

Farm and Risk Management FOCUS

A University of Wisconsin – Extension FARM Program Team Publication

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Greetings from the FARM Program Team!

Welcome back to the FOCUS!

In this issue of the FOCUS, UW-Madison's Ed Jesse and UW-River Falls' Brenda Boetel (who pulls double duty this issue by pinch hitting for our travelling Rami Reddy) discuss what happened in the dairy, livestock and corn markets during the harvest and early winter. They also hope to enlighten us with their insight into what the next few months will bring.

Matt Glewen continues our series on the education programs offered by the UW-Extension Farm and Risk Management Program Team. In this issue, Matt describes our Grain Marketing education program.

Arlin Brannstrom is back again! In this month's FOCUS on Management Research, Arlin discloses the results of a survey that asked producers about their recent dairy modernization projects.

In this month's FOCUS on Management Principles, Gregg Hadley describes his favorite financial performance analysis method, the DuPont Analysis, and how it may help you with your financial benchmarking projects.

We hope you enjoy this issue of the UW-Extension Farm and Risk Management FOCUS.

- Gregg Hadley
- Carl Duley
- FOCUS Co-Editors

The FOCUS wants to share your Farm and Risk Management, research, educational program, or idea with the FARM Program Team's clientele!

Call for Farm and Risk Management Articles

Are you a UW-Extension employee? Have you:

- ✓ completed an interesting farm or risk management research project;
- ✓ developed a unique farm or risk management educational program; or,
- ✓ thought of a new way to look at farm and risk management?

The FOCUS would like to hear about it!

The FARM Program Team would like to invite their UW-Extension colleagues to submit articles concerning farm and risk management research, education, or idea/program synthesis and integration. Articles should be no longer than 3 pages in length. If interested, please contact Gregg Hadley at gregg.hadley@uwrf.edu or 715-425-3188 or Carl Duley at carl.duley@ces.uwex.edu or 608-685-6256.

...there are some good reasons for optimism...

Focus on Milk Markets with Ed Jesse

After offering dismal prices most of the year, 2006 ended on a higher note for dairy farmers with the December Class III price reported at \$13.47 per hundredweight. This was the highest monthly price recorded in 2006 and \$1.58 over the annual average Class III price of \$11.89. Year-end price improvement was due to stronger prices for cheese and whey. Block cheddar cheese prices on the Chicago Mercantile Exchange averaged over \$1.35 per pound in November and December after struggling to reach \$1.20 much of the year. November-December dry whey prices (Central States) were over 41 cents per pound, nearly a dime over the January-October average. A penny increase in cheese prices elevates the Class III price by 9.6 cents per hundredweight and a penny increase in whey prices adds almost 6 cents per hundredweight.

Generally low 2006 milk prices were the result of too much milk relative to commercial use. Milk cow numbers were above 2005 in every month and milk yield per cow for the year was almost 2 percent more than 2005. More cows producing more milk per cow yielded an annual gain in milk production of 2.7 percent over 2005 while commercial use went up only 2 percent.

