

# Farm Management Strategies to Reduce Costs and Increase Returns

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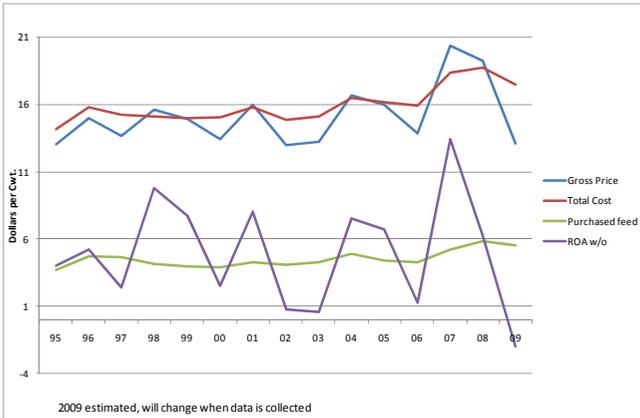
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## ■ Take Home Messages

- ▶ Timely, accurate, and detailed records are necessary to analyze your business
- ▶ Formal business analysis provides information necessary to improve performance
- ▶ Working through a formal problem solving process improves outcomes.
- ▶ Comparing multiple solutions/changes is critical in decision making
- ▶ Net milk income over feed costs is the key performance index for tracking and managing the feeding program
- ▶ Investment balance is key to maximize profits

Managing a dairy farm in today's environment poses challenges that were not major areas of concern in the past. Increasing variability of input and output prices, new technologies, national and international markets, increasing regulation, and changing consumer habits all lead to increasing variability in farm profits. Figure 1 highlights selected factors over the last 15 years from New York State.



**Figure 1. 15 Years of Variability, DFBS Farms, New York State, 1995 - 2009**

With this increased variability in farm profits, there is an increasing emphasis on business management strategies to maximize profits of the dairy business over time. As complex as dairy farms are, with managers needing to be financial experts, animal care specialists, weather forecasters, crop producers, employee managers, projectors of future markets, etc., there are many areas that impact the overall business profitability.

Four key management strategies that have impacted farm profitability over time are the following:

- ▶ 1. Analysis
- ▶ 2. Problem Solving
- ▶ 3. Net Milk Income over Feed Costs
- ▶ 4. Investment Balance.

The following discussion will provide further insight into the specific management area and how it influences farm profitability.

## ■ Analysis

Businesses that understand and track their performance are more successful than businesses that don't. Tracking business performance is more than looking at how much cash is left in the checkbook at the end of the month or how much net worth has changed over time. It is looking at key ratios and trends, understanding what impacts those ratios, and asking the question "why" when things are different -- better or worse -- than expected.

The first step in analysis is having financial and production records necessary to provide basic information. These records can be thought of as “TA-DA”.

- ▶ Timely
- ▶ Accurate
- ▶ Detailed
- ▶ Accessible

The second step is preparing consolidated financial statements for the business, comprised of the following:

- ▶ Income statement
- ▶ Balance sheet
- ▶ Statement of cash flow
- ▶ Statement of change in owner equity

These four statements tie the pieces of the business together and present an accurate picture of what has happened over the year. This snapshot can be compared to past trends, goals, and industry standards to help identify areas to emphasize, change, or discontinue.

Without formal business analysis, there is no accurate picture of the business. There are no accurate trends, and we don't know the answers to the following questions.

- ▶ What are the key ratios doing within my business?
  - Is the return on equity (market value) 10% or greater over time?
  - Is net worth increasing faster than inflation through business operations?
  - Is return on all capital (assets) greater than the cost of borrowed capital?
- ▶ Did decisions and changes work?
- ▶ Is progress being made?

The first step in using farm management strategies is to have records in a format that can be used to analyze the business and identify areas of opportunities. The second step is to actively engage in problem solving.

## ■ Problem Solving

The second key management strategy used on farms to lower costs and improve returns is problem solving. How well problems are identified and

addressed changes business performance over time.

