

Dave M. Johnson
Geographer

**United States Department of Agriculture
National Agricultural Statistics Service
Research and Development Division
Spatial Analysis Research Section**

The 2007 Cropland Data Layer



NASS Overview

Provider of timely, accurate, and useful statistics in service to U.S. agriculture

NASS - Data and Statistics - Microsoft Internet Explorer

Address: http://www.nass.usda.gov/Data_and_Statistics/index.asp

USDA United States Department of Agriculture
National Agricultural Statistics Service

The 2002 Census of Agriculture is the most comprehensive source of statistics portraying our nation's agriculture

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Select a State

Data and Statistics

Quick Stats (Agricultural Statistics Data Base)

NASS publishes U.S., state, and county level agricultural statistics for many commodities and data series. Quick Stats offers the ability to query by commodity, state(s) and year(s), providing the most up-to-date statistics including all revisions. The query dataset can be downloaded for easy use in your database or spreadsheet.

Query our Quick Stats Data Base

Additional Crops County Resources

Maps of crops county estimates for acreage and yield are available from NASS as both CSV data files and maps.

County data from Quick Stats data is also available in pre-extracted data sets by year and by crop.

Census of Agriculture

To query Census of Agriculture data, choose from the Census years below. To view the Census publications, click here:

Data Queries for 2002, select below:

Select a Census Query

Data Queries for 1997, 1992, 1987

Interactive Data

NASS provides a variety of tools for interacting with our Census datasets.

Interactive Census Maps for 2002 Census Highlights

Table Lens Application for 1997 Census Data

Last modified: 12/30/05

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2001 Wildlife Damage Survey

7.7 Percent of Crop Value Lost to Deer and Geese

Maryland farmers lost \$17.2 million of corn, soybeans and wheat to deer or geese during 2001, translates to Maryland farmers losing 7.7 percent of the crop value to deer and geese. Soybean acres for the greatest economic loss, totaling \$9.1 million, 11 percent. Corn losses were \$6.6 million, 5.8 percent and wheat \$1.5 million, 5.6 percent. Deer damage resulted in losses of \$13.6 million, 6.1 percent, while geese losses were \$3.6 million, 1.6 percent.

Production losses totaled 6.0 million bushels. Corn losses were 3.2 million bushels, soybean losses are 2.2 million bushels and wheat accounted for 0.6 million bushels. Production losses to deer were 4.7 million bushels and geese 1.3 million bushels.

In terms of yield, losses to deer were most severe in Central and Western Maryland, while geese damage greater on the Eastern Shore. Corn yield losses of 9.6 bushels per acre and 7.4 bushels per acre were reported in Central and Western Maryland, respectively. The Lower Eastern Shore reported the highest soybean loss of 6.1 bushels per acre.

Sixty-two percent of farms reported deer or geese damage to one or more crops. Damage was reported on percent of farms raising corn, 58 percent of farms growing soybeans and 27 percent of farms with wheat.

Maryland 2001 Crop Loss from Deer

Region	Crop	Acres Harvested	Harvested Yield (bushels)	Average Yield Loss (bushels)	Production Loss (bu)	Economic Loss (\$)
Western Maryland	Corn	5,200	124,9	7.4	40,100	83
	Soybeans	300	34.7	3.9	1,191	2,412
	Wheat	200	45.2	2.0	440	1
Central Maryland	Corn	114,200	2,814	9.6	1,100,200	2,412
	Soybeans	92,200	34.2	3.9	360,780	1,475
	Wheat	38,200	63.3	3.3	126,290	319
Southern Maryland	Corn	25,800	112.9	4.9	146,220	299
	Soybeans	43,200	38.0	3.3	142,260	584
	Wheat	36,900	57.0	0.3	14,400	36
Upper Shore	Corn	137,800	159.2	5.1	800,700	1,641
	Soybeans	212,000	39.8	2.4	846,800	2,282
	Wheat	88,800	44.0	1.1	99,180	213

USDA NEWS RELEASE

NATIONAL AGRICULTURAL STATISTICS SERVICE
United States Department of Agriculture • Washington, DC 20250
Ag Statistics Hotline: (800) 727-9540 • www.nass.usda.gov

Contact: Ellen Dougherty, (202) 690-8122
Jeff Geuder, (202) 720-2127

USDA FORECASTS RECORD-SETTING CORN CROP FOR 2007

Washington, Aug. 10, 2007 – U.S. corn production in 2007, according to the USDA's National Agricultural Statistics Service, is projected to reach 13.1 billion bushels, 10.6 percent above the 2006 record.

Based on conditions as of August 1, 2007, the average yield per acre, up 3.7 bushels from last year, will produce 160.4 bushels per acre, up 1.4 bushels from the 159 bushels per acre in 2006.

Yield forecasts are higher than in previous years. Delta. Meanwhile, hot, dry conditions in the Southeast and eastern Corn Belt, Ohio Valley and parts of the Midwest, are expected to reduce yields in those areas.

WISCONSIN AGRICULTURAL STATISTICS SERVICE
P.O. Box 8034 Madison, WI 53708-8034
In cooperation with WI Department of Agriculture, Trade and Consumer Protection

2002 Dairy Producer Opinion Survey

November 2002

Wisconsin Milk Production to Recover

Milk production is expected to increase in Wisconsin during the next five years according to a survey conducted by the Wisconsin Agricultural Statistics Service. This statewide survey of producers asked for their plans with the assumption that milk prices for the next five years will be at the same level as the past five years. The survey was conducted during May and June 2002.

Based on the survey, 60 percent of producers expect to keep the same herd size, 20 percent plan to increase herd size, and 20 percent intend to discontinue milking by 2007. Actual results will depend on future milk prices, input prices, financing availability, crop yields, and other factors.

The number of herds projected for 2007 shows that the diversity of small to large herds will continue. The most prevalent herd size will remain at 50 to 99 cows.

2002 Census of Agriculture - SVG Interactive Mapping - United S - Microsoft Internet Explorer

National Agricultural Statistics Service 2002 Census of Agriculture

United States | All data items are from Chapter 2 - Table 1. Area Summary Highlights: 2002
Selected crops harvested - Land in orchards (acres)

State: United States - County Level | Data Item: Selected crops harvested - Land in orchards (acres)

United States Total: 5,330,439

State:
County:
County Total:

Download data as CSV | XML | PDF

Help Print Return to Map

Legend

Scale: National | Zero or Data Withheld

(Changes the data range based on National or State level)

Comparisons: 6 | 100,001 >=

Color: Green

Source: USDA-NASS 2002 Census of Agriculture
© USDA-NASS 2005-2006

Navigate: Mouse-over a specific state/county to view the state/county level data. Right click to zoom (option-click for MAC users). Hold the Alt key and click+drag to pan. For additional assistance with this application, click here to view the support page.

All Milk Price, Wisconsin Annual Average, 1985 - 2002

Wisconsin Dairy Herds by Herd Size

Milk cow herd size	May 2002 herds	May 2007 herds (projected)	Change 2007/2002
1-29	2,800	1,440	-45
30-49	4,700	3,440	-27
50-99	7,400	5,800	-24
100-199	1,900	2,080	+10
200-499	700	900	+29
500+	200	440	+120
Total	17,500	15,900	-20

1/7The May 2007 projection is based on farmers' opinions May-June 2002, with the assumption that milk prices for the next five years will be at the same level as the past five years.

Percent of Herds by Size Group 2007 Projection

Wisconsin Dairy Farmers Plans for May 2007

Herds	Keep same herd size	Increase herd size	Discontinue milking
Number	47	17	38
Percent	71	9	20
2,800	63	19	18
4,700	53	27	10
7,400	33	59	8
1,900	22	78	0
700	40	29	20
200	60	20	20

207 projection is based on farmers' opinions May-June 2002, with the assumption that milk prices for the next five years will be at the same level as the past five years.

