

# Remote Sensing of Agriculture

## NASS' Cropland Data Layer Program

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USDA/NASS



# 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](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

Home About NASS Newsroom Publications Data and Statistics Census Surveys Help Contact Us

You are here: Home / Data and Statistics

## 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 Statistical Maps  
Interactive Census Maps for 2002 Census Highlights

Table Lens Application for 1997 Census Data

Last modified: 12/30/05

NASS Home | USDA.gov | FEDSTATS | Economics Statistics System (ESS) | Site Map  
FOIA | Accessibility Statement | Privacy Policy | Non-Discrimination Statement | Information Quality | FirstGov | White House

## 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 and geese during 2001, translates to Maryland farmers losing 7.7 percent of the crop value to deer and geese. Soybeans account 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.

Region	Crop	Acres Harvested	Harvested Yield (bu/acre)	Average Yield Loss (bu/acre)	Production Loss (bu)	Economic Loss (\$)
Western Maryland (Central & West)	Corn	9,500	124.9	7.4	40,100	83
	Soybeans	300	36.7	6.1	1,851	3
	Wheat	200	45.2	2.0	460	1
Central Maryland	Corn	124,200	98.4	9.9	1,201,200	2,473
	Soybeans	92,800	34.0	3.9	360,780	1,479
	Wheat	38,300	63.3	3.3	126,290	339
Southern Maryland (Lower Eastern Shore)	Corn	29,800	132.9	4.9	146,200	299
	Soybeans	43,200	39.0	3.1	142,260	394
	Wheat	16,900	57.0	0.9	14,400	36
Upper Shore (Eastern Shore)	Corn	157,200	139.2	5.1	800,700	1,241
	Soybeans	232,000	39.8	2.4	896,800	2,282
	Wheat	88,800	64.0	1.1	99,210	213

## 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. history in 2007, according to the U.S. Department of Agriculture's National Agricultural Statistics Service, is that the nation produced 13.1 billion bushels, 10.6 percent more than in 2006. Based on conditions as of August 10, 2007, the nation is expected to produce 13.1 billion bushels, up 3.7 bushels from last year. The average yield per acre is expected to be 160.4 bushels per acre, up from 156.4 bushels per acre in 2006. Yield forecasts are higher than in 2006 in the 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.

http://www.nass.usda.gov:8080 - 2002 Census of Agriculture - SVG Interactive Mapping - United States - Microsoft Internet Explorer

## 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 Total:  
County Total:

Download data as CSV | XML | PDF

Help | Print | Return to

Legend

Scale: National | Zero or Data Withheld

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

Comparisons: 6 | 20,001 to 40,000

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 1/2

### Wisconsin Dairy Herds by Herd Size

Milk cow herd size	May 2002 herds	May 2007 herds (projected) 1/	Change 2007/2002
Number			Percent
1 - 29	2,800	1,440	-45
30 - 49	4,700	3,440	-27
50 - 99	7,400	5,600	-24
100 - 199	1,900	2,080	+9
200 - 499	700	600	-14
500+	200	440	+120
Total	17,500	15,900	-9

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 Farmer Plans for May 2007 1/

Herds	Keep same herd size	Increase herd size	Discontinue milking
Number			Percent
2,600	47	17	58
4,700	71	9	20
7,400	65	19	18
1,900	53	37	10
700	35	59	8
200	22	78	0
17,500	62	29	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.

# Research and Development Division

## Geospatial Information Branch

### Spatial Analysis Research

NASS - Research and Science - Windows Internet Explorer

http://www.nass.usda.gov/Research\_and\_Science/index.asp

USDA United States Department of Agriculture  
National Agricultural Statistics Service

Search NASS

You are here: Home / Research and Science

### 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

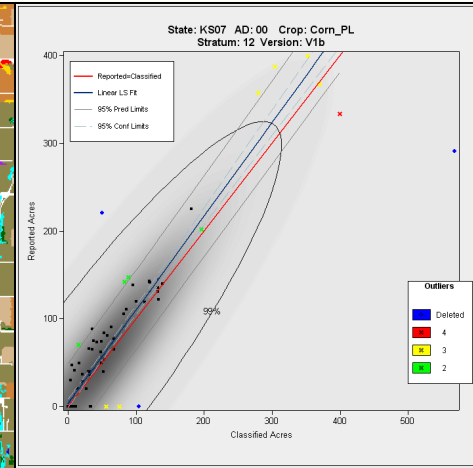
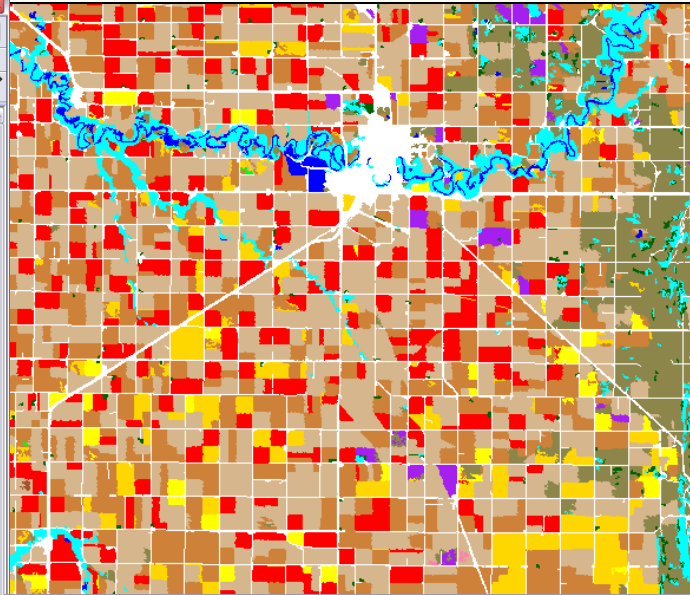
Interact with Data (1997)

**Also See**

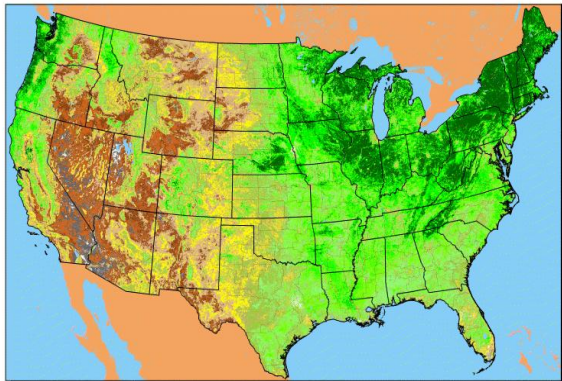
- Research Fellow and Associate Program
- Seasonal Summary of Crop Progress and Condition
- Remotely Sensed Data
  - Crop Acreage
  - Crop Yield
  - Future Vision

**Media Help**

To view animated map files you must have Quicktime installed on your computer.

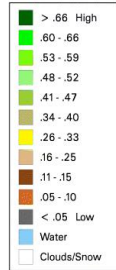


Continuerous U.S. Vegetation Condition - 2007  
Period 33 (7/31 - 8/13)



No Water Vapor Correction Applied

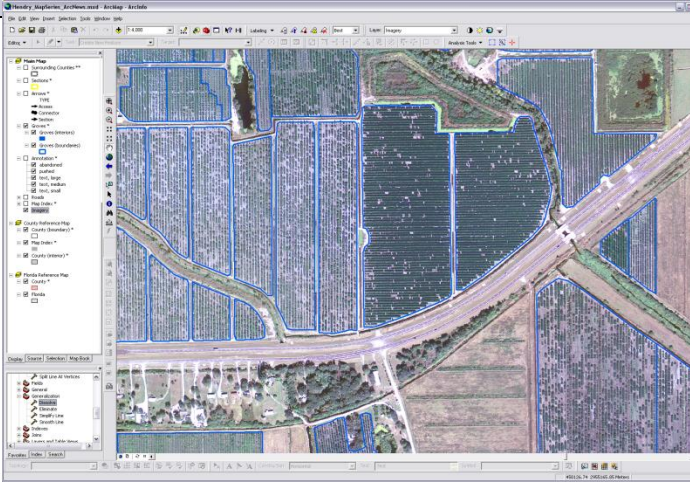
Vegetation Index



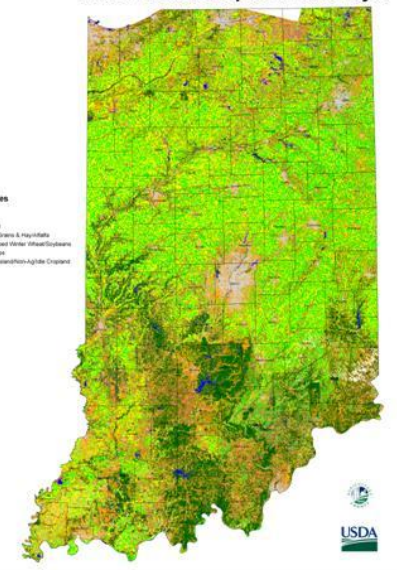
Agricultural Statistical Districts

1:15,000,000

Map of the United States showing agricultural statistical districts. The map is color-coded by state and includes a legend for the districts.



