



## **State of Maine Agriculture Report Series**

### **Dairy Sector Report**

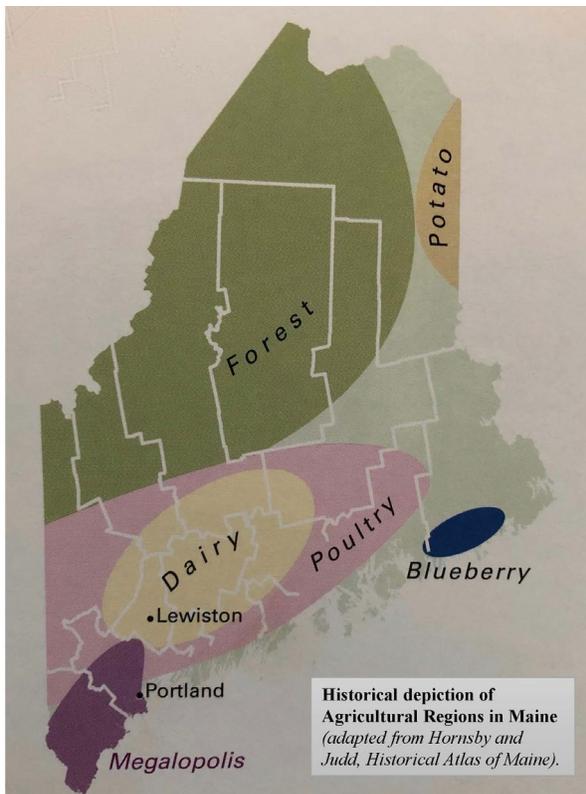
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For more information, contact:  
Ellen Stern Griswold  
Policy and Research Director, Maine Farmland Trust  
[egriswold@mainefarmlandtrust.org](mailto:egriswold@mainefarmlandtrust.org)  
(207) 338-6575 ex. 307

# State of Maine Agriculture Report Series Dairy Sector Report<sup>1</sup>

## I. Executive Summary

Throughout its history, the dairy sector has been a consistent agricultural and economic force in Maine. The farms that make up Maine’s “dairy belt”<sup>2</sup> have acted as hubs of stability and commerce for generations. These farms have served as crucial rural economic development engines, and have provided the necessary threshold of business for veterinarians, feed and



machinery suppliers, and truckers to comfortably set up shops in towns like China, Clinton, Monmouth, Detroit, and many others.<sup>3</sup>

Despite its rich history, recently Maine's dairy sector has reached a crisis point.<sup>4</sup> Farmers are facing daunting challenges that threaten the stability of the sector. As dairy farmer Spencer Aitel, owner of the organic Two Loons Farm in South China, explains, many dairy farms are only surviving because

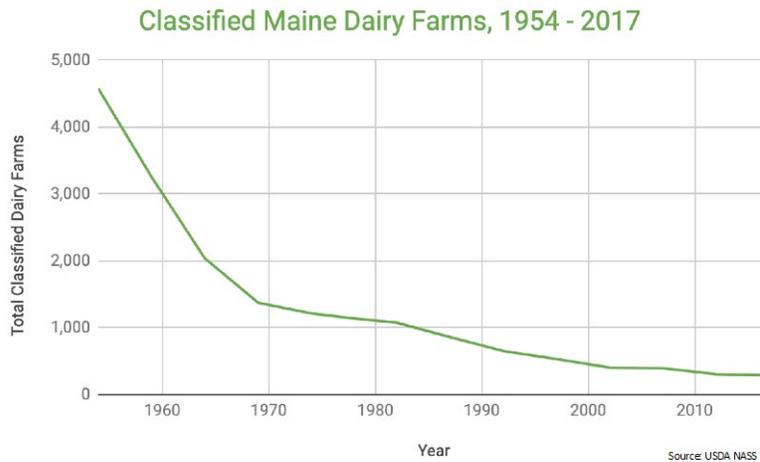
<sup>1</sup> Maine Farmland Trust wishes to thank William Sedlack, Andrew Marshall, and Ashleigh Angel for their extensive research and writing contributions to this report.

<sup>2</sup> Email from Julie-Marie Bickford, Executive Director, Maine Dairy Industry Association, to William Sedlack, Research and Policy Intern, Maine Farmland Trust (Apr. 19, 2018) (On file with author) (explaining that the “dairy belt” of Maine traditionally runs from eastern/northern Androscoggin County, through eastern Franklin County, over to Kennebec County and Southern Somerset County, Southern Piscataquis and Penobscot counties, over to Waldo County).

<sup>3</sup> *Id.*

<sup>4</sup> Interview with Spencer Aitel, Owner, Two Loons Farm, South China, ME (Mar. 6, 2018).

of “the will of the family.”<sup>5</sup> This crisis point, which is happening in many areas of the country,



has resulted in farmers going out-of-business and even concerns about suicide.<sup>6</sup> It, coupled with changing demographic trends, has also led to a significant reduction in

the number of dairy farms in Maine, declining from 4,578 total dairy farms in 1954 to 286 by 2017.<sup>7</sup>

This report provides a historical perspective and contemporary analysis of these challenges. It also presents some opportunities for policy and market interventions that could help to stabilize the Maine dairy sector and enhance its future viability.

## **Challenges**

***Rising costs of production and low pay prices:*** The cost of producing milk in Maine has risen steadily over the past 50 years, while the price that farmers receive for their milk has

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<sup>5</sup> *Id.*

<sup>6</sup> Lauren Abbate, *Organic Dairy Farmers ‘Weathering the Storm’ as Milk Prices Drop, Production Quotas Set*, Bangor Daily News (Sept. 23, 2017), <https://bangordailynews.com/2017/09/23/homestead/organic-dairy-farmers-weathering-the-storm-as-milk-prices-drop-production-quotas-set/>; Lisa Rathke, *Suicides Prompt Outreach to Northeast Dairy Farmers*, Portland Press Herald (Mar. 3, 2018) <https://www.pressherald.com/2018/03/03/suicides-prompt-outreach-to-northeast-dairy-farmers/>.

<sup>7</sup> United States Department of Agriculture (USDA), National Agricultural Statistics Service (NASS), *Census of Agriculture for 1954, Maine*, [http://agcensus.mannlib.cornell.edu/AgCensus/getVolumeOnePart.do?year=1954&part\\_id=506&number=1&title=Maine](http://agcensus.mannlib.cornell.edu/AgCensus/getVolumeOnePart.do?year=1954&part_id=506&number=1&title=Maine) [hereinafter *1954 Census*] (last visited Oct. 16, 2018).; USDA, NASS, *Census of Agriculture for 2017, Maine*, [https://www.nass.usda.gov/Publications/AgCensus/2017/Full\\_Report/Volume\\_1\\_Chapter\\_1\\_State\\_Level/Maine/](https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Maine/) [hereinafter *2017 Census*] (last visited May, 2019).

become increasingly volatile. This often means that the cost of production is higher than revenues, as has been the case for the past 5 years.

*An aging dairy farmer population and uncertain succession options:* A plurality of Maine's dairy farmers are nearing retirement, and it is unclear how many of them have identified successors. As land values climb and development pressure mounts, many farmers are facing a difficult choice about the future of their operations and the land base that supports them.

*Demographic shifts have reduced the number of farms and amount of farmland in Maine's dairy sector:* The number of farms and amount of farmland in the dairy sector in Maine have diminished significantly since the mid-1950s. Although increases in efficiency have supported production levels during this period, the pace of this reduction has accelerated in the past decade.

### **Opportunities**

*Continue to support and invest in Maine's Dairy Stabilization Program:* Maine is unique among Northeast states in that it has committed to supporting dairy farmers with cash payments through its Dairy Stabilization Program, or the Tier Program, when milk prices fall below the cost of production. This support has had a demonstrable and important effect on Maine dairy viability, according to the data and the experts we interviewed. Continued political support for the funding of this program is crucial to protecting the dairy sector during this prolonged market contraction.

*Explore the potential for expanded processing capability in Central Maine:* Expanding dairy processing capacity, particularly for value-added products and closer to where milk is produced in Maine, could help dairy producers grow their businesses and appreciably lower

production and transportation costs for the dairy sector, thus affording producers and processors more control over the production and marketing process.

