

Alaska Economic Analysis of Animal Agriculture: 2012-2022

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Prepared For:



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Contents

Alaska Executive Summary	3
Alaska Economic Impact of Animal Agriculture	4
Alaska Animal Agriculture Soybean Meal Consumption	7
Alaska Animal Unit (AU) Trends	8
Alaska Additional Information and Methodology	13
Appendix	15

Alaska Executive Summary

The use of SBM as a key feed ingredient is an integral part of Alaska animal agriculture. While the degree to which animal agriculture utilizes this versatile feed ingredient has fluctuated with time, it remains a key driver of animal agriculture's success in the State of Alaska. The success of Alaska animal agriculture in turn has a large impact on the rest of the state and regional economies. For example, in the State of Alaska during 2022 animal agriculture contributed:

- \$87.4 million in economic output
- 495 jobs
- \$17.5 million in earnings
- \$3.5 million in income taxes paid at local, state, and federal levels
- \$2.0 million in the form of property taxes

Alaska's animal agriculture consumed almost 7.9 thousand tons of SBM in 2022. This SBM was fed primarily to:

- Broilers (4.4 thousand tons)
- Turkeys (1.5 thousand tons)
- Companion Animals (1.1 thousand tons)

This report examines animal agriculture in Alaska over the last decade. While this analysis is certainly instructive and allows improved understanding of animal agriculture's impact during that time, as the next decade unfolds in Alaska, many opportunities and challenges will arise. And, if past is prologue, animal agriculture will continue to be a major contributor to the economic well-being of the people of Alaska and beyond.

Alaska Economic Impact of Animal Agriculture

Animal agriculture is an important part of Alaska’s economy. In 2022, Alaska’s animal agriculture contributed the following to the economy:

- About \$87.4 million in economic output
- \$17.5 million in household earnings
- 495 jobs
- \$3.5 million in income taxes

And the animal agriculture sector has shown some change during challenging economic times. During the last decade Alaska’s animal agriculture has:

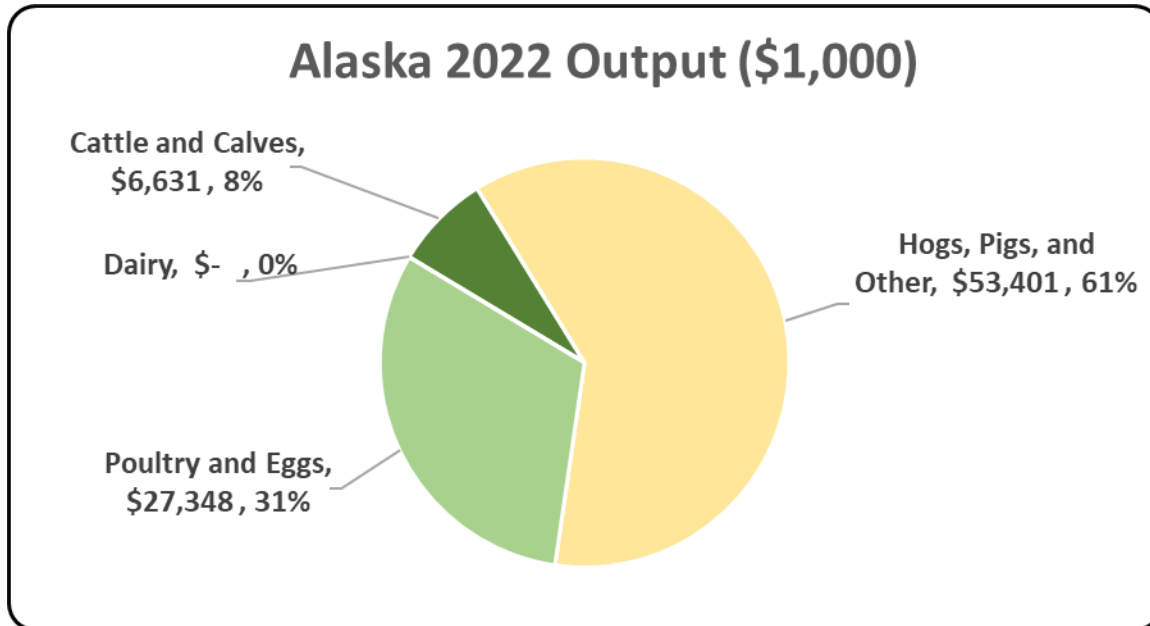
- Increased economic output by \$15.8 million
- Boosted household earnings by \$2.9 million
- Added 77 jobs
- Paid \$0.6 million more in income taxes

Below is a table which demonstrates this decade of change.

Measure	2022	Change 2012-2022	% Change 2012-2022
Output (\$1,000)	\$ 87,380	\$ 15,829	22.12%
Earnings (\$1,000)	\$ 17,515	\$ 2,886	19.73%
Employment (Jobs)	495	77	18.47%
Income Taxes Paid (\$1,000)	\$ 3,538	\$ 583	19.73%
Property Taxes Paid in 2017 (\$1,000)	\$ 1,997		