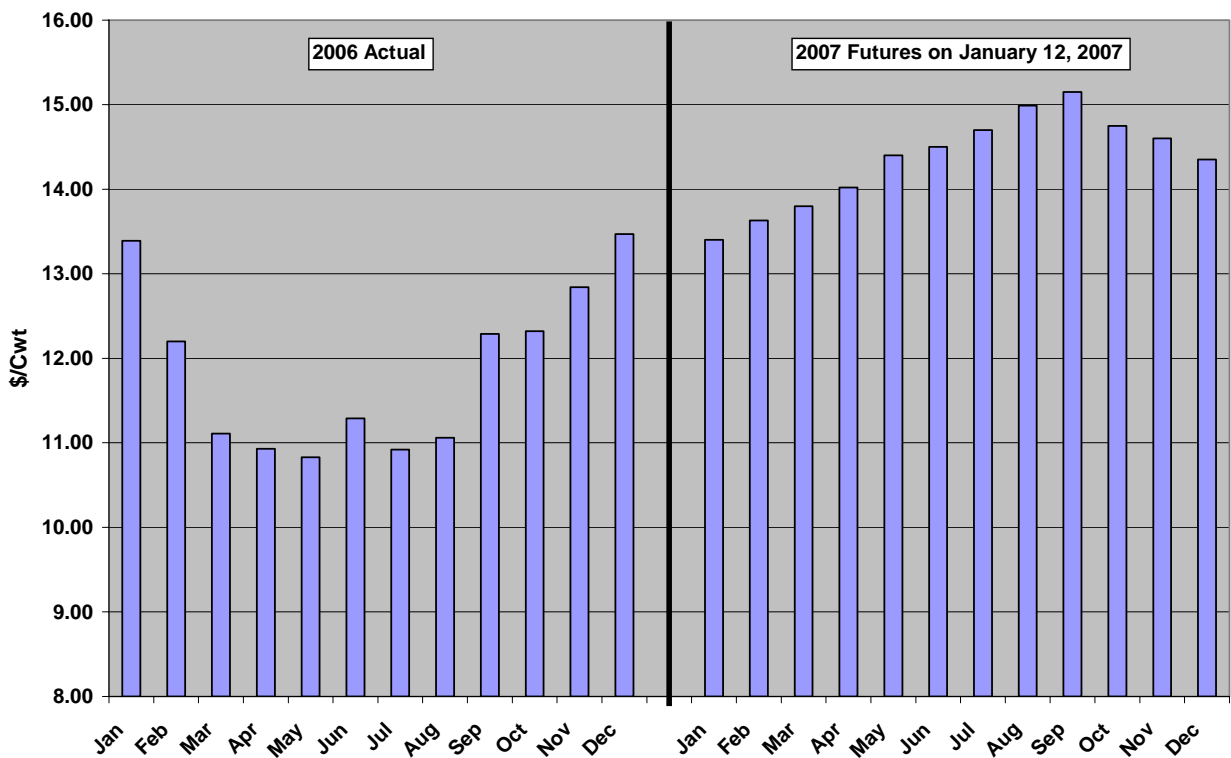
In Wisconsin, the average number of milk cows in 2006 was 1.243 million head, up 7,000 over 2005. Wisconsin milk yield per cow in 2006 was about 18,750 pounds, up 1.3 percent. Total milk production for the state was 23.3 billion

pounds, almost 2 percent over 2005 and only 1.7 billion pounds under the record set in 1988.

Early indications are for much stronger milk prices in 2007. As of mid-January, the average Class III futures price for 2007 contracts was \$14.36 per hundredweight, \$2.47 above the 2006 Class III average. While these prices appear overly optimistic, there are some good reasons for optimism. The growth in milk cow numbers is expected to slow in the first quarter and become negative later in the year. Fewer cows reflect a delayed response to very low milk prices during most of 2006 and to higher feed costs in 2007. High feed costs will also affect milk yield per cow, as rations are adjusted to control costs. More user demands for rBST-free milk may also serve to moderate the milk yield increase this year.

For the year, expect U.S. milk cow numbers to average about 0.5 percent under the 2006 average of 9.112 million. U.S. average milk per cow will top 20,000 pounds for the first time in 2007, up about 1.5 percent from last year. Total production will be up 1.0-1.5 percent for the year. That will just about match the expected gain in commercial use, leaving markets fairly well-balanced.

Class III Milk Price



FOCUS on Cattle and Corn Markets with Brenda Boetel

...what impact will the higher corn prices have on breakeven cattle prices?

Corn prices increased during harvest this last fall. In fact, since early September 2006, corn prices have increased by almost 80%. During the same time, fed cattle prices decreased by 6%. This dire situation indicates that many cattle finishers will lose money on cattle placed on feed this fall.

Increasing corn prices and decreasing beef cattle prices is not a new occurrence, however, this time the driving force for the corn price increase is not due to a poor harvest. On January 12, 2007, USDA released the *Crop Production* report that decreased the estimated total production by 210 million bushels to 10,535 billion bushels, which is still the third largest crop in history. USDA_NASS also increased exports for the marketing year by 50 million bushels and maintained its 2.15 billion bushel demand figure for ethanol production, which is up from previous years. This bull corn market is demand driven and not supply driven, a new situation and one that is not likely to change soon.

