

# Economic Analysis of Animal Agriculture 2005-2015

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## *ALABAMA*

**A Report for  
United Soybean Board**



**September 2016**



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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's success in the State of 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 2015 animal agriculture contributed:

- \$11.2 billion in economic output
- 62,096 jobs
- \$2.4 billion in earnings
- \$607.5 million in income taxes paid at local, state, and federal levels
- \$47.6 million in the form of property taxes

Plus, from 2005-2015 animal agriculture in Alabama has increased economic output by over \$1.3 billion, boosted household earnings by \$271.7 million, contributed 6,929 additional jobs and paid \$68.8 million in additional tax revenues.

Alabama's animal agriculture consumed almost 1.6 million tons of soybean meal in 2015. This soybean meal was fed primarily to:

- Broilers (1.5 million tons)
- Aquaculture (39.2 thousand tons)
- Egg-Laying Hens (23.7 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. It is expected that 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 2015, Alabama's animal agriculture contributed the following to the economy:

- About \$11.2 billion in economic output
- \$2.4 billion in household earnings
- 62,096 jobs
- \$607.5 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:

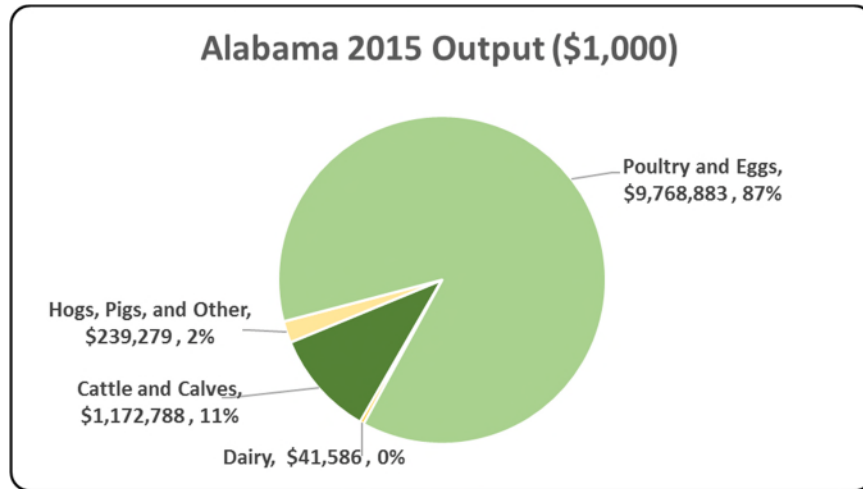
- Increased economic output by \$1.3 billion
- Boosted household earnings by \$271.7 million
- Added 6,929 jobs
- Paid an additional \$68.8 million in income taxes

Below is a table which demonstrates this decade of change.

Measure	2015	Change 2005-2015	% Change 2005-2015
Output (\$1,000)	\$ 11,222,536	\$ 1,281,865	12.90%
Earnings (\$1,000)	\$ 2,398,373	\$ 271,670	12.77%
Employment (Jobs)	62,096	6,929	12.56%
Income Taxes Paid (\$1,000)	\$ 607,508	\$ 68,814	12.77%
Property Taxes Paid in 2012 (\$1,000)	\$ 47,636		

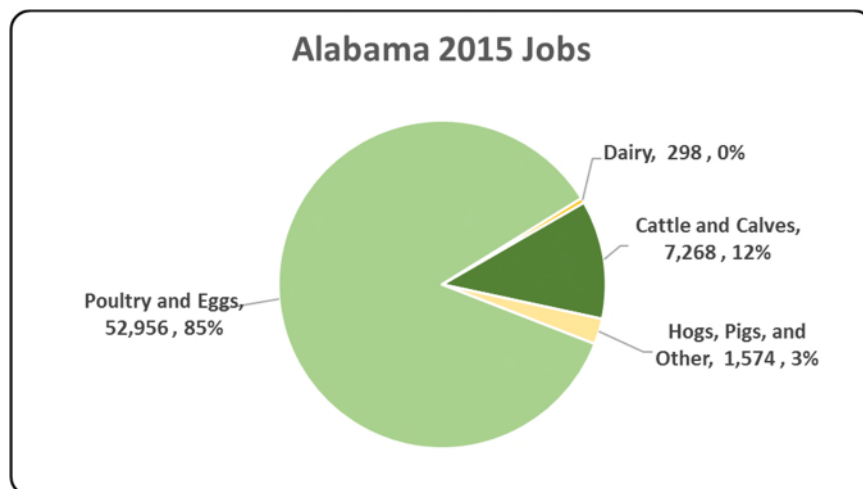
### Alabama Output

“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 table illustrates the impact of animal agriculture to the Alabama economy. Animal agriculture’s impact on Alabama total economic output is about \$11.2 billion.



