



DAIRY FARM OPTIONS WHEN COMBATING URBAN SPRAWL

Jaimy Cass

AGEC 4960

November 3, 2008

CONTENTS

- Introduction
- Background
- Guiding Questions for the Research
- Base Budget
- Increased Costs
- Expansion
- Sell Out Option
- Death Loss Analysis
- Results
- Recommendation
- Conclusion
- Additional Important Information



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



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



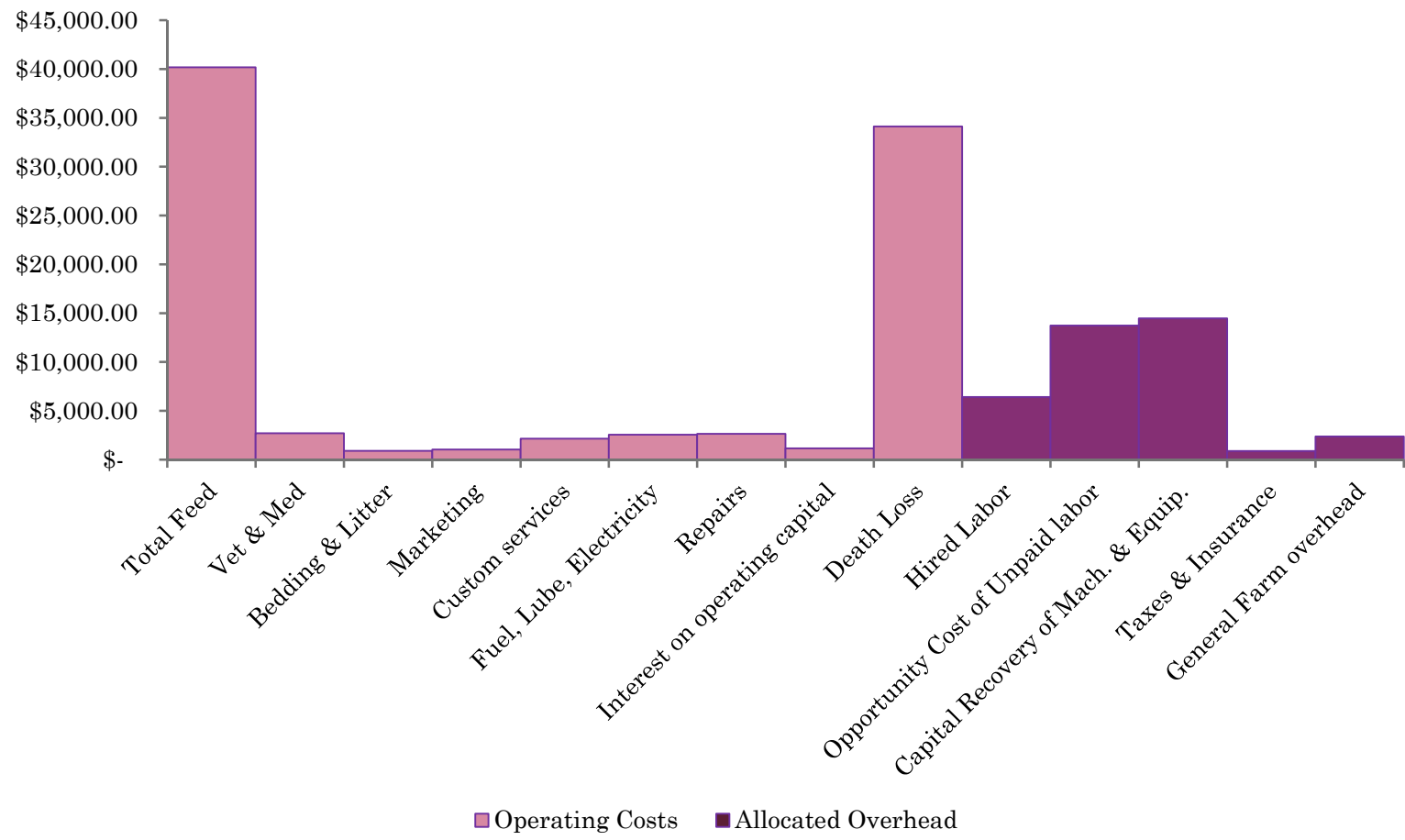
BASE BUDGET

- 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



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

Price Per Head	\$1,895.00
Number of Head	300
Total Cost	\$568,500.00
Interest Rate	8%
Number of Years	7

