
Future Competitiveness of the Southeastern and Florida Dairy Industries¹

Hal Harris
Clemson University

Prediction of the outcome of any competition, whether a game, a war, or economic competition demands a thorough analysis of five factors:

- 1) The competitors
- 2) The competitive arena
- 3) The instruments of competition
- 4) The types of interplay
- 5) The rules of the game

First, who are the players? How good are they? Second, who if anyone, has the home field advantage? Third, what are the weapons? Does one side have guns and the other spears and arrows? Fourth, what are the relationships among the competitors or with others who can affect the outcome. Finally, who do the rules favor?

In the economic context of the dairy industry, the players are dairy farmers and processors. The arena is an ever broadening regional fluid milk market, and a national – now increasingly global – manufactured product market. In product markets, the weapons of competition are many – innovations, services, advertising – but in commodity markets like milk, they boil down to relative costs and prices. Producer cooperatives are the primary means the industry has used to bind together potential competitors toward a common end. Finally, the main rules of the game revolve around the price support system and Federal orders. And these rules may be drastically changed.

This paper focuses on the first and last of these elements of competition.

Measures of Competitiveness

Competitiveness is a concept, not a boring economic theory. It is often confused with comparative advantage, an economic principle that shows why goods are produced in some areas, and not in others even in cases where a country, region, or locale has an absolute cost advantage.

According to Webster, competitiveness involves the ability "to secure the business of a third party by offering the most favorable terms." In this case, the third party is processors who are supplying the Florida fluid milk market. And the key question is, can Florida dairymen, individually and through the cooperatives they belong to, offer processors

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Table 6. Summary of Alternative Policy Results, Farm Level Prices

	Base \$/cwt	Base vs No CCC % Chg	Base vs No MMO's % Chg	Base vs Free Mkt % Chg	Base vs Flat \$2.00 % Chg	Base vs \$2/pooling % Chg
South East	15.24	-2.4%	-5.4%	-10.6%	0.3%	-13.9%
W. South Central	13.27	-1.1%	-5.1%	-7.3%	-0.0%	-6.9%
Upper Midwest	11.90	-4.2%	7.2%	4.1%	1.7%	17.8%
California	11.54	-5.6%	6.6%	1.4%	0.1%	2.8%
Total U.S.	12.76	-3.3%	0.3%	-2.9%	0.5%	0.9%

Table 7. Summary of Alternative Policy Results, Farm Level Production

	Base mil lb	Base vs No CCC % Chg	Base vs No MMO's % Chg	Base vs Free Mkt % Chg	Base vs Flat \$2.00 % Chg	Base vs \$2/pooling % Chg
South East	6,026	-1.6%	-3.6%	-7.0%	0.2%	-9.1%
W. South Central	9,749	-0.8%	-3.5%	-5.0%	-0.0%	-4.7%
Upper Midwest	34,800	-0.7%	1.2%	0.7%	0.3%	3.1%
California	22,954	-1.9%	2.3%	0.5%	0.0%	1.0%
Total U.S.	150,146	-1.6%	-1.0%	-2.6%	0.2%	-1.6%

Table 4. Production Per Cow, FL, WI, CAL, TX, various years

	FL	WI	CAL	TX	US
1994	14,903	15,001	20,258	15,485	16,128
1993	14,371	14,781	19,425	15,351	15,419
1990	14,044	13,919	18,461	14,350	14,642
1987	12,480	13,816	17,970	13,070	13,786
1984	11,035	12,856	15,821	12,025	12,503

Table 5. Milk Production FL and US, various years

	FL (mil. lb)	US (bil. lb)	FL (% of US)
1994	2,623	153.6	1.7
1993	2,558	151.0	1.7
1990	2,528	148.3	1.7
1987	2,209	142.5	1.5
1984	1,898	135.5	1.4

Table 3C. Dairy Costs and Returns, Southern Plains

	1985	1990	1991
Gross Sales	14.95	16.10	14.07
Variable Cash Costs	<u>10.47</u>	<u>10.37</u>	<u>10.55</u>
Return above VC	4.48	5.73	3.52
Fixed Cash Costs	<u>2.36</u>	<u>1.20</u>	<u>1.17</u>
Cash Income	2.12	4.53	2.35
Total Economic Costs	13.91	13.86	13.70
Return to Management	1.04	2.24	.37

Table 3D. Dairy Costs and Returns, Pacific

	1985	1990	1991
Gross Sales	13.14	13.36	12.44
Variable Cash Costs	<u>9.46</u>	<u>9.79</u>	<u>9.21</u>
Return above VC	3.68	3.57	3.23
Fixed Cash Costs	<u>1.53</u>	<u>1.13</u>	<u>1.10</u>
Cash Income	2.16	2.44	2.13
Total Economic Costs	11.56	12.21	11.44
Return to Management	1.58	1.15	1.00