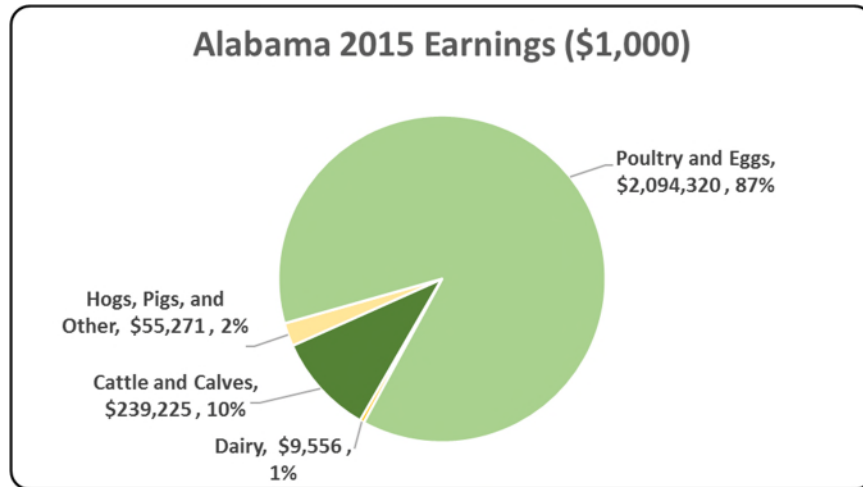
### Alabama Jobs

“Jobs” represents an estimate of the number of full or part-time positions (jobs) currently filled in an area and/or industry. The table illustrates the contribution to Alabama in terms of animal agriculture jobs. As shown, animal agriculture contributes significantly to Alabama total jobs, contributing 62,096 jobs within and outside of animal agriculture.



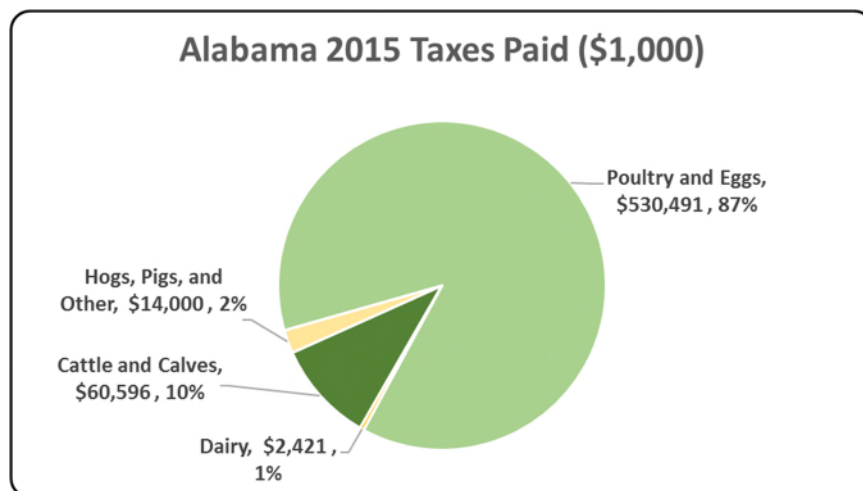
### Alabama Earnings

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 \$2.4 billion to household earnings in 2015.



### Alabama Taxes Paid by Animal Agriculture

Alabama’s animal agriculture is also a significant source of tax revenue. In 2015, the state’s animal agriculture industry paid about \$607.5 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.