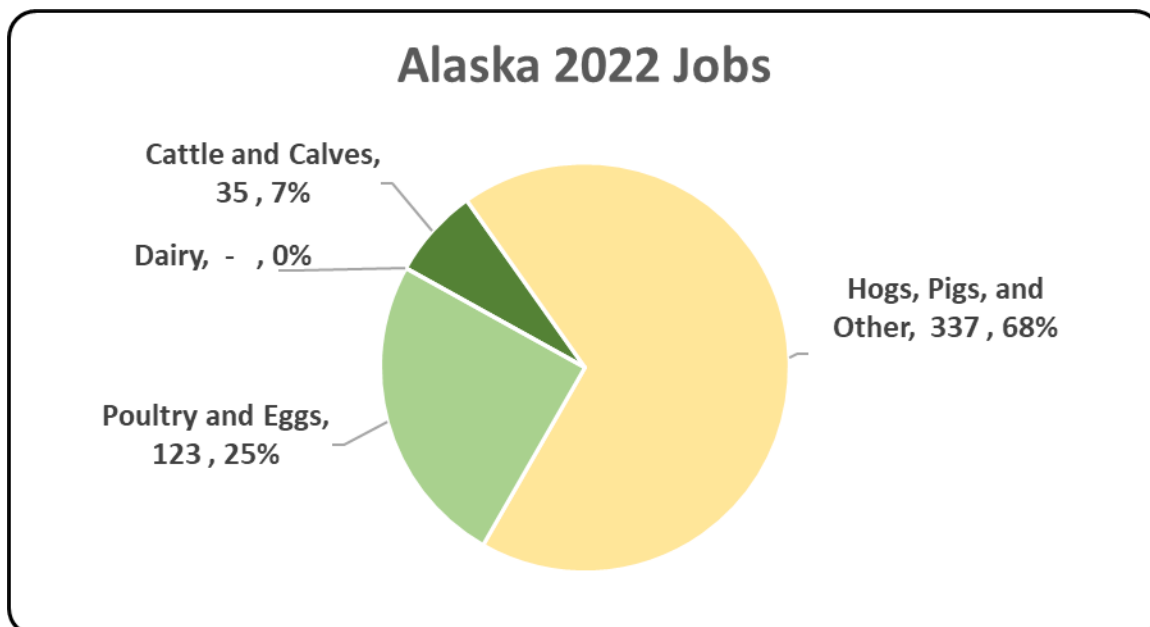
Alaska Output

“Output” refers to the total value of all the output (production or sales) of a study area and/or industry within a study area and was calculated using RIMS II multipliers. This is a gross number that does not make any deductions for the cost or origination of inputs that were used in the production process. The figure illustrates the impact of animal agriculture to the Alaska economy. Animal agriculture’s impact on Alaska total economic output is about \$87.4 million.



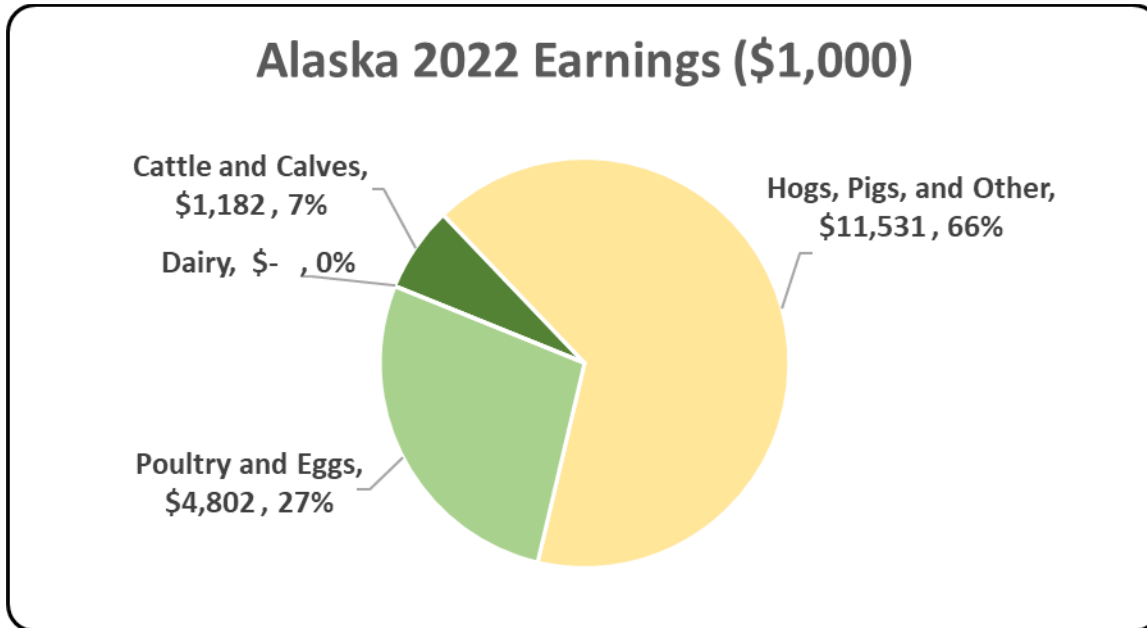
Alaska Jobs

“Jobs” represents an estimate of the number of full or part-time positions (jobs) currently filled in an area and/or industry. The figure illustrates the contribution to Alaska in terms of animal agriculture jobs. As shown, animal agriculture contributes significantly to Alaska total jobs, contributing 495 jobs within and outside of animal agriculture.



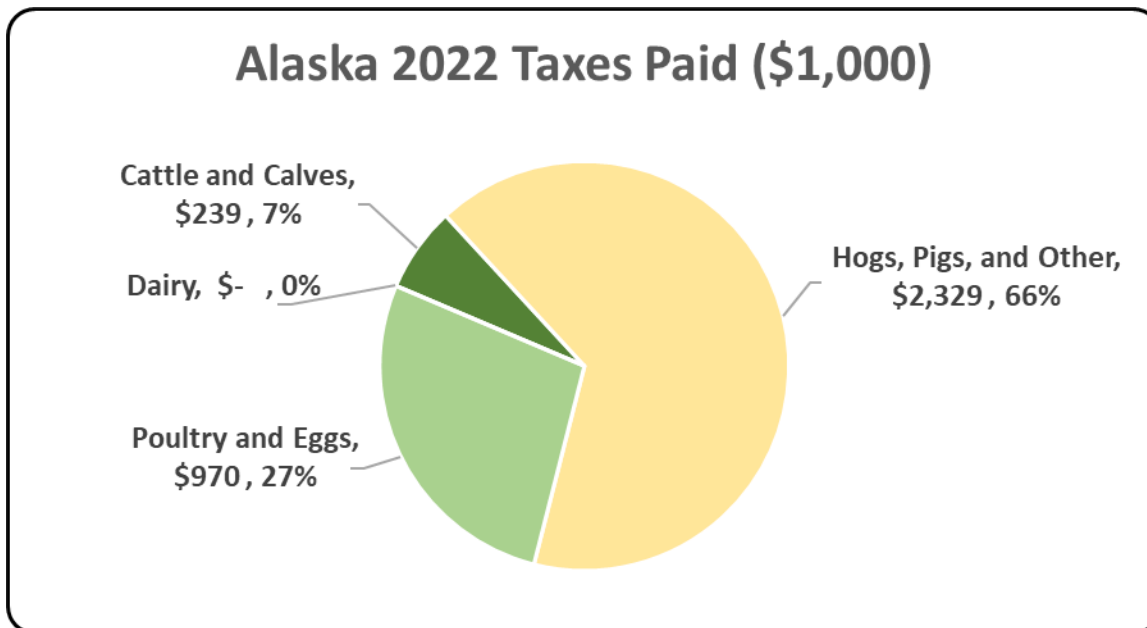
Alaska Earnings

Earnings includes wages and salaries plus proprietors' income, which is the net earnings of sole-proprietors and partnerships. The figure illustrates the impact of animal agriculture to the Alaska economy in terms of earnings. Alaska's animal agriculture contributed about \$17.5 million to household earnings in 2022.



