DAIRY FARM OPTIONS WHEN COMBATING URBAN SPRAWL

Jaimy Cass
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INTRODUCTION

- Location: Weld County, Colorado
  - Majority of Colorado dairy farms are in this county
  - Increased number of dairy cows
  - Decreased number of dairy farms

- Population
  - Colorado Population – grown 10.5% since 2000
  - Weld County Population – grown 31% since 2000
  - Urban Sprawl is becoming a major problem for local farmers
WELD COUNTY, COLORADO
BACKGROUND

- Dairies now have neighbors all around them

- Complaints about:
  - Noise
  - Odors
  - Flies
  - Traffic
  - Other farm activities

- More Restriction and Regulations that affect the farmers
GUIDING QUESTIONS IN THE RESEARCH

- What costs are being increased by urban sprawl?
- What are dairy farmer’s options when dealing with these costs?
- Of these options, what is the most profitable?
- What is the best option for the farm?
Budget Analysis

- For this study:
  - A base budget was constructed
  - It was altered to reflect the problem
  - It was altered again to reflect the alternatives

- The data for this study is from 2007

- When all the budgets were constructed they were compared using a budget analysis
BASE BUDGET

- Constructed to duplicate a dairy existing in Weld County, Colorado

- Colorado Data
  - Milk Prices
  - Cull Cow Prices
  - Cull Cow Rates/ Death Loss Rates

- The cost data was given on a per hundred weight basis of milk produced
  - Data could not be found for Colorado
  - Closest available data was for Idaho
**Base Budget**

**Colorado**
- Hay
  - $132 per ton
- Corn
  - $3.25 per bushel
- Production Per Cow
  - 22,577 pounds
- Average Milk Price
  - $14.90 cwt

**Idaho**
- Hay
  - $118 per ton
- Corn
  - $3.75 per bushel
- Production Per Cow
  - 22,332 pounds
- Average Milk Price
  - $14.00 cwt
**Base Budget**

- All costs based off Idaho costs and calculated on a per hundred weight of milk produced

- The costs included were:
  - Operating Costs
    - Feed – purchased, homegrown, grazed
    - Veterinary and Medicine
    - Bedding
    - Marketing
    - Custom services
    - Fuel, lube, and electricity
    - Repairs
    - Other operating costs
    - Interest on operating capital
Base Budget

The costs included were (cont.):

- Allocated overhead
  - Hired Labor
  - Opportunity costs of unpaid labor
  - Capital recovery of machinery and equipment
  - Taxes and insurance
  - General farm overhead

- These costs were not increased with expansion to account for economies of size
BASE BUDGET

- **Cull Cow**
  - Estimated as 30% of the herd
  - Price - $48.75 cwt (per hundred weight)
  - Average cow weighs 1,400 lbs
  - From Extension Agent in Weld County

- **Death Loss**
  - Estimated as 10% of the herd
  - Calculated the same as the cull rate
  - From CSU Master Student researching dairy cow mortality

- **Milk Prices**
  - Monthly basis
  - From Livestock Marketing Information Center
**BASE BUDGET**

- Simplifying Assumption
  - Omission of all calves in budget

- Bull calves
  - Dairies are actually losing money
  - High feed costs and low market price

- Heifer calves
  - Raised either on or off site
  - Added back into herd to replace cull and death loss cows
BASE BUDGET

Total Annual Costs

Operating Costs
Allocated Overhead
INCREASED COSTS

- Manure Removal Costs
  - Includes increased costs due to new rules and regulations regarding waste management
  - Cost was found in study of the changing structure of dairy farms
  - $0.30 per hundred weight of milk produced
**Increased Costs**

- **Death Loss Costs**
  - Includes increased costs associated with disposing of the carcasses, minimizing odor, and other obligations to avoid complaints
  - Calculated with the assistance of an expert in the field
  - This is a very difficult issue to put a dollar value too
  - To account for this a simplifying assumption was made
    - 200 pounds was added to the weight in the calculation
    - $200 \times 48.75 \text{ cwt} = 97.50$
EXPANSION

- The first option is to expand the dairy
  - From 500 to 800 head of cattle
  - Purchase 300 head of heifers
  - Take out a loan and pay only interest for first year

<table>
<thead>
<tr>
<th>Price Per Head</th>
<th>$1,895.00</th>
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</thead>
<tbody>
<tr>
<td>Number of Head</td>
<td>300</td>
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<tr>
<td>Total Cost</td>
<td>$568,500.00</td>
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<tr>
<td>Interest Rate</td>
<td>8%</td>
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<tr>
<td>Number of Years</td>
<td>7</td>
</tr>
</tbody>
</table>