AGRICULTURE NASS COUNTS

Research and Development Division

Geospatial Information Branch

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Research and Science

Spatial Data

Vegetation Condition Images

Cropland Data Layer

Image Gallery (2003) available for these states:
Arkansas, Illinois, Indiana, Iowa, N. Dakota, Mississippi, Missouri, Nebraska, Wisconsin

Land Use Strata for Selected States

Census of Agriculture

2002 Census Map Gallery

2002 Maps: Gallery | Star Tree | List

Interact with Data (1997)

"Linked Micromap" Plots (1997):
Corn | Cotton | Hay | Soybeans | Wheat

Animated Maps

Crop Acreage

Corn | Cotton | Oats
Soybeans | Wheat

Vegetation Condition

Reports, Papers and Presentations

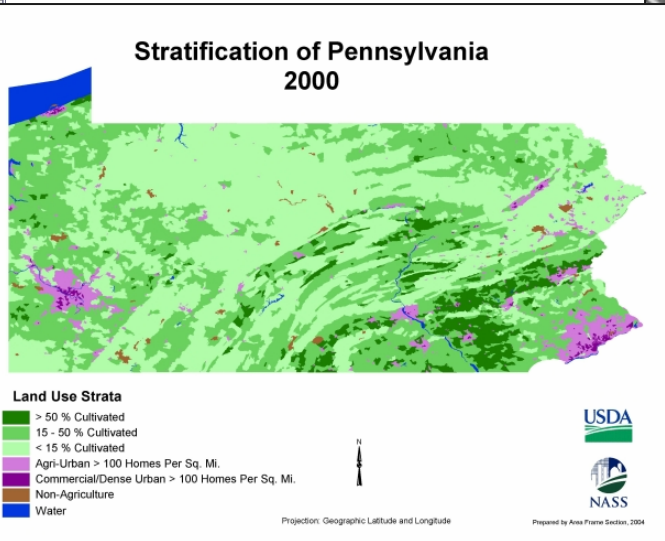
Research Reports

- **New!** Access 733 archived reports available by subject area: GIS | Survey | Yield

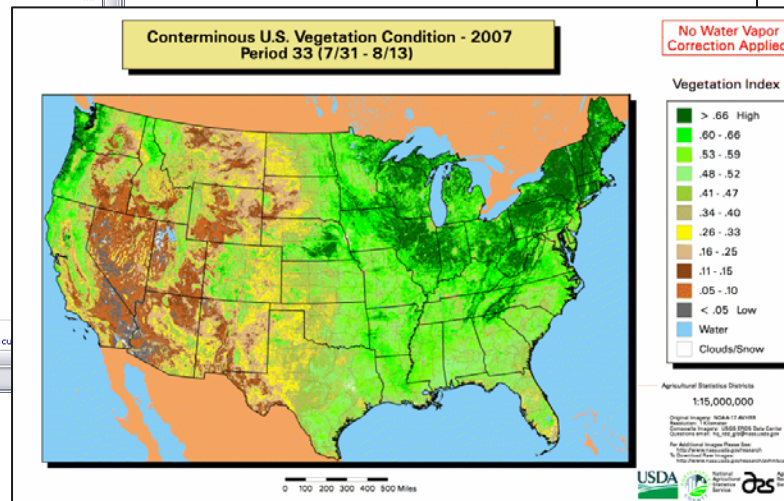
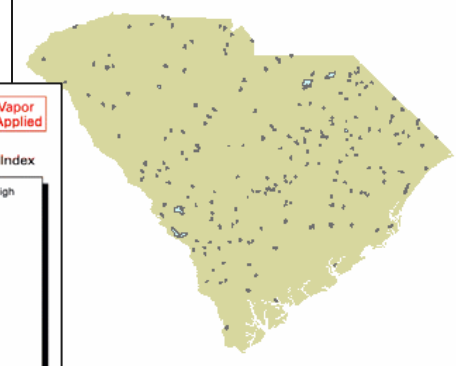
2004 MEXSAI "Star Tree" Diagram
Ron Bosecker, Presenter

Last modified: 10/04/07

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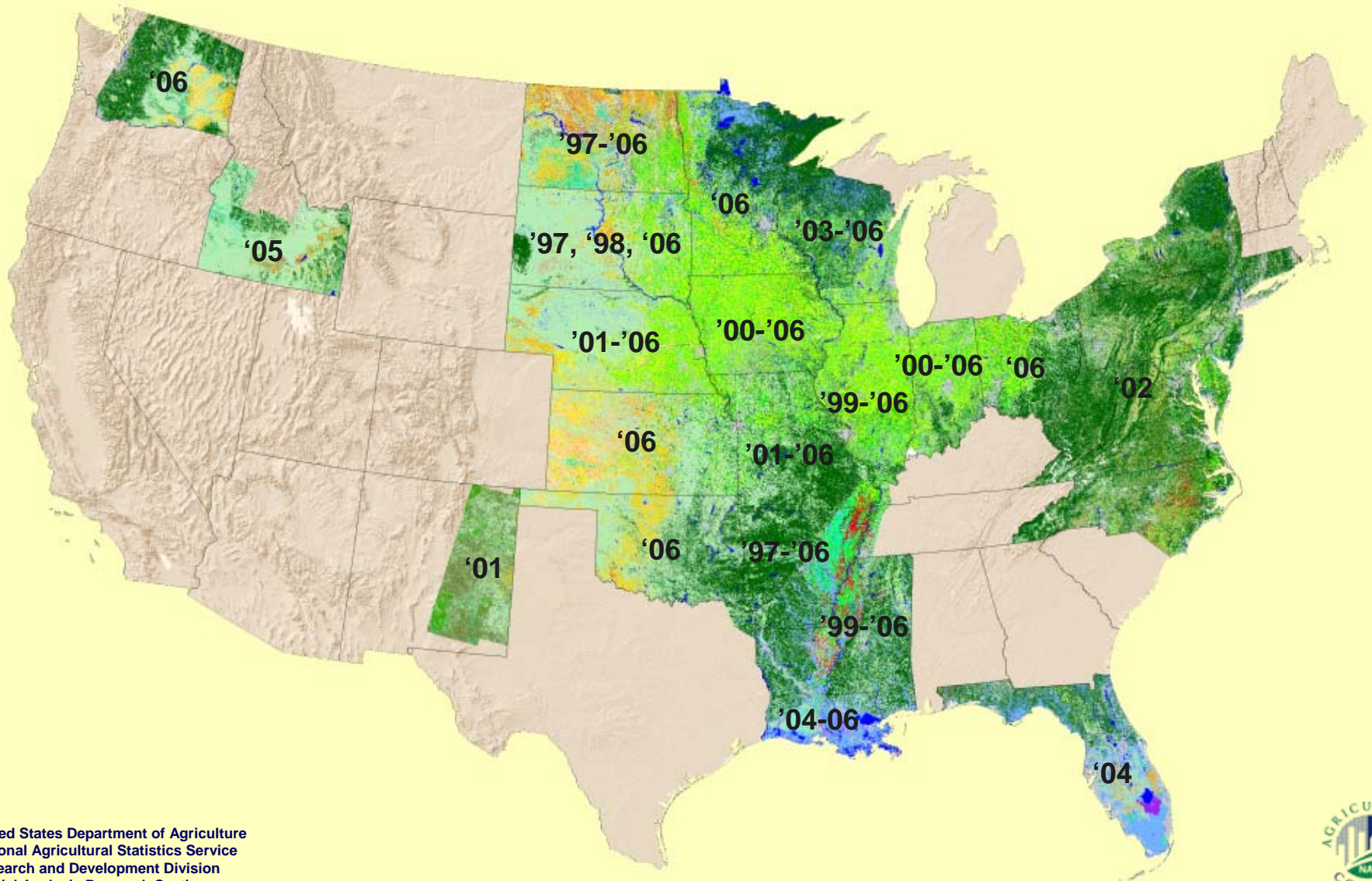