- 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 the land at market price
 - Sell the cattle to another dairy

Sell out (Land)	\$	800,000.00
Sell out (Cattle)	\$	950,000.00
Sell out total	\$	1,750,000.00



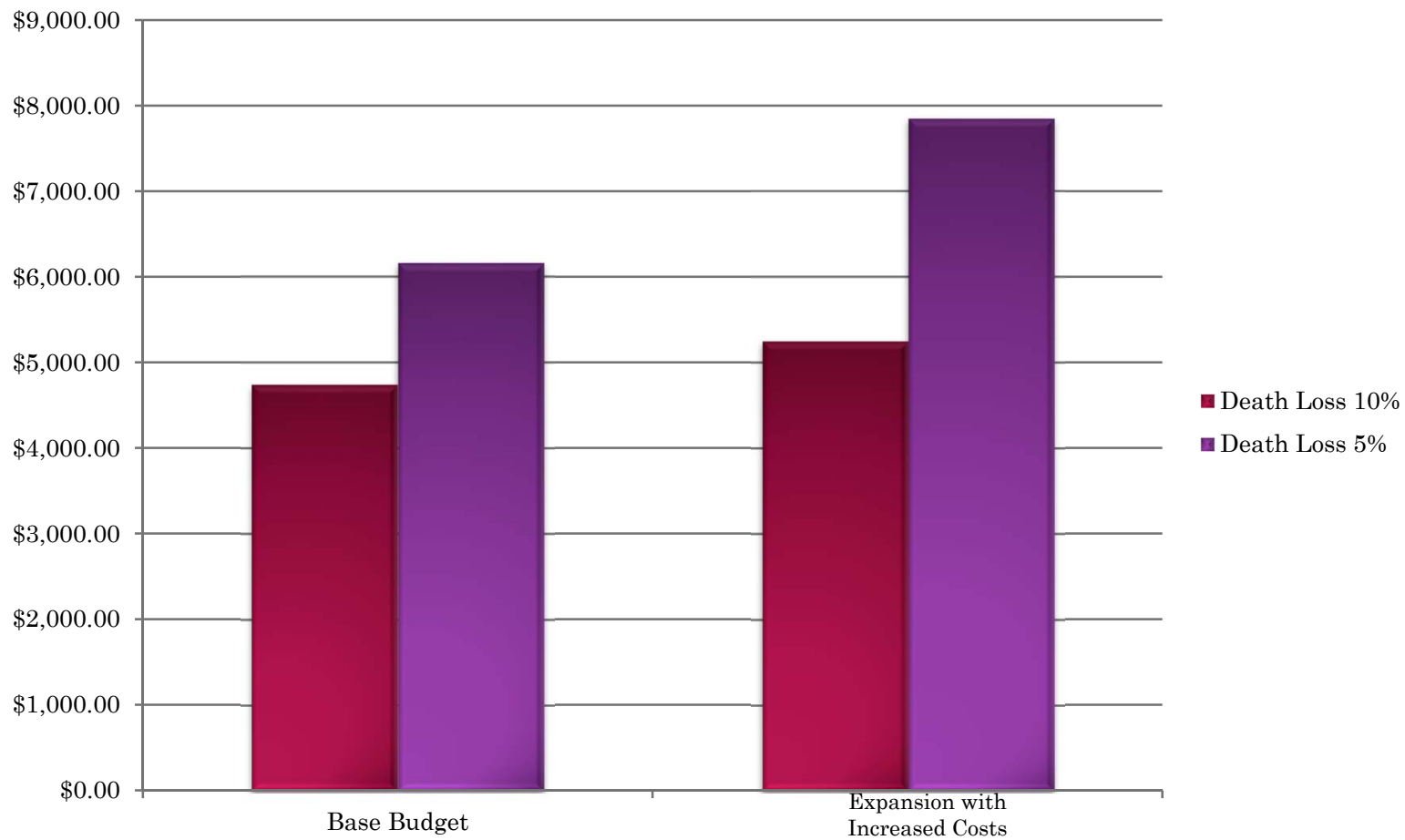
