Mississippi Observed from 435 Miles

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Dr. Vance H. Watson, Interim Director, Mississippi Cooperative Extension Service,
and the USDA Field Enumerators in Mississippi were critical to the success of this project.

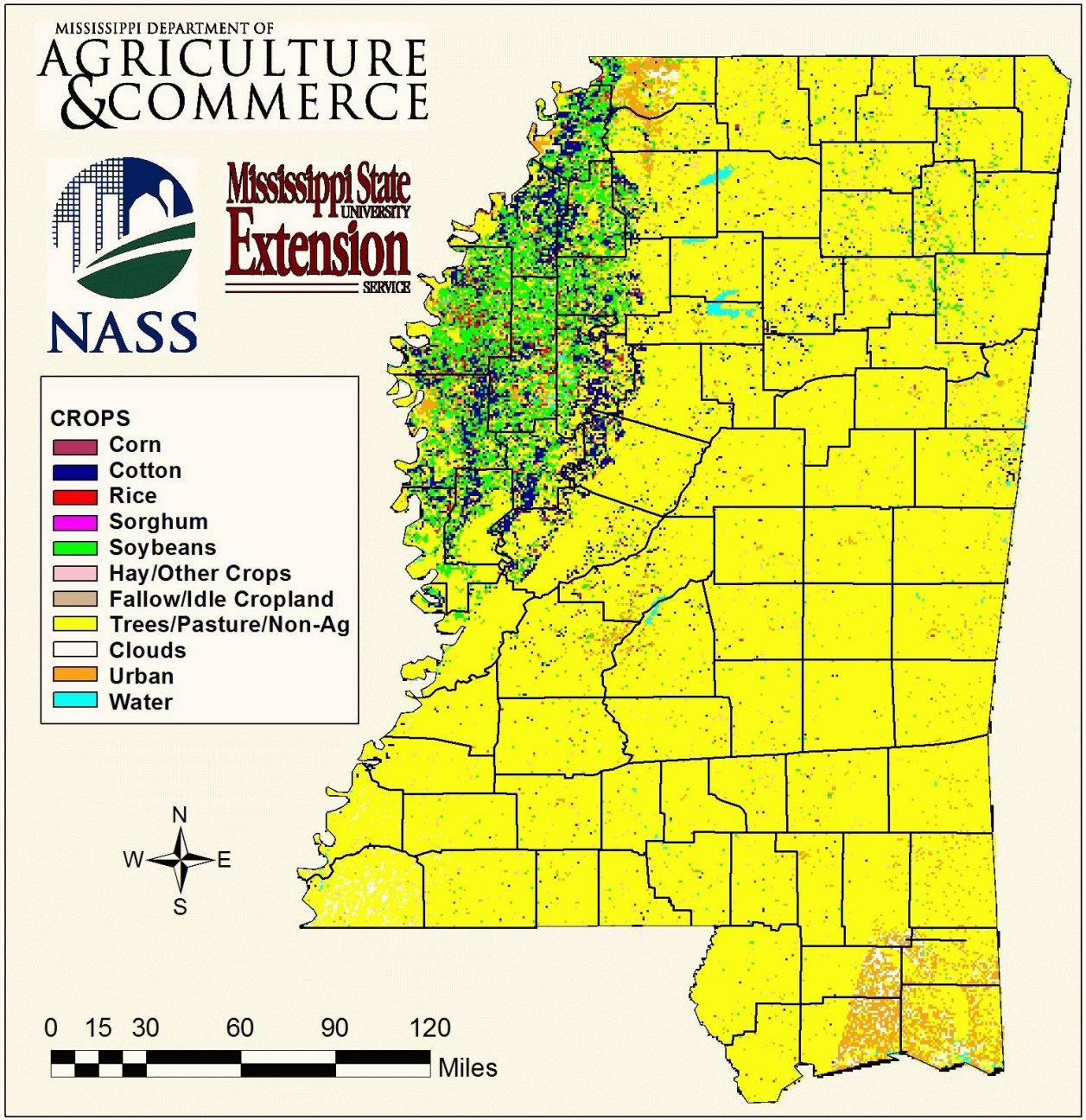
The Cropland Data Layer in Mississippi

- **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**

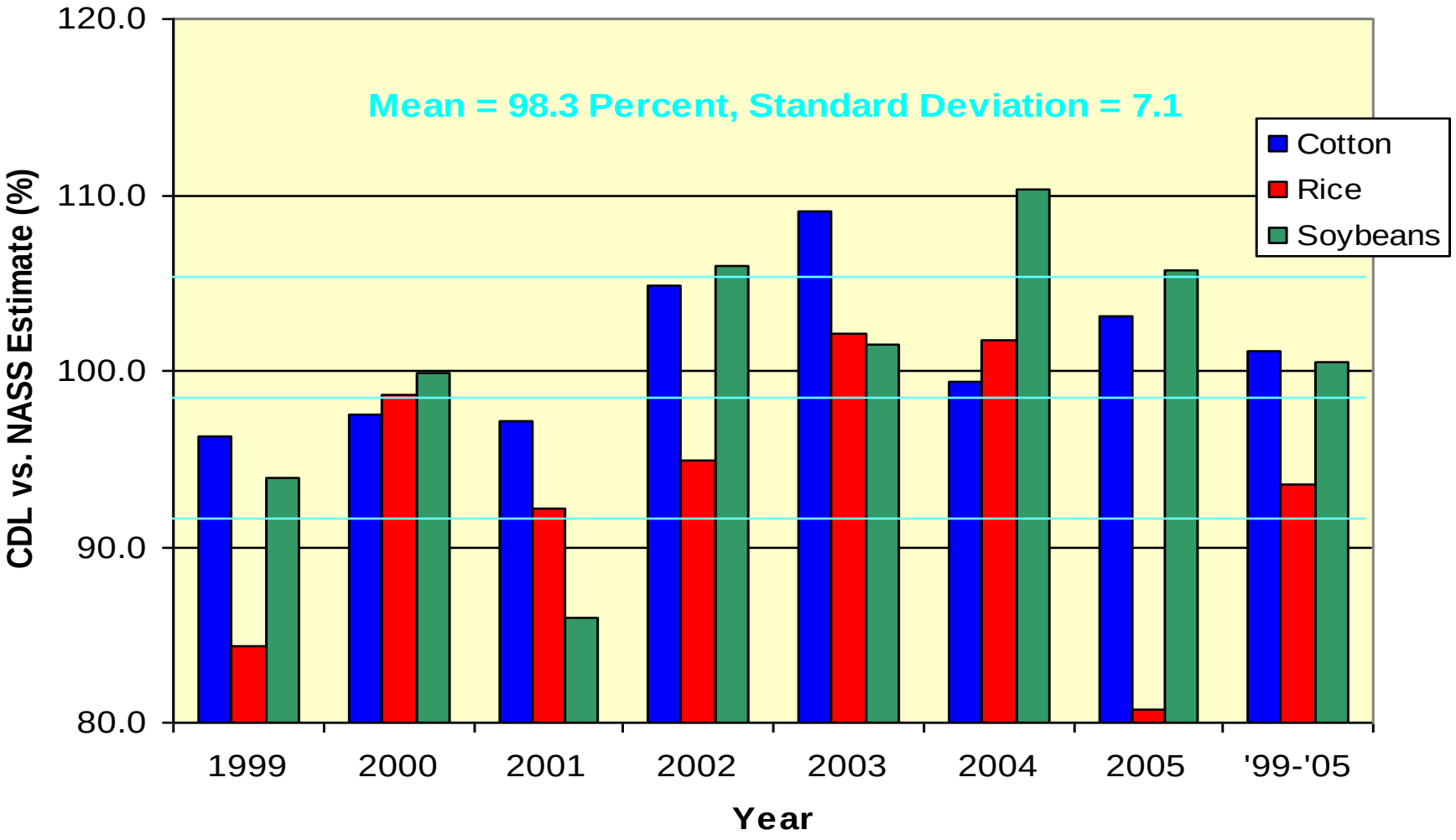
The Mississippi Cropland Data Layer, 2005

The Cropland Data Layer classifications from satellite images, the June Agricultural Survey, and image processing.