Enumerated Areas of South Carolina

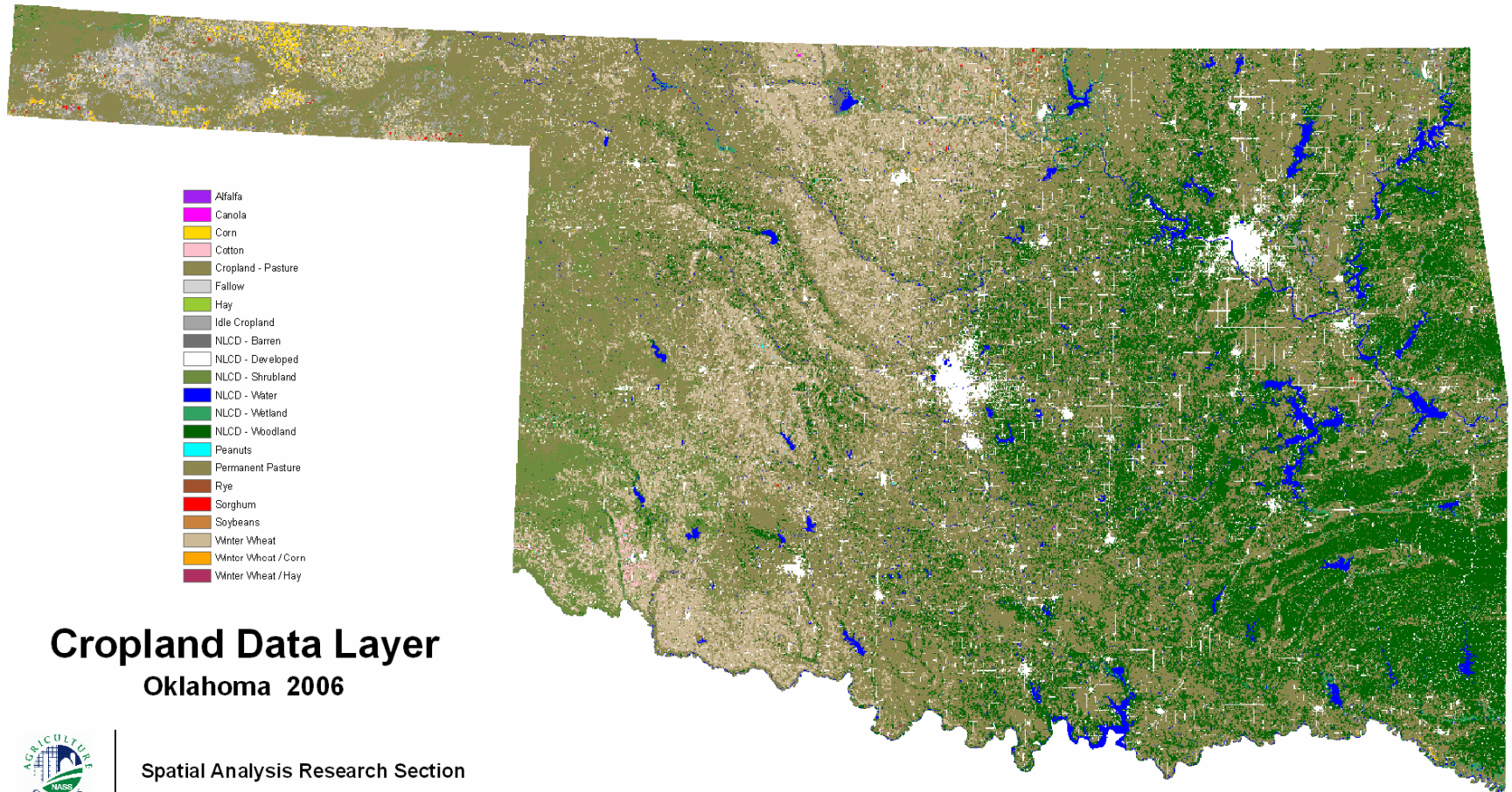


Cropland Data Layers

The first decade: 1997 - 2006



Example Statewide CDL



Spatial Analysis Research Section

Cropland Data Layer Uses



Within NASS

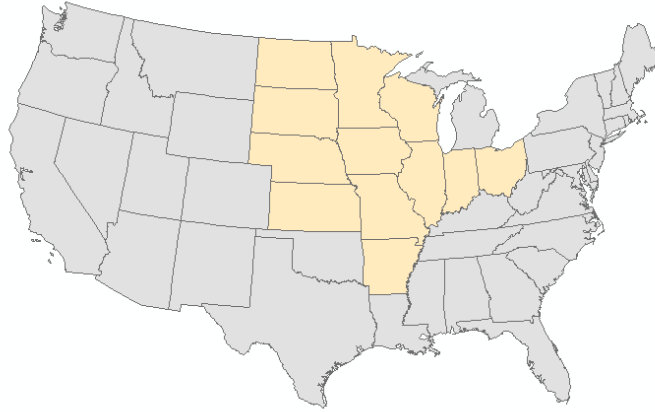
- Refined state-wide acreage estimates
- Improved county-wide acreage estimates
- Tightened confidence intervals on all survey derived acreage estimates

Outside NASS

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

Goals for 2007 CDL

- Document/map growing season land cover for majority of the US intensive agricultural area



- Derive large area acreage estimates for two dominant commodities



Corn



Soybeans

- Complete by early October

Classification Categories

Cropland

Corn
Soybeans
Winter Wheat
Cotton
Spring Wheat
Sorghum
Oats
Barley
Rice
Sunflowers
Durum Wheat
Dry Beans
... and more

Non-Cropland

Water
Developed
Barren
Woodland
Shrubland
Grassland
Wetland



2007 CDL Inputs

- IRS Resourcesat-1 AWiFS Imagery (raw reflectance)
 - Minimum of three scenes during growing season
- NASA MODIS Terra (16-day NDVI composite derivative)
 - Time series of current growing season
 - Fall scenes from previous year
- USGS Ancillary datasets
 - National Land Cover Dataset (NLCD)
 - Impervious
 - Canopy
 - National Elevation Dataset (NED)
 - Elevation
 - Slope
 - Aspect

