

# Economic Analysis of Animal Agriculture 2005-2015

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*NEW MEXICO*

**A Report for  
United Soybean Board**



**September 2016**



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## New Mexico Executive Summary

The use of soybean meal as a key feed ingredient is a small part of New Mexico's animal agriculture. While the degree to which animal agriculture utilizes this versatile feed ingredient has fluctuated with time, it remains a factor in animal agriculture's success in the State of New Mexico. The success of New Mexico animal agriculture in turn has an impact on the rest of the state and regional economies. For example, in the State of New Mexico during 2015 animal agriculture contributed:

- \$4.1 billion in economic output
- 21,029 jobs
- \$876.5 million in earnings
- \$221.1 million in income taxes paid at local, state, and federal levels
- \$36.2 million in the form of property taxes

Plus, from 2005-2015 animal agriculture in New Mexico has increased economic output by over \$449.4 million, boosted household earnings by \$91.7 million, contributed 2,144 additional jobs and paid \$23.1 million in additional tax revenues.

New Mexico's animal agriculture consumed almost 61.3 thousand tons of soybean meal in 2015. This soybean meal was fed primarily to:

- Dairy Cows (41.3 thousand tons)
- Beef Cows (8.5 thousand tons)
- Companion Animals (4.5 thousand tons)

This report examines animal agriculture in New Mexico 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 New Mexico, many opportunities and challenges will arise. It is expected that animal agriculture will continue to be a contributor to the economic well-being of the people of New Mexico and beyond.

## New Mexico Economic Impact of Animal Agriculture

Animal agriculture is an important part of New Mexico's economy. In 2015, New Mexico's animal agriculture contributed the following to the economy:

- About \$4.1 billion in economic output
- \$876.5 million in household earnings
- 21,029 jobs
- \$221.1 million in income taxes

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

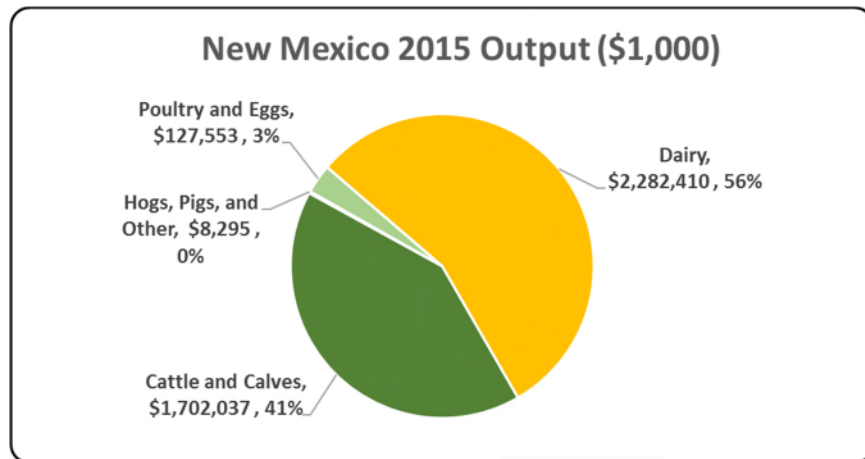
- Increased economic output by \$449.4 million
- Boosted household earnings by \$91.7 million
- Added 2,144 jobs
- Paid an additional \$23.1 million in income taxes

Below is a table which demonstrates this decade of change.

| Measure                               | 2015         | Change 2005-2015 | % Change 2005-2015 |
|---------------------------------------|--------------|------------------|--------------------|
| Output (\$1,000)                      | \$ 4,120,295 | \$ 449,353       | 12.24%             |
| Earnings (\$1,000)                    | \$ 876,463   | \$ 91,715        | 11.69%             |
| Employment (Jobs)                     | 21,029       | 2,144            | 11.36%             |
| Income Taxes Paid (\$1,000)           | \$ 221,132   | \$ 23,140        | 11.69%             |
| Property Taxes Paid in 2012 (\$1,000) | \$ 36,159    |                  |                    |

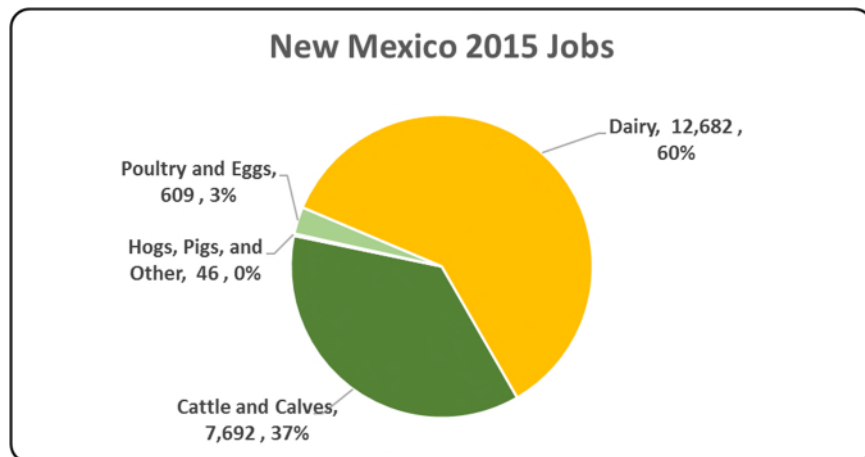
### New Mexico Output

“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 New Mexico economy. Animal agriculture’s impact on New Mexico total economic output is about \$4.1 billion.



