Green County
Dairy Cluster Economic Analysis
& Action Plan

Extension
UNIVERSITY OF WISCONSIN–MADISON
GREEN COUNTY

GREEN ▸ COUNTY ▸ WI
GCDC
DEVELOPMENT
CORPORATION

Acknowledgements

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Introduction

The purpose of the Green County Dairy Cluster Analysis is to explore the public and private sector issues and opportunities regarding the Green County Dairy Industry and identify ways to support moving Green County towards a strong future for dairy. This analysis includes qualitative data, pulling from the expertise of people working across various aspects of the dairy cluster in Green County, as well as quantitative data from a variety of sources. This informed the identification of themes and actions to strengthen Green County's dairy cluster.

Industry clusters are groups of industries connected by skills, technologies, supply chains, demand sources and other linkages. More commonly, industry clusters are "geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g. universities, standards agencies, trade associations) in a particular field that compete but also cooperate" (Porter 1998, p. 197). Several key terms in this definition provide guidance for this study of Green County's dairy cluster.

Industry clusters involve interconnected companies, specialized suppliers, service providers, and firms in related industries. The concept of clusters goes beyond the recognition of a single industry sector or classification. Clusters acknowledge important connections and relationships among industries and other business types that support each other through supply chains and service provision. In theory, the presence of these quality local suppliers and services creates efficiencies and increases firm competitiveness. For instance, nearby firms in the dairy cluster might have shared infrastructure needs or require similar inputs in their supply chains that could be provided by local establishments.

Industry clusters include associated institutions. Industry clusters are not solely comprised of for-profit, private-sector firms. Industry clusters recognize the potential assistance and knowledge transfers that universities, trade associations, and government agencies can provide.[1] The participation of these institutions in cluster-based initiatives can provide research, workforce development, advocacy, and other support for cluster establishments. Clusters frequently depend on support and participation from state agencies, other economic development organizations, local municipalities, educational institutions, workforce development entities, and non-profit enterprises that work with dairy-related businesses and talent.

***Industry clusters have a geographic concentration*.** Clusters and their associated components are concentrated in a distinct geographic area. Geographic concentration allows for increased interaction and efficiencies to be developed among companies in a cluster. While the exact geographic extent of a cluster will depend on a variety of factors, the geographic scope of a cluster relates to the distance in which informational, transactional, incentive, and other efficiencies occur (Porter, 2000). Accordingly, the geographic boundaries of clusters can consider inter-company relationships (Rosenfeld, 2001).

[1] Knowledge transfers can also occur among individual firms in an industry cluster.

Industry cluster firms compete, but also cooperate. Individual firms within an industry cluster are in competition with each other, but also exhibit a level of cooperation. Cooperation in an area allows firms to engage in activities such as joint-contract bidding, developing custom labor force training programs, coordinating research efforts, providing a unified voice on industry-wide issues, and improving their industry's visibility. The precondition of cooperation requires that private industry stakeholders, or industry champions, have a lead role in the potential success of industry clusters. Without cooperation, a region does not have an industry cluster, but rather a simple industry concentration. The true challenge is providing authentic incentives to firms and stakeholders to engage in cluster efforts.

Situational Analysis

Qualitative Data Analysis

The qualitative data analysis consisted of 13 interviews with people across the dairy cluster, including farmers, processors, agencies and networks, bankers, researchers, and more. Figure 1 shows the questions asked in interviews. The following themes came up from these interviews.

Figure 1: Interview Questions

Vision

1. What do you dream of when you think of a strong dairy industry in Green County?
2. Who do you see at the front edge of dairy? (Locally / regionally / nationally / globally)
    - What areas of the country / globally are supporting their dairy industry the best?
3. Is there something you want to try / would like to see tried here?

Strengths and Challenges

4. What do you see as the biggest strengths when it comes to Green County's dairy industry?
    - What do you see as the best ways to leverage these strengths?
5. What do you see as the biggest challenges?
    - What do you see as the best way to address these challenges?
6. What opportunities do you see for Green County's dairy industry?
    - What do you see as the best ways to lean into these opportunities?

Individualized Hopes & Goals

7. What are your business goals when it comes to products? (For example, diversified portfolio of products? Broader market geography? Focus more locally?)
8. What kinds of support would be most useful for your business?

Connections & Communications

9. Who are you working with already locally?
    - (Depending on who is in the conversation) Do you connect with your producer / processor regularly?
10. Would increased communication strengthen the dairy industry?
    - What sorts of increased communications would interest you / what format?
11. Do you want to build connections locally / regionally?

Connections with Research

12. Are you aware of the research / product lines being developed by research entities such as UW?
    - If not, would you be interested in learning more?
        - If yes, what would be the most effective ways to increase that awareness / communication?

Green County Dairy Industry Study Team

13. We're going to do a study of the dairy industry in Green County. Would you be interested in being on the study team / learning more about it?

Anything else?

14. Anything else we should think about or that you want to mention?

Building an Entrepreneurial Spirit, Foster Entrepreneurship and Business Diversification

Several of the interviewees highlighted different aspects of entrepreneurial spirit, entrepreneurship, and/or business diversification. Highlights of comments include:

- Opportunities for entrepreneurs and businesses to have a third-party business guru come in and do an assessment. Bring in a consultant to spend time in Green County and help create business plans to expand strategic approaches. Things like cheese styles come out of things like that. They know every cheese style and can make it. However, they don't know a plan and the 10 next steps to grow and be sustainable.
- Opportunities to explore aggregated processing of whey for protein products. This could include forming co-ops or developing shared investment models for the infrastructure to do more with byproducts and exploring what is not used and what could be used.

Increasing Communications and Networking

Overall, interviewees shared the value in sustainable relationship building in Green County as a way to move forward.

Increasing Financial Support

Several of the interviewees recognized the challenges of financing, particularly for starting new farms or businesses and the overall costs for transitions. Additionally, it was identified that specialty cheeses and leaning into processing for different niches help with premiums.

Building the Green County Workforce

Interviewees identified the need to build the workforce in Green County. This included expanding workforce development on farms, in facilities, in marketing, and all along workforce pathways as well as addressing issues such as transportation and housing. Additionally, there was recognition of demographic changes and trends in Green County - an aging population and an increasingly diverse population.

Diversify Market Opportunities

One opportunity that was identified was diversifying product, packaging, marketing communications, and expanding opportunities with agritourism. Highlights of comments include:

- Better tell the stories of the producers and processors. When making specialty products, it is all about the story, brand, website, packaging, and getting into the high-end grocery and trade shows and calling on customers.

- There is an opportunity to look at things in reverse - what is in demand, and then backcast. For example:
    - There is a lot of product that could be exported. There is room to make relationships and refine products.
    - Butter is an example and a potential opportunity. Whipped butter could be an opportunity. High protein ice cream, high protein custard, protein snacks, GLP1 user snacks, specialty cheeses, and shelf stable products.

Preparing for Changes in the Biowaste Industry

There was recognition of the increase in changes in the biowaste industry and the connections that has with the dairy cluster. Biowaste is biodegradable natural waste and could potentially be used to create other products. This has implications for co-products, bio-products, and residues. Examples include manure, biogas, wastewater, and whey. There were three important technologies identified for the sustainability of the dairy industry:

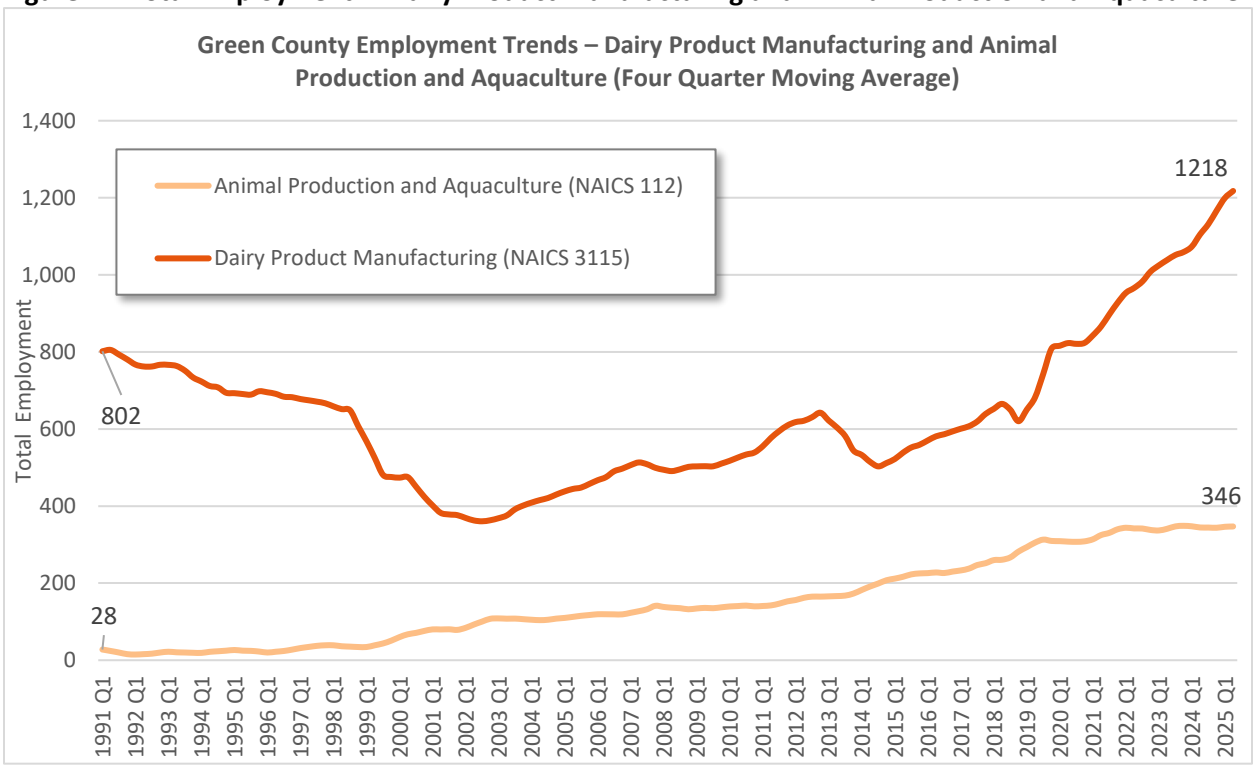
- Wastewater treatment plants;
- Biodigesters; and
- Bioreactors.

