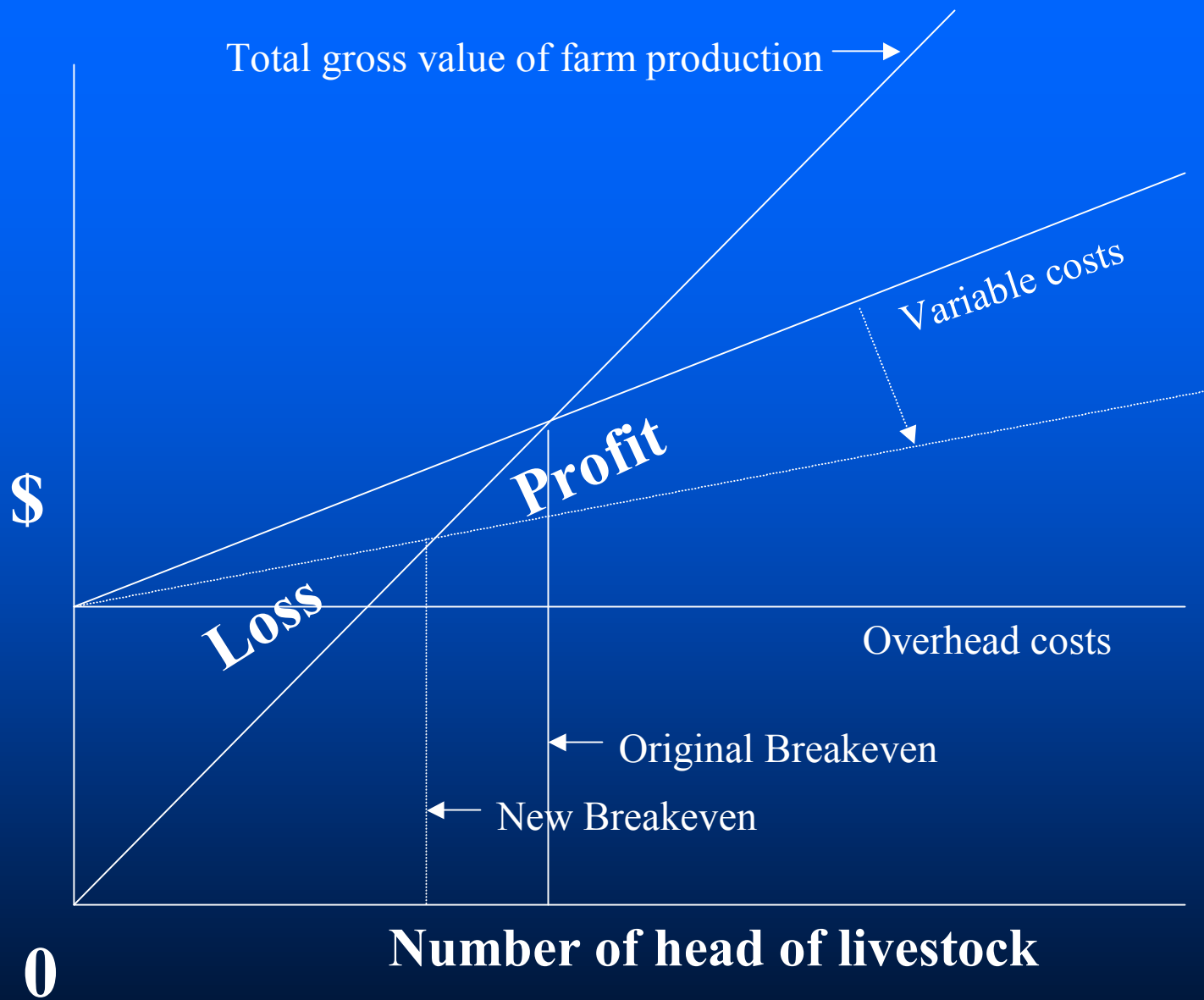
1. Reduce overhead costs (They aren't really "fixed")
2. Improve gross margin
  - get more for your milk, cull cows, other farm products
  - cut variable costs
3. Increase asset turnover-More production, same assets
  - $\text{Asset turnover ratio} = \frac{\text{Gross value of farm production}}{\text{Average farm assets}}$
  - Increased production only improves profitability if variable *and* overhead costs stay the same



