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How Does Pennsylvania's Dairy Industry Compare to Michigan, New York and Wisconsin?

Editor's Note: This column is submitted by Chuck Nicholson, an Adjunct Associate Professor in the College of Agriculture and Life Sciences at Cornell University, and a former Clinical Associate Professor of Supply Chain Management at Penn State University. Nicholson is one of three economists who contributed to the 2017 "Study to Support Growth and Competitiveness of the Pennsylvania Dairy Industry," commissioned by the Pennsylvania Department of Agriculture and the Center for Dairy Excellence.

Harrisburg, Pa. – All of us make comparisons every day and often these help us to make better decisions. This could be as simple as comparing prices for items in a supermarket or as complex as using a website to compare the features of vehicles when we plan to buy a truck.

When the Pennsylvania Department of Agriculture and the Center for Dairy Excellence approached our team about studying the competitiveness of Pennsylvania's dairy industry, we decided early on that we should make comparisons with other states. We chose Michigan, New York and Wisconsin because these have sizeable dairy production and agronomic resources that are generally similar to Pennsylvania's. At the beginning of our study, we focused on looking at historical data from 2000 on that was publicly available and later analyzed other more specific issues with data from a variety of sources.

One key finding as we looked back almost two decades is that Pennsylvania's milk production has grown little, compared to much more rapid production growth in Michigan (a 90% increase in production since 2000), New York (24% increase) and Wisconsin (30% increase). Wisconsin's experience is particularly interesting because milk production declined from 2000 to 2004, then grew more than 30% in the following 12 years. In addition, Pennsylvania experienced much slower growth in milk per cow than in comparison states, increasing 13% in 16 years compared to Michigan, where milk per cow grew 36% (and from a higher initial value) during that time.

Although overall growth in production has been slow in Pennsylvania, there have been shifts within the state in where milk is produced. The southeastern and central regions of the state have seen growth in milk production since 2007. When we analyzed data from the Center's 2017 producer survey, we found that higher milk per cow is associated with use of a nutritionist, systematic breeding and a location in the southeastern part of Pennsylvania. Farm size is not associated with milk per cow, but



older milking facilities were associated with lower milk per cow. Although growth in overall production and milk per cow might not be the major objectives for individual farm businesses, the differences in performance between Pennsylvania and other dairy states are rather striking.

Of course, dairy industry performance is also related to the capacity to process dairy products at a reasonable cost—that is, to profitably market farm milk. Here, the comparisons are more difficult to make because of the limited availability of relevant data. One publicly available source of information is processing volumes from the National Agricultural Statistics Service (NASS) Dairy Products report.

Our original idea was to rely heavily on NASS data on dairy processing, but we quickly realized that reported data is incomplete enough to make comparisons among the four states difficult. NASS must receive at least three good responses to their survey and no organization can control 60% or more of the total production within the state to allow reporting of state-level data. These conditions are not often met for individual products and states, so we have much more limited information about dairy processing at the state level.

Despite these limitations, we can make a few useful comparisons. Production of butter and cheese in Pennsylvania has grown slowly since 2000, less than 10% in 16 years based on annual averages. In contrast, cheese production in Wisconsin grew more than 50% during this time, and in fact, growth seems to be increasing in recent years. Growth in the production of sour cream and yogurt in Pennsylvania has been more rapid during the three years for which there are data (2014 to 2016), but for relatively small production volumes. Hard ice cream production has decreased in Pennsylvania since 2000 and has been roughly constant for the past few years. Low-fat ice cream production has decreased by about 75% in the past 15 years.

Data on utilization of Pennsylvania farm milk in the Northeast Federal Milk Marketing Order indicate roughly constant uses in Class I and III, small increases in Class II, and growth in Class IV. This is consistent with the available NASS data, which shows increases in nonfat dry milk production compared to the mid-2000s. Again, a successful dairy industry doesn't always mean rapid growth in processing volumes for all products, but the available information suggests overall growth in Pennsylvania is probably slower than in the other three states.

We can also make rough assessment comparing the costs of dairy processing using NASS data on annual volumes of product processed per plant in Pennsylvania and comparing them to the national average volumes. When we did the comparison using data for 2015, we found that other than butter and nonfat dry milk, which may in fact represent some of the balancing challenges of recent years, product volumes per plant in Pennsylvania tended to be smaller than the national average — less than half of the national average for many products. Unfortunately, fluid milk processing isn't included in the NASS data, so we can't make comparisons for this important use of Pennsylvania farm milk. Smaller volumes per plant can imply higher costs of production due to economies of scale — lower costs per unit processed for higher volumes — and lower utilization of existing plant capacity.



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Our comparisons between Pennsylvania and other states raise the important question: “Why is Pennsylvania different?” Mark Twain once wrote “comparison is the death of joy”; in some cases, he may be right. In this case, however, the comparisons help to put the patterns of the past two decades into perspective and identify opportunities for improvement.

To learn more about these findings and review the reports included in the 2017 Pennsylvania Dairy Study, go www.centerfordairyexcellence.org and click on “Dairy Information” then “Dairy Study 2017.”

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The Center for Dairy Excellence is a non-profit organization initiated by the Pennsylvania Department of Agriculture in 2004. Bringing together people from more than 40 different dairy organizations in Pennsylvania, the center’s mission is to enhance the profitability of the dairy industry by empowering people, creating partnerships, and increasing the availability and use of resources. Learn more at centerfordairyexcellence.org.

Photo Caption: Dr. Charles Nicholson