The question cattle producers need to ask is what impact will the higher corn prices have on breakeven cattle prices? Anything sold above breakeven price is profit, while anything sold below the breakeven price is a loss. The answer to the above question is relatively simple if you already know your cost of production and have information on how much corn is being used to finish the animal. In this case, simply divide the total cost of production per head by the number of pounds gained to obtain your breakeven price. How much corn price affects your own breakevens, depends on your average daily gains, feed conversions, placement weights of cattle, etc.

John Lawrence, ISU Extension Livestock Economist, examined more than 200 feedlots in the Midwest to determine what factors affected cattle feeding profitability. He found an average of 84% of the variation in profitability was due to fed cattle price, feeder cattle price, corn price, feed conversion, average daily gain, and interest rates. Corn price, which accounted for 5% of the variation, had less of an impact than feed efficiency (6%) and average daily gain (7%). Martin Albright from Kansas State University also conducted an analysis of cattle feeding profitability and found corn price accounted for a slightly greater percentage of the cattle feeding profitability than either feed conversion or daily gain. In both cases, corn price is an important factor in cattle feeding profitability.

According to Albright, depending on placement weight, corn price can account for 55 to 70% of the variability in cost of gain. (Note the cost of production and cost of gain are not the same. Cost of production includes the cost of gain, feeder cattle price, overhead, etc.) Since the largest part of the feed cost of gain is determined via the corn price, as the corn price increases, so will the cost of

gain, and hence, the breakeven selling price will increase. To compensate for corn price increases, feeder cattle prices tend to decrease. Since corn price is relatively more important for lighter weight steers as they require more grain to reach processing weight than heavier placed steers, the market tends to compensate greatest at the lower weight feeder cattle prices. This means that lower weight feeder cattle prices decrease by more than heavier weight feeder cattle prices. Although all segments of the industry are affected, cow/calf operators usually fare worse due to a greater decrease in calf prices.

To know your own breakevens and hence, potential for profit or lose, you need to know your costs of production. Going into detail on how to calculate cost of production is beyond the scope of this article; however, there are a great many websites that will give you a rough idea. Some websites calculate the estimated breakeven purchase price for feeder cattle, while others estimate the breakeven selling price for fed cattle. Table 1 shows estimated feeder cattle breakeven purchase prices for a yearling steer. The excel worksheet used to calculate these breakevens can be downloaded from John Lawrence at www.econ.iastate.edu/faculty/lawrence/Excel/CATLHAY2.xls. When you change any of the assumptions on the left-hand side, or the fed cattle selling price across the top, the breakevens automatically update with the new assumptions. A second worksheet in the excel file allows one to estimate the value of corn marketed through cattle after all costs have been incurred.

Table 1: Feeder Cattle Break Even Purchase Price for a Yearling Steer

<i>Assumptions</i>		Corn Price	Fed Cattle Selling Price				
			\$84.00	\$86.00	\$88.00	\$90.00	\$92.00
In weight	750	\$1.80	110.67	114.02	117.37	120.72	124.07
Out weight	1300	\$2.00	108.89	112.24	115.59	118.94	122.29
Target ADG	3.2	\$2.20	107.11	110.46	113.81	117.15	120.50
Death loss	0.75%	\$2.40	105.33	108.68	112.02	115.37	118.72
Corn (bu)	68	\$2.60	103.54	106.89	110.24	113.59	116.94
Hay (ton)	0.35	\$2.80	101.76	105.11	108.46	111.81	115.16
Hay Price (\$/t)	\$70.00	\$3.00	99.98	103.33	106.68	110.02	113.37
Supplement (\$/t)	\$10.00	\$3.20	98.20	101.55	104.89	108.24	111.59
Interest	0.075	\$3.40	96.41	99.76	103.11	106.46	109.81
Yardage	\$0.25	\$3.60	94.63	97.98	101.33	104.68	108.03
Vet-Med	\$8.00	\$3.80	92.85	96.20	99.55	102.90	106.24
Trucking	\$11.00	\$4.00	91.07	94.42	97.76	101.11	104.46
Other	\$5.00	\$4.20	89.29	92.63	95.98	99.33	102.68
Target Return	\$0.00	\$4.40	87.50	90.85	94.20	97.55	100.90

