NASS Geospatial Products

Gail Wade
National Agricultural Statistics Service
Research and Development Division
Geospatial Information Branch
September 15, 2010
NASS MISSION:

To provide timely, accurate, and useful statistics in service to U.S. agriculture
What does NASS do?

- Administer USDA’s Statistical Estimating Program
- Conduct the 5-year Census of Agriculture
- Coordinate Federal/State agricultural statistical needs
- Provide statistical consulting for Federal/State governments, universities, and other countries
- Collect and summarize agricultural data under reimbursable agreements
- Conduct statistical research
NASS issues about 500 statistical reports each year and about 9,000 reports and news releases from its 46 field offices.
Topics

- County Estimates
- Census of Agriculture
- Vegetation Condition
- Cropland Data Layer
NASS begins preparing year end county crop production estimates immediately after publishing the annual Crop Production Summary in January.
The NASS Annual County Estimates Program provides for the collection of crop data through cooperative agreements with each state.

- Measures year to year change at the county level.
The county data are assembled starting with the state estimate and working back to the county.

NASS Field Offices set the annual county estimates for acreage, yield and production and submit them to headquarters for dissemination.
A release schedule provides the dates for when the data is available.

### County Data Release Schedule

#### When Does NASS Publish Annual County Data?

NASS begins preparing year-end county crop production estimates immediately after publishing the annual Crop Production Summary in January. State totals for some commodities are published in the monthly Crop Production report (April, May and June) and other reports. NASS expects data to be available in the Quick Stats database at 3 p.m. ET on the dates listed below. However, circumstances may sometimes prevent this. Therefore, final dates will be added to the “All States Available” column when all data are available.

#### 2009 Release Schedule for Preliminary 2008 County Crop Estimates

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Anticipated Release</th>
<th>All States Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley</td>
<td>February 20</td>
<td>February 20</td>
</tr>
<tr>
<td>Oats</td>
<td>February 20</td>
<td>February 20</td>
</tr>
<tr>
<td>Rye</td>
<td>February 20</td>
<td>February 20</td>
</tr>
<tr>
<td>All Wheat</td>
<td>February 25</td>
<td>February 27</td>
</tr>
<tr>
<td>Durum Wheat</td>
<td>February 25</td>
<td>February 27</td>
</tr>
<tr>
<td>Other Spring Wheat</td>
<td>February 25</td>
<td>February 27</td>
</tr>
<tr>
<td>Winter Wheat</td>
<td>February 25</td>
<td>February 27</td>
</tr>
<tr>
<td>Sorghum</td>
<td>March 2</td>
<td>March 2</td>
</tr>
<tr>
<td>Sunflower, All, Non-Oil &amp; Oil</td>
<td>March 2</td>
<td>March 2</td>
</tr>
<tr>
<td>Corn for Grain &amp; Silage</td>
<td>March 2</td>
<td>March 9</td>
</tr>
<tr>
<td>Soybeans</td>
<td>March 2</td>
<td>March 9</td>
</tr>
<tr>
<td>Canola</td>
<td>March 4</td>
<td>March 4</td>
</tr>
<tr>
<td>Dry Edible Peas</td>
<td>April 8</td>
<td>April 13</td>
</tr>
<tr>
<td>Lentils</td>
<td>April 8</td>
<td>April 13</td>
</tr>
<tr>
<td>All Hay, Alfalfa &amp; Other</td>
<td>April 17</td>
<td>April 20</td>
</tr>
<tr>
<td>Forage - All, Alfalfa</td>
<td>April 17</td>
<td>April 17</td>
</tr>
</tbody>
</table>
County Estimates

- Data can be accessed using **Quick Stats** interactive statistical database from [www.nass.usda.gov](http://www.nass.usda.gov)
County maps can be accessed by selecting *Charts and Maps–County Maps* from www.nass.usda.gov
Production

Corn for Grain 2007
Production by County

Bushels
Not Estimated
0-1,000,000
1,000,000 - 4,999,999
5,000,000 - 9,999,999
10,000,000 - 14,999,999
15,000,000 - 19,999,999
20,000,000 +

USDA
U.S. Department of Agriculture, National Agricultural Statistics Service

Corn for Grain 2008
Production by County

Bushels
Not Estimated
0-1,000,000
1,000,000 - 4,999,999
5,000,000 - 9,999,999
10,000,000 - 14,999,999
15,000,000 - 19,999,999
20,000,000 +

