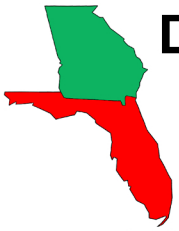

Dairy Business Analysis Project: Financial Opportunities and Constraints on Georgia and Florida Dairies

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Introduction

The Dairy Business Analysis Project was initiated in 1996 to measure and document the financial performance of Florida dairy businesses using standardized accounting measures, so uniform comparisons could be made among participants. Since its inception, participation has grown dramatically, allowing for a variety of regional and management comparisons to be made among participants.

During the past year, formal collaboration between the universities of Florida and Georgia has allowed for more in-depth comparisons between dairies. Increased participation by dairies in Florida and Georgia has added a great deal to the depth of understanding of understanding the financial opportunities and constraints among southeast dairies. Presented in this summary are results from fiscal year 1998 information.

Method of Data Collection

This project uses accounting measures and assumptions as advised by the Farm Financial Standards Council[1]. The main feature of these assumptions is the use of accrual adjusted accounting procedures. Accrual adjusted accounting takes into account changes in inventory, prepaid expenses, accounts receivable and accounts payable. This results in farm profits that are linked to changes in the balance sheet of the business.

In this report, all revenues and expenses were accrual adjusted. This means that revenue and expense categories were free from any distortions that may have been caused by cash-basis accounting practiced by many participants. This also means that revenue or expenses may be calculated even though cash does not enter or leave the business. This was especially true for the revenue categories of cow sales, heifer/calf sales and crop sales. Keep this in mind when interpreting the report. Depreciation for livestock was included for capitalized livestock with gains/losses on sale of capital livestock computed on the change in capital base from the beginning to the ending of the year. Machinery and building/improvement depreciation were taken from tax records. Balance sheet data were based on market values. More information regarding assumptions can be found in the data collection guide[2].

Because accrual adjusted accounting takes into account changes in the balance sheet, it was possible to validate the financial performance measured for each dairy. The statement of cashflows reconciles the net cash flow of the business with beginning and ending cash balances reported for the year. The statement of owner's equity similarly matches equity changes with beginning and ending equity balances. An imbalance suggested incomplete or incorrect information.

Included Dairies

To date, 64 dairies from Florida and Georgia are participating in the project. This 1998 information was summarized from 50 dairies providing complete and verifiable financial information. This sample was collected from voluntary participants and does not represent the average for either Florida or Georgia. Each of the dairies used in this report had an owner's equity imbalance of less than 10 percent of beginning equity and a cash imbalance of less than 10 percent of total cash receipts. These dairies were also screened for unusual circumstances. Dairies in start-up conditions or rapid expansion were excluded from this report.

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[1]Farm Financial Standards Council. 1997. Financial guidelines for agricultural producers.

[2]M.J. Hoekema. 1999. Guide to collecting Dairy Business Analysis Project data using the 1998 forms.

Florida and Georgia Comparison

Table 1 (page 6) lists revenue, expense and descriptive statistical information sorted by state. The first item of note was the difference in revenue structures between states. As a group, Florida dairies had total revenues of $19.59 per cwt. milk sold, 5 percent above the $18.65 average for the Georgia group. Most of this difference was due to a difference in milk sales, with the Florida group posting an average milk price of $18.56 per cwt., 5 percent above the $17.95 average for the Georgia group. Some of this milk price was due to a large amount of the sample comprised of dairies located in south and central Florida, increasing the average milk price for the group.

While the Florida group had a slight advantage with higher average milk price and subsequent total revenues, total expenses were also higher. For 1998, the Florida group had total expenses of $17.65 per cwt. milk sold, 4 percent above the $17.01 average for the Georgia group. The largest cause for the higher expenses was purchased feed expense of $7.88 per cwt. milk sold, 14 percent above the $6.93 average for the Georgia group. Personnel expense of $2.32 per cwt. milk sold was also 6 percent above the Georgia average of $2.18. Interest expense of $0.87 per cwt. milk sold and livestock depreciation expense of $0.96 per cwt. milk sold were also above the averages for the Georgia group. Moreover, milk marketing expense for the Florida group of $1.02 per cwt. milk sold was well below the $1.33 average for the Georgia group.

