

# Economic Analysis of Animal Agriculture 2004-2014

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## *ALABAMA*

**A Report for  
United Soybean Board**



**September 2015**



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## Alabama Executive Summary

The use of soybean meal as a key feed ingredient is an important part of Alabama's 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 success in Alabama. The success of Alabama animal agriculture in turn has a large impact on the rest of the state and regional economies. For example, in the state of Alabama during 2014 animal agriculture contributed:

- \$12.7 billion in economic output
- 76,547 jobs
- \$2.2 billion in earnings
- \$557.5 million in income taxes paid at local, state, and federal levels
- \$47.6 million in the form of property taxes

Plus, from 2004-2014 animal agriculture in Alabama has increased economic output by over \$2.3 billion, boosted household earnings by \$406.9 million, contributed 13,774 additional jobs and paid \$103.1 million in additional tax revenues.

Alabama's animal agriculture consumed about 1.6 million tons of soybean meal in 2014. This soybean meal was fed primarily to:

- Broilers (1.5 million tons)
- Aquaculture (40.5 thousand tons)
- Egg-Laying Hens (23.3 thousand tons)

This report examines animal agriculture in Alabama 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 Alabama, 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 Alabama and beyond.

## Alabama Economic Impact of Animal Agriculture

Animal agriculture is an integral part of Alabama's economy. In 2014, Alabama's animal agriculture contributed the following to the economy:

- About \$12.7 billion in economic output
- \$2.2 billion in household earnings
- 76,547 jobs
- \$557.5 million in income taxes

And the animal agriculture sector has shown substantial growth during challenging economic times. During the last decade Alabama's animal agriculture has:

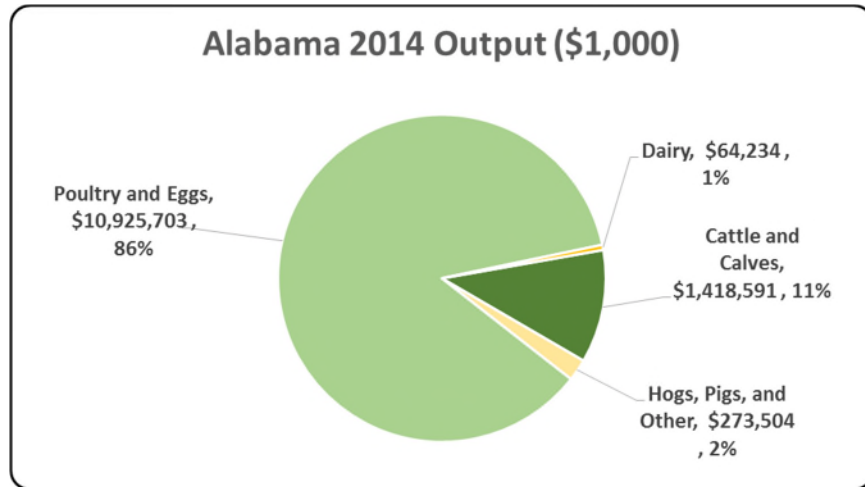
- Increased economic output by \$2.3 billion
- Boosted household earnings by \$406.9 million
- Added 13,774 jobs
- Paid an additional \$103.1 million in income taxes

Below is a table which demonstrates this decade of change.

Measure	2014	Change 2004-2014	% Change 2004-2014
Output (\$1,000)	\$ 12,682,033	\$ 2,347,869	22.72%
Earnings (\$1,000)	\$ 2,201,044	\$ 406,856	22.68%
Employment (Jobs)	76,547	13,774	21.94%
Income Taxes Paid (\$1,000)	\$ 557,524	\$ 103,057	22.68%
Property Taxes Paid in 2012 (\$1,000)	\$ 47,636		

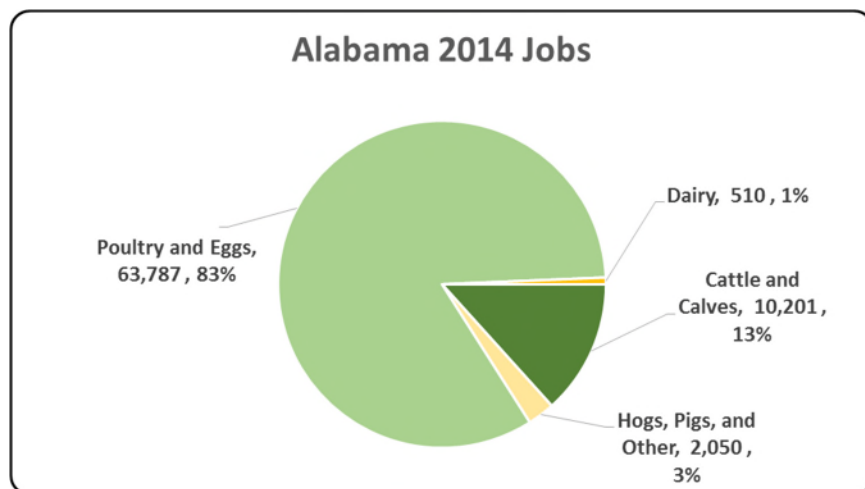
### Alabama Output

“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 chart illustrates the impact of animal agriculture to the Alabama economy. Animal agriculture’s impact on Alabama total economic output is about \$12.7 billion.