USDA
U.S. Department of Agriculture, National Agricultural Statistics Service

Corn for Grain 2009
Production by County for Selected States

Bushels
Not Estimated
< 1,000,000
1,000,000 - 4,999,999
5,000,000 - 9,999,999
10,000,000 - 14,999,999
15,000,000 - 19,999,999
20,000,000 +

U.S. Department of Agriculture, National Agricultural Statistics Service
Ethanol maps showing US and State level corn production with ethanol plant locations can be accessed by selecting *Charts and Maps* - *Ethanol Plants*.
Ethanol Plants and Corn Production by County

Corn for Grain 2009
Production by County and Location of Ethanol Plants
As of January 19, 2010

Ethanol Plants
- Producing
- Not producing

Corn Production (Bushels)
- Not Estimated
- ≤ 1,000,000
- 1,000,000 - 4,999,999
- 5,000,000 - 9,999,999
- 10,000,000 - 14,999,999
- 15,000,000 - 19,999,999
- 20,000,000 +

U.S. Department of Agriculture, National Agricultural Statistics Service
2007 Census of Agriculture

- Census of Agriculture is conducted every 5 years
- A complete accounting of crops and livestock on all farms
- Collects information on operator characteristics, demographics, income and expenses
- Users can view or download census data online using the *Quick Stats* database.

- Users can download *Desktop Query Tool* to their desktop.

- Users can view, print or download *static maps*.
2007 Census data can be accessed using the Quick Stats database
The Desktop Data Query Tool allows users offline access to the 2007 data.

- Users are able to query by Census table.
- Data can be downloaded as CSV files for use in a spreadsheet or in a GIS.
250 Static Atlas Maps are available in the following areas:

- Crops and Plants
- Economics
- Farms
- Livestock and Animals
- Operators
### Ag Atlas Maps, Crops and Plants

**Note:** These documents are in Adobe Acrobat’s Portable Document Format (PDF). If you need the Acrobat Reader, it is available for free from the Adobe website.

Click here for more information on how these maps were created.

<table>
<thead>
<tr>
<th>Map Number</th>
<th>Field Crops Harvested</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>07-M113</td>
<td>Corn for Grain, Harvested Acres: 5557</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M113A</td>
<td>Impacted Corn for Grain, Harvested Acres: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M113B</td>
<td>Acres of Corn Harvested as Percent of Harvested Corn Acreage: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M114</td>
<td>Corn Harvested for Grain - Change in Acreage: 2002 to 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M115</td>
<td>Corn for Staple or Greenshop, Harvested Acres: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M116</td>
<td>Berghum for Grain, Harvested Acres: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M117</td>
<td>Impacted oC Corn</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M118</td>
<td>Acres of All Crop Land</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M119</td>
<td>Berghum H</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M120</td>
<td>All Wheat</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M121</td>
<td>Impacted</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M122</td>
<td>Area of All Crop Land</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M123</td>
<td>Berghum</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M124</td>
<td>Area for</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M125</td>
<td>All Wheat H</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M126</td>
<td>Bailey for</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M127</td>
<td>Bailey for</td>
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</tr>
<tr>
<td>07-M128</td>
<td>Data for</td>
<td>PDF, GIF</td>
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### Ag Atlas Maps, Economics

**Note:** These documents are in Adobe Acrobat’s Portable Document Format (PDF). If you need the Acrobat Reader, it is available for free from the Adobe website.

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<table>
<thead>
<tr>
<th>Map Number</th>
<th>Farms by Size</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>07-M009</td>
<td>Percent of Farms with Sales Less Than $10,000: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M010</td>
<td>Percent of Farms with Sales of $11,000: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M011</td>
<td>Percent of Farms with Sales of $12,000: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M012</td>
<td>Market Value of Agricultural Products</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M013</td>
<td>Average Value of Agricultural Products</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M014</td>
<td>Value of Crops Sold: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M015</td>
<td>Value of Crops Sold as Percent of Agricultural Products Sold: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M016</td>
<td>Average Value of Crops Sold per Acre: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M017</td>
<td>Value of Grains, Oilseeds, Dry Beans, Percent of Total Market Value of all Agricultural Products Sold: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M018</td>
<td>Value of Cotton and Cottonseed: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M019</td>
<td>Value of Tobacco Sold as Percent of Agricultural Products Sold: 2007</td>
<td>PDF, GIF</td>
</tr>
</tbody>
</table>