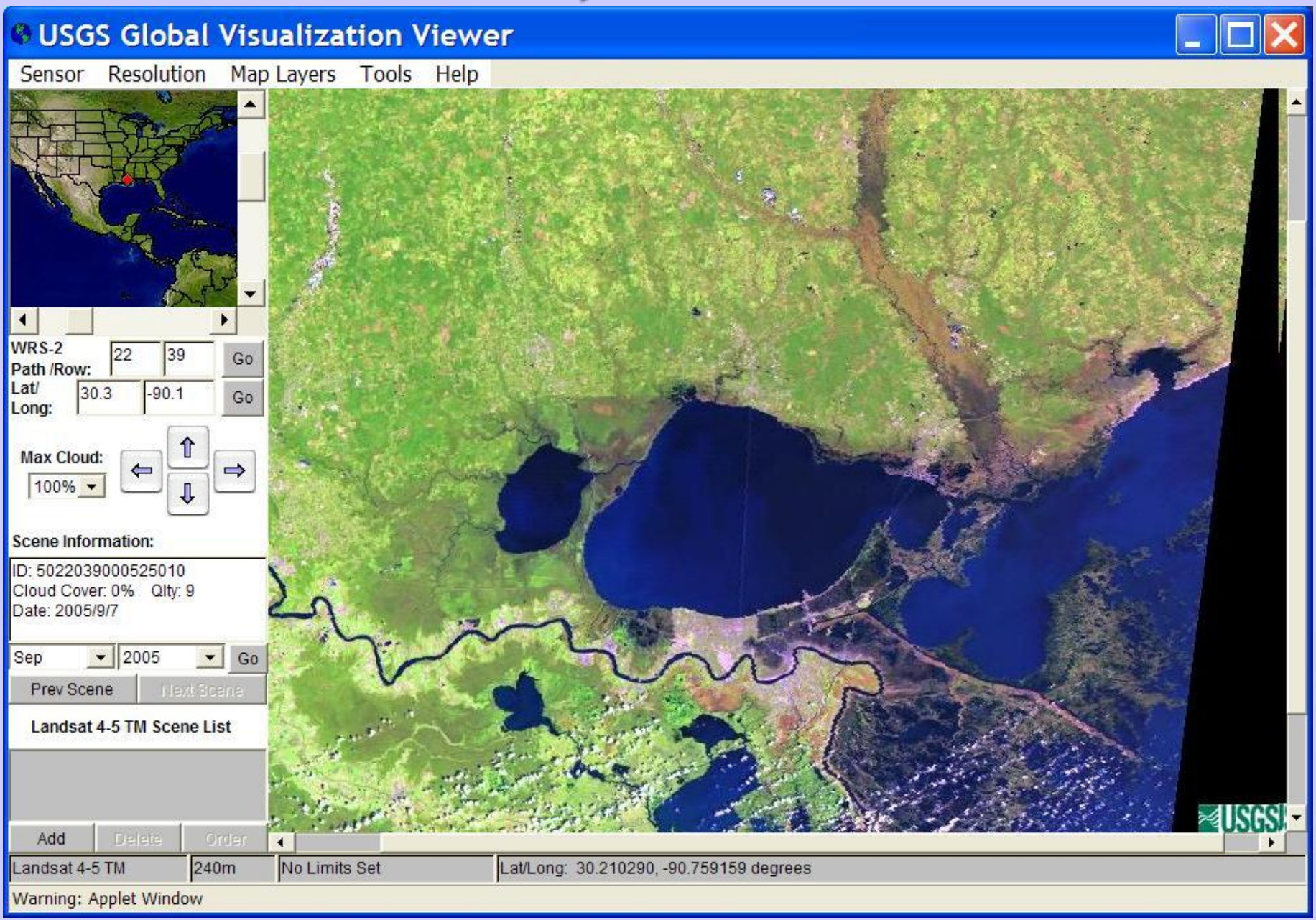
Mississippi Cropland Data Layer, 2005



Mississippi Major Crop Planted Acres Estimates, 1999-2005
Cropland Data Layer Value as Percent of the Official Estimate