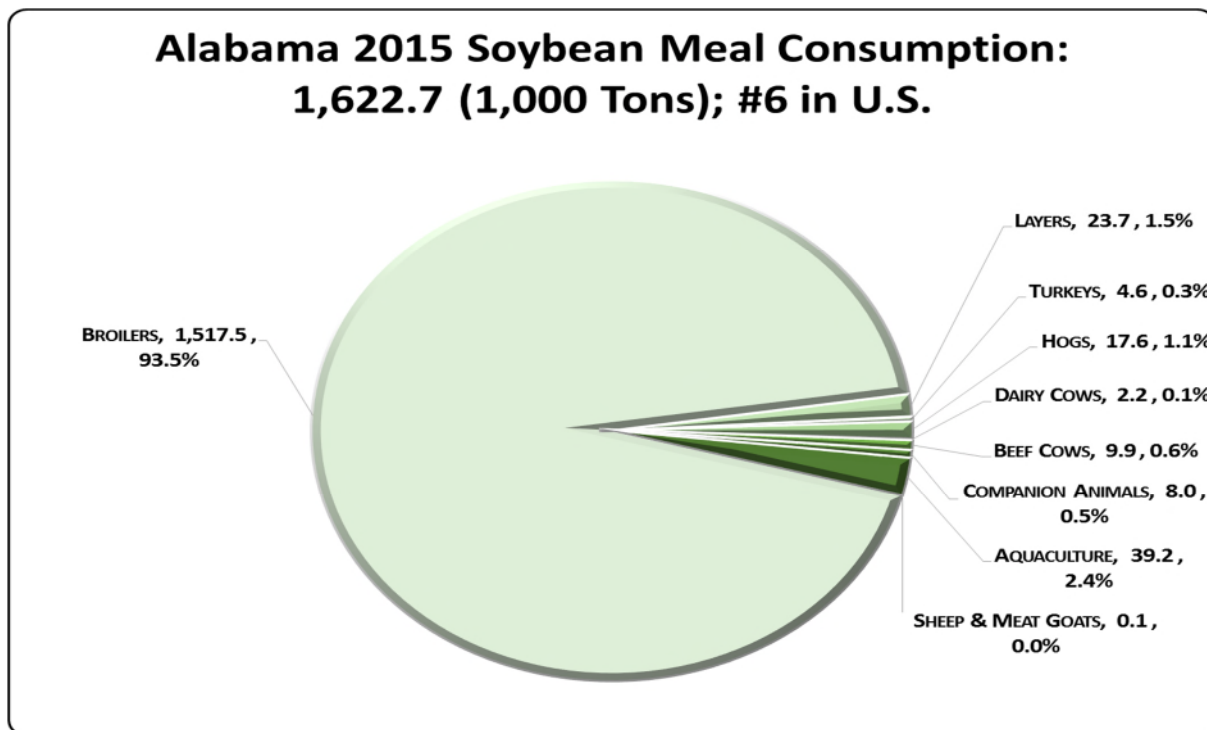
### Alabama Animal Agriculture Soybean Meal Consumption

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 2014-15 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 2015, 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 (39.2 thousand tons)
- Egg-Laying Hens (23.7 thousand tons)

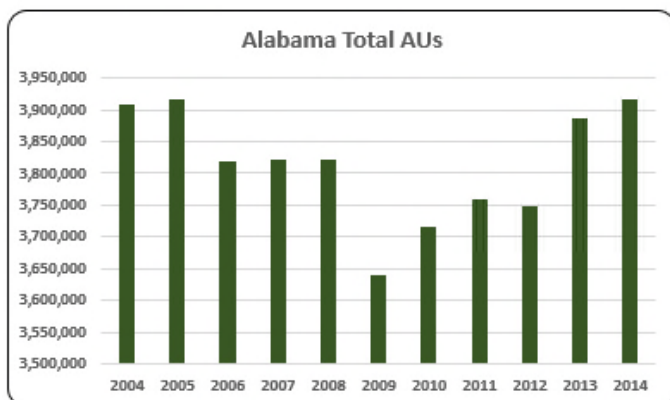
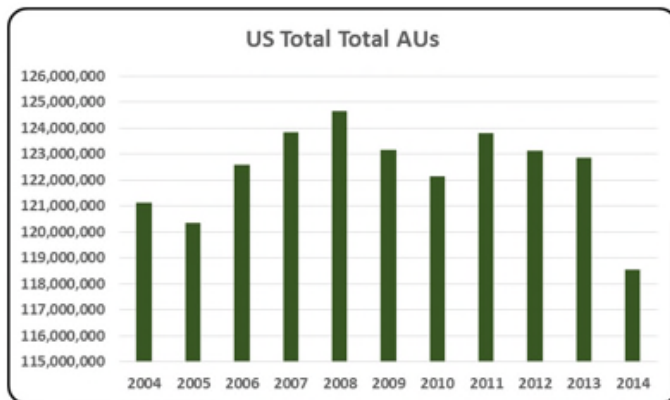


## Alabama Animal Unit (AU) Trends

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.

