

Appendix B

IMPLAN Economic Data Analysis

Data compiled through the IMPLAN data analysis service provide insights into the economic impact of agriculture and related businesses and the interactions between and among farms and the businesses that supply products and services to farms.

IMPLAN analysis provides insights into the following:

- Total economic output and employment by sector
- Multiplier effect
- Local concentration of an industrial sector
- The extent to which business inputs are purchased locally

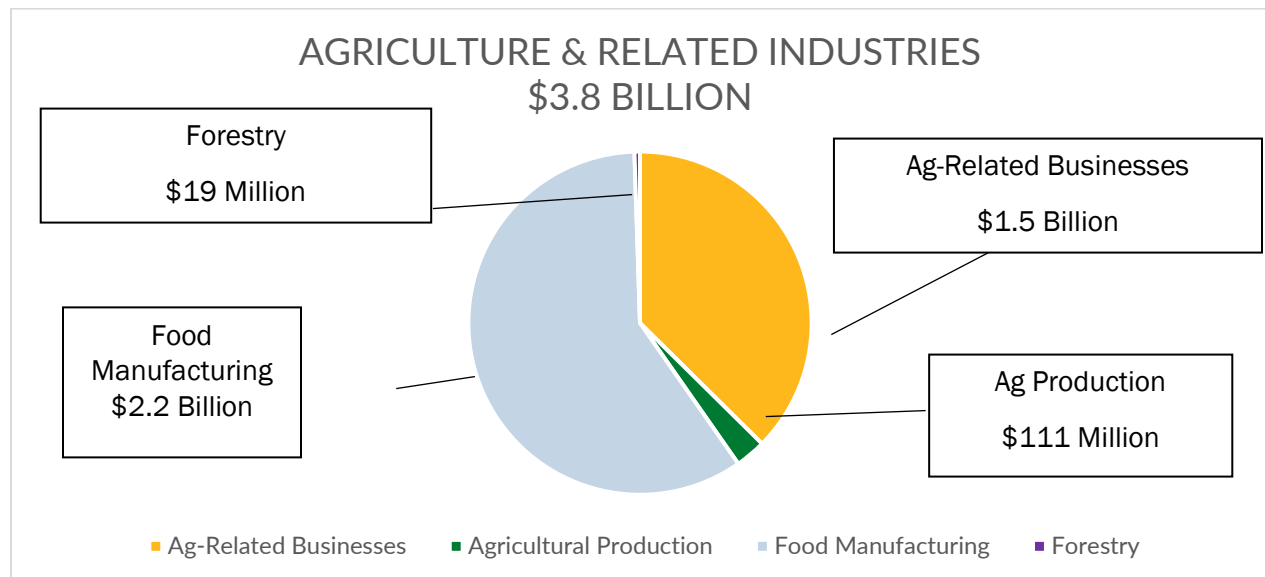
Total Output & Employment

In economic analysis, “total output” is a metric for the total value of products or services sold. Based on IMPLAN data for 2022, agriculture and related industries generated \$3.8 billion in output. This represents approximately 4% of the total output of all economic sectors in Monroe County.

Agricultural Production Output and Employment

Sales from agricultural production alone generated almost \$111 million. Food manufacturing is a major component of Monroe County’s agricultural economy with \$2.2 billion in sales. Other agriculture-related businesses, such as wholesalers, retail, machinery production, etc. contributed an additional \$1.4 million to Monroe County’s economy. Forestry activities played a small, but significant role in the agricultural economy, generating \$19 million in total output.

Chart 1. Total Output by Agriculture Related Industries, 2022



SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

Vegetable and melon farming is the largest agricultural production sector in Monroe County, generating \$27 million in sales (24% of the category total). Grain farming, greenhouse, nursery and floriculture production, and oilseed farming round out the top five agricultural production sectors. Agricultural production accounted for .12% of the County's overall \$96 billion in annual economic output.

Table 1. Total Output by Agricultural Production Sectors, 2022

Industry Sector	Total Output	Percent of Total
Vegetable and melon farming	\$27,099,134	24%
Greenhouse, nursery, and floriculture production	\$16,745,838	15%
Support activities for agriculture and forestry	\$5,500,862	5%
Grain farming	\$25,587,764	23%
All other crop farming	\$4,000,522	4%
Fruit farming	\$4,043,273	4%
Dairy cattle and milk production	\$10,570,977	10%
Animal production, except cattle and poultry and eggs	\$2,061,837	2%
Poultry and egg production	\$2,208,530	2%
Oilseed farming	\$11,334,754	10%
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	\$1,738,098	2%
Tree nut farming	\$16,590	0.01%
Total	\$110,908,178	100%

SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

According to IMPLAN data, agricultural production employed approximately 516 people in 2022. As with total output, vegetable and melon farming employed the most people (136) within the category. Employment in agricultural production is 0.13% of the County total.

Table 2. Total Employment by Agricultural Production Sectors, 2022

Industry Sector	Wage and Salary Employment	Proprietor Employment	Total Employment	Percent of Total
Vegetable and melon farming	136	90	226	26%
Greenhouse, nursery, and floriculture production	129	34	163	25%
Support activities for agriculture and forestry	113	44	157	22%
Grain farming	51	81	132	10%
All other crop farming	33	131	164	6%
Fruit farming	29	19	48	6%
Dairy cattle and milk production	16	12	28	3%
Animal production, except cattle and poultry and eggs	5	15	20	1%
Poultry and egg production	2	2	4	0%
Oilseed farming	1	22	23	0%
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	1	14	15	0%
Tree nut farming	0.1	0	0	0.02%
Total	517	464	981	100%

SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

The average employee compensation among agricultural production sectors was highest for poultry and egg production and lowest for vegetable and melon farming. This is a significant statistic since vegetable and melon farming is the largest production sector by sales. For proprietors, oilseed farming commanded the highest average income. Beef and cattle ranching and farming had the lowest average income.