Table 3A. Dairy Costs and Returns, FL, GA

	1985	1990	1991
Gross Sales	16.57	17.71	15.62
Variable Cash Costs	<u>11.11</u>	<u>12.34</u>	<u>12.06</u>
Return above VC	5.47	5.37	3.56
Fixed Cash Costs	<u>1.63</u>	<u>1.25</u>	<u>1.22</u>
Cash Income	3.83	4.12	2.34
Total Economic Costs	13.64	15.69	15.11
Return to Management	2.93	2.02	.51

Table 3B. Dairy Costs and Returns, Upper Midwest

	1985	1990	1991
Gross Sales	13.40	15.41	13.84
Variable Cash Costs	<u>7.45</u>	<u>7.92</u>	<u>7.65</u>
Return above VC	5.95	7.49	6.19
Fixed Cash Costs	<u>2.97</u>	<u>2.08</u>	<u>1.98</u>
Cash Income	2.98	5.41	4.21
Total Economic Costs	13.41	14.82	13.99
Return to Management	-.01	.59	-.15

Table 1. Dairy Income Summary, 1991

	SE	UM	PAC	SP	US
	\$1,000				
Gross Income	642	108	766	250	159
Cash Expenses					
Variable	472	63	589	170	107
Fixed	48	19	72	23	21
Net Cash Income	122	26	105	57	31
Net Farm Income	105	21	74	46	26

Table 2. Dairy Farm Balance Sheet, 1991

	SE	UM	PAC	SP	US
	\$1,000				
Assets	1,104	438	1,795	634	572
Liabilities	195	100	351	148	106
Equity	908	338	1,444	486	465
Debt/Assets	.18	.23	.20	.23	.19

—— Considerable compromise within the FMMO system may be preferable to eliminate or drastic overhaul of the program.

Finally, even in a worse scenario case, rest assured that we will continue to have an economically viable dairy industry in FL and the southeast. It will be leaner and meaner than the system we have today. Top quality management will be the key to survival and success. Structural change will accelerate. Look at the hog industry for potential structural outcomes. And pay particular attention to the next section of your program – for intensive grazing may be an opportunity to alter competitive relationship to your favor.

References

Tom Cox and Ed Jesse, Regional Effects of Selected Dairy Policy Options: Dairy IRCM Simulations, Marketing and Policy Briefing Paper No. 52, Department of Agricultural Economics, Cooperative Extension Service, University of Wisconsin-Madison, March 1995.

Texas A&M Policy Center, January 1995 FAPRI Baseline, unpublished manuscript.

Flat \$2.00 Differential Pooled Nationally: This is a national pooling scenario in which a \$2.00 per hundredweight common Class I differential applied to all fluid milk sales except California is allocated regionally in proportion to milk production. In effect, fluid milk revenues are shared equally without regard to where the fluid milk was produced.

National Order with Utilization-based Class I differentials and Partial Pooling: A national federal order replaces the current order structure and the California milk pricing system. The national order has four broad regional pricing zones. Minimum Class I differentials are set according to Class I utilization within the zones. The resulting differentials are \$2.38 per hundredweight for the Northeast, Mid-Atlantic, South Atlantic, Central, and East North Central regions; \$3.36 per hundredweight for the Southeast and East South Central regions; \$1.92 for the West South Central, Upper Midwest, and West Central regions; and \$1.99 per hundredweight for the Northwest, Mountain, and California regions. One dollar of the minimum differential is pooled nationally. In other words, each region receives \$1.00 per hundredweight times the national average fluid utilization plus additional fluid revenue in accordance with regional fluid sales and the amount by which the regional fluid differential exceeds \$1.00.

The tables that follow omit three of the scenarios. None of these alternatives had much impact nationally, nor on any particular region. Table 6 summarizes projected outcomes of the remaining alternatives in terms of price, Table 7 shows projected production. Finally, Table 8 gives total revenue.

Summary and Conclusions

Based on cost of production and income, productivity, and maintenance of market share over the past decade; the FL dairy industry appears to be quite competitive. This conclusion is reinforced by the Texas A&M representative dairy farm simulations through the year 2000.

However, the WI study gives reason for concern. My advice would be to wait for second, third, and possibly further opinions based on analysis by FAPRI, Texas A&M, USDA, and others. But the time horizon is short. If the WI study is anywhere near target -- and the general direction of the results generally support my opinions of what would happen -- implications for your industry are pretty clear cut:

- The price support program is relatively meaningless today. Perhaps we should scrap it, particularly if that eliminated the assessment.
- Doing away with FMMO's and/or moving to a completely free market is another matter. If the WI study is anywhere near target the Southeast and FL would suffer severe income shocks.²

²As would the North East, South Atlantic, Central, E.S. Central, W.S. Central, E.N. Central, and W. Central regions.