2006 Indiana Cropland Data Layer

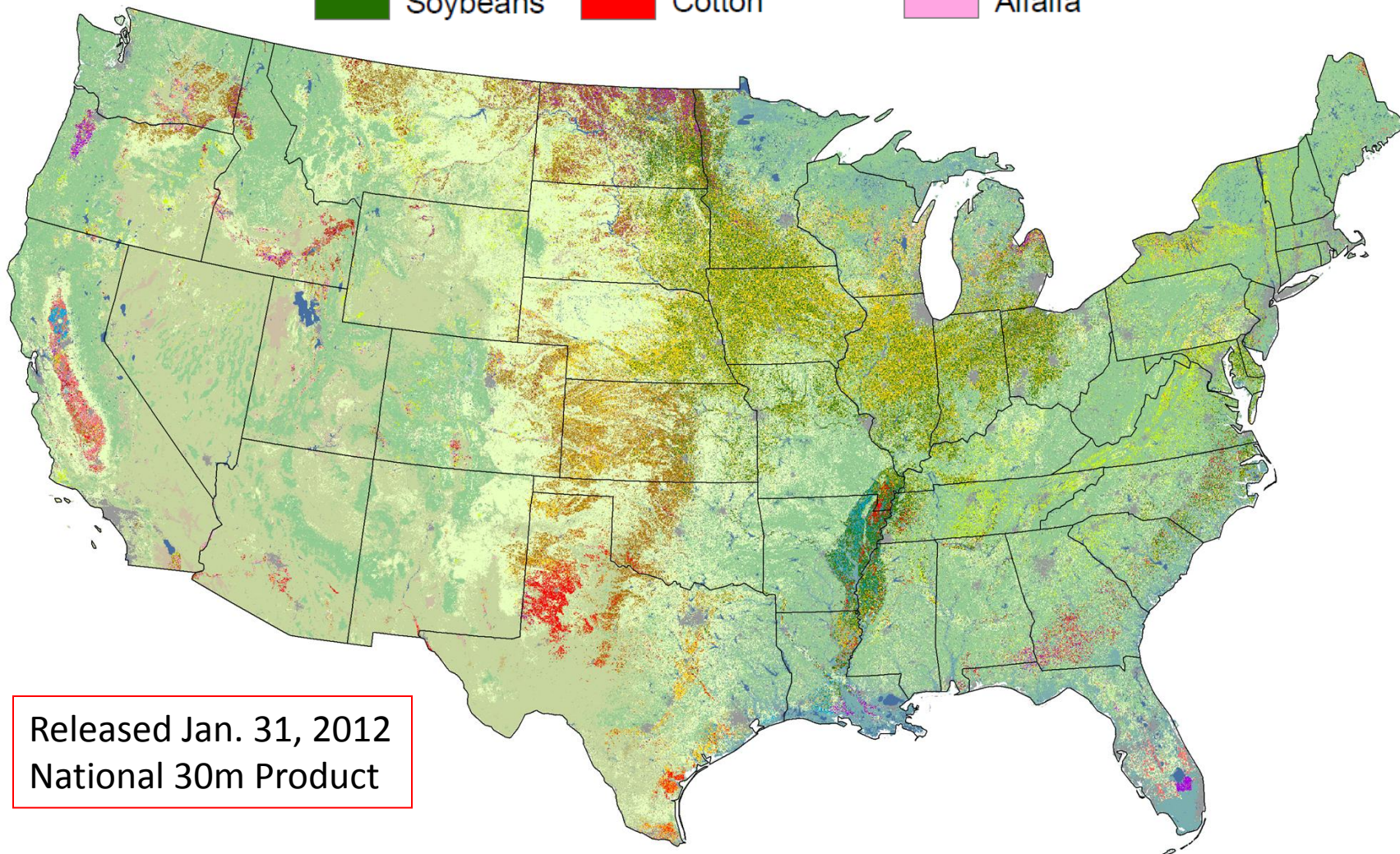


# Remote Sensing Acreage Estimation Program Objectives

- “Census by Satellite”
  - Without area duplication
  - Major corn and soybean regions
  
- Provide timely, accurate, useful independent estimates
  - Measurable error
  - County and state level
  
- Public domain crop specific crop classification
  - <http://nassgeodata.gmu.edu/CropScape>
  - [NRCS Geospatial Data Gateway](#)
  - <http://www.nass.usda.gov/research/Cropland/SARS1a.htm>
  - Google CropScape!

# What is the Cropland Data Layer (CDL)?

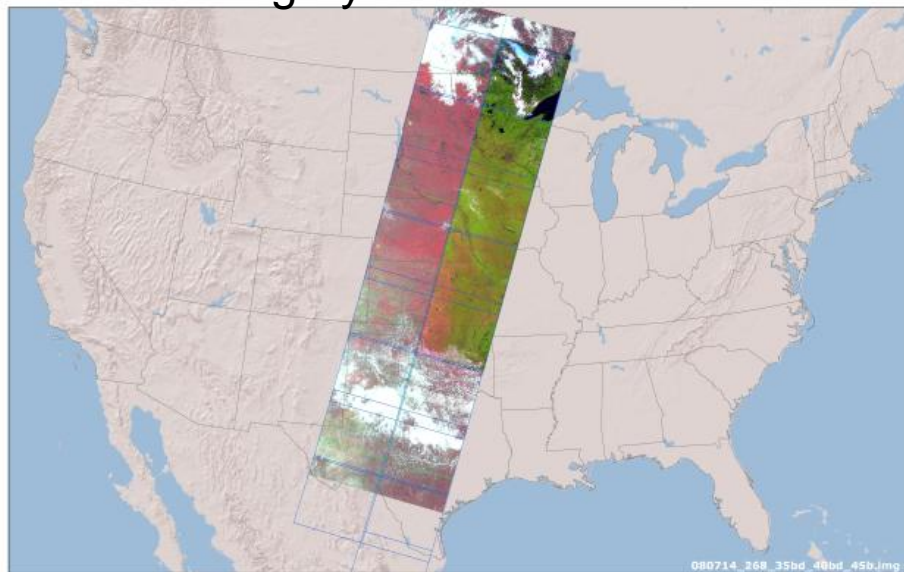
The Cropland Data Layer product is a raster-formatted, geo-referenced, crop specific, land cover map.



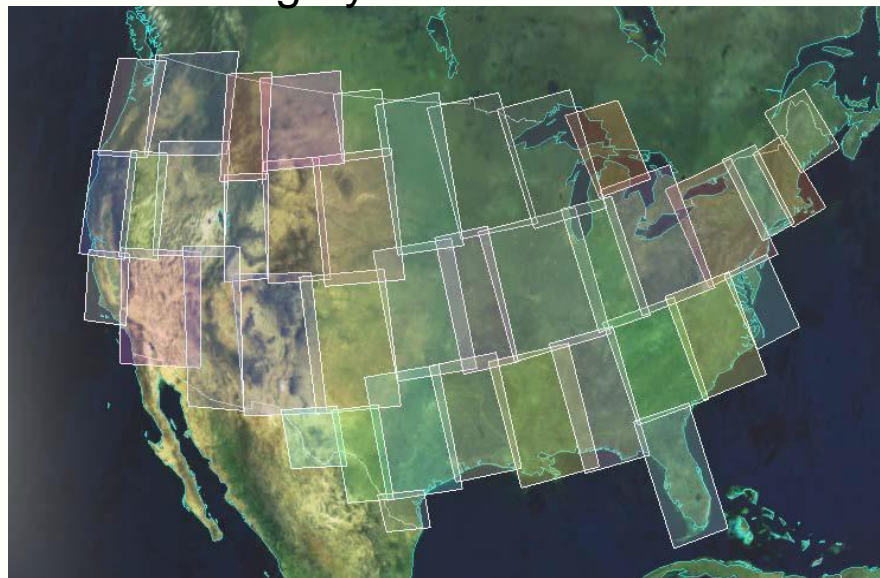
Released Jan. 31, 2012  
National 30m Product

# 2011 Cropland Data Layer Inputs

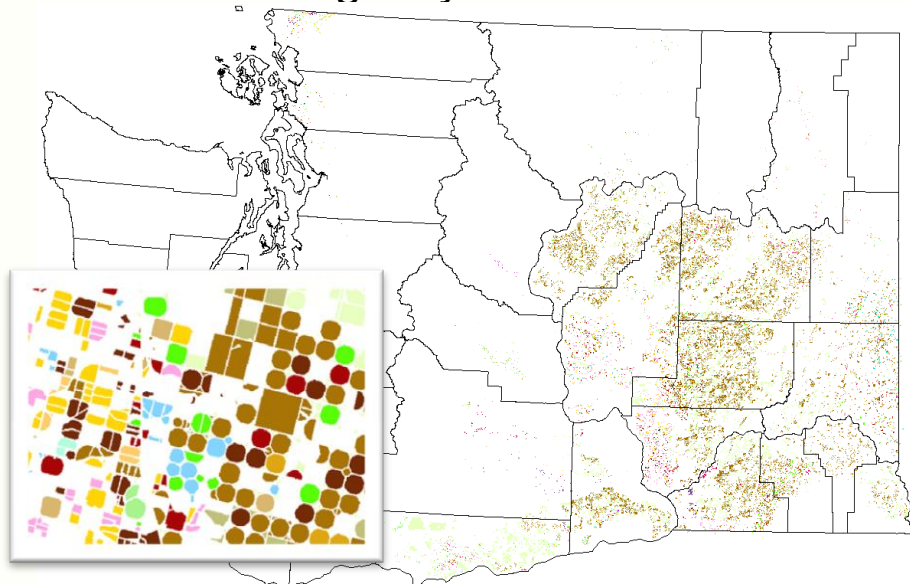
Satellite Imagery – Landsat



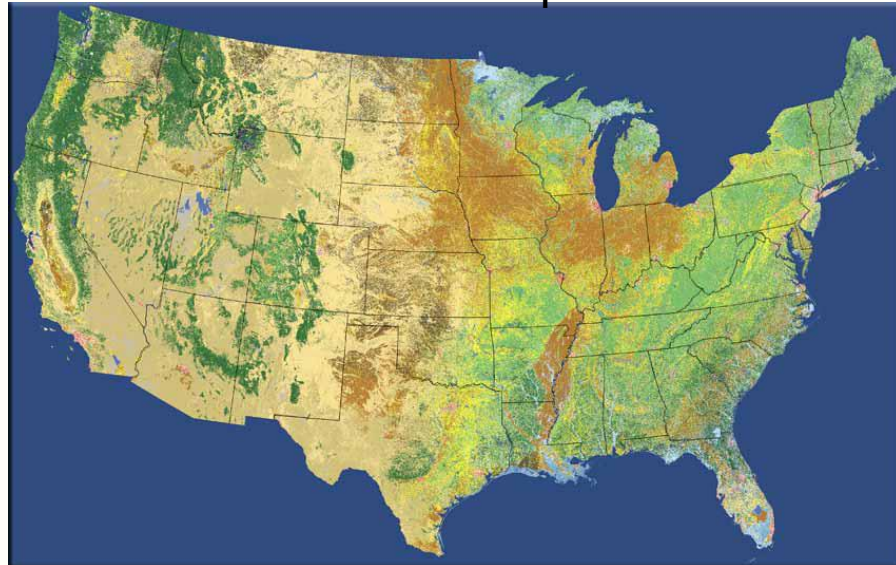
Satellite Imagery – Deimos & UK2



Farm Service Agency: Common Land Unit



2006 NLCD & Derivative products

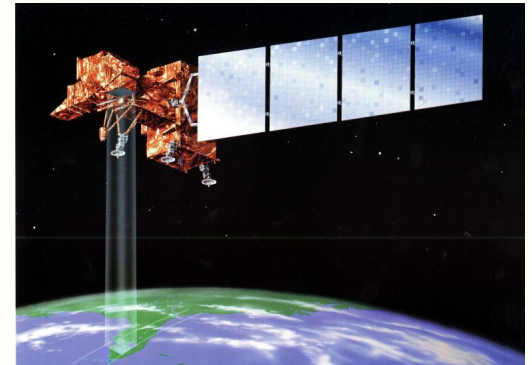


# Landsat Imagery 1997-2012

Landsat 5 launched 1984 (3 yr design life!)

– Thematic Mapper (TM) Sensor

Landsat 7 launched 1999 Thematic Mapper (ETM+) Sensor



# The Landsat Data Gap

## Landsat 7 ETM+



## Landsat 5 TM



### News Release

November 30, 2005 Ron Beck

## Landsat 5 Experiencing Technical Difficulties

On November 26, 2005, the back-up solar array drive on Landsat 5 began exhibiting unusual behavior. The solar array drive maintains the proper pointing angle between the solar array and the sun. The rotation of the solar array drive became sporadic and the solar array was not able to provide the power needed to charge the batteries. Maintaining power to the batteries is critical to sustain proper operation of the spacecraft. The primary solar array drive failed under similar circumstances last January. As a result of this current situation, imaging operations will be suspended for at least the next two weeks or until attempts to solve the problem have been resolved.