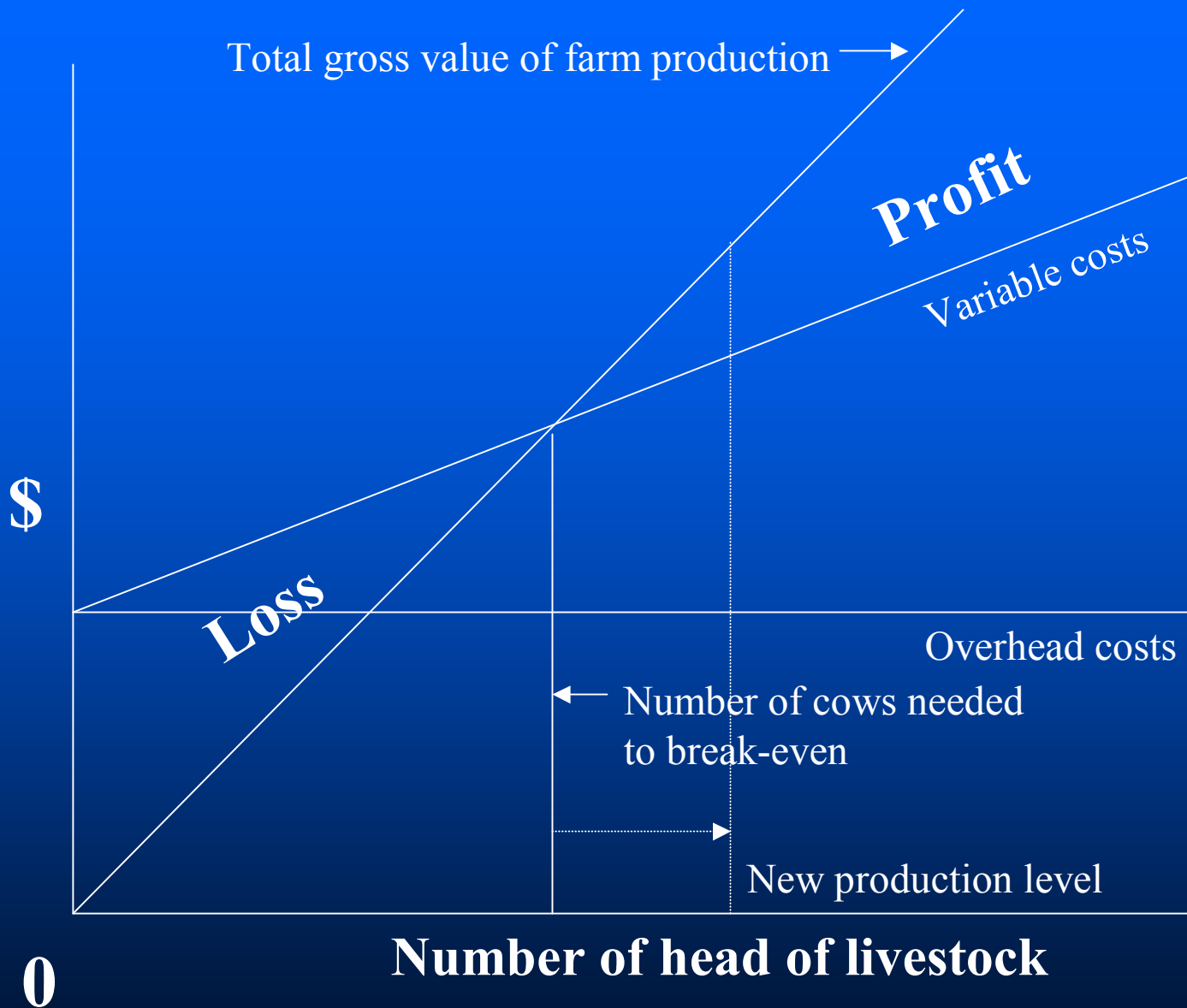
How overhead and variable costs relate to profit on livestock farms



One way to increase profitability: Reduce overhead costs



Second way to increase profitability: Reduce variable costs



Third way to increase profitability: Increase production, keep all costs the same

# “Profitability” and “Cash Flow”

The two are linked but they are not the same.

A business can have positive cash flow *and* be unprofitable.

A business can be profitable *and* have negative cash flow.

Need profitability *and* cash flow.

# The Cash-Flow Statement

Shows all cash inflows and all cash outflows to determine how much cash—if any-- is left at the end of a given period of time. It gives an indication of the borrower's ability to repay all term debts on-time.

Cash Inflows – includes net cash farm income and usually includes non-farm income.

Cash Outflows – includes family living expenses, income taxes and social security paid, and principal and interest payments on term debt. Does not include depreciation.

# Cash Flow Statement

Net cash farm income \$6,500

Nonfarm income \$30,000

Net cash available \$36,500

Family living draw \$15,000

Income taxes & soc. Security \$5,000

Cash available for principal payments \$16,500

Farm interest paid \$15,000

Cash available for P & I payments \$31,500

Scheduled P & I payments \$18,162

Cash surplus or deficit \$13,338

# Cash flow vs. profitability

In our example farm, cash flow was \$16,500.

If we put no value on farm operator's labor,

Rate of return on assets was  $\$16,500/\$477,600 = 3.45\%$

Rate of return on equity was  $\$16,500/\$226,600 = 7.2\%$

# “Profitability” and “Cash Flow”

The two are linked but they are not the same.

The farm had positive cash flow *and* was unprofitable.

It could have been profitable *and* had negative cash flow.

Need profitability *and* cash flow.

Profitability without cash flow → bankruptcy

Cash flow without profitability → terminal business