DEATH LOSS ANALYSIS

- 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



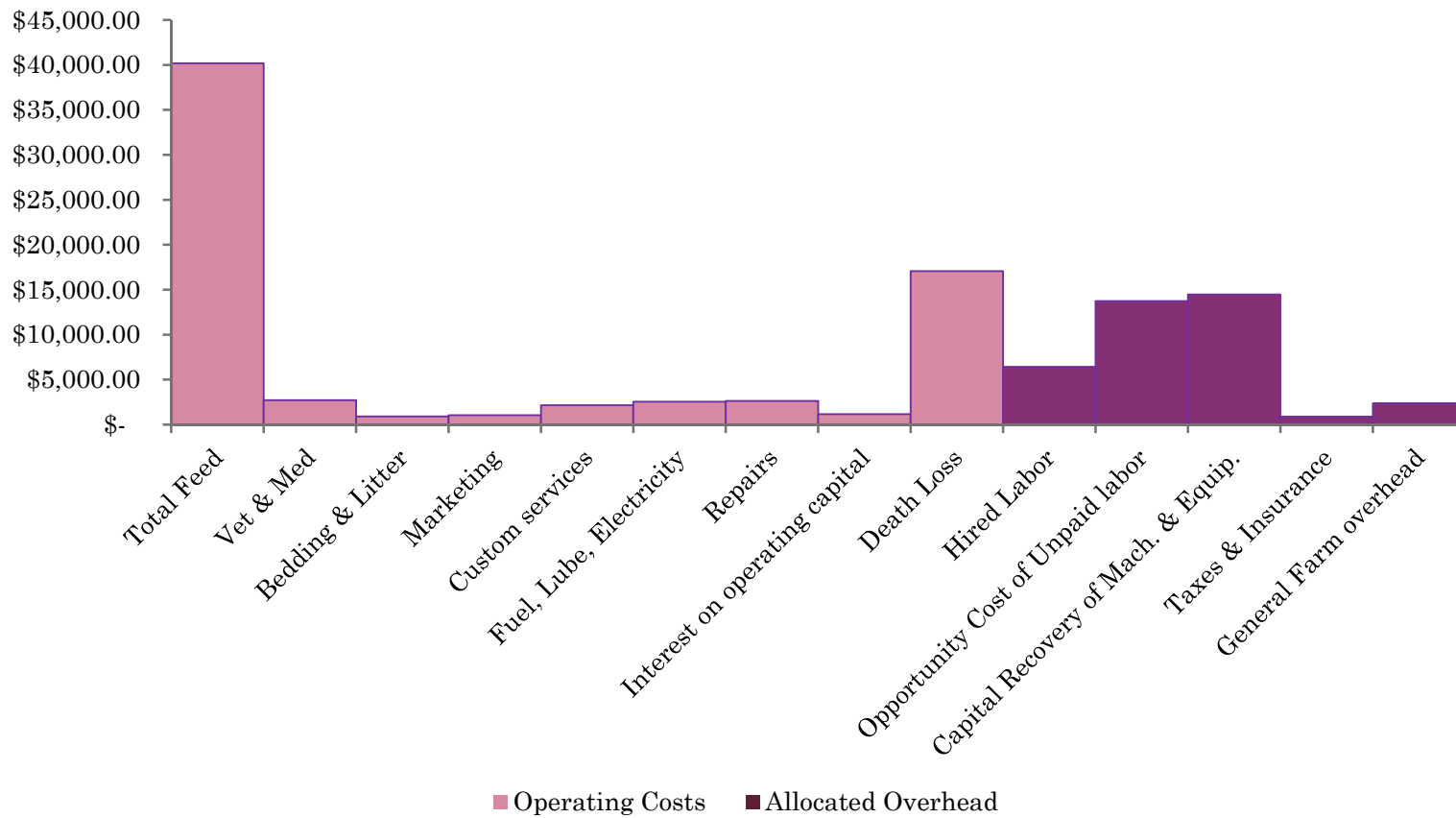
DEATH LOSS ANALYSIS

Total Annual Profit for Death Loss Analysis



DEATH LOSS ANALYSIS

Total Annual Costs with decreased Death Loss Cost