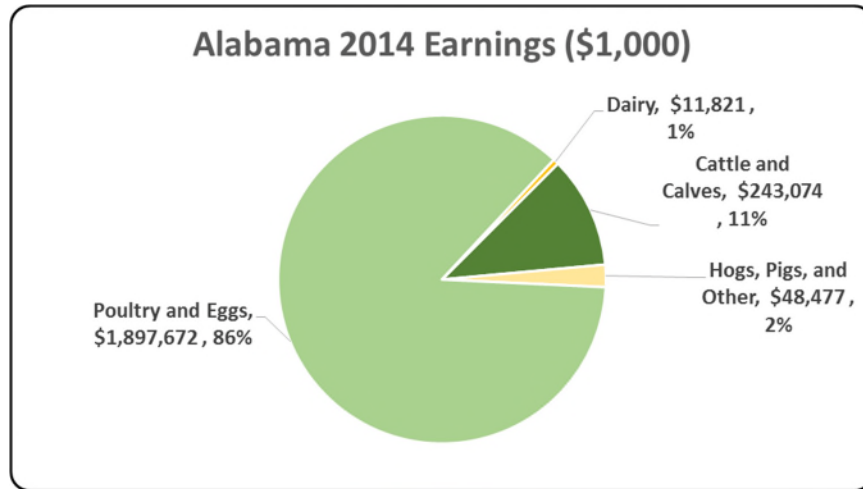
### Alabama Jobs

“Jobs” represents an estimate of the number of full or part-time positions (jobs) currently filled in an area and/or industry. The chart illustrates the contribution to Alabama in terms of animal agriculture jobs. As shown, animal agriculture contributes significantly to Alabama total jobs, contributing 76,547 jobs within and outside of animal agriculture.



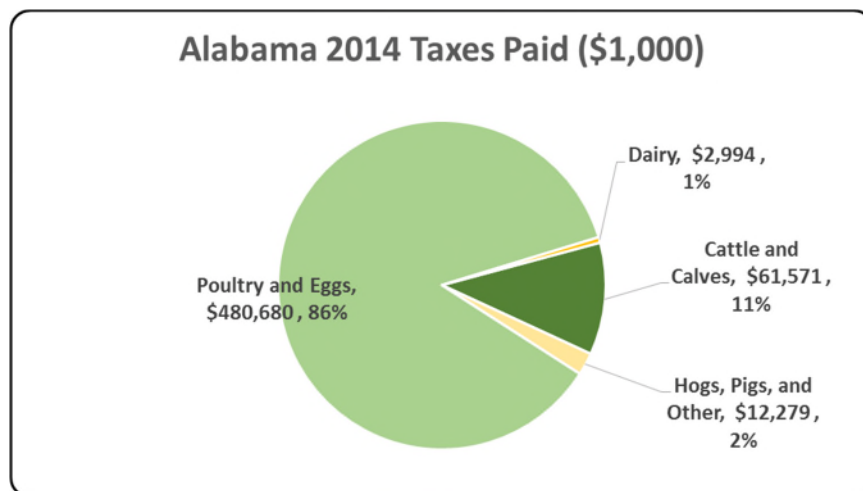
### Alabama Earnings

Earnings includes wages and salaries plus proprietors' income, which is the net earnings of sole-proprietors and partnerships. The chart illustrates the impact of animal agriculture to the Alabama economy in terms of earnings. Alabama's animal agriculture contributed about \$2.2 billion to household earnings in 2014.



### Alabama Taxes Paid by Animal Agriculture

Alabama's animal agriculture is also a significant source of tax revenue. In 2014, the state's animal agriculture industry paid about \$557.5 million in income taxes at local, state, and federal levels. Plus the 2012 Census of Agriculture estimated \$47.6 million in property taxes paid by all of Alabama agriculture during 2012. Estimates of income taxes paid by animal agriculture are shown in the following chart.