Your own variability in cost of gain due to corn will vary from the assumptions made by any calculator. Nevertheless, these calculators can give some insight into breakevens. For example, by holding all assumptions constant, including the final fed cattle price, while allowing corn price to increase by \$1 per bushel increase in corn price, the calculator at John Lawrence's site shows a decrease of \$8.91 per cwt in the breakeven purchase price of a yearling steer (as shown in Table 1) and a \$13.16 per cwt decrease in the purchase price of a steer calf (this table is not shown). On the other hand, if we hold the feeder cattle price constant as well as all other assumptions, the \$1 per bushel increase in corn price, requires an increase of \$5.87 per cwt for yearling steer that was fed, and an increase of \$6.67 per cwt for the steer calf. Although your breakevens may change by different amounts, these calculators give a pretty good estimate. The

more accurate your calculation of cost of production, the more accurate and useful the breakevens will be for your business. By having accurate breakeven predictions, cattle feeders can more accurately hedge or forward contract their cattle. Knowing a group of cattle's breakeven also gives cattle owners much more buying power.

References:

Albright, Martin, M. Langemeier, J. Mintert, and T. Schroeder. *Factors Affecting Cattle Feeding Profitability and Cost of Gain*. In Beef Cattle Handbook.
Lawrence, John. *What affects cattle feeding profitability?* at the following website:
<http://www.extension.iastate.edu/agdm/articles/lawr/LawrFeb97.htm>

*...to enable the participants
to make better grain
marketing decisions.*

FOCUS on Farm Management Education with Matt Glewen

GRAIN MARKETING CURRICULUM

Through a joint effort of the UW-Extension Grains Team and the FARM Team, a very comprehensive grain marketing curriculum has been developed. The goal of this program is to enable the participants to make better grain marketing decisions. The materials are designed to be taught over the course of three 4-hour days. Nevertheless, the material can easily be adopted to be taught in smaller modules. The curriculum assumes little or no previous grain marketing experience.

The curriculum is designed to be taught in an “interactive” mode. Each of the chapters includes teacher’s notes as well as exercises for participants to work through in small groups.

An important feature of the curriculum is a cost of production exercise. This exercise allows participants to learn the cost of production for each of the grain crops on their individual farm. The cost of production exercise uses a “new” system that takes into account all crop production related costs on a farm and then assigns them to different crops based on a specially developed formula.

The grain marketing curriculum has been used successfully in over a dozen Wisconsin counties since it was introduced in 2005. The complete set of grain marketing curriculum materials are available on the Dairy Center for Profitability web site (cdp.wisc.edu).

FOCUS on Management Research with Arlin Brannstrom

... most producers are very positive about their modernization experiences ...