**Source: USGS, Landsat Project:**

[http://landsat.usgs.gov/slc\\_enhancements/slc\\_off\\_level1\\_standard.php](http://landsat.usgs.gov/slc_enhancements/slc_off_level1_standard.php)



# Deimos and UK2 Micro Satellites

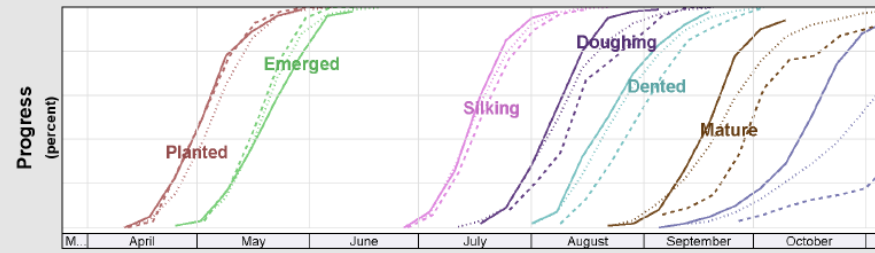
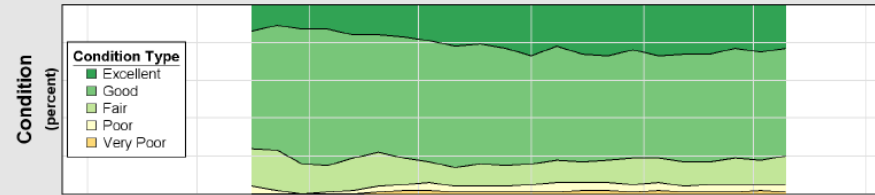
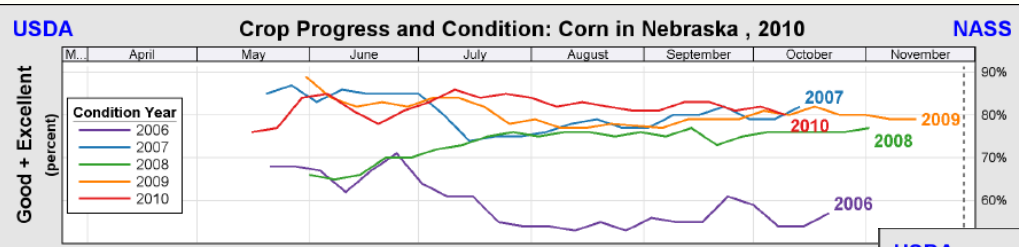
(22-metre, multi-spectral DMC imager  
600km imaging swath)



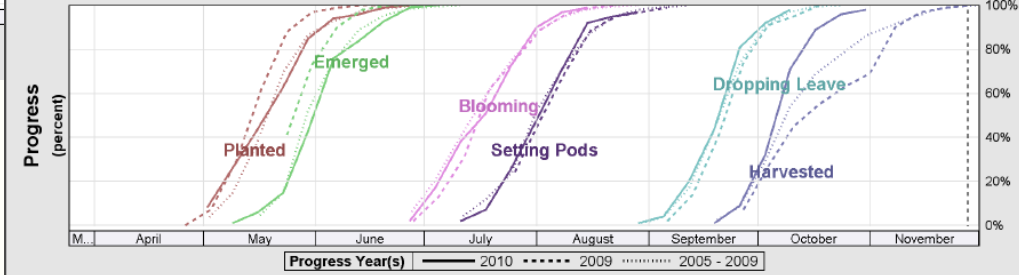
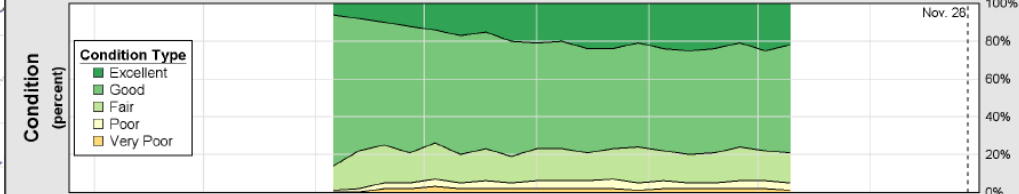
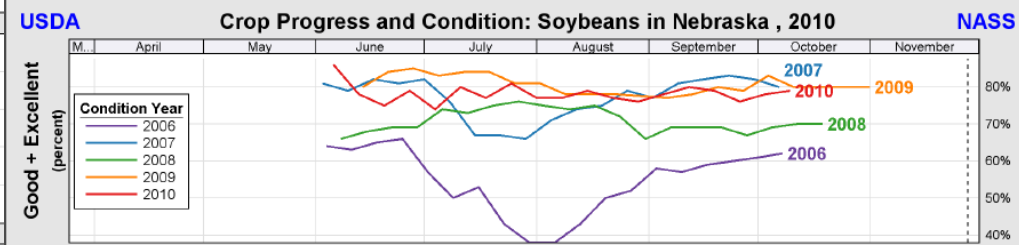
# Sensor Specifications Compared

	<u>TM</u>	<u>Deimos/UK2</u>
<b>Launch Date</b>	1984	2009
<b>Altitude</b>	705 km	686 km
<b>Temporal Resolution</b>	16 days	4 days
<b>Spatial Resolution</b>	30 x 30 m (reflective) 120 x 120 m (thermal)	22 x 22 m (reflective)
<b>Radiometric Resolution</b>	8 bit (256)	10 bit (1024)
<b>Spectral Resolution</b>	6 (B, G, R, NIR, SWIR, MIR) + Thermal IR	3 (G, R, NIR)
<b>Swath wide</b>	185 km	600 km

# Image Timing

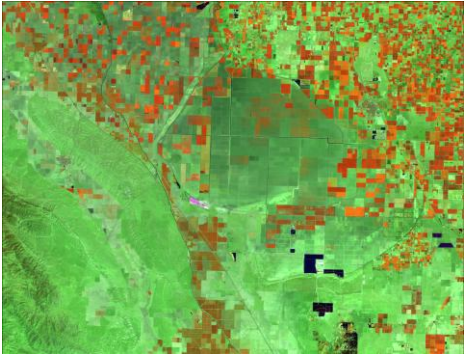


Source: National Agricultural Statistics Service (NASS), Crop Progress Report

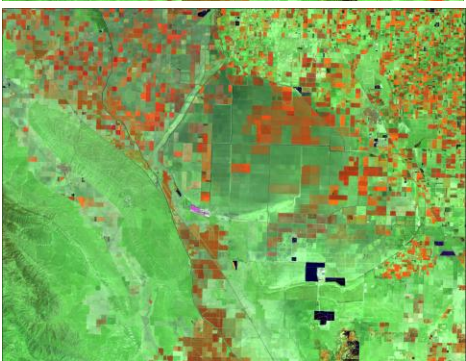


Source: National Agricultural Statistics Service (NASS), Crop Progress Report

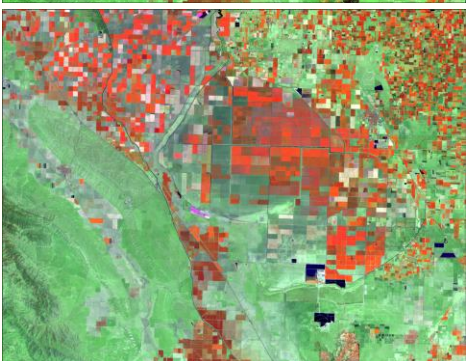
April



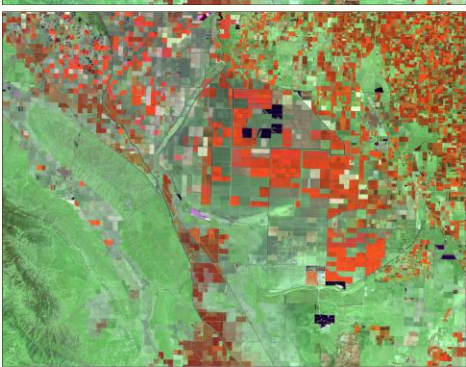
May



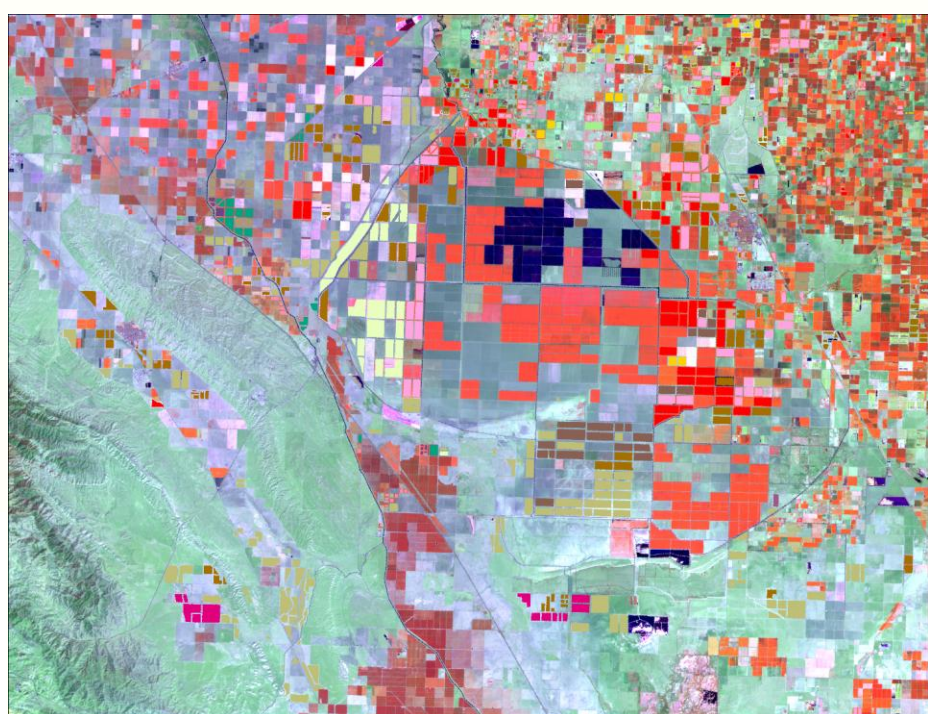
June



July



August  
with farm  
data

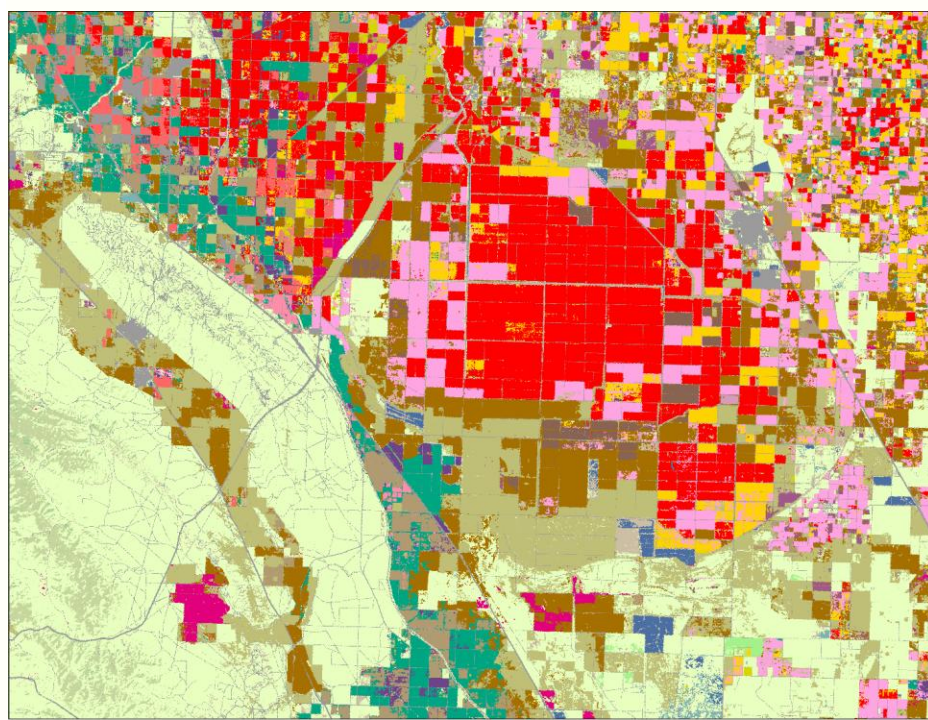


**Land Cover Categories**

**Agriculture**

-  Pasture/Grass
-  Alfalfa
-  Fallow/Idle Cropland
-  Winter Wheat
-  Barley
-  Cotton
-  Almonds
-  Corn
-  Durum Wheat