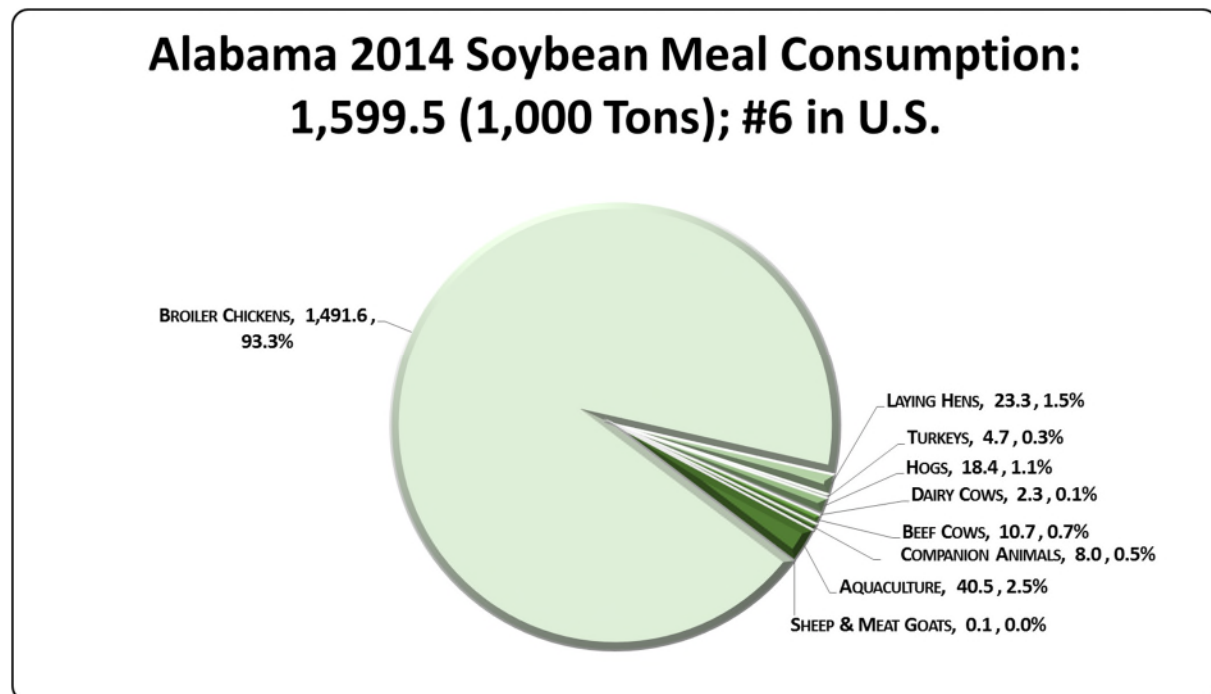
## Alabama Animal Agriculture Soybean Meal Consumption

The choice to use soybean meal 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 soybean meal (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 soybean meal usage by animal type were determined. Using the input from these conversations and additional analysis performed by Decision Innovation Solutions, the quantity of soybean meal used during the 2013-14 soybean marketing year by up to sixteen specific animal species has been estimated.

Alabama’s animal agriculture consumed almost 1.6 million tons of soybean meal in 2014, placing the state as #6 in the nation in terms of soybean meal consumption (see figure below). The three segments of animal agriculture that led the state in estimated soybean meal consumption are:

- Broilers (1.5 million tons)
- Aquaculture (40.5 thousand tons)
- Egg-Laying Hens (23.3 thousand tons)

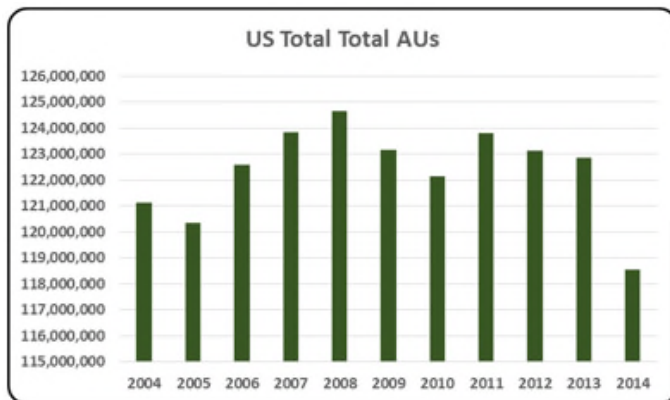


### Alabama Animal Unit (AU) Trends

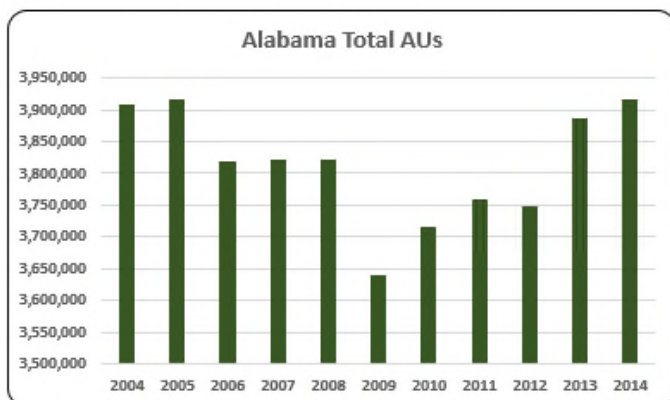
Over time, prices of feed, meat, eggs and milk, as well as levels of demand for these products in the United States and abroad have an impact on the size of animal agriculture in the State of Alabama. Due to this reality, using a single year as a measure of the presence and strength of a sector can be 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 Alabama and to give perspective on Alabama’s contribution to the nation’s animal agriculture industry and beyond.