Policy Scenarios

Eight dairy policy scenarios were simulated using the Dairy IRCM. Three of the scenarios involved termination of either or both of the primary instruments of federal dairy policy, the dairy price support program and federal milk marketing orders. Four scenarios involve modifications of current federal milk order pricing rules and one elevates the federal solids-not-fat standards for fluid milk products. A brief description of how the model was modified to reflect these alternatives follows.

Terminate Price Supports/Retain Marketing Orders: Average 1993 world market prices for butter and NDM and the GATT minimum price for cheddar cheese (Northern European ports) replace CCC purchase prices as price floors. Converted to farm-level, these minimum prices are \$.56/pound for butter, \$.65/pound for NDM, and \$.58/pound for cheese. Federal order and California fluid milk pricing rules are retained.

Terminate Marketing Orders/Retain Price Support: Both federal and California fluid milk pricing constraints are removed, and the model is allowed to determine fluid milk prices without reference to Upper Midwest prices. The CCC price support floors for butter, NDM, and American cheese are retained.

Free Market: Both federal order/California fluid milk pricing floors and CCC commodity price support floors are removed. This scenario depicts the complete deregulation of the U.S. dairy industry, with the exception of import quotas. Fluid milk prices are competitively determined, and price floors for butter, NDM, and cheese are world market or GATT minimum prices.

Universal California Fluid Milk Standards: California has standards of identity for packaged fluid milk products that require solids-not-fat levels higher than normally observed in farm-level milk. This requires that fluid milk be fortified through the addition of nonfat solids, usually in the form of condensed skim milk. In this scenario, California standards are applied nation-wide, raising the protein level from 3.32 percent to 3.56 percent and the lactose level from 4.73 percent to 5.07 percent.

A/B Manufacturing Milk Price Mover: The BASE scenario ties regional fluid milk prices to the M-W price. This scenario uses the model-computed weighted average value of milk used for manufactured products in the Upper Midwest as the base for regional fluid milk price constraints. The resulting A/B manufacturing milk price is about 8 percent higher than the M-W price.

Flat \$2.00 Class I Differential: In this scenario, Class I differentials based on distance from the Upper Midwest (or fixed differentials in Western markets) are replaced with a common minimum Class I differential of \$2.00 per hundredweight. This results in higher minimum prices in the Upper Midwest and the Northwest and lower minimum prices in other regions. The minimum differentials are added to the M-W price to obtain minimum fluid milk prices. The California pricing system is not altered.

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- FLD375** a 375-cow North Florida (Lafayette County) moderate size dairy farm that had a herd average of 16,800 pounds of milk per cow. The farm grew 590 acres of hay and generated about 93 percent of its revenue from milk sales.
- FLD1500** a 1,500-cow South Central Florida (Okeechobee County) large dairy farm that had a herd average of 17,400 pounds of milk per cow. The farm grew 300 acres of hay and 800 acres of improved pasture. About 91 percent of the farm's total revenue came from milk sales.

Under the FAPRI projections the all milk price is projected to fall \$.66/cwt to \$12.38 in 1995-96. The price then rises in each of the next four years, ending the century at \$12.71/cwt. Assessments are assumed at a constant \$.137. Soybean meal prices rise by \$20/ton over the period and hay prices are steady. Each farm was run assuming no BST and with about 1/3 of the animals receiving treatments.

The following figures summarize simulated future performance. To summarize

- The moderate size WI farm suffers an erosion in net worth but hangs in, while the large WI farm does quite well.
- The East TX moderate farm fails, even with BST adoption, but the large Central TX dairy prospers.
- CAL dairies just keep chugging along.
- The moderate FL farm suffers negative income for three years without BST, and suffers an alarming decline in equity. Even with BST use, net worth falls. Meanwhile the large FL dairy does very well.

In summary, the Texas A&M projections support the recent historical record. Considerable structural change is likely to occur in FL as well as competing areas of the country, but all are likely to remain viable producing regions under the FAPRI assumptions.

Possible Program Changes

Changes in Congress would suggest that price supports and marketing orders are all "on the table." As stated at the outset, such "rules of the game" can have a critical impact on competitiveness. Rep. Gunderson of WI will be a key player in orchestrating potential policy changes. FAPRI is in the process of projecting outcomes in a world of no price supports, no marketing orders, or both. Following the FAPRI analysis, which should be delivered to Congress this month, Texas A&M will rerun its micro simulation models. Keep your eye out for the results.