### Ag Atlas Maps, Livestock and Animals

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<table>
<thead>
<tr>
<th>Map Number</th>
<th>Livestock, Poultry, and Other Animals</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>07-M134</td>
<td>Cattle and Calves - Inventory: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M135</td>
<td>Cattle and Calves - Change in Inventory: 2002 to 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M136</td>
<td>Average Number of Cattle and Calves per 100 Acres of All Land in Farms: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M170</td>
<td>Number of Farms with 20 or More Cattle and Calves: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M171</td>
<td>Cows and Heifers That Had Calved - Inventories: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M172</td>
<td>Cows and Heifers That Had Calved as Percent of Cattle and Calves: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M143</td>
<td>Milk Cow - Inventory: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M144</td>
<td>Milk Cow - Change in Inventory: 2002 to 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M145</td>
<td>Milk Cow as Percent of All Cattle and Calves: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M146</td>
<td>Beef Cows - Inventory: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M147</td>
<td>Beef Cow - Change in Inventory: 2002 to 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M148</td>
<td>Other Cattle as Percent</td>
<td>PDF, GIF</td>
</tr>
</tbody>
</table>

### Ag Atlas Maps, Operators

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<table>
<thead>
<tr>
<th>Map Number</th>
<th>Number of Farms: 2007</th>
<th>Format</th>
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<tbody>
<tr>
<td>07-M003</td>
<td>Number of Farms: 2007</td>
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<tr>
<td>07-M004</td>
<td>Change in Number of Farms: 2002 to 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M005</td>
<td>Percent of Farms with Internet Access</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M006</td>
<td>Percent of Farms with High-Speed Internet Access</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M007</td>
<td>Average Size of Farms: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M008</td>
<td>Change in Number of Farms with Less Than 5 Acres: 2002 to 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M009</td>
<td>Change in Number of Farms with 5 to 30 Acres: 2002 to 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M010</td>
<td>Change in Number of Farms with 150 to 499 Acres: 2002 to 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M011</td>
<td>Change in Number of Farms with 500 to 1,999 Acres: 2002 to 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M012</td>
<td>Change in Number of Farms with 2,000 Acres or More: 2002 to 2007</td>
<td>PDF, GIF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Map Number</th>
<th>Farms by Type of Organization</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>07-M116</td>
<td>Percent of Farms Operated by Tenants: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M117</td>
<td>Percent of Farms Operated by Landlords: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M118</td>
<td>Percent of Farms Operated by Family or Individuals: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M119</td>
<td>Percent of Farms Operated by Partnerships: 2007</td>
<td>PDF, GIF</td>
</tr>
<tr>
<td>07-M120</td>
<td>Percent of Farms Operated by Corporations: 2007</td>
<td>PDF, GIF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Map Number</th>
<th>Principal Occupation of Operator</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>07-M121</td>
<td>Percent of Principal Farm Operators Reporting Primary Occupation</td>
<td>PDF, GIF</td>
</tr>
</tbody>
</table>
Choropleth (shaded) Maps

Average Size of Farms in Acres: 2007

Acres
- Less than 50
- 50 - 179
- 180 - 499
- 500 - 1,999
- 2,000 or more

United States Average 418

U.S. Department of Agriculture, National Agricultural Statistics Service
Dot Density Maps

Number of Farms: 2007

1 Dot = 200 Farms

United States Total
2,204,792
Dot Density Change Maps

Change in Number of Farms: 2002 to 2007

United States Net Increase
+75,810

1 Dot = 20 Farms Increase
1 Dot = 20 Farms Decrease

07-M002
U.S. Department of Agriculture, National Agricultural Statistics Service
Economics

Market Value of Agricultural Products Sold: 2007

Average Value of Agricultural Products Sold per Farm: 2007

United States Average: $1,547,007

Dollars:
- Less than 10,000
- 10,000 - 49,999
- 100,000 - 249,999
- 250,000 - 499,999
- 500,000 or more
Economics

