

# The NASS 2010 Cropland Data Layer

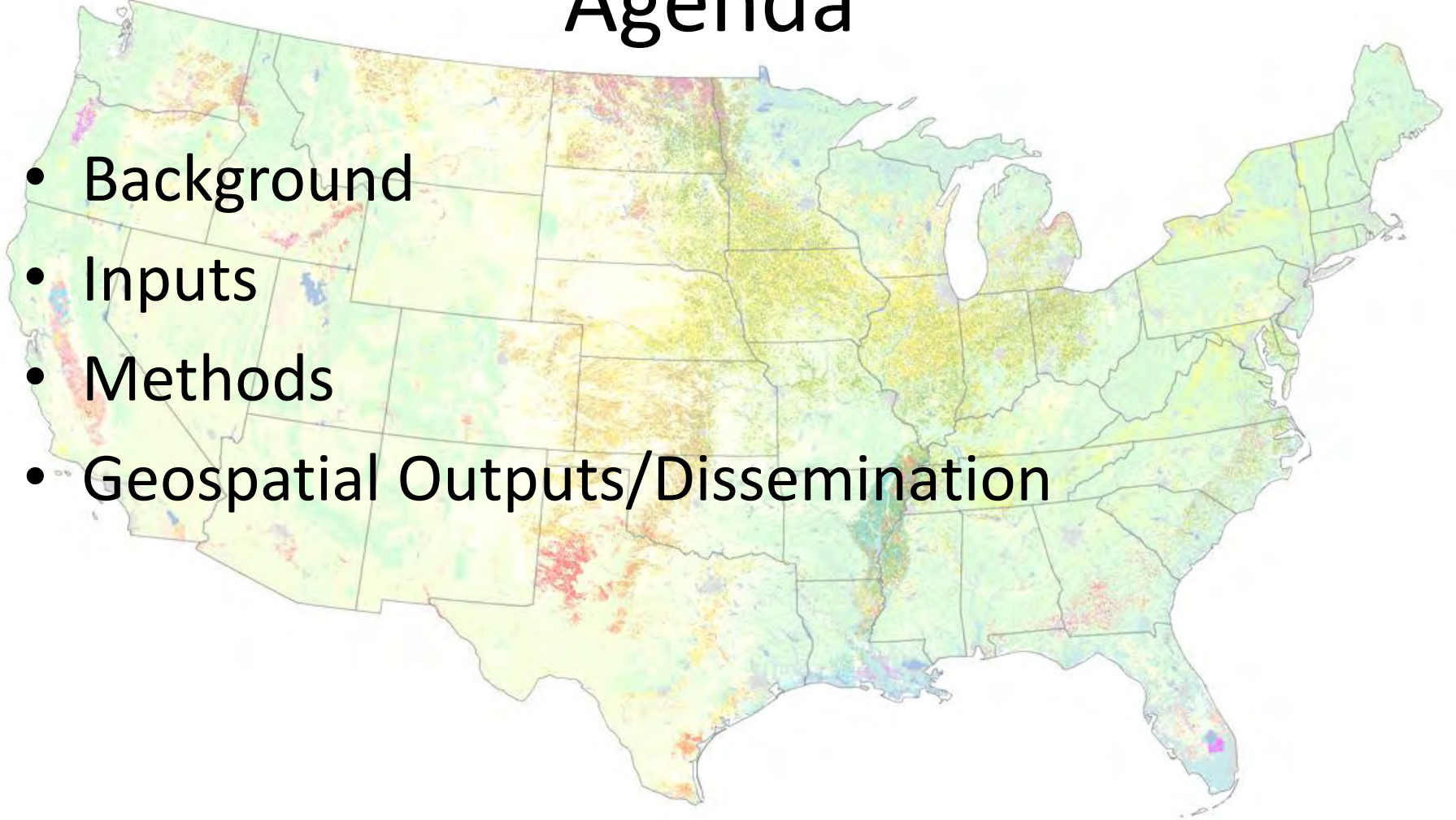
48 State Continental US Coverage

Karla Koudelka



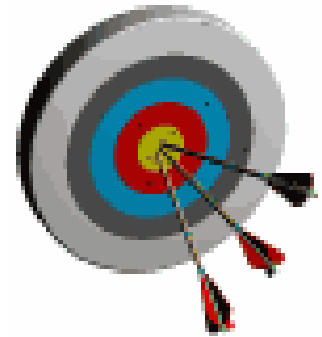
# Agenda

- Background
- Inputs
- Methods
- Geospatial Outputs/Dissemination



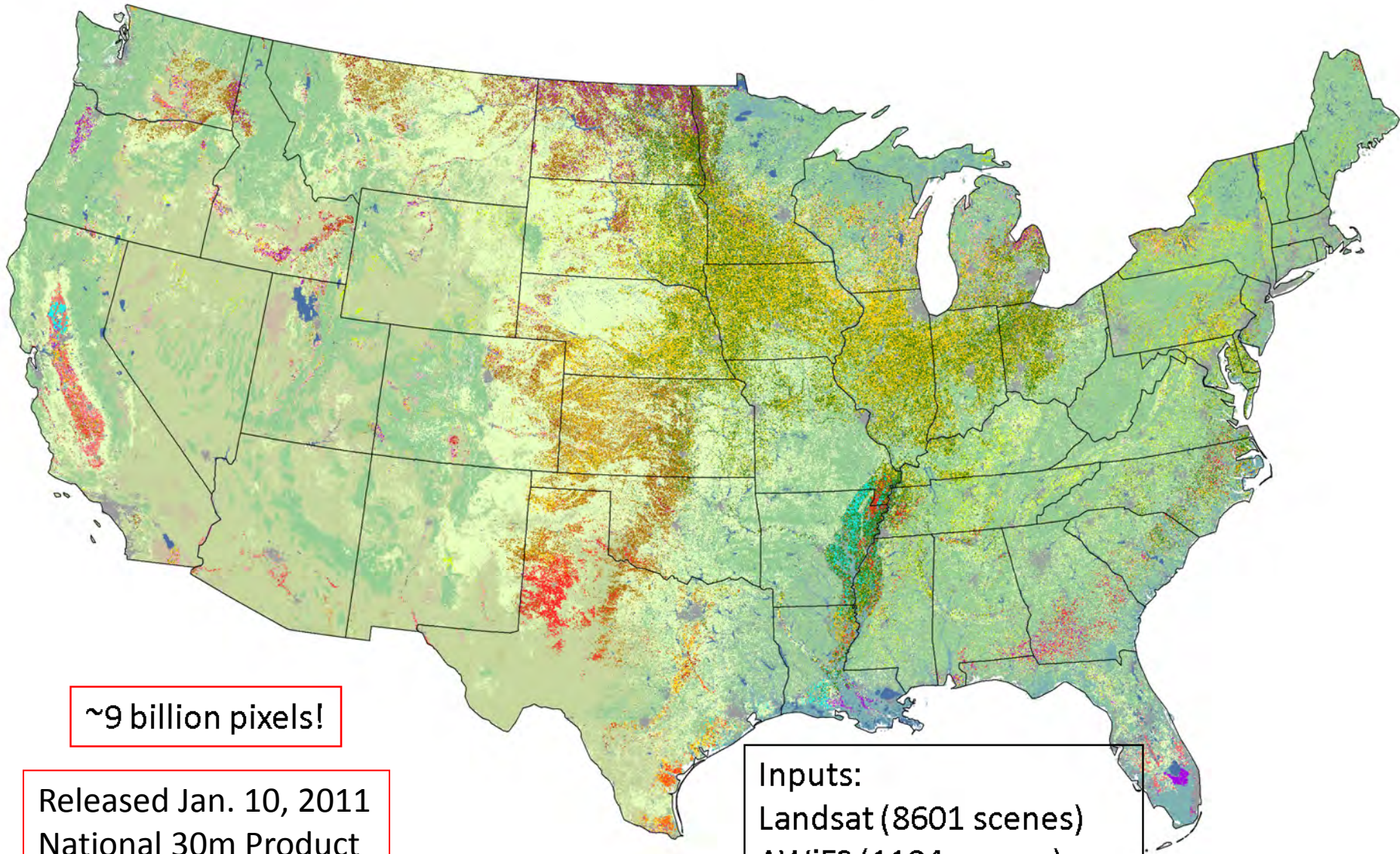
# Cropland Data Layer (CDL) Objectives

- “Census by Satellite”
  - *Annually* cover major program crops and regions
  - Crops accurately geo-located
- Deliver in-season remote sensing acreage estimates
  - For June, August, September, and October Official Reports
  - Update planted area
  - Reduce respondent burden
- Provide timely, accurate, useful estimates
  - Measurable error
  - Unbiased/independent estimator
  - State, District, County
- Public domain crop specific crop classification
  - <http://nassgeodata.gmu.edu/CropScape>
  - [NRCS Geospatial Data Gateway](http://www.nrcs.usda.gov/geospatial/)
  - <http://www.nass.usda.gov/research/Cropland/SARS1a.htm>
  - Google CropScape!