IRS Resourcesat-1 AWiFS Imagery

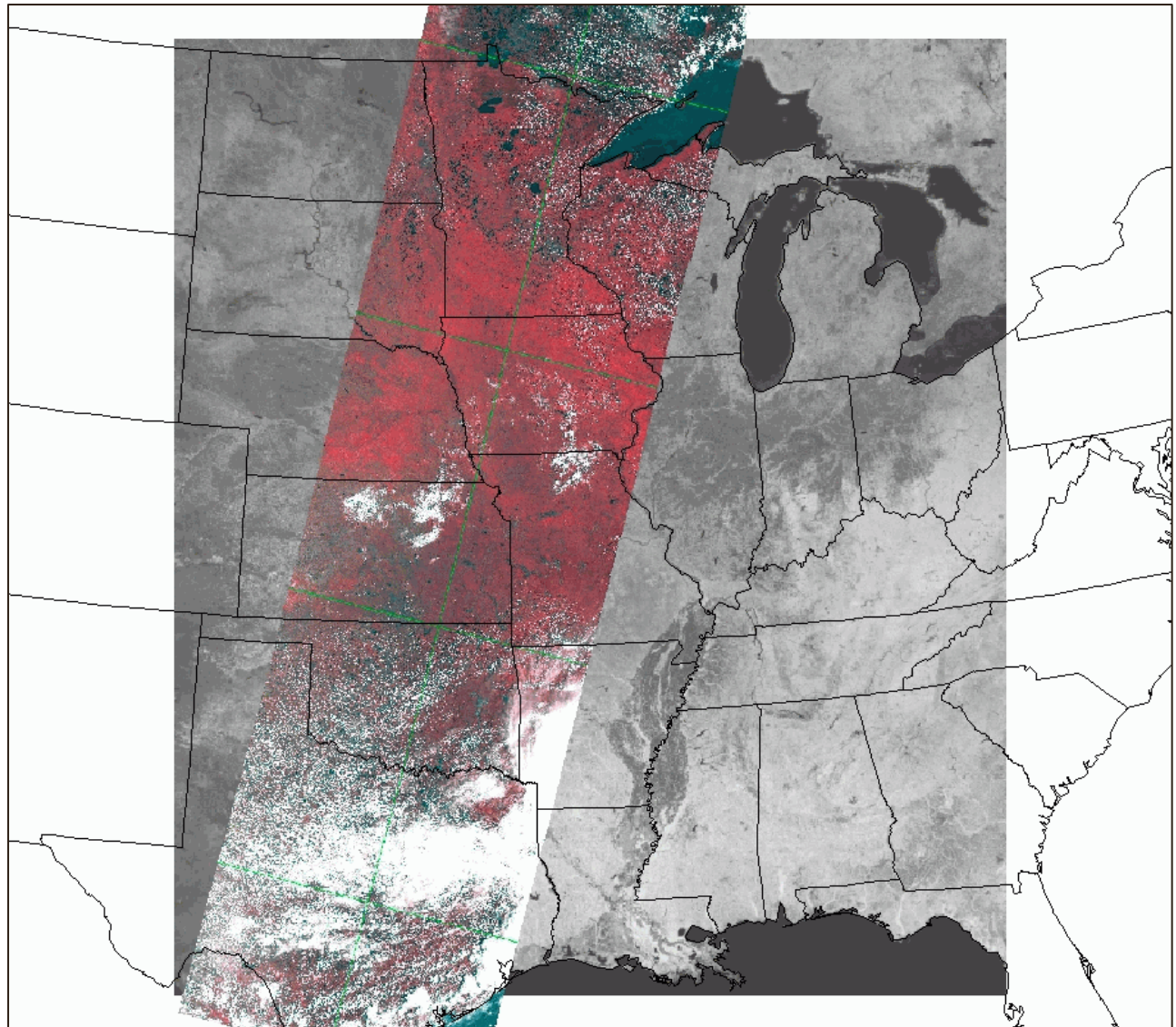
740 km swath
width

5-day revisit

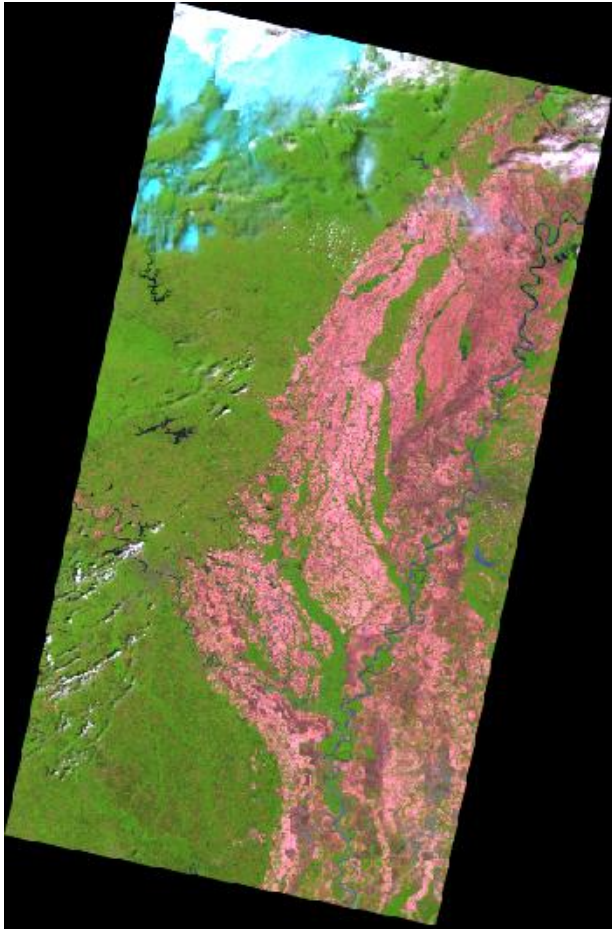
4 spectral bands

- green
- red
- near-infrared
- short-wave
infrared

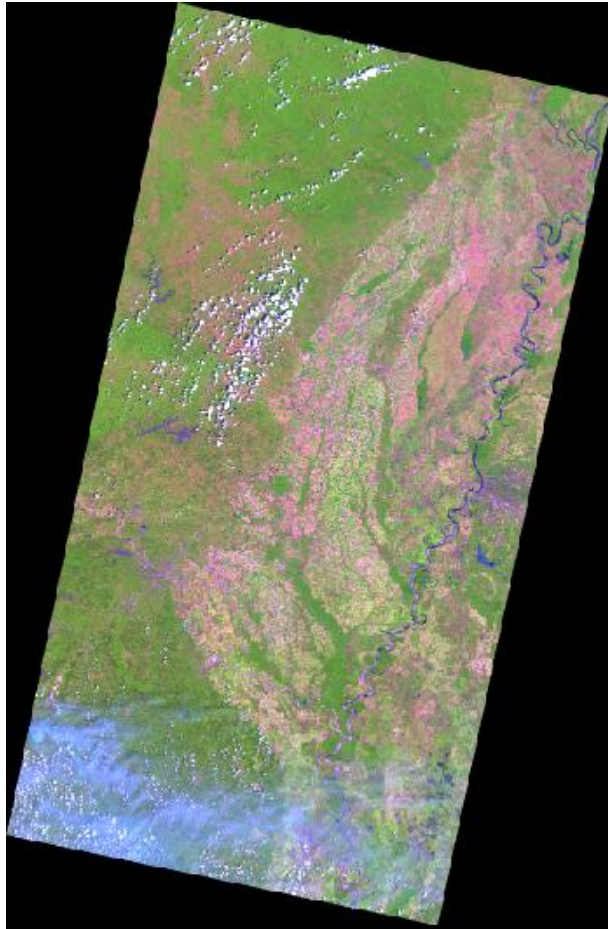
56 m ground