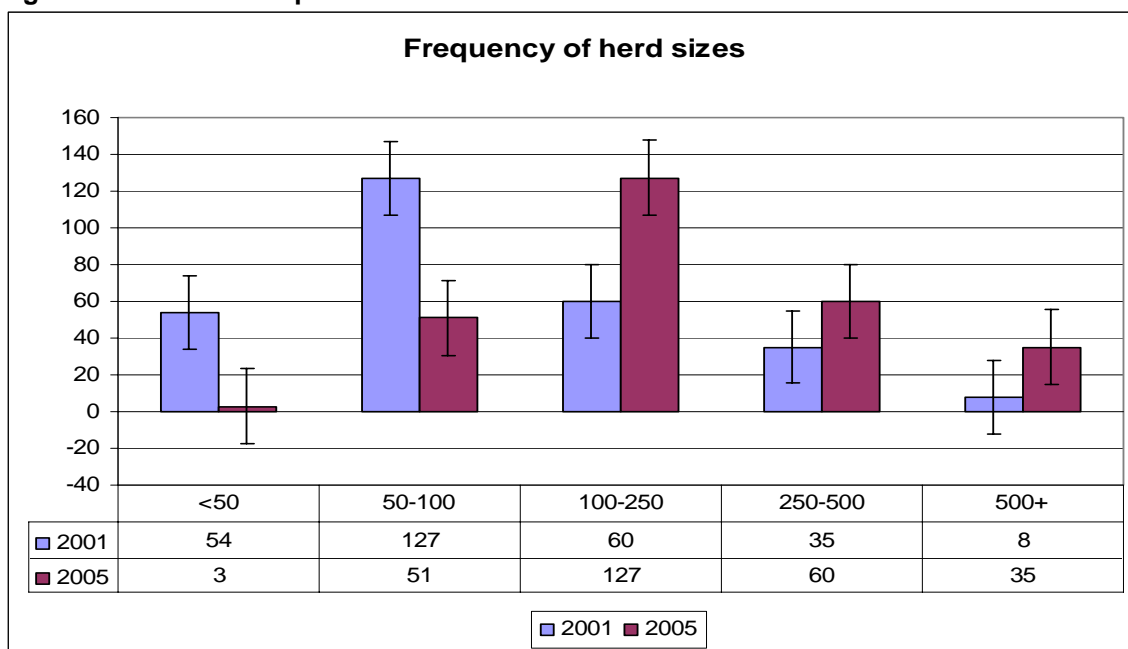
What Dairy Producer’s Say about Dairy Modernization

Introduction

Wisconsin dairy farms have been evolving rapidly in recent years. Unlike western dairies, the Wisconsin dairy sector is still comprised of relatively small farms owned and managed by family members from up to three generations. More than 10,000 Wisconsin dairies are still milking in stall barns. Things are changing quickly, however. Wisconsin dairy producers are constantly making investments in new and more efficient facilities and equipment. In Spring 2006 the Center for Dairy Profitability conducted a survey of Wisconsin producers to learn which production practices are being used most frequently and to measure producer satisfaction with their modernization experiences.

This survey focused on Wisconsin AgSource producers whose average herd size (from AgSource production records) had increased by at least 25% between 2001 and 2005. Surveys were mailed to 660 Wisconsin producers, and 280 usable responses were collected. This survey is a continuation of dairy herd modernization survey work conducted by Dr. Roger Palmer and Jeff Bewley in 2000

Figure 1. Herd size frequencies 2001 & 2005.



In 2001 the average herd size of the survey respondents was 134.5 cows. By 2005 the average has grown to 239 cows per farm, and the projected average size in 2011 will be 395 cows. Sixteen percent of the respondents expanded their herds without making modifications to their existing facilities, while 14 percent built all new facilities. The remaining 70 percent said they have expanded by using a combination of existing and new facilities.

Table 2 lists the expansion methods used and the overall operator satisfaction measures reported.

Table 2. Expansion methods used.

Production Data From Dec 2005	Cows Only	All New Facilities	Combination of old and new	Total or Ave.
# of observations	47	36	187	270
Herd Size 2001 # of Milking Cows	102	211	129	136
Avg Number of Cows 2003	234	242	220	225
Avg Number of Cows 2005	293	313	276	284
Personal Satisfaction (scale 1 low -5 very high)	3.79	4.00	4.01	3.97
Std. Dev. of Personal Satisfaction	1.12	0.96	0.85	0.92
Satisfaction with time away from farm	2.70	3.42	3.26	3.18
Std. Dev. Time away from farm	1.33	1.40	1.19	1.27

In December of 2005, the largest number of herds was in the 100-250 cow range. Within this sample many producers said they are likely to increase herd sizes by 50% or more in the next five years.

Figure 3. Variance of overall modernization satisfaction levels.