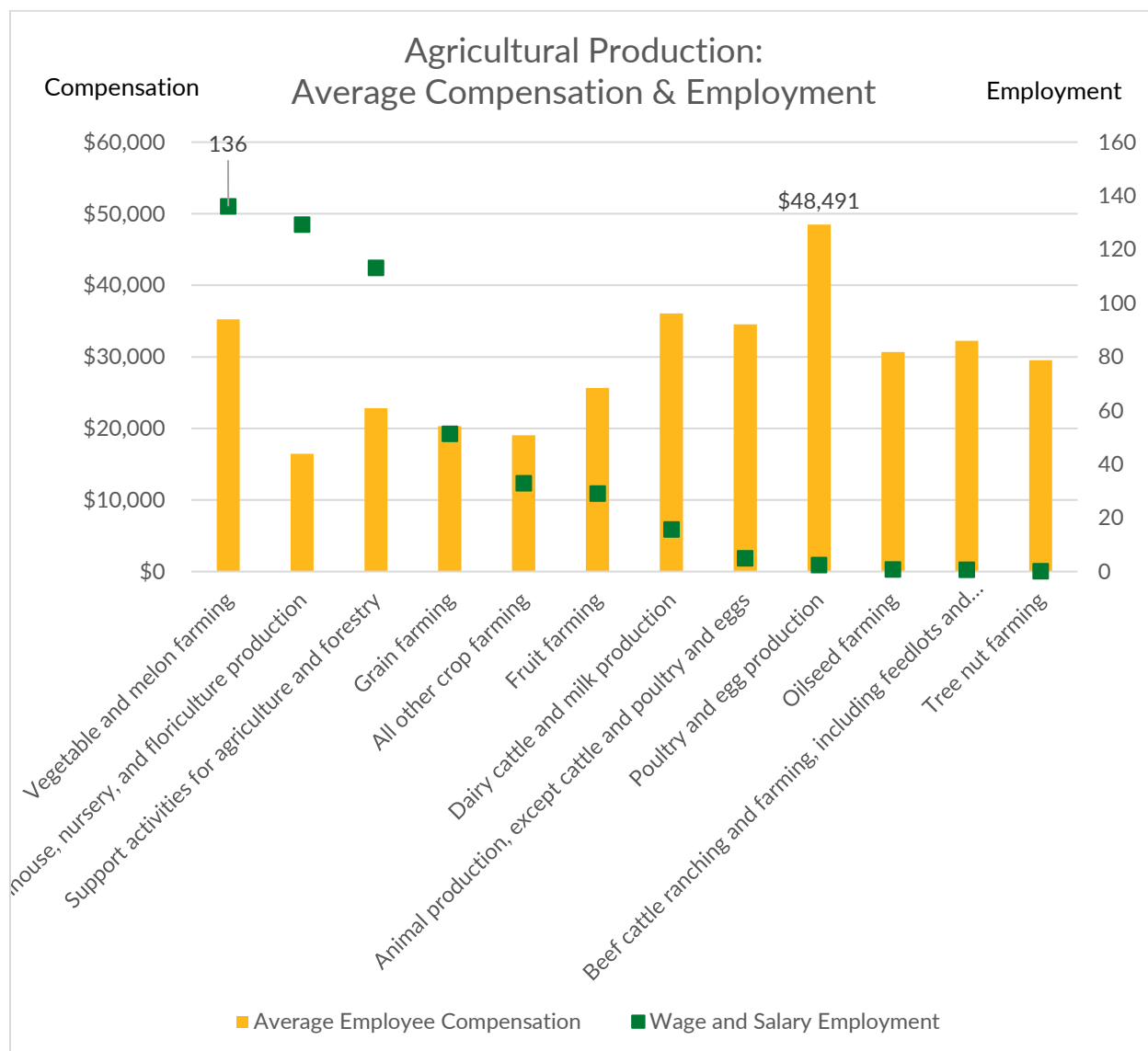
Table 3. Average Compensation by Agricultural Production Sectors, 2022

Industry Sector	Average Wage and Salary Compensation	Average Proprietor Income
Oilseed farming	\$35,258	\$109,034
Fruit farming	\$16,454	\$100,393
Greenhouse, nursery, and floriculture production	\$22,816	\$87,817
Tree nut farming	\$20,328	\$74,977
Vegetable and melon farming	\$19,036	\$74,097
Dairy cattle and milk production	\$25,660	\$44,891
Animal production, except cattle and poultry and eggs	\$36,049	\$42,559
Grain farming	\$34,547	\$31,979
Poultry and egg production	\$48,491	\$22,572
Support activities for agriculture and forestry	\$30,697	\$18,076
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	\$32,261	\$13,910
All other crop farming	\$29,514	\$3,646
Average of all Sectors	\$29,259	\$51,996

SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

The chart below compares average compensation to wage and salary employment in the agricultural production industries. The yellow bars represent average employee compensation and correspond to the values on the left, “Compensation” axis. The green squares mark the total wage and salary employment in the industry and correspond to the values on the right, “Employment” axis. To provide a cleaner visual, only the high value for compensation and employment is provided as a relative reference for the other industries in the chart. The complete sets of data are in the above figures. This chart is useful for identifying compensation and employment dynamics at play in different agricultural industries, identifying high impact sectors that have high employment and high wages versus those that are lower pay or lower employment. Growth and decline within the high impact sectors can then be monitored more closely as the those industries produce the greatest employment benefit for Monroe County’s workforce. This chart is repeated for each of the four categories of industries analyzed in this section.

Chart 2. Average Compensation Compared to Employment, Agricultural Production Sectors, 2022



SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

Food Manufacturing

Food manufacturing is a significant contributor to the overall agricultural economy in Monroe County, generating \$2.3 billion in sales (2% of the County total). Approximately 5,445 people were employed in food manufacturing sectors in 2022, with operations ranging from large, multi-national companies to small and medium-sized local businesses engaged in value added food processing.

Some notable companies located in Monroe County and surrounding areas include:

- JCS Controls Inc.: A food and beverage engineering and consulting company, JCS Controls is expanding its operations in Monroe County. It focuses on advanced processing and control

systems for the food and beverage industry, including aseptic processing and ultra pasteurization.¹

- Coca-Cola: The company operates a facility in Rochester and is establishing a significant presence in Monroe County with a \$650 million dairy plant for its Fairlife brand in the Town of Webster. This facility will focus on advanced dairy processing and is expected to utilize state-of-the-art ultrafiltration techniques developed at Cornell University.²
- LiDestri Food & Drink: This company is a major contract manufacturer with a facility in Fairport, producing sauces, dips, and beverages.
- Bonduelle processes frozen and canned vegetables at a plant in Brockport
- FIFCO USA (Genessee Brewery): This manufacturer produces alcoholic beverages and operates within the local market. Several smaller breweries are also located in Monroe County.
- Seneca Foods: Specializes in the production of canned and bottled fruits and vegetables with several plants in the Rochester region and maintains its corporate headquarters in Fairport.
- Upstate Niagara Co-op: This company processes and manufactures fluid milk at a plant in Rochester, representing a significant part of the dairy industry in the region.
- Distilleries include Black Button, which recently constructed a new facility in Rochester.

These companies are part of a vibrant ecosystem in Monroe County that includes advanced manufacturing processes, substantial investment in new technologies, and a commitment to economic growth and job creation in the region.

¹ <https://esd.ny.gov/esd-media-center/press-releases/empire-state-development-announces-food-and-beverage-engineering-and-consulting-firm-jcs-controls>

² <https://rochesterbiz.com/food-beverage-manufacturing/>

Table 4. Total Output by Food Manufacturing Sectors, 2022

Industry Sector	Total Output	Total Output Percent of Total
Canned fruits and vegetables manufacturing	\$504,353,946	22%
Breweries	\$393,301,037	17%
Bread and bakery product, except frozen, manufacturing	\$299,765,814	13%
Distilleries	\$278,120,060	12%
Fluid milk manufacturing	\$126,853,404	6%
Frozen fruits, juices and vegetables manufacturing	\$116,155,929	5%
Frozen cakes and other pastries manufacturing	\$77,835,855	3%
Frozen specialties manufacturing	\$66,203,405	3%
Other snack food manufacturing	\$57,248,155	3%
Flour milling	\$49,374,618	2%
Wineries	\$43,111,479	2%
Dog and cat food manufacturing	\$40,465,790	2%
Meat processed from carcasses	\$39,559,752	2%
Flavoring syrup and concentrate manufacturing	\$34,396,274	2%
Ice cream and frozen dessert manufacturing	\$28,632,128	1%
Spice and extract manufacturing	\$18,812,783	1%
Sugar cane mills and refining	\$18,130,306	1%
Other animal food manufacturing	\$16,715,628	1%
Animal, except poultry, slaughtering	\$13,630,781	1%
Roasted nuts and peanut butter manufacturing	\$10,950,470	0.48%
Rendering and meat byproduct processing	\$9,689,666	0.43%
Coffee and tea manufacturing	\$7,569,310	0.33%
All other food manufacturing	\$7,180,817	0.32%
Nonchocolate confectionery manufacturing	\$6,111,672	0.27%
Manufactured ice	\$3,365,220	0.15%
Confectionery manufacturing from purchased chocolate	\$2,554,856	0.11%
Chocolate and confectionery manufacturing from cacao beans	\$1,766,930	0.08%
Total	\$2,271,856,088	100%

SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

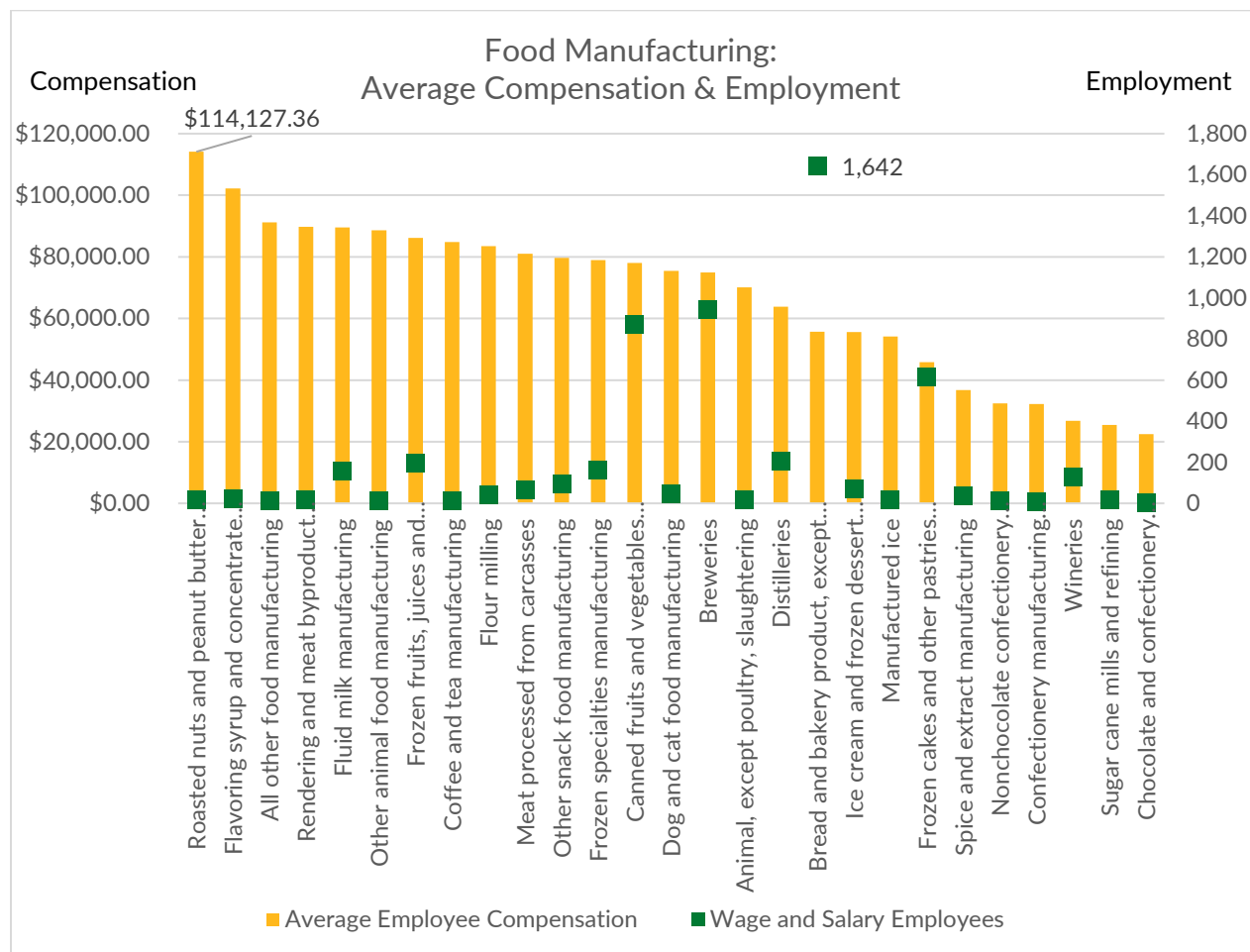
Table 5. Total Employment by Food Manufacturing Sectors, 2022

Industry Sector	Employment			
	Wage and Salary	Proprietor	Total	Percent of Total
Canned fruits and vegetables manufacturing	871	51	922	16%
Breweries	941	66	1007	18%
Bread and bakery product, except frozen, manufacturing	1642	59	1701	30%
Distilleries	207	1	225	4%
Fluid milk manufacturing	158	10	168	3%
Frozen fruits, juices and vegetables manufacturing	193	13	206	4%
Frozen cakes and other pastries manufacturing	615	33	648	11%
Frozen specialties manufacturing	163	11	174	3%
Other snack food manufacturing	97	4	101	2%
Flour milling	39	3	42	1%
Wineries	130	2	133	2%
Dog and cat food manufacturing	43	4	47	1%
Meat processed from carcasses	67	2	69	1%
Flavoring syrup and concentrate manufacturing	22	3	25	0%
Ice cream and frozen dessert manufacturing	68	3	71	1%
Spice and extract manufacturing	34	1	35	1%
Sugar cane mills and refining	19	0	19	0.3%
Other animal food manufacturing	12	0	13	0.2%
Animal, except poultry, slaughtering	18	0	18	0.3%
Roasted nuts and peanut butter manufacturing	19	0	19	0.3%
Rendering and meat byproduct processing	16	1	17	0.3%
Coffee and tea manufacturing	11	0	11	0.2%
All other food manufacturing	15	1	16	0.3%
Nonchocolate confectionery manufacturing	15	0	15	0.3%
Manufactured ice	19	1	19	0.3%
Confectionery manufacturing from purchased chocolate	7	0	7	0.1%
Chocolate and confectionery manufacturing from cacao beans	4	0	4	0.1%
Total	5,445	287	5,732	100%

SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

As shown in the chart below, average employee compensation for wage and salary employees in the food manufacturing sector varies widely across sub-sectors, from \$114,127 per year in the roasted nuts and peanut butter manufacturing sector to \$22,489 per year in chocolate and confectionery manufacturing. As the chart demonstrates, many of Monroe County's largest food manufacturing sectors are in the middle of the pay-scale for all industries, with annual average compensation between \$45,000 (frozen cakes) and \$75,000 (canned fruits and vegetables).