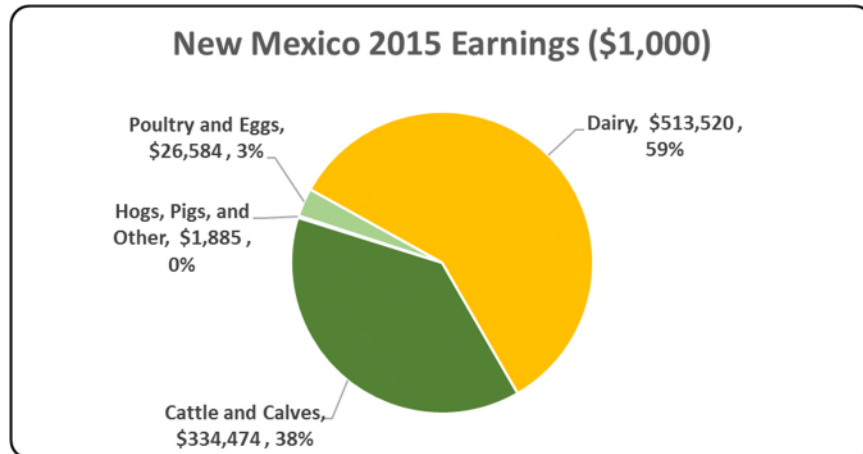
### New Mexico Jobs

“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 New Mexico in terms of animal agriculture jobs. As shown, animal agriculture contributes significantly to New Mexico total jobs, contributing 21,029 jobs within and outside of animal agriculture.



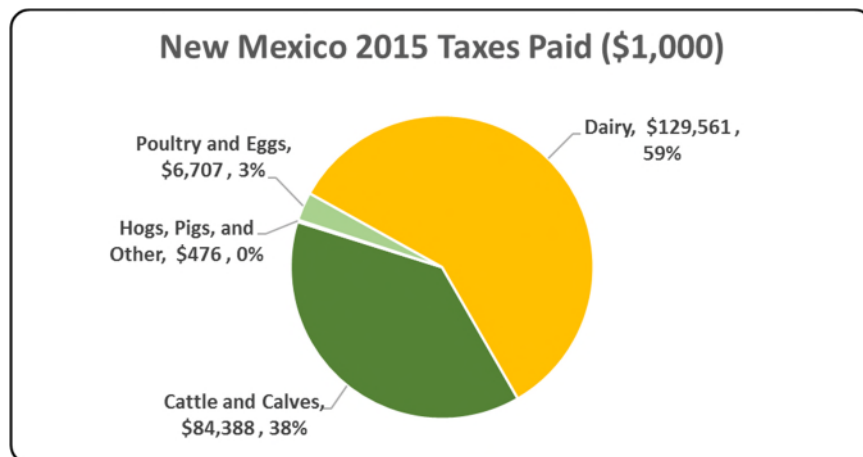
### New Mexico Earnings

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 New Mexico economy in terms of earnings. New Mexico's animal agriculture contributed about \$876.5 million to household earnings in 2015.



### New Mexico Taxes Paid by Animal Agriculture

New Mexico's animal agriculture is also a significant source of tax revenue. In 2015, the state's animal agriculture industry paid about \$221.1 million in income taxes at local, state, and federal levels. Plus the 2012 Census of Agriculture estimated \$36.2 million in property taxes paid by all of New Mexico agriculture during 2012. Estimates of income taxes paid by animal agriculture are shown in the following chart.