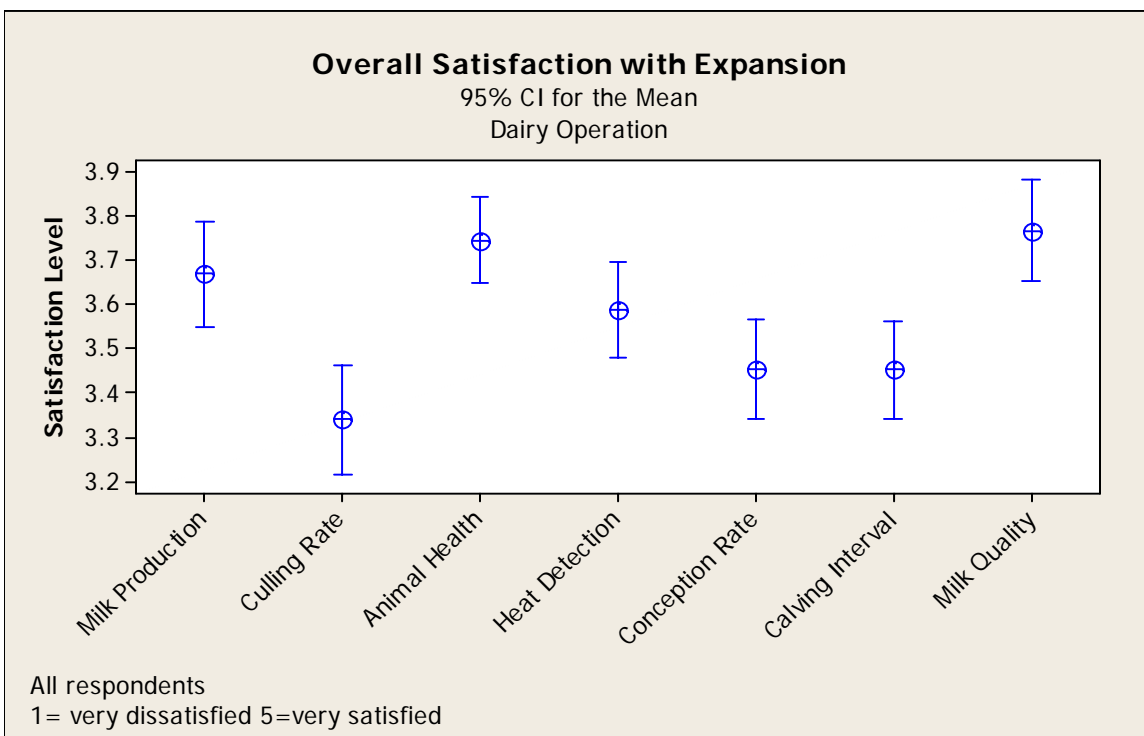


Figure 3 displays the means and confidence intervals for the producers' overall satisfaction with their post-modernization production and animal health measures. The mean satisfaction levels with herd culling rates were significantly different from milk production, heat detection, animal health and milk quality at a 95% confidence level. Mean satisfaction levels were not significantly different between culling rates, conception rates and calving intervals.

Figure 4. Variance of overall satisfaction with modernization.