# 2010 Cropland Data Layers



~9 billion pixels!

Released Jan. 10, 2011  
National 30m Product

Inputs:  
Landsat (8601 scenes)  
AWiFS (1194 scenes)

# CDL Crop Year 2010

2010 CDL States

2010 CDL States

August Production 8/2

2010 CDL States  
September Production 9/1

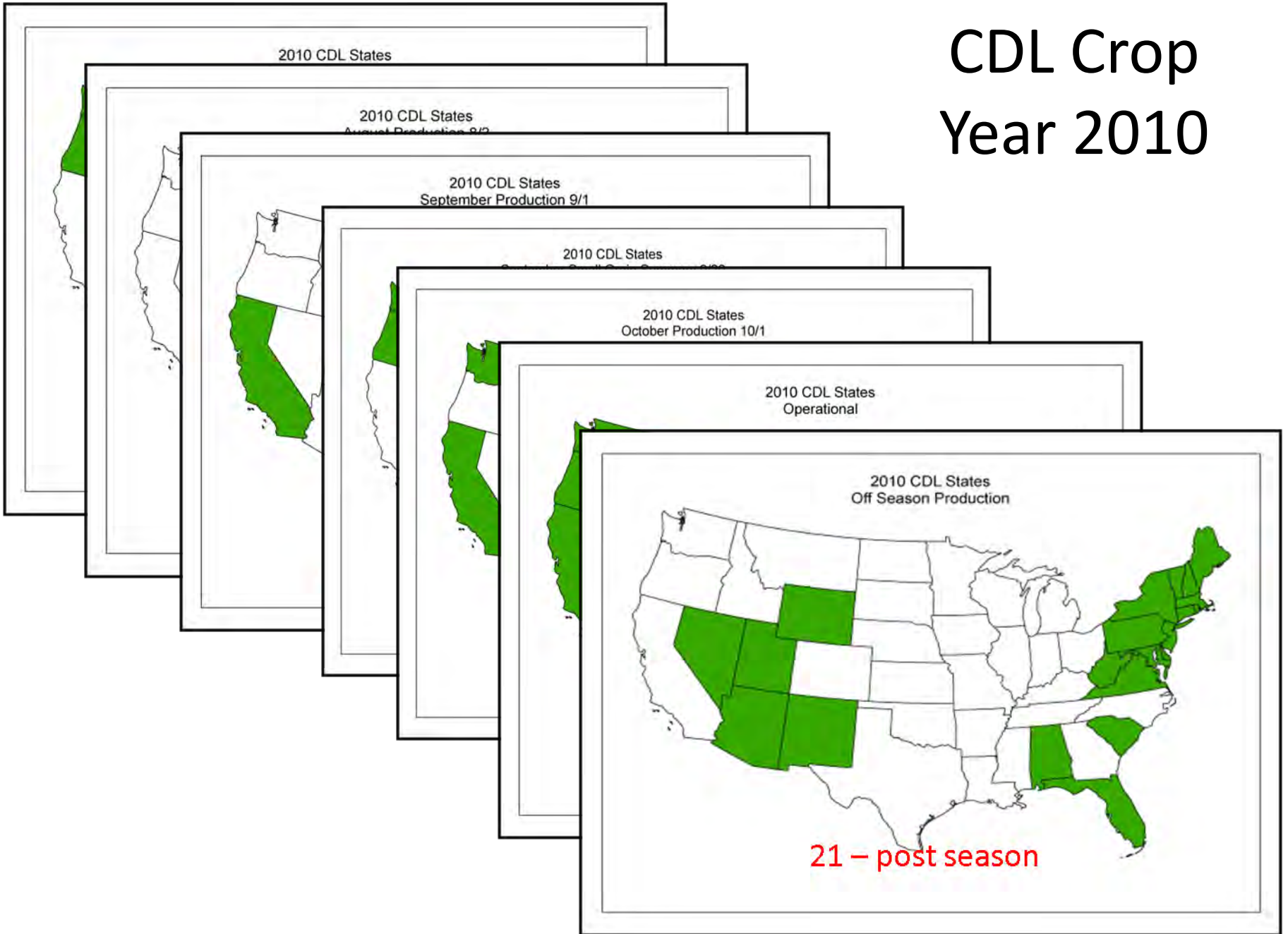
2010 CDL States

2010 CDL States  
October Production 10/1

2010 CDL States  