Chart 3. Average Compensation Compared to Employment, Food Manufacturing Sectors, 2022



SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

Agriculture-Related Businesses

Agriculture-related businesses include services that produce key farming inputs or represent the markets that farm products are sold to. While these businesses and their economic impacts are not exclusive to agriculture, their overlap and interrelated nature justify their inclusion in an analysis of the agricultural economy. Of these six selected sectors, agriculture is a minor contributor to retail and wholesale. Several other industry sectors, such as trucking or warehousing and storage, are part of the agricultural supply chain, but the proportion of agriculture's activity relative to the whole sector is small.

The industries included in the Agriculture-Related Businesses category account for 1% of the County's overall output.

Table 6. Total Output by Agricultural Related Businesses Sectors, 2022

Description	Total Output	Percent of Total
Retail - Food and beverage stores	\$929,834,116	65%
Wholesale - Grocery and related product wholesalers	\$400,226,801	28%
Pesticide and other agricultural chemical manufacturing	\$83,225,860	6%
Fertilizer mixing	\$8,974,986	1%
Farm machinery and equipment manufacturing	\$8,180,300	1%
Food product machinery manufacturing	\$5,279,546	0.37%
Total	\$1,435,721,609	100%

SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

Table 7. Total Employment by Agriculture Related Businesses Sectors, 2022

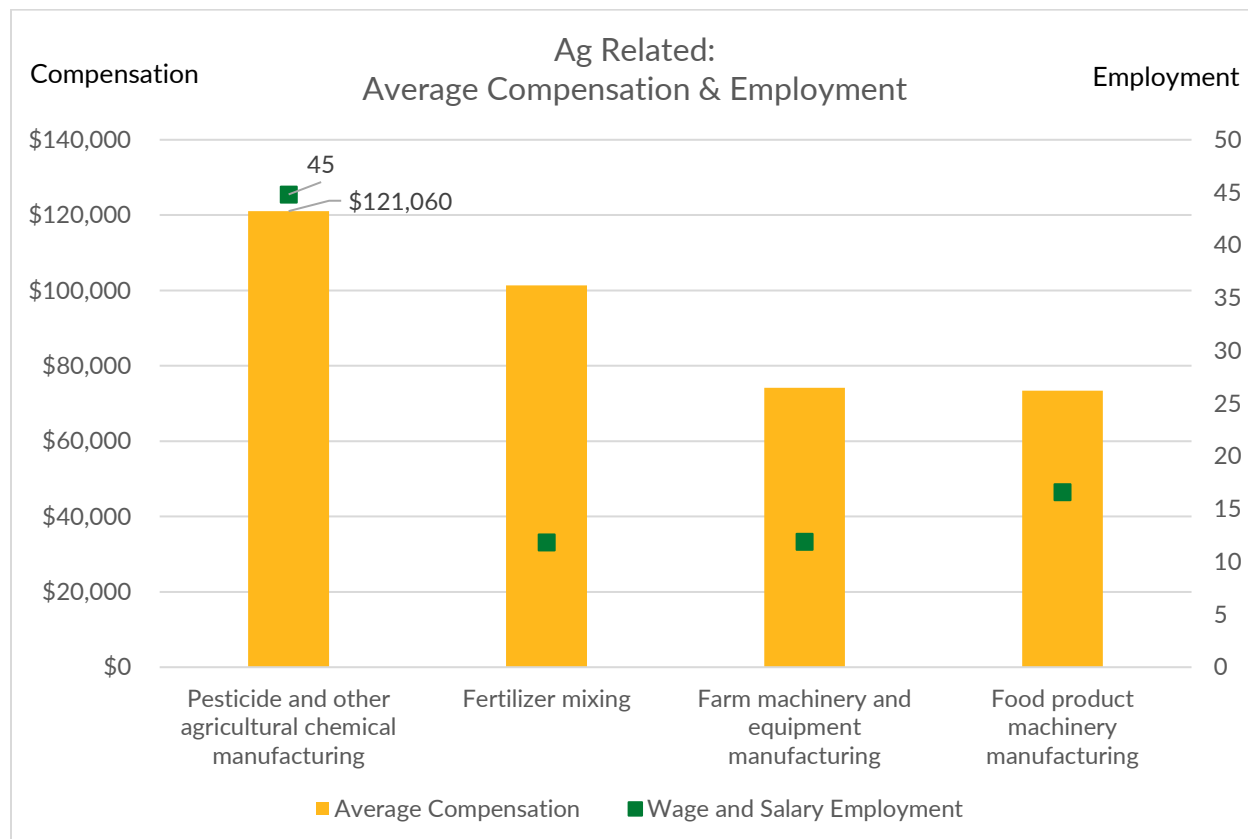
Description	Employment			
	Wage and Salary	Proprietors	Total	Percent of Total
Retail - Food and beverage stores	9,274	527	9,802	86%
Wholesale - Grocery and related product wholesalers	1,433	22	1,456	13%
Pesticide and other agricultural chemical manufacturing	45	2	46	0.4%
Fertilizer mixing	12	0.48	12	0.1%
Farm machinery and equipment manufacturing	12	0.33	12	0.1%
Food product machinery manufacturing	17	0.23	17	0.15%
Total	10,793	552	11,345	100%

SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

Average compensation varies widely among agricultural related industries. While the retail industry's lower compensation is expected, wholesales' relatively high compensation is an interesting contrast. Clearly, there are high wage earners within the wholesale industry that boost overall industry

earnings as compared to retail. Of the manufacturing-based industry sectors, pesticide and chemical manufacturing is not only the most highly compensated (\$121,060 average annual salary), but the largest employment sector for wage and salary employees (45).

Chart 4. Average Compensation Compared to Employment, Agriculture Related Business Sectors, 2022



SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

Forestry

Forestry is a relatively niche industry within Monroe County but plays a role in the agricultural and rural economy. Forestry activities can serve as a supplemental source of revenue for farmers and form a critical component of a farm's land management and the rural landscape.

Table 8. Total Output by Forestry Sectors, 2022

Industry Sector	Total Output	Percent of Total
Forestry, forest products, and timber tract production	\$2,702,737	14%
Commercial logging	\$4,027,750	20%
Sawmills	\$13,224,577	66%
Total	\$19,955,063.74	100%

SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

This highly specialized industry employs few employees and accounts for a small fraction of the County's overall employment.