Even though the Georgia group posted total expenses below Florida for two large expense categories, other expense categories were higher than the Florida group. Crop expense of $0.52 per cwt. milk sold was twice the Florida group average of $0.26. This indicated a more active cropping enterprise on the Georgia dairies in this group as compared to the Florida group. This observation was further supported by machinery ($0.92 per cwt. milk sold), real estate ($0.70 per cwt. milk sold), and machinery depreciation ($0.56 per cwt. milk sold) expenses all above the averages of the Florida group. Due to these differences in revenues and expenses, the Florida group posted slightly higher net farm income from operations of $1.94 per cwt. milk sold, above the $1.65 average for the Georgia group.

Driving these differences in revenues and expenses was a large difference in the types and sizes of dairies between the two groups. These differences are more obvious when individual regions are sorted. However, the Florida group had an average herd size of 914 cows, 81 percent above the 505 average for the Georgia group. The Florida group also raised more heifers, as 496 average total heifers composed 54 percent of total cows compared to 45 percent for the Georgia group. This may have partially driven the difference in purchased feed expense between groups. The Georgia group also posted higher per-cow productivity as milk sold per cow of 18,962 pounds was 17 percent above the Florida average of 16,198.

There was also a substantial difference between groups in overall investment structure. The Georgia group had average total assets of $5,144 per cow, 32 percent above the $3,895 average for the Florida group. While composition (i.e., percent in livestock, machinery, buildings/improvements, real estate and other assets) did not differ substantially between these groups, the total investment on a per-cow basis was substantially higher for the Georgia group. Still, the Georgia group posted an asset turnover ratio of 0.97, 2 points higher above the 0.95 average for the Florida group. This was probably due to the difference in milk sold per cow.

The Georgia group had average total liabilities of $1,591 per cow, slightly above the $1,574 average of the Florida group. Because all balance sheet information was collected at the end of the year, borrowing for tax liability management may distort this information to some degree. Still, the Georgia group has a much higher per-cow equity position.

Overall, the Florida group posted higher operating efficiency as the operating profit margin of 9 percent was 2 percentage points above the 7 percent average of the Georgia group. This was a substantial difference considering the higher revenues ($19.95 per cwt. milk sold) and larger herd size (914 average total cows) for the Florida group. Still, the Georgia group has an advantage in per cow productivity and slightly lower expenses on a per cwt. milk sold basis.

Regional Comparison

When looking at the differences among regions, it is important to understand the implications of sample size. For the Central, South and North Florida regions, the number of dairies in the group are large enough for the averages not to be biased by one or two observations. For the other regions, however, the averages are more susceptible to be skewed by one or two observations. Since participation is voluntary, it is important to keep in mind that these averages represent only