RESULTS

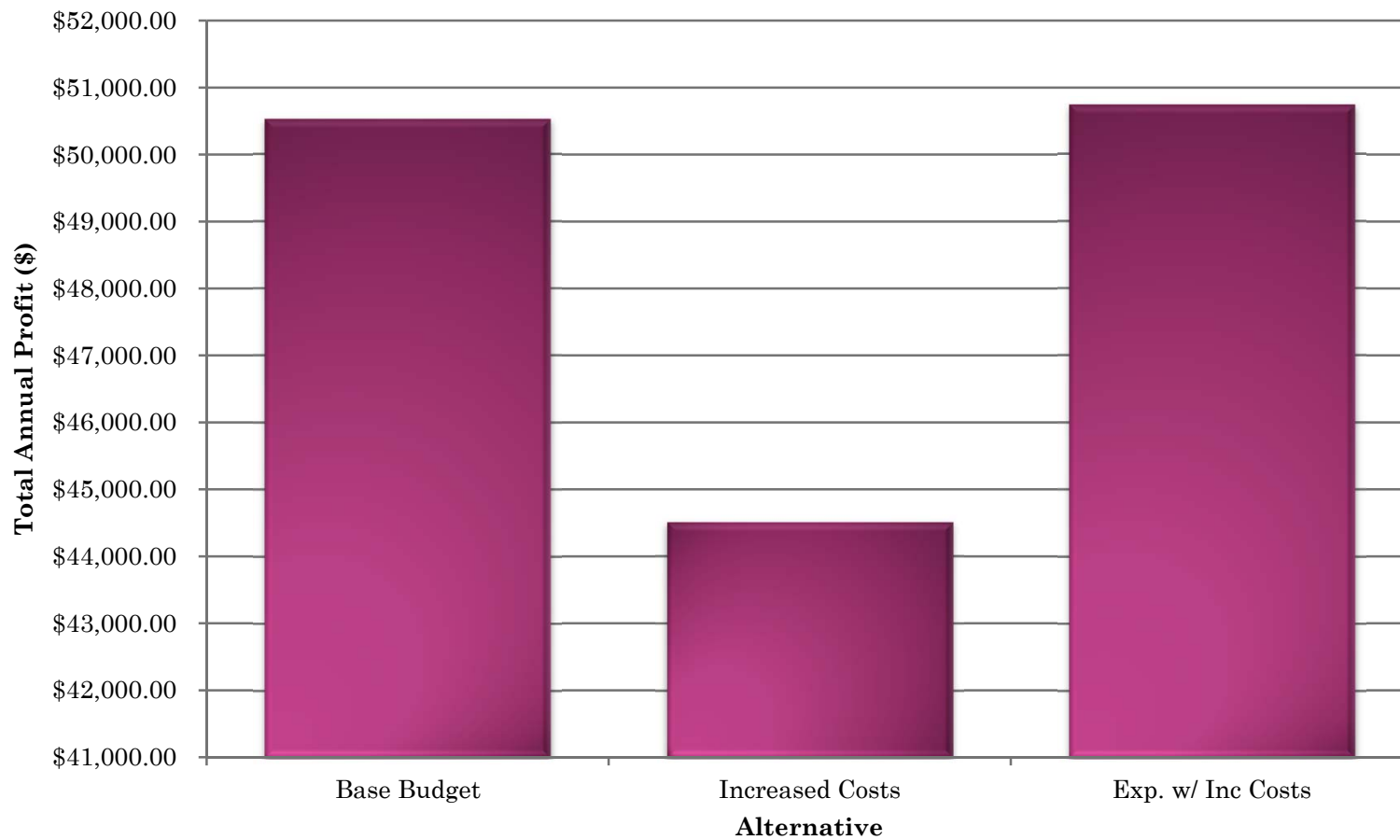
- First glance, the sell out option looks best
- However, many other factors should be taken into account
- Increased costs is a major loss in profit
- Expansion completely makes up for this loss

