CropScape: Mississippi Land Cover On-line

Fred L. Shore, Ph.D.
Mississippi Department of Agriculture and Commerce
Jackson, MS
Fred_Shore@nass.usda.gov

Thomas L. Gregory
National Agricultural Statistics Service
Jackson, MS
Tommy_Gregory@nass.usda.gov

Presented at the Coastal Development Strategies Conference, Biloxi, MS, May 11-12, 2011
Introduction

- CropScape is a viewer and calculator for the Cropland Data Layer (CDL) that NASS has made available online.

- Combining available annual CDLs with selected functionality normally only available in programs like ArcGIS© and ERDAS Imagine©, the web service does not take up space on your hard disk. Perfect for mobile computing.

- The web site (http://nassgeodata.gmu.edu/CropScape/) is intuitive and has a tutorial and links to further details.

- CDLs were prepared using a maximum likelihood classifier prior to 2006 for only a few states, starting in 1999 for Mississippi. This early data is mainly for crops.

- From 2006 to the present, a decision tree classifier has been used along with reference data from the National Land Cover Database (NLCD) giving land cover results for crops, forests, pasture, and other widely useful categories on an annual basis.
Excellent accuracies have been obtained for CDL crop and NLCD categories. See studies by Shore and Gregory, AAG, 2010 on Mississippi forests, 2006-2009 (http://www.nass.usda.gov/Education_and_Outreach/Reports,_Presentations_and_Conferences/Presentations/index.asp) and Luman and Tweddate on the 2007 Illinois CDL (http://www.nass.usda.gov/research/Cropland/SARS1a.htm).

Both spatial and numeric statistics for selected areas of interest can be downloaded to a hard drive for further use.

We have investigate CropScape for use in answering the usual questions from Mississippi farmers and other CDL users.

In addition, we have provided historic Mississippi CDL crop accuracy of pixel acres vs. the state-wide total NASS official acres.
Defining an Area of Interest
50 Mile Radius of Vicksburg
Obtain Statistics for the Area of Interest
2010 Land Cover Categories
50 Mile Radius of Vicksburg
Acreage and Category Color

2010 Cropland Data Layer Statistics for the Defined Area of Interest
Corn, Cotton, and Rice in a 50 Radius of Vicksburg, 2010 to Download as Raster GeoTIFF
Change Analysis for Coahoma County Area of Interest

Select the Reference Year: 2010
Select the Other Year: 2009
Coahoma County Acreage Planted to Corn in 2010

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>Pixel Counts</th>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>Cotton</td>
<td>3944</td>
<td>3056.3</td>
</tr>
<tr>
<td>Corn</td>
<td>Rice</td>
<td>553</td>
<td>428.5</td>
</tr>
<tr>
<td>Corn</td>
<td>Sorghum</td>
<td>17</td>
<td>13.2</td>
</tr>
<tr>
<td>Corn</td>
<td>Soybeans</td>
<td>14376</td>
<td>11140.3</td>
</tr>
<tr>
<td>Corn</td>
<td>Winter Wheat</td>
<td>754</td>
<td>584.3</td>
</tr>
<tr>
<td>Corn</td>
<td>Winter Wheat/Soybeans Dbl. Cropped</td>
<td>3272</td>
<td>2535.5</td>
</tr>
<tr>
<td>Corn</td>
<td>Other Hays</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Corn</td>
<td>Fallow/Idle Cropland</td>
<td>167</td>
<td>129.4</td>
</tr>
<tr>
<td>Corn</td>
<td>Grass/Pasture/Non-Ag</td>
<td>238</td>
<td>184.4</td>
</tr>
<tr>
<td>Corn</td>
<td>Other Tree Nuts Fruits</td>
<td>44</td>
<td>34.1</td>
</tr>
<tr>
<td>Corn</td>
<td>Aquaculture</td>
<td>12</td>
<td>9.3</td>
</tr>
<tr>
<td>Corn</td>
<td>NLCD - Open Water</td>
<td>16</td>
<td>12.4</td>
</tr>
<tr>
<td>Corn</td>
<td>NLCD - Developed/Open Space</td>
<td>1532</td>
<td>1187.2</td>
</tr>
<tr>
<td>Corn</td>
<td>NLCD - Developed/Low Intensity</td>
<td>15</td>
<td>11.6</td>
</tr>
<tr>
<td>Corn</td>
<td>NLCD - Developed/Medium Intensity</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Corn</td>
<td>NLCD - Barren</td>
<td>4</td>
<td>3.1</td>
</tr>
<tr>
<td>Corn</td>
<td>NLCD - Mixed Forest</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Corn</td>
<td>NLCD - Shrubland</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Corn</td>
<td>NLCD - Grassland Herbaceous</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Corn</td>
<td>NLCD - Pasture/Hay</td>
<td>43</td>
<td>33.3</td>
</tr>
<tr>
<td>Corn</td>
<td>NLCD - Woody Wetlands</td>
<td>497</td>
<td>385.1</td>
</tr>
</tbody>
</table>