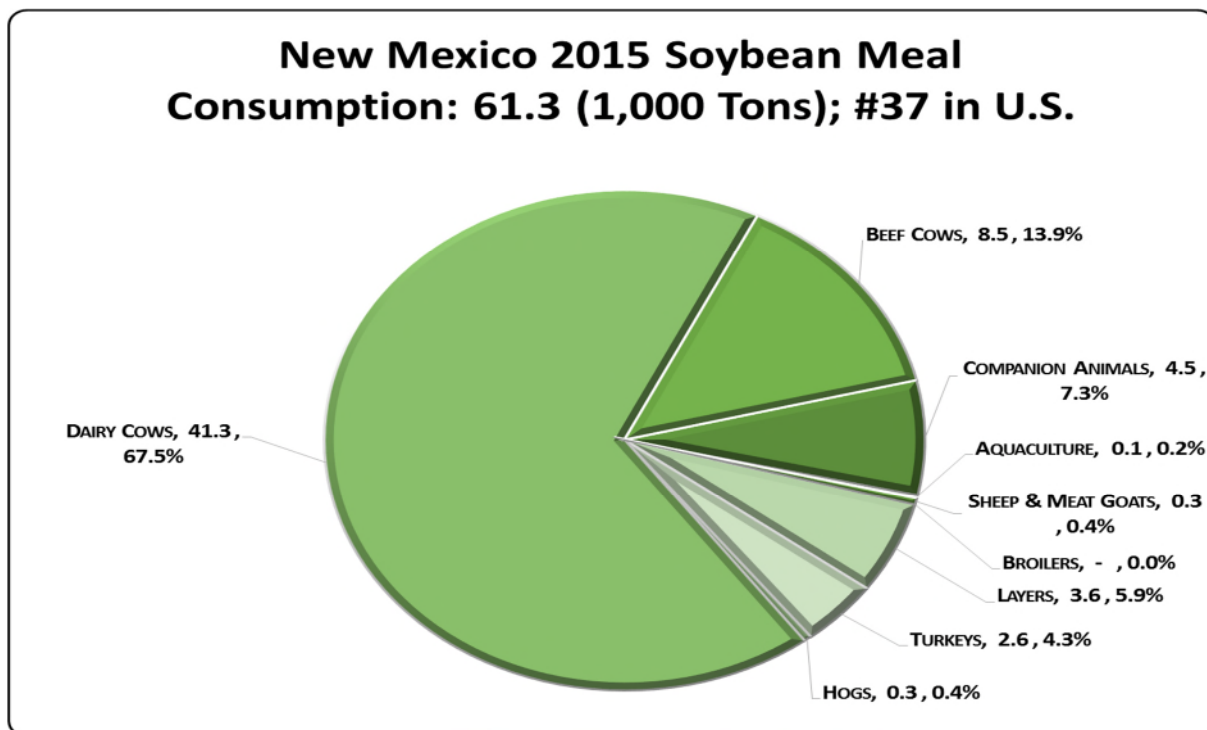
## New Mexico Animal Agriculture Soybean Meal Consumption

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.

New Mexico’s animal agriculture consumed almost 61.3 thousand tons of soybean meal in 2015, placing the state as #37 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:

- Dairy Cows (41.3 thousand tons)
- Beef Cows (8.5 thousand tons)
- Companion Animals (4.4 thousand tons)

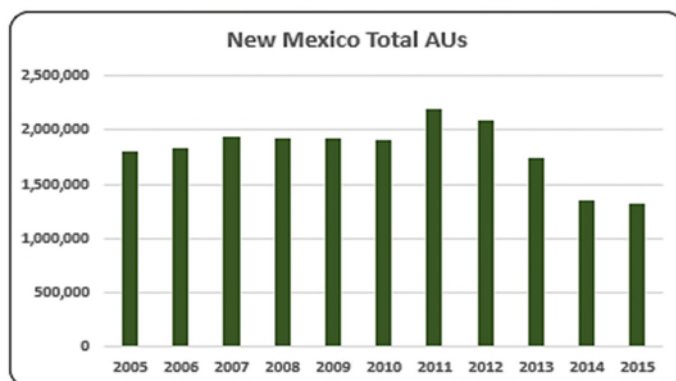
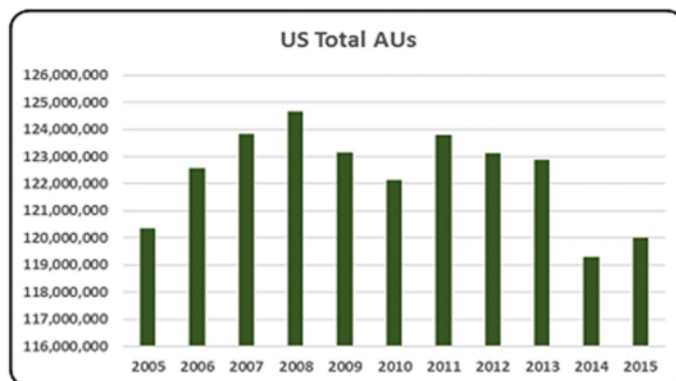


## New Mexico Animal Unit (AU) Trends

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 New Mexico. 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 New Mexico and to give perspective on New Mexico's contribution to the nation's animal agriculture industry and beyond.