*Explore the development of regional pricing:* Presently, the price of milk in Maine is determined by a complex formula based on variables that poorly reflect the realities of dairy farming in Maine. A regional pricing system, using variables that are more sensitive to regional production costs and market signals, could provide Maine producers with a more stable and predictable environment for future business planning, and serve as an effective tool for achieving regional dairy viability. Maine could play a strong role in helping to shape these regional and national discussions.

## **II. Background**

Maine Farmland Trust (MFT) is a member-powered statewide organization that works to protect farmland, support farmers, and advance the future of farming. Since 1999, MFT has helped to permanently protect nearly 300 farms and keep over 60,000 acres of farmland in farming, while supporting over 800 farm families with a range of services. As part of its State of Maine Agriculture Report Series, MFT will periodically release reports on different agricultural sectors in Maine that provide in-depth coverage and analysis of sector-based agricultural trends for policymakers and others working on these issues. The purpose of the Series is to provide information about these trends to those working on agriculture policy in Maine so that targeted policies are advanced that address the needs of each agricultural sector. The authors have focused on the dairy sector as the first of these reports because of its prominence within Maine agriculture and its current economic state.

This report will look at several of the important trends for the dairy sector in Maine in order to inform stakeholders and policymakers both of the dairy sector's current landscape and its

historical footing. Specifically, the report will examine issues around land, pricing, production costs, demographics, and the rise of organic dairy in order to better understand the history of Maine’s dairy sector, the industry’s future, and the support needed for it to remain an anchor for agricultural communities across Maine.

### **III. Methodology**

This report draws on a number of sources and methods for its analysis and conclusions. The primary source for both historical data and recent trends in the dairy sector – including the number of farms, land in farms, economic and demographic data, and their trends over time – is the Census of Agriculture, administered every five years by the United States Department of Agriculture National Agricultural Statistics Service (USDA NASS). The most recent Census data was collected in 2017 and released in April of 2019. In addition, the authors used annual sector surveys by NASS, which track milk production, sales, and price information, as well as NASS surveys of organic production in Maine. Other secondary analyses – such as the annual dairy summary from Farm Credit East, which is a comprehensive analysis of dairy farm financial health and profitability; cost of production studies undertaken by the University of Maine Cooperative Extension; and annual reports from dairy trade groups – were also valuable sources of information.

In addition to these sources, the authors undertook interviews with several “dairy sector experts,” including dairy farmers themselves, agricultural service providers, and commodity group representatives. These first-person perspectives and insights serve to illustrate and reinforce the data sources, and provide a rich complement to the numbers. These experts are quoted throughout the report. A more detailed description of the methodology used for this report is included as an appendix.

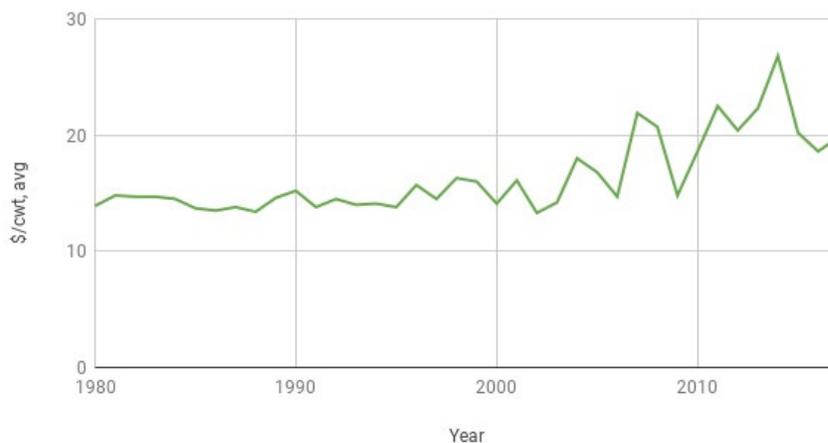
#### IV. Findings

The Maine dairy sector is in the midst of a challenging period. Farmers are facing low pay prices, cost increases, increased development pressure, and demographic shifts that threaten the stability of the industry. This report will address these issues and provide a historical perspective and contemporary analysis of these challenges.

##### A. Pricing & Sales Issues

For conventional dairy farmers in Maine and elsewhere, the price volatility of fluid milk has been one of the biggest barriers to success. The price of fluid milk is currently determined by

Milk Pay Price received by Maine Dairy Farmers, 1980 - 2017



global market forces.<sup>8</sup>

The price that a dairy farmer receives for milk is determined by the USDA through the Federal Milk Marketing Order.<sup>9</sup> Milk is classified by its end use and each

class of milk is assigned a different price using complex, regionally variable formulas established by the USDA.<sup>10</sup> However, export markets, domestic demand, and supply all strongly influence milk prices.<sup>11</sup>

<sup>8</sup> Farm Credit East, *2017 Northeast Dairy Farm Summary*, 7 (May 2018), <https://www.farmcrediteast.com/knowledge-exchange/Reports/2017-northeast-dairy-farm-summary>.

<sup>9</sup> See Department of Agriculture, Conservation and Forestry, *Maine Milk Commission, How Prices are Established*, <http://www.maine.gov/dacf/milkcommission/established.shtml> (last visited May 30, 2018).

<sup>10</sup> *Id.*

<sup>11</sup> Farm Credit East, *2017 Northeast Dairy Farm Summary*, 7 (May 2018), <https://www.farmcrediteast.com/knowledge-exchange/Reports/2017-northeast-dairy-farm-summary>.

From 1980 to 2006, the average milk price remained stable at around \$14.00 per cwt with the exception of a few years.<sup>12</sup> However, since that time, milk pay prices in Maine, and throughout the U.S., have been characterized by cyclical boom and bust periods.<sup>13</sup> Milk prices begin the cycle at a low point, progress to significantly high prices, and then drop again to new low levels.<sup>14</sup> In recent years, though, the price of milk has become increasingly erratic, remaining low for an extended period of time rather than the normal 2-3 year cycle.<sup>15</sup> This price volatility is problematic for dairy farmers who need stable milk prices to inform their business decisions. As explained by Rick Kersbergen, Extension Professor of Sustainable Dairy and Forage Systems at the University of Maine Cooperative Extension:

[f]arms have to find a way to manage through [boom and bust] cycles and that's where some of that business management skill comes in. And part of the problem, especially in conventional markets, [is that] it's hard to predict what the milk prices are going to be. So, you really don't have a good way of planning. When do you decide to invest in certain things? When do you decide to go to an expansion or not? It's all based on a predicted milk price that is out of their control.<sup>16</sup>

In addition to the price volatility that characterizes the recent dairy market, fluid milk sales have also seen a gradual but significant decline over time. Between 2008 and 2009, for example, total Maine fluid milk sales decreased by \$36,170,000, between 2011 and 2012 by \$9,414,000, and between 2014 and 2015 by \$40,280,000.<sup>17</sup> This trend reflects the steady decline in fluid milk

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<sup>12</sup> USDA, NASS, *Annual Survey Data, Maine, Milk Price Received – Measured in \$/CWT*, <https://quickstats.nass.usda.gov/results/6D84F7DE-27E4-334E-BF32-CD5C06CD3B> (last visited Oct. 18, 2018).

<sup>13</sup> Richard Kersbergen et al., *Cost of Producing Milk in Maine: Results from the 2010 Dairy Cost-of-Production Survey*, University of Maine, 1 (Jan. 2013), <https://www1.maine.gov/dacf/milkcommission/documents/b853.pdf>.

<sup>14</sup> *Id.*

<sup>15</sup> Email from Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, to Ellen Stern Griswold, Policy and Research Director, Maine Farmland Trust (Oct. 1, 2019) (On file with author).

<sup>16</sup> Interview with Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, Freeport, ME (Feb. 22, 2018).

