

# An Economic Comparison of Grazing and Non-Grazing Dairy Herds

## INTRODUCTION

The general trend in the US dairy industry over the last half-century has been away from grazing. However; rising cost of purchased feed, growing consumer interest in alternative dairy products (organic, natural, pasture-based), and life-style choice by farmers has resulted in greater interest in grazing as a management option for dairy cows. Whatever the motivation, a dairy farmer considering transitioning to a pasture-based system or changes to the current grazing system must consider the economic impacts of that decision. The remainder of this paper will present a summary of cash flow information from PA dairy farms and an economic comparison of financial factors for three contrasting dairy management systems.

## PENNSYLVANIA DAIRY CASH FLOW PLANS

During the winter of 2012/ 2013 the Penn State Extension Dairy Team worked with 130 dairy farms in Pennsylvania and surrounding states to develop 2013 cash flow plans. While some of these farms used grazing there was insufficient data to separate grazing from non-grazing farms.

Cash flow plans were divided into 4 categories based on projected breakeven milk price (<\$18, \$18 - \$19, \$19 - \$20, >\$20). Farms with a projected breakeven less than \$18 expect to produce 914 pounds of milk per cow more than the average of the 130 farms; while farms with a breakeven greater than \$20 expect to produce 1931 pounds less than average. Dairies in the less than \$18 breakeven milk price group expect to save \$214 per cow in feed costs than average; while the over \$20 milk breakeven price group expects to have feed cost \$142 per cow greater than the average. These differences in feed costs and production result in an Income Over Feed Cost (IOFC) breakeven of \$6.06 per cow per day for the lowest breakeven group and \$8.53 IOFC breakeven for the highest breakeven milk price group.

## GRAZING DAIRY FINANCIAL ANALYSIS

Data presented in this section was taken from the FinBin (<http://www.finbin.umn.edu>) farm financial records database. The database summarizes actual farm data from thousands of agricultural producers who use FINPACK for farm business analysis. The majority of farms included in the analysis are located in the Midwest, but the general trends and principals are relevant to dairy farmers in Pennsylvania. FinBin allows a user to select farms or exclude farms with defined characteristics (for example rotational grazing and organic). Farms were divided into three categories 1) Grazers – farms that were identified as using rotational grazing and certified organic farms, 2) Non-Organic Grazers – farms using rotational grazing, excluding those that are certified organic, and 3) Non-Grazers – excluded all farms using rotational grazing or that were certified organic. Farms milking more than 200 cows were also excluded because of a lack of grazing farms over this size. Records were included from the past five years, 2008 through 2012.

There were 187 dairies in the grazers group, 32 non-organic grazers, and 2002 non-grazers (Table 1). Non-grazers tended to milk more cows, produce more milk per cow and therefore sell more milk than the other two groups. Grazers received a higher price for their milk than did the other two groups, likely due to the large number of organic dairy farms in this group.

	Grazers	Non-Organic Grazers	Non-Grazers
Farms, #	187	32	2002
Average cows per farm, #	79	73	86
Average Milk produced, lbs/cow/year	12,896	14,905	19,878
Total milk sold per farm, lbs	994,925	1,083,306	1,697,827
Avg. milk price per cwt., \$	25.12	17.9	17.5

## Feed Costs

Feed costs represent approximately half of the expenses on most dairy farms, controlling this cost is key to ensuring the profitability of a dairy farm. The Non-Organic Grazers had the lowest

	Grazers	Non-Organic Grazers	Non-Grazers
Feed cost per day, \$	3.75	3.32	4.82
Feed cost per cwt of milk, \$	10.63	8.13	8.87

fed cost on both a per cow and per CWT of milk basis (Table 2). The All Grazers group had a lower feed cost per cow than did the Non-Grazers, however, lower milk production and higher price of organic feeds of the All Grazers group resulted in this group having a higher feed cost per CWT of milk production.

### **Other Costs**

Labor hours per cow per year are about 4 hours less for the non-organic grazers than for the other 2 groups (Table 3). Higher milk production in the non-grazing group results in this group being the most labor efficient per pound of milk sold.

	Grazers	Non-Organic Grazers	Non-Grazers
Labor hours per cow	39.95	36.4	40.8
Pounds of milk sold per FTE	880,020	1,136,025	1,357,475

Cull rate, turnover rate, and death losses tended to be less for both grazer groups than for non-grazers (Table 4). These differences may indicate less health problems, and therefore lower veterinary costs.

	Grazers	Non-Organic Grazers	Non-Grazers
Cull rate, %	23.8	25.8	26.6
Turnover rate, %	30	31.4	34.8
Cow death loss, %	5.1	5.3	7.3

Cost of production was greatest for grazers, followed by non-grazers and lowest for non-organic grazers (Table 5). Even though the grazers had the greatest cost of production their higher milk price resulted in them being the most profitable farms in this data set.

	Grazers	Non-Organic Grazers	Non-Grazers
Total direct expense, \$	15.1	11.92	12.84
Total direct & overhead expense, \$	19.16	14.55	15.48
Total D & O with labor and management, \$	22.81	17.13	17.71

### **Separating the top 20% from the bottom 20%**

A net return of over \$1300 per cow per year separated the top 20% from the bottom 20% of grazers, over \$800 separated the top from bottom non-grazers. Some of the key factors that separated the top 20% from bottom 20% included milk production per cow, feed costs, labor efficiency and to a lesser extent turnover and cow cull rates.

	Grazers		Non-Grazers	
	Bottom 20%	Top 20%	Bottom 20%	Top 20%
Farms, #	37	38	400	401
Net return per cow, \$	-319	1,021	-217	618
Average cows per farm, #	94	64	83	77
<b>Average Milk produced, lbs/cow/year</b>	<b>11,542</b>	<b>14,540</b>	<b>18,199</b>	<b>20,405</b>
Avg. milk price per cwt., \$	27.27	20.55	19.44	15.36
<b>Feed cost per day, \$</b>	<b>4.75</b>	<b>2.91</b>	<b>5.93</b>	<b>3.68</b>
Feed cost per cwt of milk, \$	15.01	7.31	11.9	6.58
Labor hours per cow	42.48	37.57	41.92	39.43
Pounds of milk sold per FTE	739,936	1,060,139	1,212,285	1,439,241
Culling percentage	26.3	23.1	26.8	26.2
Turnover rate	33.4	29.3	35.8	33.3
Cow death loss percent	5.7	5.5	8.1	6.2
Total direct expense per CWT, \$	20.31	10.61	16.92	9.78
Total direct & overhead expense per CWT, \$	26.15	13.07	20.11	11.75
Total D & O with labor and management, \$	29.97	16.01	22.12	13.72