Operational

2010 CDL States  
Off Season Production

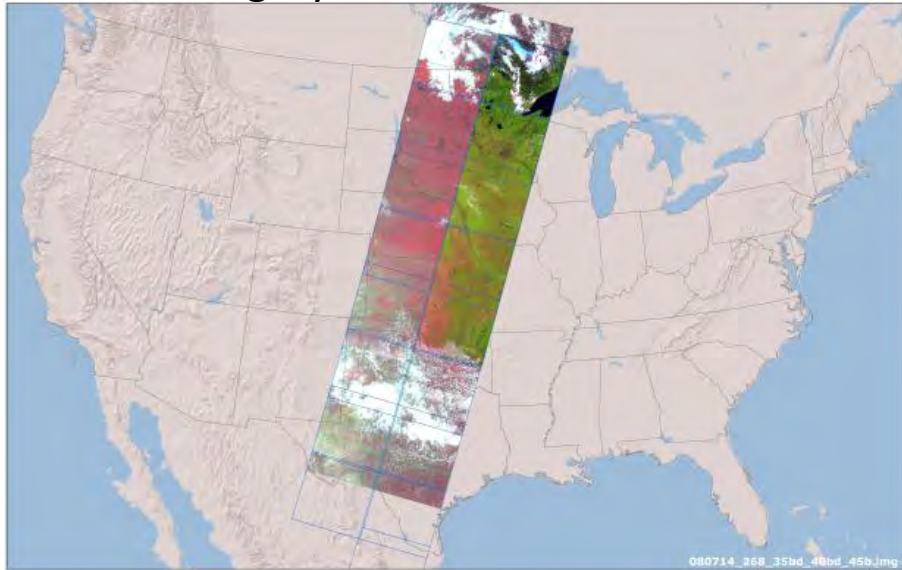
21 – post season



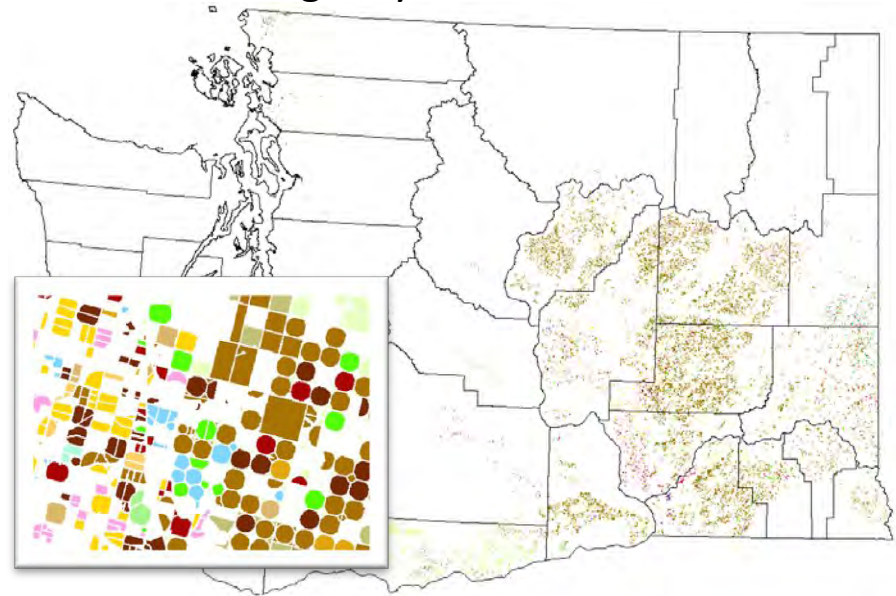


# Inputs

Satellite Imagery - AWiFS & Landsat TM



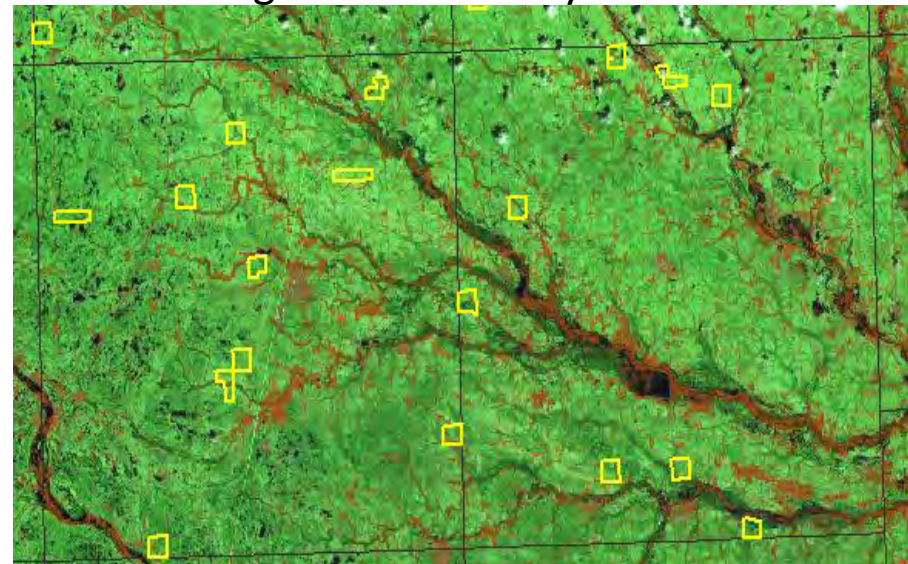
Farm Service Agency – Common Land Unit



NLCD & Derivative products

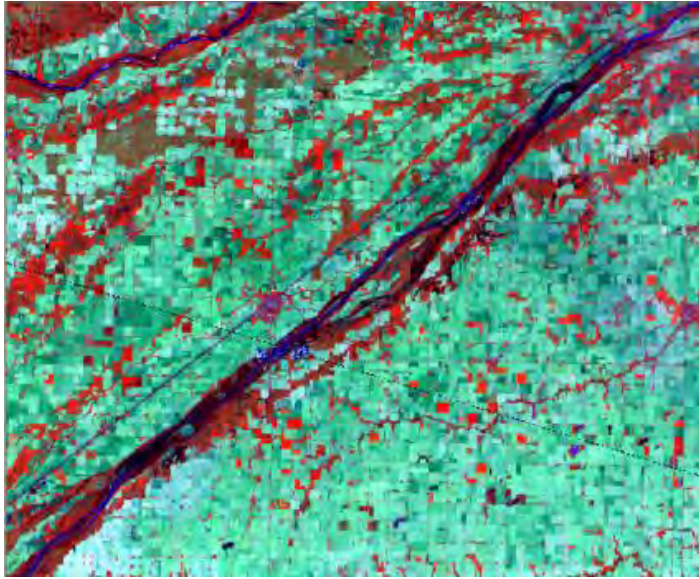


NASS June Agriculture Survey