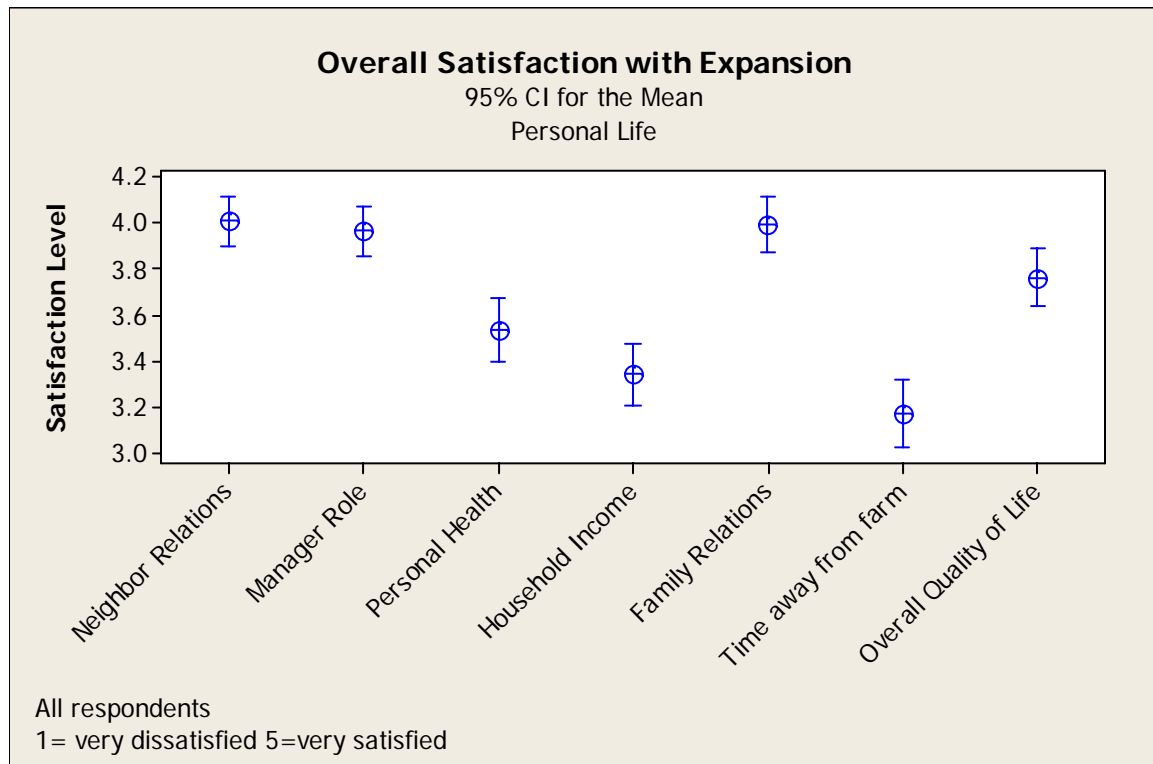


Figure 4 displays the means and confidence intervals for the managers' post-modernization quality of life satisfaction scores. Neighbor relations, family relations and the manager's role were all significantly higher than satisfaction with personal health, household income and time away from the farm.

Open-ended questions

Three open-ended questions were asked at the end of the survey. 1) What was the best choice made in your expansion? 2.) What was the worst choice made in your expansion? 3.) Knowing what you know now, what advice would you give other producers?

The most often mentioned positive modernization feature was the parlor. Sixty-seven producers mentioned the parlor or related attributes. Eleven farmers specifically mentioned retrofitted parlors as their best choice. The next most often mentioned expansion choice was freestall barns with fifty-two responses referring to new barns and/or sand bedding. References to increased labor efficiency and

flexibility were made in 16 surveys. Several producers sited increased efficiencies in feeding and manure handling.

Construction problems were the most frequently mentioned problem areas. Sixty-eight surveys mentioned various problems encountered during the construction of new facilities. Nine specifically mentioned parlor costs and design issues as problems, and six said they built too small. Two producers had problems with contractor bankruptcies and five reported a poor contractor experience. Communicating with contractors before and during the construction phase can be critical to the success of the project. A few respondents suggested withholding the final payment until all work is done. To be fair, other respondents specifically mentioned their positive experiences working with building contractors and consultants.

Twenty-nine producers mentioned business planning and communication problems. Six felt they had waited too long to modernize and four felt they now had limited future expansion room. A few farmers cited budget constraints and budget over-runs. Three producers mentioned inter-personal communication problems.

The most common advice for others considering expansion was: "Visit lots of farms." This advice was given thirty-eight times. As a group, producers are very willing to share their modernization ideas and experiences. Many other suggestions were included, but none was repeated as frequently.

The full questionnaire asked many additional questions regarding herd health, milking systems and feeding to name a few. The complete modernization survey results can be downloaded from the papers and publications section of the CDP website at <http://cdp.wisc.edu>.

Conclusions

Dairy herds in this survey range in size from less than 50 cows to more than 2,000 cows. Although their operations vary in size, most producers are very positive about their modernization experiences and are planning to stay in the business for the foreseeable future. It is unlikely that they will be selling the business in the next five years or decreasing their cow numbers. Of the 255 who answered this part of the questionnaire, 94 (37%) felt it was likely or very likely that they would expand by at least 50% in the next five years, and 45 (18%) felt it was likely that they would increase their present herd size by at least 100%. Clearly, pressures to modernize will continue in the future.

