

**Management and Marketing Notes. July 2003****BUSINESS MANAGEMENT INFORMATION NEEDS  
FOR THE 21ST CENTURY**

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Introduction

My objectives today are to describe the kinds of business management information needed to be a successful in today's dairy industry and how to use them, and to explain why.

Let me begin with the question of why? The dairy farm economy is changing and there are some key factors and trends. Consider first what is happening to milk production, sales and milk prices. Nationally, milk production and sales are both growing slowly. During the last six years or so, prices have been set by the market--supply and demand--not the government price support program, Figure 1, and government purchases have been very small. From an economic perspective, the average price for milk nationally has been "about right" because the market has been more or less in balance.

The consequences of relying on the market to set prices are clear. Consumer demand for dairy products is very unresponsive to price changes: Consumers do not adjust their purchases very much when prices increase or decrease. This means that small changes in milk production from one year to the next cause very large changes in the farm price, as the current situation vividly demonstrates. Production and sales vary seasonally and reliance on the market results in very volatile prices month-to-month, as Figure 1 shows.

Costs of production and forage yields and quality have an effect on profit margins and milk production, of course which, in turn, affects the price of milk. The bottom line is that these economic factors will continue to drive the dairy economy for the foreseeable future and I do not expect profit margins to change much during the next five-to-ten years.

When we look at regional changes, however, a different picture emerges. Milk production in the western third of the country is growing and dairy farmers in the eastern two-thirds of the country are losing market share, Table 1. Regional differences in profitability are driving these changes and they will continue as long as these profit differences continue. Will the regional structure of prices change, say, as a result of federal order consolidation and restructuring? Will new technology emerge to provide one region with a new advantage over the others? Will water quality regulations change the regional cost structure? Your guess is as good as mine, but I don't expect a change in regional trends any time soon.

Another important trend is that dairy farm numbers are decreasing. This is caused by several factors: milk per cow is increasing faster than sales, so fewer cows are needed to supply the market; slim profit margins and economies of size push farmers to expand, so fewer dairy farms are needed.

Table 1. Changes in Milk Production, 1980-94

REGION	1980 MIL.LB.	1994 MIL. LB.	CHANGE %
NORTHEAST	26,139	27,870	6.23
LAKE	36,885	37,299	1.12
CORN BELT	15,880	16,008	0.79
N. PLAINS	5,253	4,673	-12.41
APPALACHIA	8,415	7,636	-10.20
SOUTHEAST	4,546	5,129	11.37
DELTA	2,569	2,409	-6.64
S. PLAINS	4,735	7,494	36.69
MOUNTAIN	6,131	13,016	53.01
PACIFIC	17,853	32,088	44.13
U.S.	128,406	153,621	17.65

If these trends continue, and I believe they will, does this mean the Southeastern dairy industry is doomed? I think not, because there is so much variation within

the dairy industry. In particular, there is a greater variation in performance between farms within a state or region than there is between the average farm performance of the different regions.

Data from a number of sources confirms the wide variation in financial performance and financial health, Tables 2 and 3. Southeastern dairy farmers can and will survive, but the challenge is greater. Furthermore, and this is a crucial point, there very little correlation between herd performance and profitability, as Table 4 illustrates. Milk production per cow says little about profitability. If you want to know how profitable you are and what kind of shape you are in. If you want to survive and prosper then you must know how your farm is performing and how you are doing relative to the competition.

Table 2. 1991 USDA Farm Financial Health Survey.

CATEGORY	POSITIVE NET INCOME	DEBT:ASSET LESS THAN 0.4:1	% OF FARMS
"HEALTHY"	YES	YES	63
MARGINAL INCOME	NO	YES	19
HIGH DEBT	YES	NO	12
VULNERABLE	NO	NO	6

Table 3. Financial Performance, Selected North Carolina Dairy Farms, 1994

ITEM	LOW	AVE.	HIGH
Net Farm Income, \$/Cow	30	438	800
Return on Investment, %	1.8	9.5	16.1

Return to Management, \$/Cow	-458	34	402
Cash for Debt and Family Uses, \$/Cow	231	572	1,045

Table 4. Financial Performance, Two NC Dairy Farms, 1994

ITEM	Farm A	Farm B
Herd Size, Cows	96	116
Milk/Cow, lb.	21,670	18,789
Net Farm Income, \$/Cow	30	542
Return on Investment, \$/Cow	1.8	15.8
Return to Management, \$/Cow	-216	212
Cash for Debt and Family Uses, \$/Cow	231	426

Let me change gears a minute and talk a little about the job of a dairy farm business manager. I see three key parts to the managers job: 1. Planning, 2. Implementing the plan effectively, 3. Controlling the business and evaluating the results of the plan. Problem solving is a common theme through all three functions.