Final  
CDL



# Cropland Data Layer Program Components



- Satellite Imagery : Landsat TM, Deimos and UK2 data
- Ground truth: FSA/CLU + 578 & NLCD
- Ancillary data sets
- Commercial Software Suite
- See5 Decision Tree Methodology
- Estimation
- CropScape

# Ground Truth – Land Cover

## Agriculture Ground Truth

Provided by Farm Service Agency

Identifies known fields and crops

## Non-Agriculture Ground Truth

USGS National Land Cover

Dataset

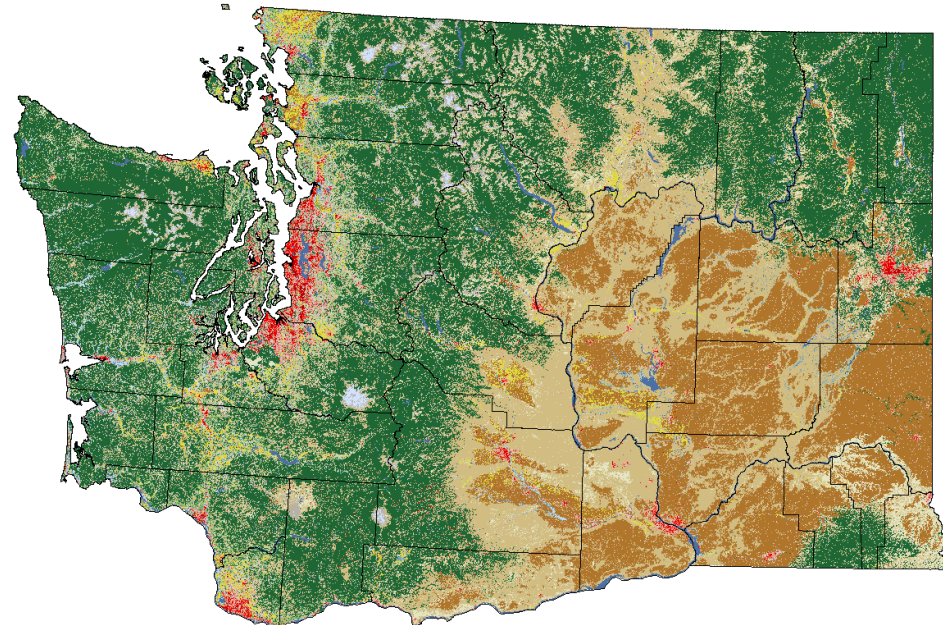
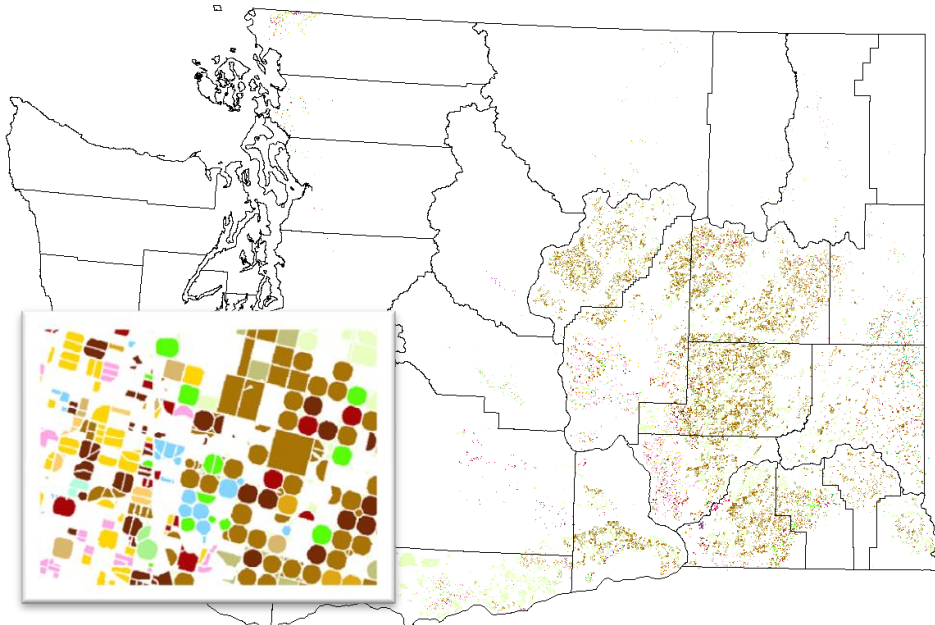
Divide known fields into 2 sets

70% used for training software

30% used for validating results

Identifies urban infrastructure and  
non-agriculture land cover

Forest, grass, water, cities

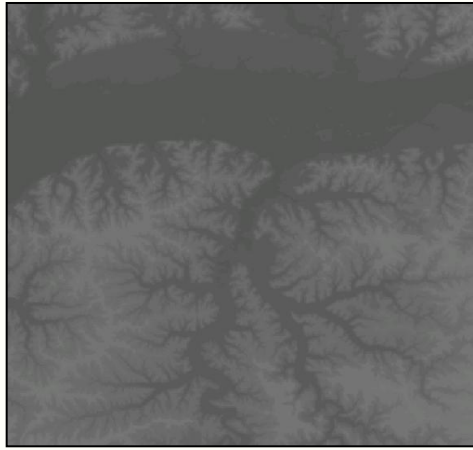


# Cropland Data Layer Program Components

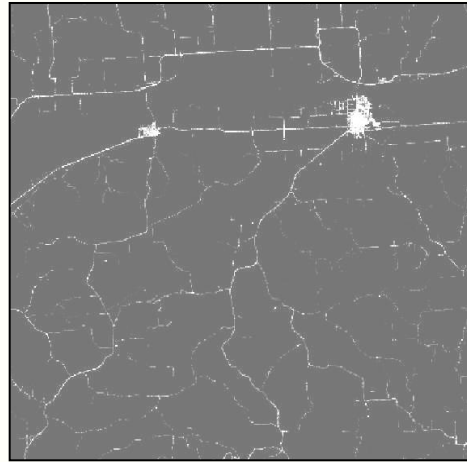


- Satellite Imagery: Landsat TM and Deimos and UK2 data
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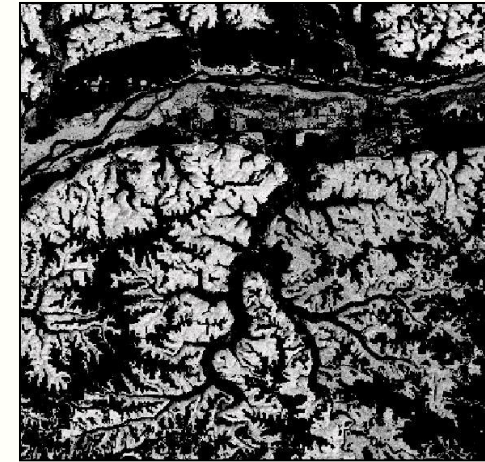
# Ancillary Data – USGS/NASA Products



Elevation

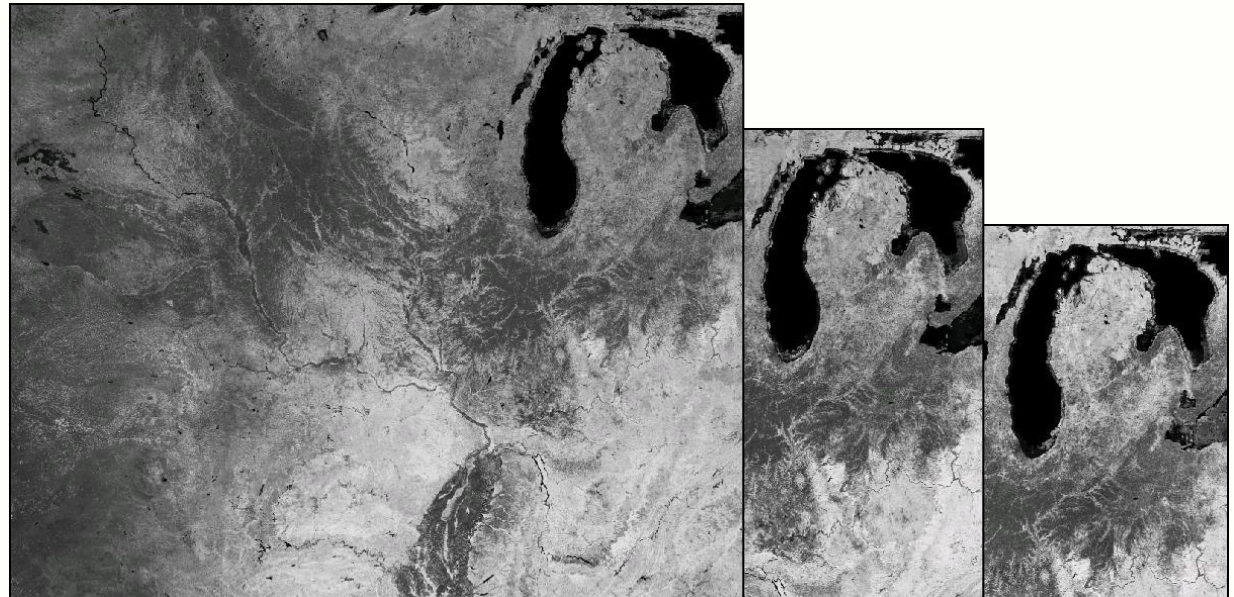


Imperviousness



Forest Canopy

NASA MODIS Terra  
(16-day NDVI composite)





# Cropland Data Layer Program Components



- Satellite Imagery: Landsat TM , Deimos and UK2 data
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# Commercial Software Suite