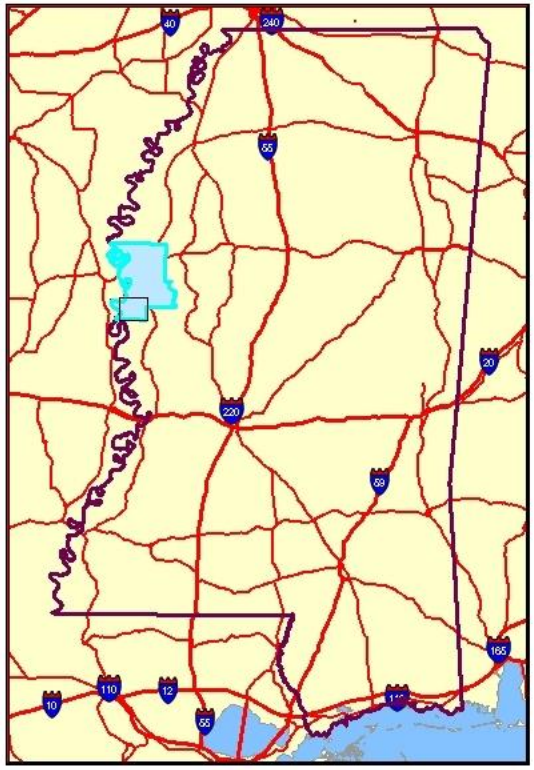


After Katrina, Landsat 5 View



Segment Locator Map

2004 Sample County Segments 6001 and 6010



Map Locator

0 12.5 25 50 75 100 Miles

Legend

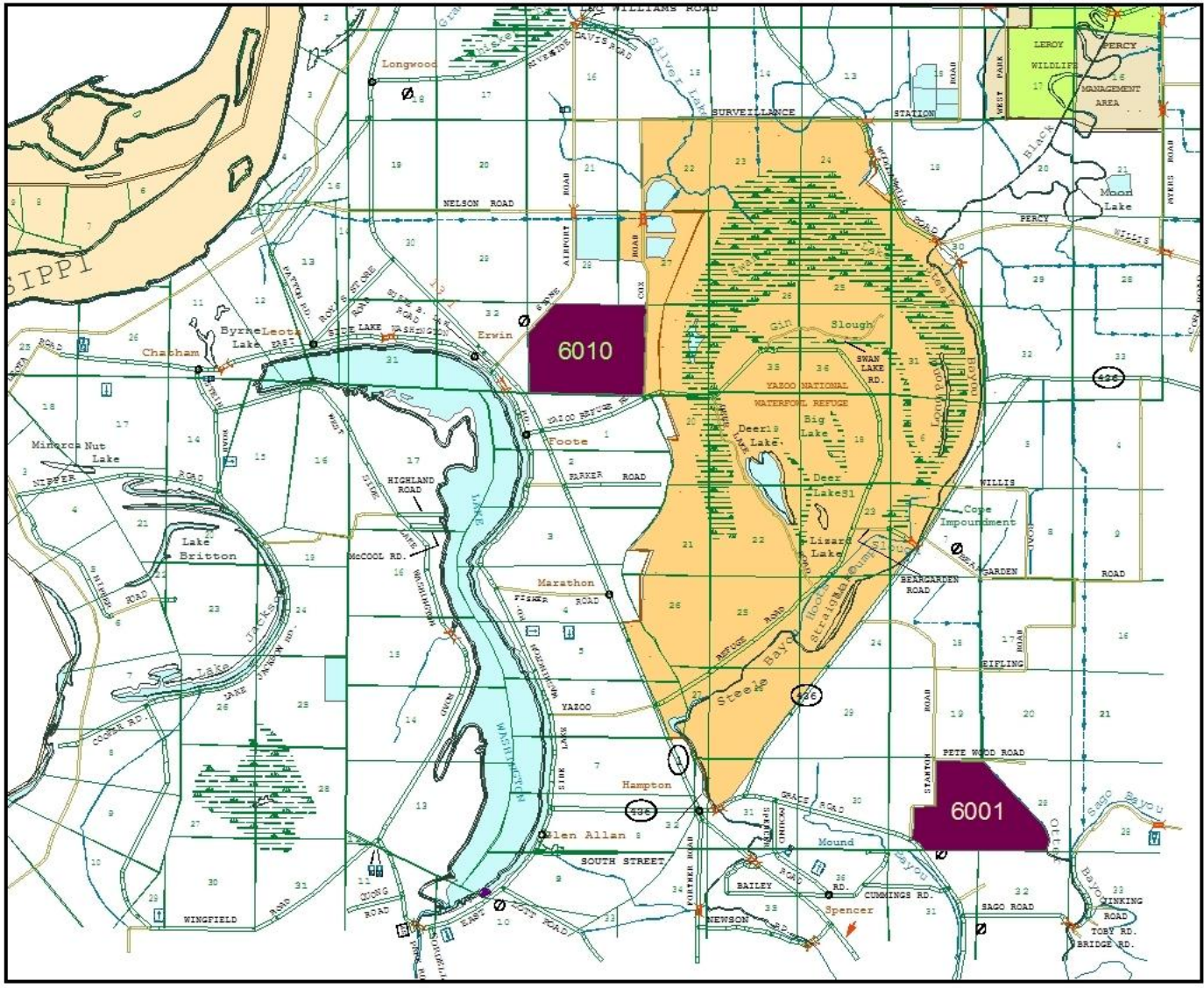
N W E S

OLD #
NEW #

Segments for the June Agricultural Survey

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

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

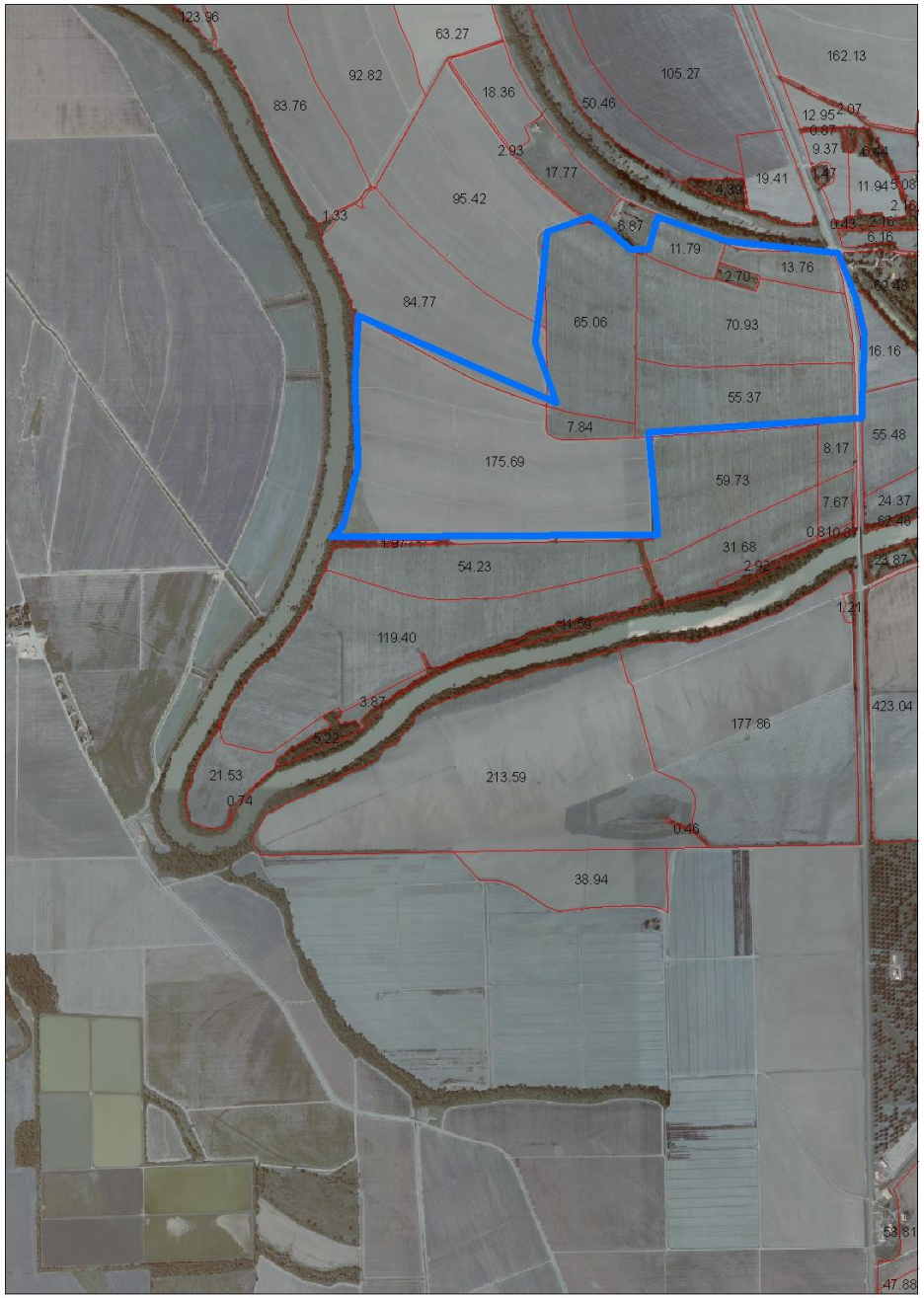


Segment Area Map

0 0.5 1 2 3 4 Miles

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.