Problem solving is constantly occurring on dairy farms, whether formally or informally. To improve the problem-solving process, thinking about the formal process and spending time behind the desk can improve outcomes for both planned changes and those that occur due to unexpected events.

There are six steps to the problem-solving process

1. Identification
2. Diagnosis
3. Generating Alternatives
4. Decision Making
5. Tactical Planning
6. Control

## **Identification**

The question to be answered is “What is wrong?” This can also be phrased as what is the limiting factor today? To answer this question we need to look at records and information, compare performance to expectations/goals, and recognize what impact internal and external factors have on the problem or area of opportunity. When managing for profit and profit growth, looking at financial performance and records should be a key step in all identification procedures.

## **Diagnosis**

Once a problem or an opportunity has been identified, the areas that make it a problem or opportunity need to be identified. Symptoms of problems usually are what generate the flags in our records system, trend analysis, and benchmarking. To avoid treating symptoms, it is important to ask why something is happening to get at the nature or causes of the problem. You want to dig down to the root.

## **Generating Alternatives**

Once the underlying issue(s) are clearly identified, potential solutions can be determined. Brainstorming, or generation of potential solutions, comes up with as many different ways to solve an issue as possible. This is an opportunity to look at nontraditional ways of doing things and approaches that will have long-term impacts on the business. It is important to look beyond what might be the easiest or quickest solution, especially when it is a crisis. Don't evaluate ideas as they are generated as this may limit the number presented.

## Decision Making

Decision making utilizes criteria to determine which alternative is the best one. There are no right or wrong decisions, only best decisions for the current situation. Criteria centered on earnings and profit growth are important in deciding which alternative is best as you want to focus on the best use of limited resources along with decisions that are consistent with the goals and mission of the business. Below is a partial list of potential criteria to use to determine which alternative to pick. Criteria used to compare alternatives will vary based on the business and the opportunity being analyzed.

- ▶ Management time required to implement
- ▶ Management time required to maintain
- ▶ Labor acceptance
- ▶ Capital required
- ▶ Will the decision cash flow
- ▶ Excess cash generation short term
- ▶ Risk of not working
- ▶ Highest ROA
- ▶ Lowest cost
- ▶ How fast will results be seen

## Tactical Planning

Tactical plans are specific detailed actions taken to implement the chosen alternative. What needs to be done, who will do it, when will it get done, and how will it be done are key questions to answer. A decision made and not properly implemented is the same as making no decision which results in no formal change.

## Control

Control is a key step in the whole problem-solving process because it deals with success of the process. Did the alternative work? There are four steps to the control process.

1. Setting goals and standards
2. Measuring, collecting, recording, and reporting information
3. Evaluating and interpreting the information
4. Taking action
  - Problem-solving process
  - New tactical plans
  - New objectives/goals

## ■ Common Pitfalls In Problem-Solving Process

- ▶ Biased view of signs of problem
- ▶ Not having defined objectives/goals
- ▶ Blaming external factors
- ▶ Solve symptoms, not root causes
- ▶ Incomplete or biased information
- ▶ Only look at technical causes
- ▶ Lack of creative solutions
- ▶ Failure to solicit input from others
- ▶ Rule out solutions because of bias
- ▶ Not related to objectives/goals
- ▶ No systematic approach
- ▶ Go on “gut feeling”
- ▶ Keeping plans to oneself
- ▶ Not writing plans out
- ▶ Missing some important details

Adapted From: Managing For Success: A Workshop for Dairy Farm Managers, A.E. Ext 89-20, Department of Applied Economics and Management, Cornell University

## ■ Net Milk Income over Feed Costs

The third key farm management strategy – net milk income over feed costs - is directly related to the control process, which is the last step in problem-solving. How well are we tracking changes that have been made? How well did we determine if we need to make a change? These are the basis of the third key management strategy.

