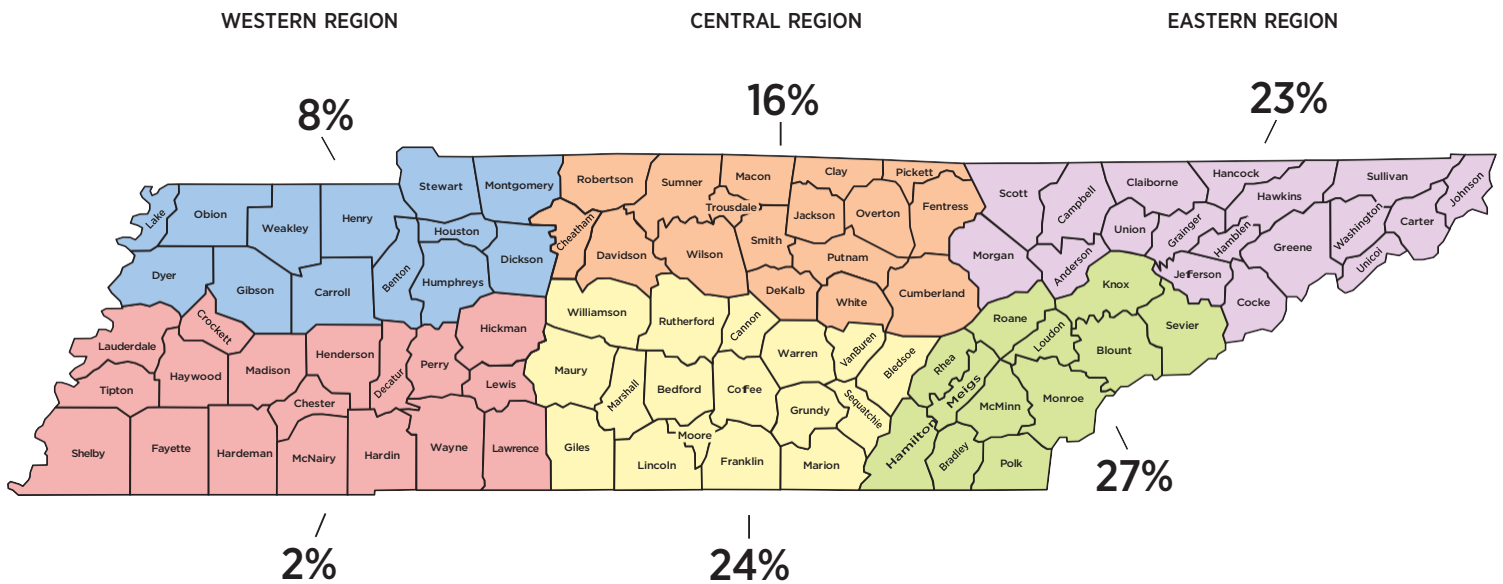


The Potential Impact of Value-added Dairy Processing

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Over the last 30 years, dairy farm numbers in the United States have drastically declined from 200,000 dairies in 1990 to 34,187 dairies in 2019. Tennessee followed a similar trend, with 450 licensed Grade A dairy farms in 2011 (TDA, 2011) decreasing to 175 licensed Grade A dairy farms in 2020 (TDA, 2020). To understand why this trend is continuing, a survey of dairy producers was conducted in August 2019. This survey captured demographic data, herd and milk marketing information, and farm management information. The survey also captured producers' perceived impact of state and federal regulations on farm profitability, potential for value-added dairy processing, farmer stress level and operation outlook. Value-added dairy processing, or farmstead creameries, have been suggested to increase dairy profitability. This publication focuses on the current interest of dairy producers in value-added processing and what impacts their decision making.

In August 2019, 196 licensed Grade A dairy farms were operating in Tennessee. All licensed dairy farmers were mailed a paper copy of the survey with a prepaid return envelope. An online copy of the survey was also created and shared through the UT Dairy TNDairyDiscuss listserv and county, regional and state Extension email groups. Ninety surveys were returned for a 46 percent response rate. Greater response was observed in regions of Tennessee where more dairies are located (10, 32 and 58 percent of 196 dairy farms in the western, central and eastern regions, respectively).



Average producer age was 58 years old (range: 29 to 86). The average herd size in Tennessee was 250 cows and ranged from 14 to 2,300 cows. Milk production, on average, was 58 lbs./cow/day and ranged from 25 to 90 lbs./cow/day. Average bulk tank somatic cell count was 289,940 cells/mL, ranging from 70,000 to 820,000. This was a single point in time request but is reflective of the variable production and somatic cell count across dairies.