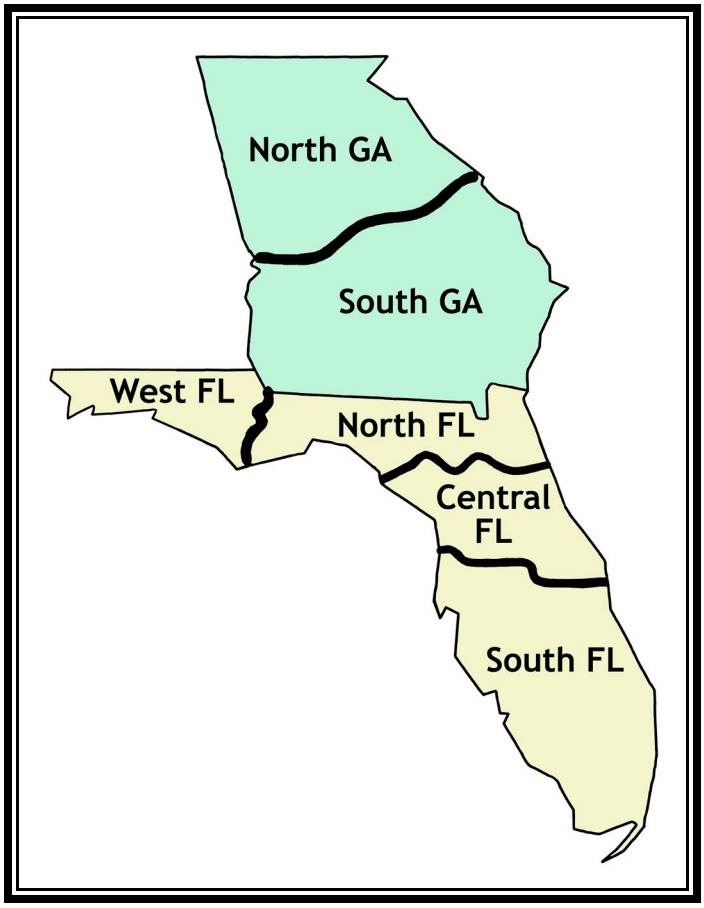

***Figure 1**. Regions used for comparisons*

those anonymous participants and are not indicative of "average" conditions. Figure 1 shows the approximate lines used to determine regions with North and South Georgia separated by the region in which their milk is marketed.

Despite these limitations, there were some substantial differences among regions. Table 2 (page 7) lists revenue, expense and descriptive information by geographical region. First, the revenues among dairies differ substantially between groups. For the most part, this follows the differences for milk prices among regions as the South Florida region had the highest milk price at $18.87 per cwt. while the North Georgia region had the lowest at $17.10, a difference of $1.77 per cwt. This price includes all over-order premiums and component differentials, so it may not exactly correspond to announced prices. There were other revenue differences among regions; these, however, were more influenced by inventory changes and enterprise differences among individual farms rather than by regional structure differences.

Differences in expenses were also evident among regions. The North Georgia region posted the lowest total expenses of $16.57 per cwt. milk sold with South Georgia following closely behind at $16.64. The West Florida region had the highest total expenses of $18.62 per cwt. milk sold with the Central Florida region having the second highest at $18.16.

This variation was driven by several distinct expense differences among regions. The North Georgia region had the lowest total expenses per cwt. milk sold among regions, which was driven by cost control in several key areas. This region had the lowest value in only livestock depreciation but were close to the lowest in several categories and not the highest in any expense category.

The South Georgia region, with the second lowest total expense per cwt. milk sold, had the lowest milk marketing expense ($0.93 per cwt. milk sold), interest expense ($0.42 per cwt. milk sold), and building/improvement depreciation ($0.11 per cwt. milk sold). This was driven by average total assets of $2,944 per cow and average total liabilities of $835 per cow – both lowest among all regions and a competitive advantage

for the region. While other expense categories were not the lowest among all regions, the region did not have any categories that were highest among all dairies. Moreover, milk sold per cow of 15,134 pounds was second lowest among regions. Still, net farm income from operations of $2.56 per cwt. milk sold was highest among regions, while herd size of 1,056 cows was second highest.

The North Florida region had the second highest net farm income from operations among regions at $2.20 per cwt. milk sold. Combined with moderately high milk sold per cow of 16,850 pounds, this region had the highest operating profit margin between groups at 12 percent. This means that for every dollar of revenue generated by the business, this group retained the highest percent in the form of profits when adjusted for interest and owner withdrawals. While this group was not particularly low in any expense category, they were not extremely high in any category either.

The Central Florida region posted net farm income from operations of $1.39 per cwt. milk sold. This region posted the highest purchased feed expense among regions at $8.80 per cwt. milk sold, indicating the reliance of this group of dairies on off-farm feed purchases. This high expense was partially offset by the lowest crop ($0.14 per cwt. milk sold), real estate ($0.55 per cwt. milk sold) and machinery ($0.71 per cwt. milk sold) expenses among regions. This indicated a relatively low amount of cropping activity when compared to other regions. As a group, the Central Florida region had the largest average herd size of 1,136 cows and 742 heifers. The cull rate of 36 percent was lowest among all regions. While this region had moderately high milk sold per cow of 17,664 pounds, the $4,368 average total assets per cow limited the asset turnover ratio to 0.97. Still, the operating profit margin of 7 percent was between other regions.