- Imagery Preparation
  - Leica Geosystems ERDAS Imagine
- Image classification
  - Decision tree software
    - See5.0 [www.rulequest.com](http://www.rulequest.com)
- Ground Truth Preparation
  - ESRI ArcGIS
- Acreage Estimation
  - SAS/IML workshop



```

5dates.out - WordPad
File Edit View Insert Format Help

See5 [Release 2.03] Tue Dec 26 09:20:26 2006
-----

Options:
  10 boosting trials

Class specified by attribute `dep'

Read 62526 cases (23 attributes) from 5dates.data

----- Trial 0: -----

Decision tree:

band15 > 59:
...band14 <= 34:
:   ...band01 > 33:
:   :   ...band04 > 113: 8 (76)
:   :   :   band04 <= 113:
:   :   :   :   ...band07 > 105:
:   :   :   :   :   ...band05 <= 21: 3 (5/1)
:   :   :   :   :   :   band05 > 21:
:   :   :   :   :   :   :   ...band18 > 25: 1 (24)
:   :   :   :   :   :   :   :   band18 <= 25:
:   :   :   :   :   :   :   :   :   ...band08 > 66: 1
:   :   :   :   :   :   :   :   :   :   band08 <= 66:
:   :   :   :   :   :   :   :   :   :   :   ...band08 <=
:   :   :   :   :   :   :   :   :   :   :   :   band08 > 6
:   :   :   :   :   :   :   :   :   :   :   :   :   band07 <= 105:
:   :   :   :   :   :   :   :   :   :   :   :   :   :   ...band14 > 27:
:   :   :   :   :   :   :   :   :   :   :   :   :   :   :   ...band06 <= 21: 3 (2
:   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   band06 > 21:

```

**Classifier Construction Options**

Winnow attributes

Rulesets

Sort by utility  bands

Boost  trials

Subsets of values

Use sample of  %

Lock sample

Cross-validate  folds

Ignore costs file

Advanced options

Fuzzy thresholds

Global pruning


Pruning CF  %

Minimum  cases

OK Defaults Cancel

**See5**

File Edit Help

 **hypothyroid**

[class and attribute definitions \(hypothyroid.names\)](#)

[training cases to be analyzed \(hypothyroid.data\)](#)

[test cases \(hypothyroid.test\)](#)

[misclassification costs \(hypothyroid.costs\)](#)

[decision tree classifier \(hypothyroid.tree\)](#)

[ruleset classifier \(hypothyroid.rules\)](#)

[output file \(hypothyroid.out\)](#)

# See5 Decision Tree Classifier

State-of-the-art technique for image classification

- Relatively cheap (\$750)

Incorporates a powerful ensemble method known as “boosting”

The “NLCD Mapping Tool” was integrated into ERDAS Imagine

- Provided gratis by USGS

**NLCD Mapping Tool**

Percent Calculation ...

NLCD Sampling Tool ...

Cubist Classifier...

See5 Classifier...

Accuracy Assessment...

Smart Eliminate...

Cubist Info See5 Info

Close



# Accuracy Assessments

```

Crop-specific covers only *Correct Accuracy Error Kappa
-----
OVERALL ACCURACY          740009  93.56%  6.44%  0.8488
  
```

Cover Type	Attribute Code	*Correct Pixels	Producer's Accuracy	Omission Error	Kappa	User's Accuracy	Commission Error	Cond'1 Kappa
Corn	1	28358	95.36%	4.64%	0.9528	93.08%	6.92%	0.9297
Cotton	2	11757	95.08%	4.92%	0.9505	94.59%	5.41%	0.9456
Rice	3	2	28.57%	71.43%	0.2857	66.67%	33.33%	0.6667
Sorghum	4	21251	89.85%	10.15%	0.8972	92.46%	7.54%	0.9236
Soybeans	5	12885	86.15%	13.85%	0.8604	88.61%	11.39%	0.8851
Sunflowers	6	102	89.47%	10.53%	0.8947	99.03%	0.97%	0.9903
Peanuts	10	512	90.14%	9.86%	0.9014	92.09%	7.91%	0.9208
Barley	21	785	71.95%	28.05%	0.7194	97.39%	2.61%	0.9739
Durum Wheat	22	48	42.86%	57.14%	0.4286	100.00%	0.00%	1.0000
Spring Wheat	23	205	56.47%	43.53%	0.5647	99.03%	0.97%	0.9903
Winter Wheat	24	580437	97.54%	2.46%	0.9631	94.00%	6.00%	0.9117
Other Small Grains	25	1120	56.97%	43.03%	0.5694	93.57%	6.43%	0.9356
Win Wht /Soyb Dbl Crop	26	14758	79.51%	20.49%	0.7932	90.06%	9.94%	0.8996
Rye	27	13249	66.90%	33.10%	0.6664	91.39%	8.61%	0.9129
Oats	28	2941	64.85%	35.15%	0.6479	95.18%	4.82%	0.9517
Millet	29	439	77.02%	22.98%	0.7701	96.48%	3.52%	0.9648
Canola	31	337	75.90%	24.10%	0.7590	98.83%	1.17%	0.9883
Alfalfa	36	19653	88.21%	11.79%	0.8807	91.78%	8.22%	0.9168
Dry Beans	42	115	88.46%	11.54%	0.8846	93.50%	6.50%	0.9350
Potatoes	43	49	96.08%	3.92%	0.9608	100.00%	0.00%	1.0000
Other Crops	44	50	45.87%	54.13%	0.4587	80.65%	19.35%	0.8064
Misc Veggies & Fruits	47	33	54.10%	45.90%	0.5410	86.84%	13.16%	0.8684
Watermelon	48	24	77.42%	22.58%	0.7742	85.71%	14.29%	0.8571
Peas	53	188	72.59%	27.41%	0.7258	96.91%	3.09%	0.9691
Clover/Wildflowers	58	21	36.21%	63.79%	0.3621	75.00%	25.00%	0.7500
Fallow/Idle Cropland	61	30612	69.78%	30.22%	0.6922	90.48%	9.52%	0.9025
Peaches	67	9	36.00%	64.00%	0.3600	100.00%	0.00%	1.0000
Other Tree Nuts & Fruit	71	69	33.82%	66.18%	0.3382	83.13%	16.87%	0.8313

\*Correct Pixels represents the total number of independent validation pixels correctly identified in the error matrix.

# Accuracy Assessments

	Cover Type	Attribute Code	*Correct Pixels	Producer's Accuracy	Omission Error	Kappa	User's Accuracy	Commission Error	Cond'l Kappa
IA	Corn	1	2197719	96.58%	3.42%	0.9226	97.86%	2.14%	0.9509
	Soybeans	5	1471094	96.24%	3.76%	0.9392	95.78%	4.22%	0.9320
IL	Corn	1	2258219	98.06%	1.94%	0.9527	98.58%	1.42%	0.9650
	Soybeans	5	1339089	96.36%	3.64%	0.9438	97.96%	2.04%	0.9681
NE	Corn	1	1856422	97.29%	2.71%	0.9605	97.32%	2.68%	0.9608
	Soybeans	5	849249	95.83%	4.17%	0.9513	96.95%	3.05%	0.9643
SD	Corn	1	803251	94.29%	5.71%	0.9342	95.78%	4.22%	0.9513
	Soybeans	5	707383	95.03%	4.97%	0.9439	97.72%	2.28%	0.9741

	Crop-specific covers only	*Correct	Accuracy	Error	Kappa
IA	OVERALL ACCURACY	3688803	95.74%	4.26%	0.9145
IL	OVERALL ACCURACY	3730093	97.05%	2.95%	0.9426
NE	OVERALL ACCURACY	3071960	94.05%	5.95%	0.8981
SD	OVERALL ACCURACY	2306428	87.51%	12.49%	0.8416

State level accuracies are very high

**Producer's Accuracy:** relates to the probability that a ground truth pixel will be correctly mapped and measures errors of omission.

**Errors of Omission:** occur when a pixel is excluded from the correct category.

**User's Accuracy:** indicates the probability that a pixel from the classification actually matches the ground truth data and measures errors of commission.

**Errors of Commission:** occur when a pixel is included in an incorrect category.

**Kappa Coefficient:** A statistics measure of agreement, beyond chance, between two maps.

# Cropland Data Layer Program Components



- Satellite Imagery: Landsat TM, Deimos and UK2 data
- Ground truth: FSA/CLU + 578 & NLCD
- Ancillary data sets
- Commercial Software Suite
- See5 Decision Tree Methodology
- Estimation
- CropScape

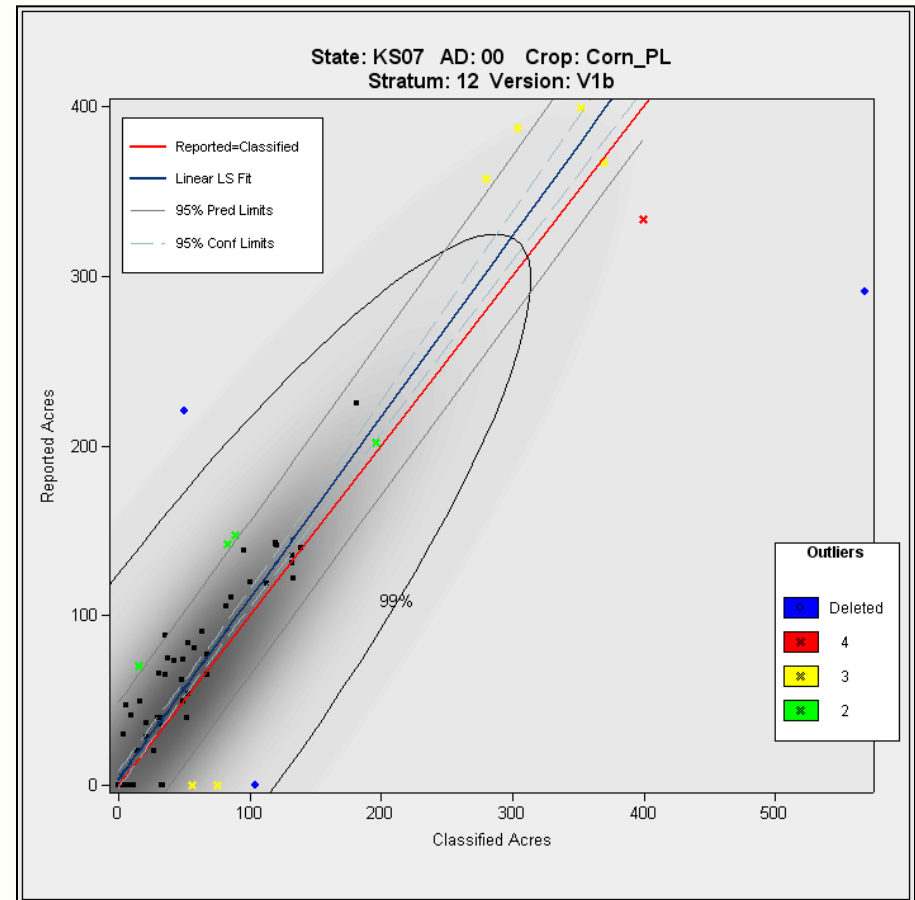
# Regression-based Acreage Estimator

Regression used to relate categorized pixel counts to the ground reference data

- (X) – Cropland Data Layer (CDL) classified acres
- (Y) – June Agricultural Survey (JAS) reported acres

Using both CDL and JAS acreage results in estimates with reduced error rates over JAS alone