Similar to 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 Alabama, the largest three segments of animal agriculture in terms of AUs during 2014 were: Broilers (3,190.4 thousand AUs), Beef Cows (622.8 thousand AUs), and Hogs (44.7 thousand AUs). Total animal units in Alabama during 2014 were 3,915.9 thousand AUs.

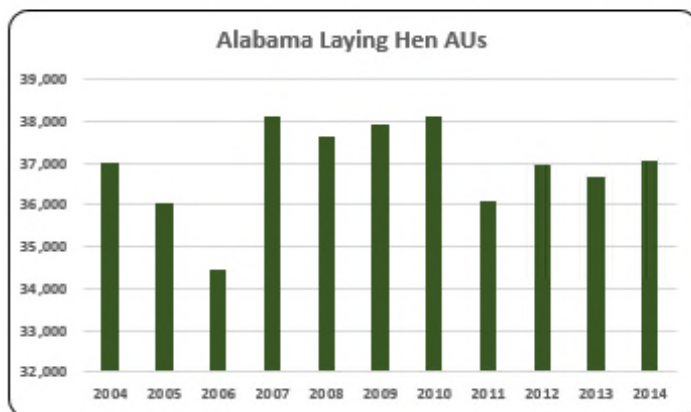
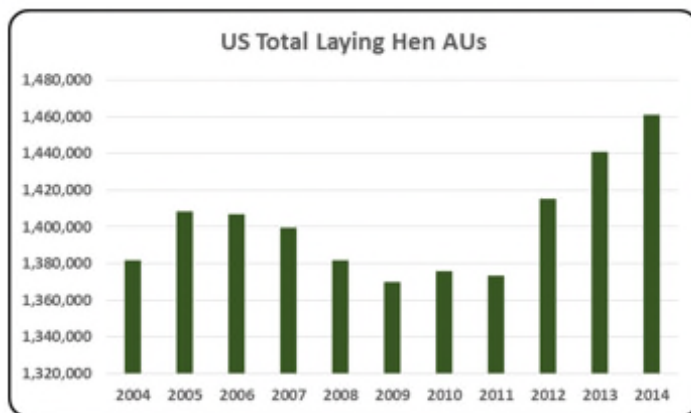
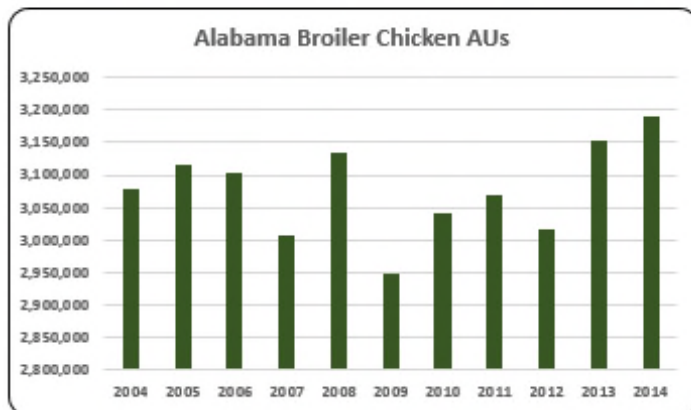
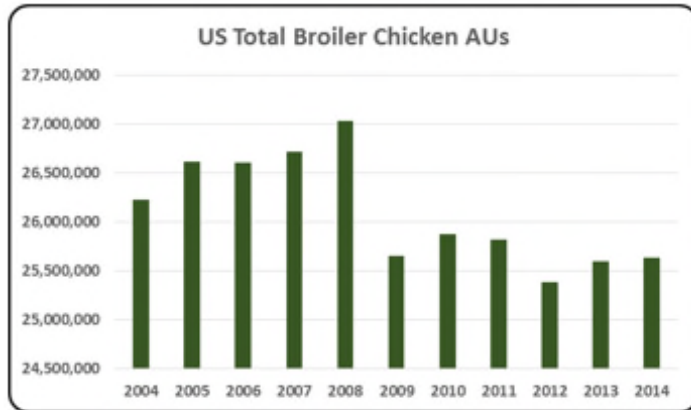


- Overall U.S. total AUs have varied from 2004 to 2014. In 2014 AUs were at an all-time low reflecting, in part, the impact of severe weather on cattle production in some parts of country. During the 2004-14 time period, total AUs in the nation peaked in 2008.