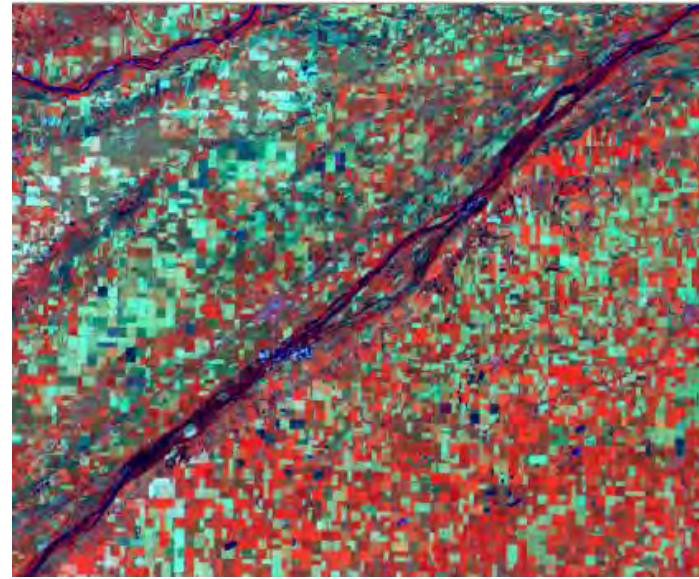




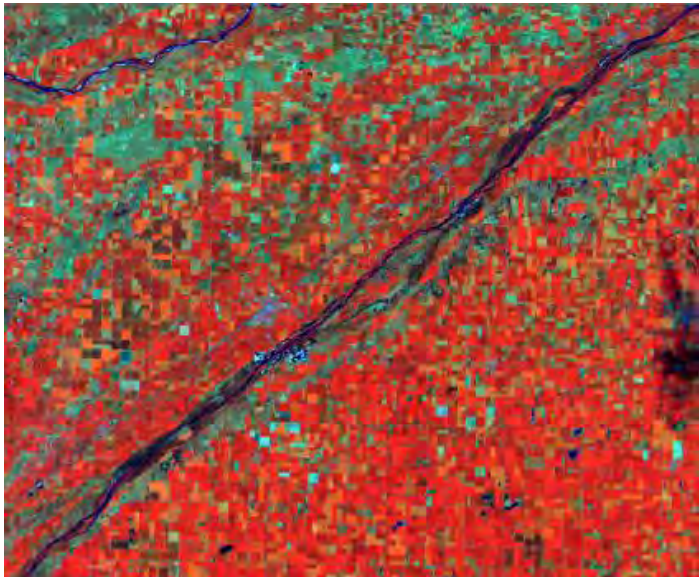
# Satellite Images over time



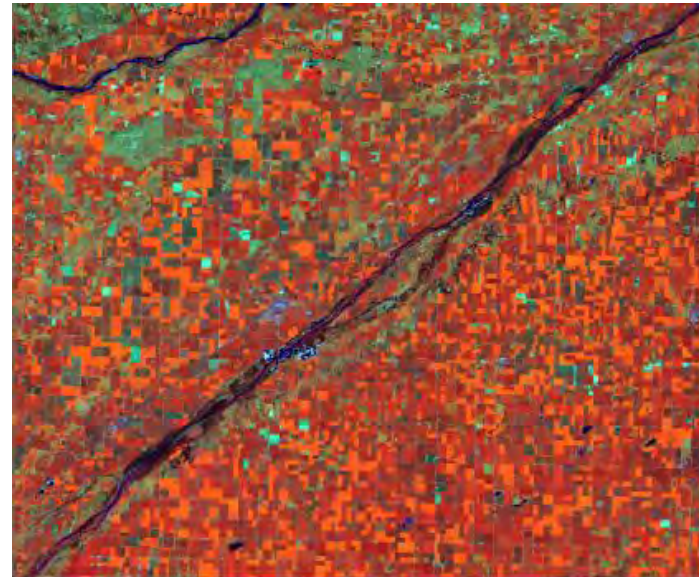
May 18



June 21



July 15



Aug 27

# Sensor Specifications Compared

	<u><b>TM</b></u>	<u><b>AWiFS</b></u>
<b>Altitude</b>	705 km	817 km
<b>Equatorial crossing time</b>	9:45 ± 15 minutes	10:30 ± 5 minutes
<b>Temporal Resolution</b>	16 days	5 days
<b>Spatial Resolution</b>	30 x 30 m (reflective) 120 x 120 m (thermal)	56 x 56 m
<b>Radiometric Resolution</b>	8 bit (256)	10 bit (1024)
<b>Spectral Resolution</b>	6 (B, G, R, NIR, SWIR, MIR) + Thermal IR	4 (G, R, NIR, SWIR)
<b>Swath wide</b>	185 km	737 km
<b>Scene size</b>	184 x 152 km	370 x 370 km



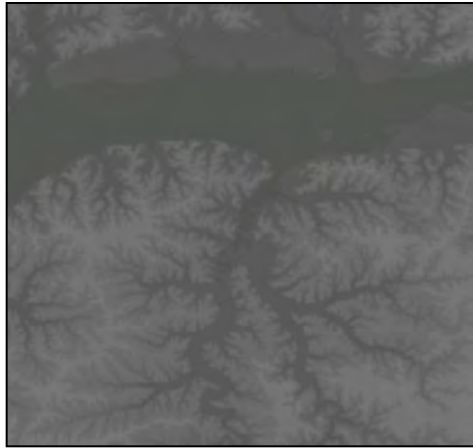
# Agricultural Ground Truth FSA Common Land Unit