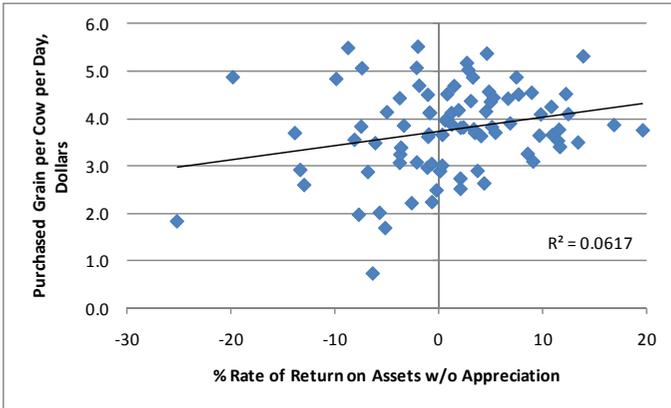
The largest expense on dairy farms is feed, and feed also has the largest impact on a cow's output. How we track the performance of the feeding program, and react to that, impacts a dairy's profits.

The first question when thinking about the feeding program is what information should be tracked to provide measures of performance. Feed costs include both purchased and grown feed on most Northeast dairy farms. Since purchased grain can be easily tracked, it is the primary feed expense that is analyzed. With financial performance in mind, the following are some of the traditional measures used to track purchased costs associated with the feed program.

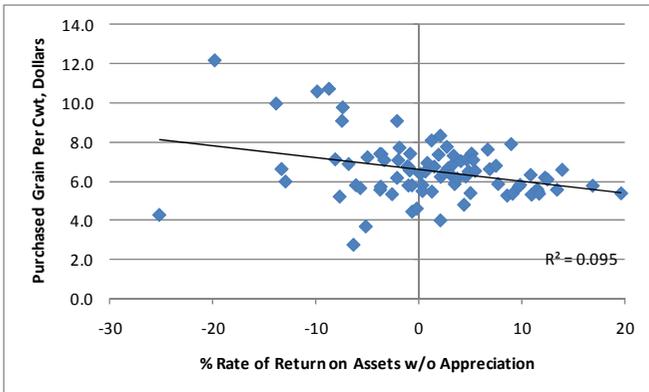
- ▶ Cost per cow per day
- ▶ Cost per cwt
- ▶ % of milk sales used to purchased grain

- ▶ Net milk income over purchased grain per cwt
- ▶ Net milk income over purchased grain per cow

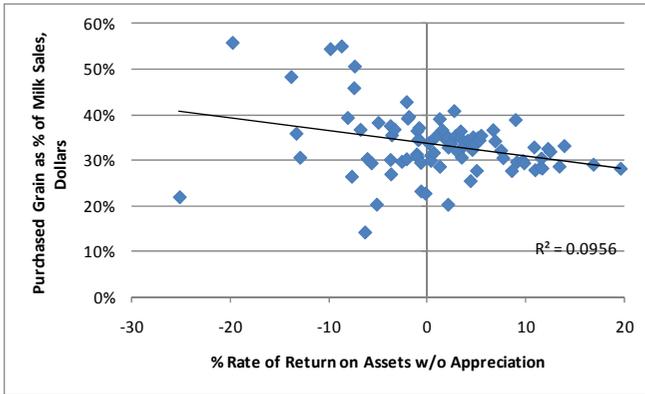
The following figures look at the relationships between the particular purchased feed cost measure and profits, with a simple r-squared calculated for each.