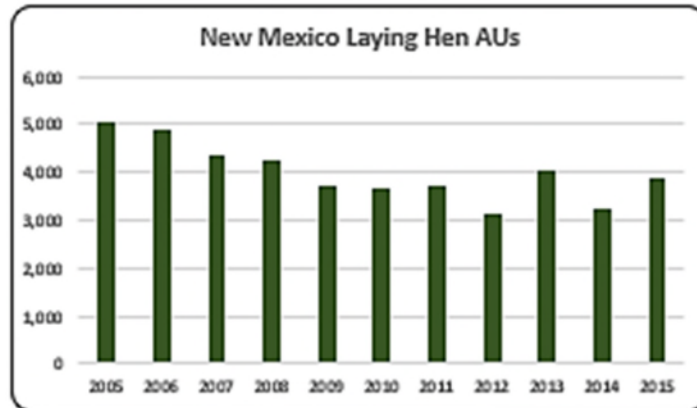
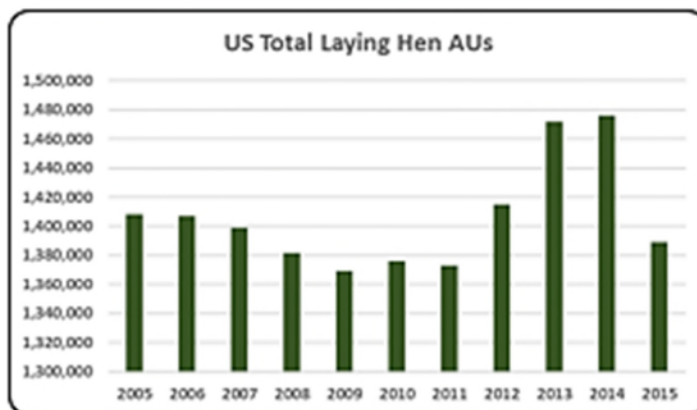
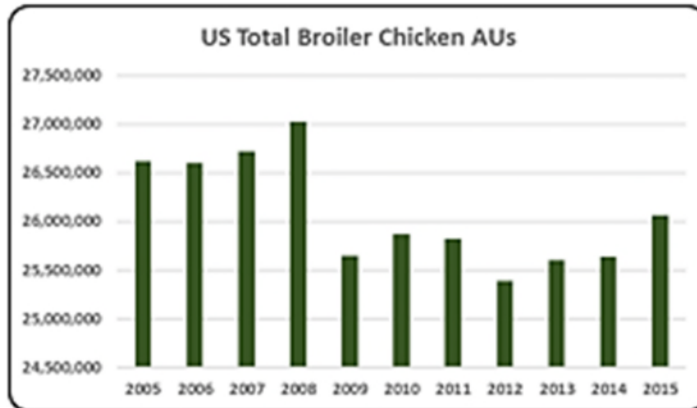
Similar to using a single year to measure the presence and strength of a sector, in some circumstances AUs can be misleading. This is because AUs do not reflect important considerations like increased weights, improved livability, increased laying potential, etc.

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 New Mexico, the largest three segments of animal agriculture in terms of AUs during 2015 were: Beef Cows (844,200 AUs), Dairy Cows (452,200 AUs), and Broilers (10,013 AUs). Total animal units in New Mexico during 2015 were 1.3 million AUs.