- Price of Heifers – from Extension Agent in Weld County
- Loan information – from a banker in Weld County who handles similar loans
**Sell Out Option**

- The second alternative would be to shut down the dairy
  - Sell the land at market price
  - Sell the cattle to another dairy

<table>
<thead>
<tr>
<th>Sell out (Land)</th>
<th>$</th>
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<tbody>
<tr>
<td>Sell out (Cattle)</td>
<td>$</td>
</tr>
<tr>
<td>Sell out total</td>
<td>$</td>
</tr>
</tbody>
</table>

$800,000.00
$950,000.00
$1,750,000.00
DEATH LOSS ANALYSIS

- Due to cost a sensitivity analysis was constructed
- Profits are highly sensitive to the death loss
- Death loss is a risk all dairy farmers deal with
  - Cows live on concrete – very hard on their feet
  - High employee turnover
    - Lots of training is required
    - Often there is a language barrier
    - Errors during training cause cows to not be monitored as needed

- These problems can never be eliminated completely; however, improved management practices can help
DEATH LOSS ANALYSIS

Total Annual Profit for Death Loss Analysis

- Base Budget
- Expansion with Increased Costs

Death Loss 10%
Death Loss 5%
DEATH LOSS ANALYSIS

Total Annual Costs with decreased Death Loss Cost

- Operating Costs
- Allocated Overhead
**RESULTS**

- First glance, the sell out option looks best
- However, many other factors should be taken into account

- Increased costs is a major loss in profit
- Expansion completely makes up for this loss

<table>
<thead>
<tr>
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<th>Total Annual Profit</th>
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<tbody>
<tr>
<td>Base Scenario</td>
<td>$50,531.51</td>
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<td>Increased Costs</td>
<td>$44,508.65</td>
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<tr>
<td>Exp. w/ Inc Costs</td>
<td>$50,744.84</td>
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<tr>
<td>Sell out Value</td>
<td>$1,750,000.00</td>
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</table>
RESULTS

Comparing the Profit from each Alternative

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Total Annual Profit ($)</th>
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<tbody>
<tr>
<td>Base Budget</td>
<td>$41,000.00</td>
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<tr>
<td>Increased Costs</td>
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<td>Exp. w/ Inc Costs</td>
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<td>$51,000.00</td>
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<td>$52,000.00</td>
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</table>
RESULTS

Other options to help with the situation

- Environmental Quality Incentives Program (EQIP)
  - Assists farms in financing, setting up, and managing waste management programs
    - Will pay up to 50% of costs for certain practices
  - Helps farmers update their current systems to meet new rules and regulation
  - Helps decrease complaints

- Lagoon
  - Line with material to prevent it from seeping into ground water
  - Systems to keep lagoons aerated
RESULTS

- Other options to help with the situation (cont.)
  - Odor and Fly population
    - Keep corals clean, dry, and stirred up
      - Haul manure out regularly
      - Harrow the pens often
    - When spreading manure on fields
      - Turn the soil immediately
      - Helps decrease odor
RECOMMENDATION

- Remain open and expand the herd to 800 head
  - Continue to make even more profit than before
  - EQIP and other suggestions will help decrease complaints
  - The farmer keeps his way of life
  - Continually has approximately the same income each year
RECOMMENDATION

- The sell out option does look good up front
- However,
  - It is only one payment, after that there is no more income
  - The farmer loses his way of life
  - The farmer must find another source of income
  - The land value is continuing to increase, by waiting they may receive more money for the land
  - Meanwhile, the operation can continue to make a profit
CONCLUSION

○ Recommend expanding the dairy to 800 head

• Farm received approximately the same annual income as in the past

• If the situation worsens
  ○ The sell out option can be researched again
  ○ Land value is continually appreciating
  ○ The operation can always be sold at a later date
ADDITIONAL IMPORTANT INFORMATION

- This study was constructed using 2007 data
  - With the changes in the current market this study is already outdated
  - 2008 has many changes that will effect the industry
    - Fuel prices
    - Feed prices

- Colorado is currently under a no growth policy right now
  - Due to the limited market available dairies are limited to a specific quantity of milk
  - Leprino Foods is currently in the process of building a cheese factory near Greeley, Colorado to be completed in 2011
QUESTIONS?
REFERENCES