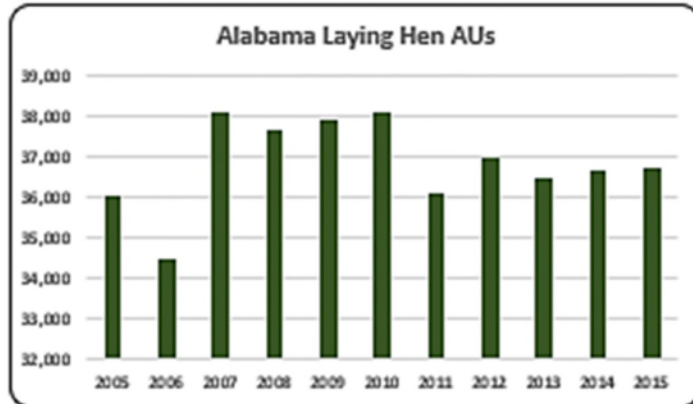
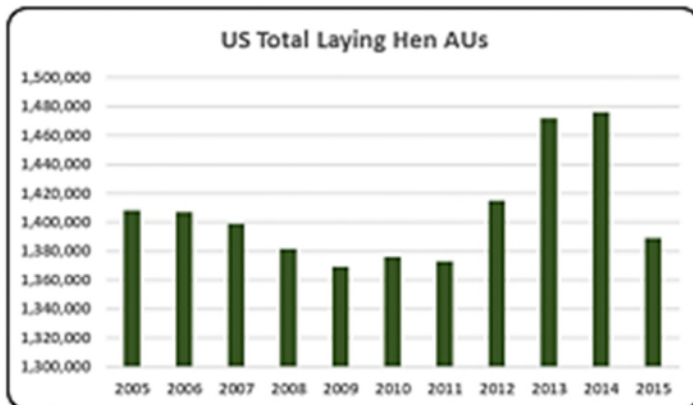
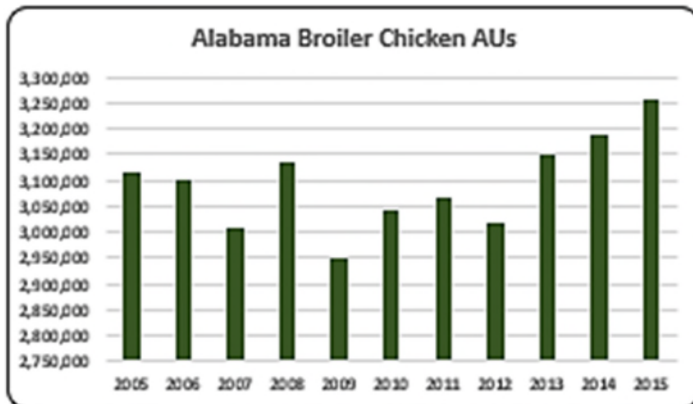
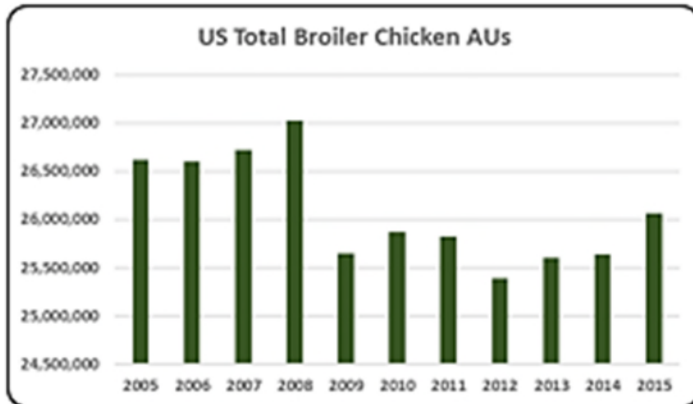
Similar to using a single year to measure the presence and strength of a sector, in some circumstances AUs can be misleading. This is because AUs do not reflect important considerations like increased weights, improved livability, increased laying potential, etc.