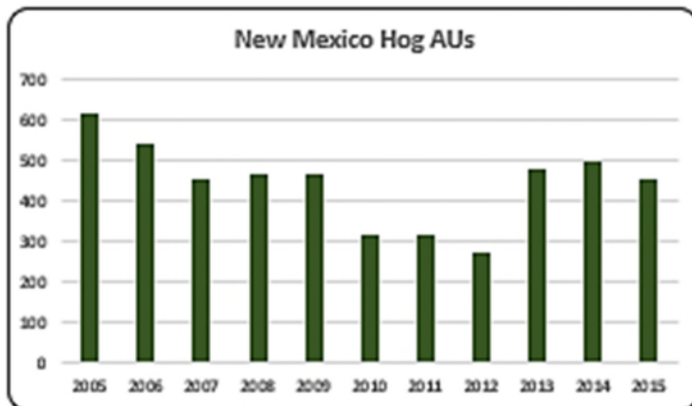
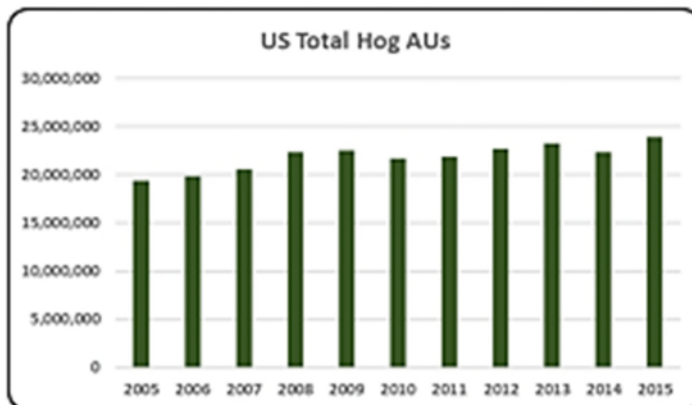
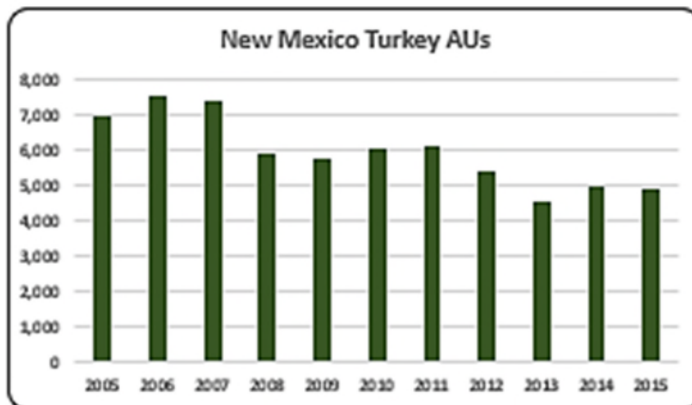
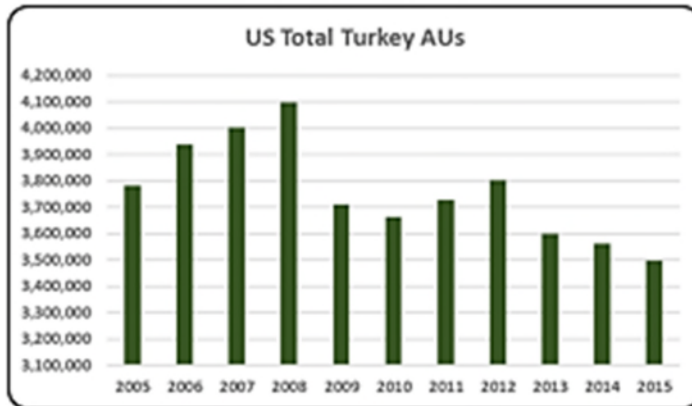


- Overall U.S. total AUs have varied from 2005 to 2015. In 2014 AUs were at an all-time low reflecting, in part, the impact of severe weather on cattle production in some parts of country. During the 2005-15 time period, total AUs in the nation peaked in 2008.
- 2011 was a record year for animal production in New Mexico with 2.2 million AUs, but 2015 was record low animal production for the state with only 1.3 million AUs.





- 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).
- Broiler production represented 0.8% (10,013 broiler AUs) of all AUs in the state in 2015. Broiler production has declined 40% from the beginning of the decade.
- 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.
- Less than 0.3% (3,889 layer AUs) of animal production was layer production in 2015. The decline in layer production from 2005 to 2015 was about 23%.