Total Farm Production Expenses: 2007

Average Total Farm Production Expenses per Farm: 2007

Dollars
Less than 25,000
25,000 - 49,999
50,000 - 99,999
100,000 - 249,999
250,000 or more

United States Average $109,359
Operators

Number of Farms with Black or African American Operators: 2007

Number of Farms with Spanish, Hispanic, or Latino Origin Operators: 2007

United States Total: 66,071
Crops

Corn for Grain, Harvested Acres: 2007

Acres of Corn Harvested for Grain as Percent of Harvested Cropland Acreage: 2007
The 2007 Census of Agriculture shows a continuation in several trends regarding the characteristics of U.S. farm operators. The average age of farmers continues to rise with the fastest growing group being 65 years and older.
Farm operators have become more demographically diverse and women have a growing presence in U.S. agriculture.
U.S. farmers sold $297 billion in agricultural products while incurring $241 billion in production expenses. One of the steepest cost increases was in gasoline and fuel.
One of the steepest cost increases was in fertilizer and gasoline and fuel.
Most U.S. farms are small with 60 percent reporting less than $10,000 in sales. The demographic characteristics of operators on larger farms, with sales over $250,000, differ from those of small farms.
Operators of larger farms tend to be younger, are more likely to report farming as their primary occupation, and are less likely to work off the farm.
The 2007 Census shows that 62 percent of farmland in the U.S. is owned by the operator. Areas with more cropland, such as the Midwest tend to have a greater percentage of rented land. The largest category of production for farms with sales between $10,000 and $99,000 was beef cattle and calves.
The 2007 Census found that 57 percent of all farmers have internet access.
County profiles

Profiles and Rankings

Summary reports that combine narrative and data from the 2007 Census of Agriculture. These reports give an insight into State, County, and Congressional District agricultural information, as well as the agriculture products ranking reports sorted by market value.

Regional Studies
- State & County Profiles
- Race, Ethnicity and Gender Profiles
- Congressional District Rankings

Rankings
- Rankings: Market Value Ag Products
- County Profile

2007 Census Publications

State and County Profiles

2007 Census of Agriculture

Dauphin County
Pennsylvania

Dauphin County – Pennsylvania

Ranked items among the 67 state counties and 3,079 U.S. counties, 2007

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>State Rank</th>
<th>Universe</th>
<th>U.S. Rank</th>
<th>Universe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market value of agricultural products (S,000)</td>
<td>104,953</td>
<td>57</td>
<td>2,084</td>
<td>12,720</td>
<td>3,474</td>
</tr>
<tr>
<td>Value of crop-hogs, hogs and livestock</td>
<td>6,901</td>
<td>17</td>
<td>506</td>
<td>192</td>
<td>2,928</td>
</tr>
<tr>
<td>Value of crop-livestock, hogs and cattle</td>
<td>6,901</td>
<td>17</td>
<td>506</td>
<td>192</td>
<td>2,928</td>
</tr>
<tr>
<td>Value of sales by commodity group (S,000)</td>
<td>104,953</td>
<td>57</td>
<td>2,084</td>
<td>12,720</td>
<td>3,474</td>
</tr>
<tr>
<td>Oranges, apples, dried peaches</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Cotton and cottonseed</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Vegetables, melons, cucumbers, and sweet potatoes</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Nut and oil crops</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Nursery, greenhouse, floriculture, and sod</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Opt Christmas tree and shrub rotation woody crops</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Other crops and hay</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Tobacco</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Potatoes</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Wheat and oats</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Other grains and oilseed crops</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Top crop items (acre)</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
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<tr>
<td>Forage, land used for hay and hays, and hay crops</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Corn for grain</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Soybeans for beans</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Wheat for grain</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Top livestock inventory items (head)</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Cattle</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Cattle and calves</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Sheep, lambs, goats, and other</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Swine</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Poultry</td>
<td>16,301</td>
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<td>7,320</td>
<td>611</td>
<td>2,373</td>
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<tr>
<td>Top livestock inventory items (head) (cont.)</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
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<td>2,373</td>
</tr>
<tr>
<td>Dairy cattle</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
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<tr>
<td>Market value of livestock products (S,000)</td>
<td>104,953</td>
<td>57</td>
<td>2,084</td>
<td>12,720</td>
<td>3,474</td>
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<tr>
<td>Value of crop-hogs, hogs and livestock</td>
<td>6,901</td>
<td>17</td>
<td>506</td>
<td>192</td>
<td>2,928</td>
</tr>
<tr>
<td>Value of crop-livestock, hogs and cattle</td>
<td>6,901</td>
<td>17</td>
<td>506</td>
<td>192</td>
<td>2,928</td>
</tr>
<tr>
<td>Value of sales by commodity group (S,000)</td>
<td>104,953</td>
<td>57</td>
<td>2,084</td>
<td>12,720</td>
<td>3,474</td>
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<tr>
<td>Oranges, apples, dried peaches</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Cotton and cottonseed</td>
<td>16,301</td>
<td>67</td>
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<td>611</td>
<td>2,373</td>
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<tr>
<td>Vegetables, melons, cucumbers, and sweet potatoes</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
</tr>
<tr>
<td>Nut and oil crops</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
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<tr>
<td>Nursery, greenhouse, floriculture, and sod</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
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<tr>
<td>Opt Christmas tree and shrub rotation woody crops</td>
<td>16,301</td>
<td>67</td>
<td>7,320</td>
<td>611</td>
<td>2,373</td>
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<tr>
<td>Other crops and hay</td>
<td>16,301</td>
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<td>611</td>
<td>2,373</td>
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<td>Tobacco</td>
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<td>Potatoes</td>
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<td>Wheat and oats</td>
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<td>Other grains and oilseed crops</td>
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<tr>
<td>Top crop items (acre)</td>
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<td>Forage, land used for hay and hays, and hay crops</td>
<td>16,301</td>
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<tr>
<td>Corn for grain</td>
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<tr>
<td>Soybeans for beans</td>
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</tr>
</tbody>
</table>
Watershed data published at the 6 digit hydrologic unit code for 38 selected land use characteristics.
Vegetation Condition

