



## Geospatial Applications: USDA Geospatial Data Available by County

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There is an abundance of free geospatial data available to download from the USDA Geospatial Data Gateway. Available products for each county include field and hydrologic boundaries, topographic maps, high-resolution color aerial photographs, soil maps with information and climate data. Much of the data is available for various time periods, such as monthly and annual temperature and precipitation maps. The Web address for the USDA Geospatial Data Gateway is <http://datagateway.nrcs.usda.gov/NextPage.aspx>.

All the maps are in an electronic digital format requiring computer software to view. A unique characteristic of digital geospatial data is that it contains spatial reference information that allows it to be displayed in the correct location relative to other data in geographic information systems (GIS) computer programs. GIS users can download and display an aerial image of an area and then overlay global positioning system (GPS) points they have collected in the same area with a GPS unit. This gives geospatial data a wide variety of applications including. Recreation uses such as hunting and fishing, and agricultural applications for farmers to collect and analyze GPS-collected crop yield data.

Users do need to have GIS program on their computers to use the data, but there are free GIS programs, such as fGIS, available on the Internet. These datasets also can be used in commercial farm GIS software programs, such as the Ag Leader Spatial Management System and the Case IH AFS GIS software programs.

Users of the USDA Geospatial Data Gateway will find the site user-friendly. The Web page allows users to find available data by county or state, or by zooming in on a map of the U.S. to a desired location. Users who select data by county will find a new window displayed that lists available datasets for that county. After selecting the desired datasets from the available list, users must select a desired GIS format and map projection for their data.

Most users will want to choose the standard shapefile format and the universal transverse mercator (UTM) zone for their area. The UTM map projection system divides our globe into 60 zones. Minnesota is in zone 15, eastern and central North Dakota are in zone 14 and western North Dakota and eastern Montana are in zone 13. After designating the format and map projection, users will need to provide their name and e-mail address to complete their order. Users will receive an e-mail indicating when the data is available for download and the download Web address.

One particularly useful dataset available for agricultural counties is the national agriculture imagery program (NAIP) aerial photographs. These photographs are 1-meter resolution color aerial images acquired annually during the growing season by the USDA starting in 2003. The NAIP images are geo-referenced to the correct UTM Zone. This means that users can display the imagery in a GIS program on their computer and add other GIS layers, such as their digital field boundaries, GPS points and harvest yield data. The NAIP image provides sufficient detail to recognize variations in soil type, crop development, range quality and drainage problems. The imagery also could be useful for a variety of other activities, such as recreation or rural business. The imagery provides a detailed background view to identify and quantify features on the ground.

Farmers also will appreciate the common land units dataset, which is a digitized map of all the field boundaries for each county. These field boundaries will be usable in most GIS computer programs.

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