

## **GROUP HOUSING ECONOMICS: CASE STUDY RESULTS**

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### **INTRODUCTION**

Owners of dairy farm businesses and custom heifer growers can choose from alternative systems to raise dairy replacements. When making decisions about the current system versus proposed options, an important place to start is with cost summaries and analyses of the current system and proposed changes. The same holds for the manager that wishes to evaluate the current system for the purpose of identifying areas for possible for improvement. The birth to weaning, wet calves group is receiving attention recently with respect to how they are housed, separately or in groups and, or with respect to what and how they are fed. The purpose of this work is to develop cost summary and analysis for the birth to weaning group with an emphasis on group housed calf systems.

### **COST CONCEPTS**

Basic cost concepts provide a framework for enterprise cost summary and analysis for the birth to weaning group.

Fixed costs are costs associated with owning a fixed input or resource, for example, the costs associated with owning buildings, machinery and equipment that have useful lives of more than one year. Fixed costs are also referred to as ownership costs. The dairy replacement enterprise incurs fixed costs even when the input is not used, but still owned. Fixed costs do not vary with the level of production. They exist at the same level regardless of how much or how little the resource is used. Depreciation, insurance, some repairs, taxes (property taxes, not income taxes), and interest as an opportunity cost comprise the common list of fixed or ownership costs.

Variable costs are those which the manager has control over at a given point in time. They can be varied based upon management decisions in the short term, and change as the level of production changes. For the dairy replacement enterprise, items such as feed; labor; bedding; fuels, lubricants, repairs and maintenance for machinery and equipment are examples of variable costs.

Karszes et al. (2008) apply these basic cost concepts to develop cost analyses for dairy replacement programs. They describe the following costs for their data collection, summary and reporting efforts for the dairy replacement enterprise: feed; labor; bedding; health; breeding; trucking; insurance; machinery and manure storage operation (variable costs); machinery, building and manure storage ownership (fixed costs); custom boarding; professional services and fees; non performance expenses; and interest on investment.

## REPLACEMENT ENTERPRISE COST SUMMARY AND ANALYSIS TOOLS

Dairy heifer replacement cost summary and analysis tools are of great value to the farm business owner or analyst that wishes to collect, compile, and report cost and other economic performance data for the dairy replacement enterprise. Gabler et al. (2007) and Karszes (2010) were two tools reviewed for the purpose of developing cost summary and analysis for the birth to weaning, wet calves group. Both tools are MS Excel workbooks with very similar cost categories. Each is quite capable of developing valuable cost summary and analysis for a dairy replacement enterprise. However, the Karszes' program: possesses greater flexibility when defining groups, for example, with respect to housing and, or feed program changes within a given age group; and provides greater detail for some cost items. Karszes' tool was chosen to develop cost summary and analysis for the birth to weaning, wet calves group for case study farms.

## CASE STUDY RESULTS

Case study results will be reported at the symposium on December 1, 2011. As of early November, the due date for symposium proceedings materials, Cornell University staff were working with farm managers from case study farms to collect, summarize, and report results.

## REFERENCES

- Gabler, Matthew, P. Tozer, and J. Heinrichs. 2007. Cost of Raising Replacement Dairy Heifers. MS Excel workbook. <[www.das.psu.edu/research-extension/dairy/nutrition/heifer](http://www.das.psu.edu/research-extension/dairy/nutrition/heifer)>. Department of Dairy and Animal Science, The Pennsylvania State University: University Park, PA.
- Karszes, Jason. 2010. Dairy Replacement Enterprise Analysis. MS Excel workbook. Department of Applied Economics and Management, Cornell University: Ithaca, NY. Please contact presenter for materials <[jjh6@cornell.edu](mailto:jjh6@cornell.edu)>.
- Karszes, Jason, C. Wickswat, F. Vokey. 2008. Dairy Replacement Programs: Costs & Analysis December 2007. E.B. 2008-16. Department of Applied Economics and Management, Cornell University: Ithaca, NY.
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**Group Housing Economics: Case Study Results**  
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Table 1. Costs of Raising Calves, Birth to Weaning, Dollars per Animal, New York, November 2011

