Value of Grain Crops

This EnviroAtlas national map displays annual sales in dollars for major grain crops that are grown within each 12-digit hydrologic unit (HUC). It is based on the United States Department of Agriculture's 2010 Cropland Data Layer (CDL) and yield and sale estimates from the National Agriculture Statistics Service (NASS) 2007 census and survey data. The grains included in this map are winter wheat, durum wheat, other spring wheat, barley, oats, rice, rye, sorghum, soybeans, and grain corn.

Why is the value of grain crops important?

Sale values of grains are an important measure of agricultural productivity because they measure the economic output of farms. Grains are an important food source, and they are some of the most commonly grown crops. Diets high in whole grains have been linked to a reduced risk of heart disease, obesity, and other illnesses. Grains are also used in animal feed, contributing to the production of meat, eggs, and dairy products. In addition, corn, one of the grains included in this map's data, is increasingly used for ethanol production.

Knowing the value of grain 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.

Historically, grain has been an important export product for the United States, and it has been used as a measure of agricultural commodity trade, along with other bulk commodities like cotton and tobacco. While the U.S. still exports large amounts of grain, the share of grain exports has been falling as exports of meats, processed foods, fruits, and vegetables have grown, making it less reliable as an indicator of trade.

Currently, 15.6% of U.S. energy consumption takes place in the food system.[1] Knowing where food is produced is important because the distance between farms and consumers can affect energy use and greenhouse gas emissions associated with producing and supplying that


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produce. However, distance is only one part of the equation; other factors like farming techniques or the transportation mode used for shipping can have equal or greater impacts on energy consumption and emissions.

How can I use this information?

This map, Value of Grain Crops, is one of several maps that provide information about the agricultural productivity of each 12-digit HUC. Additional EnviroAtlas maps show grain, 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 cotton produced.

This map can show users where the economic impacts of grain farming are concentrated in the contiguous U.S, or the value of grains that are produced near them. The data presented in this map could be used to estimate the economic impacts of agriculture in a region or to analyze foodsheds, the potential sources of food for a region. This map could also be used in conjunction with others in EnviroAtlas. For example, it could be compared with maps showing nitrogen deposition or stream impairments to see how agriculture affects air and water quality.

How were the data for this map created?

County, state, and national sale and yield estimates for selected grains 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

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types of crops. If a grain did not have county-level sale or yield data, state yields and sale 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 for all selected grains 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 grain sales for a 12-digit HUC. This map only includes data on the most common grains; the total value of grains for a 12-digit HUC might be higher if other grains are included. 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 grain 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

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Selected Publications

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