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Relative Profitability of Dairy Farms in a High Feed Cost Environment

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Relative Profitability of Dairy Farms in a High Feed Cost Environment

Brian K. Herbst, David P. Anderson, Joe L. Outlaw, and James W. Richardson

This study will examine the competitive advantages that exist under current conditions.

Representative dairies are used to simulate the financial impacts of the different feeding practices and compared to those a few years ago. The results indicate that the dairies that raise a majority of their feed saw a decrease in their cost to receipts ratio while dairies that purchase a majority of their feed saw an increase in their cost to receipt ratio.

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Environment

Background

The milk production economy had a disastrous 2009. Increasing feed costs, collapsing export markets, increased milk supplies, and decreased demand as the world faced an economic crisis has seen dairy profits disappear. Three rounds of Cooperatives Working Together (CWT) herd buyouts during 2009 and one at the end of 2008 decreased cow numbers and future milk production, but the milk price has been slow to recover relative to costs.

High feed costs over the past 3 years, as the demand for corn for other uses, like ethanol and exports, have created a shift in dairy farm profitability away from dairies that purchase most of their feed to ones that grow most of their feed. The low feed cost environment that predominated over the last few decades led to relative profits for operations that purchase feed. Much of the growth in the industry has been in large dairies that purchase a larger share of feed (or all of it) rather than grow it on the farm. For the first time in 30 years or more, dairies that grow their feed have had an economic advantage.

Much of the growth in the dairy industry has been in the West and Southwest, to the detriment of the other parts of the country. This is also the regions of the country that moved to buying a larger portion of their feed when compared to more traditional dairy areas like the Midwest and Northeast. So not only has economic advantage shifted, but those shifts have regional implications within the larger industry.

This paper examines the shift in profitability from dairies buying feed to those growing feed. The implications of potential far-reaching regional, size, and structure implications in the dairy industry that has been under rapid structural change and consolidation are discussed.

Objectives

This study will examine the competitive advantages that exist under current conditions. Representative dairies are used to simulate the financial impacts of the different feeding practices and compared to those a few years ago. Key economic and financial results will be compared among dairies to show how the regional and feeding differences will affect dairy farms.

Data

This study uses economic and production data for 22 representative dairy operations that have been developed and maintained by the Agricultural and Food Policy Center (AFPC) at Texas A&M University. The representative dairies range from 110 to 3,000 head of milking cows. All information about the operations is obtained in interviews of the 3-6 member panels and the interviews are repeated every two to three years. Table 1 presents characteristics of the dairies included in this study. The dairies are named by state (TX = Texas dairy), region (TXC = Central Texas dairy), and the number is the size of the dairy in terms of milk cows (TXC1300 = Central Texas 1300 head dairy)

To facilitate comparison across dairies, key assumptions are imposed across the set. Dairy herd sizes are held constant over the planning horizon. No off farm income,

including family employment, is included in the analysis. Each dairy started 2008 with 30 percent debt on land and equipment.

Methods

The competitive advantages that exist under current conditions were analyzed using the farm level income and policy simulation model (FLIPSIM) developed by Richardson and Nixon (1986). The FLIPSIM model draws random crop yields, livestock production variables, and prices from a multivariate empirical probability distribution allowing projections to incorporate production and price risk using the procedures described by Richardson, Klose, and Gray (2000). Under a set of standard assumptions, each dairy is compared using macro level projections of prices, inflation rates, and yield growth in the December 2009 FAPRI Baseline compared to the December 2007 FAPRI Baseline.

The key variables being analyzed are costs to receipts ratio, average annual net cash farm income and average annual ending cash. Other variables that are analyzed include probability of negative ending cash, net income adjustment to maintain a zero cash balance and nominal net worth.

Results

The results indicate that the dairies that grow a majority of their feed saw a decrease in their cost to receipts ratio, while dairies that purchase a majority of their feed saw increases in their costs to receipts ratio over the same period. The increase for the dairies purchasing feed saw a larger increase than the other dairies saw decrease.