<sup>17</sup> USDA, NASS, *Annual Survey Data, Milk Sales – Measured in \$*, <https://quickstats.nass.usda.gov/results/77A1328A-F3EE-3E16-A34C-338F009FFFC8> (last visited Oct. 10, 2018).

consumption that has resulted from the competition with other beverages.<sup>18</sup>

## **B. Production Costs & Farm Value**

Of all the trends affecting the dairy economy in Maine, rising production costs are causing the greatest concern for farmers and agricultural stakeholders. Despite some countervailing positive metrics, costs of production are quickly making dairy an impracticable economic choice for many farmers. In 1969,<sup>19</sup> total dairy farm production expenses in Maine adjusted for inflation<sup>20</sup> were valued at \$11,175,341. By 2017, that number after adjusting for inflation had grown to \$284,025,446 – an increase of over 2500%.<sup>21</sup> Similarly, the production expenses of an average Maine dairy farm increased from \$8,122 in 1969 to \$993,094 by 2017 after accounting for inflation.<sup>22</sup> There are a number of reasons for the remarkable increase in production expenses for Maine’s dairy farms. The primary drivers have been increasing input costs such as labor, fuel and grain, and the role that economies of scale play in cost of production relative to profitability. In comparison to other dairy farms in the Northeast, Maine dairy farms also have higher operating expenses.<sup>23</sup> In particular, the 2010 Maine Milk Commission cost of production survey

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<sup>18</sup> Email from Julie-Marie Bickford, Executive Director, Maine Dairy Industry Association, to Ellen Stern Griswold, Policy and Research Director, Maine Farmland Trust (Oct. 23, 2019) (On file with author).

<sup>19</sup> The Census of Agriculture does not include total or average farm production expenses for classified dairy farms before 1969.

<sup>20</sup> See Appendix: Methodology for a description of how the data has been adjusted to reflect inflation.

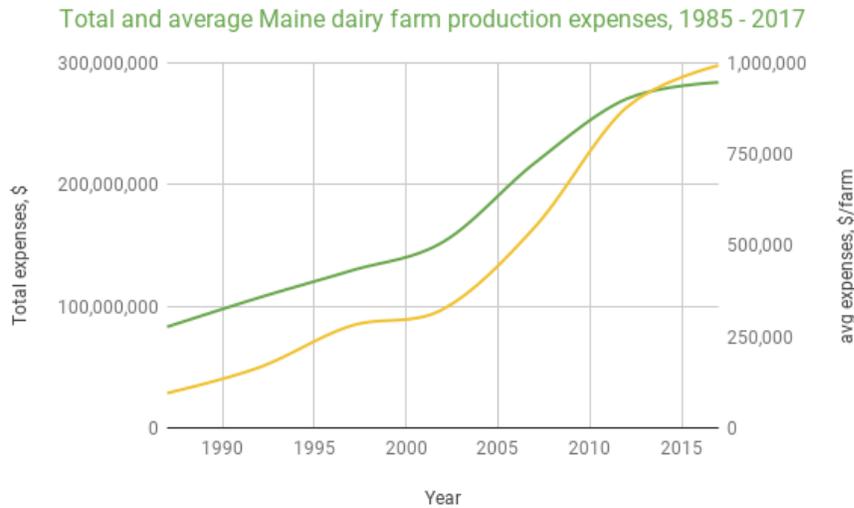
<sup>21</sup> USDA, NASS, *Census of Agriculture for 1969, Maine*,

[http://agcensus.mannlib.cornell.edu/AgCensus/getVolumeOnePart.do?year=1969&part\\_id=275&number=1&title=Maine](http://agcensus.mannlib.cornell.edu/AgCensus/getVolumeOnePart.do?year=1969&part_id=275&number=1&title=Maine) [hereinafter *1969 Census*] (*adjusted for inflation using the Consumer Price Index*) (last visited Oct. 18, 2018); *2017 Census (adjusted for inflation using the Consumer Price Index)*.

<sup>22</sup> *1969 Census (adjusted for inflation using the Consumer Price Index); 2017 Census (adjusted for inflation using the Consumer Price Index)*.

<sup>23</sup> Xuan Chen et al., *Cost of Producing Milk in Maine: Results from the 2013 Cost-of-Production Survey*, University of Maine, 7 (May 2016),

[http://digitalcommons.library.umaine.edu/cgi/viewcontent.cgi?article=1083&context=aes\\_bulletin](http://digitalcommons.library.umaine.edu/cgi/viewcontent.cgi?article=1083&context=aes_bulletin).



found that Maine dairy farms had higher labor costs and lower labor efficiency.<sup>24</sup> According to Rick Kersbergen, this higher level of cost results from a lower average number of

cows per worker on Maine dairy farms, which is attributable to many factors but especially to an aging infrastructure and the lack of investment in new facilities and technology.<sup>25</sup> In addition, the Maine Milk Commission report, *Determining the Current Cost of Producing Milk in Maine 2016*, found that “purchased grain cost is one of the highest expense categories on a dairy farm.”<sup>26</sup> This is especially problematic for dairy farmers in New England because the region does not produce the majority of its grain.<sup>27</sup> Maine also sits at the end of the delivery line, making many imported inputs comparatively expensive for dairy farmers.<sup>28</sup> Moreover, the unpredictable cost of fuel, and the role that fuel plays in many levels of production, makes financial planning difficult.<sup>29</sup>

<sup>24</sup> Richard Kersbergen et al., *Cost of Producing Milk in Maine: Results from the 2010 Dairy Cost-of-Production Survey*, University of Maine, 6 (Jan. 2013), <https://www1.maine.gov/dacf/milkcommission/documents/b853.pdf>.

<sup>25</sup> Email from Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, to Ellen Stern Griswold, Policy and Research Director, Maine Farmland Trust (Oct. 1, 2019) (On file with author).

<sup>26</sup> Dr. Gary Anderson et al., *Determining the Current Cost of Producing Milk in Maine 2016*, 6 (March 2018), [http://www.maine.gov/dacf/milkcommission/documents/MMC\\_FinalReport\\_3\\_23\\_18.pdf](http://www.maine.gov/dacf/milkcommission/documents/MMC_FinalReport_3_23_18.pdf).

<sup>27</sup> Interview with Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, Freeport, ME (Feb. 22, 2018); Farm Credit East, *2017 Northeast Dairy Farm Summary*, 10 (May 2018), <https://www.farmcrediteast.com/knowledge-exchange/Reports/2017-northeast-dairy-farm-summary>.

<sup>28</sup> Interview with Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, Freeport, ME (Feb. 22, 2018).

<sup>29</sup> *Id.*

Economies of scale have a significant influence on dairy farm profitability as well.

According to Rick Kersbergen, this is because “[i]ncreasing size allows you to spread out infrastructure and equipment costs over more cows. [Increasing size] [a]lso allows for the purchase of more efficient machinery (tractors, harvest machinery, milking equipment such as parlors etc.).”<sup>30</sup>

Kersbergen notes

that “it’s a tough

situation where

you go from a

small farm to

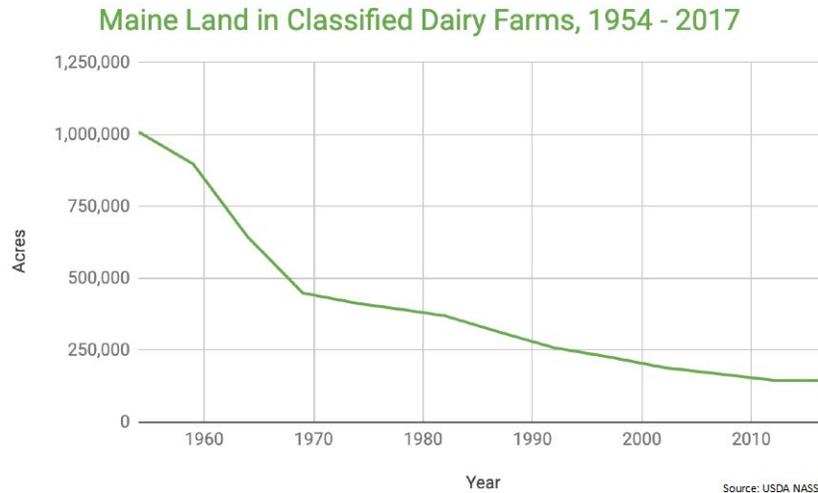
large farm and

you’re in that

intermediate stage.”<sup>31</sup> But if Maine dairy producers could produce more of their own feedstock at a competitive price, that could reduce some of the production cost burden.<sup>32</sup>

### C. Land & Farm Size

Although dairy has been a dominant agricultural land use in Maine since World War II, the number of acres held by dairy farms has decreased precipitously since 1954. In 1954, farms categorized as dairy farms in Maine (“classified dairy farms”) held 1,009,603 acres of land.<sup>33</sup> By 2017, that number had fallen to 145,490 acres – a net decrease of 85%.<sup>34</sup> Some of this decline has resulted from advances in technology and methodology that have allowed farmers to produce



<sup>30</sup> *Id.*

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> 1954 Census.