sample resolution



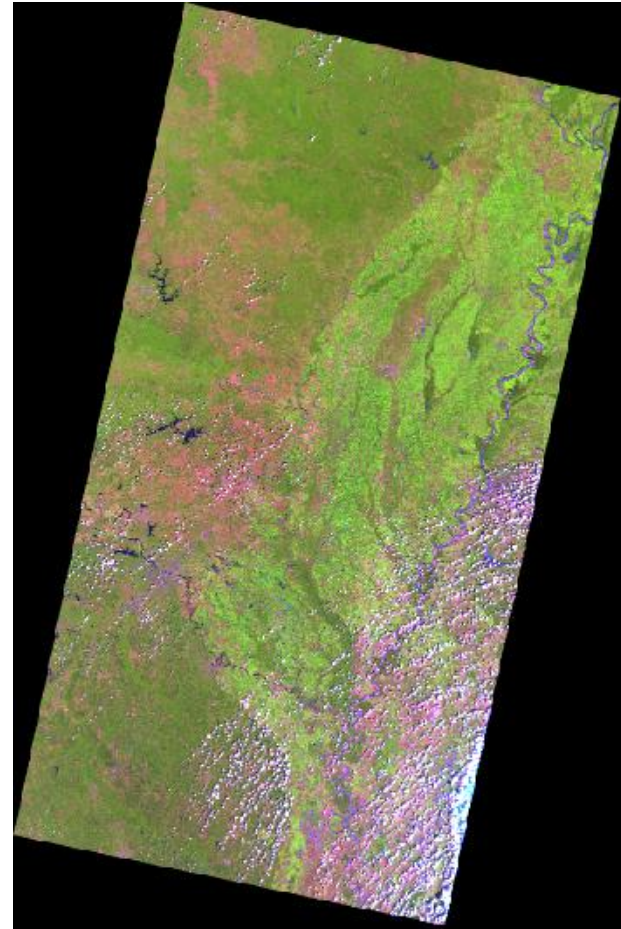
AWiFS Imagery Time Series



May 20



July 2



July 31

MODIS NDVI Imagery

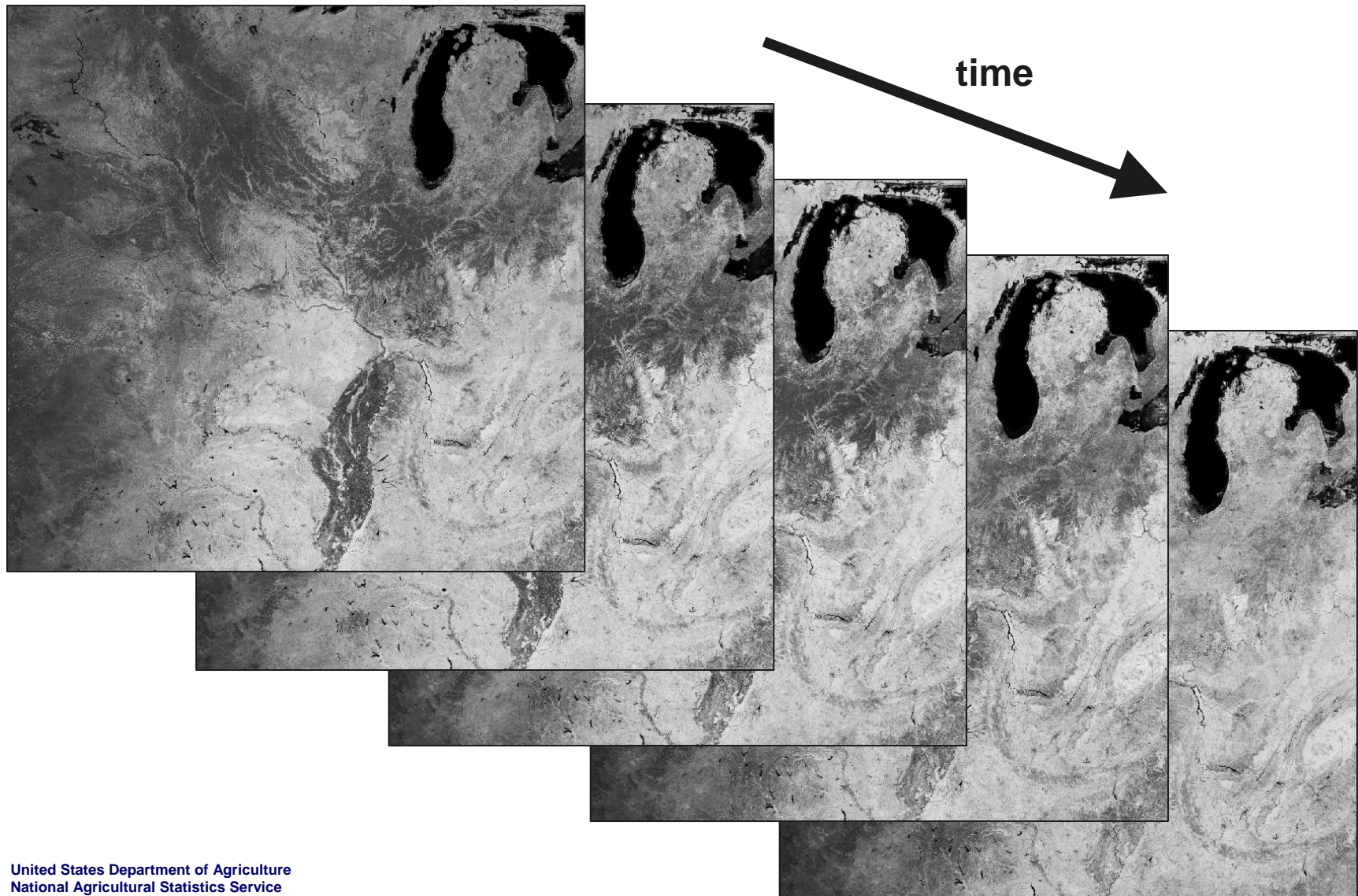
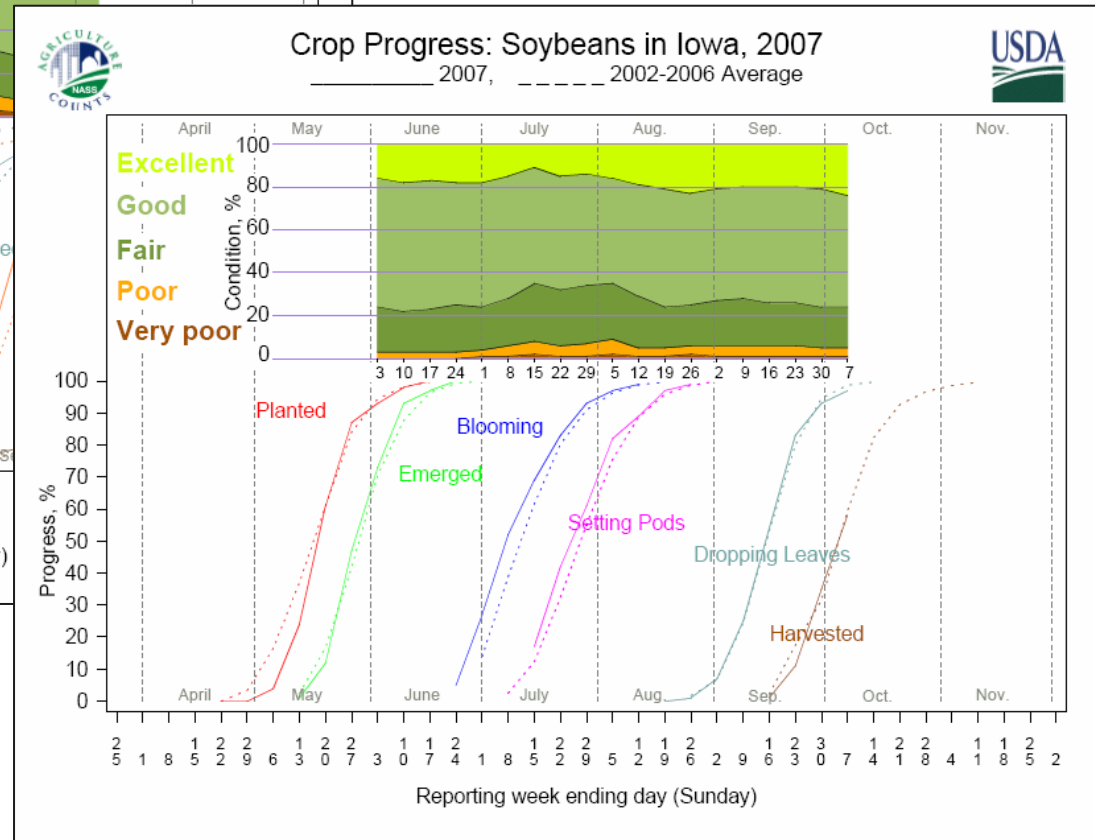
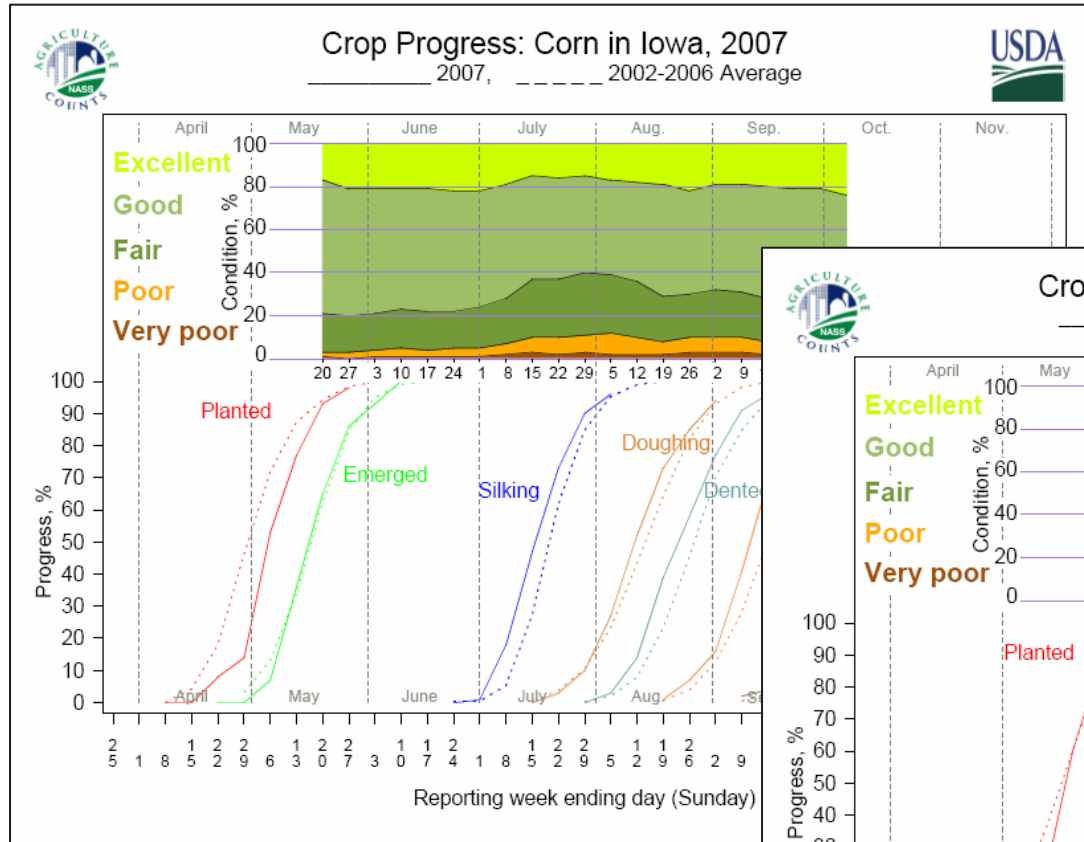