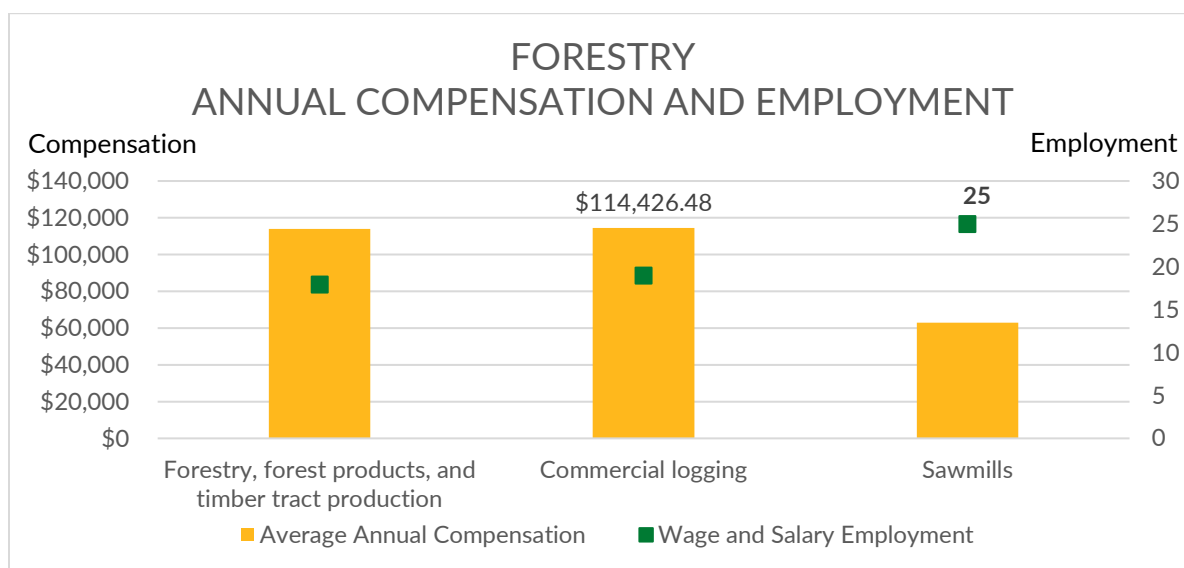
Table 9. Total Employment by Forestry Sectors, 2022

Industry Sector	Wage and Salary Employment	Proprietor Employment	Total Employment	Percent of Total Employment
Forestry, forest products, and timber tract production	18	0	18	23%
Commercial logging	19	11	30	39%
Sawmills	25	4	29	38%
Total	62	15	77	100%

SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

Within the forestry sector, the small number of people employed in Forestry activities enjoy relatively high annual compensation.

Chart 5. Average Compensation Compared to Employment, Forestry Sectors, 2022



SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

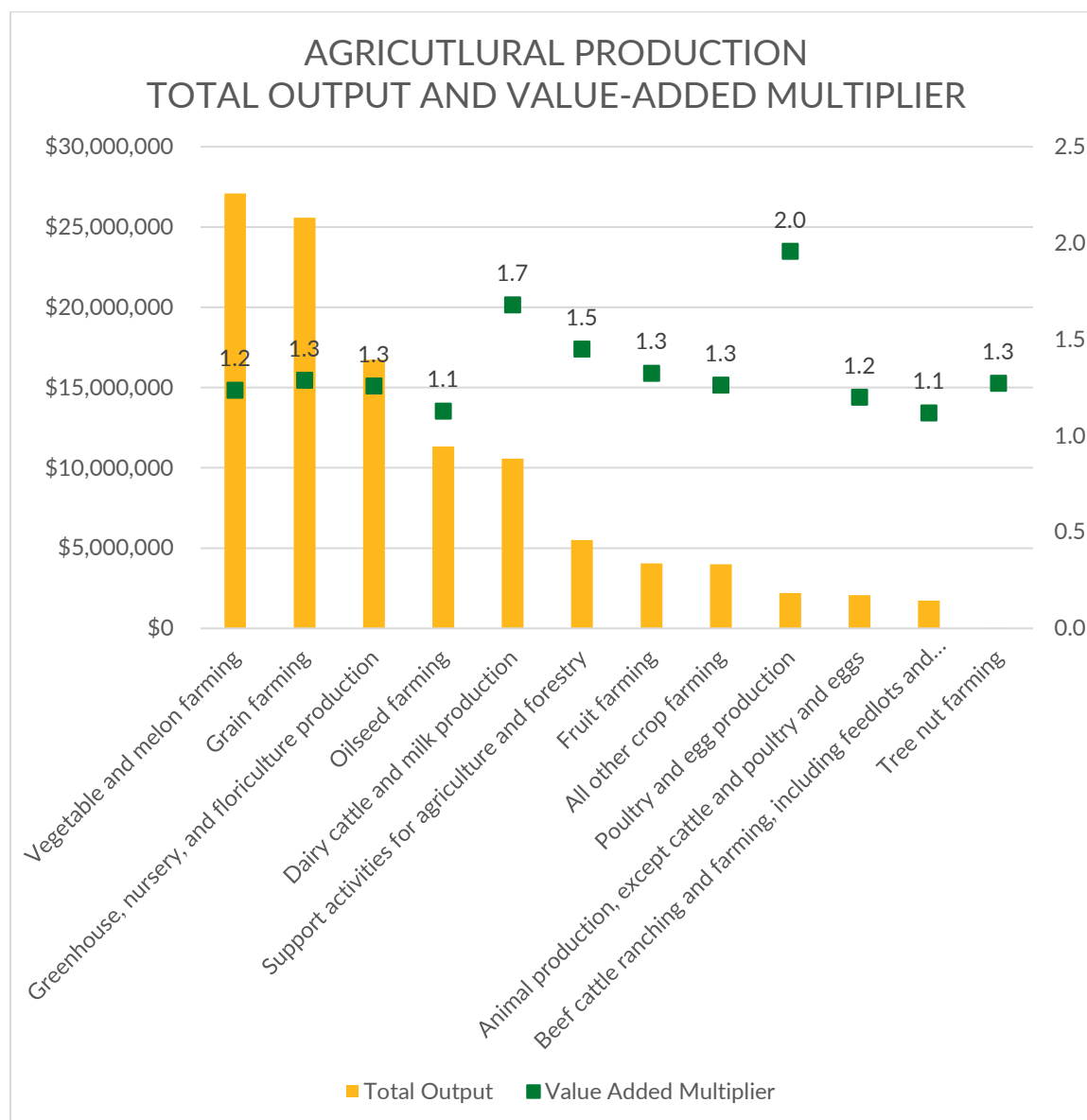
Multipliers

In economic analysis, the “Output Multiplier” is the amount of sales generated in the larger economy as a result of \$1 of direct output. Multipliers computed by IMPLAN from Social Accounts Matrix (SAM) calculations incorporate spending by businesses that supply goods and products to the industry as well as spending by employees of those businesses in the local economy. Similarly, the “Employment Multiplier” is the number of jobs generated as result of creating one direct job in the industry. The employment multiplier is not represented or analyzed in this summary but is included in comprehensive data attachment to the plan.

Across all agriculture related industries, food manufacturing sectors generally have the greatest multiplier effect on the rest of the economy. Within the core agricultural production industry sectors, poultry and egg production, dairy cattle and milk production, and support activities have the highest multiplier. Monroe County's most significant agricultural production sectors do not have especially high multipliers, which limits the positive ripple effects that high multiplier industries have within a local economy.