Quantitative Data Analysis

Employment and Labor Income Trends

Employment and income trends in dairy production and dairy product manufacturing provide perspectives on the direction of the industry. As of Q2 2025, dairy product manufacturers in Green County employed slightly more than 1,200 workers (Figure 2). The current number of employees has increased significantly since the year 2000, marking a transition from employment decline to employment growth. Animal production employment, which includes employment in the dairy cattle industry, has also experienced steady growth since 2000. The growth in employment partly reflects the growth in the size of dairy producers and less reliance on family members for labor. Note that the total number of employees is likely somewhat undercounted as employment reporting requirements for some agricultural producers differ from those of other industries.

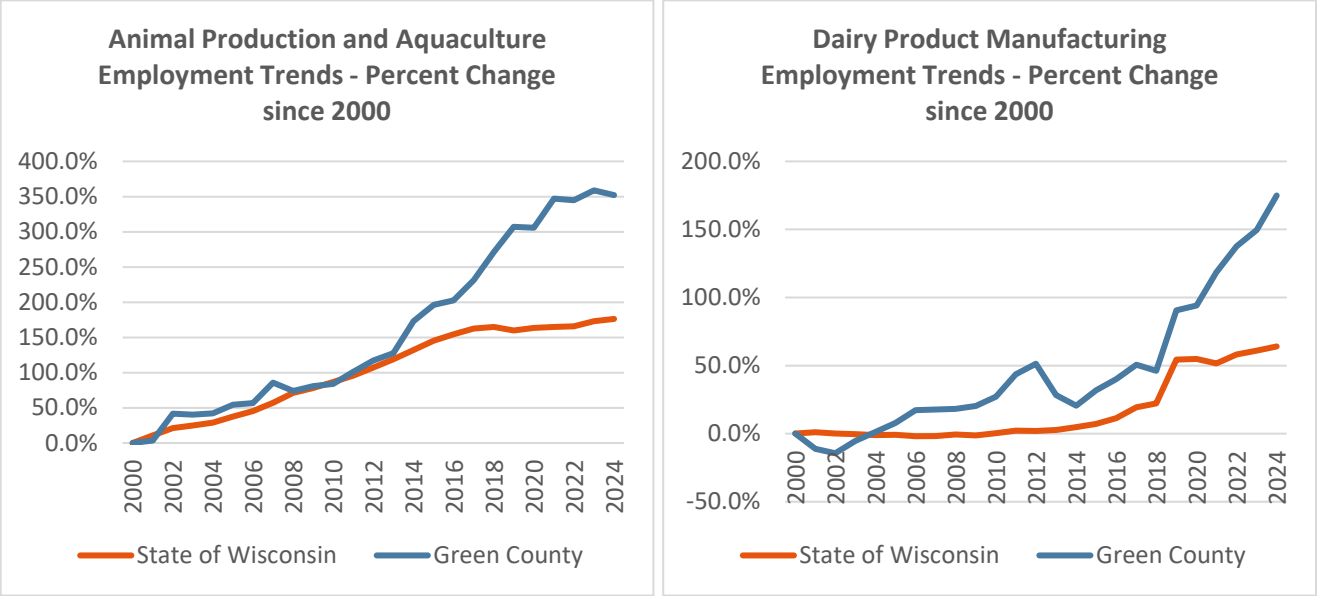
Figure 2 – Total Employment in Dairy Product Manufacturing and Animal Production and Aquaculture



Source: U.S. Census Bureau Local Employment Dynamics and author's calculations

When comparing the employment growth period beginning in 2000 to employment growth rates in the state of Wisconsin, dairy industry employment in both Green County and the state have seen notable increases (Figure 3). However, the growth rates in Green County have outpaced those of Wisconsin, with a distinct divergence beginning in 2014. In fact, both animal production and aquaculture and dairy product manufacturing in Green County have experienced sustained employment growth over this period. Dairy product manufacturing employment has also increased notably since the onset of the pandemic.

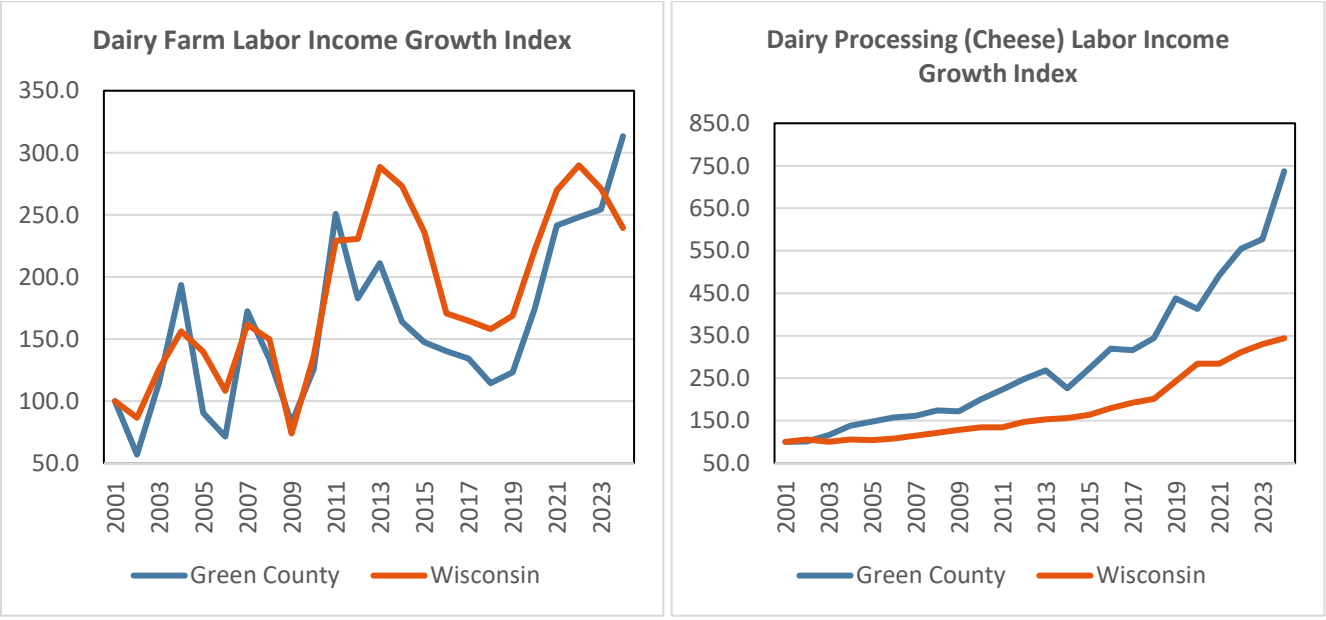
Figure 3 – Percent Change in Animal Production and Aquaculture and Dairy Product Manufacturing Employment – Green County vs. Wisconsin



Source: U.S. Census Bureau Local Employment Dynamics and author's calculations

In contrast to the sustained growth in employment, labor income has been somewhat more erratic, particularly for dairy farm labor income (Figure 4). Some of this movement is due to the definition of labor income which includes wages, salaries, and proprietor income. As labor income includes proprietor's income, variability in farm owner income due to fluctuations in the milk market is likely reflected in the income changes depicted in Figure 4. Labor income growth in dairy processing has been more consistent and reflects the steady growth in employment during this period.