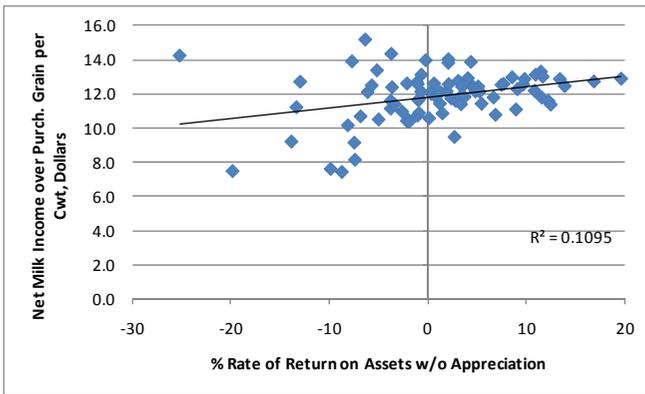
**Figure 2. Purchased Grain per Cow Per Day vs ROA, 85 New York Farms, DFBS, Raising No Grain, Not Grazing, 2008**



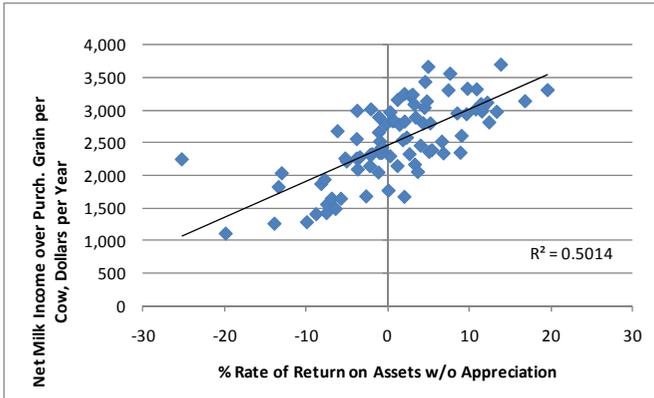
**Figure 3. Purchased Grain Per Cwt vs ROA, 85 New York Farms, DFBS, Raising No Grain, Not Grazing, 2008**



**Figure 4. Purchased Grain as % of Milk Sales vs ROA, 85 New York Farms, DFBS, Raising No Grain, Not Grazing, 2008**



**Figure 5. Net Milk Income over Purchased Grain per Cwt vs ROA, 85 New York Farms, DFBS, Raising No Grain, Not Grazing, 2008**



**Figure 6. Net Milk Income over Purchased Grain per Cow/Year vs ROA. 85 New York Farms, DFBS, Raising No Grain, Not Grazing, 2008**

Net milk income over purchased feed costs (Figure 6) consistently shows a higher correlation to overall farm profitability than any other measure. This measure represents the money on a per cow basis that is left over to cover all other expenses on the farm. The goal is for this measure to stay the same or go up over time. There are several key areas that drive this number, and these should be the focus of the management team.

- ▶ Milk output
- ▶ Milk price
- ▶ Feed costs
- ▶ Feed efficiency (feed conversion)

By understanding how these numbers are changing, how they relate to each other, and what influence they have on the net milk income measures, a dairy can be on the road to improving profitability over time.

■ **Investment Balance**

The last management strategy is investment balance. With increasing farm size and the availability of new technology, investments and how the different areas of the business relate to each other play a significant role in determining total business profitability and success over time. Investment balance should be a cornerstone of strategic and operational planning for progressive dairy operations.

**Table 1. Areas of investment on a dairy farm**

Dairy Cows	Nonproductive Land
Replacement Animals	Manure Storage
Cow Facilities	Crop Production Equipment
Replacement Facilities	Manure Handling Equipment
Milking Facilities	Labor
Specialized Needs Facilities	Middle Management
Tillable Land	Senior Management

## ■ Investment Balance Defined

The business investment is in balance when all investments are being utilized at 95 to 105 percent of economic capacity. Economic capacity can be defined as the level of usage that generates the highest or maximum economic return for that particular investment, based on the interactions with all the other business investment areas.

## ■ Business Performance and Investment Balance

Business profitability is the primary indicator of business performance. The year-end summary of profitability represents the total business activity during the year from all investment areas.

The primary measure of business profitability is the rate of return to assets. This measure is calculated by dividing the return to all capital by the average market value of assets owned by the business. Return to all capital is determined by subtracting the opportunity cost for owner and family labor from net farm income, and then adding interest paid on debt. This measure evaluates overall business performance, which includes all the above investment areas.