- Bi-weekly composite images utilizing the normalized difference vegetation index (NDVI) from the Advanced Very High Resolution Radiometer (AVHRR) weather satellite.

- Integration of remote sensing along with survey data are used to illustrate weather effects on various sources of information.
Weather satellite is used to monitor changing vegetation conditions throughout the growing season.

Vegetation condition images are based on a Normalized Vegetation Index or NDVI.
The NDVI measures \textit{vegetation vigor} (greenness) caused by "chlorophyll activity."

\textbf{NDVI values} have been shown to have a close relationship to the growth stages of crops.
Vegetation Condition

Period 31 (7/21 - 8/3) 2009

Period 31 (7/20 - 8/2) 2010

Vegetation Index

- > .66 High
- .60 - .66
- .53 - .59
- .48 - .52
- .41 - .47
- .34 - .40
- .26 - .33
- .16 - .25
- .11 - .15
- .05 - .10
- < .05 Low

Water Clouds/Snow
Lower NDVI values are likely to show areas under stress due to
- drought
- excessive moisture
- disease

Higher NDVI values represent healthy vegetation
The USDA/NASS
2009 Cropland Data Layer

48 State Continental US Coverage
What is a Cropland Data Layer (CDL)?
Identifies agriculture type and location
Each pixel represents a type of crop or land cover
Cropland Data Layer (CDL)

- Cropland Data Layer can be accessed from http://www.nass.usda.gov/ Research and Science
Cropland Data Layer (CDL)

- Cropland Data Layer is available on CD–ROM or DVD and from the NRCS Geospatial Data Gateway.

Announcement: The Spatial Analysis Research Section released ALL 2009 Cropland Data Layer products sans Florida during the week of January 4, 2010. Florida was released for download March 5, 2010. The CDL now spans 48 States. The 2008 New Mexico CDL was also released.

These latest products will be downloadable from this website or the Geospatial Data Gateway.

CDL data prior to and including 2009 are available for free download at the Data Gateway.

For questions and/or comments please contact the Geospatial Information Branch.
Cropland Data Layer (CDL)

- Brief history from 1971 to present, examples, FAQ’s, order forms, metadata and methodology

The Cropland Data Layer (CDL) contains crop specific digital data layers, suitable for use in geographic information systems (GIS) applications. The CDL Program annually focuses on producing digital categorized geo-referenced output products using imagery from the Resourcesat-1 AWIFS and the Landsat 5 TM satellites. See the Indian Government's National Remote Sensing Agency handbook for the Resourcesat-1 satellite. The CDL Program represents a cooperative venture between three USDA Agencies (Headquarters units of NASS, the Foreign Agriculture Service IPA group and the Farm Service Agency/Aerial Photography Field Office) plus in-state agreements between NASS Field Offices and their respective state government or university partners. Currently there are numerous historical research reports with more detailed information on NASS's general uses of remote sensing and GIS.