Figure 4 – Change in Dairy Farm and Dairy Processing Labor Income – 2001 to 2024



Source: IMPLAN and Authors' Calculations

Location Quotients

Location quotients provide another means of analyzing dairy industry employment in Green County. A location quotient (LQ) is calculated by comparing an industry's share of local employment to the industry's share of overall national employment. For example, the LQ for dairy product manufacturing in Green County is calculated as:

$$\textit{Location Quotient (LQ) for dairy product manufacturing} = \frac{\frac{\text{Dairy product manufacturing employment in Green County}}{\text{Total employment in Green County (all industries)}}}{\frac{\text{Dairy product manufacturing national employment}}{\text{Total national employment (all industries)}}}$$

The critical value for an LQ is 1.0. An LQ of 1.0 means an area has the *same* proportion of local employment in an industry as the nation. An LQ *greater* than 1.0 denotes that an area's share of employment in a given industry is more than its national share. Conversely, an LQ *less* than 1.0 indicates an area's employment in an industry is below the national percentage. Due to accuracy issues with employment data, LQs between 0.75 and 1.25 are generally considered not to be significantly different from 1.0. [2]

Location quotients greater than 1.25 are important as they imply that an area has a specialization in an industry. More specifically, an LQ greater than 1.25 suggests that an industry is producing more goods or services than can be consumed locally. These goods and services are in turn exported out of the region, connecting the area to external economies and bringing outside dollars into local communities (i.e. they have an export-orientation). In contrast, an LQ less than 0.75 suggests that local industries are not meeting demand (demand is greater than supply) and the good or service must be imported into the region.

To provide context, LQs for Green County agricultural production and food processing are summarized in Figures 5, 6, and 7. These figures show the 2024 magnitude of LQs for these industries and depict how they have changed from 2015 to 2024. For purposes of industry cluster analysis, LQ trends are often summarized using four different categories:

1. *Strength and Growing* – Industries with a 2024 LQ above 1.0 and an LQ that has increased between 2015 and 2024.

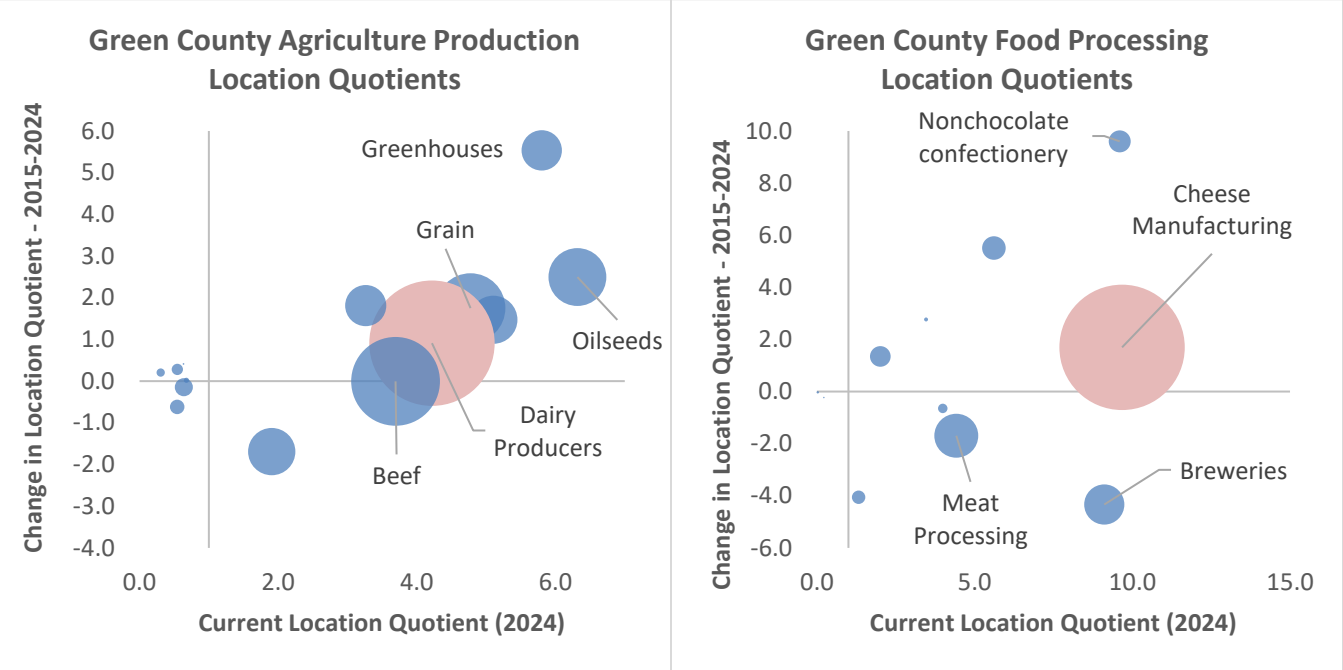
2. *Strength and Declining* - Industries with a 2024 LQ above 1.0 and an LQ that has declined between 2015 and 2024.

[2] Differences in local demand preferences compared to national conditions, or the efficiency of a local industry, have the potential to skew the results of a location quotient analysis.

3. *Weakness and Growing* - Industries with a 2024 LQ below 1.0 and an LQ that has increased between 2015 and 2024.

4. *Weakness and Declining* - Industries with a 2024 LQ below 1.0 and an LQ that has declined between 2015 and 2024.

Figure 5 – 2024 Employment Location Quotients and Change in Location Quotients 2015-2024



Source: IMPLAN and Authors' Calculations

Figures 5, 6, and 7 show that both dairy cattle and milk production and dairy product (cheese) manufacturing both have sizeable LQ, with dairy cattle having a 2024 LQ of 4.22 and cheese manufacturing with an LQ of 9.68. Both of these industries also have growing LQs in Green County placing the industries in the "strength and growing" category. Accordingly, these trends reflect the employment growth trajectories previously noted and reinforce the importance of these industries in Green County.

Figure 6 – Location Quotients for Agricultural Production in Green County

Green County Agriculture Production	*Location Quotient (2024)*	*Change in Location Quotient – 2015 to 2024*
Strength and Growing		
Oilseed farming	6.32	2.50
Greenhouse, nursery and floriculture	5.80	5.53
All other crop farming	5.10	1.47
Grain farming	4.77	1.75
Dairy cattle and milk production	4.22	0.91
Animal production, except cattle, poultry and eggs	3.26	1.81
Strength and Declining		
Beef cattle ranching and farming	3.69	-0.01
Support activities for agriculture and forestry	1.91	-1.69
Tree nut farming	1.02	-5.41
Weakness and Growing		
Commercial hunting and trapping	0.68	0.02
Forestry, forest products and timber tract production	0.63	0.41
Fruit farming	0.55	0.28
Poultry and egg production	0.31	0.21
Weakness and Declining		
Vegetable and melon farming	0.64	-0.15
Commercial logging	0.54	-0.62

Figure 7 - Location Quotients for Food Manufacturing in Green County

Green County Food Manufacturing	*Location Quotient (2024)*	*Change in Location Quotient – 2015 to 2024*
Strength and Growing		
Cheese manufacturing	9.68	1.70
Nonchocolate confectionery manufacturing	9.60	9.60
Other snack food manufacturing	5.61	5.51
Frozen cakes and other pastry manufacturing	3.46	2.77
Bread and bakery products, except frozen	2.01	1.35
Strength and Declining		
Breweries	9.11	-4.33
Meat processed from carcasses	4.42	-1.70
Wineries	3.99	-0.65
Other animal food manufacturing	1.32	-4.06
Weakness and Growing		
Weakness and Declining		
Roasted nuts and peanut butter manufacturing	0.22	-0.23
Animal, except poultry, slaughtering	0.03	-0.03

Source: IMPLAN and Authors' Calculations

Economic Impacts

The economic ripples arising from production or activity in one industry can be viewed as a multiplier. Multipliers are central to the input-output analysis used to assess the economic impact of the Green County dairy cluster and estimate how the production requirements of industries respond to additional demand for their products. The multipliers constructed in this analysis are comprised of three different effects:

1. Direct effect. Direct effects are attributed to the industry or sector that initially causes a change in the economy. In terms of the Green County dairy industry, direct effects are the levels of expenditures, employment, or payroll that are generated directly by dairy producers or dairy product manufacturers. Direct effects do not incorporate how expenditures or incomes ripple throughout the economy.

2. Indirect effect. Dairy producers and dairy product manufacturers purchase a variety of goods and services from other businesses. These transactions create additional demand within a variety of industry sectors. For example, a dairy product manufacturer may purchase equipment from stainless steel product manufacturers. The stainless-steel product manufacturer uses revenues from these purchases to pay for operating expenses, purchase new equipment, pay its employees, and make other types of investments. Consequently, the direct expenditures from the dairy product manufacturers have an indirect impact on the company. Indirect effects capture the impacts from these types of purchases.

3. Induced effects. Employees at dairy product manufacturers and dairy producers are paid wages and salaries. Induced effects estimate the impact of employees using these earnings to purchase goods and services in various sectors of the economy (i.e. food, furniture, gas, housing, medical, utilities, etc.).