I think it is helpful to divide planning activities into two types: 1. Strategic Planning--the big picture, long term planning to achieve business and family goals, or "Doing the right thing" and 2. Tactical Planning--the short term planning of seasonal and day-to-day activities, or "Doing things right". Both types of planning require good information about the farm business. Many farm businesses give too little thought to goal setting and strategic planning, in part because it is difficult and uncomfortable. Controlling--monitoring and evaluating--is another often neglected area of management. I suggest that each family needs to know where they stand relative to their goals, relative to their plans, and relative to other farms.

The bottom line is that management is the key to success and can provide the competitive edge, but "If you don't measure it, you cannot manage it". Complete the checklist at the end of this presentation. If your "yes" count is less than 8, you do not have the information needed to manage a dairy farm in the 21st. century.

I will focus on information needs for managing the business side of the farm in the broadest sense. However, I will emphasize the financial side because, in the current dairy economy, financial performance is essential even if profit is not the only goal of the business, and because this is the weakest area on most farms.

### Business management information needs

An effective manager uses information to monitor performance, to spot problems, to help identify and evaluate options, and to make plans. Information needs for monitoring and evaluating performance include measures of farm performance and a basis for comparison. There is no single number that can capture farm performance, several types of performance measures are needed:

- Financial, e.g. return on investment;
- Production, e.g. calving interval; and
- "Mixed", e.g. cost per 100 lb. of milk sold.

These are several possible bases for comparison:

- Your farm over time, to see if you are accomplishing your goals;
- Local dairy farms, to see if you are doing better or worse than other farms with similar technology, milk prices, climate, soil types, etc.; and
- Dairy farms across the nation, to see if you are competitive with other regions.

When evaluating business performance it is important to begin with the "Big Picture" and take a look at the overall health and performance of the business. From a financial standpoint this requires the information contained in the "Big Three" financial statements:

1. An accrual adjusted income statement, to measure farm EARNINGS,
2. A balance sheet (or net worth statement), to measure SOLVENCY, and
3. A CASH FLOW summary, so you can see where the money came from and where it went.

As Table 2 illustrated, a business can be strong in one area and be weak in another. A healthy business is strong in all three areas.

A cash flow summary, as the name suggests, summarizes cash flows during the course of the financial year. I prefer a summary that categorizes cash flows under four headings: Operating; Capital assets; Debt, and Nonfarm, Table 5.

Any farmer who has borrowed money is familiar with a balance sheet or net worth statement because the lender requires it, Table 6.. However, this information is essential for management purposes too. A balance sheet is a detailed listing of farm assets and liabilities on one particular day. The difference

between the two is the owners equity or net worth. To be most useful for management purposes a balance sheet should be prepared on the first day of every financial year, say, January 1 every year. Assets should be valued both at cost and at fair market value. For some purposes a cost basis is more useful, for other purposes fair market value is appropriate.

Table 5. Cash Flow Summary

ITEM	\$
A1. Operating income	
A2. Operating expenses	
A3. Net Cash from Operations	
B1. Capital asset sales	
B2. Capital asset purchases	
B3. Net Capital	
C1. New Loans	
C2. Principal repayments	
C3. Net Loans	
D1. Nonfarm income	
D2. Nonfarm uses of cash	
D3. Net Nonfarm	
E. Balance: Beginning cash balance + A3 + B3 + C3 + D3 = Ending cash balance.	

Measures of profitability are generated from the earnings statement. The earnings statement. Profitability is a much used and abused term, and I think it important that we understand what it is because it is, more than any other

measure, the key to success. Profit is what you \*EARNED\* on what you had to work with: your investment in cows, land, facilities, and equipment; the unpaid labor the family contributed; and your management skill and willingness to take risks. Profit is NOT measured by what you have in the bank or what you report on your tax return. Profit is best described as the return on investment or returns to management.

Table 6. Market Value Balance Sheet or Net Worth Worksheet

Item	Value at	Value at	Change	Comments
Assets at market value:				
Cash and check balance				
Savings accounts				
Accounts receivable				
Market livestock				
Other current assets				
Sub-total				
Machinery & Equipment				
Breeding livestock				
Real estate				
Real estate improvements				
Other				
Sub-total				
Total Assets				
Liabilities:				
Accounts Payable				
Notes payable within 12 mo.				
Accrued interest, tax, rent				
Other				
Sub-total				
Notes payable beyond 12 mo.				