Each of these areas may or may not be contributing to total profit but is utilizing assets. When each investment area is generating the maximum profit possible, then the rate of return is maximized for the total business. Even if only one investment area is not maximizing profit, the total business cannot attain maximum profit.

A second way to look at this concept is to think about equal marginal returns when selecting how much capital to allocate to multiple areas of investment. The business manager first allocates capital to the investments that generate the greatest return. Once the return on that investment area falls below

returns from other investment areas, the manager stops investing in that area and starts investing in the areas that now have the greater return. This cycle continues until one of two points is reached:

- 1. When the return is the same for the additional investment area, regardless of where it is invested. Investments continue in order to keep the business as close as possible in balance.
- 2. When returns no longer exceed the costs and the marginal return is the same in each area of investment. At this time all additional investments are discontinued. Profits to the total business are maximized at the point where the return generated from an additional investment is equal, regardless of the investment area.

## ■ Operational Planning and Investment Balance

Operational planning focuses on the day-to-day operations of the dairy and short-term investment decisions to maximize current operations. When a business manager utilizes the investment balance concept in operational planning, the first question is this: What areas of the business are not running at economic capacity? That is the investment area that is either not fully utilized, has too much or too little invested in it, or is stretched to the point that it limits performance in other areas of the business.

All the investment areas are interrelated, and the economic capacity of one area may be overtaxing or not supporting another area. While it is easy to look at maximum capacity of a different investment, this may not be the economic capacity of the investment. For example, there is a maximum number of cow milkings that a parlor can handle in 24 hours when there is no prep routine and the maximum number of people is placed in the parlor. While this will be the most milkings, it may not be the economic capacity of the parlor. If the cost associated with the maximum number of milkings offsets any income gained and decreases the profitability of the parlor investment, then the parlor isn't at economic capacity.

Once the economic capacity for a particular investment area is determined, then the question becomes: How does this capacity relate to other investment areas and their corresponding capacities?

Investment balance means that all areas of the business are running at economic capacity. If the economic capacity of the milking center can handle more cows, but there is not sufficient number of cows, land, buildings, labor, and management to milk more cows, then the dairy is over invested in the milking center and maximum profitability is not being attained. Operational planning will focus on how to get the business back into balance and determine which investments will be utilized at different capacities.

## ■ Strategic Planning and Investment Balance

Strategic planning focuses on where the business is going and what opportunities and threats it will face in the future. Investment balance plays a key role in strategic planning and can either help or hinder the progress of the business.

When a major change is undertaken within a business, the management is intentionally knocking the business out of balance and then working to get the business back into balance in order to maximize profits at a new level. Critical management decisions and planning must be made in order to determine which areas to invest in, or to get out of balance, first, second, etc. An important factor in this decision-making process is which factors will have the least impact on the ability of the dairy to succeed while out of balance and come back into balance again.

A new investment that is made but not used at economic capacity, maximizing the return for the business, will decrease the overall rate of return of the business. If the actual use of the investment is considerably different than economic capacity, then the overall business performance could actually be negative. When intentionally knocking the business out of balance, managers don't want to invest in areas that decrease the profitability so much that in the following years the business is unprofitable and unable to come back into balance. Also, due to internal or external factors, a dairy may be unable or unwilling to make all necessary changes to get back into balance. Then the areas that are out of balance have to be minimized and the impact decreased. This potential scenario has to be kept in mind at all times.

Dairies that successfully continue expansion have invested in areas that have the least negative impact on earnings while they are not running at economic capacity. The farm doesn't want to invest in an area that will have a low or negative return when not running at economic capacity. If the business can't get back into balance due to either internal or external factors, then the decreased earnings can impact the business' chance for long-term success.

The use of partial budgets and whole-farm pro-forma projections is necessary to look at the impact on farm earnings while the business is out of balance. These tools help determine which areas should be invested in first and which should be invested in last. They also can help determine what must be done to bring the business back into balance.

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