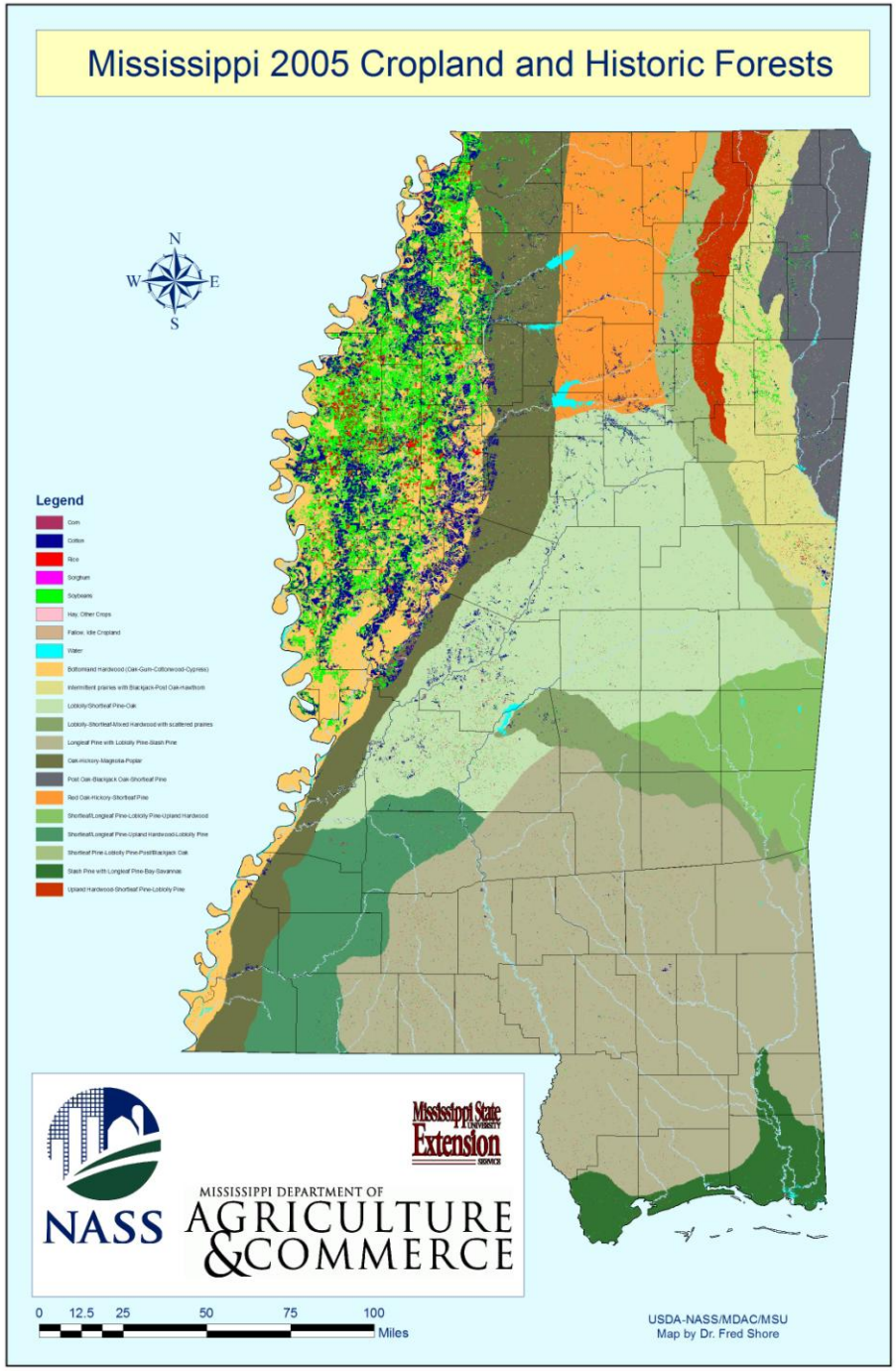


2005 Segment 6030, Test County

MSU, USDA-NASS, MDAC Map by Dr. Fred Shore, 6/7/05

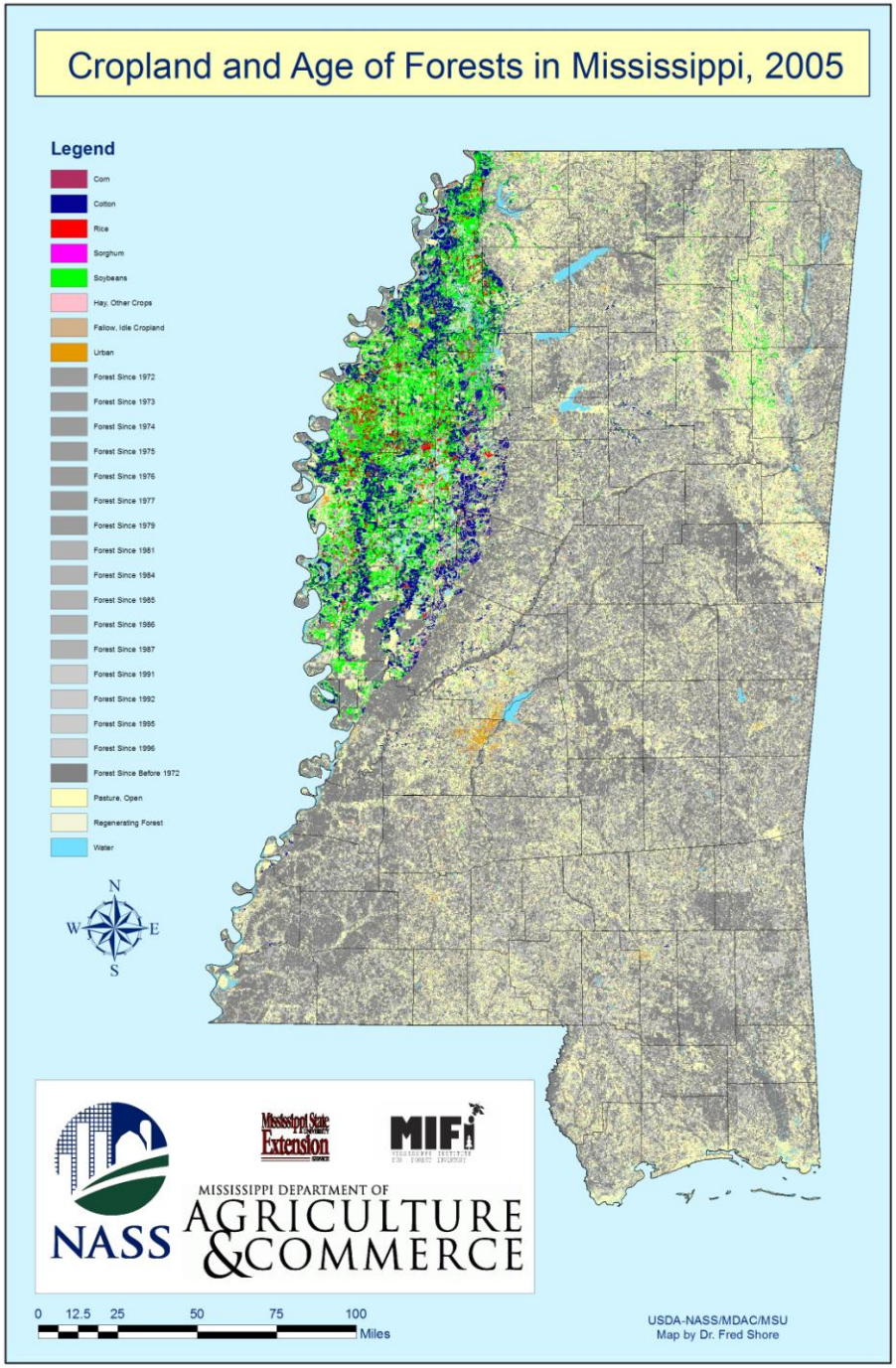
The MS Cropland Data Layer 2005

Historic forest boundaries with the major crops.



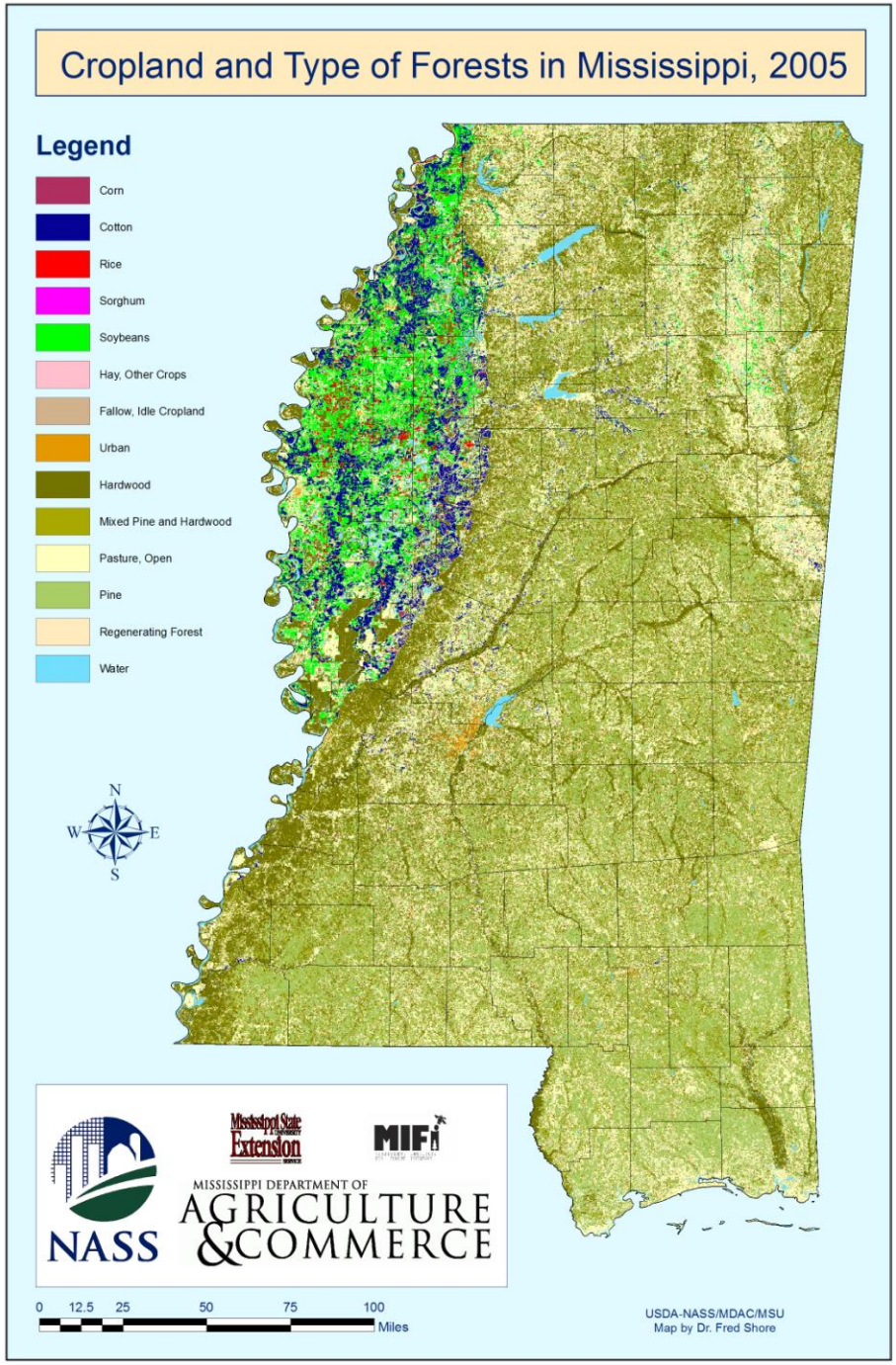
The MS Cropland Data Layer 2005

MIFI forest ages by decade and major crops.



The MS Cropland Data Layer 2005

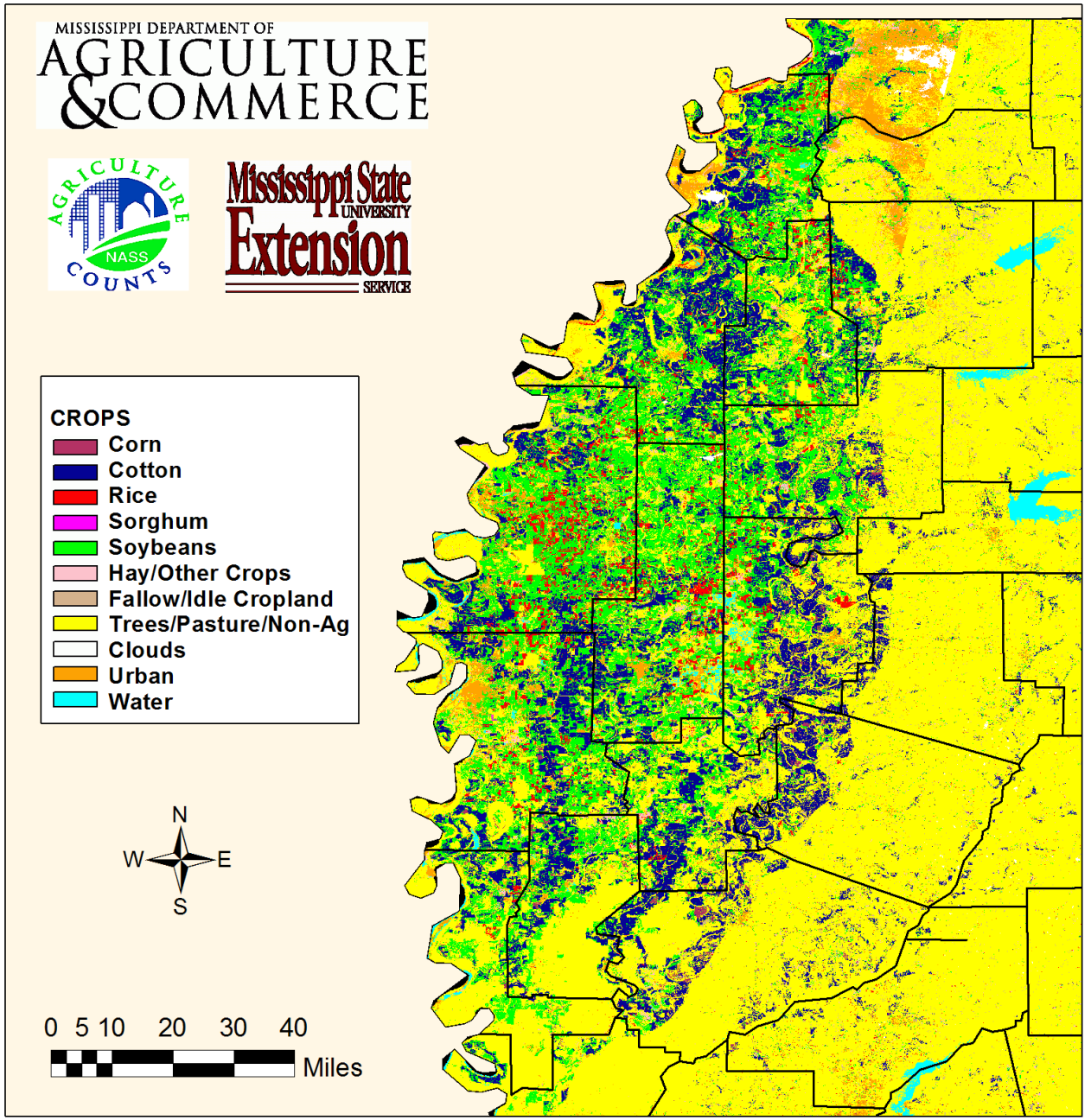
MIFI forest types and major crops.