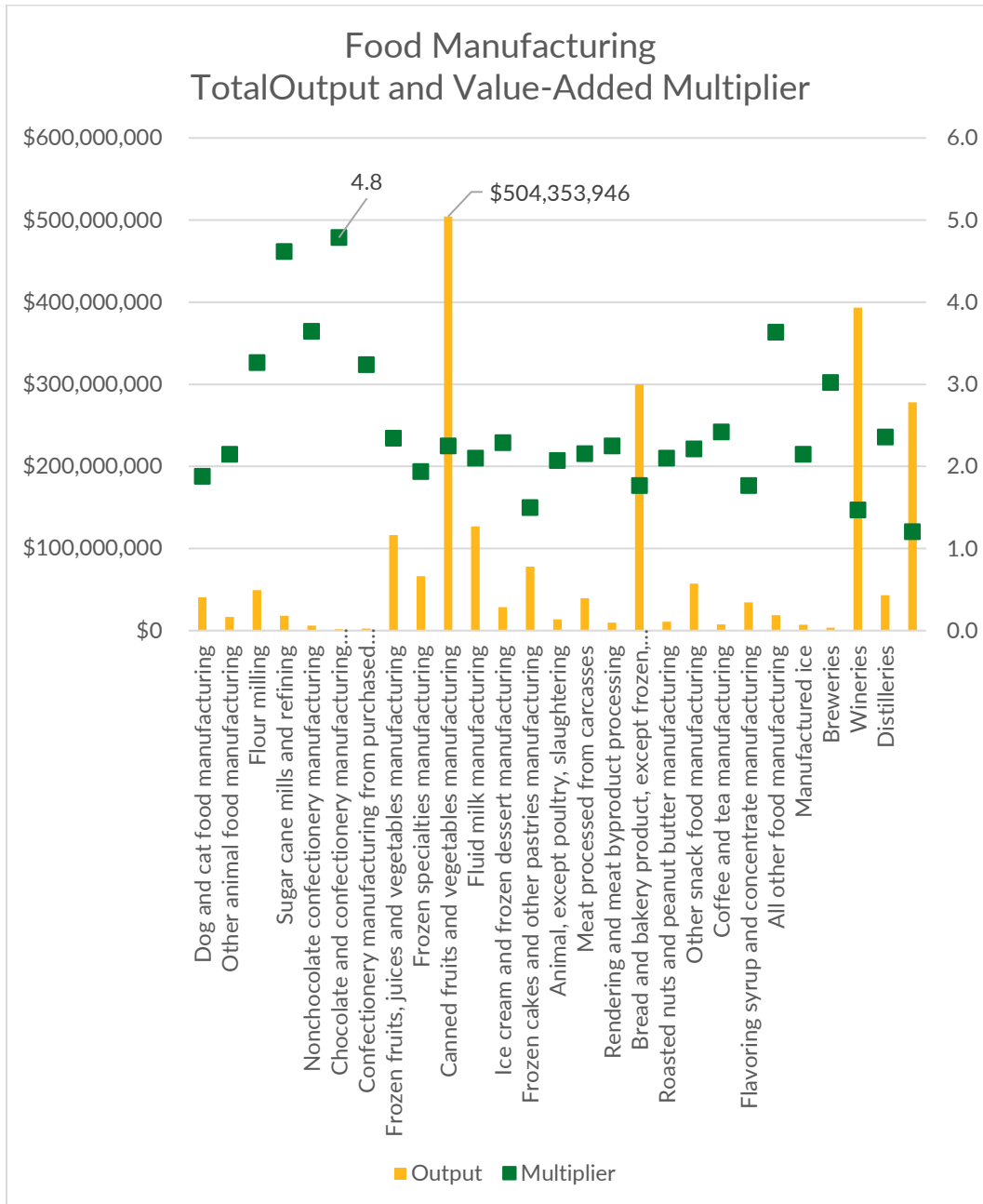
Figures demonstrating the relationship between an industry's economic output and SAM multiplier are provided for each of the four agriculture economy categories. Industries with high output and high multipliers have a high impact on the overall economy as each dollar of production in those industries ripples further into the wider economy.

Chart 6. Total Output and Value Added Multiplier, Agricultural Production Sectors, 2022



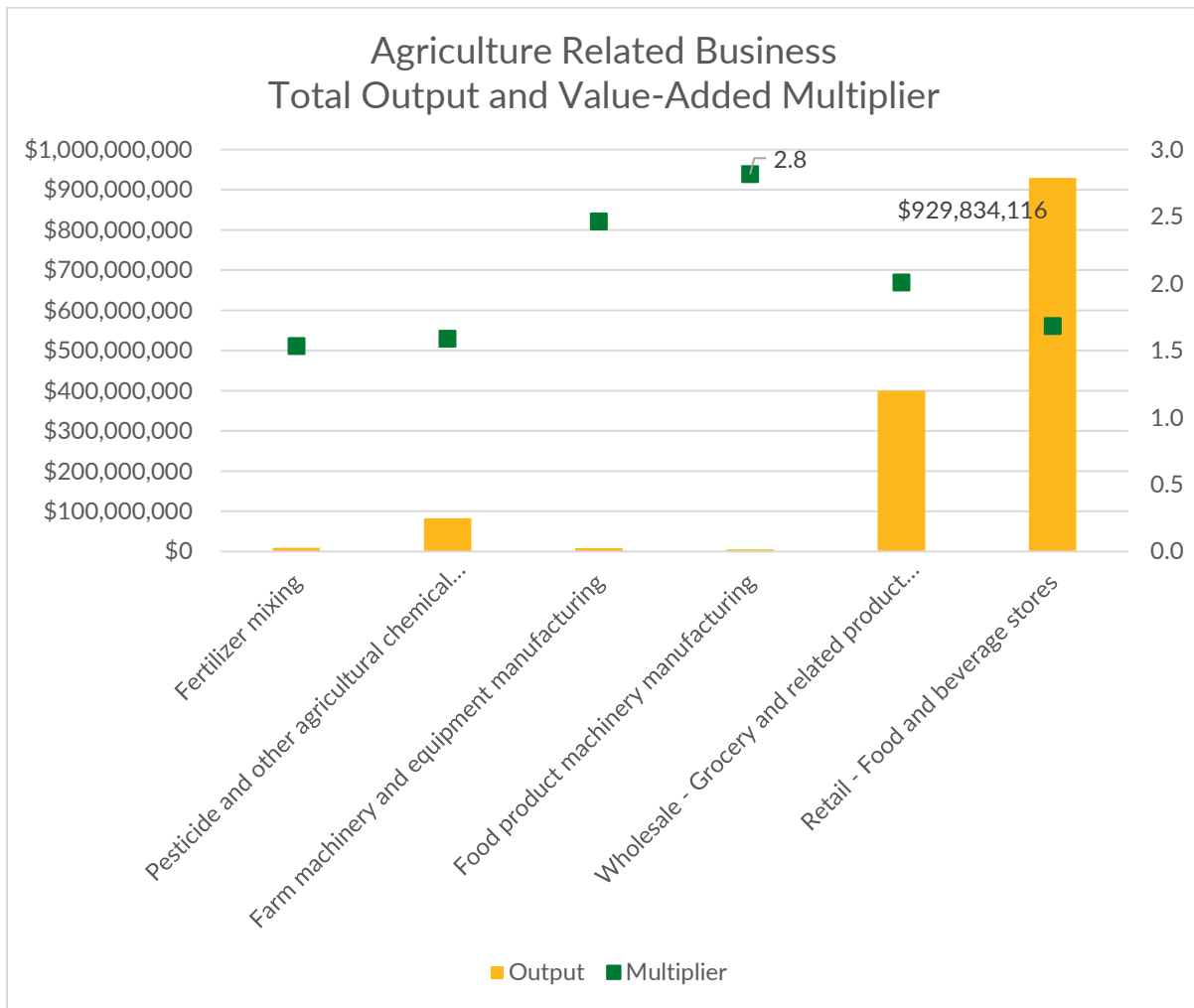
SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