Total: 481650 Acreage planted in 2010
Sunflower County Land in Cotton 2009 and 2010

One square mile is 640 acres.

<table>
<thead>
<tr>
<th>Crop Type 1</th>
<th>Crop Type 2</th>
<th>2009 - Pixel Counts</th>
<th>2009 - Acreage</th>
<th>2010 - Pixel Counts</th>
<th>2010 - Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>Corn</td>
<td>5537</td>
<td>4290.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Cotton</td>
<td>521</td>
<td>403.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Rice</td>
<td>381</td>
<td>295.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Sorghum</td>
<td>138</td>
<td>106.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Soybeans</td>
<td>5156</td>
<td>3995.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Sweet Corn</td>
<td>239</td>
<td>185.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Winter Wheat</td>
<td>10</td>
<td>7.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Winter Wheat/Soybeans Dbl. Cropped</td>
<td>15</td>
<td>11.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Dry Beans</td>
<td>3</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Peas</td>
<td>25</td>
<td>19.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Fallow/Idle Cropland</td>
<td>82</td>
<td>63.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Pecans</td>
<td>2</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Wetlands</td>
<td>4</td>
<td>3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Aquaculture</td>
<td>1</td>
<td>0.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>NLCD - Developed/Open Space</td>
<td>189</td>
<td>146.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>NLCD - Developed/Low Intensity</td>
<td>4</td>
<td>3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>NLCD - Woody Wetlands</td>
<td>5</td>
<td>3.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Pixel counts are not official estimates.
Download CDLs of a Selection for Multiple Years in a Specific Projection
Preview CDL Downloads for Each Selected Year
Open Download to Put Selection in Google Earth

File Download

Do you want to open or save this file?

Name: CropScape_CDL_1255501036.kml
Type: Google Earth.kml file
From: nassgeodata.gmu.edu

Open  Save  Cancel

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What’s the risk?
Coahoma County Selection Downloaded to Google Earth
Results and Conclusions

- CropScape retains the accuracy of the CDL for major acreage land covers. Categories with low state-wide acres are usually under represented.

- Sitting a biomass plant in Vicksburg? CropScape can give you crop and forest acres per year for a 50 mile radius in Mississippi and the adjoining states in minutes.

- Doing a study of current field conditions vs. land use since 1999? Find the answer in minutes.

- Identify and quantify what was grown in an area of interest in a given year and what was grown there a reference year? In minutes.

- Downloads of GeoTIFFs to the hard drive or to Google Earth© in minutes.

- Spend a few minutes with CropScape to expand your land cover information and contact me with suggestions for improvement at fred_shore@usda.nass.gov.
Acknowledgements

Commissioner Lester Spell, Jr., D.V.M., Mississippi Department of Agriculture and Commerce, and Dr. Gary Jackson, Director, Mississippi Cooperative Extension Service, were critical to the success of this project. Also, thank you to Rick Mueller, Claire Boryan, Dave Johnson, and other members of USDA-NASS, Spatial Analysis Research Section, Fairfax, VA for training and assistance.