The Cropland Data Layer product contains statewide categorizations of ortho-rectified mosaicked images using SeeS software, and are exported to GeoTIFF format. ESRI’s ArcExplorer GIS data viewer that can be downloaded to view the CDL's. Limitations of this data are declared. The CD-ROM's and/or DVD’s are at cost of reproduction to the public.

Visit our cooperators sites to see how they are using and enhancing the Cropland Data Layer products.

An independent CDL accuracy assessment performed by the University of Illinois at Urbana-Champaign Institute of Natural Resources Sustainability titled: Assessment and Potential of the 2007 USDA-NASS Cropland Data Layer for Statewide Annual Land Cover Applications

A CDL History White Paper: A brief history from 1971 to present

Examples | FAQ's | Order Form | Metadata | Methodology
Cropland Data Layer Objectives

- “Census by Satellite”
  - Without area duplication
  - Annually cover major program crop regions
- Provide timely, accurate, useful independent estimates
  - Measurable error
  - County, State, District and Watershed level
- Output crop specific Cropland Data Layer
  - Distribute free to public NRCS Geospatial Data Gateway
- Publish accuracy statistics/metadata
Cropland Data Layer Program Components

- **Inputs**
  - Resourcesat-1 AWiFS & Landsat imagery
  - Farm Service Agency – Common Land Unit
  - NASS June Ag Survey
  - Ancillary data – USGS NLCD & derivative products

- **Outputs**
  - Acreage Estimates
  - Cropland Data Layer

- **Process**
  - Commercial software
Inputs

Satellite Imagery - AWiFS & Landsat TM

NASS June Agriculture Survey

Farm Service Agency – CLU

NLCD & Derivative products

NASS June Agriculture Survey
Software Suite

Ground Truth Preparation
• ESRI ArcMap

Image Preparation
• Leica Geosystems ERDAS Imagine 9.1

Image Classification
• See 5

Acreage Estimates
• SAS/IML Workshop
See5 Decision Tree

State-of-the-art technique for image classification

Relatively inexpensive ($900)

Uses ground truth categories and spectral bands from imagery to define specific rules to classify imagery

Incorporates a powerful ensemble method known as “boosting”
Data Partnerships

- Foreign Agricultural Service
  - Resourcesat-1 AWiFS
- Farm Service Agency
  - Common Land Unit “ground truth”
- US Geological Survey
  - National Land Cover Dataset
- US Geological Survey/ NASA
  - Landsat TM 5 & 7
  - MODIS
The CDL program has undergone major restructuring, reengineering and modernization the past few years.

The new efficiencies allow for production of in-season crop acreage estimates, that were not previously possible with our older methods.

The CDL is now able to deliver state/district/county estimates throughout the growing season starting with Winter Wheat for the June 30th Crop Acreage Report.

Additional states are processed as the growing season progresses.
* NASS Uses Geospatial Decision Support Systems to provide updated information to the Ag Statistics Board and data users.
## 2010 CDL Production Schedule

### Acreage Report – Winter Wheat

<table>
<thead>
<tr>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
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### Crop Production Report – Corn & Soybeans

<table>
<thead>
<tr>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
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</thead>
<tbody>
<tr>
<td></td>
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</table>

### Crop Production Report – CDL Cotton, Rice, & Peanuts

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<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

### Small Grains Summary

<p>| | | | |</p>
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</thead>
</table>

### Crop Production Report – All Crops

<p>| | | | |</p>
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<thead>
<tr>
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</tr>
</thead>
</table>
The CLUs from the Farm Service Agency supply the agricultural data needed to distinguish between the different crop types in a particular state.