<sup>34</sup> 2017 Census.

more on existing land – allowing them to give up less productive acreage.<sup>35</sup> But, development pressure, especially in Southern Maine, has also contributed to the acreage decline. Farmers in Southern Maine’s dairy belt are often competing against housing developers as they look to expand herds and obtain new grazing land. This development pressure, which is an increasing concern for farmers in central and northern dairy communities as well, forces farmers to confront the near-impossible decision of whether to sell their land for profit to developers – at values that are often many times what the land is worth as farmland – or keep their land in production, sometimes at a net operating loss. Rick Kersbergen explains that development pressure and rising land values are particularly acute for farmers because almost all farms look at their land base as part of their retirement. “[T]hey don’t have retirement income...they don’t have an annuity somewhere. They have their farm and...their land; and that’s what they’re looking at [as a way to fund retirement].”<sup>36</sup>

As developer interest in dairy farmland has increased, the value of this farmland has increased apace. In fact, there has been a market value increase observed every Census year during the 1954 to 2017 period. In 1954, the average land value of an individual dairy farm in Maine was \$2,804 (adjusted for inflation).<sup>37</sup> By 2017, that number adjusted for inflation had increased nearly one-hundredfold to \$2,673,222.<sup>38</sup> The average per acre market value of dairy farmland and buildings, after accounting for inflation, has also increased four-hundredfold from \$12.80 per acre in 1954 to \$5,255 per acre in 2017.<sup>39</sup> To Kersbergen, this has meant that as land values increase, retirement becomes more appealing to farmers, especially those facing

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<sup>35</sup> Email from Julie-Marie Bickford, Executive Director, Maine Dairy Industry Association, to Ellen Stern Griswold, Policy and Research Director, Maine Farmland Trust (Oct. 23, 2019) (On file with author).

<sup>36</sup> Interview with Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, Freeport, ME (Feb. 22, 2018).

<sup>37</sup> *1954 Census (adjusted for inflation using the Consumer Price Index)*.

<sup>38</sup> *2017 Census (adjusted for inflation using the Consumer Price Index)*.

<sup>39</sup> *1954 Census.; 2017 Census (adjusted for inflation using the Consumer Price Index)*.

development pressure.<sup>40</sup> This drastic increase in land value also makes it increasingly difficult for other farmers, in particular new and beginning farmers, to purchase land unless it is assessed at its agricultural value.

As overall dairy farm acreage has declined in Maine, existing acreage has been consolidated into increasingly larger farms. In other words, smaller dairy farms have declined more significantly and at a faster rate than larger farms. The overall reduction in dairy farms was most significant for farms with milk cow herds of 1 to 9 cows (from 1,043 farms in 1954 to 31 in 2017), farms with milk cow herds of 10 to 49 cows (from 3,408 farms in 1954 to 110 in 2017), and farms with cow herds of 50 to 99 cows (from 153 farms in 1959<sup>41</sup> to 66 in 2017).<sup>42</sup> In fact, in 1954 dairy farms with herds of fewer than 50 cows comprised almost 98 percent of all dairy farms, but by 2017 that percentage had dropped to less than 49 percent.<sup>43</sup>

According to Rick Kersbergen, this is a result of farmers searching for economies of scale that can only be achieved by expanding their herds and acreages.<sup>44</sup> Owing to a combination of genetics and technology, farms have become considerably more efficient over the past seven decades, as evidenced by the increase in average milk per cow from 6,000 pounds in 1954 to 21,000 pounds in 2017.<sup>45</sup> According to Kersbergen, these increases have allowed for the overall amount of fluid milk produced in the state to remain fairly constant at about 600 to 630 million

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<sup>40</sup> Interview with Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, Freeport, ME (Feb. 22, 2018).

<sup>41</sup> USDA, NASS, *Census of Agriculture for 1959, Maine*, <http://usda.mannlib.cornell.edu/usda/AgCensusImages/1959/01/01/1959-01-01.pdf> [hereinafter *1959 Census*] (last visited Oct. 18, 2018). Because the 1954 Census of Agriculture only includes a herd category of 50 or more milk cows, data from the 1959 Agriculture Census was chosen to compare the number of farms with milk cow herds of 50-99.

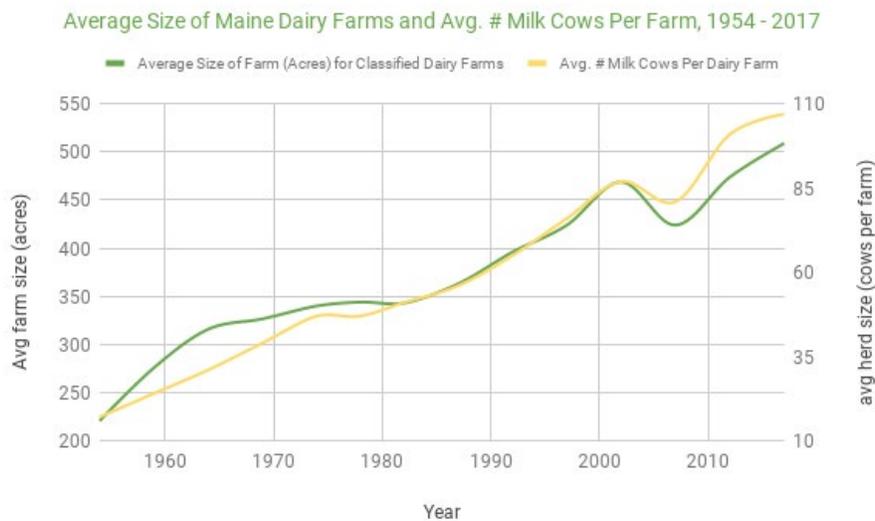
<sup>42</sup> *1954 Census.; 2017 Census.*

<sup>43</sup> *1954 Census.; 2017 Census.*

<sup>44</sup> Interview with Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, Freeport, ME (Feb. 22, 2018).

<sup>45</sup> USDA, NASS, *Annual Survey Data, Maine, Milk Production Measured in pounds/head*, <https://quickstats.nass.usda.gov/results/B5203D0F-B3B3-339A-8052-171363E2BE6E>.

pounds of milk per year despite the reductions in farms in certain size categories.<sup>46</sup> Kersbergen also notes that “[the] farms that have gone bigger using hired labor [are] ... trying to increase the number of animals that are being served by the same or similar infrastructure so they’re just spreading out their capital costs over more animals.”<sup>47</sup> And in fact, the average number of milk cows per farm has grown steadily over this period from 17 milk cows in 1954 to 107 in 2017.<sup>48</sup> The shift to larger farms is also reflected in changes to the average size of a classified dairy farm, which has increased from 220.5 acres in 1954 to 509 acres in 2017.<sup>49</sup>



Julie-Marie Bickford, Executive Director of the Maine Dairy Industry Association, believes that the loss of smaller farms is also the result of shifting societal trends where multiple generations of a farming family work on the same piece of land instead of the younger generations leaving to start their own farms.<sup>50</sup> To Jenni Tilton-Flood, a dairy farmer from

<sup>46</sup> Email from Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, to Ellen Stern Griswold, Policy and Research Director, Maine Farmland Trust (Oct. 1, 2019) (On file with author).

<sup>47</sup> Interview with Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, Freeport, ME (Feb. 22, 2018).