Direct, indirect, and induced effects and their respective multipliers are summarized in Figure 8. Note that part-time and full-time jobs are treated the same in the analysis. When combined, dairy farms contribute 973

Figure 8 – Direct, Indirect and Induced Impact Summary

Dairy Farms	Employment	Labor Income (MM$)	Total Income (MM$)	Industry Revenues (MM$)
Direct	516	$30.9	$57.2	$187.2
Indirect	342	$14.6	$24.9	$70.8
Induced	115	$5.5	$11.7	$20.2
Total	973	$51.0	$93.8	$278.3
Multiplier	1.885	1.651	1.639	1.486
Share of County	4.3%	4.0%	4.2%	4.6%

Dairy Processing	Employment	Labor Income (MM$)	Total Income (MM$)	Industry Revenues (MM$)
Direct	1,318	$128.4	$245.1	$1,646.6
Indirect	1,621	$92.7	$156.9	$420.5
Induced	497	$23.9	$50.7	$87.7
Total	3,436	$245.0	$452.6	$2,154.7
Multiplier	2.607	1.909	1.847	1.309
Share of County	15.3%	19.2%	20.2%	35.4%

Dairy: Farm and Processing	Employment	Labor Income (MM$)	Total Income (MM$)	Industry Revenues (MM$)
Direct	1,834	$159.3	$302.3	$1,833.8
Indirect	1,115	$62.4	$100.6	$236.4
Induced	499	$24.0	$50.8	$87.9
Total	3,448	$245.6	$453.7	$2,158.0
Multiplier	1.880	1.542	1.501	1.177
Share of County	15.3%	19.3%	20.3%	35.5%

Source: IMPLAN and Authors' Calculations

jobs through direct, indirect, and induced impacts and have an employment multiplier of 1.885. This multiplier suggests that for every 10 direct jobs in dairy farms, an additional 8.85 jobs are attributed to induced and indirect impacts. Somewhat similar, but lower multipliers are found for labor income, total income, and industry revenues. Dairy processing contributes more than 3,400 jobs through direct, indirect, and induced impacts, with an employment multiplier of 2.607 (i.e. for every ten jobs in dairy processing, an additional 16.07 jobs are attributed to indirect and induced impacts).

Importantly, the impacts for dairy farms and dairy processing should not be combined as this will result in double-counting of impacts. For example, if there are 10 dairy farms in the county and local processors are buying from seven of those farms, the economic impact of dairy processing will capture those seven dairy farms. If one simply adds the dairy farm and dairy processing together those seven dairy farms will be double-counted. The observation that dairy processing impacts and total farm-processing impacts are very similar suggest that dairy processing is purchasing the majority of the milk being produced in the county. Accordingly, the combined impacts for dairy farms and dairy processing in Figure 8 reflect the total impacts of the dairy cluster.

Worker Flow

Commuting patterns in a region, also known as worker flow, provide several important perspectives on the origins and destinations of employees. First, worker flow figures show the distances employees are willing to travel for employment opportunities and ultimately describe the extent of the region's labor shed. Second, the magnitude of workers commuting to and from different destinations can reveal geographic mismatches in the supply and demand for labor.

Worker flow figures are derived from the Census Bureau's LEHD Origin-Destination Employment Statistics (LODES). The LODES dataset uses synthetic data manipulation methods to protect confidential information about workplaces and the residential locations of workers.[3] No actual data for a given employer are used for any workplace reports. Instead, workplace information is protected by combining confidential employment data with noise in a manner that ensures that the published data, while not exact, become increasingly more accurate as the number of businesses in an enumeration unit (such as a census block) gets larger. Consequently, the worker flow figures at the county level should be considered with a greater degree of confidence.

Over 19,000 Green County residents were employed at the beginning of Q2 2023. However, only 41.6% of these individuals worked in Green County with the remaining 58.4% commuting to another county (Figure 9). Not surprisingly, Dane County is by far the largest destination, employing 34.0% of Green County residents with a job. Employers in neighboring Rock County and Lafayette County are also destinations for more than 1,000 Green County residents.

[3] A synthetic dataset is one that has similar statistical properties to an original dataset, but has been created in order to allow for the release of data in the public domain without compromising confidentiality.

In contrast to the more than 19,000 workers residing in the county, almost 15,500 (15,476) workers were employed by establishments physically located in Green County (Figure 9). Just over half (51.9%) of the workers employed in Green County also resided in the county. Dane, Stephenson, Rock and Lafayette counties are also important sources of labor for employers in Green County. These labor flows across both county and state lines reflect the regional nature of the labor market. Consequently, workforce development efforts for the Green County dairy industry should certainly focus on Green County residents, but also consider labor conditions and connections in surrounding counties.

Figure 9 - Worker Flow for Green County by Counties of Employment and Residence (Beginning of Q2 2023)

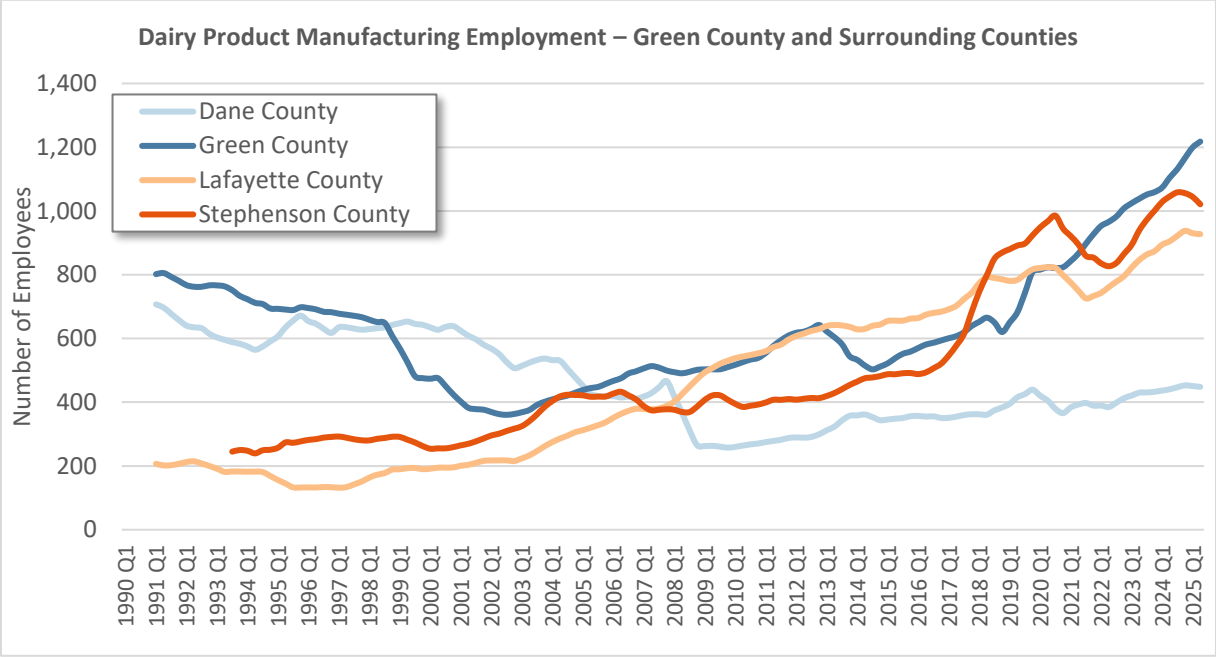
Employees Residing in Green County - Top 10 Counties of Employment (n = 19,337)			**Employees Working in Green County - Top 10 Counties of Residence (n = 15,476)**		
County of Employment	*Count*	*Share*	*County of Residence*	*Count*	*Share*
Green County, WI	8,035	41.6%	Green County, WI	8,035	51.9%
Dane County, WI	6,574	34.0%	Dane County, WI	1,301	8.4%
Rock County, WI	717	3.7%	Stephenson County, IL	1,193	7.7%
Lafayette County, WI	351	1.8%	Rock County, WI	1,170	7.6%
Stephenson County, IL	270	1.4%	Lafayette County, WI	873	5.6%
Milwaukee County, WI	247	1.3%	Grant County, WI	236	1.5%
Grant County, WI	174	0.9%	Winnebago County, IL	234	1.5%
Sauk County, WI	169	0.9%	Jo Daviess County, IL	201	1.3%
Iowa County, WI	164	0.8%	Iowa County, WI	188	1.2%
La Crosse County, WI	158	0.8%	Milwaukee County, WI	157	1.0%
All Other Locations	2,478	12.8%	All Other Locations	1,888	12.2%

Source: LEHD Origin-Destination Employment Statistics (2023) and author's calculations.

The worker flow figures for Green County also suggest a mismatch in local job availability. While Green County is home to over 19,000 residents who hold a job somewhere, less than 16,000 jobs are located in Green County. In other words, the number of workers residing in Green County exceeds the number of jobs in the county by almost 3,800. This mismatch between the local labor supply and job opportunities is common in many rural counties that are adjacent to metropolitan employment centers such as Dane County. Growing employment in the dairy industry could be one strategy to help offset this mismatch.