Alaska Taxes Paid by Animal Agriculture

Alaska's animal agriculture is also a significant source of tax revenue. In 2022, the state's animal agriculture industry paid about \$3.5 million in income taxes at local, state, and federal levels. The 2017 Census of Agriculture estimated \$2.0 million in property taxes paid by all of Alaska agriculture during 2017. Estimates of income taxes paid by animal agriculture are shown in the following chart.



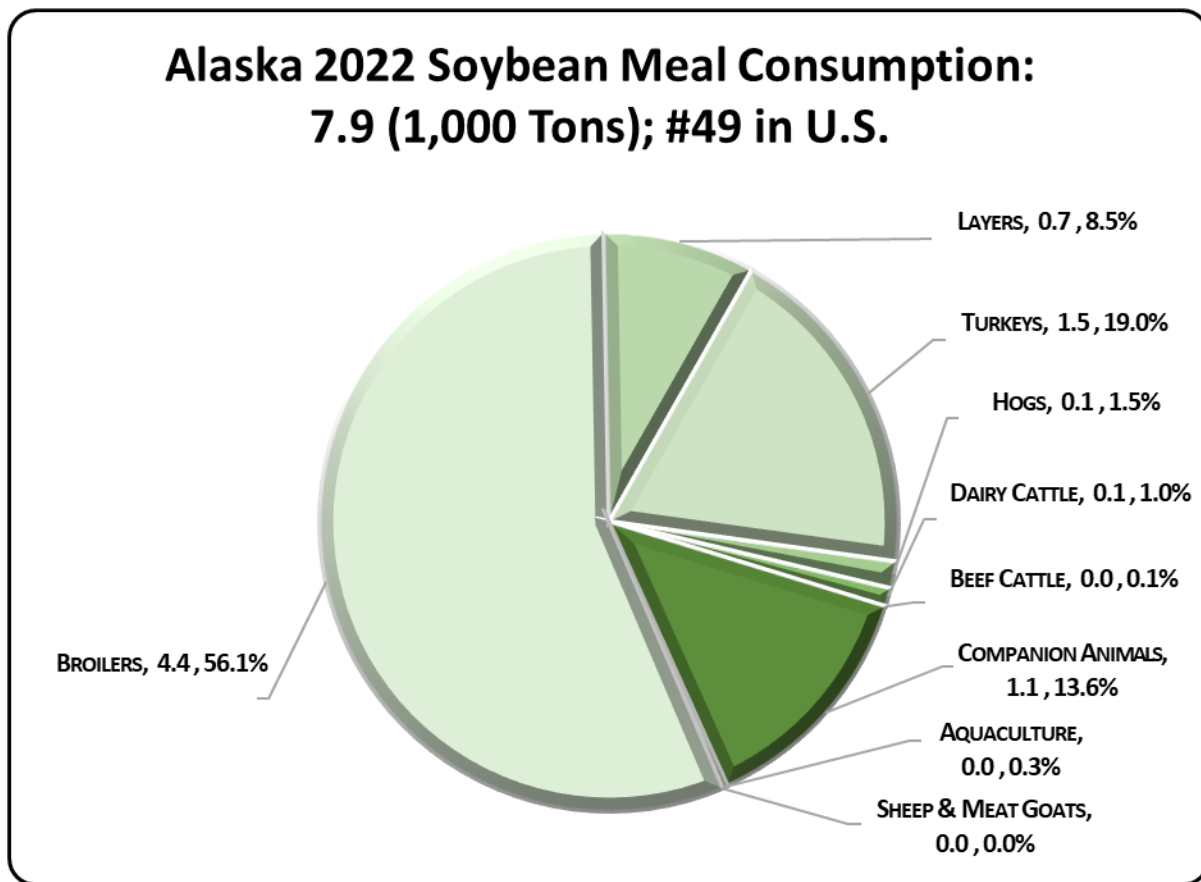
Alaska Animal Agriculture Soybean Meal Consumption

The choice to use SBM in animal agriculture is highly dependent upon nutritional requirements of animals (which would encompass varying life stages within an animal species), accessibility to various feed ingredients capable of competing with SBM (from both a nutritional and price standpoint), and consumer preferences which have influence on production practices.

Through in-depth conversations with many of the nation’s top nutritionists and researchers from both private industry and public institutions, “bottom up” estimates of SBM usage by animal type were determined. Using the input from these conversations and additional analysis performed by Decision Innovation Solutions, the quantity of SBM used during the 2021-22 soybean marketing year by up to sixteen specific animal species has been estimated.

Alaska’s animal agriculture consumed almost 7.9 thousand tons of SBM in 2022, placing the state as 49 in the nation in terms of SBM consumption (see figure below). Additionally, animal agriculture in Alaska consumed 0.1 thousand tons of soy hulls. The three segments of animal agriculture that led the state in estimated SBM consumption are:

1. Broilers (4.4 thousand tons)
2. Turkeys (1.5 thousand tons)
3. Companion Animals (1.1 thousand tons)

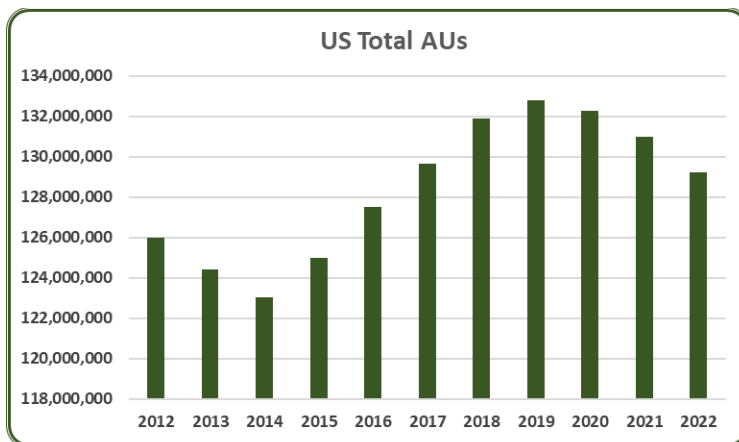


Alaska Animal Unit (AU) Trends

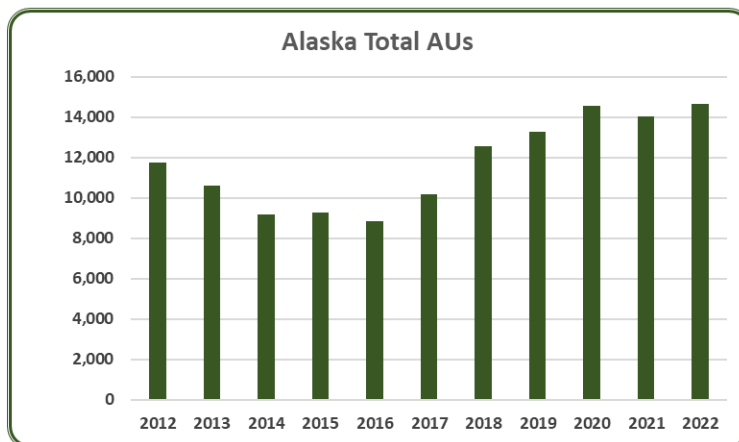
Over time, prices of feed, meat, eggs and milk, as well as levels of demand for these products in the U.S. and abroad have an impact on the size of animal agriculture in the state of Alaska. Due to this reality, using a single year to measure a sector’s presence and strength can be misleading. The use of animal units allows for a more accurate comparison of differing sizes of livestock and poultry. This section is included to bring context to the question of what animal agriculture means to Alaska and to give perspective on Alaska’s contribution to the nation’s animal agriculture industry and beyond.

Like using a single year to measure the presence and strength of a sector, in some circumstances AUs can be misleading. This is because AUs do not reflect important considerations like increased weights, improved livability, increased laying potential, etc.

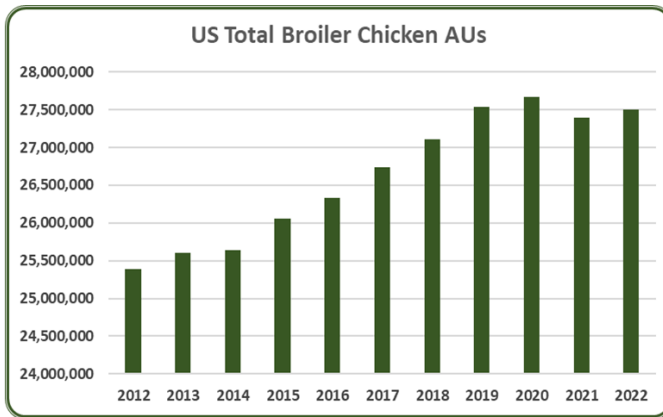
As shown in the accompanying charts and written commentary, certain components of animal agriculture are more present, and therefore more dominant than others. This is due primarily to geography (i.e., weather patterns and access to certain transportation hubs), proximity to high quality, relevant feed ingredients, and the local animal agriculture regulatory framework. In Alaska, the largest three segments of animal agriculture in terms of AUs during 2022 were: Beef Cattle (12,571 AUs), Horses (1,157 AUs), and Dairy Cattle (435 AUs). Total AUs in Alaska during 2022 were 14,684 AUs.



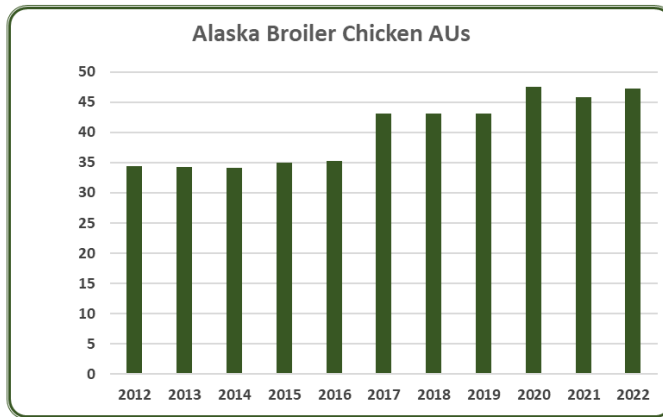
- In 2022, total AUs in the U.S. decreased by 1.4% to 129.2 million, continuing a downward trend that started in 2019. Nine out of the ten animal groups tracked saw a decrease, with the exception being broilers. Over 70% of the total decrease in AUs is due to lower beef cattle inventories.



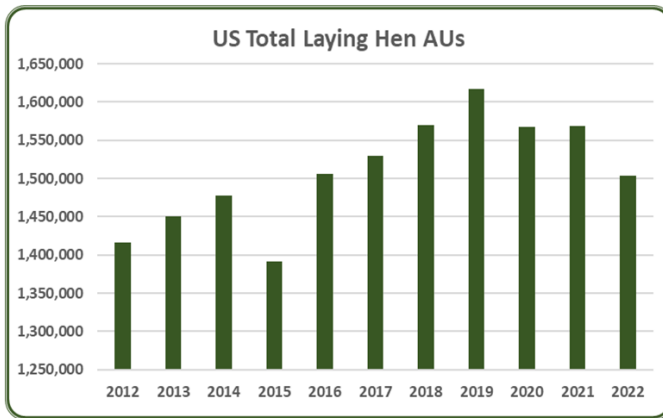
- Alaska is one of the few states with very low animal production. In 2022, Alaska had 14,684 total AUs, a 4.6% increase from 2021. From 2012 to 2022, the average number of total AUs in Alaska was 11,728 AUs. Since 2012, total AUs in Alaska have increased by 24.7%.



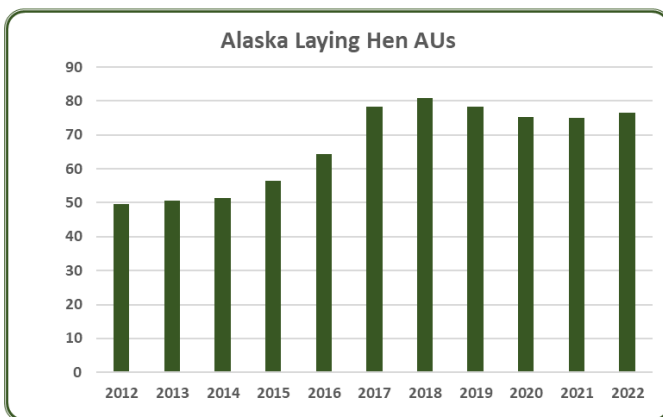
- From 2012 to 2022, broiler chicken AUs averaged 26.6 million across the U.S. Broiler AUs trended up and peaked in 2020 at 27.6 million. Broiler AUs are up 0.4% from 2021 and were the only animal group tracked here that increased compared to last year. Broilers make up about 21% of U.S. AUs.