Specific questions were asked about producers' existing and preferred milk marketing systems. Most producers (50 percent) were part of a milking cooperative such as Dairy Farmers of America, Maryland and Virginia Milk Producers Cooperative, or Select Milk Producers, Inc. The advantage of being part of a cooperative is that they can bargain with the full amount of milk produced by their members and are run by a board. This can result in more secure contracts and financial security, but it can potentially also come with a lower price per hundredweight of milk. The next highest reported marketing system (43 percent) was independent contracts with milk processing plants. In these agreements, producers enter into a contract with a processing plant. Only 6 percent of producers were currently engaged in value-added dairy processing. However, 15 percent of producers wanted to market through value-added dairy processing. This information indicates there is relatively high interest in value-added dairy processing in Tennessee dairy farms.

Producers were also asked about their profitability from 2014 to 2019 (Figure 2). Of the 90 respondents, 31 indicated they were only profitable 1 of the last 5 years. Ten or fewer producers were profitable more than 3 of the last 5 years. Thirteen producers were unsure if they had been profitable from 2014 to 2019. Many aspects of the Federal Milk Marketing system including delivery day requirements, transportation credits, transportation fees and diversion limits were negatively associated with profitability. However, producers perceived that an emphasis on local, or Tennessee produced and processed milk, would have a positive impact on their profitability (Table 1). Value-added dairy processing in particular was viewed favorably with 60 percent of respondents perceiving that value-added dairy processing would have some to strong positive impact on their profitability. Local labeling, such as the Tennessee Milk Logo was perceived by 76 percent of respondents to have some to strong positive impact on their profitability.

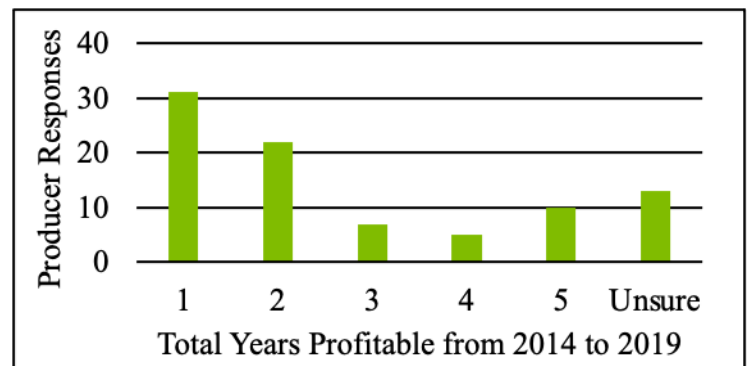


Figure 2. Total number of years Tennessee dairy producers were profitable from 2014 to 2019.

Table 1. Impact of state-specific entities and programs on dairy farm profitability.

	Strong negative impact	Some negative impact	No impact	Some positive impact	Strong positive impact
Tennessee Dairy Promotion Strategies	1	1	13	49	19
Local labeling on dairy products	0	2	15	35	30
Value-added dairy processing	1	2	26	28	23
Increased retail price for dairy products	5	12	16	28	21
State tax on milk to offset production costs	16	18	10	17	11
Incentives to purchase milk from Tennessee dairies	3	0	8	30	41

Although value-added dairy processing was considered to improve profitability, producers did not have a high interest in starting a value-added enterprise (Figure 3). Only nine producers were highly considering starting value-added dairy processing. However, 25 and 22 producers, respectively, had moderate and slight interest in pursuing value-added dairy processing. The greatest impediment to value-added dairy processing was identified as start-up costs. Most producers (56 percent) stated start-up costs would have a strong negative impact on starting a value-added enterprise, higher than any other consideration (Table 2). Providing grants or sub-award programs to offset the start-up costs may increase producer adoption of value-added dairy processing.

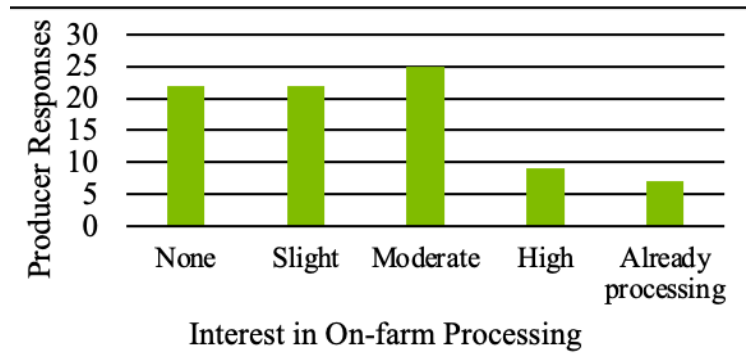


Figure 3. Level of interest in starting an on-farm processing enterprise. Seven respondents were already involved in on-farm processing.