The smaller dairies that grow their own feed in this analysis are NYC110, WI145, and FLN550. NYC110, WI145 and FLN550 are confinement dairies that grow a

majority of their feed. They also feed a ratio that is higher in roughage and lower in concentrates. The results can be found in Table 2. WI145 saw a decrease in its cost to receipts ratio from 71.58 percent in December 2007 to 69.75 percent in December 2009. FLN550 saw a decrease in its cost to receipts ratio from 75.01 percent in December 2007 to 74.20 percent in December 2009. NYC110 saw a slight increase from 62.81 percent to 65.44 percent.

The dairies that purchased a majority of their feed are located across the country and are generally large. CA1710 saw an increase in its cost to receipts ratio from 77.21 percent in December 2007 to 88.93 percent in December 2009. ID3000 saw an increase in its cost to receipts ratio from 75.45 percent in December 2007 to 80.89 percent in December 2009.

Figure 1 shows the net income adjustment needed to maintain a zero ending cash balance in 2015 for the 2009 December baseline and Figure 2 shows the net income adjustment needed to maintain a zero ending cash balance in 2012 for the 2007 December baseline. The variability has decreased from 2007 to 2009 as visible by the smaller range on the percent change in net cash income to maintain a zero ending cash balance.

Discussion

The change in competitive advantages over the last few years as the increases in feed prices has started to impact the dairies' bottom line. The smaller dairies that are able to grow a majority of their own feed now see an advantage over the dairies that purchase a majority of their feed. This also has regional impacts as most of the smaller dairies are

located in the South, Missouri, and the Northeast while the large dairies are in the Pacific Northwest, West, and Southwest.

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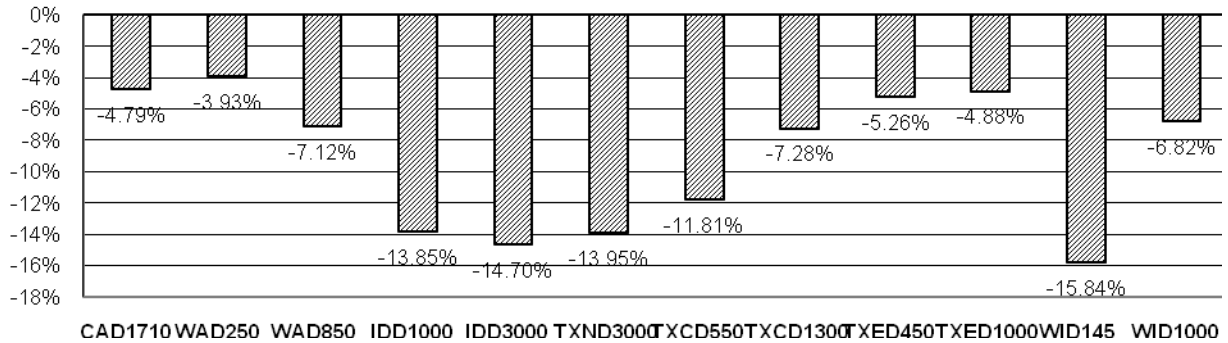
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Table 1. Description of Representative Ranches Included in this Study.

Dairy Name	Location	Description
TXC550	Erath County, Texas	A 550-cow, moderate-sized central Texas (Erath County) dairy. TXC550 plants 1,100 acres of hay each year. Milk sales represented 94 percent of this farm's 2007 gross receipts.
TXC1300	Erath County, Texas	A 1,300-cow, large-sized central Texas (Erath County) dairy. TXC1300 plants 680 acres of silage and 440 acres of hay annually. During 2007, milk sales accounted for 94 percent of receipts.
TXE550	Hopkins County, Texas	A 450-cow, moderate-sized northeast Texas dairy. This farm has 850 acres of improved pasture and 50 acres of hay. During 2007, milk sales represented 91 percent of annual receipts.
TXE1000	Hopkins County, Texas	A 1,000-cow, large-sized northeast Texas dairy. This farm plants 1,025 acres of hay/silage. This farm generated 95 percent of 2007 receipts from milk sales.
TXN3000	Bailey County, Texas	A 3,000-cow, large-sized dairy located in the South Plains of Texas. This farm plants 180 acres of sorghum for silage annually. Milk sales account for 93 percent of 2007 gross receipts.
FLN500	Lafayette County, Florida	A 550-cow, moderate-sized north Florida dairy. The dairy grows 130 acres of hay each year. All other feed requirements are purchased in a pre-mixed ration. Milk sales accounted for 94 percent of the farm receipts.
FLS1500	Okeechobee County, Florida	A 1,500-cow, large-sized south central Florida dairy. FLS1500 plants 100 acres of hay and 400 acres of silage annually. Milk sales represent 94 percent of 2007 total receipts.