Outlier segment detection - removal from regression analysis



Acreage not just about counting pixels

January

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5

February

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	

March

Su	Mo	Tu	We	Th	Fr	Sa
						1

# CDL Production Schedule

8:● 15:○ 22:○ 30:○

6:● 13:○ 20:○ 28:○

7:● 14:○ 21:○ 29:○

April

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

May

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

June

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24				
29	30					

Crop Acreage Report  
CDL winter wheat

5:● 12:○ 20:○ 28:○

5:● 11:○ 19:○ 27:○

3:● 10:○

July

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5

August

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	
4	5	6	7	8	9	
11	12	13	14	15	16	
18	19	20	21	22	23	
25	26	27	28	29	30	

September

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Crop Production Report  
CDL all crops

Small Grains Annual Summary  
CDL small grains

2:● 10:○ 18:○ 25:○

1:● 8:○ 16:○ 23:○ 30:○

7:○

October

Su	Mo	Tu	We	Th	Fr	Sa
----	----	----	----	----	----	----

November

Su	Mo	Tu	We	Th	Fr	Sa
----	----	----	----	----	----	----

Su	Mo	Tu	We	Th	Fr	Sa

Crop Production Repo:  
CDL all crops

Historical:  
Crop Production Annual Summary  
CDL all crops/county estimates

3	4	5	6
0	11	12	13
7	18	19	20
4	25	26	27
1			

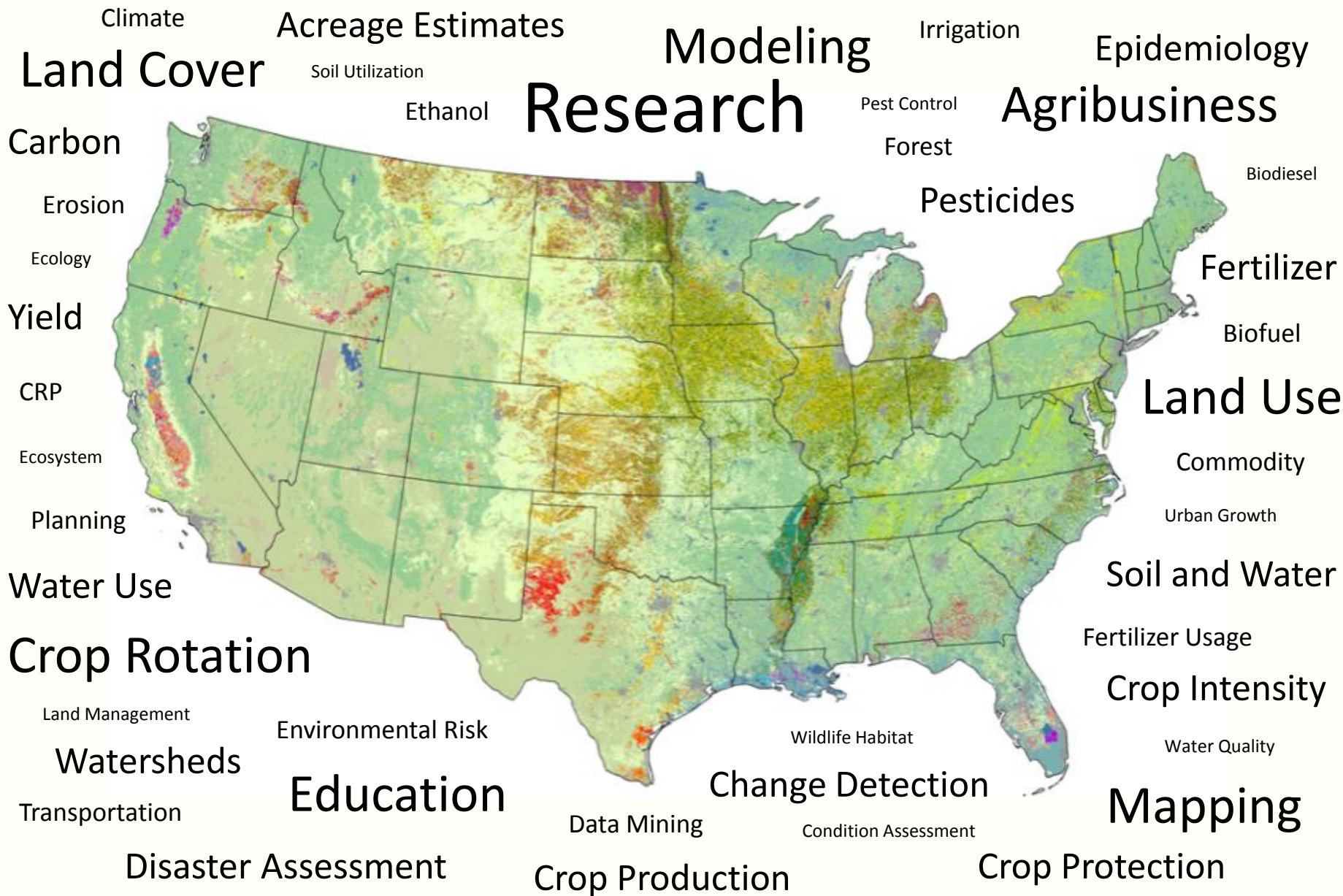
7:○ 14:○ 21:○ 28:○

5:○ 13:○ 19:○ 27:○

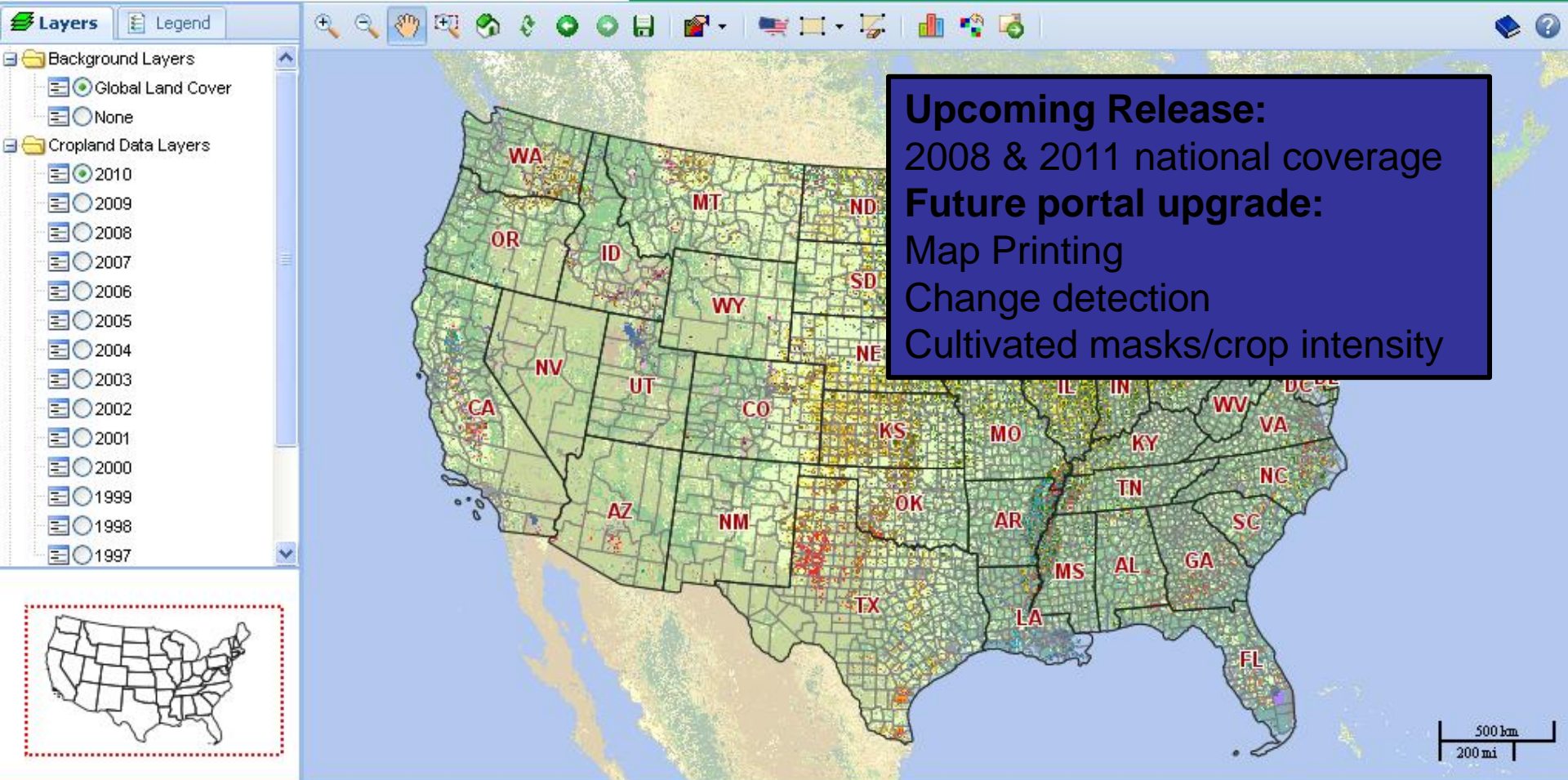
5:○ 12:○ 19:○ 27:○



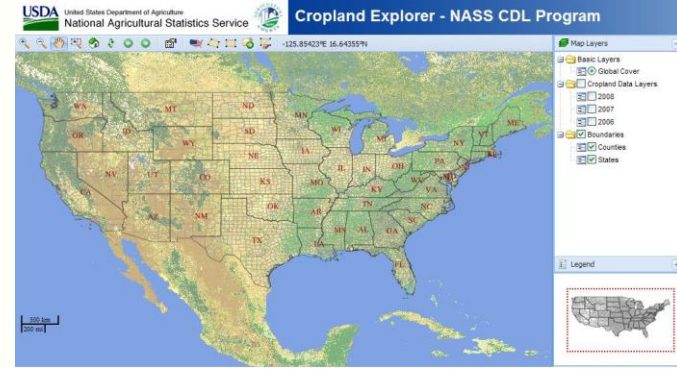
# NASS Cropland Data Layer Applications



# CropScape Portal



# CropScape



- CropScape web portal
- A web service based interactive map visualization, dissemination and querying system for U.S. cropland
  - No burden on users
    - No client software development & installation
    - No special software tools needed
  - Equitable cropland information access, automatic and timely delivery, geospatial navigation, retrieval, queries and dissemination
- Collaboration with George Mason University/ Center for Spatial Information Science and Systems



# CropScape Cont.

- State of the art CDL visualization, querying and dissemination tool
- Interactive geospatial statistical analysis tools
  - Online/interactive analytics, charting and mapping
  - Geospatial information access, navigation
  - CDL map and statistical result retrieval and dissemination web services
- Open geospatial standards compliant

# CropScape Portal Defined

Visual Tools

Point Query

Stats/Change/Download

Layers Legend

- Background Layers
  - Global Land Cover
  - None
- Cropland Data Layers
  - 2010
  - 2009
  - 2008
  - 2007
  - 2006
  - 2005
  - 2004
  - 2003
  - 2002
  - 2001
  - 2000
  - 1999