The Basic Cropland Data Layer Presentation

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.

Mississippi Delta, Cropland Data Layer, 2005



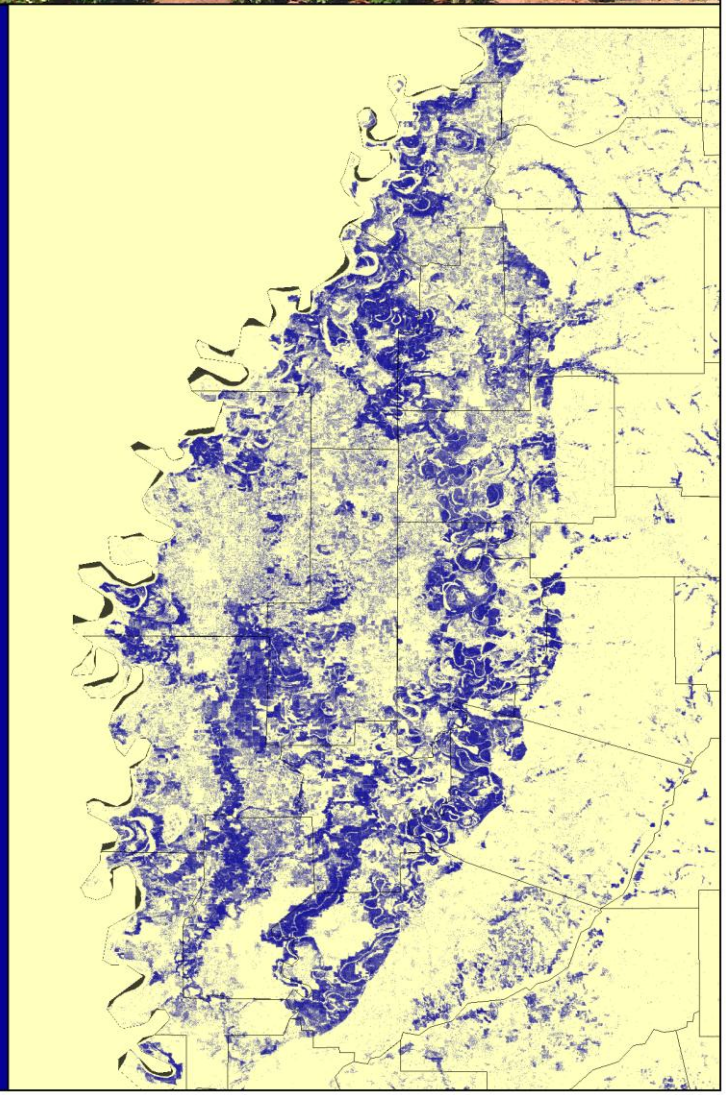
Cotton Land Use in the Mississippi Delta, 1999-2005

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.

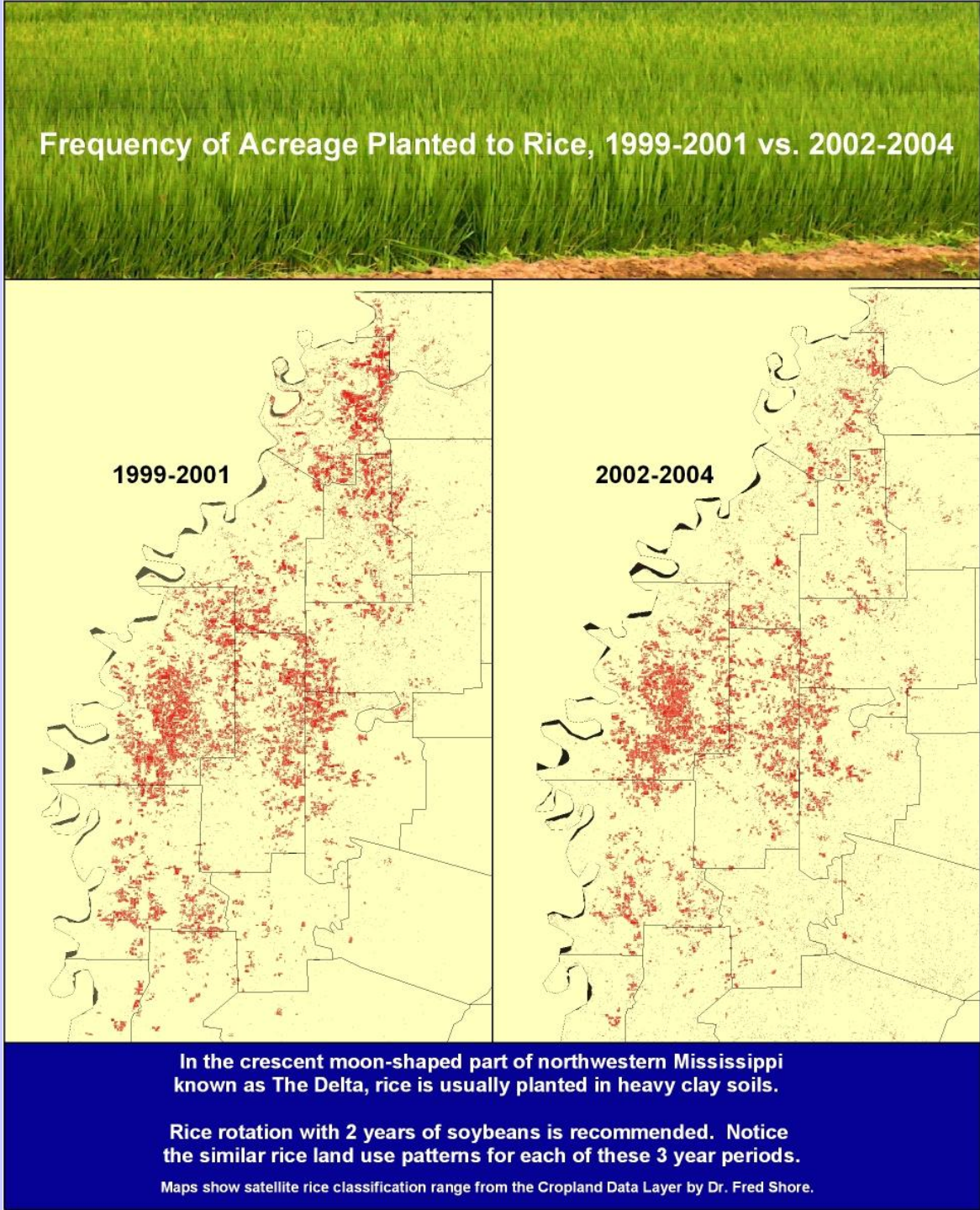
Cotton crop rotations are used but high cotton prices can lead to the same land being used for cotton every year.

Map shows satellite cotton classification range from the Cropland Data Layer by Dr. Fred Shore.