With an operating profit margin of 7 percent comparable to the Central Florida region, the West Florida region posted net farm income from operations of $1.46 per cwt. milk sold. While these numbers are more susceptible to variation among individual dairies, this region seems to have been constrained by a volume problem, posting the lowest milk sold per cow among regions of 13,483 pounds. Some of this may be related to weather-related conditions associated with tropical storms. This, however, drove machinery ($1.43 per cwt. milk sold), interest ($1.41) and livestock depreciation ($1.72) expenses above that posted for other regions. Personnel expense of $1.55 per cwt. milk sold was lowest among all groups, probably driven by a greater percentage of unpaid management labor. Purchased feed expense of $7.54 per cwt. milk sold was also second highest among regions. When combined with low pounds of milk sold per cow, this indicates potential feeding efficiency problems. Moreover, this region had the highest average total liabilities per cow of $2,345.

The North Georgia region posted medium net farm income from operations among regions of $2.03 per cwt. milk sold. Still, even though total expenses of $16.57 per cwt. milk sold was the lowest, the price received for milk sold was the lowest among regions, shrinking the operating profit margin to 8 percent. It also appears that this group of dairies had a high amount of cropping activities as crop ($0.51 per cwt. milk sold), real estate ($0.72 per cwt. milk sold) and machinery depreciation ($0.57 per cwt. milk sold) expenses were among the highest of all regions. These expenses were higher despite a substantial advantage in milk sold per cow of 19,692 – 9 percent above the next highest region (17,990 pounds in the South Georgia region). This per cow production advantage was impressive considering the relatively low purchased feed expense of $7.04 per cwt. milk sold.

Overall Constraints And Opportunities

While it is difficult to make recommendations for an industry as a whole given differences in the individual goals and objectives of Southeast dairy businesses, this summary information presents some insight into regional constraints and opportunities.

First, the issue of cost control is prevalent for any Southeast dairy business. Given this information, four out of six regions averaged more than $17.00 per cwt. milk sold in total expenses. Given recent volatility in milk prices, expense control will be a key factor in determining future profitability and survivability.

Related to total expenses, the cull rate was relatively high among these dairies. With the Florida group averaging 38 percent and the Georgia group averaging 39 percent, this directly impacts the profitability of the business whether or not replacement heifers were raised or purchased. Moreover, three regions posted average cull rates at 40 percent or higher. While this information does not suggest an optimal cull rate, it does document that this is a constraint that deserves attention by Southeast dairy managers.

Wide variation among investment levels was also evident when looking at the summary information. This

variation suggests an imbalance between productive resources and the ability to service those resources with sufficient revenues. While the appropriate level of assets per cow is often a function of individual dairy type and business goals (*i.e.,* investing in real estate for speculative appreciation in value), this and past information has suggested that excessive levels to indeed constrain profits and subsequent debt service.

Overall assets per cow will have direct implications on the amount of environmental investment liability project dairies may face. New regulations may require substantial investments in both productive and non-productive assets, constraining the revenue generating capacity of most project dairies. While the exact rules have not been defined, it will almost certainly mean an investment of some degree. Positioning your dairy business to prepare for impending regulations may be a necessary objective.

Additionally, the liability level varied dramatically among businesses. Some of this shows up when looking at the regional comparisons. When total liabilities per cow increase, the pressure on each cow to generate revenues and profits for debt service also increases. An "optimal" number for debt service is impossible to prescribe given differences in business investing and financing cycles. However, as total liabilities per cow bypass the value of the cow, increased pressure is placed on the cow just to service liabilities.