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 2015 were: Broilers (3.25 million AUs), Beef Cows (531,150 AUs), and Hogs (49,050 AUs). Total animal units in Alabama during 2015 were 3.9 million AUs.

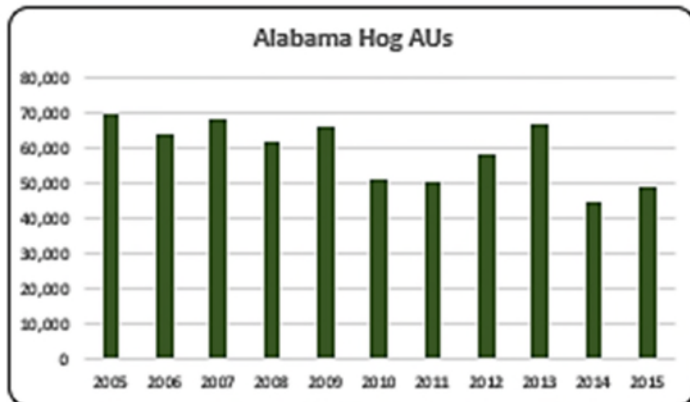
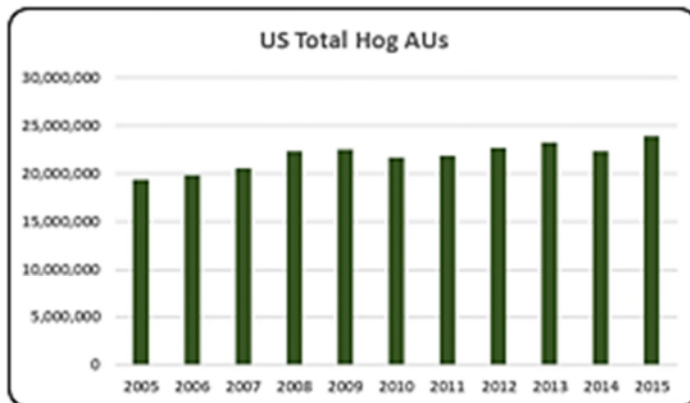
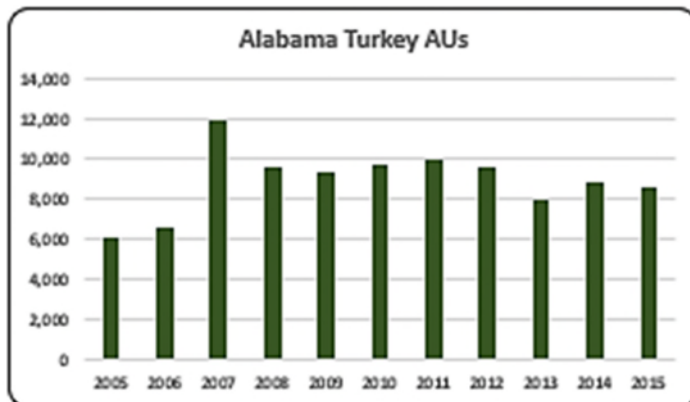
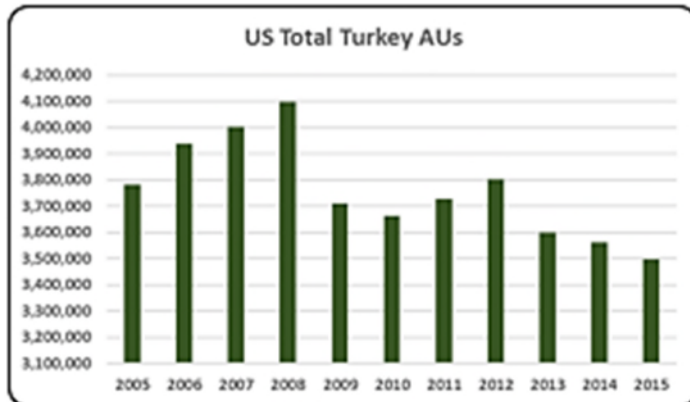


- Overall U.S. total AUs have varied from 2005 to 2015. In 2014 AUs were at an all-time low reflecting, in part, the impact of severe weather on cattle production in some parts of country. During the 2005-15 time period, total AUs in the nation peaked in 2008.
- On average there were 3.8 million total AUs in the state of Alabama from 2005 to 2015.