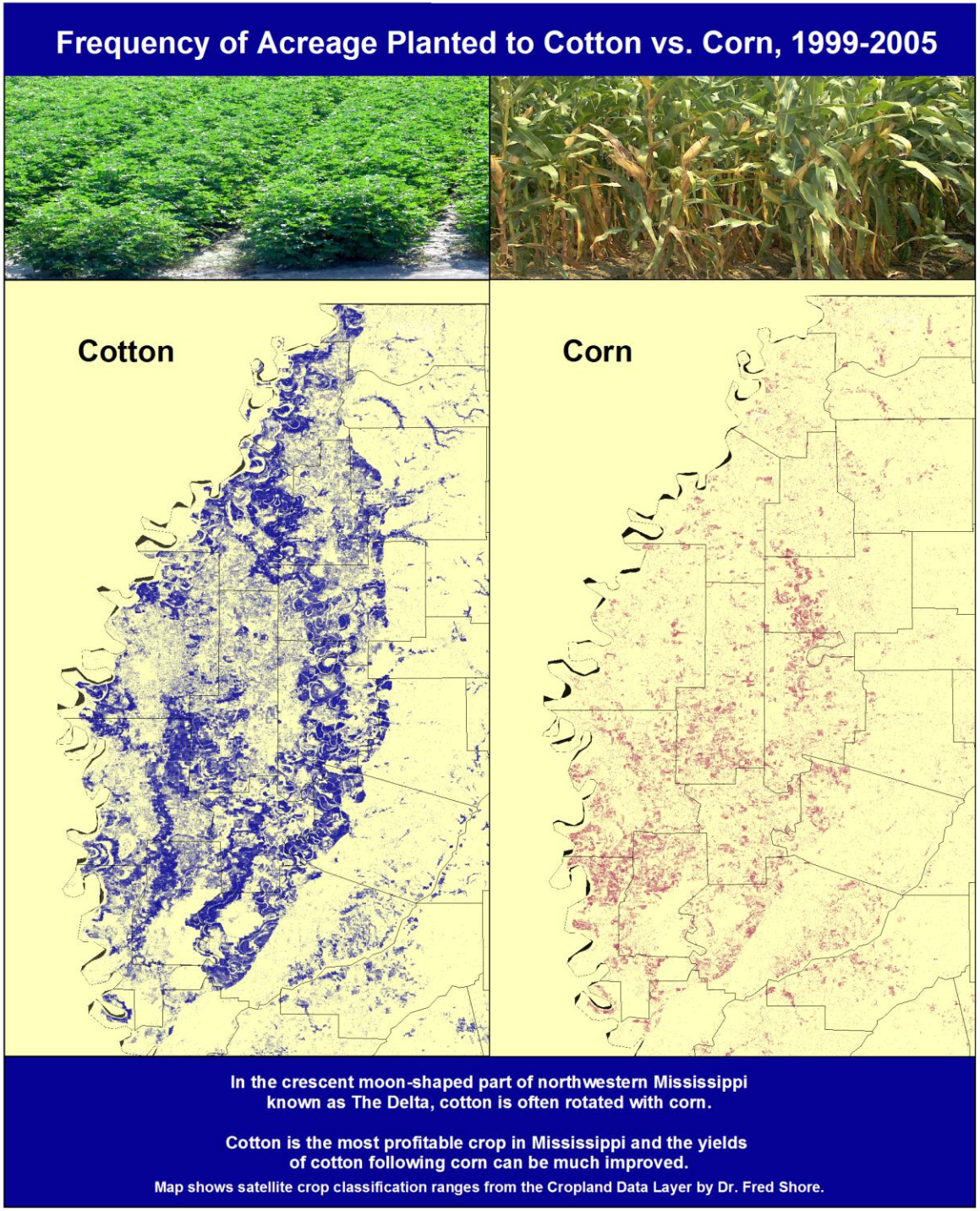
Multiyear Overlays Rice

With the three year rotation schedule, comparing two 3-year periods gives similar land use areas.



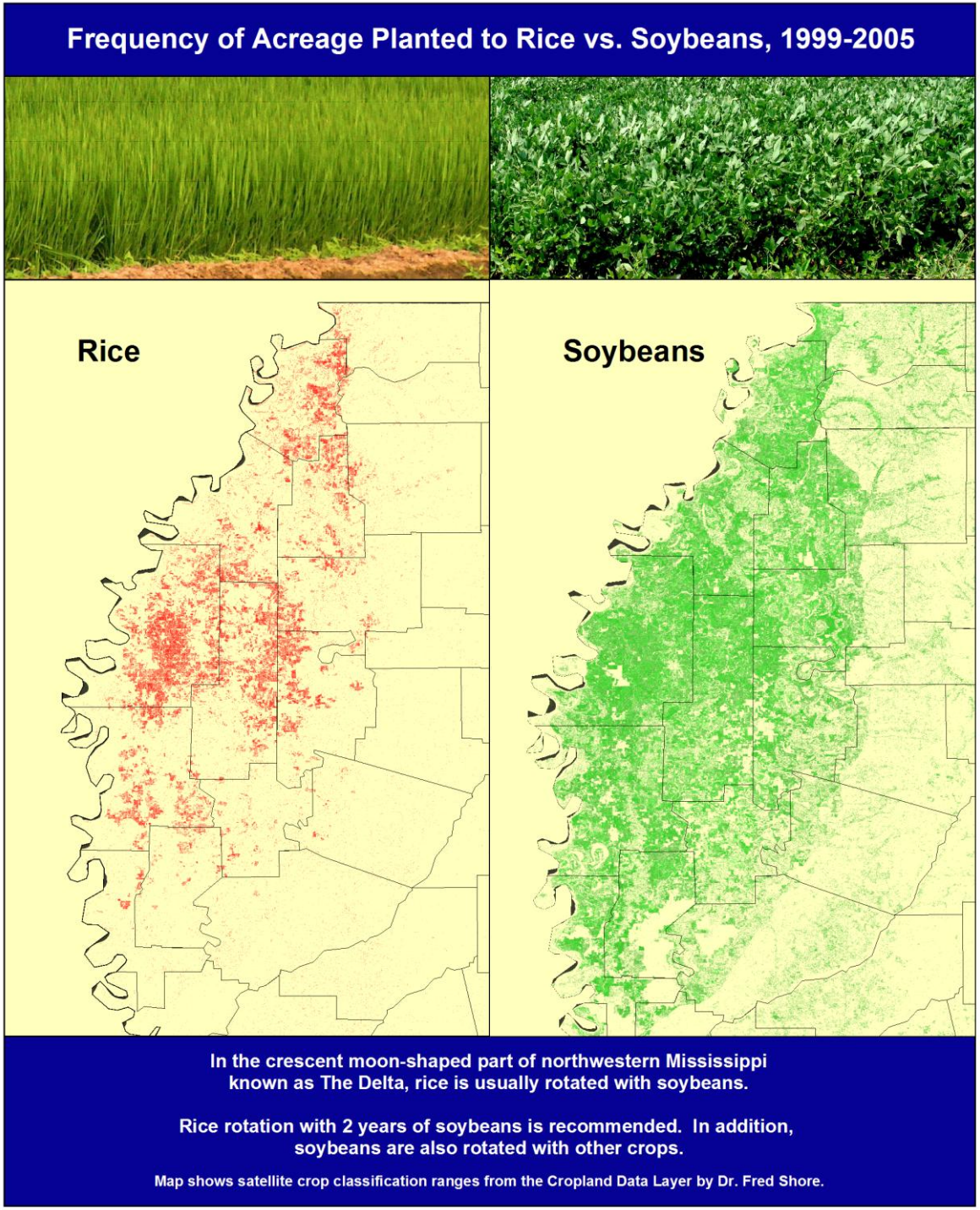
Comparing Crop Overlays Cotton and Corn

Similar land use patterns are observed for these crops. Corn is primarily grown in rotation with cotton.



Comparing Crop Overlays Rice and Soybeans

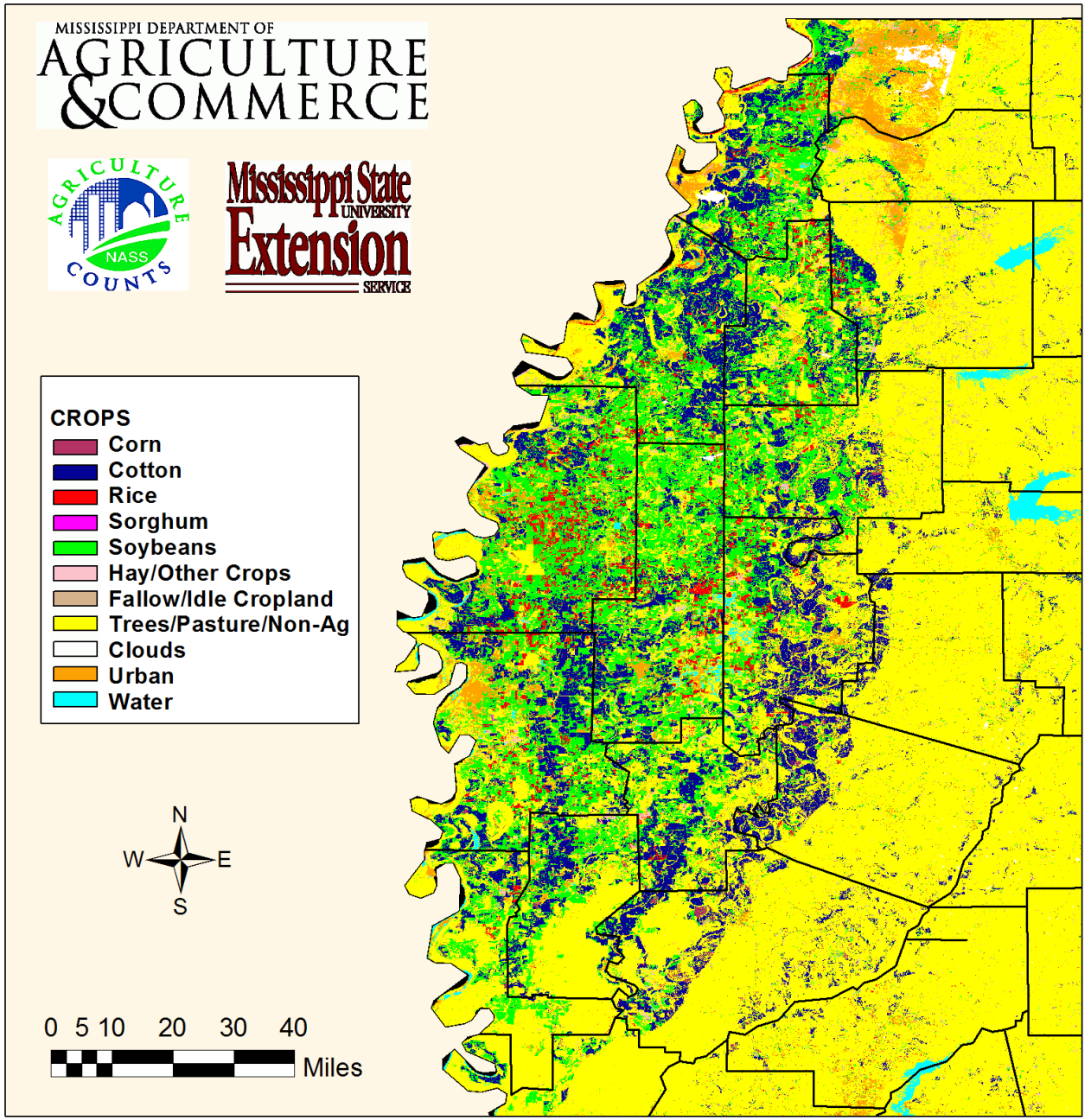
The rotation of land from rice to soybeans is evident. Soybeans are grown in most areas of the Delta.