<sup>48</sup> *1954 Census.*; *2017 Census.*

<sup>49</sup> *1954 Census.*; *2017 Census.*

<sup>50</sup> Email from Julie-Marie Bickford, Executive Director, Maine Dairy Industry Association, to Ellen Stern Griswold, Policy and Research Director, Maine Farmland Trust (Oct. 23, 2019) (On file with author).

Clinton, the shift to larger farms is a result of small and mid-size farms deciding to specialize in dairy.<sup>51</sup> As they specialized, these farmers moved from the traditional methods of their grandparents to more modern techniques.<sup>52</sup> For Tilton-Flood, this means that there “[wasn’t] a loss of agricultural production at that size, but a shifting to production at a different size.”<sup>53</sup> Moreover, Jenni Tilton-Flood believes there is a move to larger farms because medium-size farms are often “the ones that struggle to see profit. Their profit is generally a little bit lower than a smaller or larger sized farm . . . And a lot of it has to do with their costs. Their costs are different than when they were small and they’re not able to take advantage of economies of scale [like larger farms].”<sup>54</sup> But given the market volatility discussed above, it is far from clear that these new trends around economies of scale are enough to sustain dairy farms into the future.

#### **D. Demographic Challenges and Opportunities**

There exist both positive and challenging demographic trends in the Maine dairy industry. Several positive trends in the industry include the growth of female operators and a slightly lower average age for primary operators. In 1978,<sup>55</sup> there were 43 dairy farm operators in Maine that identified as women,<sup>56</sup> but by 2012 that number had risen to 184.<sup>57</sup> The 2017 Census of Agriculture began using a modified metric to identify “principal producers,” which uncovered a

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<sup>51</sup> Interview with Jenni Tilton-Flood, Dairy Farmer, Clinton, ME (Mar. 1, 2018).

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> *Id.*

<sup>55</sup> The number of female classified dairy operators was not provided before the 1978 Census of Agriculture.

<sup>56</sup> USDA, NASS, *Census of Agriculture for 1978, Maine*,

[http://agcensus.mannlib.cornell.edu/AgCensus/getVolumeOnePart.do?year=1978&part\\_id=153&number=19&title=Maine](http://agcensus.mannlib.cornell.edu/AgCensus/getVolumeOnePart.do?year=1978&part_id=153&number=19&title=Maine) [hereinafter *1978 Census*] (last visited Oct. 22, 2018).

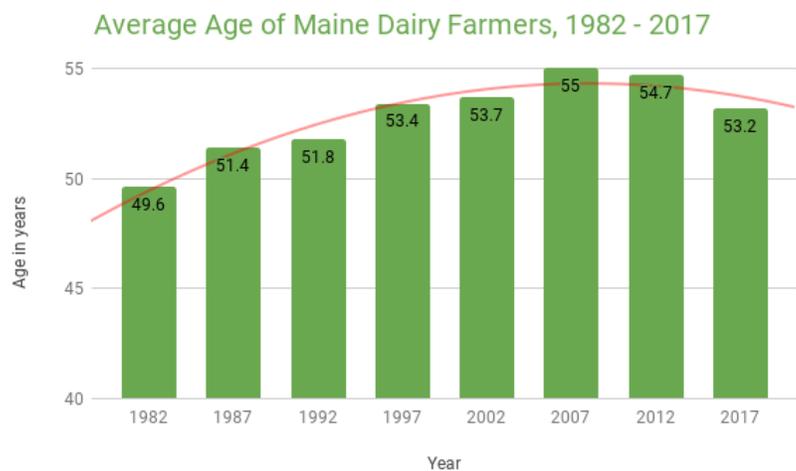
<sup>57</sup> USDA, NASS, *Census of Agriculture for 2012, Maine*,

[https://www.nass.usda.gov/Publications/AgCensus/2012/Full\\_Report/Volume\\_1\\_Chapter\\_1\\_State\\_Level/Maine/](https://www.nass.usda.gov/Publications/AgCensus/2012/Full_Report/Volume_1_Chapter_1_State_Level/Maine/) [hereinafter *2012 Census*] (last visited Oct. 18, 2018).

significant undercounting of women farmers across sectors in past Census reports. As a result, by 2017, the number of female dairy producers stood at 221.<sup>58</sup>

Sarah Littlefield, formerly the Dairy Program Director at Wolfe’s Neck Center for Agriculture and the Environment and now Executive Director of the Maine Dairy Promotion Board, has noticed the shift: “nationally, there is a growing trend of women in the forefront of the dairy industry, and certainly here at Wolfe's Neck we’ve seen more female Apprentices come to the program than we have male.”<sup>59</sup> To Jenni Tilton-Flood, the numbers have deeper meaning. She noted that women have always been running the dairy farms, but they may not have been filling out the paperwork. For Tilton-Flood, the increase in the number of primary operators identifying as women indicates “that women are now saying, ‘yes, I am part of this farm.’”<sup>60</sup> This observation appears to be borne out by the 2017 Census.

Maine dairy farmers are also slightly younger than their counterparts in other farming sectors. In 2017, the average age of all farmers in Maine was 56.5, whereas the average age of a principal producer of a dairy farmer was 53.2.<sup>61</sup> In fact, the average age of Maine dairy farmers has been declining slightly since its



<sup>58</sup> 2017 Census.

<sup>59</sup> Interview with Sarah Littlefield, former Dairy Program Director, Wolfe’s Neck Center for Agriculture and the Environment, Freeport, ME (Feb. 20, 2018).

<sup>60</sup> Interview with Jenni Tilton-Flood, Dairy Farmer, Clinton, ME (Mar. 1, 2018).

<sup>61</sup> 2017 Census.

peak at 55 in 2007.<sup>62</sup> Despite this small decline in the Census data, many of the experts interviewed are concerned that the average age of dairy farmers is increasing in reality, and some farmers such as Spencer Aitel are still concerned about who will inherit their business.<sup>63</sup> According to Kersbergen, entering the dairy sector is particularly challenging because of the “large amount of capital it takes to become a dairy farmer.”<sup>64</sup> Overcoming those challenges will be critical to getting more farmers to enter the dairy sector.<sup>65</sup> For David Herring, Executive Director of Wolfe’s Neck Center for Agriculture and the Environment, confronting these barriers to entry has become an organizational mission, because “when you get new people in an industry, whether they’re in their twenties or thirties ... you’ll have them looking to make improvements to facilities that can serve them for the next twenty and thirty years because they’re at the beginning of their careers.”<sup>66</sup>

### **E. Organic Dairy**

During the past twenty turbulent years in Maine's conventional dairy sector, transition to organic had been an option for dairy farmers seeking stable prices and market predictability if they were willing to change their production practices. However, in light of a recent but prolonged slowdown in the growth of demand for organic dairy, some are concerned that era might be over. According to Spencer Aitel, “the strength of the organic market has been its predictability. It’s not necessarily that you make a lot more money. It’s more fun to do because the stresses are lower, but predictability of economics has been [its] strong point. If it turns into a

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<sup>62</sup> USDA, NASS, *Census of Agriculture for 2007, Maine*, [https://www.nass.usda.gov/Publications/AgCensus/2007/Full\\_Report/Volume\\_1\\_Chapter\\_1\\_State\\_Level/Maine/](https://www.nass.usda.gov/Publications/AgCensus/2007/Full_Report/Volume_1_Chapter_1_State_Level/Maine/) [hereinafter *2007 Census*] (last visited Oct. 22, 2018).

<sup>63</sup> Interview with Spencer Aitel, Owner of Two Loons Farm, South China, ME (Mar. 6, 2018).

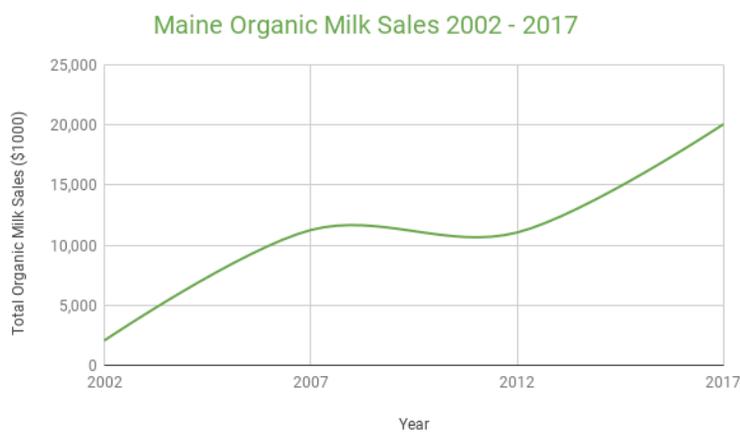
<sup>64</sup> Interview with Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, Freeport, ME (Feb. 22, 2018).