Chart 7. Total Output and Value Added Multiplier, Food Manufacturing, 2022



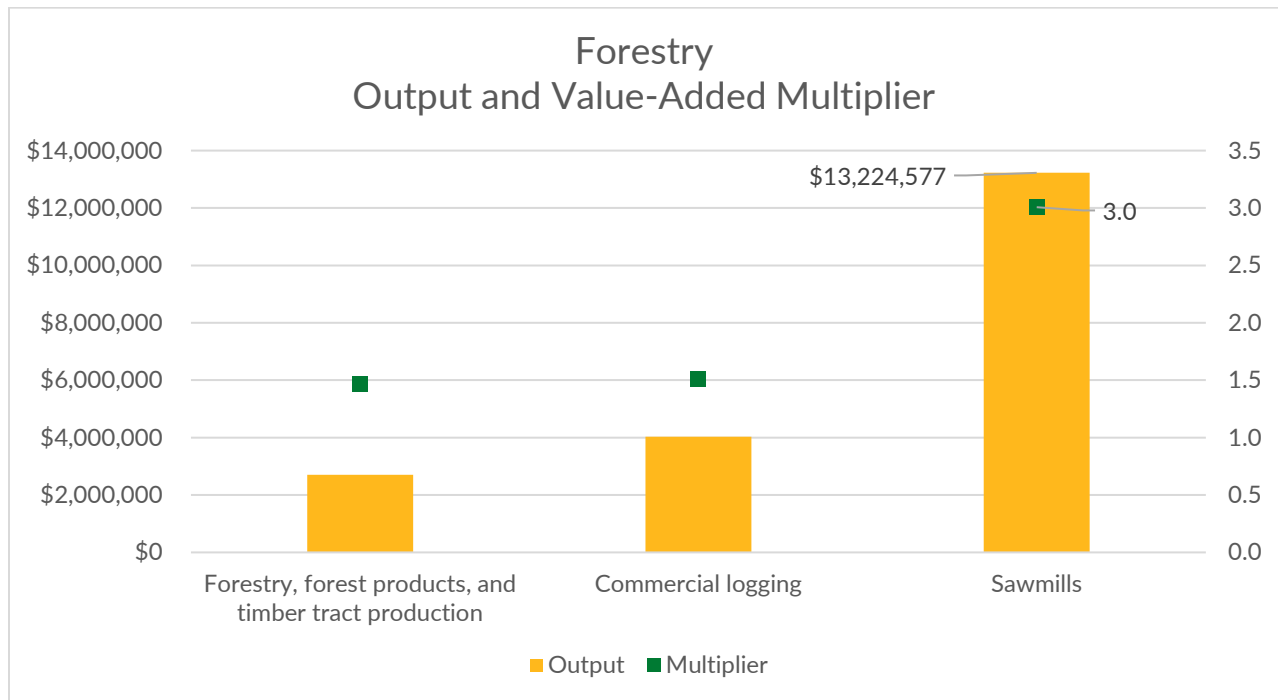
SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

Chart 8. Total Output and Value Added Multiplier, Agricultural-Related Businesses, 2022



SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

Chart 9. Total Output and Value Added Multiplier, Forestry Sectors, 2022



SOURCE: IMPLAN. 2022 data for Monroe County industry sectors

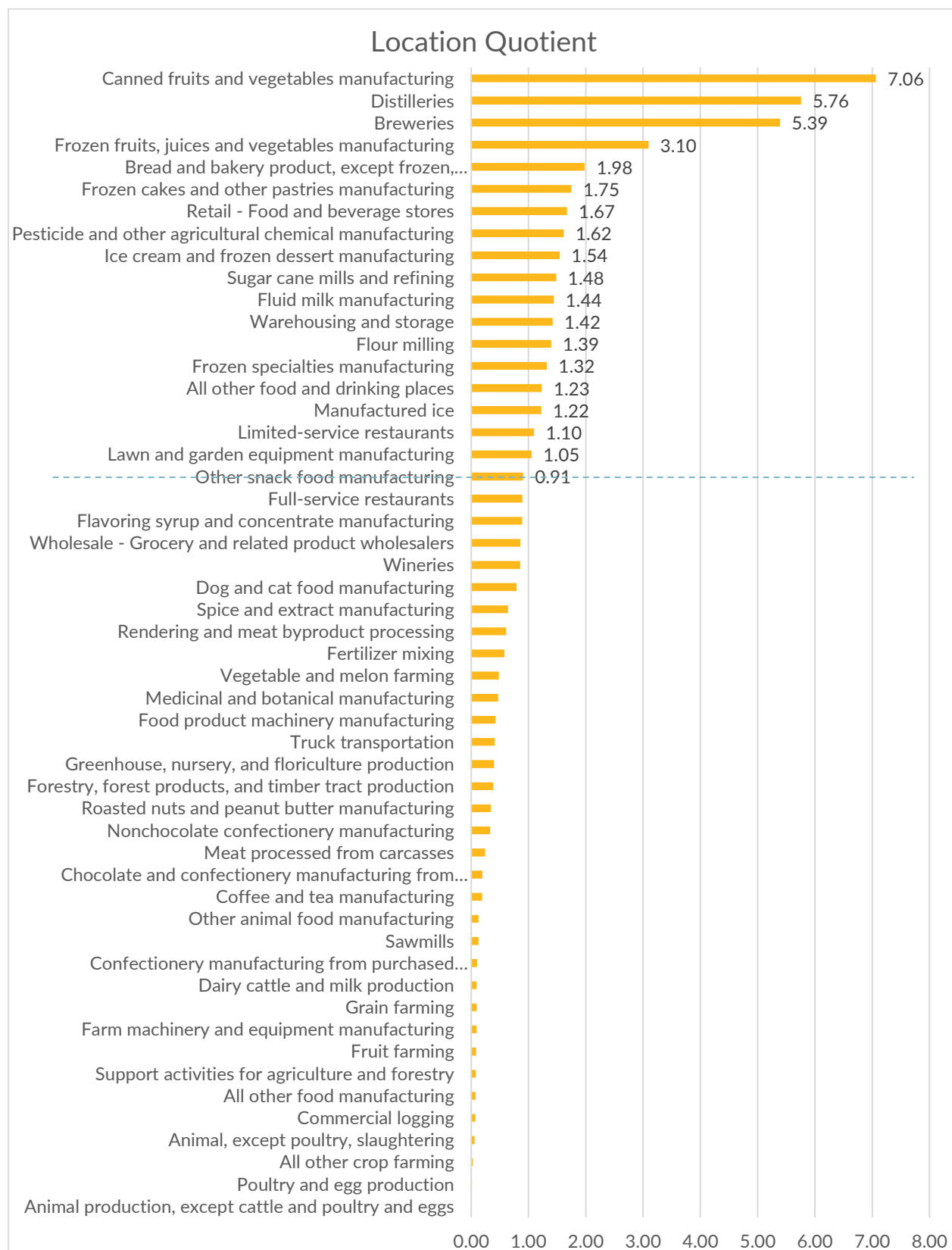
Location Quotient

Another economic analysis metric useful in understanding the significance of an industry to the region is the “Location Quotient.” This metric measures the concentration of employment in this industry relative to the United States as a whole. If the Location Quotient = 1, the local share of this industry is equal to the national share.