Image Timing



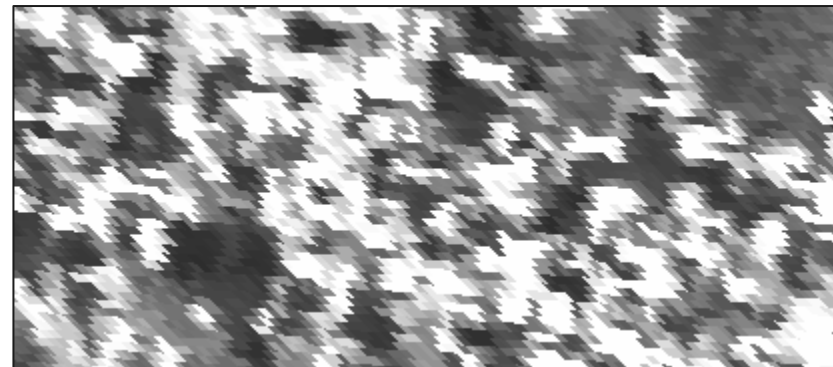
AWiFS

vs.

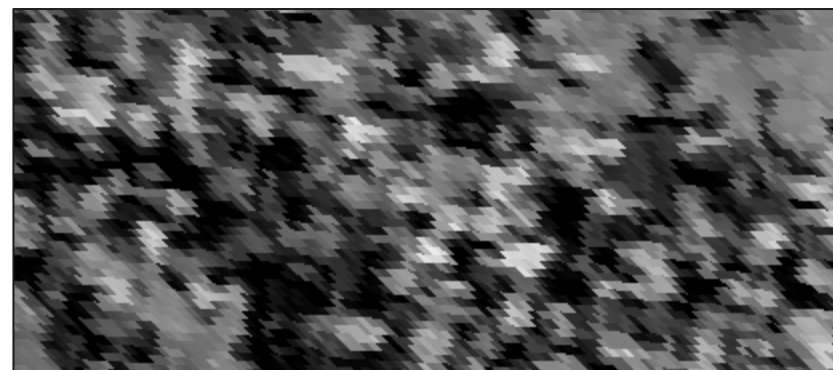
MODIS



April



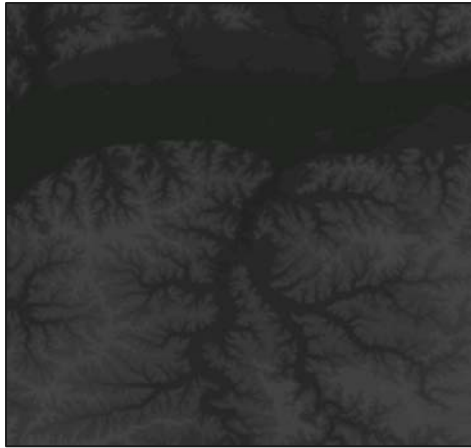
June



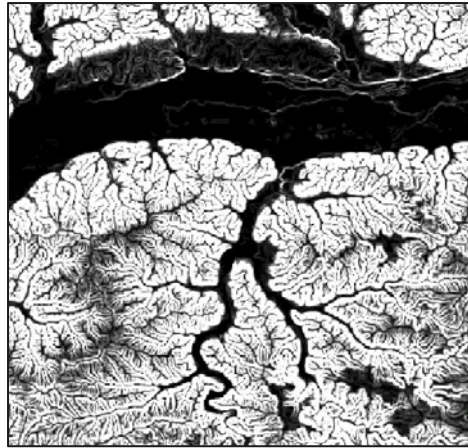
August



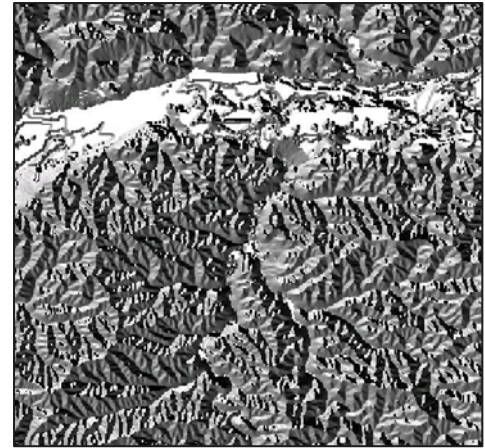
Ancillary data – USGS products



Elevation



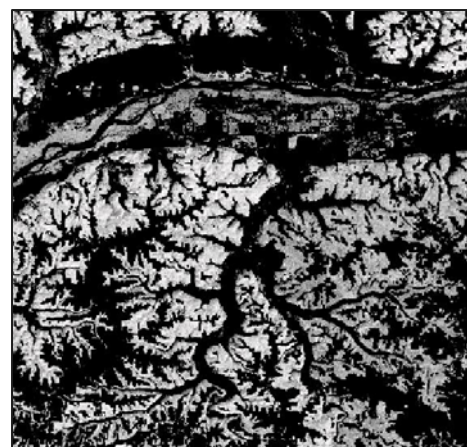
Slope



Aspect



Impervious

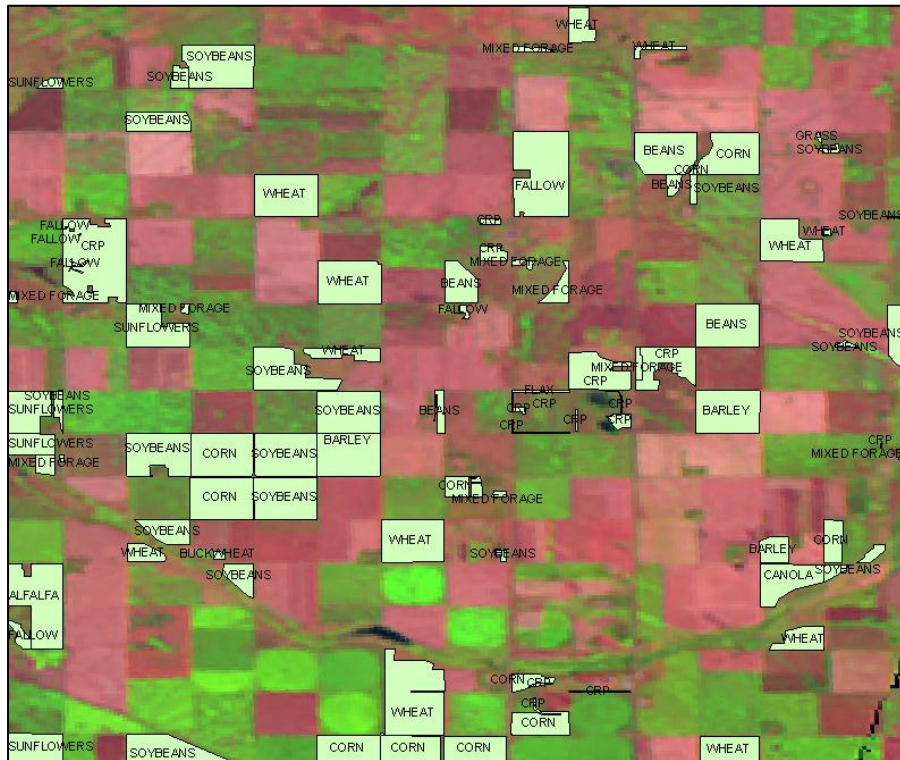


Canopy

Ground truth - agriculture

Farm Service Agency (FSA)

- Common Land Unit (CLU)
- 578 reporting data



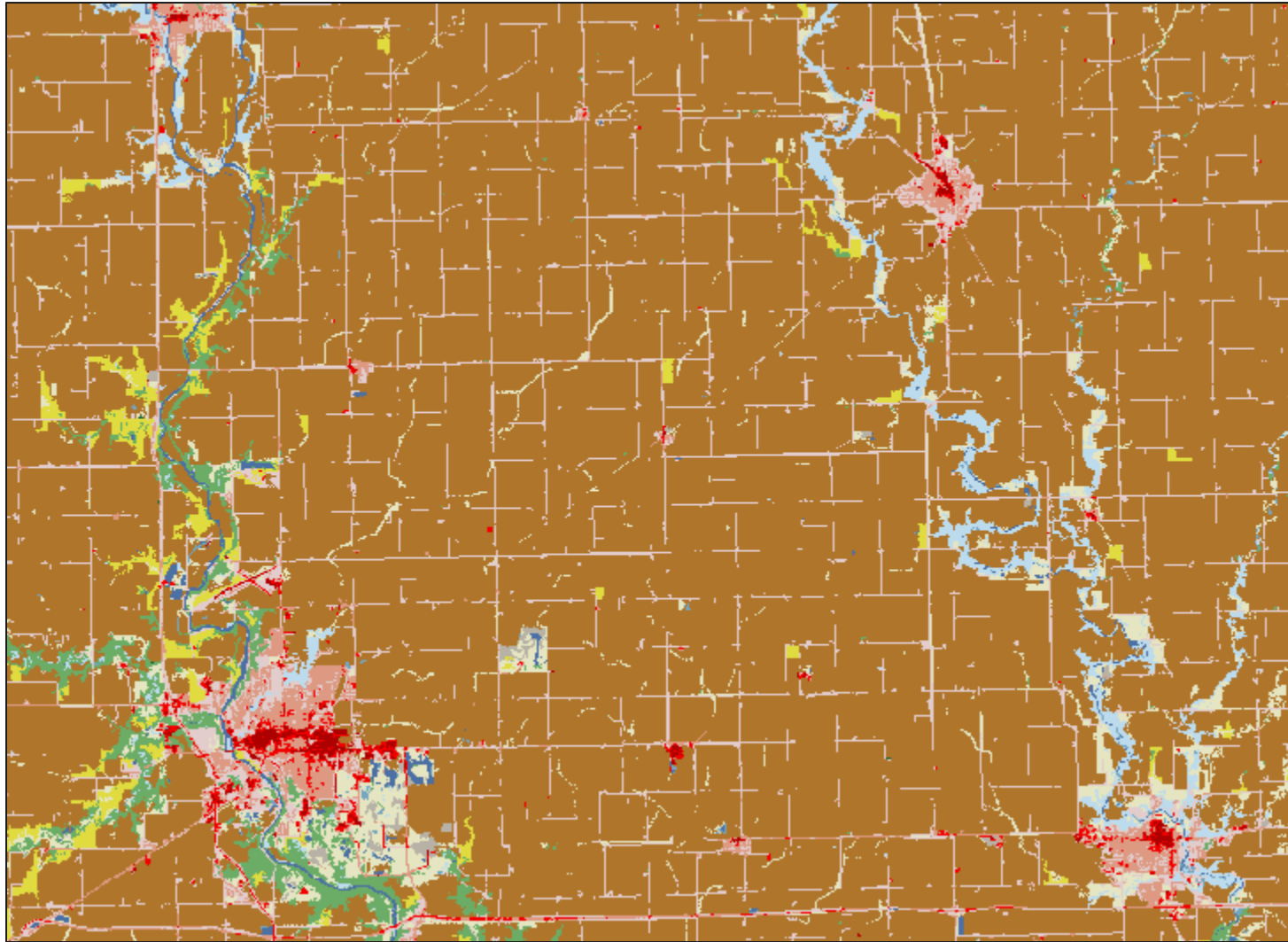
FSA



NASS

NASS June Agricultural Survey (JAS) data
still used for acreage estimation

Ground truth – non agriculture



