Mississippi Observed from 435 Miles

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The Cropland Data Layer in Mississippi

- A remote sensing project based on USDA/NASS programs started in the 1970s and the LARSYS software from Purdue University.

- Mississippi project started in 1999 using the Peditor and RSP software programs of NASS.

- A cooperative project of NASS, Mississippi State University Cooperative Extension Service, and the Mississippi Department of Agriculture and Commerce.
The Mississippi Cropland Data Layer, 2005

The Cropland Data Layer classifications from satellite images, the June Agricultural Survey, and image processing.
Mississippi Major Crop Planted Acres Estimates, 1999-2005
Cropland Data Layer Value as Percent of the Official Estimate

Mean = 98.3 Percent, Standard Deviation = 7.1

Year
CDL vs. NASS Estimate (%)
Cotton
Rice
Soybeans
After Katrina, Landsat 5 View
Segment Locator Map

2004 Sample County Segments 6001 and 6010

Legend
- National Forest
- National Park
- National WR
- State Park
- Wildlife MA
- City

Map Locator

USDA/NASS/MDAC/MSU
Map by Dr. Fred Shore

Segment Area Map
Field/Segment Boundaries on a High Resolution Photo

The segment boundary is shown in blue and the field boundaries in red with acres shown for each field.
The MS Cropland Data Layer 2005

Historic forest boundaries with the major crops.
The MS Cropland Data Layer 2005

MIFI forest ages by decade and major crops.
The MS Cropland Data Layer 2005

MIFI forest types and major crops.
The Delta showing the Cropland Data Layer classifications from satellite images, the June Agricultural Survey, and computer processing. Note that the predominate crop is soybeans.
Cotton Land Use in the Mississippi Delta, 1999-2005

The total cotton land use for the 7 year period is shown in this map.

In the crescent moon-shaped part of northwestern Mississippi known as The Delta, cotton is usually planted in sandy soil along existing or ancient rivers and creeks.

Cotton crop rotations are used but high cotton prices can lead to the same land being used for cotton every year.

Map shows satellite cotton classification range from the Cropland Data Layer by Dr. Fred Shore.
With the three year rotation schedule, comparing two 3-year periods gives similar land use areas.
Similar land use patterns are observed for these crops. Corn is primarily grown in rotation with cotton.
The rotation of land from rice to soybeans is evident. Soybeans are grown in most areas of the Delta.
The Delta showing the Cropland Data Layer classifications from satellite images, the June Agricultural Survey, and computer processing. Note that the predominate crop is soybeans but the most profitable crop is cotton with rice second most profitable.
Crop Overlays by Priority

Since cotton is grown without much rotation and rice is grown every three years with rotation to soybeans, this display shows only a small amount of soybean acreage. It is notable that the location of the rice is near other soybean acres which could probably be used to grow rice. Recent concern about Asian soybean rust and development of herbicide resistant rice may make rice a more important Mississippi crop.
Zoom to Field Level Overlay of MS CDL05 Bolivar County
Field Level CDL Data Extraction
Bolivar County had 15,203 fields in 2005

MS05 Output Stats, 8/21/06

ImageFile Name: C:\RSI\CLASSSTATS\MS05ENVIClass

ShapeFile Name: C:\RSI\CLASSSTATS\Bolivar05\clu_a_MS011.shp

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Bolivar County Field 1 by Year

Legend

- Corn
- Cotton
- Rice
- Sorghum
- Soybeans
- Hay/Other Crops
- Fallow/Idle Cropland
- Trees/Pasture/Non-Ag
- Clouds
- Urban
- Water

1999

2000

2001

2002

2003

2004

2005
Bolivar County Field 1
2005 Aerial Image, 2006 Flag/Field Picture
Results

• Remote sensing is in use since 1999 to track agricultural land use in Mississippi and prepare the GIS layer “The Cropland Data Layer”.

• Multiyear Cropland Data Layer maps reveal land use patterns more effectively than single year presentations.

• Multiyear field level data can be extracted from the CDL classifications.

• Further Cropland Data Layer information is available at www.mdac.state.ms.us and www.nass.usda.gov/ms/.