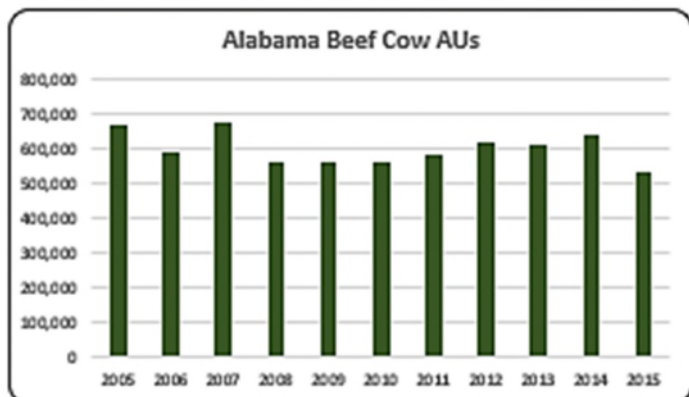
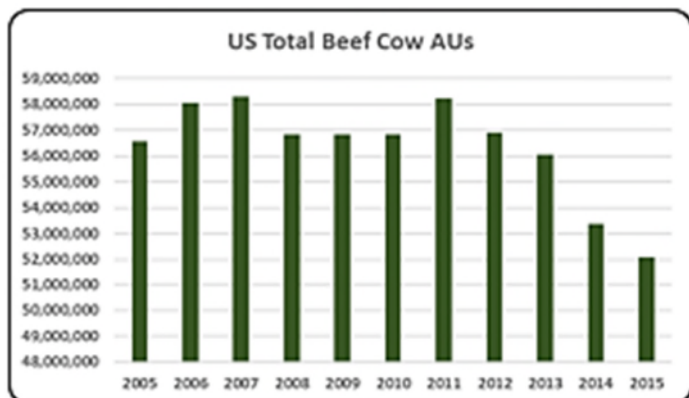
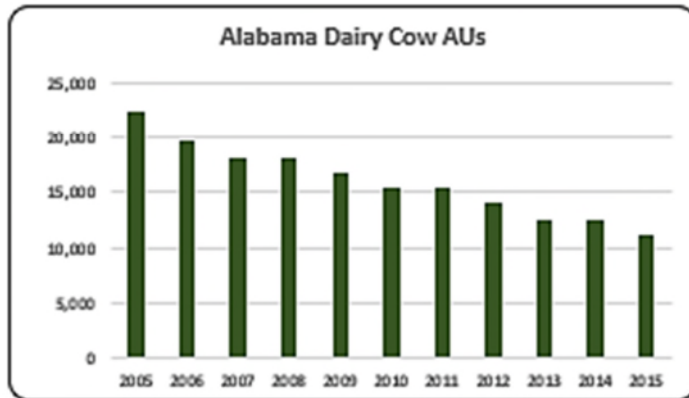
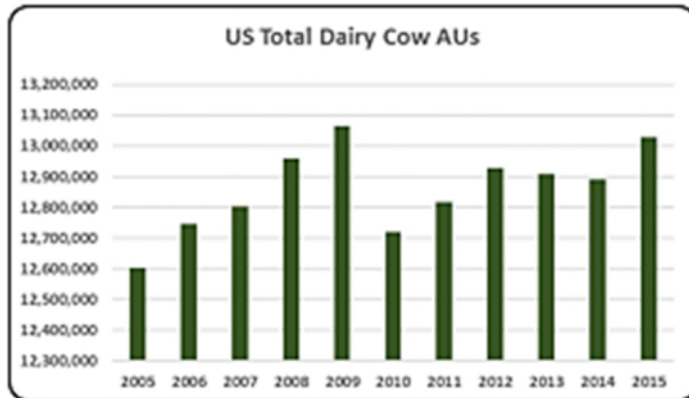