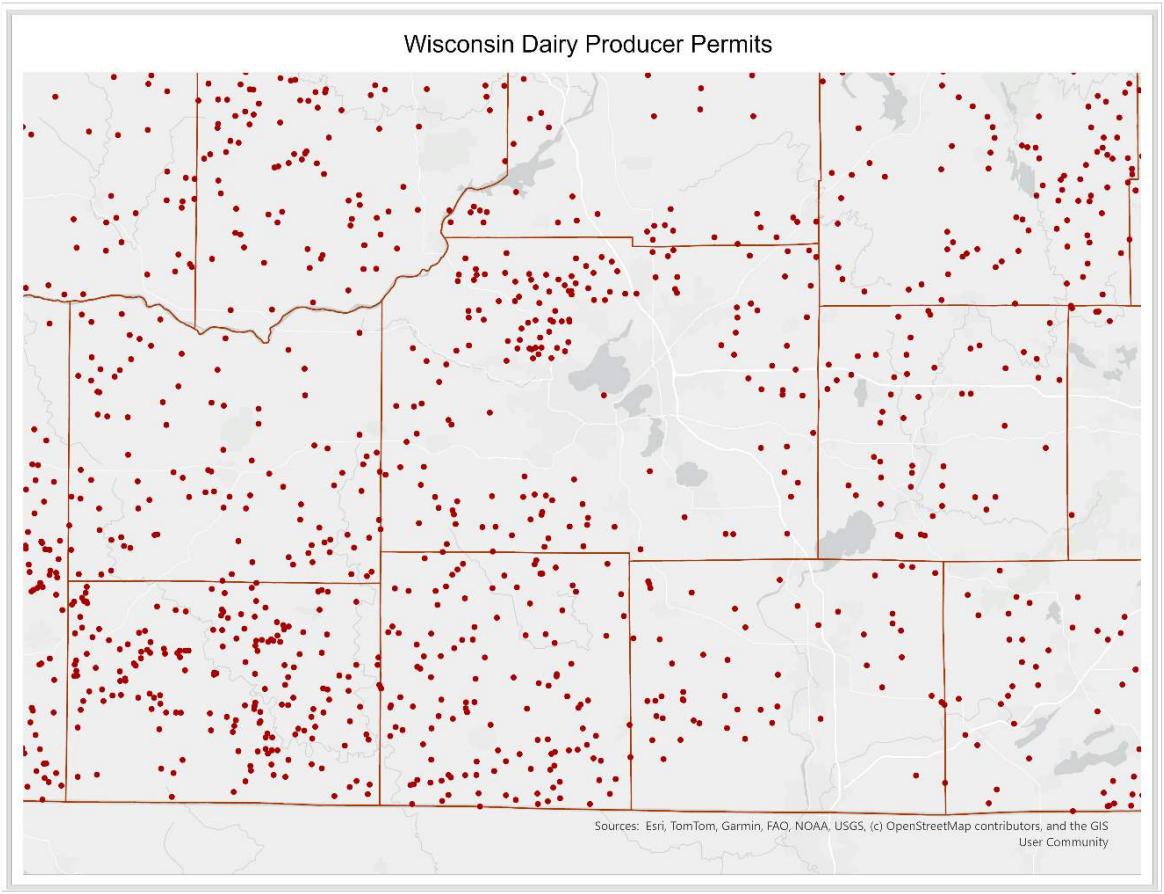
When considering the regional nature of the labor force, it is important to consider that there are concentrations of dairy product manufacturers and producers in surrounding counties that both compete for labor, but also create a skilled labor pool for Green County firms. Indeed, dairy product manufacturers in Lafayette County and Stephenson County each employ a similar number of workers as dairy product manufacturers in Green County and have been on a similar growth trajectory since the early 2000s (Figure 10). While Dane County has fewer dairy product manufacturing employees and Rock County has a limited number (not included in Figure 10), both Dane County and Rock County are home to a notable number of dairy producers (Figure 11). In addition to the 125 dairy producer permits registered in Green County, Dane County is home to 159 permits and Rock County has 57 permits. Iowa County has an additional 101 permits, while Lafayette County accounts for 184 permits.

Figure 10 – Dairy Product Manufacturing Employment in Surrounding Counties



Source: U.S. Census Bureau Local Employment Dynamics and Author's calculations

Figure 11 – Dairy Producer Permit Locations



Source: Wisconsin DATCP

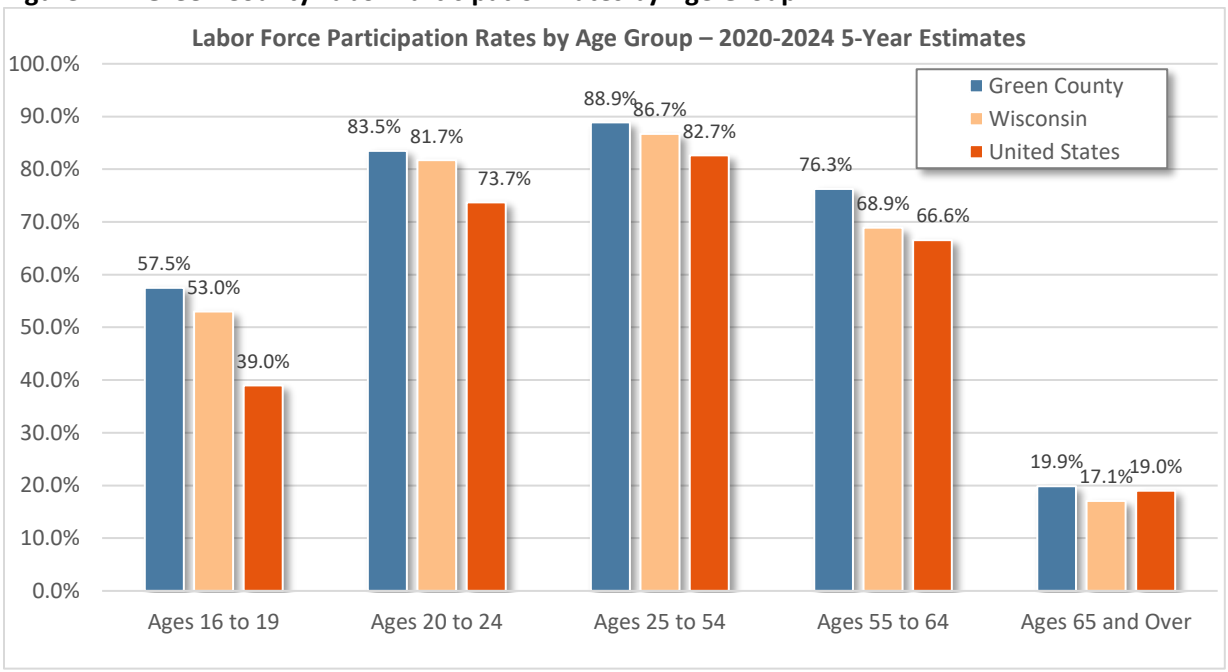
Unemployment and Labor Participation Rates

Labor participation rates and unemployment rates provide important perspectives on the regional labor market for the dairy cluster. Labor participation rates describe the share of the civilian population that is either employed or unemployed and actively looking for a job. Consequently, labor participation rates measure the share of the population that is *actively* in the labor force. Individuals not in the labor force can include discouraged workers (those not actively seeking employment), students, retired workers, seasonal workers surveyed in the off-season, institutionalized individuals, and people doing incidental unpaid family work.

Labor participation rates vary by age group. Accordingly, labor participation rates in Green County, combined with the county's age structure (discussed below), will partially influence labor availability conditions. For instance, individuals between the ages of 25 and 54 are considered to be the prime working age population as they have the highest average rates of labor force participation. Labor participation rates for younger and older age groups vary somewhat, but are typically below those for the prime working age group.

Green County's participation rates are reflective of the State of Wisconsin's average rates, which are among the highest in the United States (Figure 12). Importantly, Green County's labor participation rates are higher than those of the United States for each age group, with the exception of the rate for individuals ages 65 and over which is not statistically different from the national average. Of particular note is Green County's high participation rate of 57.5% for the 16 to 19 age group when compared to the national average of 39.0%. Overall, Green County's high participation rates likely reflect the local willingness to work, but may also pose labor supply constraints as there may be a limited number of potential workers available who are not currently in the labor force.