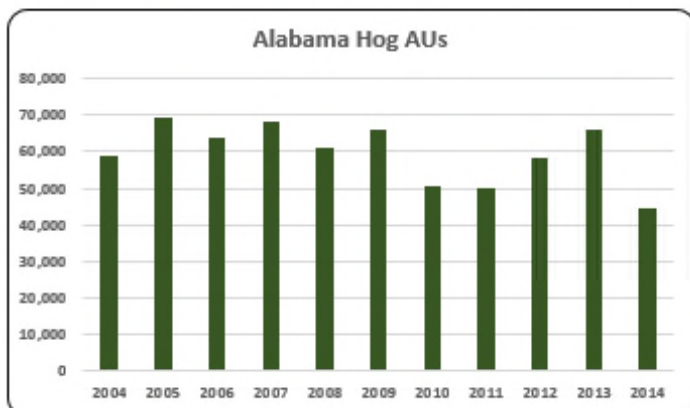
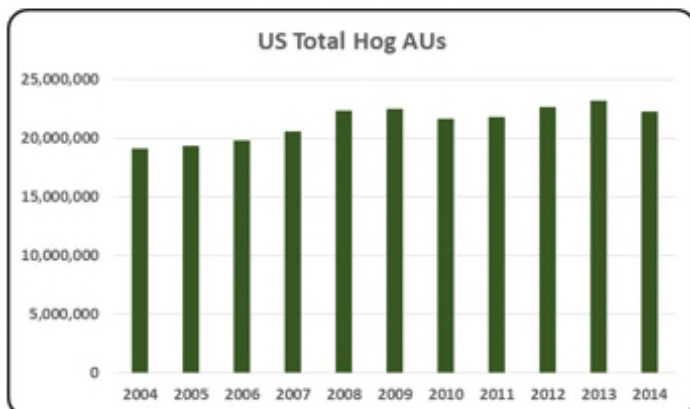
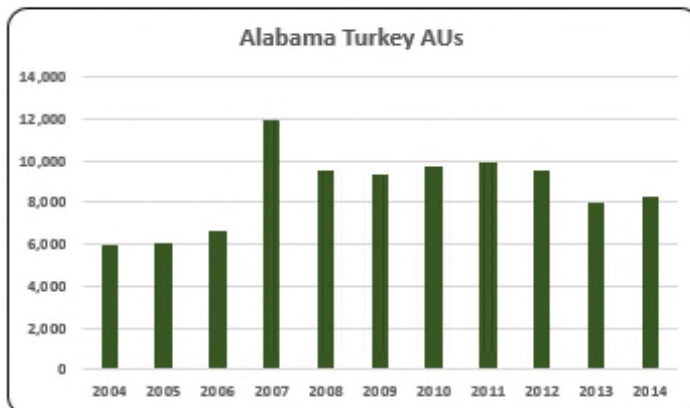
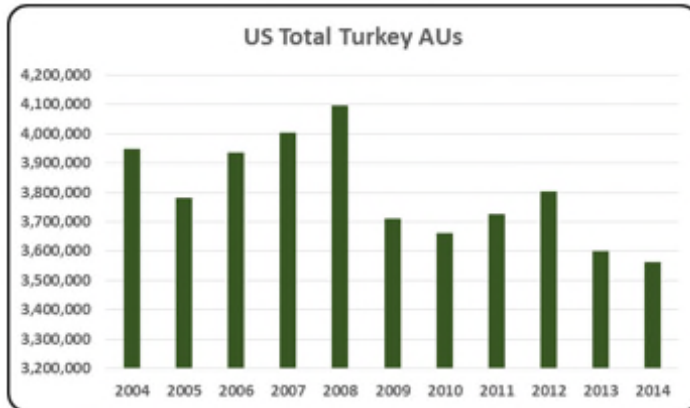


- On average there were 3.8 million total AUs in the state of Alabama from 2004 to 2014.