As demonstrated by its location quotients, Monroe County’s agricultural economy specializes in several food manufacturing and agricultural related industries. Eighteen industries have a location quotient greater than 1, indicating that there is a higher concentration of these industries in Monroe County than the national average. Canned fruits and vegetable manufacturing (7.06), distilleries (5.76), breweries (5.39), and bread and bakery products (3.10) are particularly specialized as compared to other agricultural industries in the County.

Monroe County does not have any agricultural production industries that are more specialized than the national average. Vegetable and melon farming, the County’s top producing industry, is also its highest location quotient at 0.48. The chart below combines all four agricultural categories in one chart to provide a comprehensive view of the concentration of industries across all agricultural related sectors.

Chart 10. Location Quotients



Regional Purchase and Supply Coefficients

Two metrics that can help businesses and regional economic developers identify ways that businesses can become more integrated into the local economy are the “Regional Purchase Coefficient” and the “Regional Supply Coefficient.” The Regional Purchase Coefficient (RPC) measures the proportion of the total demand by users in the Study Area that is supplied by producers located within the Study Area. The Regional Supply Coefficient is the proportion of local supply of a Commodity that goes to meet local demands.

As these metrics are computed from a model based on nationwide industry averages for each Commodity, it may not reflect practices of individual businesses. However, it can help identify potential linkages to explore to encourage businesses to purchase more of their inputs locally and for end users to buy more from local businesses.

Within Agriculture Production, support activities for agriculture and forestry boasts a high RPC (85.54%); grains (15.26%) and all other crops (14.82%) have modest RPC percentages, indicating stronger linkages to the local economy within those crop-oriented industries. For RSC, sugarcane and sugar beets (99.81%), all other crops (97.99%), grains (82.94%) and greenhouse, nursery, and floriculture products (78.72%) are all production industries with high RSCs, indicating strong, local supply chain in these industries.

Outside of Agriculture Production industries, Ag-Related Businesses has strong metrics in both RPC and RSC whereas Food Manufacturing, which rates highly with the value added and location quotient metrics, rates modestly in the RPC and RSC metrics. Beer, ale, malt liquor and non-alcoholic beer is, unsurprisingly, the highest RPC product within Food Manufacturing (18.64%) and wet corn (39.51%) is the highest RSC product.

Table 10. Regional Purchase Coefficients (RPC) and Regional Supply Coefficients (RSC) (Monroe County 2021)

Sector	Average RPC	Average RSC
Agricultural Production		
Oilseeds	2.71%	0.48%
Grains	15.26%	78.72%
Vegetables and melons	0.18%	0.45%
Fruit	0.00%	0.07%
Tree nuts	0.00%	0.10%
Greenhouse, nursery, and floriculture products	3.17%	8.21%
Tobacco	0.09%	0.02%
Cotton	0.17%	1.98%
Sugarcane and sugar beets	0.01%	99.81%
All other crops	14.82%	82.94%
Beef cattle	0.00%	0.01%
Dairy cattle and milk products	0.00%	0.00%
Poultry and egg products	0.36%	6.66%
Animal products, except cattle and poultry and eggs	0.27%	1.85%
Fish	0.41%	2.85%
Support activities for agriculture and forestry	85.54%	97.99%
Fiber filaments, yarn, and thread	0.01%	0.83%
Food Manufacturing		
Dog and cat food	0.77%	1.35%
Other animal food	1.13%	1.14%
Flour	2.39%	2.45%
Rice	0.00%	0.28%
Malt	0.03%	0.24%
Wet corn	5.90%	39.51%
Soybean and other oilseed processing	0.00%	0.56%
Fats and oils refining and blending	0.00%	1.31%
Breakfast cereal	0.06%	4.03%
Beet sugar	0.00%	0.07%
Sugar cane	2.87%	3.18%
Nonchocolate confectioneries	0.24%	1.22%
Chocolate and confectioneries from cacao beans	0.14%	0.64%
Confectioneries from purchased chocolate	0.18%	1.27%
Frozen fruits, juices and vegetables	16.12%	10.29%
Frozen specialties	3.87%	3.85%
Canned fruits and vegetables	3.00%	0.76%
Canned specialties	0.61%	1.53%
Dehydrated food products	0.01%	0.95%
Cheese	0.01%	0.82%
Dry, condensed, and evaporated dairy products	0.24%	1.31%
Fluid milk	2.06%	1.81%

IMPLAN Economic Data Analysis

Sector	Average RPC	Average RSC
Creamery butter	0.00%	0.15%
Ice cream and frozen dessert	4.08%	4.28%
Frozen cakes and other pastries	3.53%	2.72%
Processed poultry meat products	0.05%	11.43%
Meat (except poultry) produced in slaughtering plant	0.30%	4.95%
Meat processed from carcasses	1.31%	6.31%
Processed animal rendered byproducts	0.94%	1.90%
Seafood products	0.02%	5.27%
Bread and bakery products, except frozen	9.05%	5.54%
Cookies and crackers	1.31%	6.48%
Dry pasta, mixes, and dough	0.65%	5.98%
Tortillas	0.00%	0.38%
Roasted nuts and peanut butter	1.67%	5.85%
Other snack foods	2.59%	3.99%
Coffee and tea	0.42%	3.14%
Flavoring syrup and concentrate	0.38%	0.74%
Mayonnaise, dressings, and sauces	0.11%	0.53%
Spices and extracts	0.70%	2.74%
All other food products	0.20%	2.18%
Bottled and canned soft drinks and water	1.11%	9.07%
Manufactured ice	14.04%	17.08%
Beer, ale, malt liquor and nonalcoholic beer	18.64%	4.90%
Wine and brandies	4.74%	8.11%
Distilled liquors except brandies	0.72%	0.25%
Ag-Related Businesses		
Pesticides and other agricultural chemicals	38.52%	9.75%
Farm machinery and equipment	0.33%	3.54%
Food product machinery	0.33%	0.79%
Wholesale services - Grocery and related product wholesalers	74.07%	87.92%
Retail services - Food and beverage stores	99.97%	72.22%
Forestry		
Forest, timber, and forest nursery products	0.14%	0.25%
Logs and roundwood	1.14%	1.55%
Dimension lumber	2.41%	10.89%
Preserved wood products	0.08%	11.63%
Veneer and plywood	0.16%	14.03%
Engineered wood members and trusses	3.80%	6.10%
Reconstituted wood products	0.00%	4.48%
Wood pulp	0.00%	0.01%
Paper from pulp	6.94%	10.81%
Paperboard from pulp	0.09%	1.43%
Paperboard containers	8.52%	6.37%

IMPLAN Economic Data Analysis

Sector	Average RPC	Average RSC
Paper bags and coated and treated paper	0.77%	0.82%
Stationery products	25.72%	7.09%
Sanitary paper products	1.47%	9.00%
All other converted paper products	2.65%	1.73%
Sawmill, woodworking, and paper machinery	0.22%	0.78%

SOURCE: IMPLAN. 2022 data for Monroe County industry sectors