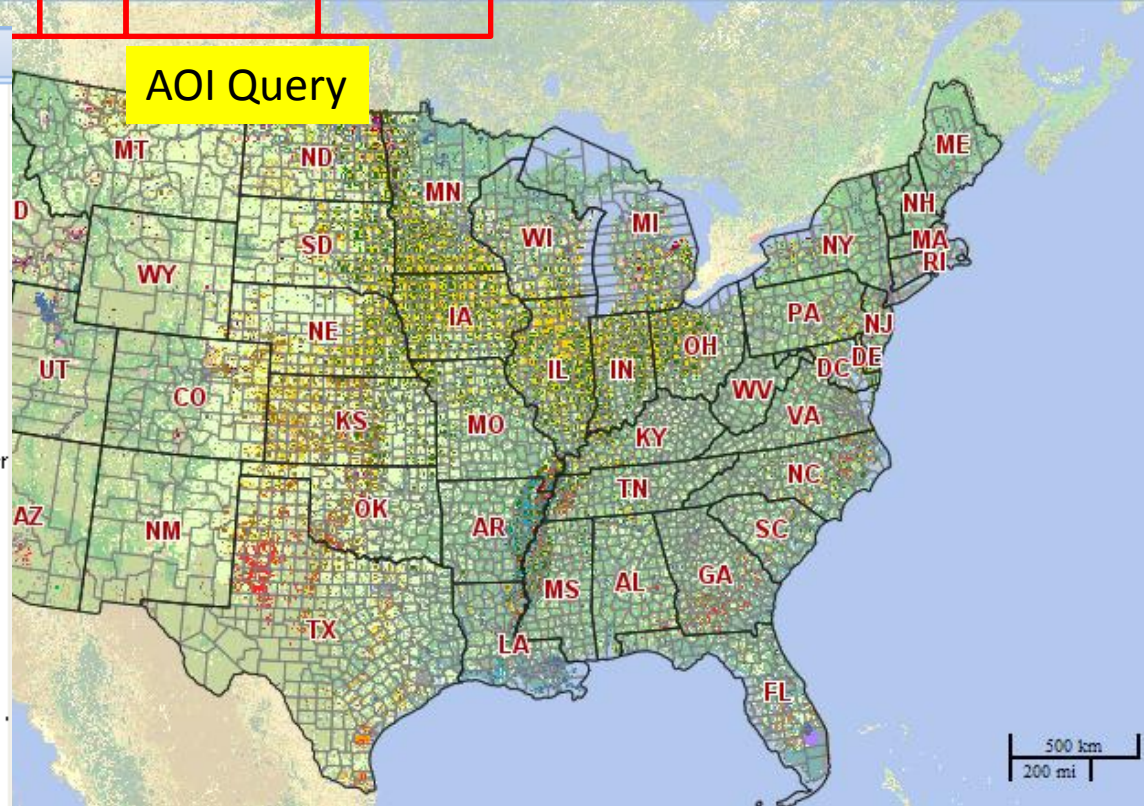
Layer/Legend

Layers Legend

Cropland Data Layer:

- Corn
- Cotton
- Rice
- Sorghum
- Soybeans
- Tobacco
- Sweet Corn
- Popcorn or Ornamental Corn
- Mint
- Barley
- Durum Wheat
- Spring Wheat
- Winter Wheat
- Other Small Grains
- Winter Wheat/Soybeans Dbl.
- Rye
- Oats
- Millet
- Speltz
- Canola
- Flaxseed
- Safflower
- Rape Seed

AOI Query



Map Overview



# Select Area of Interest

Define Area of Interest By State/ASD/County

Select a State  
State: Iowa

Select an ASD  
ASD: Select an ASD...

Or Select a County  
County: Select a county...

Reset Submit Cancel

State

Define Area of Interest By State/ASD/County

Select a State  
State: Iowa

Select an ASD  
ASD: |

Or Select a County  
County:

Reset

- 1910
- 1920
- 1930
- 1940
- 1950
- 1960
- 1970
- 1980
- 1990

ASD

Define Area of Interest By State/ASD/County

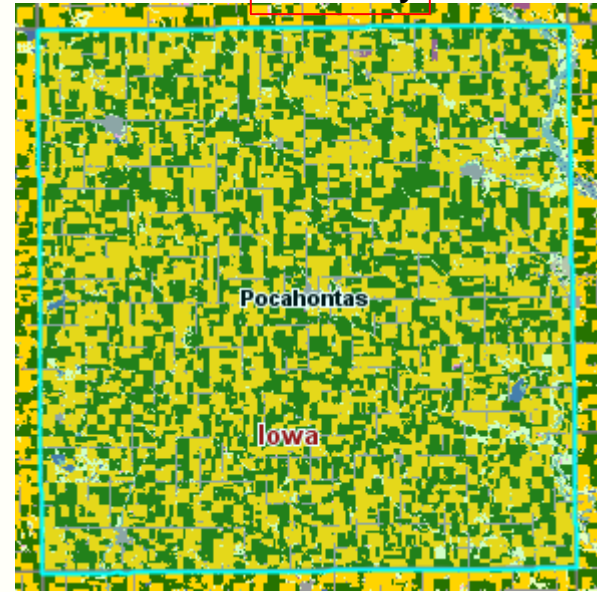
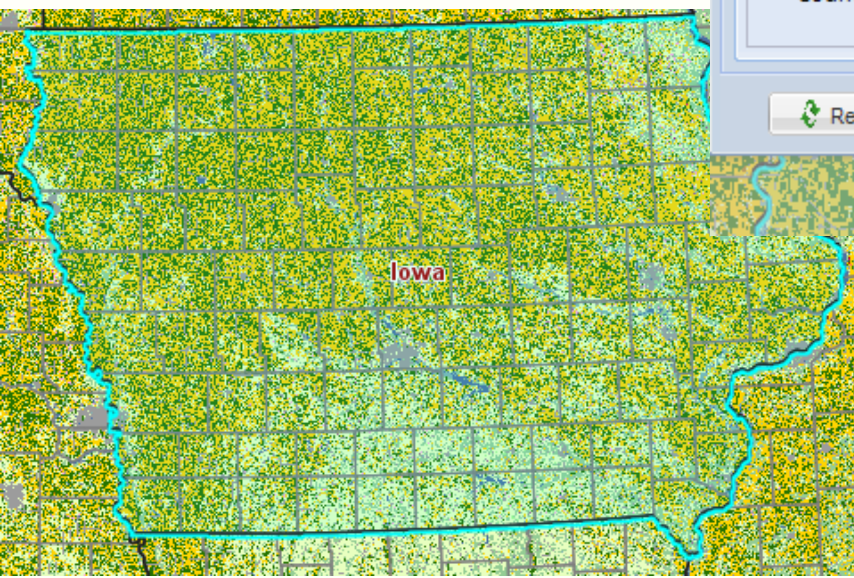
Select a State  
State: Iowa

Select an ASD  
ASD: Select an ASD...

Or Select a County  
County: Pocahontas

Reset Submit Cancel

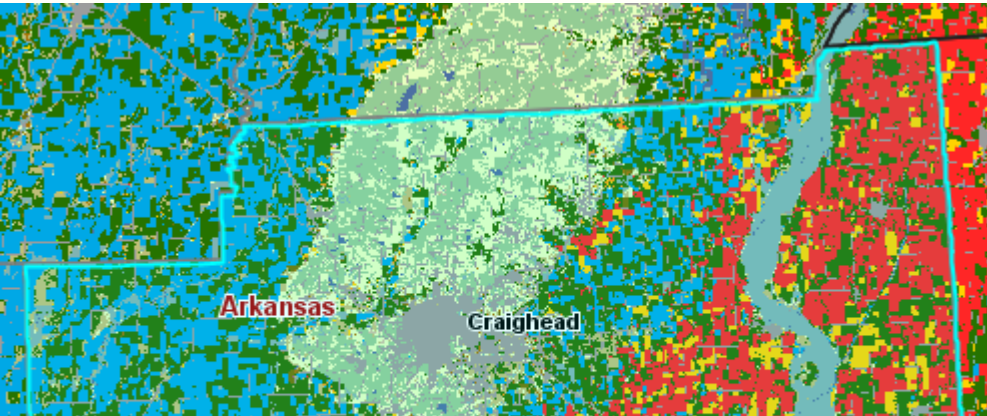
County



[www.nassgeodata.gmu/CropScape](http://www.nassgeodata.gmu/CropScape)



# CropScape Change Analysis



**Change Analysis** ✕

Select the Reference Year:  ▾

Select the Other Year:  ▾

**Cropland Data Layer Changes between 2009 and 2008**

Note: Pixel counts are not official estimates.

2009	2008	Pixel Counts	Acreage
<input type="checkbox"/> Rice	<input type="checkbox"/> Soybeans	133502	103453.6
<input type="checkbox"/> Soybeans	<input type="checkbox"/> Rice	129916	100674.7
<input type="checkbox"/> Cotton	<input type="checkbox"/> Cotton	120872	93666.3
<input type="checkbox"/> Soybeans	<input type="checkbox"/> Soybeans	106428	82473.4
<input type="checkbox"/> NLCD - Developed/Open Space	<input type="checkbox"/> NLCD - Developed/Open Space	85414	66189.2
<input type="checkbox"/> NLCD - Woody Wetlands	<input type="checkbox"/> NLCD - Woody Wetlands	83660	64830
<input type="checkbox"/> NLCD - Deciduous Forest	<input type="checkbox"/> NLCD - Deciduous Forest	73312	56811.1
<input type="checkbox"/> Other Hays	<input type="checkbox"/> Other Hays	61496	47654.6
<input type="checkbox"/> Rice	<input type="checkbox"/> Rice	39116	30311.8
		<b>1177212</b>	<b>912239.6</b>

# CropScape Download & Export



CDL Downloading - Please specify your choice(s)

Select Year(s)

Year:  2010  2009  2008  2007  
 2006  2005  2004  2003  
 2002  2001  2000  1999  
 1998  1997

Specify Projection

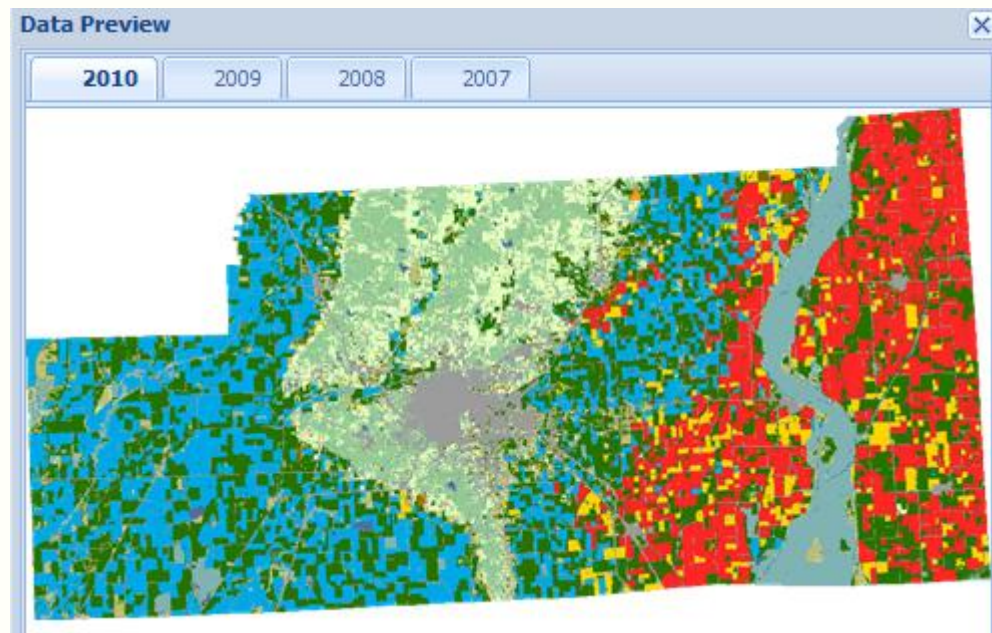
Projection: USA Contiguous Albers Equal Area Conic USG  
USA Contiguous Albers Equal Area Conic USGS  
Degrees Lat/Lon, WGS84 Datum  
UTM Zone 15  
UTM Zone 16  
UTM Zone 14