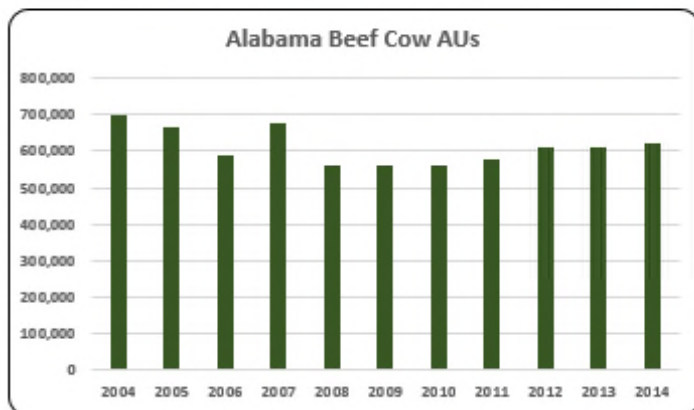
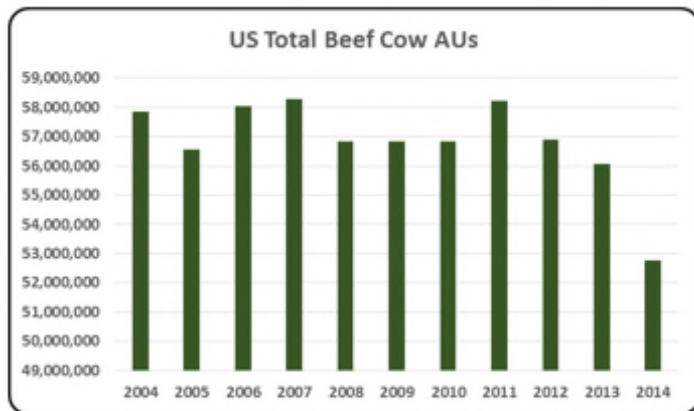
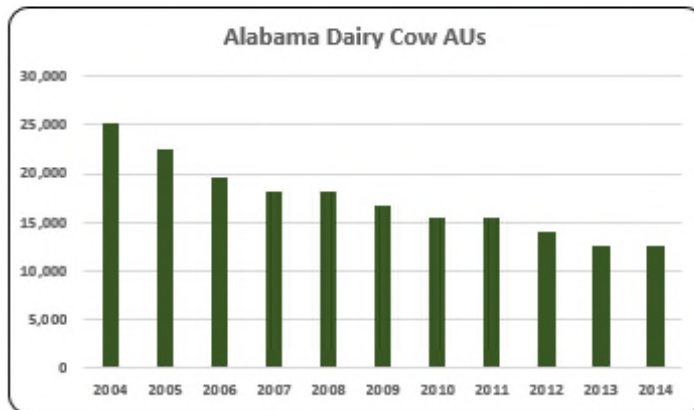
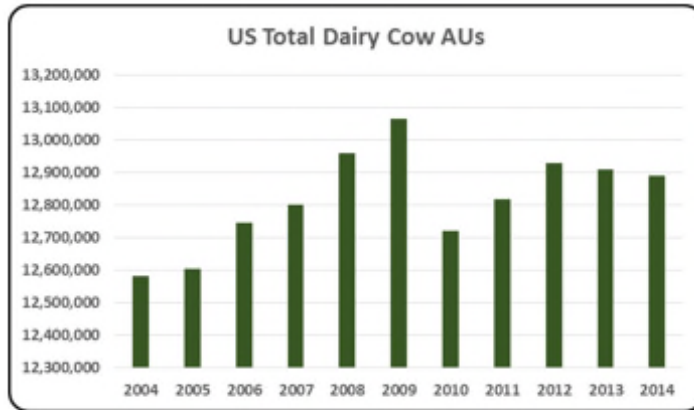




- U.S. broiler production is clustered in a number of states, with Georgia being the largest producer. On average from 2004 to 2014, broiler chicken AUs were about 26.1 million. In 2014, AUs rebounded 1% from the low AUs numbers in 2012 (25.4 million AUs).
- As a large broiler producer in the country, 81% of the 2014 total AUs (3.2 million) in Alabama were broilers. The average broiler AUs during last decade was 3.1 million and in 2014 the number increased 1.2% to a record high of 3.2 million relative to the previous year.
- On average, the layer AUs during 2004-2014 were 1.4 million. In 2014 layer AUs were 1.5 million, up 7% from the lowest number in 2009 (1.4 million AUs).
- 37, 074 layer AUs were present in 2014 and on average from 2004 to 2014, the number of layer AUs was 36, 916.



- From 2004 to 2014, the U.S. accounted for 50% of the world’s turkey production. However, in 2014 turkey AUs were the lowest of the decade at 3.5 million, decreasing 13% compared to 2008 (4.1 million turkey AUs) the largest turkey AUs of the decade.
- Turkey production in Alabama is the smallest of all animal production in the state with an average number of turkey AUs of 8,614 during the last decade, and only 0.21% of the all 2014 AUs in the State.
- On average from 2004 to 2014, hog AUs were about 21.4 million. In 2013 hog AUs reached a high of 23.2 million AUs as prices of main feed ingredients, particularly corn, decreased to pre-2010 price levels. Hog AUs in 2014 decreased 4.4% to 22.3 million AUs year-over-year, primarily due to the porcine epidemic diarrhea virus (PEDv) outbreak. Despite the fluctuation in AUs, the pork supply was relatively stable.
- In 2014, there were 44,700 hog AUs in Alabama. This number decreased 32.6% from the hog AUs during the previous year (66,300 AUs).



- From 2004 to 2014 dairy cow AUs averaged 12.8 million. In 2014, dairy cow AUs (12.9 million) remained about the same as the previous year but still below the high of 13.1 million AUs, the level in 2009. Despite the fluctuation in AUs, milk supplied has steadily risen.
- There were 12,600 dairy cow AUs in 2014 in the state of Alabama and there were on average 17,309 dairy cow AUs from 2004 to 2014.
- From 2004 to 2014 beef cow AUs averaged 56.8 million. In 2014 beef cow AUs decreased to 52.8 million, the lowest of the decade. States that raise a large number of cattle and calves like Texas and Oklahoma were plagued with drought conditions during 2014.
- After broilers, beef cow production is the second largest animal production in Alabama. The average number of beef cows was 612,777 from 2004 to 2014. The number of beef cow AUs increased 2.1% to 622,800 in 2014 compared to the previous year.