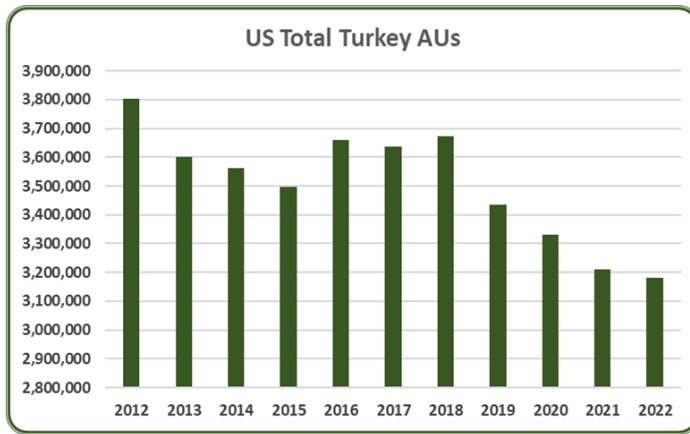
- In 2022, Alaska had 47 broiler AUs, a 3.3% increase from 2021. Broilers accounted for 0.3% of the total AUs (14,684) in Alaska. From 2012 to 2022, the average number of broiler AUs in Alaska was 40 AUs. Since 2012, broiler AUs have increased by 37.4%.



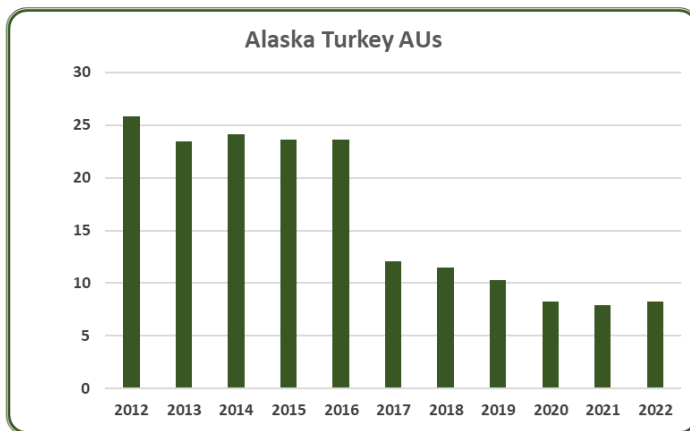
- From 2012 to 2022, U.S. layer AUs averaged 1.51 million. In 2022, layer AUs were 1.50 million, a 4.2% decrease from 2021. The 2022-23 Highly Pathogenic Avian Influenza (HPAI) outbreak contributed to this past year's decrease in layer AUs. Layers make up about 1% of U.S. AUs so large changes in layer AUs do not have a large impact on total AUs.



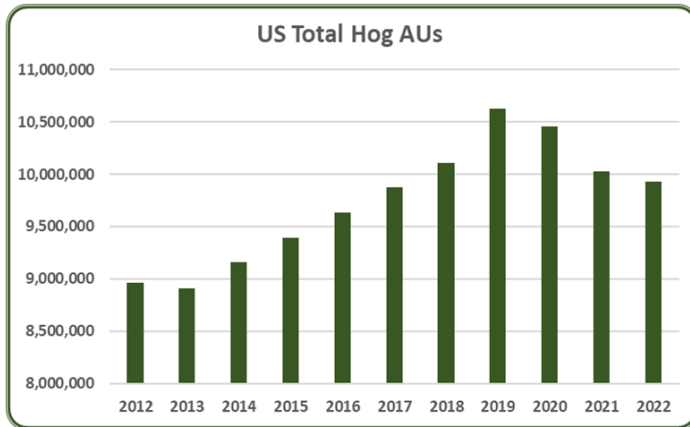
- In 2022, Alaska had 76 layer AUs, a 1.9% increase from 2021. Layers accounted for 0.5% of the total AUs (14,684) in Alaska. From 2012 to 2022, the average number of layer AUs in Alaska was 67 AUs. Since 2012, layer AUs have increased by 53.7%.



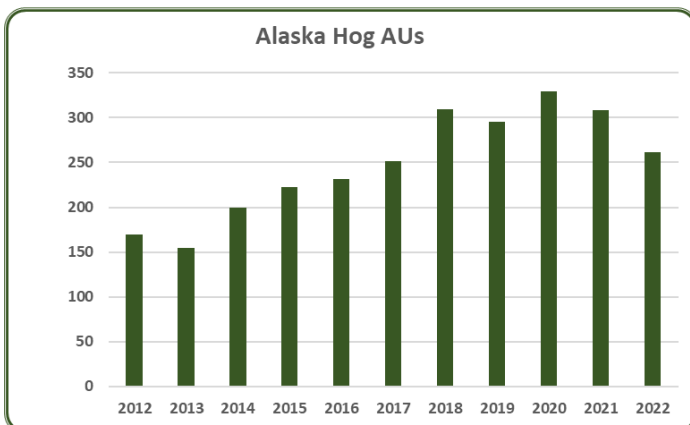
- In 2022, turkey AUs were at 3.18 million, a 0.9% drop from the previous year. This drop is surprisingly low considering the industry battled HPAI for most of 2022. Turkey AUs have been trending down since 2018. Turkey AUs represent about 2% of U.S. AUs, so like layers, large changes in turkey AUs do not cause large changes in total AUs.



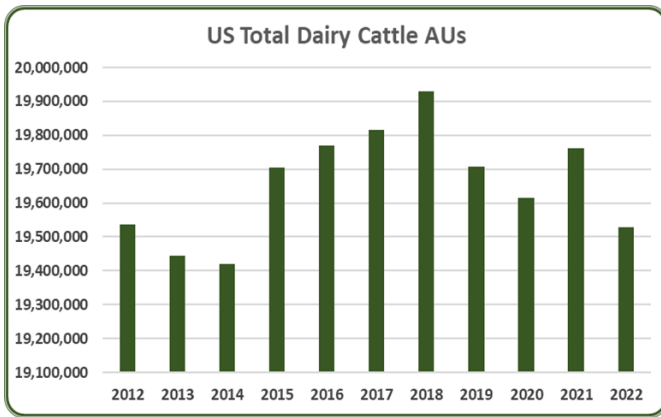
- In 2022, Alaska had 8 turkey AUs, a 4.3% increase from 2021. Turkeys accounted for 0.1% of the total AUs (14,684) in Alaska. From 2012 to 2022, the average number of turkey AUs in Alaska was 16 AUs. Since 2012, turkey AUs have decreased by 68.2%.