Real estate mortgage loans				
Sub-total				
Total liabilities				
Net Worth				

On the revenue side of the profit equation we need to recognize that during the course of a year a farm can generate more products than is actually sold. It may also generate less. So, when calculating profits we must adjust the cash sales of farm products for such non-cash items as changes in livestock and feed inventories, changes in accounts receivable, and government program payments.

Similarly, on the expense side, not all expenses may be paid for and not all purchases may be for this year's expenses. Cash purchases must be adjusted for unpaid bills and prepaid expenses, interest payments must be adjusted for unpaid or prepaid interest due, and we calculate a depreciation expense for capital assets. These noncash adjustments must be calculated from information found on the balance sheet, which is why a balance sheet must be prepared on the first day of each financial year. The noncash adjustments to cash transactions are called "accrual adjustments" because they allow you to generate revenue and expenses that are comparable to those that could be obtained under full blown accrual accounting procedures (but with less effort).

The differences between income tax calculations, profit and cash flow are illustrated in table 7.

The "Big 3" provide the basic information for calculating key measures of financial performance for the farm business. There are no "Generally Accepted Accounting Principles" for farm businesses but a group called the Farm Financial Standards Council recommends 16 measures of farm financial performance, the so-called "Sweet 16".

- Profitability
- Solvency
- Liquidity/Cash flow
- Debt repayment capacity
- Financial efficiency

These 16 measures provide a comprehensive picture of the financial health and performance of any business. Some of these measures are useful in an absolute sense, but they are most useful if there are standards or yardsticks for other dairy farms for comparison. For example, what operating ratio is considered useful for a dairy farm.



Table 7. Information Needs for Calculating Income Taxes, Profit and Cash Flow

ITEM	INCOME TAXES	PROFIT/ EARNINGS	CASH FLOW
Operating Income	YES	YES	YES
Operating Expense	YES	YES	YES
Dairy Livestock Inventory Change	NO	YES	NO
Feed Inventory Change	NO	YES	NO
Change in Unpaid & Prepaid Expenses	\$ PRE-PAIDS	BOTH	\$ PRE-PAIDS
Change in Accounts Receivable	\$ REC.	YES	\$ REC.
Depreciation	YES	YES	NO
Assets Purchases	NO	NO	YES
Asset Sales	YES	NO	YES
New Loans & Credit	NO	NO	YES
Principal Repaid	NO	NO	YES
Nonfarm Income	NO	NO	YES
Nonfarm Expenses	NO	NO	YES

Additional information is needed to explain why the financial results are what they are. After all, financial performance is a consequence of the farming operation, so we do need to measure what was going on with the herd and the cropping program. DHI records measure herd activity and performance. Comparable records are needed for measuring crop performance. Financial records must be supplemented with physical data, such as pounds of milk sold, number of head bought or sold, or tons of feed purchased.

I mentioned the lack of standardization for farm financial measures, but the situation for dairy specific efficiency measures is even worse. I have my own

preferences, which I call my "Elite 8". There are several measures under each heading and a complete list appears on the last page.

The eight categories are:

1. Resource base and specialization,
2. Resource productivity,
3. Feed costs,
4. Labor efficiency,
5. Buildings, power & machinery,
6. Labor, power & machinery,
7. Investment,
8. Debt.

Let me stress that it is important to start with the big picture before getting into the detailed dairy specific measures. You need to know the overall status and performance of the business before delving into the details. I know several dairy farmers who went bust because they focussed their energies on "doing things right" but ignored the big picture--they were not "Doing the right thing".

### Business Record Keeping

Most farmers keep financial records for tax purposes only and you cannot generate the kind of information from tax records. To do an effective job of evaluating farm performance your record keeping system must be set up to generate an accrual adjusted income statement, a balance sheet, and a cash flow summary. These financial figures must be supported by production records for livestock and crops if they are to be fully useful. Furthermore, if you wait until you need it to try to get it, you won't have it when you need it.

The record keeping system you need depends on the answer to two questions: 1. What information do you need to keep?, and 2. How do you want to keep it? How the record keeping system is designed is more important than the method of book-keeping.

I am recommending that you have a system that allows you to generate the "Big 3", the "Sweet 16" and some version of the "Elite 8". To do this, the business record keeping system must include:

Cash transactions of the business, including operating items and capital assets; unpaid and pre-paid income and expense items; new loans and loan repayment activity. The system also must include: Beginning and end of year inventories of feeds and livestock, by type; Physical records to match financial transactions; Physical records to measure animal and crop performance.

