Fruit Yields

This EnviroAtlas national map displays the thousands of tons of fruit crops that are grown annually 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 estimates from the National Agriculture Statistics Service (NASS).

Why are fruit yields important?

Yields are an important measure of agricultural productivity because they measure the actual output of farms. Crop yields in the U.S. have increased dramatically from the mid-twentieth century to the present, mostly as a result of technological advances.

Fruit crops can have high economic values and contribute to the economy of a region. Vegetables and fruits generate a high percentage of farm crop cash receipts and export value relative to the amount of land used, and they typically receive few subsidies. Average net income from specialized vegetable and fruit farms more than tripled during the previous decade; the net worth of these farms has also grown.[1] Farms that grow fruits and vegetables are also more likely to be in good financial standing compared to other types of farms. Most farm households depend on both farm and non-farm income; however, vegetable & melon growers recieve a greater proportion of their income from the farm than do most farmers, and their average houshold incomes are well above the national average. When compared to the economic values from grain and soybean production, those from fruit and vegetable farming have shown greater potential to produce more jobs and higher incomes.

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.

Fruit yields can also play a role in people's access to fresh produce. There is evidence that eating fruits and vegetables may prevent some kinds of cancer, reduce the risk of heart disease and stroke, improve digestive health, and protect eyesight.

Fruit yields within a 12-digit hydrologic unit may be one measure of the amount of produce available from local sources. Locally and regionally grown produce accounts for a relatively small but growing sector of the U.S. agriculture industry. Some consumers prefer to purchase food grown nearby because of perceived freshness and the opportunity to communicate with the producer, keep money in the local economy, and reduce energy consumption. However, fruit yields within a HUC are not necessarily indicative of access to fruit in surrounding areas; some or most of the produce may be sold in other parts of the U.S. or exported.

Currently, 15.6% of U.S. energy consumption takes place in the food system.[2] 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 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?

The map, Fruit Yields, is one of nine maps that provide information about the agricultural productivity of each 12-digit HUC. Additional EnviroAtlas maps show vegetable and grain yields, the number of types of fruits, vegetables, and grains grown in each HUC, and the hectares of land used for fruit, vegetable, and grain crops summarized by 12-digit-HUC.

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This map can show users where fruits are heavily produced in the contiguous U.S., or how many tons of fruits are produced near them. The data presented here could be used to estimate the economic impacts of agriculture on a region or to analyze foodsheds (the potential sources of food for a region). The data presented in this map can also be used in conjunction with other maps in EnviroAtlas. For example, it could be compared with maps showing nitrogen deposition or stream impairments to see how fruit production affects air and water quality.

How were the data for this map created?

Yield estimates by crop for states and counties were obtained from NASS and converted to tons per hectare. These were added to the CDL raster map, which shows crop types. If a crop type did not have county-level yield data, state yields were used. The CDL raster with yield values was broken down by HUC for each state; this gave a yield number per crop for each 12-digit HUC. If a HUC crossed a state boundary, the areas were added together and the yields were averaged. For detailed information on the processes through which these data were generated, see the metadata.

What are the limitations of these data?

The CDL is produced using satellite imagery, rather than farmer-reported data, and it is an estimation of the truth based on the best available science. Calculations based on these data are therefore also estimations. Periodic updates to EnviroAtlas will reflect improvements to nationally available data.

Yield data was not available for every crop. Therefore, some crops that were counted toward hectares of fruit crops were not counted towards yields. As a result, some 12-digit HUCs show hectares of land used for growing fruits, but either have no yields or low yields. Farms also do not necessarily produce the same crops every year; this map might not reflect the current fruit yields for a HUC.

How can I access these data?

EnviroAtlas data can be viewed in the interactive map, accessed through web services, or downloaded. The Crop Data Layer is available on the USDA's website. Yield estimates by crop can be obtained from NASS. Accuracy information for the CDL and NASS can be found on their respective web sites.

Where can I get more information?

There are numerous resources available on 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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