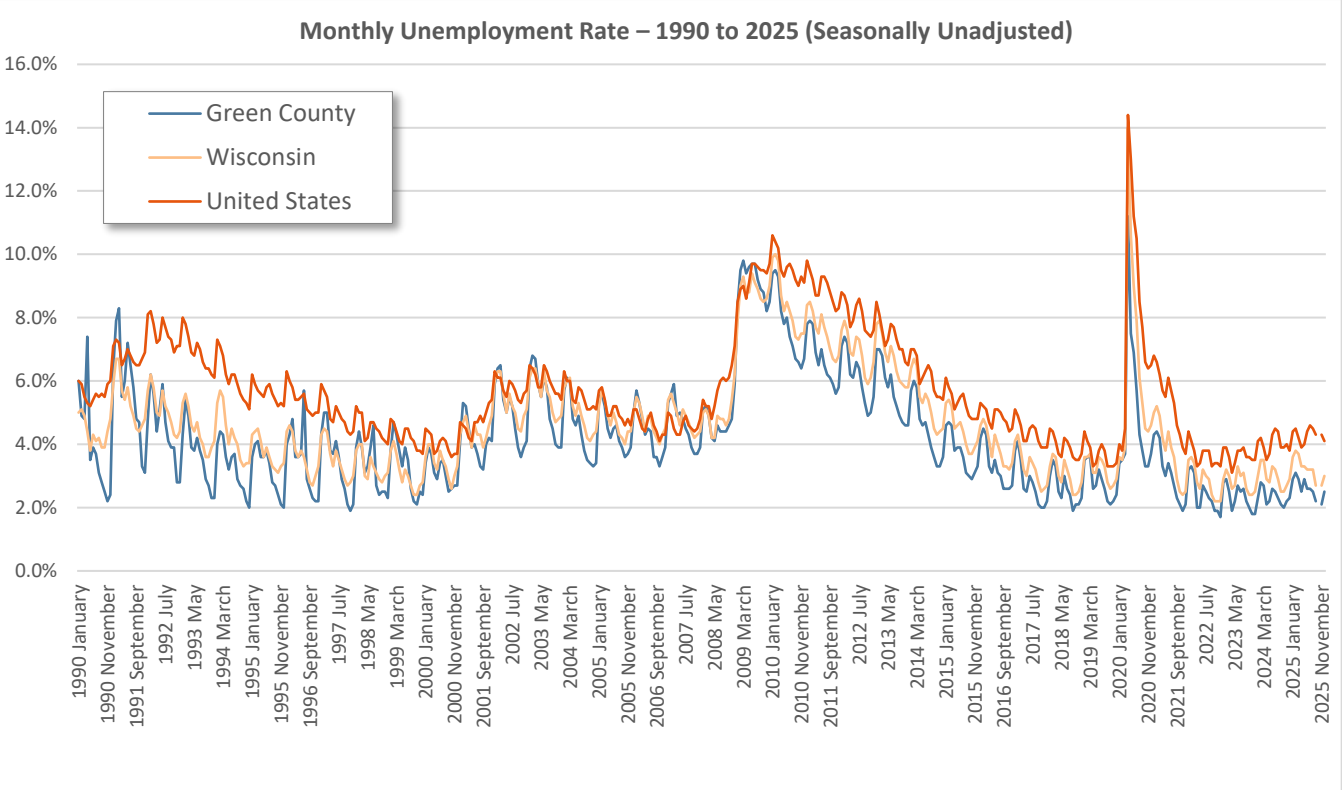
Figure 12 – Green County Labor Participation Rates by Age Group



Source: U.S. Census Bureau 2024 American Community Survey

Unemployment rates measure the number of individuals in the labor force who are unemployed and actively seeking a job. Therefore, an individual must be participating in the labor force to be counted in the unemployment rate. Green County's monthly unemployment rates have ticked up somewhat since the end of the pandemic, but remain historically low (Figure 13). Green County's unemployment rates also remain below both state and national averages. Reinforcing the challenges posed by high participation rates, Green County's currently low unemployment rates create a somewhat limited pool of unemployed workers looking for a job.

Figure 13 – Green County Unemployment Rates



Source: U.S. Bureau of Labor Statistics

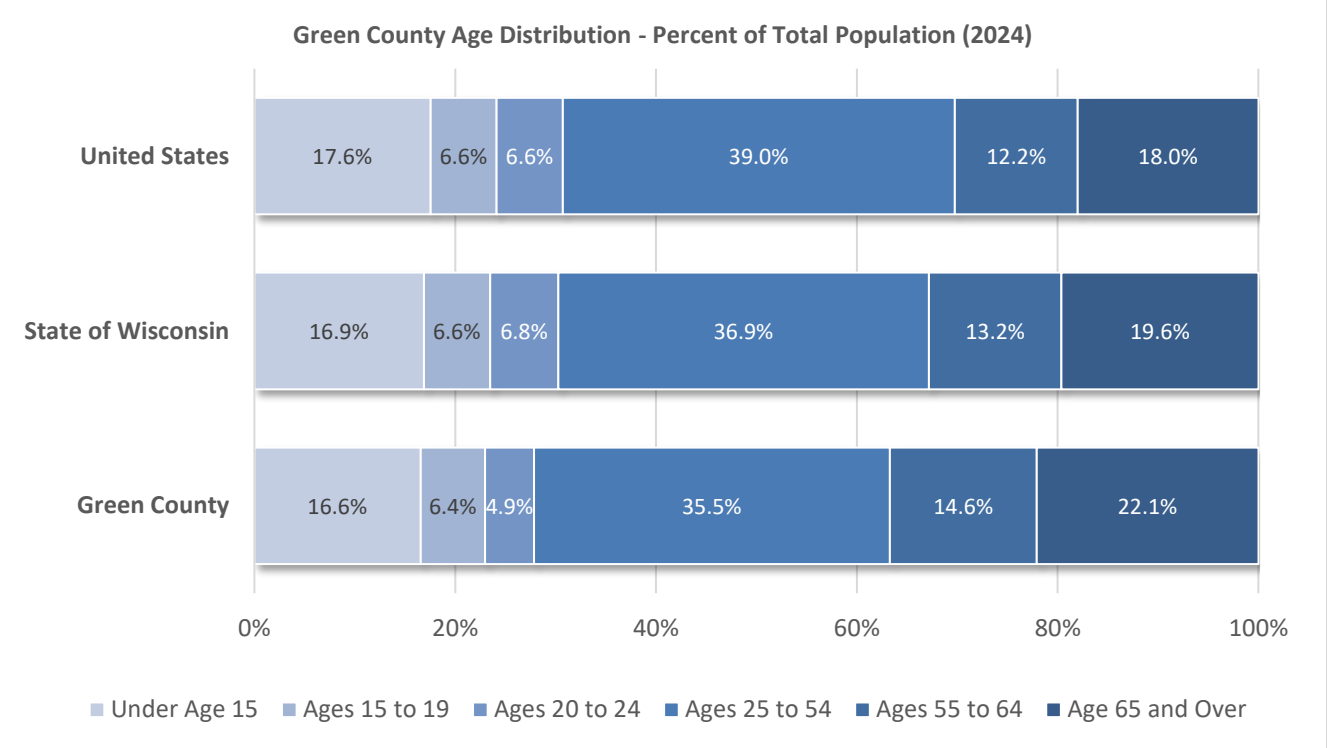
Age Structure

Age structure of the labor force shapes future labor availability as it influences the number of workers entering the labor force versus those approaching retirement. Furthermore, age can impact the potential productivity of industries as productive capacities may differ by age groups. As previously mentioned, the prime working age population is comprised of individuals between the ages of 25 and 54. However, the total working age population is often defined as those between the ages of 15 and 64.

In Green County, working age residents account for 61.4% of the total population, compared to 63.5% in Wisconsin and 64.5% in the United States (Figure 14). Green County's smaller percentage of working age population is partly driven by a lesser share of prime working age residents (35.5%) than state (36.9%) and national averages (39.0%). Green County also has smaller shares of residents in the 15 to 19 age group and 20 to

24 age group. While not yet technically part of the working age population, Green County's population under the age of 15 is also below state and national averages, suggesting that the county has a smaller potential workforce entering working age.

Figure 14 - Green County Age Distribution (2024 Estimates)

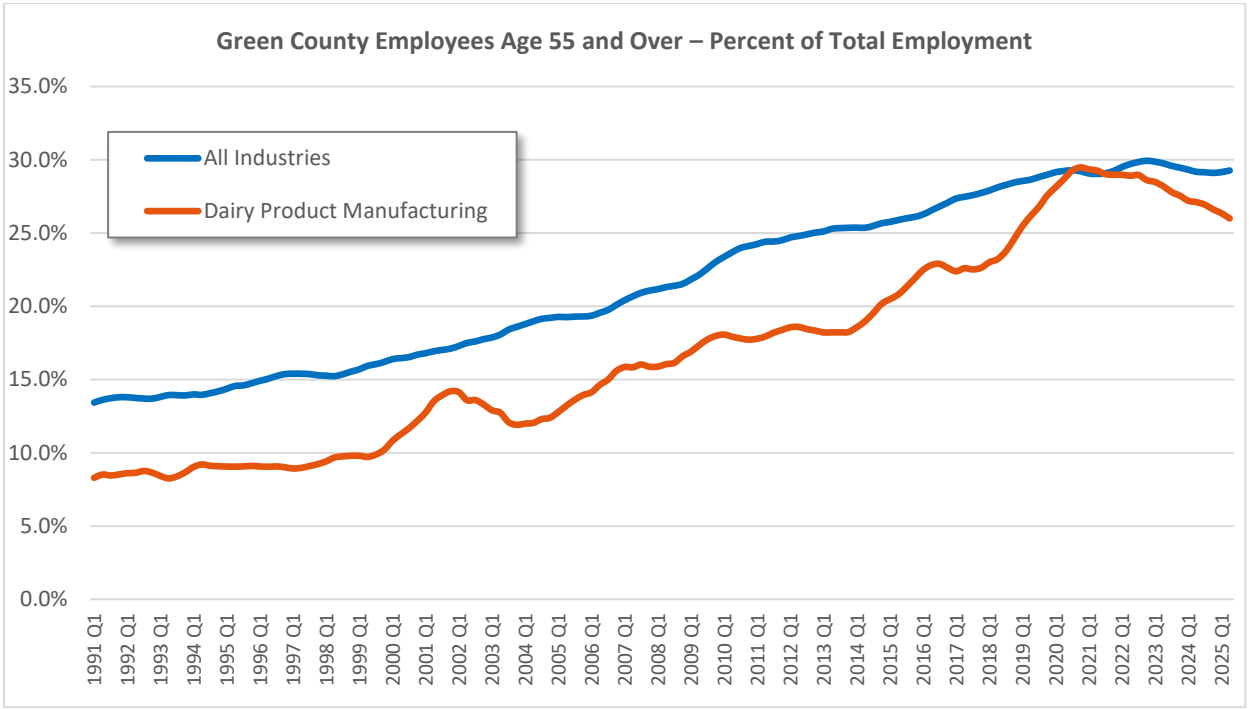


Source: U.S. Census Bureau

In contrast to smaller shares of residents under the age of 55, Green County has large share of residents between the ages of 55 and 64 and age 65 and over. While labor force participation rates are lower for these age groups, the percent and number of workers age 55 and over in the Green County dairy industry have grown notably over the past decade and now comprise a sizeable component of the industry's labor force (Figure 15) While the percent of workers age 55 and over in dairy product manufacturing has dropped recently and is now below the average for all industries in Green County, over 1,200 workers in the industry were age 55 or over as of Q2 2025.