Figure 1

**Minimum Annual Percentage Change in Receipts, 2009-2015,
Needed to Have a Zero Ending Cash Balance in 2015**



**Minimum Annual Percentage Change in Receipts, 2009-2015,
Needed to Have a Zero Ending Cash Balance in 2015**

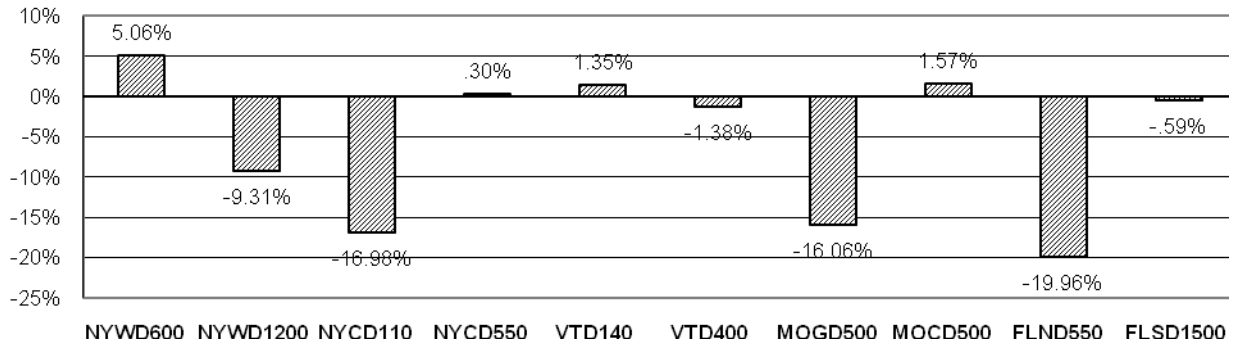
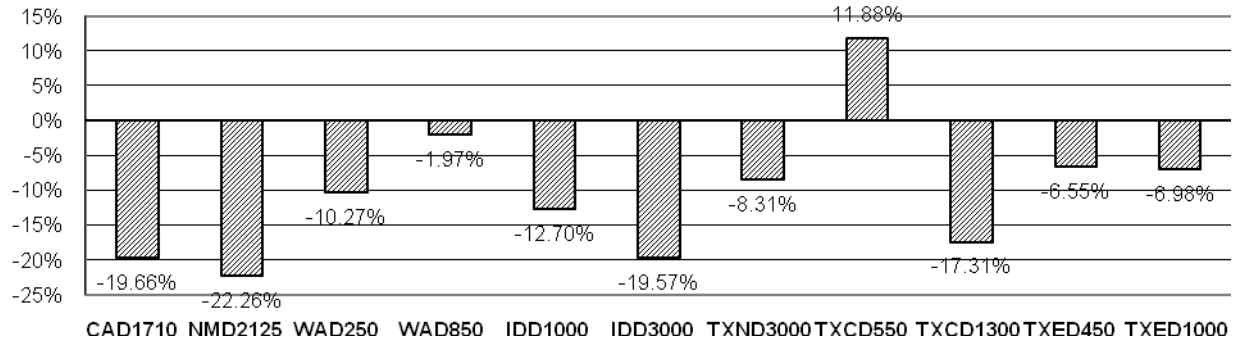


Figure 2

**Minimum Annual Percentage Change in Receipts, 2007-2012,
Needed to Have a Zero Ending Cash Balance in 2012**



**Minimum Annual Percentage Change in Receipts, 2007-2012,
Needed to Have a Zero Ending Cash Balance in 2012**

