

NY Study Shows True Cost of Organically-Raised Heifer Replacements

Part One: A Good Start is Critical

By

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Raising replacement heifers is the second highest cost after forage and feed costs on a dairy. To develop an understanding of the true cost of raising a dairy heifer replacement for the milking herd on an organic dairy farm, an “Organic Dairy Heifer Replacement Study” was conducted with a grant from the Northeast Dairy Business Innovation Center (NEDBIC). This is the first part of a two-part summary of that study that collected and analyzed data from fifteen organic dairies located across New York state. This work also identified the costs associated with factors that influence the successful rearing of healthy calves.

The NEDBIC serves 11 states from offices at the Vermont Agency of Agriculture, Food & Markets funded this study. The complete report will be released this fall by the NEDBIC ([ADD URL](#)).

Methods

Cornell University’s PRO-DAIRY’s “Dairy Replacement Analysis” was used to organize data from the 15 organic dairies participating in this study. Data for conventional dairies were taken from the Cornell Dairy Replacement Program: Cost & Analysis Report of Summer 2019ⁱ with costs adjusted for 3 percent inflation. A spreadsheet system allowed comparison of the datasets for each management system.

Data were collected for the farms’ different groups of heifers on the organic dairy farms so that cost and growth rates could be shown on a per-day basis. The data included costs for feed, labor, bedding, healthcare, manure handling, facilities, and interest. Weights of the animals were collected at different stages to see how the growth rates compared to other organic farms and to targeted growth rates for the breeds.

Part Two of this series highlights the costs for this diversity of management factors.

A report presented at California Polytechnic State University indicated that it has been repeatedly shown that on conventional dairy farms the cost of raising replacement heifers takes 15 to 20 percent of total milk production costs.

Getting a Good Start is Critical

The time period when a calf is on milk is the highest cost of a calf’s birth-to-one-year life under both organic and conventional regimes, due to the cost of the milk over feed (forages and grain) and labor associated with the individual handling of the calves compared to weaned calves in group housing. This cost is exacerbated under organic management because the length of time fed is twice or three times as long and the revenue loss of the dam’s organic milk kept out of the milking stream is two to three times more.

The data collected for this study indicated that a major cost difference between the two production regimes was the length of time a calf remained on milk until weaned. The conventionally-raised heifer

study group weaned calves at six to eight weeks. The organic farm calves were kept on milk between 12 to 17 weeks; on one grass-fed dairy, calves were with a nurse cow for 24 weeks.

The main reason for the length of time that organic calves remained on milk was to reduce the chances of scours caused by *E. coli*, salmonella, or coccidia. The use of ionophores by conventional farms to treat coccidiosis offers a dual advantage in that this type of antibiotic acts as a biocide that prevents coccidiosis and simultaneously alters the rumen to increase growth of the calf. Organic farms have identified that keeping calves on milk (not milk replacer) longer allows the calves to build natural immunity to coccidia.

Heifer Nutrition Affects Lifetime Production

Studies have shown that 22 percent of variation in first-lactation milk yield is due to a high pre-weaning growth rate in the first 49 days of age. Animal Science Professor Michael Van Amburgh, Ph.D. and colleagues in the Cornell University Department of Animal Science have shown that early heifer nutrition will affect a cow's lifetime production. Proper heifer development begins with calf management that feeds adequate amounts of protein. Van Amburgh's research indicates that maintaining 26 to 28 percent protein fed daily can influence calf growth by 1 to 2 pounds per day. Every pound of average daily gain can mean an approximate addition of 1,500 pounds of milk in her first lactation, and benefits subsequent lactations as well.

Milk from the dam provides the calf about 26 percent protein. Starter feed may provide as little as 18 percent protein. Calf managers need to be alert when switching calves to starter feed as a decrease in protein can limit calf growth and impact rumen development.

The organic dairies in our study identified unique challenges and opportunities with their heifers, e.g.,

- the high cost of organic grain tending to suppress the protein levels fed to replacements;
- organic standards forbidding the use of many drugs conventionally used to treat calfhood illness;
- the period of individual care of organically raised calves, rather than in conventional group housing, double or triple that of conventional dairy herds, increasing costs; and,
- having year-old organically-raised replacement animals utilizing grazing reduces labor and feed cost below that of the conventionally-raised heifers (see Figure 1).

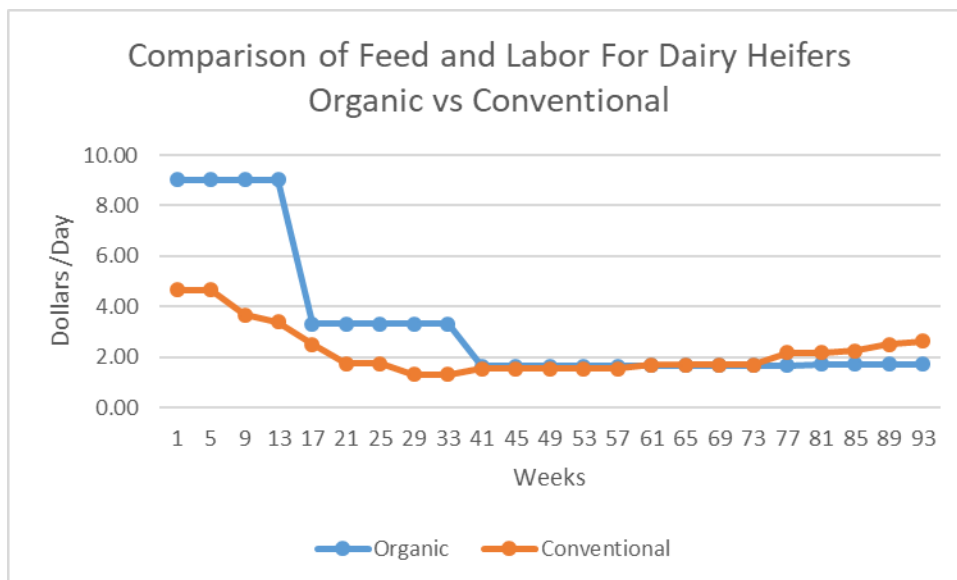


Figure 1. Feed and Labor Cost Difference: Organically-raised Heifers vs. Conventionally-raised Heifers from Birth to 93 Weeks; Organic Dairy Heifer Replacement Study, 2023.

Part Two of this report considers the specific costs, with Tables and Figures, and data-based benchmarks developed by this project to help farmers compare their costs with other organic farms and farms raising heifers conventionally. Part Two also makes notes of the development of an alternative healthcare manual of treatments for organic dairy farmers to apply to medical ailments in their heifers and other animals on the farm. The farmers participating in this study provided input for the development of that manual.

ⁱ <https://dyson.cornell.edu/wp-content/uploads/sites/5/2020/09/Dairy-Replacement-Costs-Writeup-Final1-VD.pdf>