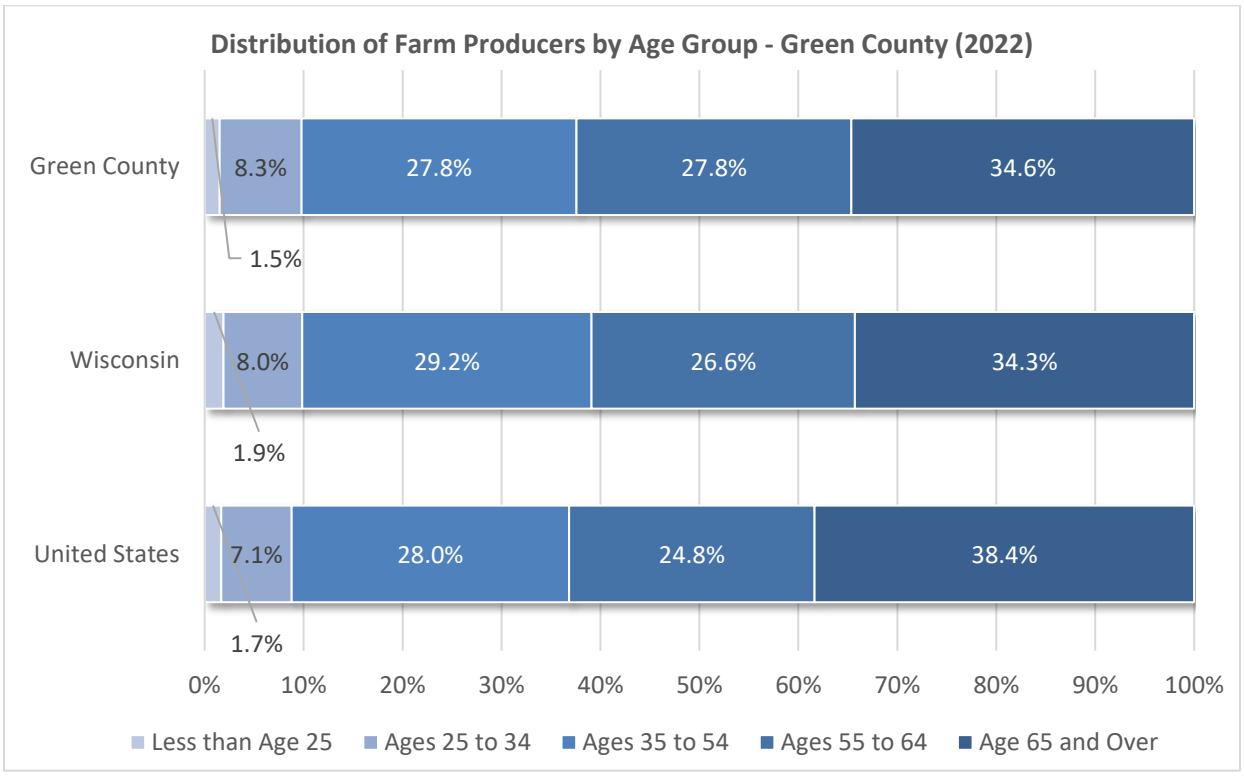
Similar to many other counties throughout Wisconsin and the nation, Green County also has a sizeable share of farm producers ages 55 and over (Figure 16). As defined by the USDA Census of Agriculture, farm producers are individuals involved in making day-to-day decisions for a farm operation. As reported in the 2022 Census of Agriculture, 27.8% of farm producers in Green County were aged 55 to 64, while another 34.6% were age 65 or over. Note that the Census of Agriculture counts up to four producers per farm, so some of these older operators may have younger operators working alongside them. Nonetheless, many of these operators may be looking to transfer operations as they reach retirement and succession planning expertise may be needed to help in these transitions.

Figure 15 – Green County Employees Age 55 and Over



Source: U.S. Census Bureau Local Employment Dynamics and author's calculations

Figure 16 – Green County Farm Producers by Age Group

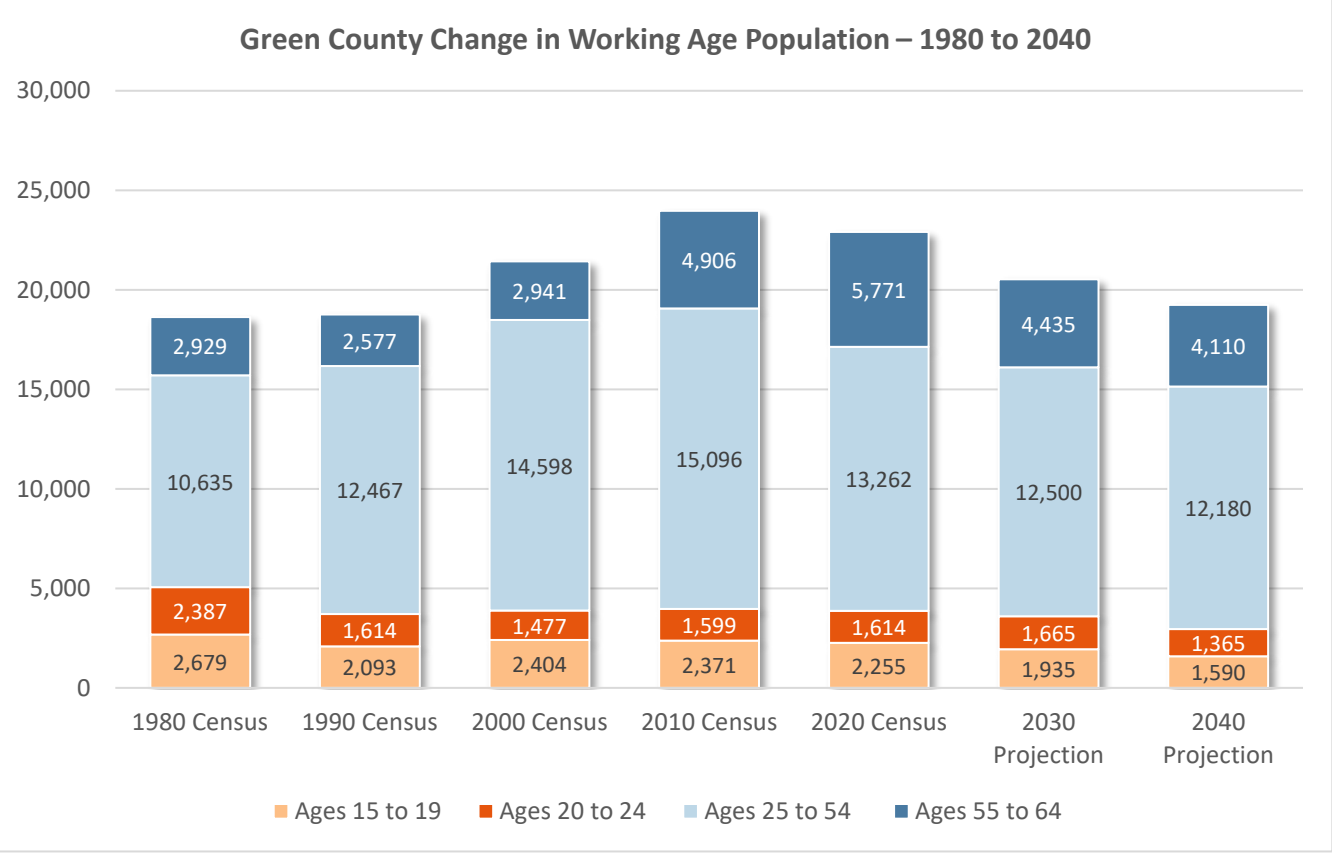


Source: USDA 2022 Census of Agriculture

From a historical perspective, Green County's working age population increased from 1980 to 2010 (Figure 17). However, the total working age population declined by over 1,000 residents between 2010 and 2020, driven primarily by a drop in the prime working age group (25 to 54). Projections from the Wisconsin Department of Administration suggest that the decline in working age residents will continue between 2020 and 2030 and again between 2030 and 2040. Given the regional composition of Green County's labor force, it is important to note that both the prime working age and total working age populations are projected to decline in most of the surrounding counties as well. Dane County is the only exception with projected growth in these two age groups (Figure 18).