<sup>65</sup> *Id.*

<sup>66</sup> Interview with David Herring, Executive Director, Wolfe’s Neck Center for Agriculture and the Environment, Freeport, ME (Feb. 22, 2018).

volatile market, again, like conventional dairy has been, then that will probably not bode well for our survival because it's really hard for ... medium sized organic dairies.”<sup>67</sup>

Fueled by rapidly growing demand, organic dairy production in Maine has expanded significantly in the recent past. For example, from 2002 to 2007, the land used for organic dairy production increased nearly eightfold, from 2,503 to 15,698 acres.<sup>68 69</sup> Accounting for inflation, Maine organic dairy revenue grew from \$3,702,342 in 2002 to \$49,200,486 in 2017.<sup>70</sup> There has also been a significant increase in the number of organic dairy farms. In 2002, Maine had 20 dairy farms with organic dairy sales.<sup>71</sup> By 2017, that number had increased to 79 farms, which includes smaller-scale farms that sell directly to consumers.<sup>72</sup> Rick Kersbergen noted, though, that although organic farms currently make up about 30% of all dairy farms in Maine, organic milk only currently makes up about 6% of the total volume of milk produced in Maine.<sup>73</sup>



But there has been expansive growth in the Maine organic dairy industry, which some attribute to the predictable returns on investments in the past. Previously, dairy farmers willing to convert to

<sup>67</sup> Interview with Spencer Aitel, Owner of Two Loons Farm, South China, ME (Mar. 6, 2018).

<sup>68</sup> 2007 Census.; USDA, NASS, *Census of Agriculture for 2002, Maine* [http://agcensus.mannlib.cornell.edu/AgCensus/getVolumeOnePart.do?year=2002&part\\_id=985&number=19&title=Maine](http://agcensus.mannlib.cornell.edu/AgCensus/getVolumeOnePart.do?year=2002&part_id=985&number=19&title=Maine) [hereinafter 2002 Census] (last visited Oct. 22, 2018).

<sup>69</sup> Total land area used for organic dairy production in Maine was not reported in the 2012 or 2017 Censuses due to a change in methodology.

<sup>70</sup> 2002 Census (adjusted for inflation using the Consumer Price Index); 2017 Census (adjusted for inflation using the Consumer Price Index).

<sup>71</sup> 2002 Census.

<sup>72</sup> 2017 Census.

<sup>73</sup> Email from Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, to Ellen Stern Griswold, Policy and Research Director, Maine Farmland Trust (Oct. 1, 2019) (On file with author).

organic could expect to receive a premium price for their product. In addition to a high base price for organic milk, farmers received premium payments from the milk companies for a variety of management and milk quality criteria, as well as to cover transportation costs.<sup>74</sup> These payments included incentives to increase herd sizes and bring more land into organic production.<sup>75</sup> These incentives, coupled with the growing demand for organic dairy products, ushered in a period of significant and steady growth in the Maine organic dairy sector. In light of this growth, “organic was supposed to be the savior of the small to medium [dairy] farm,” noted Jacki Perkins, Maine Organic Farmers and Gardeners Association’s Organic Dairy and Livestock Specialist.<sup>76</sup>

Although the growth in organic dairy has been remarkably steady and predictable for the past twenty years, the past few years have seen slower-than-predicted growth in demand. This slump in demand has led to an oversupply; and farmers have weathered sharply reduced pay prices for organic milk since 2016.<sup>77 78</sup> A number of Maine organic dairies have been on production quotas since this contraction, and the number of new organic dairies in the state has stagnated.<sup>79</sup> As noted by Spencer Aitel, “whether we have reached a peak depends on the accuracy of our response [to the decrease in demand].”<sup>80</sup>

According to Jacki Perkins, there was steady growth and consistent encouragement for organic dairy production in Maine from the milk companies during the period immediately

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<sup>74</sup> Interview with Julie-Marie Bickford, Executive Director, Maine Dairy Industry Association, Augusta, ME (Mar. 29, 2018).

<sup>75</sup> *Id.*

<sup>76</sup> Interview with Jacki Perkins, Organic Dairy and Livestock Specialist, Maine Organic Farmers and Gardeners Association, Unity, ME (Mar. 6, 2018).

<sup>77</sup> Email from Ed Maltby, President of Northeast Organic Dairy Producers Alliance, to Andrew Marshall, Wang Food and Farming Fellow, Maine Farmland Trust (July 2019) (on file with author).

<sup>78</sup> Northeast pay price data is used here as a proxy for Maine data since the most recent Maine data available is from 2016, and therefore does not capture the pay price decline.

<sup>79</sup> Phone interview with Annie Watson, President, Maine Organic Milk Producers (June 13, 2019).

<sup>80</sup> Interview with Spencer Aitel, Owner, Two Loons Farm, South China, ME (Mar. 6, 2018).

preceding the recent slowdown in demand.<sup>81</sup> Then, according to Perkins, the processors told farmers, “whoa, whoa, whoa. We asked you for too much milk.”<sup>82</sup> In addition, as described above, there have been dramatic reductions in the premiums offered for both organic and conventional dairy farmers according to Julie-Marie Bickford.<sup>83</sup> All of this together indicates to Perkins that “in the context of fluid pounds, we have probably seen our peak. But, for value-added, there's only growth.”<sup>84</sup>

Some experts are also concerned about rising production costs within the organic dairy sector and their impact on the financial stability of the sector moving forward. Until the recent contraction, organic dairy had been able to keep up with increases in production costs through corresponding increases in the pay price of organic fluid milk. Organic dairy farmers, in particular, worry about increases in land, feed, and fuel costs because the market, to many observers, has likely found the ceiling that consumers are willing to pay for organic local fluid milk. This means that farmers and processors likely cannot pass any further costs onto the consumer. To Julie-Marie Bickford, this trend signals a change in premium management by milk companies for organic dairy farms. According to Bickford, “some of the early folks to get on board at the heyday really benefited because in those early days that premium structure was solid.”<sup>85</sup> For Bickford, as the premium structures go away, “there’s more money going out than they’re getting for the value.”<sup>86</sup> Ultimately, this may mean that the number of organic dairy

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<sup>81</sup> Interview with Jacki Perkins, Organic Dairy and Livestock Specialist, Maine Organic Farmers and Gardeners Association, Unity, ME (Mar. 6, 2018).

<sup>82</sup> *Id.*

<sup>83</sup> Email from Julie-Marie Bickford, Executive Director Maine Dairy Industry Association, to Ellen Stern Griswold, Policy and Research Director, Maine Farmland Trust (Oct. 23, 2019) (On file with author).

<sup>84</sup> Interview with Jacki Perkins, Organic Dairy and Livestock Specialist, Maine Organic Farmers and Gardeners Association, Unity, ME (Mar. 6, 2018).

<sup>85</sup> Interview with Julie-Marie Bickford, Executive Director, Maine Dairy Industry Association, Augusta, ME (Mar. 29, 2018).

<sup>86</sup> *Id.*

farms will plateau, or even decline in Maine. According to Aitel, for organic dairy to succeed in Maine, farmers will need to work to “take the entrepreneurial steps necessary to bring processing plants and markets in balance with supply.”<sup>87</sup>

## **V. Recommendations**

As previously noted, the dairy sector in Maine has long played an important role in agricultural communities across the state. Because they are highly capitalized and use extensive amounts of land, dairy farms are often “anchor farms” in the agricultural sector. They provide the necessary threshold of business for truckers, veterinarians, feed suppliers, and equipment dealers, thereby undergirding the larger agricultural and rural economy. According to Dave Herring, Wolfe’s Neck Center for Agriculture and the Environment has come to recognize “the importance of the dairy sector as kind of the backbone of the agricultural economy in this state and in other New England states.”<sup>88</sup> For Maine’s dairy industry to recover and succeed in the future, the state and its leaders will need to work towards three goals that emerged throughout our interviews.