Given this non-exhaustive list of constraints, several opportunities exist for the dairy business in the Southeast. First, the investment level required for setting up a dairy is much below that seen in other areas of the country. Five of six regions had average total assets less than $5,000 per cow. This has favorable implications on the debt service ability of Southeast dairy businesses, as less investment is needed for profitable operations.

High operating efficiency was also measured on many dairies in Georgia and Florida. The operating profit margin was in the double-digit range for three out of the six regions. Several dairies posted operating profit margins in the 20 percent range. This shows that profits exist in the industry and at a sufficient level for debt service.

This operating efficiency was mostly due to the ability of managers to control expenses. Two regions had total expenses less than $17.00 per cwt. milk sold. While this was certainly driven by favorable feed markets, the top profit dairies consistently control all expense categories. This information shows the ability to achieve that control.

Summary

It is easy to get lost among a sea of financial numbers, especially when trying to develop a set of goals and objectives based on a sampling of regional averages and comparisons. In the short term, it may not make much difference whether or not a dairy is above or below average for a certain characteristic. When does matter, however, is the ability to generate revenues sufficient to cover expenses, service debt and retain a profit for capital replacement and return to management. While it is apparent that no particular region or management style will guarantee profits, it appears that regions contain certain constraints and opportunities for dairy businesses in the Southeast. Dairy managers should continue their focus on improving cow comfort. Careful evaluation of feeding efficiency is needed for all dairies. Sound investments in productive assets will ensure long-term returns. Liability control will also strategically position your business with sufficient equity.

How does your dairy compare to these benchmarks? Participants in the Dairy Business Analysis Project are able to directly compare their performance to the summary information listed here. They also receive analysis reports that provide a number of comparisons for the operating, financing and investing activities of the business, including benchmarks of the top project dairies. For more information about participating, please visit the project website (**http://dps.ufl.edu/DBAP**). There is also a listing of related downloadable dairy business articles and dairy business management links.

Table 1. Dairy Business Analysis Project 1998 Florida and Georgia summary information.

Category (per cwt. milk sold)	Florida	Georgia
Number of dairies	36	14
Revenues		
Milk sales	18.56	17.59
Cow sales	0.34	0.62
Calf/heifer sales	0.13	-0.01
Other livestock	0.07	0.17
Crops	0.13	0.14
Other	0.44	0.39
Gain (loss) on capital livestock sales	-0.08	-0.25
Total	**19.59**	**18.65**
Expenses		
Personnel	2.32	2.00
Purchased feed	7.88	6.93
Crops	0.26	0.52
Machinery	0.83	0.92
Livestock	1.52	1.87
Milk marketing	1.02	1.33
Real estate	0.61	0.70
Interest	0.78	0.61
Other	0.81	0.93
Machinery depreciation	0.43	0.53
Building/improvement depreciation	0.22	0.21
Livestock depreciation	0.96	0.60
Total	**17.65**	**17.01**
Net farm income from operations[1]	**1.94**	**1.65**
Number of cows	914	505
Number of heifers	496	227
Milk sold per cow (pounds)	16,198	18,963
Cull rate	38%	39%
Cows per worker	56	54
Milk sold per worker	886,849	993,118
Average total assets per cow[2]	$3,895	$5,144
Average total liabilities per cow[2]	$1,574	$1,591
Rate of return on assets[3]	9%	7%
Operating profit margin[4]	9%	8%
Asset turnover ratio[5]	0.95	0.97

[1]Net farm income from operations was computed as accrual adjusted revenues minus accrual adjusted expenses. This represents the return to unpaid management and capital.
[2]Balance sheet information computed as average between beginning and ending values for year divided by average number of cows.
[3]Rate of return on assets was calculated by adding interest expense to net farm income from operations, subtracting a $50,000 charge for unpaid management, dividing the remainder by ending total assets.
[4]The operating profit margin was determined by adding interest expense to net farm income from operations, subtracting a $50,000 charge for unpaid management, dividing the remainder by gross revenues.
[5]The asset turnover ratio was calculated by dividing gross revenues by average total assets.