Download Files from Server

[http://129.174.131.228/nass\\_data\\_cache/polygonclip\\_201101180/](http://129.174.131.228/nass_data_cache/polygonclip_201101180/)

Download Preview Export as KML

Preview and Download



Specify Years and Projection

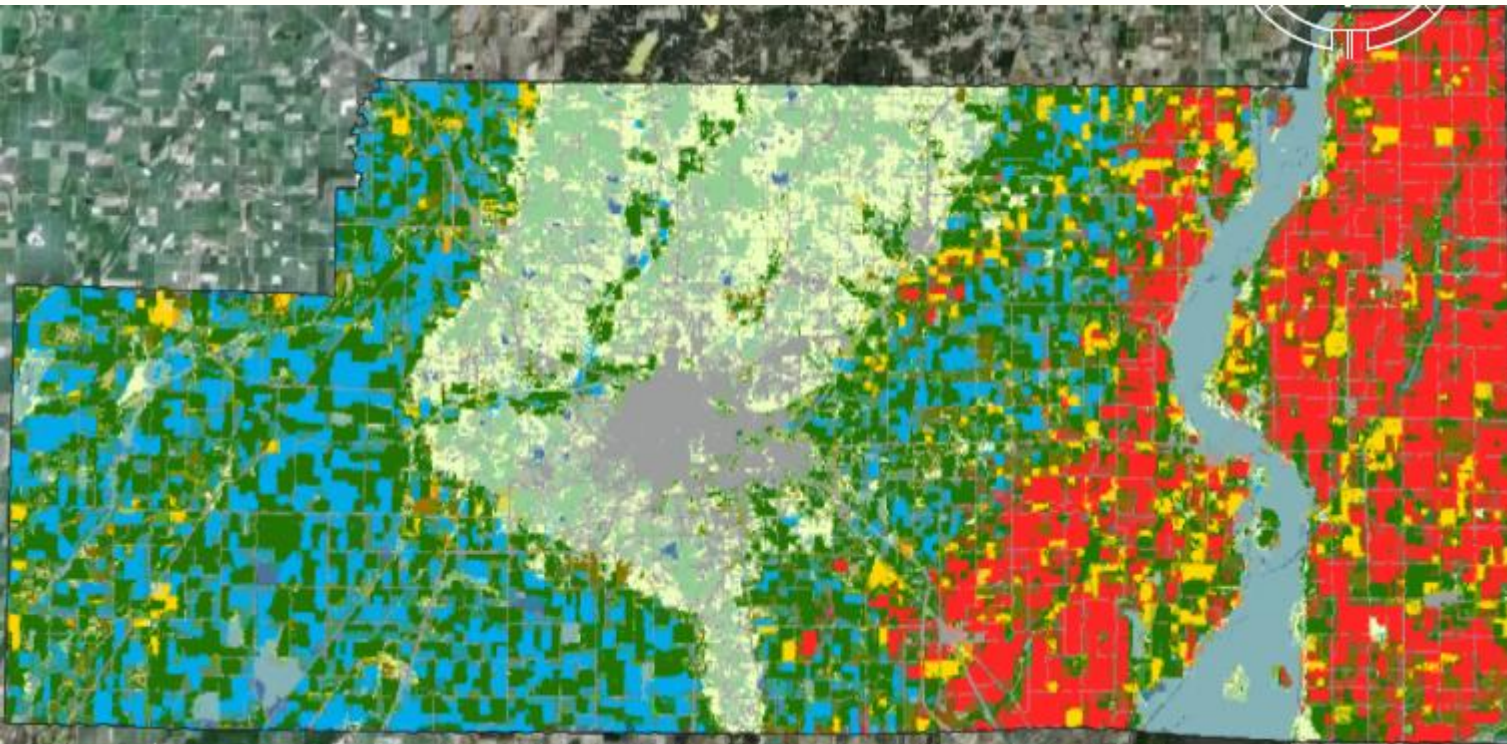


[nassgeodata.gmu/CropScape](http://nassgeodata.gmu/CropScape)





# CropScape w/ Google Earth



Craighead

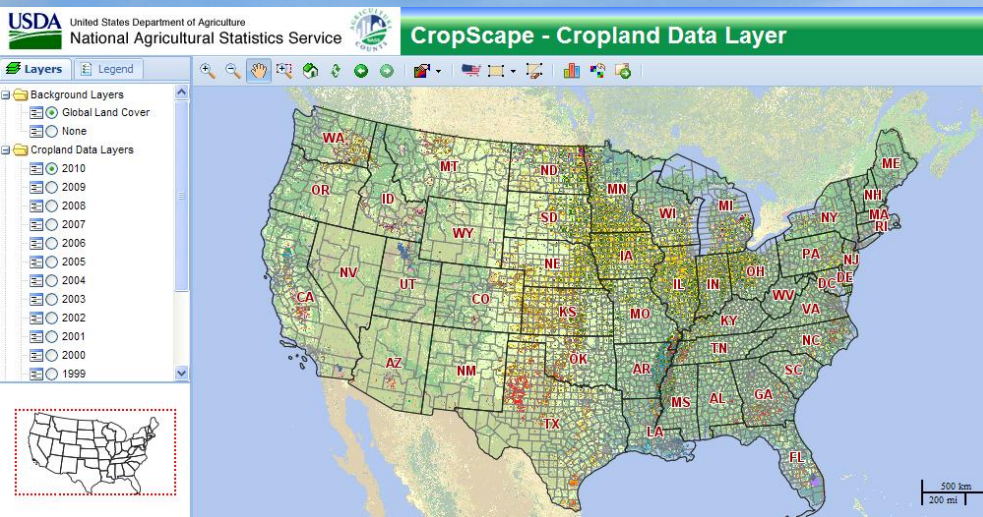


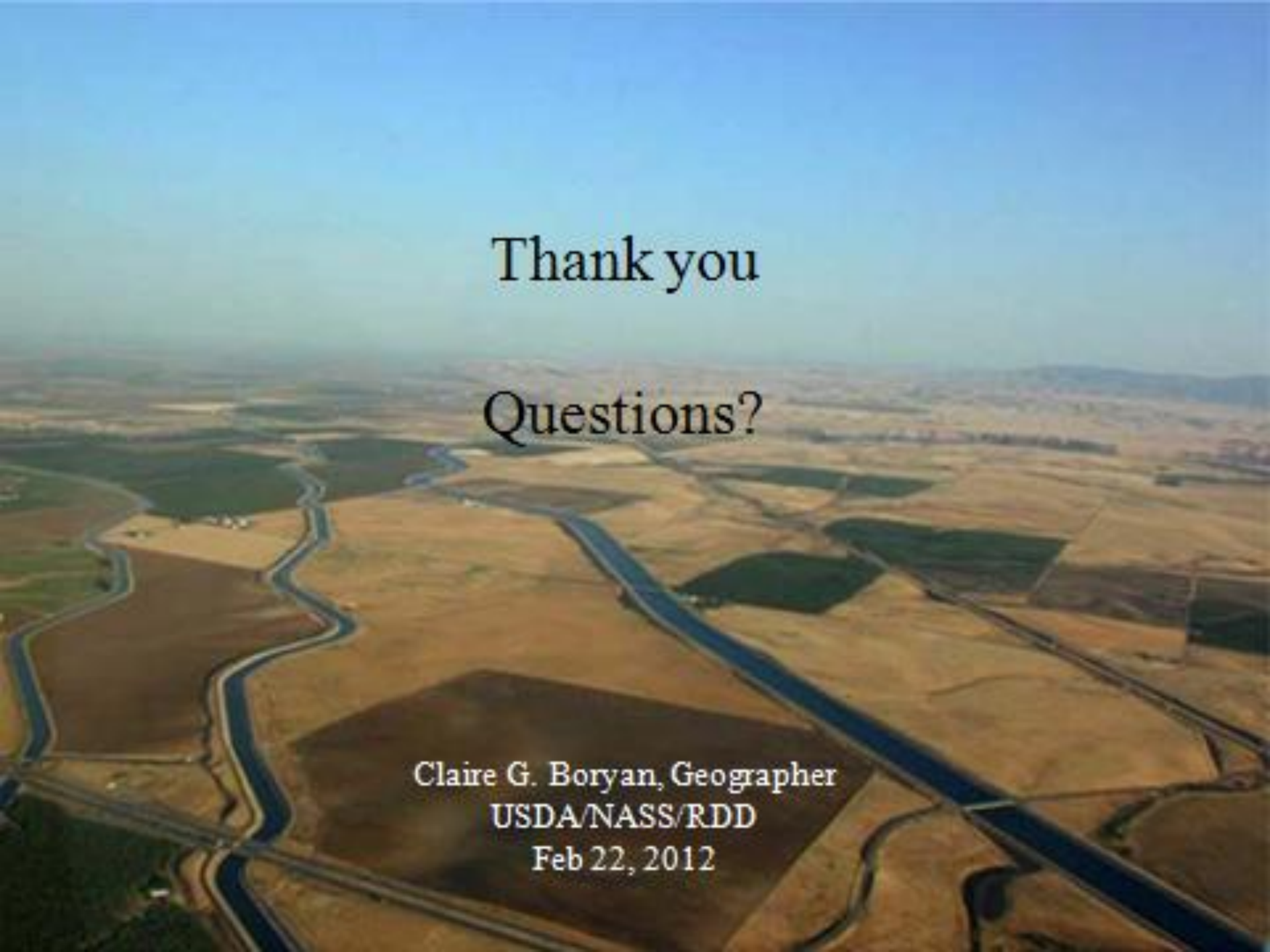
[nassgeodata.gmu.edu/CropScape](http://nassgeodata.gmu.edu/CropScape)



# CDL Distribution

- <http://nassgeodata.gmu.edu/CropScape>
- <http://datagateway.nrcs.usda.gov>
- [http://www.nass.usda.gov/Research\\_and\\_Science](http://www.nass.usda.gov/Research_and_Science)



An aerial photograph showing a complex network of blue irrigation canals and rivers winding through a vast, arid landscape of brown and tan agricultural fields. The terrain is flat, and the sky is a clear, pale blue. The canals form a grid-like pattern, with some larger, more irregular channels. The overall scene depicts a highly managed water system in a semi-arid region.

Thank you

Questions?

Claire G. Boryan, Geographer  
USDA/NASS/RDD  
Feb 22, 2012