The Basic Cropland Data Layer Presentation

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.

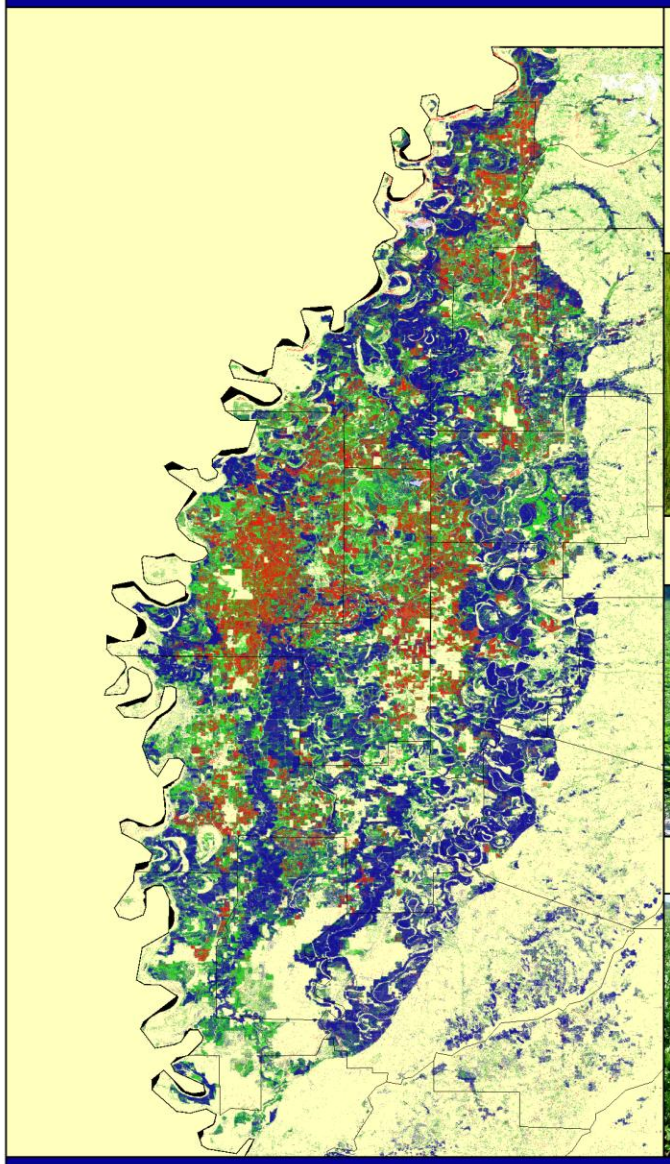
Mississippi Delta, Cropland Data Layer, 2005



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.

Land Use for Major Crops in the Mississippi Delta, 1999-2005



Legend

Overlay Priority
Rice>Cotton>Soybeans

Rice

Cotton

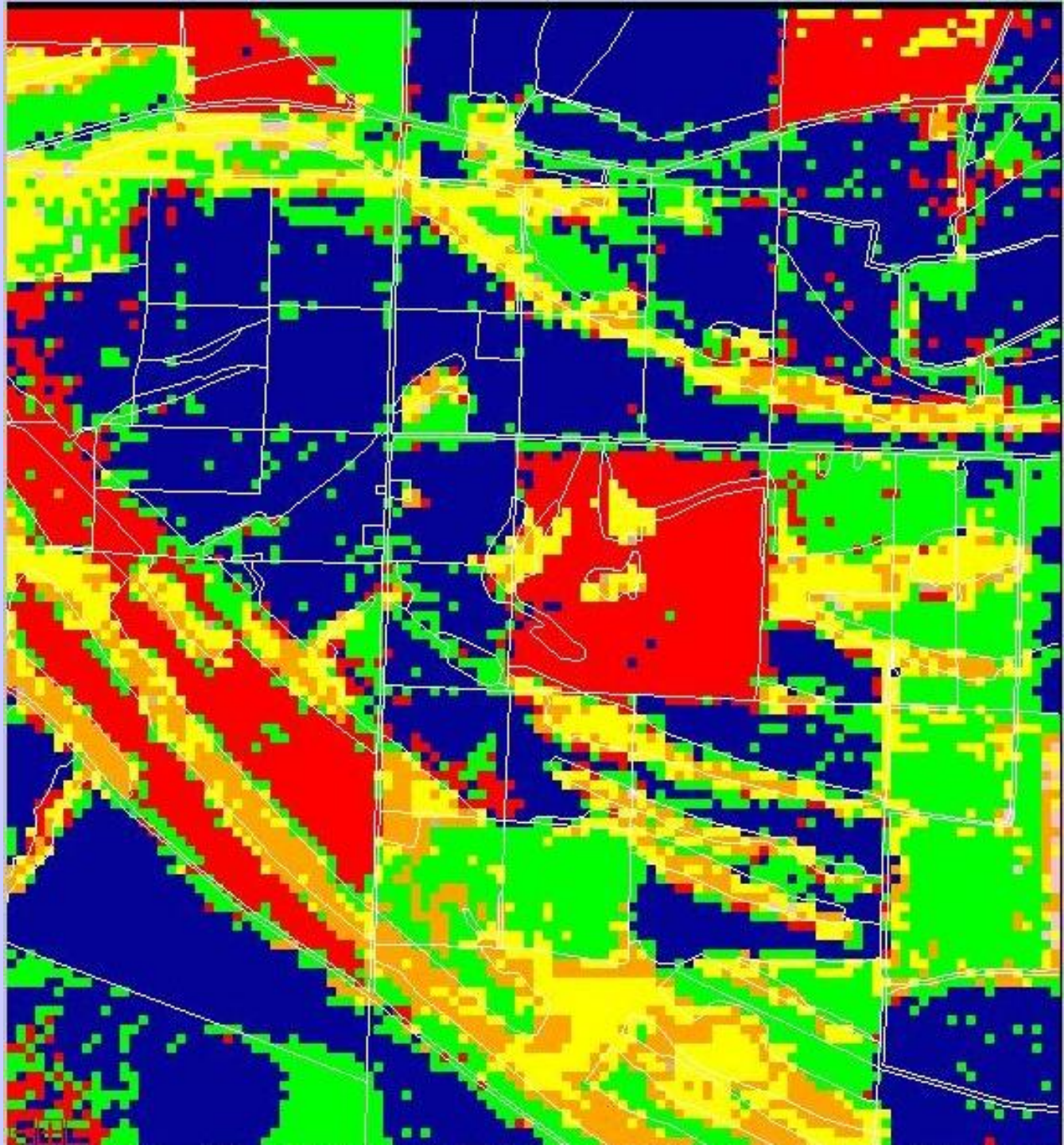
Soybeans

In the crescent moon-shaped part of northwestern Mississippi known as The Delta, cotton is the most profitable crop with rice second.

On an annual basis there are more acres planted to soybeans than any other crop. This overlay display shows good land for cotton and rice and land used for soybeans that could be used in rotation with rice.

Map shows satellite classification ranges from the Cropland Data Layer by Dr. Fred Shore.