Table 2. Factors impacting Tennessee dairy producers’ consideration of a value-added dairy processing enterprise.

	Strong negative impact	Some negative impact	No impact	Some positive impact	Strong positive impact
State regulations	6	21	34	11	7
Federal regulations	12	22	33	6	6
Start-up costs	48	18	5	2	8
Processing knowledge	15	23	17	10	13
Labor for processing	20	27	18	4	9
Marketing dairy products	15	24	15	13	12

Beyond financial improvement, improved mental health may be a reason to consider value-added dairy processing. Producers ranked their current and previous (5 years prior) stress level as severe, high, moderate, slight or none (Figure 4). Currently, most producers experienced high (46 percent) and severe (36 percent) stress.

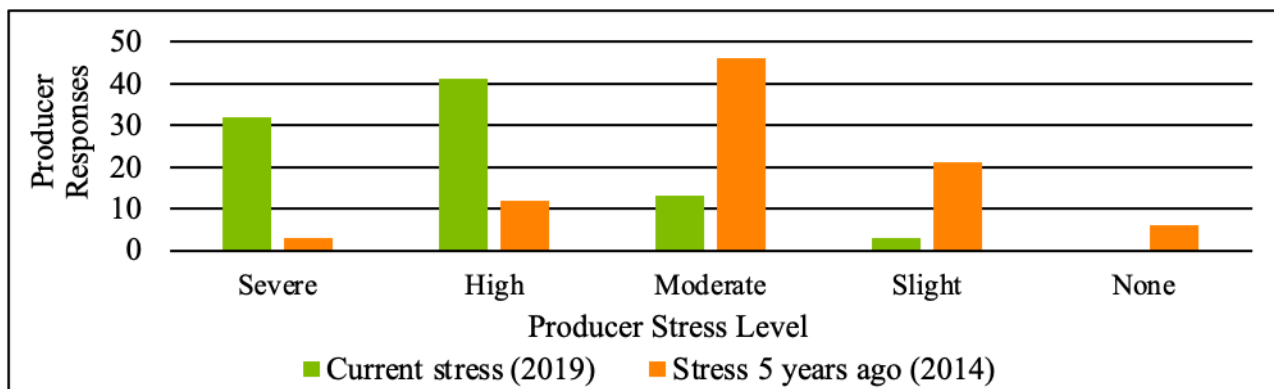


Figure 4. Stress level producers experienced in 2019 compared to 5 years ago (2014).

Producer stress stemmed from farm finances, milk marketing, market availability, price received for milk and cost to produce milk (Table 3). Although there is more inherent risk associated with value-added dairy processing, there may be the perception of increased control, capturing a greater percentage of the food dollar, and increasing the farm’s longevity and prosperity. However, this is based on producers’ perception, not on research or market data.

Table 3. Stress level associated with farm and marketing factors by Tennessee dairy producers in 2019. processing enterprise.

	Severe stress	High stress	Moderate stress	Slight stress	No stress
Farm labor	21	29	23	12	2
Farm finances	38	30	14	3	3
Milk production	9	25	37	9	5
Milk marketing	27	23	24	12	1
State regulations	6	20	31	22	8
Federal regulations	9	19	36	16	6
Federal Milk Marketing Orders	16	28	24	10	7
Having a milk market	30	34	20	3	1
Price per cwt	46	32	7	1	1
Milk quality	12	26	30	13	5
Cost of production	33	35	17	2	0
Farm transition plans	15	22	22	13	14

In conclusion, Tennessee dairy producers perceived that value-added dairy processing was a desirable way to market their milk and would improve dairy farm profitability. Additionally, producers indicated that the main issues causing stress revolved around farm finances, marketing and having a market for their milk, and the price received for their milk. Producers view on-farm processing as a way to regain control over these financial uncertainties. However, the costs associated with beginning a value-added dairy enterprise are the largest hurdles producers must overcome. Taking advantage of grants and sub-award programs, providing materials and resources about costs, regulations, and implementing a value-added enterprise, and conducting research to better describe the financial impacts of value-added dairy processing may increase sustainability of the Tennessee dairy industry.



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