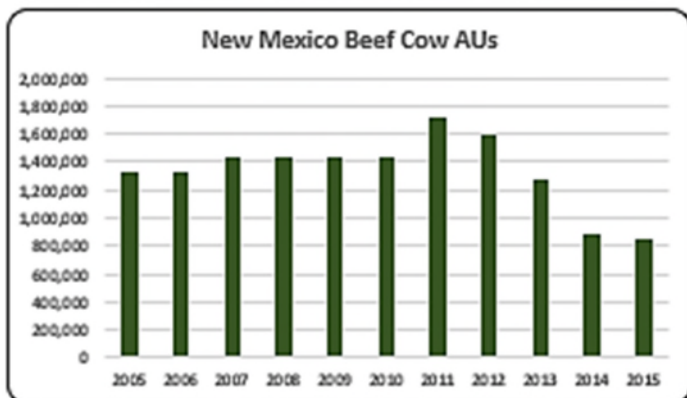
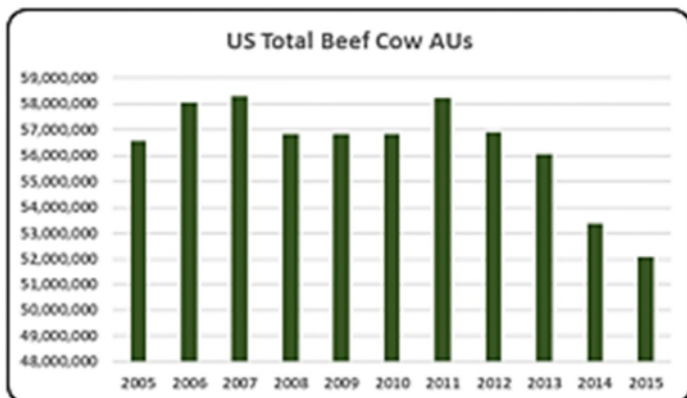
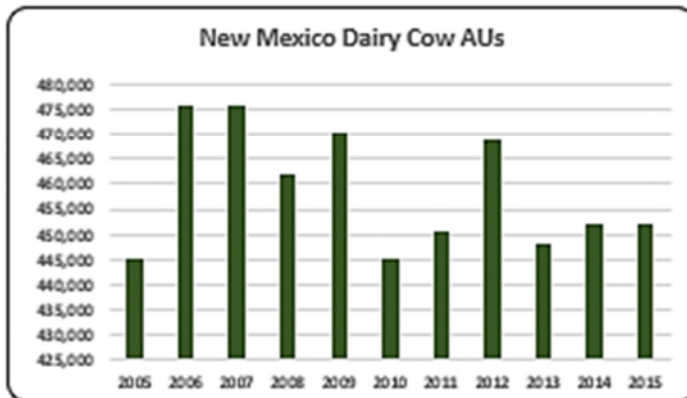
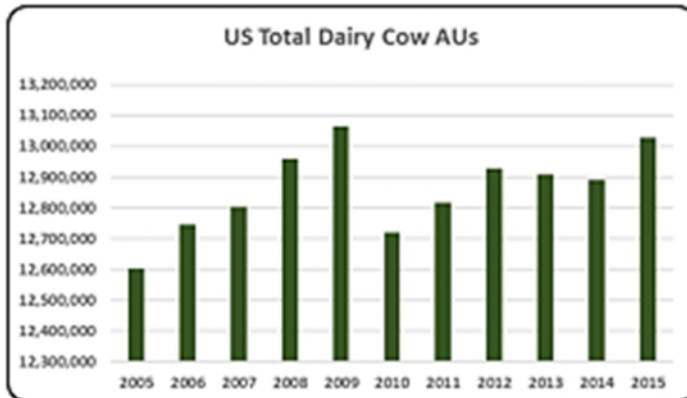


- In 2015 turkey AUs were the lowest of the decade at 3.5 million, decreasing 15% compared to 2008 (4.1 million turkey AUs) the largest turkey AUs of the decade. The most recent contributor to this decline has been avian influenza.

- Turkey production sunk 30% during the decade to 4,883 turkey AUs in 2015.

- 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.

- Hog production is the smallest animal enterprise in New Mexico with only 450 AUs in 2015. It has an average of 442 AUs for the decade.



- 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.

- Dairy Cow production is the second largest animal production in New Mexico with an average of 452,200 AUs throughout the decade.

- 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.

- 2015 was a record low beef cow production with 844,200 beef cow AUs. 2011 had a record high beef cow production with 1.7 million AUs.

## New Mexico Additional Information and Methodology

Animal agriculture is an important part of New Mexico'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 New Mexico, of interest is the degree to which the industry impacts the New Mexico economy. Estimates of output, jobs, earnings, taxes paid, and multipliers for New Mexico 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 New Mexico'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 New Mexico which have occurred. As shown in this state report, New Mexico 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 New Mexico. 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.

## New Mexico 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 New Mexico’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 New Mexico, \$1.50 to \$2.13 million in total economic activity, \$0.34 to \$0.42 in household wages and 8 to 10 additional jobs are generated in the economy at large.

|                     | Animal Type           | Output(\$) | Earnings (\$) | Employment (Jobs) |
|---------------------|-----------------------|------------|---------------|-------------------|
| RIMS II Multipliers | Cattle and Calves     | \$ 2.134   | \$ 0.419      | 9.6               |
|                     | Hogs, Pigs, and Other | \$ 1.504   | \$ 0.342      | 8.3               |
|                     | Poultry and Eggs      | \$ 1.788   | \$ 0.373      | 8.5               |
|                     | Dairy                 | \$ 1.810   | \$ 0.407      | 10.1              |