Zoom to Field Level Overlay of MS CDL05 Bolivar County



Field Level CDL Data Extraction

Bolivar County had 15,203 fields in 2005

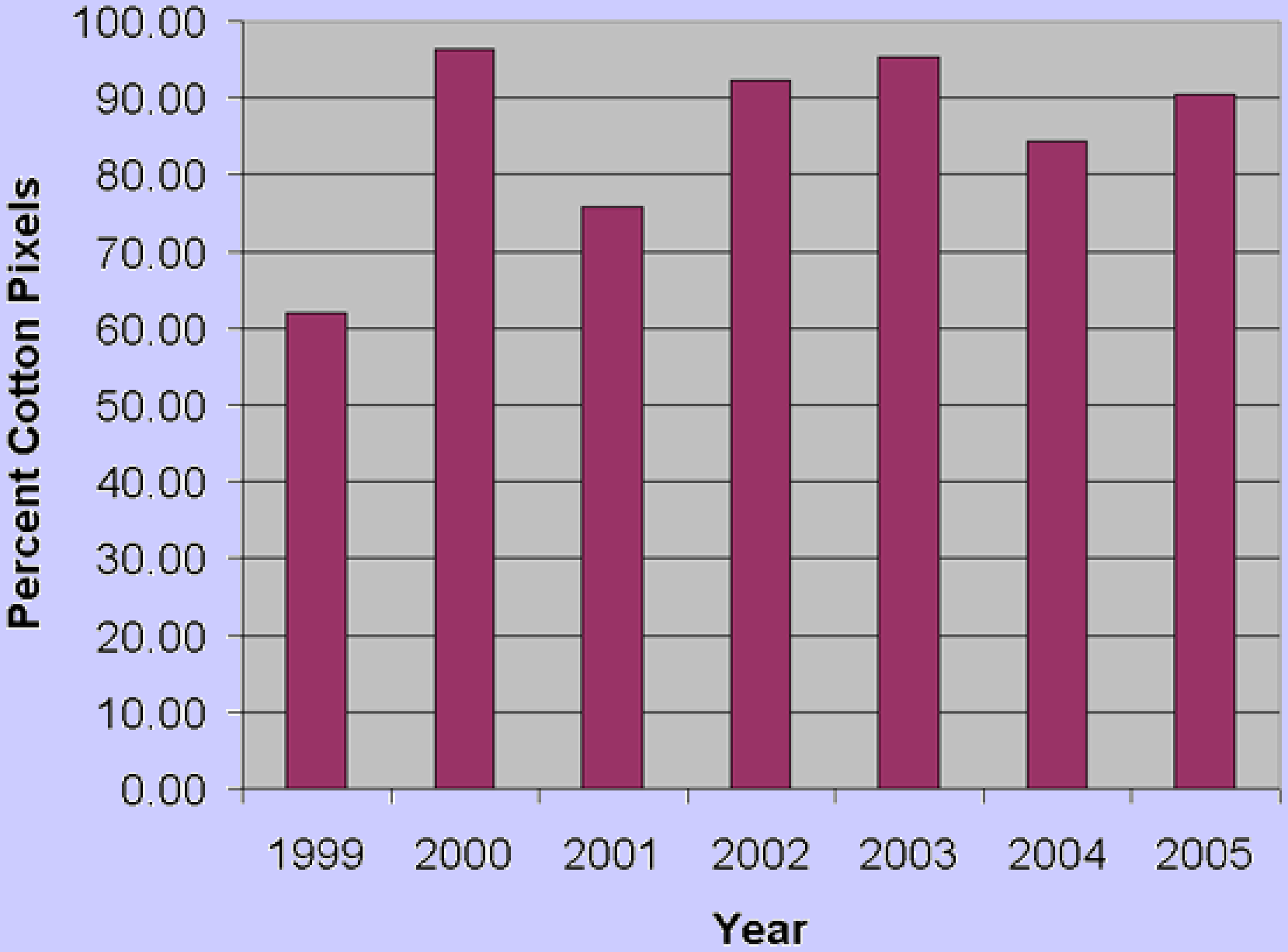
MS05 Output Stats, 8/21/06

ImageFile Name: C:\RSI\CLASSSTATS\MS05ENVIClass

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

Field:			1	282TPixels
Class	Pixels	AccPixels	Percent	Acc Percent
Uncl	0	0	0.000000	0.000000
Corn	0	0	0.000000	0.000000
Cott	255	255	90.425529	90.425529
Rice	0	255	0.000000	90.425529
Sorg	0	255	0.000000	90.425529
Soyb	24	279	8.510638	98.936165
Hay/	0	279	0.000000	98.936165
Fall	0	279	0.000000	98.936165
Tree	1	280	0.354610	99.290771
Clou	0	280	0.000000	99.290771
Urba	2	282	0.709220	99.999992
Wate	0	282	0.000000	99.999992

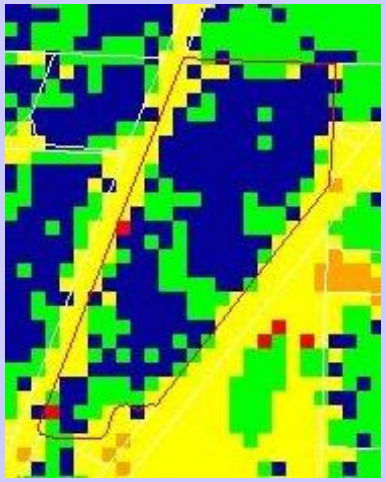
Bolivar County Field 1 Cotton



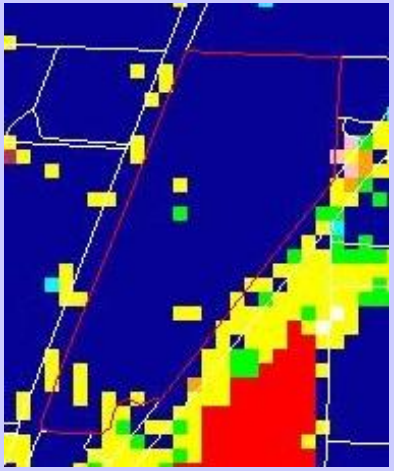
Bolivar County Field 1 by Year

Legend

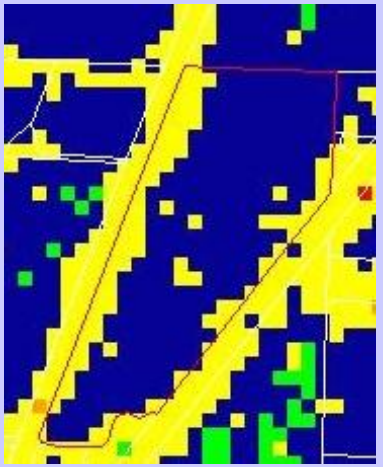
CROPS
- Corn
- Cotton
- Rice
- Sorghum
- Soybeans
- Hay/Other Crops
- Fallow/Idle Cropland
- Trees/Pasture/Non-Ag
- Clouds
- Urban
- Water



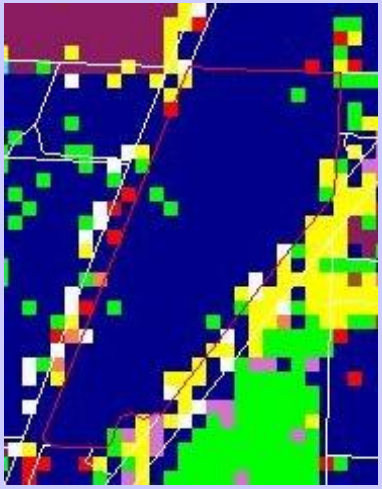
1999



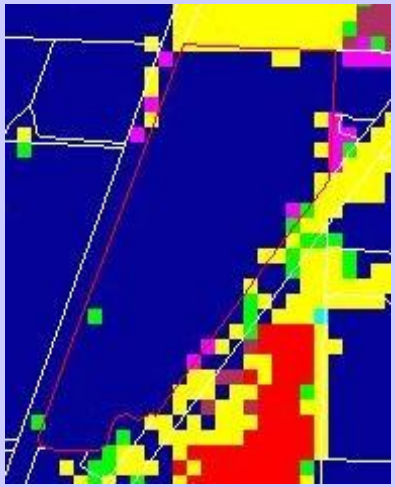
2000



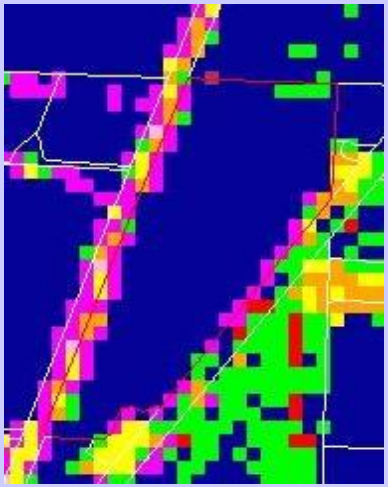
2001



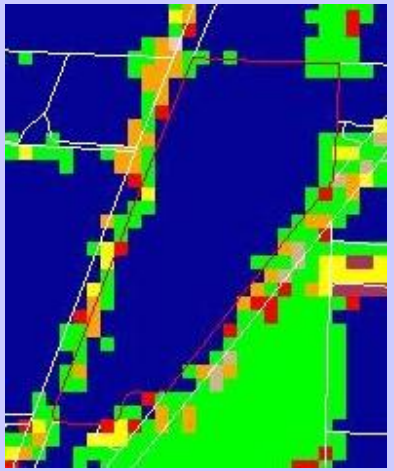
2002



2003



2004



2005

Bolivar County Field 1

2005 Aerial Image, 2006 Flag/Field Picture

Mississippi Observed from 435 Miles

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/.**