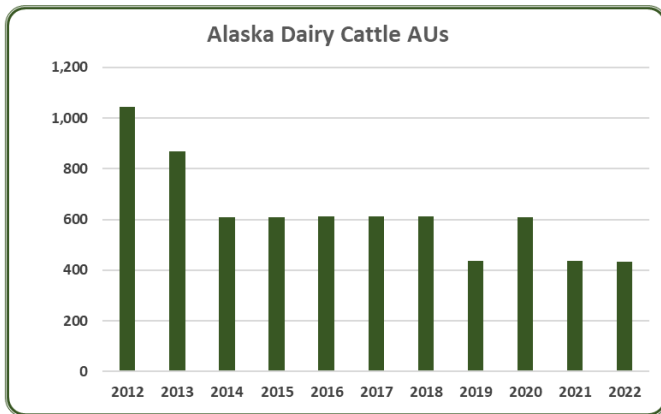
- In 2022, hog AUs totaled 9.93 million, a 1.0% drop from the previous year. From 2012 to 2022, hog AUs averaged 9.73 million. Hog AUs have been trending down since 2019 when they peaked at 10.62 million AUs. Hogs make up 7.70% of all AUs within the U.S.



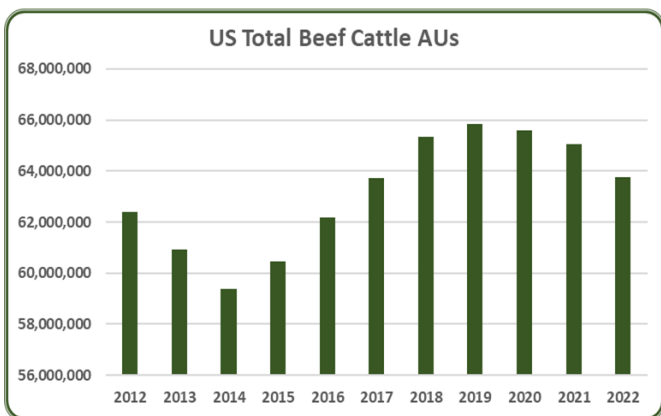
- In 2022, Alaska had 261 hog AUs, a 15.3% decrease from 2021. Hogs accounted for 1.8% of the total AUs (14,684) in Alaska. From 2012 to 2022, the average number of hog AUs in Alaska was 249 AUs. Since 2012, hog AUs have increased by 54.6%.



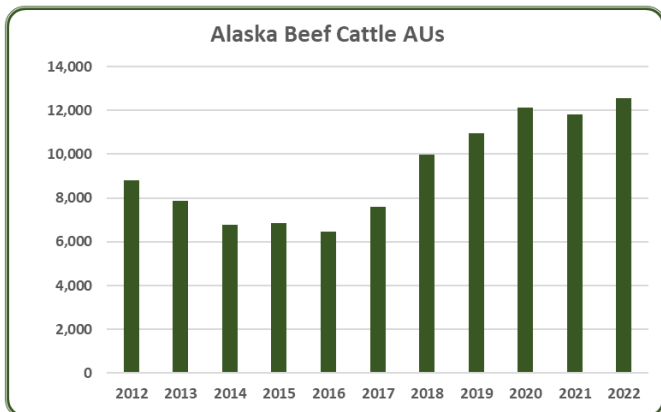
- From 2012 to 2022, dairy cattle AUs averaged 20.29 million. The herd was also relatively steady, fluctuating between 19.9-20.6 million AUs during that time. In 2022, dairy cattle AUs totaled 20.18 million, down 1.3% from 2021. Dairy cattle represented about 16% of all U.S. AUs.



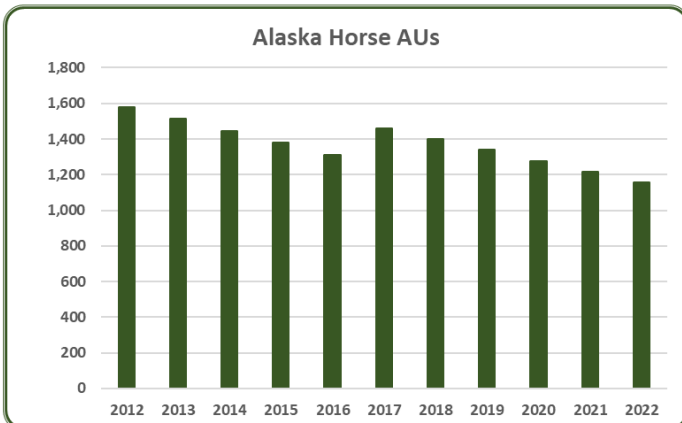
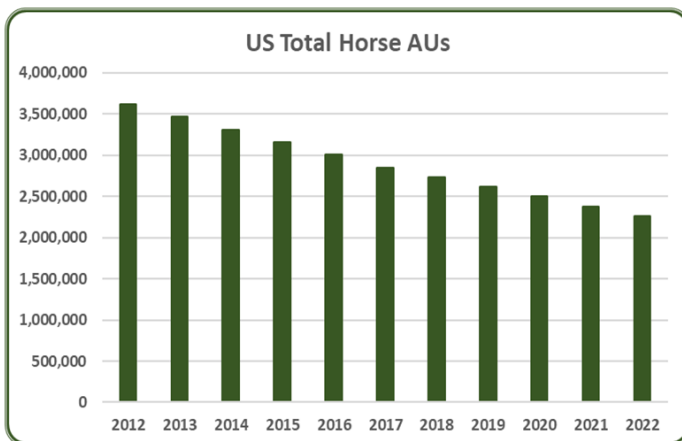
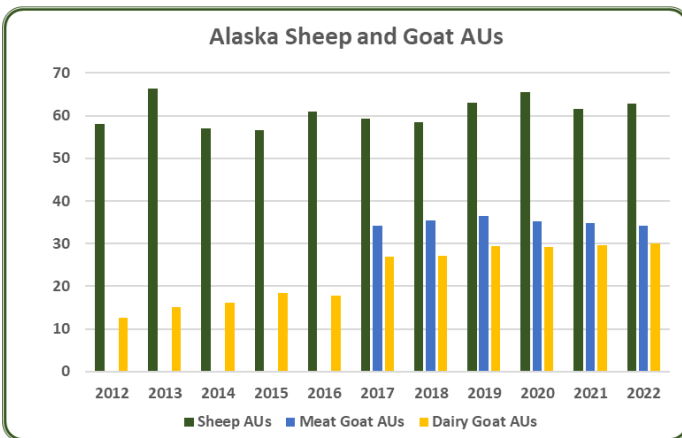
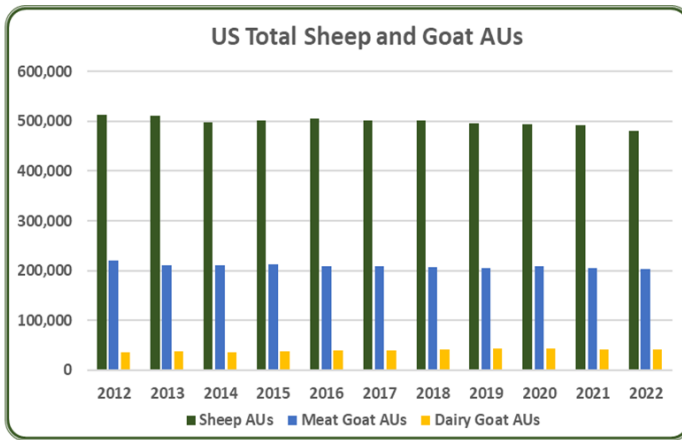
- In 2022, Alaska had 435 dairy cattle AUs, a 0% decrease from 2021. Dairy cattle accounted for 3% of the total AUs (14,684) in Alaska. From 2012 to 2022, the average number of dairy cattle AUs in Alaska was 626 AUs. Since 2012, dairy cattle AUs have decreased by 58.4%.