Cost Item	Karszes and others, Dec '07, adjusted to Nov '11	Farm 1	Farm 2	Farm 3	Farm 4
		--- \$ per animal ---			
Feed	151.42	186.21	184.44	66.32	115.77
Labor	83.88	35.69	59.93	42.70	33.62
Bedding	9.30	11.16	36.95	21.30	15.69
Health	23.60	4.80	8.36	23.70	11.67
Building ownership	13.67	40.98	28.62	12.33	7.80
Nonperformance	20.04	4.39	14.64	7.35	3.18
All other costs	16.81	33.75	5.75	18.01	33.13
<b>Total</b>	<b>318.72</b>	<b>316.98</b>	<b>338.69</b>	<b>191.71</b>	<b>220.86</b>

Table 2. Costs of Raising Calves, Birth to Weaning, Dollars per Pound of Gain, New York, November 2011

Cost Item	Karszes et al., '07 adjusted to Nov '11	Farm 1	Farm 2	Farm 3	Farm 4
		--- \$ per pound of gain ---			
Feed	1.38	2.27	2.37	0.63	1.09
Labor	0.76	0.44	0.77	0.41	0.32
Bedding	0.08	0.14	0.47	0.20	0.15
Health	0.21	0.06	0.10	0.23	0.22
Building ownership	0.12	0.50	0.37	0.12	0.07
Nonperformance	0.18	0.05	0.19	0.07	0.03
All other costs	0.17	0.41	0.07	0.17	0.31
<b>Total</b>	<b>2.90</b>	<b>3.87</b>	<b>4.34</b>	<b>1.83</b>	<b>2.19</b>

Table 3. Selected Labor Efficiency Measures for Raising Calves, Birth to Weaning, New York, November 2011

Source	Cost per Heifer per Day	Cost per Pound of Gain	Cost per Animal Completing	Heifers per Hour	Pounds Gained per Hour
Karszes et al.		\$0.76	\$83.88	11.2	
Farm 1	\$0.76	\$0.44	\$35.69	19.89	38.82
Farm 2	\$1.22	\$0.77	\$59.93	13.66	26.63
Farm 3	\$0.76	\$0.41	\$42.70	11.86	13.68
Farm 4	\$0.53	\$0.32	\$33.62	32.86	19.35

Table 4. Selected Feed Cost Measures for Raising Calves, Birth to Weaning, New York, November 2011

Source	Pounds DM per Day per Animal	Cost per Day per Animal		Daily Weight Gain	Feed Conversion Ratio
		Grown Feed	Purchased Feed		
Karszes et al.				1.95	
Farm 1	2.68	\$2.74	\$1.22	1.74	0.65
Farm 2	3.81	\$0.00	\$3.77	1.59	0.42
Farm 3	2.34	\$1.07	\$0.12	1.88	0.80
Farm 4	3.46	\$0.36	\$1.48	1.68	0.49

Notes for Tables 1 through 4.

1/ Sources:

Karszes, Jason, Cathy Wickswat and Frans Vokey. 2008. Dairy Replacement Programs: Costs and Analysis December 2007. EB 2008-16, September 2008. Cornell University, Department of Applied Economics and Management: Ithaca, NY.

USDA. 2011. Agricultural Prices. Prices Paid Indices. October 2011 report.

2/ Waste milk for Farms 3 and 4 valued at \$60 per ton.

## FARM DESCRIPTIONS

### Farm 1

Group housed and fed calves, about 50 in number, are weaned at about 7 weeks at about 170 pounds. Facility consists of a calf area, housing 8 to 10 calves per pen, and an attached milk room. A continuously circulating, low line system delivers acidified salable milk and milk replacer to pens.

### Farm 2

Calves are group housed and fed in numbers and facilities similar to above. A continuously circulating, high pipeline delivers acidified milk replacer to pens.

### Farm 3

Acidified milk is available ad lib from plastic barrels through milk bars in a retrofit housing system with up to 20 calves per pen. Waste milk and some salable milk are fed.

### Farm 4

Calves are housed, up to 25 per pen, in a relatively new grouped housing system with a central utility room, and fed via a mechanized feeding system. Waste milk, some salable milk, and some milk replacer are fed.