	Total Annual Profit	
Base Scenario	\$	50,531.51
Increased Costs	\$	44,508.65
Exp. w/ Inc Costs	\$	50,744.84
Sell out Value	\$	1,750,000.00



RESULTS

Comparing the Profit from each Alternative



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

- Cass, Karen: Mastitis Consultant, Weld County, CO. Personal Interview. 15 October 2008.
- Chapman, Forestine. (2007). *Agricultural Statistics*. Retrieved October 1, 2007 from http://www.nass.usda.gov/Publications/Ag_Statistics/2007/2007.pdf.
- Idaho, monthly dairy costs of production per cwt of milk sold, 2007*. (2008). Retrieved October 13, 2008 from <http://www.ers.usda.gov/Data/CostsAndReturns/testpick.htm#milkproduction>.
- Keith Maxey: CSU Extension Weld County-Dairy. Personal Interview. 15 October 2008.
- Loyd, Jeff: VP/ Agricultural Lending New Frontier Bank, Greeley, CO. Personal Interview. 17 October 2008.
- MacDonald, J.M., O'Donoghue, E.J., McBride, W.D., Nehring, R.F., Sandretto, C.L., & Mosheim, R. (2007). Profits, Costs, and the Changing Structure of Dairy Farming. *Economic Research Report, 47*, 27-30. Retrieved October 16, 2008 from <http://www.ers.usda.gov/publications/err47/>.
- McConnel, Craig: CSU Master student researching Dairy Cow Mortality. Personal Interview. 15 October 2008.
- Milk cows and milk production by month, Colorado, 2004-2007: Milk Production per Cow [Electronic Version]. (2008). *Colorado Agricultural Statistics, 99*.
- Monthly Fluid Grade Milk Prices (\$/CWT), by state, 1980-present (2008). Livestock Marketing Information Center. Retrieved October 16, 2008 from www.lmic.info.
- Natural resources Conservation Service, USDA (2002). Environmental Quality Incentives Program: Fact Sheet. *Farm Bill 2002*.
- Quarterly Milk Cow Prices: Animals sold for dairy herd replacement only, 1980-present (2008). Livestock Marketing Information Center. Retrieved October 16, 2008 from www.lmic.info.
- Sheffield, R.E., Ndegwa, P., Gamroth, M., & Haro Marti, M. (2008). Odor Control Practices for Northwest Dairies. *University of Idaho Extension*. Retrieved October 16, 2008 from <http://info.ag.uidaho.edu/pdf/CIS/CIS1148.pdf>.
- United States Department of Agriculture (2008). Farm Real Estate: Average Value per Acre, by Region and State, January 1, 2004-2008 [Electronic Version]. *Land Values and Cash Rents: 2008 Summary*, 6.
- U.S. Census Bureau. (2008). *State and County Quick facts: Colorado*. Washington DC: U.S. Government Printing office.