## Alabama Additional Information and Methodology

Animal agriculture is an important part of Alabama'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:

- Economic impact of animal agriculture to local (state) economies during the 2004-2014 time period
- Soybean meal usage by animal species during the 2013/14 soybean marketing year
- Animal Unit (AU) trends from 2004-2014

Given the long-term presence of animal agriculture in Alabama, of interest is the degree to which the industry impacts the Alabama economy. Estimates of output, jobs, earnings, taxes paid, and multipliers for Alabama 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 Alabama'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 2004-2014 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 Alabama which have occurred. As shown in this state report, Alabama 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 soybean meal in Alabama. Through in-depth conversations with many of the nation's top nutritionists and researchers, "bottom up" estimates of soybean meal usage by animal type were determined. Using the input from these conversations and additional analysis performed by Decision Innovation Solutions, the quantity of soybean meal used during the 2013-14 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](mailto:info@decision-innovation.com) or 515.257.6077.

## Alabama 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 Alabama'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 Alabama, \$1.856 to \$2.559 million in total economic activity, \$0.329 to \$0.444 in household wages and 14 to 17 additional jobs are generated in the economy at large.

	Animal Type	Output(\$)	Earnings (\$)	Employment (Jobs)
RIMS II Multipliers	Cattle and Calves	\$ 2.3029	\$ 0.3946	16.6
	Hogs, Pigs, and Other	\$ 1.8562	\$ 0.3290	13.9
	Poultry and Eggs	\$ 2.5586	\$ 0.4444	14.9
	Dairy	\$ 2.1198	\$ 0.3901	16.8

## Appendix

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
<b>Animal Units (AUs)</b>	Beef Cattle AUs	700,950	667,650	590,850	676,200	559,650	559,650	559,650	579,600	613,425	610,125	622,800
	Hog and Pig AUs	59,100	69,150	64,050	68,400	61,350	66,150	50,850	50,100	58,200	66,300	44,700
	Broiler AUs	3,079,891	3,115,335	3,103,038	3,007,824	3,134,057	2,949,178	3,041,097	3,067,922	3,016,608	3,151,723	3,190,374
	Turkey AUs	5,924	6,076	6,602	11,907	9,517	9,322	9,710	9,884	9,539	7,957	8,311
	Egg Layer AUs	37,020	36,052	34,460	38,108	37,628	37,900	38,096	36,092	36,957	36,684	37,074
	Dairy AUs	25,200	22,400	19,600	18,200	18,200	16,800	15,400	15,400	14,000	12,600	12,600
	<b>Total Animal Units</b>	<b>3,908,085</b>	<b>3,916,663</b>	<b>3,818,600</b>	<b>3,820,639</b>	<b>3,820,402</b>	<b>3,639,000</b>	<b>3,714,804</b>	<b>3,758,997</b>	<b>3,748,729</b>	<b>3,885,389</b>	<b>3,915,858</b>
<b>Value of Production (\$1,000)</b>	Cattle and Calves (\$1,000)	\$ 440,044	\$ 430,244	\$ 397,232	\$ 364,990	\$ 334,034	\$ 309,827	\$ 408,234	\$ 401,395	\$ 498,843	\$ 466,929	\$ 616,002
	Hogs and Pigs (\$1,000)	\$ 22,346	\$ 37,239	\$ 30,982	\$ 34,326	\$ 28,414	\$ 42,186	\$ 37,691	\$ 35,652	\$ 33,361	\$ 41,233	\$ 35,079
	Broilers (\$1,000)	\$ 2,406,976	\$ 2,409,591	\$ 2,047,824	\$ 2,418,707	\$ 2,689,160	\$ 2,519,304	\$ 2,789,334	\$ 2,671,518	\$ 2,810,100	\$ 3,564,425	\$ 3,854,232
	Turkeys (\$1,000)	\$ 5,497	\$ 5,829	\$ 6,889	\$ 13,731	\$ 12,854	\$ 8,621	\$ 11,549	\$ 12,953	\$ 13,835	\$ 9,111	\$ 15,254
	Eggs (\$1,000)	\$ 287,956	\$ 281,595	\$ 295,990	\$ 313,003	\$ 298,550	\$ 286,893	\$ 291,344	\$ 322,651	\$ 352,021	\$ 388,780	\$ 400,702
	Milk (\$1,000)	\$ 43,855	\$ 37,856	\$ 31,262	\$ 42,158	\$ 39,928	\$ 25,584	\$ 30,420	\$ 33,748	\$ 28,080	\$ 27,729	\$ 30,302
	Other	\$ 101,744	\$ 102,796	\$ 103,848	\$ 104,901	\$ 105,953	\$ 107,006	\$ 108,058	\$ 109,110	\$ 110,163	\$ 111,215	\$ 112,267
	Sheep and Lambs (\$1,000)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Aquaculture (\$1,000)	\$ 101,744	\$ 102,796	\$ 103,848	\$ 104,901	\$ 105,953	\$ 107,006	\$ 108,058	\$ 109,110	\$ 110,163	\$ 111,215	\$ 112,267
	<b>Total (\$1,000)</b>	<b>\$ 3,308,417</b>	<b>\$ 3,305,150</b>	<b>\$ 2,914,027</b>	<b>\$ 3,291,816</b>	<b>\$ 3,508,894</b>	<b>\$ 3,299,420</b>	<b>\$ 3,676,630</b>	<b>\$ 3,587,028</b>	<b>\$ 3,846,402</b>	<b>\$ 4,609,422</b>	<b>\$ 5,063,838</b>