Meanwhile, analysis just released from the University of Wisconsin may shed some clues. The Wisconsin results are based on a complex interregional competition model of the U.S. dairy industry. The following section is verbatim from the WI study.

Conclusions from Historic Data

Based on these three factors, relative cost, productivity, and continuing ability to garner market share. But this is historic performance. Next, we will take a look at future projections.

Texas A&M Policy Center Projections Based on FAPRI Baseline 1995-2000

Most of you have probably heard presentations based on simulations of representative farms around the country conducted by Texas A&M. Projections of income from these farms are based on aggregate projections of milk prices and input costs from the Food and Agriculture Policy Research Institute. Current baseline projections are based on the impact of GATT/NAFTA, but provisions of the 1990 Farm Bill and milk marketing orders are assumed to remain in place.

Let's compare the projected economic performance of the following representative farms:

- WID55** a 55-cow Eastern Wisconsin (Winnebago County) moderate size dairy farm that averaged 19,700 pounds of milk per cow, generating about 81 percent of its total revenue from milk sales. The farm grew 20 acres of silage, 43 acres of hay, 72 acres of haylage, 40 acres of corn for grain, and 15 acres of soybean.
- WID190** a 190-cow Eastern Wisconsin (Winnebago County) large dairy farm that averaged 21,000 pounds of milk per cow. The farm grew 90 acres of silage, 120 acres of hay, 242 acres of haylage, 144 acres of corn for grain, and 87 acres of soybeans. The farm generated about 86 percent of its revenue from milk sales.
- CAD2150** a 2,150-cow Central California (Tulare County) large dairy farm that had a herd average of 22,700 pounds of milk per cow. The farm grew no feed and generated about 87 percent of its revenue from milk sales.
- TXCD720** a 720-cow Central Texas (Erath County) large dairy farm that had a herd average of 19,200 pounds of milk per cow. The farm grew 380 acres of silage and produced about 90 percent of its receipts from milk sales.
- TXED200** a 200-cow Eastern Texas (Hopkins County) moderate size dairy farm that had a herd average of 16,400 pounds of milk per cow. By double cropping, the farm grew 450 acres of hay and generated about 87 percent of its receipts from milk sales.

supplying the market as good or better terms of trade as producers and cooperatives in other regions?

There are three commonly used indicators of competitiveness. These are relative cost of production, efficiency or productivity, and a proven ability to maintain market share over time. Let's take a look at how Florida and the southeast stack up using these three measures, then we will take a look at how alternative policy proposals being discussed could affect your industry's state of competitiveness.

Cost of Production

Before examining costs per se, let's take a look at some more aggregate measures of financial performance. Table 1 shows average income for SE dairy farms for 1991 (latest year available). The conclusion is easy. Southeast producers are faring very well compared to producers in other regions. As indicated in Table 2, they also appear to have a considerable equity base in the event of hard times. Table 3A presents costs and returns figures for FL-GA dairy farms for 1985, 1990 and 1991. Comparative figures for competing regions are given in Tables 3B-3D.

Some tentative conclusions can be drawn from these figures:

- Returns to management are as high or higher in FL-GA than in any region.
- Cash costs are lowest in the upper Midwest, but true total economic costs are higher than in the Southwest or Pacific.
- The Pacific region has lowest costs.
- Texas can produce milk about \$1.00-\$1.50 cheaper than FL-GA.

Relative Productivity

Production per cow has been the standard measure of productivity changes in the industry. Although FL lags the national average by over 1,000 lb., closer inspection reveals pretty impressive gains over the past decade. FL production per cow has risen from 88% of the national average to 92%, although the figure has slipped from 96% in 1990. From 86% the WI level in 1984, FL is virtually level with productivity there. Gains have also been made compared to TX. However the FL productivity has slipped from 81% of CA in 1984 to 73% last year.

Market Share

Market share data also indicate that FL is more than holding its own. As indicated in Table 5, FL share of the national market has increased from 1.4% in the mid 1980's to 1.7% last year.

Table 8. Summary of Alternative Policy Results, Farm Level Total Receipts

	Base \$ mil	Base vs No CCC % Chg	Base vs No MMO's % Chg	Base vs Free Mkt % Chg	Base vs Flat \$2.00 % Chg	Base vs \$2/pooling % Chg
South East	919	-3.9%	-8.8%	-16.9%	0.5%	-21.8%
W. South Central	1,294	-1.9%	-8.4%	-11.9%	-0.1%	-11.2%
Upper Midwest	4,143	-4.9%	8.5%	4.9%	2.0%	21.5%
California	2,649	-7.4%	9.1%	1.9%	0.1%	3.8%
Total U.S.	19,160	-4.9%	-0.8%	-5.4%	0.7%	-0.7%