- U.S. broiler production is clustered in a number of states, with Georgia being the largest producer. On average from 2005 to 2015, broiler chicken AUs were about 26.0 million. In 2015, AUs rebounded 3% from the low AUs numbers in 2012 (25.4 million AUs).
- As a large broiler producer in the country, 83% of the 2015 total AUs (3.25 million) in Alabama was broilers. The average broiler AUs during 2005-2015 was 3.0 million and in 2015 the number increased 2% to a record high of over 3.2 million relative to the previous year.
- On average, the layer AUs during 2005-2015 were 1.4 million. In 2015 layer AUs were 1.3 million, down 6% from the 2014 decade high (1.4 million AUs). This drastic decrease in 2015 was due to the losses in major egg laying states from the avian influenza outbreak.
- In Alabama, 36,724 layer AUs were present in 2015 and on average from 2005 to 2015, the number of layer AUs was 36,833.



- In 2015 turkey AUs were the lowest of the decade at 3.5 million, decreasing 15% compared to 2008 (4.1 million turkey AUs) the largest turkey AUs of the decade. The most recent contributor to this decline has been avian influenza.
- Turkey production in Alabama is the smallest of all animal sectors in the state. Alabama has housed an average 8,899 turkey AUs per year over the past decade.
- On average from 2005 to 2015, hog AUs were about 21.8 million. Hog AUs in 2015 increased 24% to 23.9 million AUs compared to the decade low in 2005 (19.4 million AUs). Despite the fluctuation in AUs, the pork supply was relatively stable.
- In 2015, there were 49,050 hog AUs in Alabama. This number has begun to increase in the hog AUs from the previous year (44,850 AUs).



- From 2005 to 2015 dairy cow AUs averaged 12.8 million. In 2015, dairy cow AUs (13.0 million) finally reached near the 2009 high of 13.1 million AUs. Milk supplies have steadily risen.
- There were 11,200 dairy cow AUs in 2015 in the state of Alabama and there were on average 16,036 dairy cow AUs from 2005 to 2015.
- From 2005 to 2015 beef cow AUs averaged 56.3 million. In 2015 beef cow AUs decreased to 52.0 million, the lowest of the decade. States that traditionally raise a lot of cattle like Texas and Oklahoma continue to work through the lingering effects of the drought of the last several years.
- After broilers, beef cows are the second largest animal sector in Alabama. The average number of beef cows was 598,431 from 2005 to 2015.

## 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 2005-2015 time period
- Soybean meal usage by animal species during the 2014/15 soybean marketing year
- Animal Unit (AU) trends from 2005-2015

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 2005-2015 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 2014-15 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, \$1.64 to \$2.61 million in total economic activity, \$0.38 to \$0.56 in household wages and 11 to 15 additional jobs are generated in the economy at large.

	Animal Type	Output(\$)	Earnings (\$)	Employment (Jobs)
RIMS II Multipliers	Cattle and Calves	\$ 1.945	\$ 0.397	12.1
	Hogs, Pigs, and Other	\$ 1.637	\$ 0.378	10.8
	Poultry and Eggs	\$ 2.612	\$ 0.560	14.2
	Dairy	\$ 2.112	\$ 0.485	15.1

