NC GROWING TOGETHER
Connecting Local Foods to Mainstream Markets

NC STATE Poole College of Management
Supply Chain Resource Cooperative

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Best practices and metrics for dairy farms transitioning from conventional dairy operations to on-farm value-added production

Executive Summary

Over the past 20 years the US dairy industry has undergone considerable market shifts with smaller dairies losing ground to large-scale operations. These trends have been especially true in North Carolina where the number of dairy farms has dropped from 1,132 in 1987 to 285 in 2011. However, increased consumer interest in local and environmentally sustainable dairy products has created an opening in the market for smaller dairies to produce their own bottled milk and other dairy products.

The Austin family has experienced this market shift first hand with their small-scale dairy operation in Yancey County. They currently sell unpasteurized milk to a co-op where it is then processed for direct sale to consumers. Each year, it is becoming more difficult to continue operating with this business model due to their small size. In an effort to increase profits and ensure long-term success, the Austin family is considering expanding their operation to include on-farm milk pasteurization and bottling of whole, non-homogenized milk for direct sale to consumers.

The Center for Environmental Farming Systems (CEFS) Dairy Team was tasked with two separate projects to assist farmers considering a transition into on-farm pasteurization. The first task was to create a financial tool to assist dairy farmers in organizing their current costs and projecting their costs and sales over the course of five years after their transition. In addition to this tool, the team also created an instructional video and written instructions to assist farmers in operating the tool. The second task was using this tool and market research completed by the team to provide the Austin family with the financial outlook of a transition to on-farm production of whole, non-homogenized milk.

The first step in completing this project was to first analyze the cost structure of small-scale dairy production to facilitate the construction of a spreadsheet model. The team decided to use a simple break-even analysis to determine when the additional fixed cost associated with on-farm pasteurization would be paid off. To project variable cost and production, the team used the herd size as the primary indicator of future cost and revenue.

The team then moved to the second task of assisting the Austin Family with projecting their potential cost of on-farm pasteurization. Using cost data provided by the Austin's, the team first determined the cost of purchasing and sustaining a cow over the course of a year. Then with the understanding that the Austin's were considering increasing their herd size, the team was able to project their potential production and variable costs. To determine the potential price the Austin's could charge for their product, the team completed a survey of potential buyers in a 25-mile radius of their home. The list of potential buyers was developed using GIS and NAICS codes to create a list of grocery stores, convenience stores, and restaurants. Fixed costs associated with on-farm milk pasteurization and bottling were determined by gathering quotes from equipment sellers.

USDA
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To determine the Austin's financial situation after five years, the team input the data from the pricing survey and the cost quotes into the financial tool. In terms of sales projections, the team decided to run both a best case and worst case scenario with varying percentages of milk sales. The best case scenario showed profits after year four while the worst case scenario did not show profitability within the five year period. However, the trend of the worst case scenario showed increasing revenues and the potential of profitability after five years. Therefore, if the family desires to make a long-term investment in their dairy operation, we recommend transitioning to on-farm value added production of non-homogenized milk.

In addition to analyzing the Austin's particular situation, and making recommendations specific to them, the CEFS team created an Excel-based financial analysis tool and video guide to this tool, which can be used by farmers interested in transitioning to on-farm production of bottled milk.

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