Table 2. Dairy Business Analysis Project 1998 Regional[1] summary information.

Category (per cwt. milk sold	South	Central	West	North	S. GA	N. GA
Number of dairies	12	13	4	7	6	8
Revenues						
Milk sales	18.87	18.70	18.01	18.11	18.25	17.10
Cow sales	0.24	0.38	0.05	0.62	0.02	1.07
Calf/heifer sales	-0.01	0.15	-0.17	0.49	0.07	-0.08
Other livestock	0.03	0.13	0.01	0.07	0.09	0.23
Crops	0.04	0.02	0.30	0.39	0.20	0.10
Other	0.50	0.24	1.16	0.28	0.11	0.60
Gain/loss on capital livestock sales	-0.47	-0.03	0.72	0.11	-0.01	-0.43
Total	**19.19**	**19.55**	**20.09**	**20.06**	**18.73**	**18.59**
Expenses						
Personnel	2.18	2.73	1.55	2.24	2.14	1.89
Purchased feed	7.44	8.80	7.54	7.15	6.78	7.04
Crops	0.29	0.14	0.43	0.35	0.53	0.51
Machinery	0.78	0.71	1.43	0.77	1.01	0.86
Livestock	1.65	1.49	0.98	1.68	2.16	1.66
Milk marketing	0.93	0.93	1.28	1.22	1.63	0.92
Real estate	0.58	0.55	0.68	0.71	0.50	0.72
Interest	0.42	0.81	1.41	0.98	0.71	0.53
Other	0.77	0.78	0.82	0.95	0.75	1.07
Machinery depreciation	0.41	0.32	0.41	0.69	0.56	0.57
Building/improvement depreciation	0.11	0.25	0.36	0.27	0.19	0.22
Livestock depreciation	1.08	0.66	1.72	0.86	0.63	0.58
Total	**16.64**	**18.16**	**18.62**	**17.86**	**17.59**	**16.57**
Net farm income from operations[2]	**2.56**	**1.39**	**1.46**	**2.20**	**1.14**	**2.03**
Number of cows	1,056	1,136	335	591	748	324
Number of heifers	452	742	157	318	207	243
Milk sold per cow (pounds)	15,134	17,664	13,483	16,850	17,990	19,692
Cull rate	40%	36%	35%	41%	39%	41%
Cows per worker	67	46	69	48	57	52
Milk sold per worker	1,016,317	792,596	915,471	823,588	1,005,477	983,849
Average total assets per cow[3]	$2,944	$4,368	$3,931	$4,627	$4,286	$5,789
Average total liabilities per cow[3]	$835	$1,819	$2,345	$1,947	$2,047	$1,249
Rate of return on assets[4]	13%	6%	6%	10%	6%	7%
Operating profit margin[5]	11%	7%	7%	12%	7%	8%
Asset turnover ratio[6]	1.12	0.97	0.73	0.77	1.07	0.89

[1]Regions were defined as follows: West included Gulf, Calhoun and Jackson and all counties west including dairies in south Alabama. North included Taylor, Lafayette, Suwannee, Columbia, Union, Bradford, Clay and St. Johns and all counties north. Central included Citrus, Sumter, Lake and Seminole counties north. South included all dairies south of the Central line. North Georgia dairies shipped milk to the Atlanta region while South Georgia shipped to Florida markets.
[2]Net farm income from operations was computed as accrual adjusted revenues minus accrual adjusted expenses. This represents the return to unpaid management and capital.
[3]Balance sheet information computed as average between beginning and ending values for year divided by average number of cows.
[4]Rate of return on assets was calculated by adding interest expense to net farm income from operations, subtracting a $50,000 charge for unpaid management, dividing the remainder by ending total assets.
[5]The operating profit margin was determined by adding interest expense to net farm income from operations, subtracting a $50,000 charge for unpaid management, dividing the remainder by gross revenues.
[6]The asset turnover ratio was calculated by dividing gross revenues by average total assets.

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