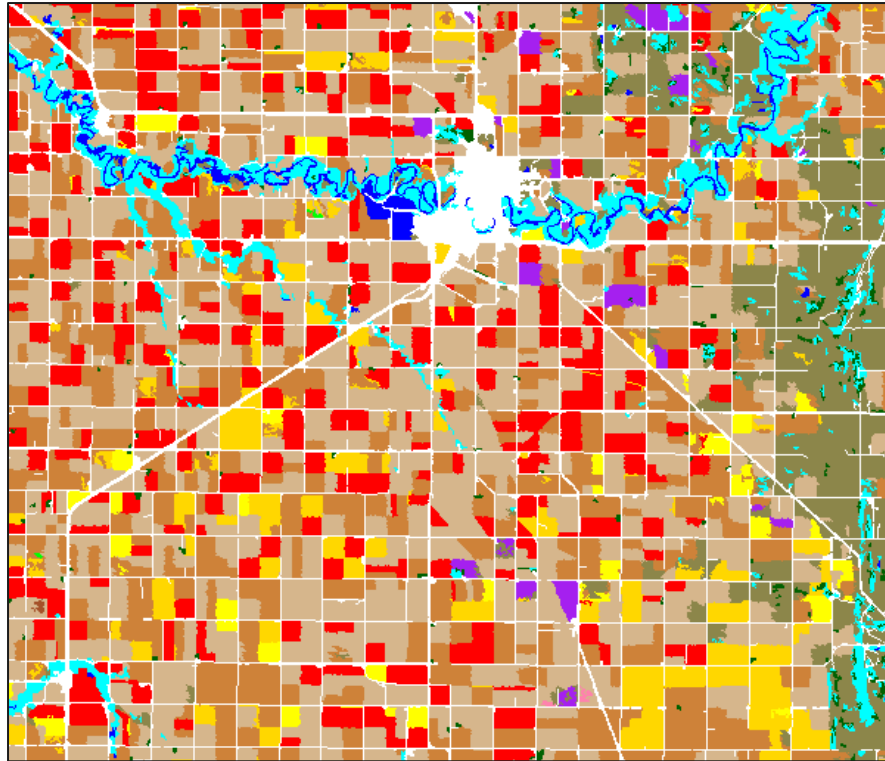
2001 National Land Cover Dataset

Methodology

- Analyze areas by state
- “Stack” AWiFS, MODIS, and ancillary data layers within a raster GIS
 - 56 m grid cells, Albers Conic Equal Area projection
- Sample spatially from stack within known ground truth from FSA (for ag. categories) and NLCD (for non ag. categories)
- Data-mine samples using Boosted Classification Tree Analysis to derive best fitting decision rules
 - implemented with Rulequest See5.0
- Apply derived decision rules back to input data stack
- Create land cover map
- Create probability map
- Assess map accuracy
- Derive acreage estimates
 - utilizing customized SAS routines