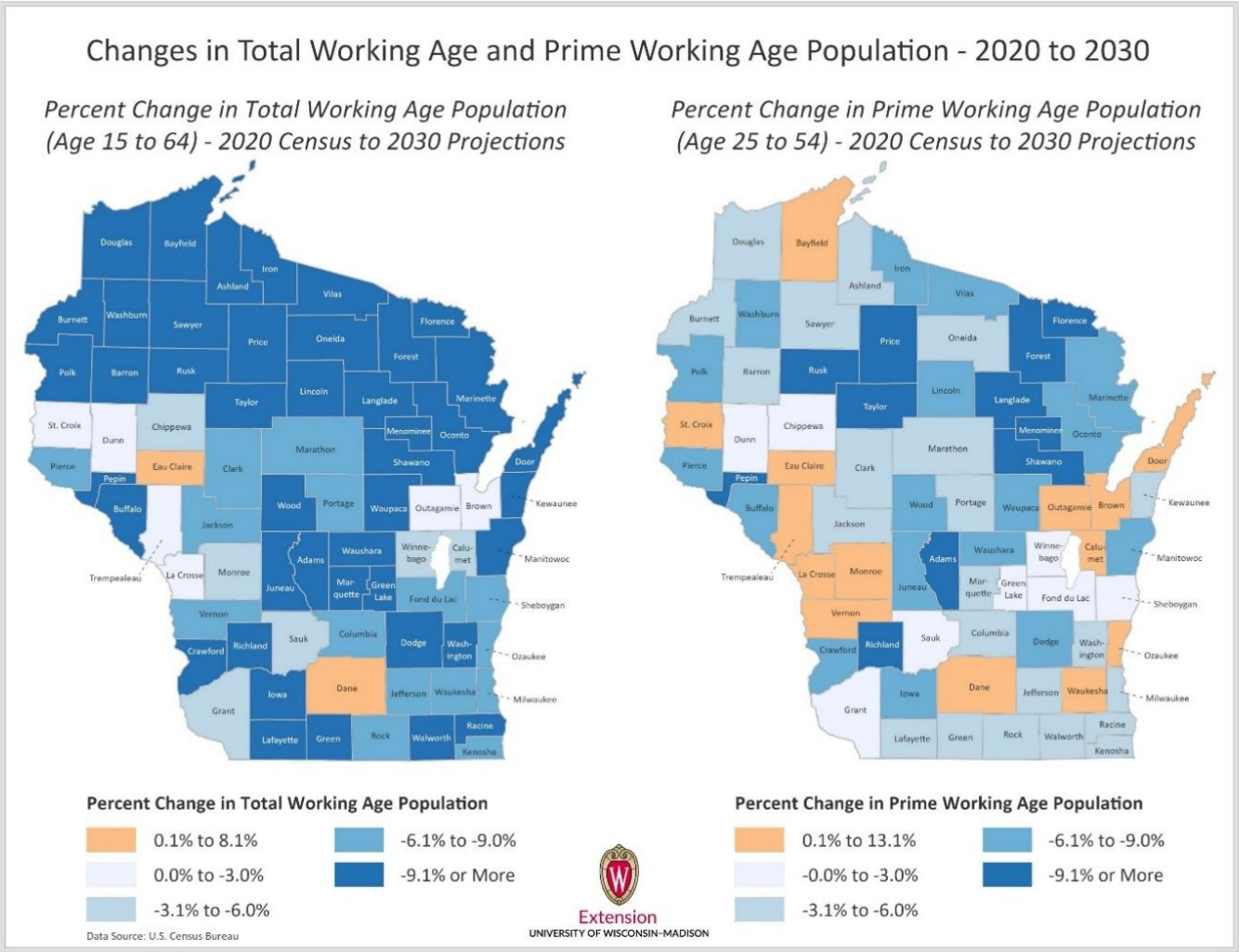
In summary, the quantitative data analysis suggests that dairy is an increasingly important part of the Green County economy, driven by growth in both dairy processing employment and dairy product manufacturing employment. Furthermore, the Green County "dairy cluster" is embedded in a larger regional economy connected by commuting patterns and supply chains. Finally, the dairy industry is increasingly facing an aging labor force with a working age population that is projected to continue its decline in size.

Figure 17 – Green County Working Age Population 1980 to 2040



Source: U.S. Census Bureau and Wisconsin Department of Administration

Figure 18 – Projected Changes in Total Working Age and Prime Working Age Populations



Action Plan

Introduction

The Study Team analyzed information from both qualitative and quantitative assessments of the Green County Dairy Cluster and identified the following strategies to move Green County forward:

1. Support Farmers
2. Strengthen Marketing and Market Opportunities
3. Expand Workforce Development
4. Strengthen Industry Networking and Collaboration
5. Manage Biowaste
6. Foster Entrepreneurship and Business Diversification

This led to the identification of the following actions. These actions are identified with the understanding that some of the actions are already being implemented. More would need to be done to further expand on developing implementation plans.

	Short Term Actions	Medium Term Actions	Long Term Actions
Strategy 1: Support Farmers			
	Action 1.1: Create a group to connect individuals with a desire to find or work for farms that don't have a second generation to take over. ***Action 1.2:*** Create a full team wrap-around for farm succession, including accountants, bankers, attorneys, lawyers, and estate planners, in Green County and out of the county. ***Action 1.3:*** Show stories of successful transitions.	***Action 1.4:*** Create high school, tech college, and university internship and mentorship programs. ***Action 1.5:*** Set up succession planning / exit planning when people start the business. Combine succession planning with business planning and strategies around insurance, equipment, tech, contracts, etc.	***Action 1.6:*** Increase communication between generations in existing businesses regarding succession planning / exit planning.
Strategy 2: Strengthen Marketing and Market Opportunities			
	Action 2.1: Increase marketing communications by better telling the stories of the producers and processors in Green County.	***Action 2.2:*** Encourage and support businesses in diversifying product to take advantage of market opportunities. ***Action 2.3:*** Encourage and support businesses in diversifying packaging to better tell their story.	***Action 2.4:*** Build, attract, and retain the marketing workforce to increase and improve marketing and sales.

	Short Term Actions	Medium Term Actions	Long Term Actions
Strategy 3: Expand Workforce Development			
	Action 3.1: Build workforce skills, including the skills listed below: • Language training; • General training for managers on how to manage people; • Managing finances - training on QuickBooks, accounting, etc; and • Leadership training. Building the skills can be through high school, tech college, and university programs as well as mentorships to help prepare the workforce as well as encourage continuous growth.	***Action 3.2:*** Address housing needs.	***Action 3.3:*** Address workforce transportation needs by advocating for Wisconsin state law to be changed so immigrants can have driver's licenses and operate vehicles.
Strategy 4: Strengthen Industry Networking and Collaboration			
	Action 4.1: Establish Green County Dairy Growth, a coalition that brings together producers, processors, suppliers, researchers, and local government entities. ***Action 4.2:*** Create a committee promoting dairy farmer networking. Networking events should include opportunities for kids and young adults from dairy farms.	***Action 4.3:*** Host regular meetings, field days, workshops, and conferences to build trust and share knowledge.	***Action 4.4:*** Consider making a "Young Dairy Professionals for Dairy Growth" group to be composed of people aged 40 and under.

	Short Term Actions	Medium Term Actions	Long Term Actions
Strategy 5: Manage Biowaste			
	Action 5.1: Create a biomass assessment for Green County and southwestern Wisconsin. This includes: • Quantifying the dairy feeds totals; • Quantifying the supply chain, including dairy farms, milk haulers, cheese manufacturers, cheese processors, whey processors, and industry suppliers; • Creating a solid definition of what site readiness means for biosolids application; • Inventory sites that are ready for handling land application of biosolids or a future biorefinery serving Green County / southwestern Wisconsin; and • Identifying what capacity could exist for municipal wastewater treatment plant expansions (including planning costs, timing, and triggers for implementation).	***Action 5.2:*** Assemble a toolbox of resources and incentives and create an informational packet for potential developers.	***Action 5.3:*** Explore the potential for energy production from biowaste processing at a municipal treatment site or new private or cooperatively owned treatment facility.

	Short Term Actions	Medium Term Actions	Long Term Actions
Strategy 6: Foster Entrepreneurship and Business Diversification			
	Action 6.1: Encourage and support high school, tech college programs, and universities in teaching the basics of entrepreneurship, financial management, and planning. ***Action 6.2:*** Leverage opportunities for entrepreneurs and businesses to have a third-party business guru come in and do an assessment. Bring in a consultant to spend time in Green County and help create business plans to expand strategic approaches. ***Action 6.3:*** Leverage opportunities to explore aggregated processing of whey for protein products. This could include forming co-ops and developing shared investment models for the infrastructure to do more with byproducts, exploring what is not used and what could be used.	***Action 6.4:*** Create a placemaking team with a focus on food. ***Action 6.5:*** Create a Green County Cheese Guild for smaller dairy processors and aspiring dairy processors. ***Action 6.6:*** Support diversification such as agritourism, dairy experiences, and/or farmstead processing. ***Action 6.7:*** Establish incubation programs for dairy-based startups.	***Action 6.8:*** Help people understand the risk profile and risk profile exchanges that come from diversification. This includes doing the math, knowing the numbers, marketplace, etc. before fully committing to an idea or venture.

Citations

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