As I mentioned earlier, evaluating performance also requires some yardstick or basis for comparison. Comparative analysis imposes some additional requirement on your record keeping system. Your records need to be complete and accurate, of course, but they also must use standardized definitions and computations. This includes the farm financial statements, the whole farm performance measures, the dairy farm and enterprises, and the dairy specific performance measures. Some system for verifying the accuracy of the data is needed, also. Some universities, consultants, accountants, and lenders offer record keeping systems with opportunities for comparative analysis. The choices may be limited, but this is a "chicken and egg" situation. More folks don't offer it because they say farmers won't support it, and farmers cannot support it if it is not available

### Summary

The "Big Three", the "Sweet 16", and dairy specific measures provide the necessary management information to monitor and evaluate a dairy farm business and for planning. Comparative analysis requires standardization and verification. The big three are:

- Accrual adjusted income statement--EARNINGS;
- The balance sheet--SOLVENCY; and
- A CASH FLOW summary.

These statements provide the necessary information for calculating the "Sweet 16" measures of profitability, solvency, liquidity, debt repayment capacity, and financial efficiency. It is most helpful if dairy standards of performance exist for these measures.

Understanding the reasons for the financial situation revealed by the "Sweet 16" requires further digging, using dairy specific performance measures. The "Elite Eight" dairy performance measures explore the different facets of the business, including livestock and crops. DHIA herd performance measures, or the equivalent, are essential for monitoring and evaluating herd performance. The crop side of the farming operation also must be evaluated.

Good business management information can only be obtained from a properly designed record keeping system. This includes: Financial records over and above those needed for taxes, including physical quantities and descriptions to accompany the financial transactions; DHIA records; and Crop records.

Dairy farming is a competitive business and farm numbers will continue to decline. Problems can go undetected, mistakes can be made, opportunities can be missed, and planning is difficult without good information. Management

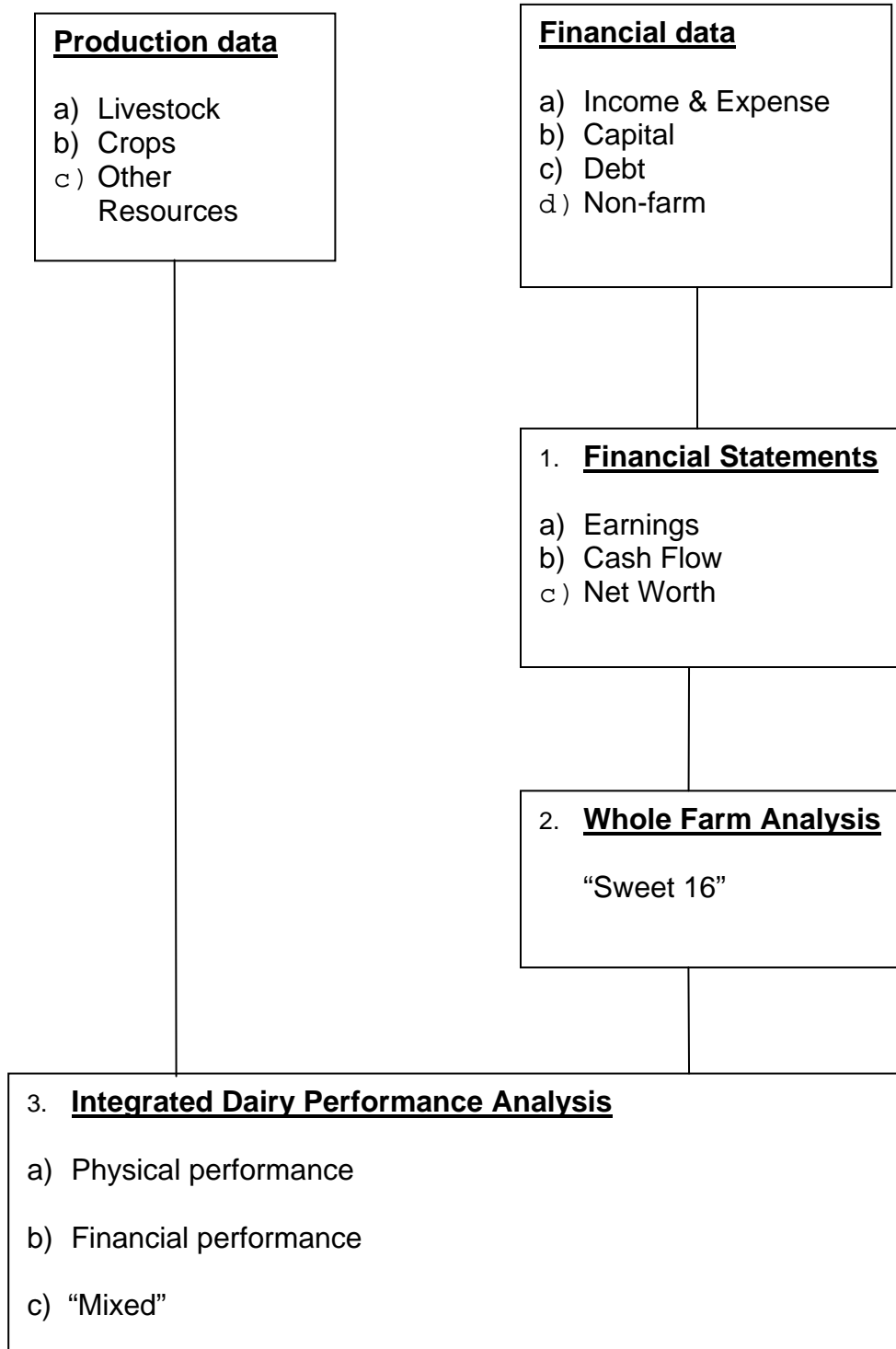
provides the competitive edge. "IF YOU DON'T MEASURE IT YOU CANNOT MANAGE IT". Answer the questions on the next page. If you answer yes to eight or more you have the information you need to face the 21st. century. If you did not.....