- From 2012 to 2022, beef cattle AUs averaged 63.9 million. In 2022 beef cattle AUs totaled 63.93 million, down 2% from last year, as beef cattle continued through a contraction phase in the cattle cycle which started in 2019. Beef AUs represent almost 50% of U.S. AUs, so changes in beef cattle AUs have large effects on total AUs.



- In 2022, Alaska had 12,571 beef cattle AUs, a 6.4% increase from 2021. Beef cattle accounted for 85.6% of the total AUs (14,684) in Alaska. From 2012 to 2022, the average number of beef cattle AUs in Alaska was 9,256 AUs. Since 2012, beef cattle AUs have increased by 42.8%.



- Sheep, meat goats, and dairy goats account for less than 0.6% of U.S. total AUs. Over the past decade, sheep AUs averaged 500,000, meat goat AUs averaged 209,000 and dairy goat AUs averaged 40,000. Sheep and meat goat AUs have trended down while dairy goats trended up until 2019, then leveled off.
- In 2022, Alaska had a combined 127 sheep, meat goat, and dairy goat AUs, a 0.8% increase from 2021. These accounted for 0.9% of the total AUs (14,684) in Alaska. Individually, sheep AUs increased 1.9%, meat goat AUs decreased 1.6% and dairy goat AUs increased 1.5%. Combined there was a 79.9% increase in sheep and goat AUs since 2012.
- Horses account for about 2% of U.S. total AUs. From 2012 to 2022, horse AUs averaged 2.90 million. However, a steady downtrend is present and 2022 horse AUs only totaled 2.26 million. U.S. horse AUs have decreased every year from 2012 to 2022, decreasing 37.6% over the entire period.
- In 2022, Alaska had 1,157 horse AUs, a 5% decrease from 2021. Horses accounted for 7.9% of the total AUs (14,684) in Alaska. From 2012 to 2022, the average number of horse AUs in Alaska was 1,371 AUs. Since 2012, horse AUs have decreased by 26.8%.

Alaska Additional Information and Methodology

Animal agriculture is an important part of Alaska’s current and future economic health. To quantify the connection between animal agriculture and local economies, the United Soybean Board commissioned [Decision Innovation Solutions](#), an economic research firm in Urbandale, Iowa, to conduct an in-depth analysis of several aspects of animal agriculture. This analysis includes the following components:

1. Economic impact of animal agriculture to local (state) economies during the 2012-2022 time period
2. SBM usage by animal species during the 2021/22 soybean marketing year
3. Animal Unit (AU) trends from 2012-2022

Given the long-term presence of animal agriculture in Alaska, of interest is the degree to which the industry impacts the Alaska economy. Estimates of output, jobs, earnings, taxes paid, and multipliers for Alaska animal agriculture are presented in this report. Methodology for this section of the report closely mirrors that followed in years’ past. Also presented are estimates of the change in how animal agriculture has impacted Alaska’s economy over the last decade. Differences, to the extent they are present, are noted within the larger national report which accompanies this state report.

As with any industry across the economic spectrum, there are ebbs and flows in activity that have implications for other parts of the economy. Again, using the same 2012-2022 time period as with the economic impact section of this state report, the “Animal Unit Trends” seeks to quantify production changes in animal agriculture in Alaska which have occurred. As shown in this state report, Alaska has seen changes within its animal agriculture industry. Expectations are that animal agriculture will continue to evolve over the next decade.

Animal agriculture is the single largest user of SBM in Alaska. Through in-depth conversations with many of the nation’s top nutritionists and researchers, “bottom up” estimates of SBM usage by animal type were determined. Using the input from these conversations and additional analysis performed by Decision Innovation Solutions, the quantity of SBM used during the 2021-22 soybean marketing year for up to sixteen specific animal species has been estimated.

Should readers have comments or questions regarding methodology, results and interpretation, please contact the authors at info@decision-innovation.com or 515.639.2900.

Alaska Multipliers

Economic multipliers give a sense for how economic activity in a given industry is related to other industries in the same study area. To estimate the impact of animal agriculture on Alaska's economy, we applied RIMS II multipliers from the Department of Commerce, Bureau of Economic Analysis for cattle ranching and farming, dairy cattle and milk production, poultry and egg production, and other animal production (primarily hogs and pigs), where applicable.

Multipliers are generally stated in the form of "per million dollars" of output. As it relates to this analysis, multipliers are stated as the activity related to every million dollars of economic output in animal agriculture. Referring to the multipliers below, for every million dollars in output generated by the various segments of animal agriculture in Alaska, \$1.30 to \$1.43 million in total economic activity, \$0.24 to \$0.28 in household wages and 6 to 8 additional jobs are generated in the economy at large.