The National Land Cover Data (NLCD) is used to identify areas of urban infrastructure, like cities and roads, as well as land cover that is not considered agriculture, like forest, wetland or water.
Ground Truth – Land Cover

Agriculture Ground Truth
Provided by Farm Service Agency
Identifies known fields and crops
Divide known fields into 2 sets
70% used for training software
30% used for validating results

Non-Agriculture Ground Truth
USGS National Land Cover Dataset
Identifies urban infrastructure and non-agriculture land cover
Forest, grass, water, cities
Ancillary datasets help separate the agricultural landscape; determining agricultural potential.
16 Day MODIS NDVI composites are used to identify winter wheat fields or to fill in gaps where there is little satellite coverage.
CDL Processing Method

Sampling Done by

Satellite Imagery
Ancillary Data
Ground Truth

Classification

See5

Decision Tree

2009 Pennsylvania Cropland Data Layer

Land Cover Categories (by decreasing acreage)

Agriculture

Non-Agriculture
2009 North Dakota Cropland Data Layer

Land Cover Categories (by decreasing acreage)

AGRICULTURE
- Pasture/Grass
- Soybeans
- Other Hays
- Corn
- Durum Wheat
- Canola
- Sunflowers
- Dry Beans
- Barley
- Winter Wheat
- Peas
- Alfalfa
- Fallow/dile Cropland
- Flaxseed
- Sugarbeets
- Lentils
- Oats
- Potatoes
- Other Crops/Vegetables/FRuits
- Millet
- Sunflower
- Sorghum
- Rye
- Weed/Weed Grass

NON-AGRICULTURE
- Urban/Developed
- Wetlands
- Water
- Woodland
- Shrubland
- Barren
2009 Cropland Data Layer
New England and Eastern States

Land Cover Categories
(by decreasing acreage)

Agriculture
- Pasture/Grass
- Other Hays
- Corn
- Soybeans
- Fallow/Idle Cropland
- Cotton
- W. Wht./Soy. Dbl. Crop
- Peanuts
- Winter Wheat
- Alfalfa
- Other Tree Nuts
- Misc. Vgs. & Fruits
- Seed/Grass Grass
- Other Small Grains
- Oats
- Potatoes/Sweet Potatoes
- Blueberry
- Other Crops
- Apples/Cherries
- Dry Beans
- Peaches/Plums/Prunes

Non-Agriculture
- Woodland
- Urban/Developed
- Wetlands
- Water
- Shrubland
- Barren

USDA
2009 Pennsylvania Cropland Data Layer

Land Cover Categories (by decreasing acreage)

AGRICULTURE
- Other Hay
- Corn
- Pasture/Grass
- Soybeans
- Fallow/Idle Cropland
- Winter Wheat
- Alfalfa
- Dol. Crop Win/Wtd/Soy
- Oats
- Apples
- Christmas Trees
- Soy/Grass Seed
- Misc. Vgs. & Fruits
- Barley
- Other Crops
- Dry Beans
- Other Small Grains
- Other Tree Nuts

NON-AGRICULTURE
- Woodland
- Urban/Developed
- Water
- Barren
- Shrubland
- Wetlands
Cropland Data Layer Summary

- **Operational Program**
  - Early delivery of estimates
  - Provides measurable statistical error
  - Results used for setting national acreage estimate

- **Components**
  - AWiFS/Landsat imagery
  - Farm Service Agency
  - Commercial Software
  - June Agricultural Survey

- **Distribution**
  - datagateway.nrcs.usda.gov
CDL Program

- CDL program paramount to other NASS geospatial activities
- Partnerships with cooperating agencies critical for success
- Heavy reliance on satellites and information technology
- Timely delivery of geospatial data and statistical information are critical
CDL Future

- National CDL crop year 2010
  - Released Jan 2011
- Fund Geospatial CDL portal
  - George Mason University/Center for Spatial Information Science and Systems
- National Commodity Crop Productivity Index
  - NRCS dynamic soils layer
Cropland Data Layer Uses

- Watershed runoff modeling
- Agribusiness planning
- Ground truth
- Change detection
- Water use mapping
- Epidemiological research
- Habitat monitoring
- Carbon sequestration analysis
- .....and more
Summary

- County Estimates
  - Accessing NASS County maps and County data
- Census of Agriculture
  - Accessing AgAtlas maps and Census data
- Vegetation Condition
  - Accessing vegetation condition maps
- Cropland Data Layer
  - Accessing the CDL from the NRCS Geospatial Gateway