## Business Management Information Checklist

Please check the appropriate answer for each of the following questions.

ITEM	Yes	No	Don't know
1. I, or someone on the farm, has calculated the average price I received for my milk in 1995.			
2. The average pounds of milk I SOLD per cow in 1995 has been calculated for my farm.			
3. The average cost of producing 100 lb. of milk sold in 1995, including depreciation and interest cost, has been calculated for my farm.			
4. The total cost of raising silage and/or hay on my farm in 1995 has been calculated. (Only answer if you grow forage).			
5. A farm Balance Sheet (or Net Worth Statement) has been prepared for my farm during the past 12 months.			
6. A cash flow summary has been prepared for 1995, including all farm and family inflows and outflows.			
7. I have an accrual accounting based statement of farm earnings for 1995.			
8. The return on investment for 1995 has been calculated for my farm.			
9. My farm was in the top third for profitability in my state in 1995.			
10. I am on DHI records or the equivalent and I study the summary information (e.g. DHI 202) each test day.			
Total number of Yes, No and Don't know answers			

## Analyzing Farm Business Performance



The "Elite 8": Eight categories of dairy specific performance measures.

1. Measures of Resource Base and Farm Type:

- Land owned and rented, land types and uses
- Number, type and size of farm enterprises
- Herd size
- Labor force
- Gross farm revenue
- Specialization (% of GFR from sale of milk)
- Form of business organization

2. Resource productivity:

- Net farm income per cow
- Milk income per cow
- Pounds of milk per cow
- Crop yields per acre
- Home grown forage(s) produced per cow
- Acres per cow

3. Feed cost:

- Purchased feed cost per 100 lb. of milk sold
- Home grown forage crop cost/100 lb. of milk sold
- Total feed cost/100 lb. of milk sold
- Purchased feed cost as a percentage of the gross milk check
- Home grown forage cost/ton fed

4. Labor efficiency:

- Gross Revenue per worker
- Milk income per worker
- Pounds of milk sold per worker
- Cows per worker

5. Buildings, power and machinery cost

- Building depreciation per 100 lb. of milk sold
- Machinery and equipment depreciation per 100 lb of milk sold
- Machinery operating expense per 100 lb. of milk sold
- Utility cost per 100 lb. of milk sold

6. Labor, power and machinery cost

- Hired labor cost per 100 lb. of milk sold
- Unpaid family labor charge per 100 lb. of milk sold
- Total labor, power and machinery cost per 100 lb. of milk sold
- Labor, power and machinery cost as a percentage of the gross milk check

7. Investment:

- Investment per cow
- Investment per worker
- Investment in machinery and equipment per cow
- Investment in land and buildings per cow

8. Debt load:

- Farm term debt payments per cow
- Farm debt per cow
- Farm debt payments as a percentage of the gross milk check