Appendix

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Animal Units (AUs)	Beef Cattle AUs	8,804	7,882	6,760	6,857	6,473	7,603	9,976	10,965	12,110	11,818	12,571
	Hog and Pig AUs	169	155	200	223	231	251	309	296	329	309	261
	Broiler AUs	34	34	34	35	35	43	43	43	48	46	47
	Turkey AUs	26	23	24	24	24	12	11	10	8	8	8
	Egg Layer AUs	50	51	51	56	64	78	81	78	75	75	76
	Dairy AUs	1,045	870	610	610	611	611	611	435	609	435	435
	Total Animal Units	11,779	10,610	9,198	9,258	8,828	10,177	12,552	13,296	14,588	14,034	14,684
Value of Production (\$1,000)	Cattle and Calves (\$1,000)	\$ 1,620	\$ 1,021	\$ 2,831	\$ 3,092	\$ 3,421	\$ 3,974	\$ 4,990	\$ 4,883	\$ 4,681	\$ 4,018	\$ 4,953
	Hogs and Pigs (\$1,000)	\$ 272	\$ 261	\$ 401	\$ 436	\$ 424	\$ 641	\$ 406	\$ 612	\$ 394	\$ 659	\$ 643
	Broilers (\$1,000)	\$ 4,181	\$ 5,094	\$ 5,344	\$ 4,662	\$ 4,145	\$ 4,868	\$ 7,706	\$ 6,723	\$ 5,494	\$ 7,728	\$ 12,352
	Turkeys (\$1,000)	\$ 4,261	\$ 3,374	\$ 2,354	\$ 2,530	\$ 2,537	\$ 1,637	\$ 1,563	\$ 1,951	\$ 2,195	\$ 2,964	\$ 6,040
	Eggs (\$1,000)	\$ 1,777	\$ 2,994	\$ 3,028	\$ 5,095	\$ 1,974	\$ 2,458	\$ 4,177	\$ 1,849	\$ 2,636	\$ 2,342	\$ 1,122
	Milk (\$1,000)	\$ 1,368	\$ 704	\$ 767	\$ 770	\$ 767	\$ 638	\$ 616	\$ 121	\$ 116	\$ 152	\$ 190
	Other	\$ 29,796	\$ 30,878	\$ 31,954	\$ 33,034	\$ 34,110	\$ 35,181	\$ 36,258	\$ 37,336	\$ 38,412	\$ 39,489	\$ 40,568
	Sheep and Lambs (\$1,000)	\$ 22	\$ 28	\$ 27	\$ 30	\$ 30	\$ 24	\$ 24	\$ 26	\$ 26	\$ 25	\$ 28
	Aquaculture (\$1,000)	\$ 29,774	\$ 30,851	\$ 31,927	\$ 33,004	\$ 34,080	\$ 35,157	\$ 36,234	\$ 37,310	\$ 38,387	\$ 39,463	\$ 40,540
	Total (\$1,000)	\$ 43,275	\$ 44,326	\$ 46,680	\$ 49,620	\$ 47,379	\$ 49,397	\$ 55,716	\$ 53,476	\$ 53,928	\$ 57,351	\$ 65,868

Ag Census Data Category	Animal Type	2002	2007	2012	2017
Number of Farms by NAICS	Beef cattle ranching and farming (112111)	31	41	51	55
	Cattle feedlots (112112)	8	4	1	-
	Dairy cattle and milk production (11212)	15	6	6	8
	Hog and pig farming (1122)	13	14	9	14
	Poultry and egg production (1123)	14	32	26	37
	Sheep and goat farming (1124)	11	19	27	31
	Animal aquaculture and other animal production (1125,1129)	137	167	158	173
Value of Sales (\$1,000)	Cattle and Calves	759	768	1,085	2,234
	Hogs and Pigs	205	242	338	756
	Poultry and Eggs	104	207	353	withheld
	Milk*			withheld	withheld
	Aquaculture	20,807	28,540	29,774	35,157
	Other (calculated)	479	1,027	withheld	2,670
	Total	25,600	32,271	31,550	40,817
Input Purchases	Livestock and poultry purchased (Farms)	117	118	168	181
	\$1,000	569	303	569	845
	Breeding livestock purchased (Farms)	51	46	46	55
	\$1,000	432	107	250	209
	Other livestock and poultry purchased (Farms)	80	86	148	146
	\$1,000	137	196	320	636
	Feed purchased (Farms)	293	299	364	417
	\$1,000	4,078	5,096	6,386	6,950
* Measurement of milk sales in 2002-2007 are not comparable to 2012-2017.					

	<u>Animal Type</u>	<u>Output (\$1,000)</u>	<u>Earnings (\$1,000)</u>	<u>Employment (Jobs)</u>	<u>Income Taxes Paid (\$1,000)</u>
2022 Animal Agriculture	Cattle and Calves	\$ 6,631	\$ 1,182	35	\$ 239
	Hogs, Pigs, and Other	\$ 53,401	\$ 11,531	337	\$ 2,329
	Poultry and Eggs	\$ 27,348	\$ 4,802	123	\$ 970
	Dairy	\$ -	\$ -	-	\$ -
	Total	\$ 87,380	\$ 17,515	495	\$ 3,538

Change from 2012 to 2022	Cattle and Calves	\$ 3,826	\$ 682	20	\$ 138
	Hogs, Pigs, and Other	\$ 3,015	\$ 651	19	\$ 132
	Poultry and Eggs	\$ 11,517	\$ 2,022	52	\$ 409
	Dairy	\$ (2,529)	\$ (469)	(14)	\$ (95)
	Total	\$ 15,829	\$ 2,886	77	\$ 583

	<u>Animal Type</u>	<u>Output(\$)</u>	<u>Earnings (\$)</u>	<u>Employment (Jobs)</u>
RIMS II Multipliers	Cattle and Calves	\$ 1.34	\$ 0.24	7.1
	Hogs, Pigs, and Other	\$ 1.30	\$ 0.28	8.2
	Poultry and Eggs	\$ 1.40	\$ 0.25	6.3
	Dairy	\$ 1.43	\$ 0.27	7.8

Tax Rates	Federal effective income tax rate	14.0%
	Federal Social Security tax rate	6.2%
	State Effective Rate	0.0%
	Total	20.2%

Sources: 2002, 2007, 2012 and 2017 Census of Agriculture, USDA/NASS Survey Data, RIMS II Multipliers (U.S. Bureau of Economic Analysis), Tax-Rates.org & The Motley Fool.