## Appendix

|                                      | 2005                        | 2006                | 2007                | 2008                | 2009                | 2010                | 2011                | 2012                | 2013                | 2014                | 2015                |                     |
|--------------------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Animal Units (AUs)</b>            | Beef Cattle AUs             | 1,329,900           | 1,332,300           | 1,431,900           | 1,437,000           | 1,437,000           | 1,437,000           | 1,725,150           | 1,597,050           | 1,275,450           | 877,425             | 844,200             |
|                                      | Hog and Pig AUs             | 615                 | 540                 | 450                 | 465                 | 465                 | 315                 | 315                 | 270                 | 480                 | 495                 | 450                 |
|                                      | Broiler AUs                 | 16,822              | 16,709              | 10,453              | 10,290              | 9,568               | 9,696               | 7,306               | 9,851               | 9,817               | 9,761               | 10,013              |
|                                      | Turkey AUs                  | 6,944               | 7,545               | 7,363               | 5,886               | 5,765               | 6,005               | 6,112               | 5,420               | 4,521               | 4,991               | 4,883               |
|                                      | Egg Layer AUs               | 5,046               | 4,869               | 4,374               | 4,249               | 3,717               | 3,692               | 3,714               | 3,133               | 4,056               | 3,232               | 3,889               |
|                                      | Dairy AUs                   | 445,200             | 476,000             | 476,000             | 462,000             | 470,400             | 445,200             | 450,800             | 469,000             | 448,000             | 452,200             | 452,200             |
|                                      | <b>Total Animal Units</b>   | <b>1,804,528</b>    | <b>1,837,964</b>    | <b>1,930,541</b>    | <b>1,919,890</b>    | <b>1,926,914</b>    | <b>1,901,908</b>    | <b>2,193,397</b>    | <b>2,084,724</b>    | <b>1,742,324</b>    | <b>1,348,104</b>    | <b>1,315,635</b>    |
| <b>Value of Production (\$1,000)</b> | Cattle and Calves (\$1,000) | \$ 544,291          | \$ 502,289          | \$ 513,195          | \$ 587,945          | \$ 539,497          | \$ 659,946          | \$ 893,864          | \$ 993,045          | \$ 723,204          | \$ 876,860          | \$ 797,506          |
|                                      | Hogs and Pigs (\$1,000)     | \$ 521              | \$ 316              | \$ 272              | \$ 300              | \$ 267              | \$ 264              | \$ 252              | \$ 181              | \$ 472              | \$ 579              | \$ 365              |
|                                      | Broilers (\$1,000)          | \$ 14,136           | \$ 10,951           | \$ 8,067            | \$ 8,242            | \$ 7,111            | \$ 7,431            | \$ 6,506            | \$ 9,816            | \$ 11,960           | \$ 12,547           | \$ 10,946           |
|                                      | Turkeys (\$1,000)           | \$ 6,596            | \$ 7,798            | \$ 8,375            | \$ 7,228            | \$ 6,583            | \$ 8,284            | \$ 9,213            | \$ 8,877            | \$ 7,029            | \$ 7,953            | \$ 8,469            |
|                                      | Eggs (\$1,000)              | \$ 8,840            | \$ 9,800            | \$ 16,087           | \$ 19,387           | \$ 13,798           | \$ 15,147           | \$ 16,608           | \$ 18,625           | \$ 21,042           | \$ 33,682           | \$ 51,931           |
|                                      | Milk (\$1,000)              | \$ 993,993          | \$ 920,205          | \$ 1,370,520        | \$ 1,376,375        | \$ 956,384          | \$ 1,245,198        | \$ 1,586,338        | \$ 1,417,926        | \$ 1,514,716        | \$ 1,807,415        | \$ 1,260,791        |
|                                      | Other                       | \$ 6,732            | \$ 4,766            | \$ 5,688            | \$ 4,918            | \$ 5,650            | \$ 5,925            | \$ 5,398            | \$ 5,336            | \$ 5,275            | \$ 5,214            | \$ 5,152            |
|                                      | Sheep and Lambs (\$1,000)   | \$ 6,441            | \$ 4,410            | \$ 5,267            | \$ 4,432            | \$ 5,099            | \$ 5,309            | \$ 4,717            | \$ 4,590            | \$ 4,464            | \$ 4,337            | \$ 4,211            |
|                                      | Aquaculture (\$1,000)       | \$ 291              | \$ 356              | \$ 421              | \$ 486              | \$ 551              | \$ 616              | \$ 681              | \$ 746              | \$ 811              | \$ 876              | \$ 941              |
|                                      | <b>Total (\$1,000)</b>      | <b>\$ 1,575,109</b> | <b>\$ 1,456,126</b> | <b>\$ 1,922,204</b> | <b>\$ 2,004,395</b> | <b>\$ 1,529,290</b> | <b>\$ 1,942,195</b> | <b>\$ 2,518,179</b> | <b>\$ 2,453,806</b> | <b>\$ 2,283,698</b> | <b>\$ 2,744,250</b> | <b>\$ 2,135,160</b> |