Example Classification Subset



CDL Classification



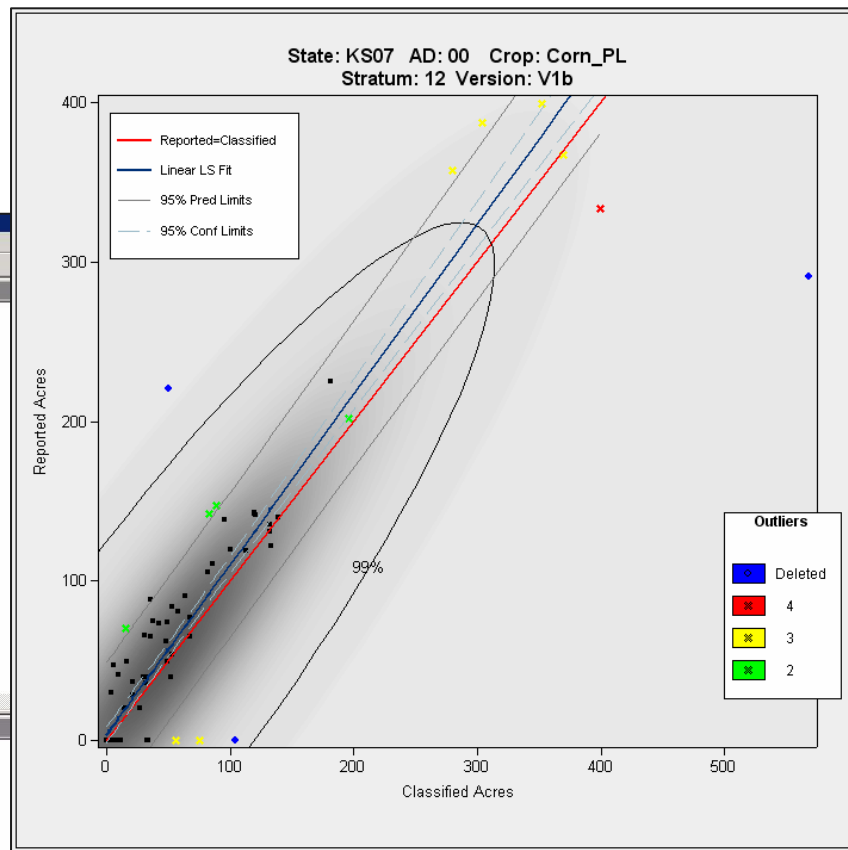
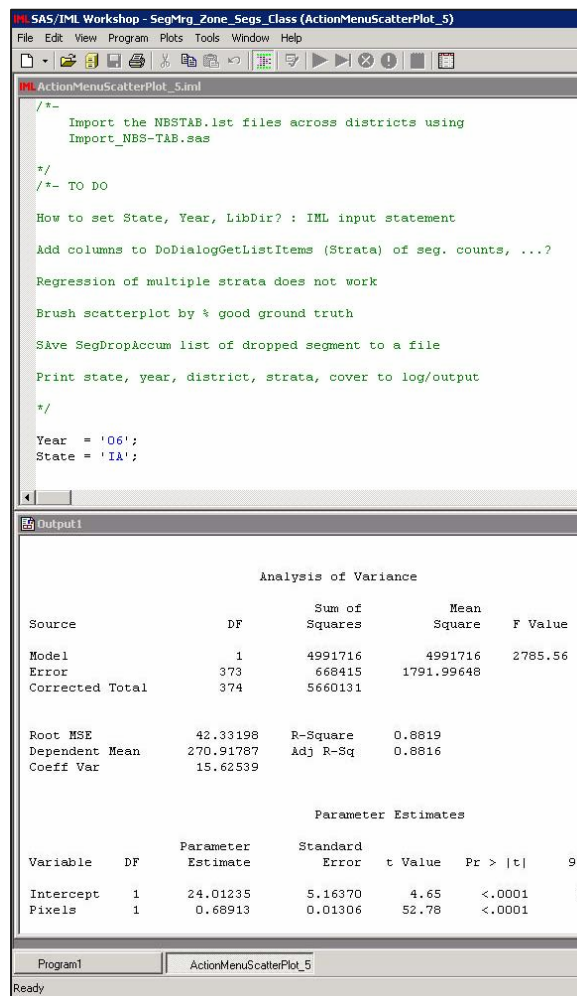
Resourcesat-1 AWiFS, 6 July 2007

Regression-based Acreage Estimator

Acreage not just about counting pixels

NASS Inputs

- June Survey summaries
- Area Sampling Frame
- CDLs



Status – October 2007

- AWiFS data was delivered by early September
- MODIS data was ingested as available
- FSA-based ground truth was obtained mid-August

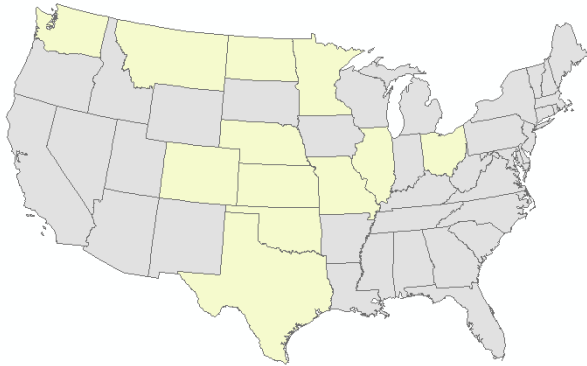
Land cover classifications completed September 19th

Corn/soybean acreage estimates finished October 1st

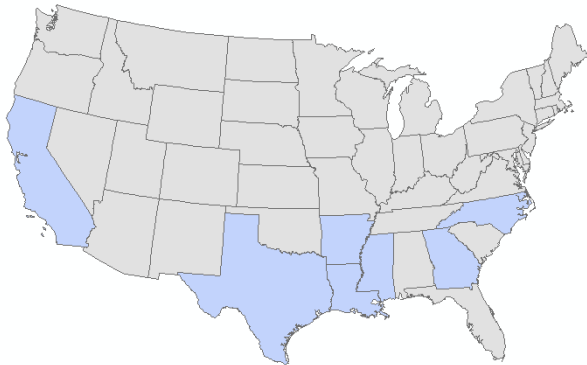
- Also working on special 2007 CDLs for
 - California, Louisiana, Michigan and Mississippi



CDL 2008?



Primary Wheat States



Primary Cotton States

- Expand geographic scope?
 - Wheat states next priority
 - Mid-Atlantic region (often asked about)
- Improved categories?
 - Grassland
 - Pasture (chewed grass)
 - Hay (cut grass)
 - Natural (quasi-native)
- Imagery?
 - More frugal use of
 - Future sensors
 - Finer resolution
- Other ancillary data?
 - Soils
 - Climate
- Derivatives?
 - Change detection
 - Crop rotation patterns

Thank You

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