



## Value of Cotton Crops

This EnviroAtlas national map displays the annual sales in dollars for cotton produced within each 12-digit hydrologic unit (HUC). It is based on the United States Department of Agriculture's 2010 Cropland Data Layer (CDL) and sale estimates from the National Agriculture Statistics Service (NASS) 2007 census and survey data.

### Why is the value of cotton important?

The value of cotton is an important measure of agricultural productivity because it measures the economic output of farms. Cotton is a significant crop; it is the most commonly used natural fiber, and it accounts for  $\frac{1}{3}$  of the world's fiber demand. In addition to providing fiber, cotton seeds are used to produce animal feed and an edible oil.

Knowing the value of cotton crops for a HUC can be useful for analyzing the economic impacts of agriculture in a region. The income from farms affects a wide group of stakeholders, including the farmers themselves, farm laborers, lenders, landlords, and the government. In particular, farms can contribute to the economic well-being of rural communities. Non-metro areas tend to have higher poverty rates than metro areas, and many rural counties that have the highest rates of job growth also have a high percentage of agricultural jobs.<sup>1</sup> The cotton industry, including textile manufacturing as well as farming, generates around 200,000 jobs per year.<sup>2</sup>

Total cotton production increased for many decades due to changes in technology and farming practices, but it has begun to decline in the past decade due to changes in the global marketplace and other relatively more valuable crops replacing cotton. However, the US is still one of the leading cotton producers and the leading cotton exporter. In addition, cotton yields per hectare have been increasing. The U.S. was ranked as the third leading cotton producing country in 2014/2015 behind China and India.<sup>3</sup> Within the southern U.S. states, Texas and Georgia were the leading cotton producers in 2015.<sup>3</sup> Since the late 1990s, the use of cotton by U.S. textile mills has been declining, but cotton is increasingly exported to textile mills in other countries.<sup>1</sup>

The value of cotton can change quickly; because most of it is now exported, it is sensitive to global economic changes and trade policies. The total amount of land used for cotton farming had been rising for several decades, but it has been falling since 2006 as other crops have become relatively



more valuable. As it has with many other crops, cotton farming has become increasingly specialized and concentrated on larger farms, with the number of small cotton farms decreasing while the cotton acreage per farm increases.

### How can I use this information?

This map, Value of Cotton Crops, is one of several maps that provide information about the agricultural productivity of each 12-digit HUC. Additional EnviroAtlas maps show fruit, vegetable, cotton, and grain yields; the number of types of fruits, vegetables, and grains grown; the hectares of land used for fruit, vegetable, cotton, and grain crops; and the value of grain produced.

This map can show users where the economic impacts of cotton farming are concentrated in the contiguous U.S., or the value of cotton that is produced per HUC near them. The data presented in this map could be used to estimate the economic impacts of agriculture in a region. The data could also be used in conjunction with other maps in EnviroAtlas. For example, it could be compared with maps showing nitrogen deposition, stream impairments, or water availability to see how agriculture may affect air and water quality.

### How were the data for this map created?

County, state, and national sale and yield estimates for cotton were obtained from NASS; yield estimates were converted to tons and sale values were converted to dollars per ton. These were added to the Cropland Data Layer

(CDL) raster map, which shows the locations and types of crops. If there was no county-level sale or yield data for cotton, state values were used; if there were no county or state-level data available, national data were used. Dollars per ton were multiplied by tons per hectare to obtain dollars per hectare, and dollar values were then summed by 12-digit HUC.

### What are the limitations of these data?

The Crop Data Layer map is produced using satellite imagery, rather than farmer-reported data, and it is an estimation of the truth based on the best available science. The NASS data on crop yields and sales were not available at the county level for the entire contiguous United States; state and national values were used in these instances. However, due to wide variations in yields and prices throughout the United States, national and state values might not accurately reflect values at county levels. Calculations based on these data are therefore also estimations.

Farms do not necessarily produce the same crops every year; this map might not reflect the current cotton sales for a 12-digit HUC. Periodic updates to EnviroAtlas will reflect improvements to nationally available data. For more technical details about the limitations of these data, refer to

the metadata. Accuracy information for the CDL and NASS can be found on their respective web sites.

### How can I access these data?

EnviroAtlas data can be viewed in the interactive map, accessed through web services, or downloaded. The Cropland Data Layer ([CDL](#)) is available from the U.S. Department of Agriculture. Yield estimates by crop can be obtained from the National Agricultural Statistics Service ([NASS](#)).

### Where can I get more information?

There are numerous resources available on cotton crops and agriculture in general; a selection of these resources is listed below. For additional information on how the data were created, access the metadata for the data layer from the drop down menu on the interactive map table of contents and click again on metadata at the bottom of the metadata summary page for more details. To ask specific questions about this data layer, please contact the [EnviroAtlas Team](#).

### Acknowledgments

The data for this map were generated by Megan Culler, EPA Student Services Contractor. This fact sheet was created by Megan Culler, EPA Student Services Contractor.

### Selected Publications

1. Kusmin, L. 2012. [Rural America at a glance: 2012 edition](#). Economic Brief No. (EB-21). U.S. Department of Agriculture, Economic Research Service, Washington, D.C.
  2. Meyer, L., S. MacDonald, and J. Kiawu. 2013. [Cotton and wool](#). U.S. Department of Agriculture, Economic Research Service, Washington, D.C. Accessed September 2015.
  3. Statista. 2016. [Leading 10 U.S. states for cotton production in 2015](#). Accessed May 2016.
- Dorminey, B. 2012. [Dryland farmers work wonders without water in the U.S. West](#). Environmental Health Sciences, *The Daily Climate*. Accessed May 2016.
- Fuglie, K. O., E. Ball, and J. M. MacDonald. 2007. [Productivity growth in U.S. agriculture](#). Economic brief number 9. Economic Research Service, U.S. Department of Agriculture, Washington, D.C.
- Nordstrom, K.F., and S. Hotta. 2004. [Wind erosion from cropland in the USA: A review of problems, solutions, and prospects](#). *Geoderma* 121: 157–167.
- O'Donoghue, E., R. Hoppe, D. E. Banker, R. Ebel, K. Fuglie, P. Korb, M. Livingston, C. Nickerson, and C. Sandretto. 2011. [The changing organization of U.S. farming](#). U.S. Department of Agriculture, Economic Research Service, Washington, D.C.