### **A. Support the Dairy Stabilization Program**

First, Maine must continue to support and invest in its Dairy Stabilization Program, more commonly known as the “Tier Program.”<sup>89</sup> Tim Drake, Executive Director of the Maine Milk Commission – the body “established to oversee the milk industry in Maine and to support the viability of farms and the milk industry,”<sup>90</sup> – noted that the Tier Program was “established in

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<sup>87</sup> Interview with Spencer Aitel, Owner, Two Loons Farm, South China, ME (Mar. 6, 2018).

<sup>88</sup> Interview with David Herring, Executive Director, Wolfe’s Neck Center for Agriculture and the Environment, Freeport, ME (Feb. 22, 2018).

<sup>89</sup> Interview with Julie-Marie Bickford, Executive Director, Maine Dairy Industry Association, Augusta, ME (Mar. 29, 2018); Interview with Rick Kersbergen, Extension Professor, University of Maine Cooperative Extension, Freeport, ME (Feb. 22, 2018).

<sup>90</sup> Maine Milk Commission, *About the Commission*, <http://www.maine.gov/dacf/milkcommission/index.shtml> (last visited Oct. 24, 2018).

2004, with the intent [of] provid[ing] economic relief to Maine dairy farmers in times of low milk prices.”<sup>91</sup> As Drake wrote in 2011, “[t]he Tier Program provides a payment from the state’s General Fund directly to farmers when the amount that they receive from the marketplace for their milk falls below their cost of production.”<sup>92</sup> To Drake, “[the Tier Program] was designed to be the safety net that keeps the doors open. It’s not designed to make everybody whole.”<sup>93</sup> But, as Drake explained, the Tier Program is ultimately what has kept Maine’s dairy industry from “imploding.”<sup>94</sup> <sup>95</sup>

## **B. Develop More In-State Processing**

Second, Maine must also invest in developing more in-state milk processing capacity, particularly for value-added products; and this capacity should be located close to the dairy farms themselves in Central Maine. According to Jenni Tilton-Flood and Julie-Marie Bickford, the current lack of processing capacity in Central Maine is one of the greatest bottlenecks to a successful future for Maine’s dairy industry.<sup>96</sup> Bickford noted that Maine has not always had a lack of processing. In fact, according to Bickford, “it used to be that there were a lot more dairy farms, ... [and] a greater number of dairy processors. So, you would maybe have in your town a milk company that gathered from the surrounding handful of towns [and] would serve just that limited area.”<sup>97</sup> The need for more processing stems in part from the fact that Maine has dairy farms in 15 of its 16 counties. For Bickford and others, the need for processing in Central Maine

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<sup>91</sup> Interview with Tim Drake, Executive Director, Maine Milk Commission, Waterville, ME (Mar. 20, 2018).

<sup>92</sup> Tim Drake, *Maine’s Dairy Relief Program*, 20 Maine Policy Review 77 (2011), <https://digitalcommons.library.umaine.edu/mpr/vol20/iss1/14>.

<sup>93</sup> Interview with Tim Drake, Executive Director, Maine Milk Commission, Waterville, ME (Mar. 20, 2018).

<sup>94</sup> *Id.*

<sup>95</sup> See Appendix: Methodology for more detail on the Tier Program.

<sup>96</sup> Interview with Jenni Tilton-Flood, Dairy Farmer, Clinton, ME (Mar. 1, 2018); Interview with Julie-Marie Bickford, Executive Director, Maine Dairy Industry Association, Augusta, ME (Mar. 29, 2018).

<sup>97</sup> Interview with Julie-Marie Bickford, Executive Director, Maine Dairy Industry Association, Augusta, ME (Mar. 29, 2018).

comes down to transportation costs.<sup>98</sup> Currently, a milk truck has to make long journeys throughout the state to get back to processing facilities in Southern Maine and beyond. This is problematic for farms that are located hundreds of miles from those processing facilities because it increases the operational costs. Having processing facilities in Central Maine would decrease the length of the trips and increase the viability of dairy farming in Central and Northern Maine. According to Spencer Aitel, the real need for processing facilities is for value-added products that would allow the producers of those products to grow and expand their businesses.<sup>99</sup> He notes that this would also create more stability in the market.<sup>100</sup> Bickford agrees that there is not a need for more fluid processing.<sup>101</sup> Instead, she would like to see additional processing facilities focused on the secondary market of yogurt and other dairy products with higher consumer demand.<sup>102</sup>

Experts also identified the need for dedicated organic processing infrastructure in the state. Currently, all class I organic milk produced in Maine is shipped outside of the state for processing. Organic milk from Maine is therefore more expensive for these processors due to higher transportation costs. To Annie Watson, President of the Maine Organic Milk Producers, this makes Maine organic dairies particularly vulnerable to corporate cost-cutting decisions. "We're at the end of the line, and the first ones to be dropped when there's a downturn in the market," she observed.<sup>103</sup> Seven Maine organic dairies' contracts were terminated by one out-of-state organic processor in 2018. Watson is an enthusiastic advocate for developing Maine-based

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<sup>98</sup> Email from Julie-Marie Bickford, Executive Director Maine Dairy Industry Association, to Ellen Stern Griswold, Policy and Research Director, Maine Farmland Trust (Oct. 23, 2019) (On file with author).

<sup>99</sup> Phone interview with Spencer Aitel, Owner, Two Loons Farm (Dec. 6, 2019).

<sup>100</sup> *Id.*

<sup>101</sup> Interview with Julie-Marie Bickford, Executive Director, Maine Dairy Industry Association, Augusta, ME (Mar. 29, 2018).

<sup>102</sup> *Id.*

<sup>103</sup> Phone interview with Annie Watson, President, Maine Organic Milk Producers (June 13, 2019).

organic dairy processing facilities as a mechanism for reducing transportation costs and providing a more secure and locally-controlled market for Maine's fluid organic milk.

### **C. Explore Regional Pricing**

Finally, Maine should explore an alternative to the Federal Milk Marketing Order and examine the development of a regional pricing system that more accurately reflects regional cost-of-production realities. According to Tim Drake, Maine does not “produce enough milk in this region to have the political power to change the national pricing...[and] the current system artificially props up [some states’] prices because of the class I milk influence from the Northeast and Southeast.”<sup>104</sup> The current system is based on one commodity price and adjusted according to regional conditions. As an alternative, Drake proposes a regional auction-based pricing mechanism that would be more sensitive to market conditions in each region. A regional pricing scheme could re-establish market stability for dairy farmers because, as explained by Drake and Bickford, such a scheme would ensure that the “correct signals come back to the farm,” leading to increased stability in the dairy sector, and the ability of farmers to accurately plan.<sup>105</sup> The Maine dairy industry has been exploring the idea of regional pricing since 2005, but in the last five years there has been increased interest from the dairy industry in other states for exploring alternative pricing options. Maine could play a strong role in helping to shape these regional and national discussions.

## **VI. Conclusion**

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<sup>104</sup> Interview with Tim Drake, Executive Director, Maine Milk Commission, Waterville, ME (Mar. 20, 2018).

<sup>105</sup> *Id.*; Interview with Julie-Marie Bickford, Executive Director, Maine Dairy Industry Association, Augusta, ME (Mar. 29, 2018).

Dairy farming in Maine is the foundation for the state's agricultural and rural economies and landscapes. In many farming communities, especially in Central Maine, dairy farms form the backbone of economic activity and land use. However, the dairy sector in Maine, and throughout the region, is currently struggling through a prolonged period of slumping demand and revenues that fall below the costs of production. While many of the factors that have influenced this crisis are structural and beyond the control of state-level policy-makers,<sup>106</sup> this report outlines several discrete and actionable recommendations, based upon historical trends as well as expert advice, that Maine lawmakers can take to support the state's dairy sector.