Ag Census Data Category	Animal Type	1997	2002	2007	2012	
Number of Farms by NAICS	Beef cattle ranching and farming (112111)	23,233	22,684	20,314	17,698	
	Cattle feedlots (112112)	566	161	16	-	
	Dairy cattle and milk production (11212)	196	215	116	87	
	Hog and pig farming (1122)	413	220	287	177	
	Poultry and egg production (1123)	3,233	3,450	3,818	3,815	
	Sheep and goat farming (1124)	343	697	1,626	1,904	
	Animal aquaculture and other animal production (1125,1129)	2,449	4,667	6,219	4,313	
Value of Sales (\$1,000)	Cattle and Calves	292,784	348,253	408,276	429,349	
	Hogs and Pigs	34,480	39,441	54,618	33,424	
	Poultry and Eggs	2,093,768	2,137,299	3,113,194	3,624,852	
	Milk and Other Dairy Products	52,573	46,129	38,270	28,113	
	Aquaculture	59,694	80,976	99,504	117,920	
	Other (calculated)	9,145	22,583	24,701	9,142	
	<b>Total</b>	<b>2,542,444</b>	<b>2,674,681</b>	<b>3,738,563</b>	<b>4,242,800</b>	
Input Purchases	Livestock and poultry purchased	(Farms) 13,213	13,420	11,619	11,777	
		\$1,000	341,450	505,196	701,381	751,245
	Breeding livestock purchased	(Farms) <i>n/a</i>	7,124	5,994	6,793	
		\$1,000	<i>n/a</i>	17,300	56,499	81,263
	Other livestock and poultry purchased	(Farms) <i>n/a</i>	7,830	7,022	6,491	
		\$1,000	<i>n/a</i>	487,896	644,882	669,983
	Feed purchased	(Farms) 26,309	32,201	30,051	29,985	
		\$1,000	1,140,545	927,774	1,611,020	2,195,586

	Animal Type	Output (\$1,000)	Earnings (\$1,000)	Employment (Jobs)	Taxes Paid (\$1,000)
<b>2014 Animal Agriculture</b>	Cattle and Calves	\$ 1,418,591	\$ 243,074	10,201	\$ 61,571
	Hogs, Pigs, and Other	\$ 273,504	\$ 48,477	2,050	\$ 12,279
	Poultry and Eggs	\$ 10,925,703	\$ 1,897,672	63,787	\$ 480,680
	Dairy	\$ 64,234	\$ 11,821	510	\$ 2,994
	<b>Total</b>	<b>\$ 12,682,033</b>	<b>\$ 2,201,044</b>	<b>76,547</b>	<b>\$ 557,524</b>
<b>Change from 2004 to 2014</b>	Cattle and Calves	\$ 148,592	\$ 25,461	1,068	\$ 6,449
	Hogs, Pigs, and Other	\$ (15,160)	\$ (2,687)	(114)	\$ (681)
	Poultry and Eggs	\$ 2,266,708	\$ 393,702	13,234	\$ 99,725
	Dairy	\$ (52,271)	\$ (9,619)	(415)	\$ (2,437)
	<b>Total</b>	<b>\$ 2,347,869</b>	<b>\$ 406,856</b>	<b>13,774</b>	<b>\$ 103,057</b>
	Animal Type	Output(\$)	Earnings (\$)	Employment (Jobs)	
<b>RIMS II Multipliers</b>	Cattle and Calves	\$ 2.3029	\$ 0.3946	16.6	
	Hogs, Pigs, and Other	\$ 1.8562	\$ 0.3290	13.9	
	Poultry and Eggs	\$ 2.5586	\$ 0.4444	14.9	
	Dairy	\$ 2.1198	\$ 0.3901	16.8	
<b>Tax Rates</b>	Federal effective income tax rate				12.7%
	Federal Social Security tax rate				7.7%
	State Effective Rate				5.0%
	<b>Total</b>				<b>25.3%</b>

Sources: 1997, 2002, 2007 and 2012 Census of Agriculture, USDA/NASS Survey Data, RIMS II Multipliers (U.S. Bureau of Economic Analysis), Tax Policy Institute and Tax Foundation.