FOCUS on Management Principles with Gregg Hadley

... getting to the root of farm financial performance problems

The DuPont Analysis: Making Benchmarking Easier and More Meaningful

Conducting a farm financial performance or financial benchmarking analysis can be daunting to those unaccustomed to doing them. If we are lucky enough to have the minimum number of financial documents needed to conduct a meaningful financial analysis (both beginning and ending balance sheets, either an actual accrual or accrual adjusted income statement, and a statement of cash flows) – we are then inundated with pages and pages of intimidating numbers to sort through.

This gives many managers and advisors a justification to not give their financial records anything more than a passing glance. This is unfortunate. A good financial performance analysis should do more than inform about how a farm performed in the past. More importantly, it should provide the manager and advisor with insight regarding how to prioritize activities that will enable the farm to improve its financial performance.

In this article, I would like to present my preferred method of financial performance analysis, the DuPont Analysis. Notice that I wrote *“my preferred method.”* It is an important distinction as there are many methods of financial analyses, and, unfortunately, none are perfect. All financial performance analysis methods have their strengths and weaknesses. Nevertheless, I prefer the DuPont Analysis because, in a relatively short amount of time, the manager or advisor can determine if they need to emphasize price, yield, asset utilization, and/or cost efficiency issues in order to improve farm financial performance.

The DuPont Analysis links a farm’s Rate of Return on Assets (ROROA) to two other ratios, the Asset Turnover Ratio (ATO) and the Operating Profit Margin (OPM)¹ by the following equation:

$$\text{ROROA} = \text{ATO} * \text{OPM}.$$

Please note, because the DuPont Analysis is asset-based, it is important that the same asset valuation method (cost basis, agricultural use market value, or pure market value) be used for both the farm and the benchmark standards. This doesn’t mean that each similar asset has to carry the exact same value to have a

¹ ROROA = [(Net Farm Income from Operations + Interest – Unpaid Labor)/(Average Total Farm Assets)]*100%

ATO = (Gross Farm Revenues or Total Farm Income)/(Average Total Farm Assets)

OPM = [(Net Farm Income from Operations + Interest – Unpaid Labor)/(Gross Farm Revenue or Total Farm Income)]*100%

meaningful analysis. Nevertheless, it does mean that overall appraisal method used to value the farm and benchmarks should be the same. For example, you want to avoid comparing a farm that uses a cost basis approach of valuing assets with a benchmark standard that uses a pure market value approach.

When comparing a farm to benchmark performance values, if a farm's ROROA is low because of a low ATO, the manager or advisor knows that the performance differences are due to price, yield, or asset utilization issues. If this were a dairy farm, the manager or advisor would then want to compare such measures as the average milk price received, milk shipped per cow, and assets per cow. The manager or advisor would then prioritize correcting the problem area(s). For example, if a dairy farm manager determined that the ATO was low due to average milk price received, then the manager knows that he or she should prioritize actions that will help improve milk price (better market planning, better milk quality, better components, etc).

If, however, the low ROROA was caused by a low OPM, then the manager or advisor knows that the difference was caused by cost efficiency issues. The manager or advisor of a dairy farm would then want to compare the farm's cost items (feed, veterinary, fertilizer, labor, repairs, depreciation, interest, etc) with those of the benchmark. The comparison should be done on a per hundredweight, hundredweight equivalent or, better still, as a percentage of gross farm revenue or total farm income. If, for instance, the manager discovered that the farm's repair expenditures as a percentage of gross farm revenue were too high, the manager should investigate, among others, such things as buying/leasing newer equipment, improving their operator training program, and/or examining their maintenance protocols.

Of course, there are times when the ROROA is low due to both ATO and OPM issues. Nevertheless, by following the previously mentioned procedures, the manager or analyst can determine which price, yield, asset utilization, and cost efficiency items would have the biggest impact of farm financial performance and prioritize their farm activities accordingly.

If you have not used the DuPont Analysis when doing a financial performance analysis, I encourage you to give the method a try. I believe you will find it very efficient at getting to the root of farm financial performance problems.