| Ag Census Data Category         | Animal Type   | 1997           | 2002      | 2007      | 2012      |         |
|---------------------------------|---|----------------|-----------|-----------|-----------|---------|
| <b>Number of Farms by NAICS</b> | <b>Beef cattle ranching and farming (112111)</b>                  | 7,061          | 5,395     | 7,219     | 8,989     |         |
|                                 | Cattle feedlots (112112)  | 183            | 142       | 102       | 68        |         |
|                                 | <b>Dairy cattle and milk production (11212)</b>                   | 164            | 185       | 196       | 196       |         |
|                                 | Hog and pig farming (1122)  | 87             | 96        | 125       | 76        |         |
|                                 | <b>Poultry and egg production (1123)</b>                          | 94             | 116       | 396       | 134       |         |
|                                 | Sheep and goat farming (1124)                                     | 403            | 344       | 1,634     | 1,222     |         |
|                                 | <b>Animal aquaculture and other animal production (1125,1129)</b> | 1,168          | 2,692     | 3,091     | 3,852     |         |
| <b>Value of Sales (\$1,000)</b> | <b>Cattle and Calves</b>  | 656,701        | 533,952   | 576,025   | 630,837   |         |
|                                 | Hogs and Pigs   | 1,250          | 381       | 375       | 392       |         |
|                                 | <b>Poultry and Eggs</b>   | 16,609         | 17,468    | withheld  | 3,346     |         |
|                                 | <b>Milk and Other Dairy Products</b>                              | 463,450        | 730,083   | 1,009,671 | 1,251,065 |         |
|                                 | Aquaculture   | withheld       | 1,604     | 3,228     | 6,909     |         |
|                                 | <b>Other (calculated)</b>   | 29,883         | 19,285    | 32,641    | 16,440    |         |
|                                 | <b>Total</b>  | 1,167,893      | 1,302,773 | 1,621,940 | 1,908,989 |         |
| <b>Input Purchases</b>          | <b>Livestock and poultry purchased</b>                            | (Farms)        | 4,419     | 3,708     | 4,054     | 4,962   |
|                                 |   | <b>\$1,000</b> | 221,246   | 217,212   | 187,501   | 137,673 |
|                                 | <b>Breeding livestock purchased</b>                               | (Farms)        | n/a       | 2,344     | 2,569     | 3,043   |
|                                 |   | <b>\$1,000</b> | n/a       | 71,093    | 66,729    | 33,048  |
|                                 | <b>Other livestock and poultry purchased</b>                      | (Farms)        | n/a       | 2,060     | 2,066     | 2,530   |
|                                 |   | <b>\$1,000</b> | n/a       | 146,119   | 120,772   | 104,625 |
| <b>Feed purchased</b>           | (Farms)   | 7,760          | 9,443     | 12,073    | 16,204    |         |
|                                 | <b>\$1,000</b>  | 334,541        | 486,979   | 697,004   | 1,124,762 |         |

|                                 | Animal Type                       | Output (\$1,000) | Earnings (\$1,000) | Employment (Jobs) | Taxes Paid (\$1,000) |
|---------------------------------|-----------------------------------|------------------|--------------------|-------------------|----------------------|
| <b>2015 Animal Agriculture</b>  | Cattle and Calves                 | \$ 1,702,037     | \$ 334,474         | 7,692             | \$ 84,388            |
|                                 | Hogs, Pigs, and Other             | \$ 8,295         | \$ 1,885           | 46                | \$ 476               |
|                                 | Poultry and Eggs                  | \$ 127,553       | \$ 26,584          | 609               | \$ 6,707             |
|                                 | Dairy                             | \$ 2,282,410     | \$ 513,520         | 12,682            | \$ 129,561           |
|                                 | <b>Total</b>                      | \$ 4,120,295     | \$ 876,463         | 21,029            | \$ 221,132           |
| <b>Change from 2005 to 2015</b> | Cattle and Calves                 | \$ 292,283       | \$ 57,438          | 1,321             | \$ 14,492            |
|                                 | Hogs, Pigs, and Other             | \$ (4,939)       | \$ (1,122)         | (27)              | \$ (283)             |
|                                 | Poultry and Eggs                  | \$ 63,390        | \$ 13,211          | 303               | \$ 3,333             |
|                                 | Dairy                             | \$ 98,619        | \$ 22,188          | 548               | \$ 5,598             |
|                                 | <b>Total</b>                      | \$ 449,353       | \$ 91,715          | 2,144             | \$ 23,140            |
| <b>RIMS II Multipliers</b>      | Animal Type                       | Output(\$)       | Earnings (\$)      | Employment (Jobs) |                      |
|                                 | Cattle and Calves                 | \$ 2.134         | \$ 0.419           | 9.6               |                      |
|                                 | Hogs, Pigs, and Other             | \$ 1.504         | \$ 0.342           | 8.3               |                      |
|                                 | Poultry and Eggs                  | \$ 1.788         | \$ 0.373           | 8.5               |                      |
|                                 | Dairy                             | \$ 1.810         | \$ 0.407           | 10.1              |                      |
| <b>Tax Rates</b>                | Federal effective income tax rate |                  |                    |                   | 12.7%                |
|                                 | Federal Social Security tax rate  |                  |                    |                   | 7.7%                 |
|                                 | State Effective Rate              |                  |                    |                   | 4.9%                 |
|                                 | <b>Total</b>                      |                  |                    |                   | 25.2%                |

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.