### **Appendix: Methodology**

Every five years, the National Agricultural Statistics Service (NASS) at the United States Department of Agriculture (USDA) conducts a Census of Agriculture.<sup>107</sup> The Census provides a count of United States farms and ranches, as well as statistics related to land use and ownership, operator characteristics, production practices, income, expenditures,<sup>108</sup> and more. The Census provides the most detailed and broadest set of information about all sectors of agriculture in the United States. However, in recent years, the Census has suffered from declining response rates. NASS has responded to the decline by building models to account for non-responsive farmers. NASS “use[s] statistical methodology to correct for under-coverage (farms not on the original list), non-response (people not returning their Census questionnaires), and misclassification (whether an operation is correctly classified as a farm or not).”<sup>109</sup>

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<sup>106</sup> For example, the current prolonged crisis has catalyzed a discussion of supply management, which until recently has been somewhat verboten in dairy policy. However, such an initiative would need national-level policy support.

<sup>107</sup> USDA, NASS, *About the Census*, [https://www.agcensus.usda.gov/About\\_the\\_Census/](https://www.agcensus.usda.gov/About_the_Census/) (last visited Oct. 16, 2018).

<sup>108</sup> *Id.*

<sup>109</sup> NASS, *Frequently Asked Questions about the 2012 Census*, <https://www.nass.usda.gov/AgCensus/FAQ/2012/index.php> (last visited Oct. 16, 2018).

This report utilizes Census data from 1954 to 2017 – the last year for which there is available Census data – to better understand historical changes to the sector and what these trends might indicate for the industry’s future. To do that effectively, all historical prices have been adjusted for inflation. Upon the recommendation of Jerry Cessna, an economist with the USDA’s Economic Research Service, MFT has used the Consumer Price Index (CPI) to convert all monetary items referenced in the report into 1982-1984 dollar values. Most of the data presented in this report relate to farms that have been classified by NASS as dairy farms. Since 1997, the Census of Agriculture has classified farms as dairy farms based upon the North American Industry Classification System, which is “the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.”<sup>110</sup> The individual classifications are made using data on production costs, capital investments, revenue, the value of shipments and other factors to determine an establishment's primary business activity.<sup>111</sup> Prior to 1997, farm classifications were made using the Standard Industrial Classification System, which took into account similar factors, but used a different algorithm.<sup>112</sup>

This report also utilizes data from other agricultural surveys conducted by NASS in Maine. First, the report draws upon NASS annual survey data to obtain information about sales, price, and production levels in the dairy sector from 1964 to 2017.<sup>113</sup> Second, the report uses data from the five NASS Organic Surveys that were conducted in 2008, 2011, 2014, 2015 and 2016 in order to collect “acreage, production, and sales data for a variety of [] organic crop and livestock

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<sup>110</sup> See U.S. Census Bureau, *Introduction to NAICS*, <http://www.census.gov/eos/www/naics/> (last visited Oct. 16, 2018).

<sup>111</sup> U.S. Census Bureau, *NAICS Frequently Asked Questions*, <https://www.census.gov/eos/www/naics/faqs/faqs.html#q4> (last visited Oct. 16, 2018).

<sup>112</sup> *Id.*

<sup>113</sup> See NASS, *Surveys, Programs and Surveys*, <https://www.nass.usda.gov/Surveys/> (last visited Oct. 16, 2018).

commodities.”<sup>114</sup> Finally, this report refers to information contained in both the cost of production studies undertaken by the Maine Milk Commission and conducted by the University of Maine Cooperative Extension, and Farm Credit East’s 2017 Northeast Dairy Farm Summary.

In 2004, the state responded to large fluctuations in the price of milk by implementing the Dairy Stabilization Program, or “Tier Program.” This Program provides stability to the Maine dairy sector by establishing a safety net for producers during periods of low milk prices.<sup>115</sup> The Tier Program “established price supports at increasing levels of production, or tiers, under the assumption that low levels of milk production are more costly than higher levels (on a per cwt basis).”<sup>116</sup> In 2010, the Maine Legislature established the requirement for the Maine Milk Commission to conduct a cost-of-production study every three years to inform the Tier Program price supports.<sup>117</sup> To write the most recent report, entitled *Determining the Current Cost of Producing Milk in Maine 2016*, Dr. Gary Anderson, Dr. David Marcinkowski, and Rick Kersbergen sent initial surveys “to all Maine dairy farms (excluding farms producing milk for organic markets) that shipped milk to a wholesale market in 2016.”<sup>118</sup> Of those 161 farms, “producers responded with initial production, labor, acres in feed crops, recordkeeping, and

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<sup>114</sup> See NASS, Certified Organic Survey, 2016 Summary, Introduction, [https://www.nass.usda.gov/Publications/Todays\\_Reports/reports/census17.pdf](https://www.nass.usda.gov/Publications/Todays_Reports/reports/census17.pdf) [hereinafter *2016 Certified Organic Study*]; see also NASS, Certified Organic Survey, 2015 Summary, Introduction, <https://downloads.usda.library.cornell.edu/usda-esmis/files/zg64tk92g/pr76f6075/4f16c5988/OrganicProduction-09-15-2016.pdf> [hereinafter *2015 Certified Organic Study*]; NASS, 2012 Census of Agriculture, 2014 Organic Survey, [https://www.nass.usda.gov/Publications/AgCensus/2012/Online\\_Resources/Organics/ORGANICS.pdf](https://www.nass.usda.gov/Publications/AgCensus/2012/Online_Resources/Organics/ORGANICS.pdf) [hereinafter *2014 Organic Survey*]; NASS, 2011 Certified Organic Production Survey, <https://downloads.usda.library.cornell.edu/usda-esmis/files/zg64tk92g/8623j1717/rb68xf642/OrganicProduction-10-04-2012.pdf> [hereinafter *2011 Certified Organic Survey*]; NASS, 2007 Census of Agriculture, 2008 Organic Production Survey, [https://www.nass.usda.gov/Publications/AgCensus/2007/Online\\_Highlights/Organics/ORGANICS.pdf](https://www.nass.usda.gov/Publications/AgCensus/2007/Online_Highlights/Organics/ORGANICS.pdf) [hereinafter *2008 Organic Survey*].

<sup>115</sup> Richard Kersbergen et al., *Cost of Producing Milk in Maine: Results from the 2010 Dairy Cost-of-Production Survey*, University of Maine, 1 (Jan. 2013), <https://www1.maine.gov/dacf/milkcommission/documents/b853.pdf>.

<sup>116</sup> *Id.*

<sup>117</sup> *Id.* at 2.

<sup>118</sup> Dr. Gary Anderson et al., *Determining the Current Cost of Producing Milk in Maine 2016*, 1 (March 2018), [http://www.maine.gov/dacf/milkcommission/documents/MMC\\_FinalReport\\_3\\_23\\_18.pdf](http://www.maine.gov/dacf/milkcommission/documents/MMC_FinalReport_3_23_18.pdf).

whether the cattle are milked in a parlor or stanchion/tiestall. [The] response rate was 65.2% (105 returns).”<sup>119</sup>

Farm Credit East produces its annual Northeast Dairy Summary to assess the financial health and progress of dairy farm businesses in the Northeast of the United States.<sup>120</sup> “It is intended to provide dairy producers, Farm Credit personnel, Northeast public policymakers and dairy industry leaders with a better understanding of the current status and future prospects of the Northeast’s largest farm sector.”<sup>121</sup>

A number of experts were also interviewed for this report.<sup>122</sup> They were chosen by MFT for their expertise on the dairy sector in Maine and for the diversity of their voices. The list of people interviewed is not comprehensive, but it does provide a cross-section of industry experiences.

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<sup>119</sup> *Id.*

<sup>120</sup> Farm Credit East, *2017 Northeast Dairy Farm Summary*, 1 (May 2018), <https://www.farmcrediteast.com/knowledge-exchange/Reports/2017-northeast-dairy-farm-summary>.

<sup>121</sup> *Id.*

<sup>122</sup> Thank you to Spencer Aitel, Julie-Marie Bickford, Tim Drake, Dave Herring, Rick Kersbergen, Sarah Littlefield, Jacki Perkins, Annie Watson, and Jenni Tilton-Flood for their participation.