## Appendix

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
<b>Animal Units (AUs)</b>	Beef Cattle AUs	667,650	590,850	676,200	559,650	559,650	559,650	579,600	613,425	610,125	634,800	531,150
	Hog and Pig AUs	69,150	64,050	68,400	61,350	66,150	50,850	50,100	58,200	66,300	44,850	49,050
	Broiler AUs	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	3,254,740
	Turkey AUs	6,076	6,602	11,907	9,517	9,322	9,710	9,884	9,539	7,957	8,785	8,595
	Egg Layer AUs	36,052	34,460	38,108	37,628	37,900	38,096	36,092	36,957	36,475	36,674	36,724
	Dairy AUs	22,400	19,600	18,200	18,200	16,800	15,400	15,400	14,000	12,600	12,600	11,200
	<b>Total Animal Units</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>3,885,180</b>	<b>3,928,082</b>	<b>3,891,458</b>
<b>Value of Production (\$1,000)</b>	Cattle and Calves (\$1,000)	\$ 430,244	\$ 397,232	\$ 364,990	\$ 334,034	\$ 309,827	\$ 408,234	\$ 401,395	\$ 498,843	\$ 466,929	\$ 616,002	\$ 603,038
	Hogs and Pigs (\$1,000)	\$ 37,239	\$ 30,982	\$ 34,326	\$ 28,414	\$ 42,186	\$ 37,691	\$ 35,652	\$ 33,361	\$ 41,233	\$ 35,079	\$ 32,397
	Broilers (\$1,000)	\$ 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	\$ 3,320,805
	Turkeys (\$1,000)	\$ 5,772	\$ 6,823	\$ 13,542	\$ 11,688	\$ 10,645	\$ 13,395	\$ 14,898	\$ 15,623	\$ 12,370	\$ 13,997	\$ 14,905
	Eggs (\$1,000)	\$ 281,595	\$ 295,990	\$ 313,003	\$ 298,550	\$ 286,893	\$ 291,344	\$ 322,651	\$ 352,021	\$ 388,780	\$ 396,045	\$ 404,148
	Milk (\$1,000)	\$ 37,856	\$ 31,262	\$ 42,158	\$ 39,928	\$ 25,584	\$ 30,420	\$ 33,748	\$ 28,080	\$ 27,729	\$ 30,302	\$ 19,695
	Other	\$ 102,796	\$ 103,848	\$ 104,901	\$ 105,953	\$ 107,006	\$ 108,058	\$ 109,110	\$ 110,163	\$ 111,215	\$ 112,267	\$ 113,320
	Sheep and Lambs (\$1,000)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Aquaculture (\$1,000)	\$ 102,796	\$ 103,848	\$ 104,901	\$ 105,953	\$ 107,006	\$ 108,058	\$ 109,110	\$ 110,163	\$ 111,215	\$ 112,267	\$ 113,320
	<b>Total (\$1,000)</b>	<b>\$ 3,305,093</b>	<b>\$ 2,913,962</b>	<b>\$ 3,291,627</b>	<b>\$ 3,507,727</b>	<b>\$ 3,301,444</b>	<b>\$ 3,678,476</b>	<b>\$ 3,588,972</b>	<b>\$ 3,848,191</b>	<b>\$ 4,612,681</b>	<b>\$ 5,057,925</b>	<b>\$ 4,508,308</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)	n/a	7,124	5,994	6,793
			\$1,000	n/a	17,300	56,499	81,263
	Other livestock and poultry purchased		(Farms)	n/a	7,830	7,022	6,491
			\$1,000	n/a	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>2015 Animal Agriculture</b>	Cattle and Calves	\$ 1,172,788	\$ 239,225	7,268	\$ 60,596
	Hogs, Pigs, and Other	\$ 239,279	\$ 55,271	1,574	\$ 14,000
	Poultry and Eggs	\$ 9,768,883	\$ 2,094,320	52,956	\$ 530,491
	Dairy	\$ 41,586	\$ 9,556	298	\$ 2,421
	<b>Total</b>	<b>\$ 11,222,536</b>	<b>\$ 2,398,373</b>	<b>62,096</b>	<b>\$ 607,508</b>
<b>Change from 2005 to 2015</b>	Cattle and Calves	\$ 157,318	\$ 32,090	975	\$ 8,128
	Hogs, Pigs, and Other	\$ (39,407)	\$ (9,103)	(259)	\$ (2,306)
	Poultry and Eggs	\$ 1,219,374	\$ 261,418	6,610	\$ 66,217
	Dairy	\$ (55,421)	\$ (12,735)	(397)	\$ (3,226)
	<b>Total</b>	<b>\$ 1,281,865</b>	<b>\$ 271,670</b>	<b>6,929</b>	<b>\$ 68,814</b>
	Animal Type	Output(\$)	Earnings (\$)	Employment (Jobs)	
<b>RIMS II Multipliers</b>	Cattle and Calves	\$ 1.945	\$ 0.397	12.1	
	Hogs, Pigs, and Other	\$ 1.637	\$ 0.378	10.8	
	Poultry and Eggs	\$ 2.612	\$ 0.560	14.2	
	Dairy	\$ 2.112	\$ 0.485	15.1	
<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.



	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.