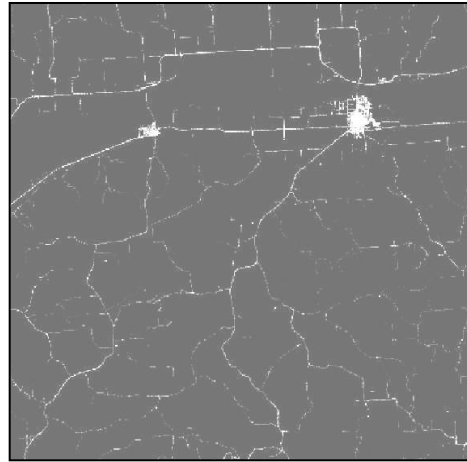
70% sample for training & 30% sample for testing  
Comprehensive **program crop** coverage



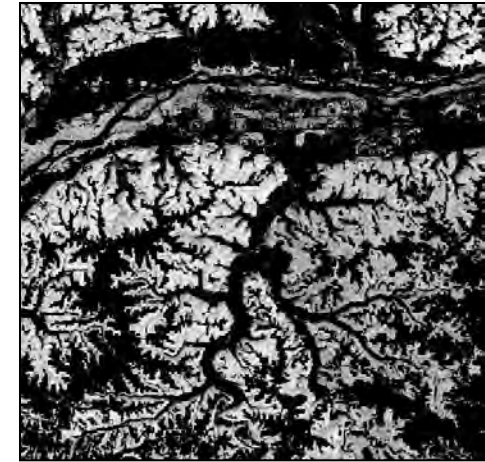
# Ancillary Data – USGS/NASA Products



Elevation



Imperviousness

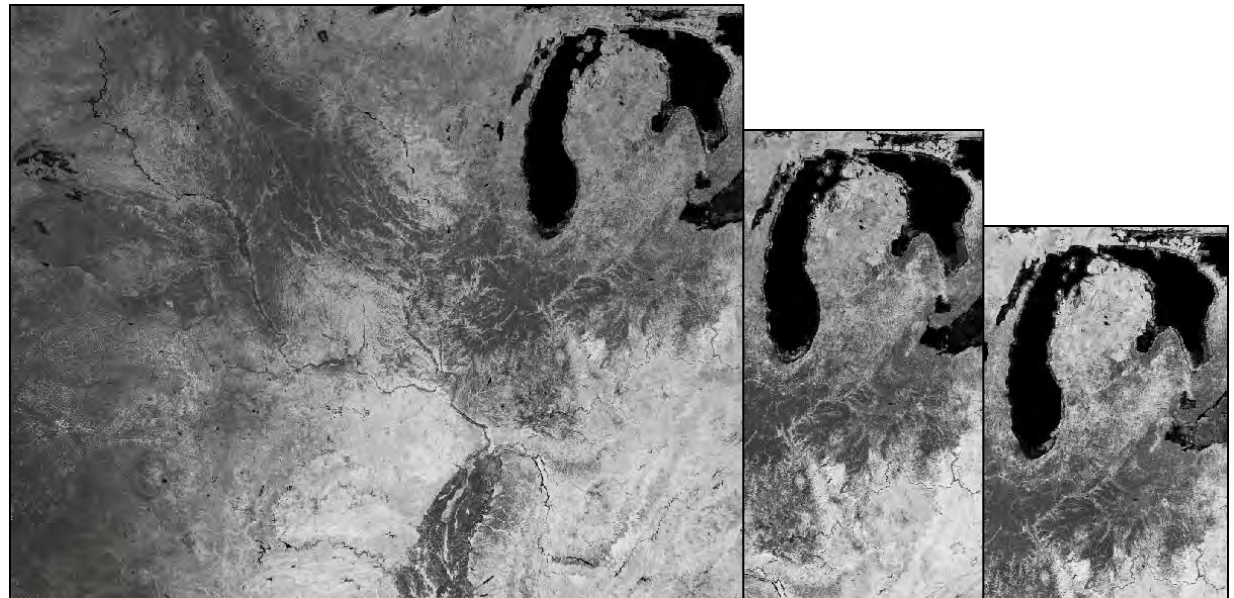


Forest Canopy

## 2001 NLCD

Improve CDL coverage  
of non-ag classes

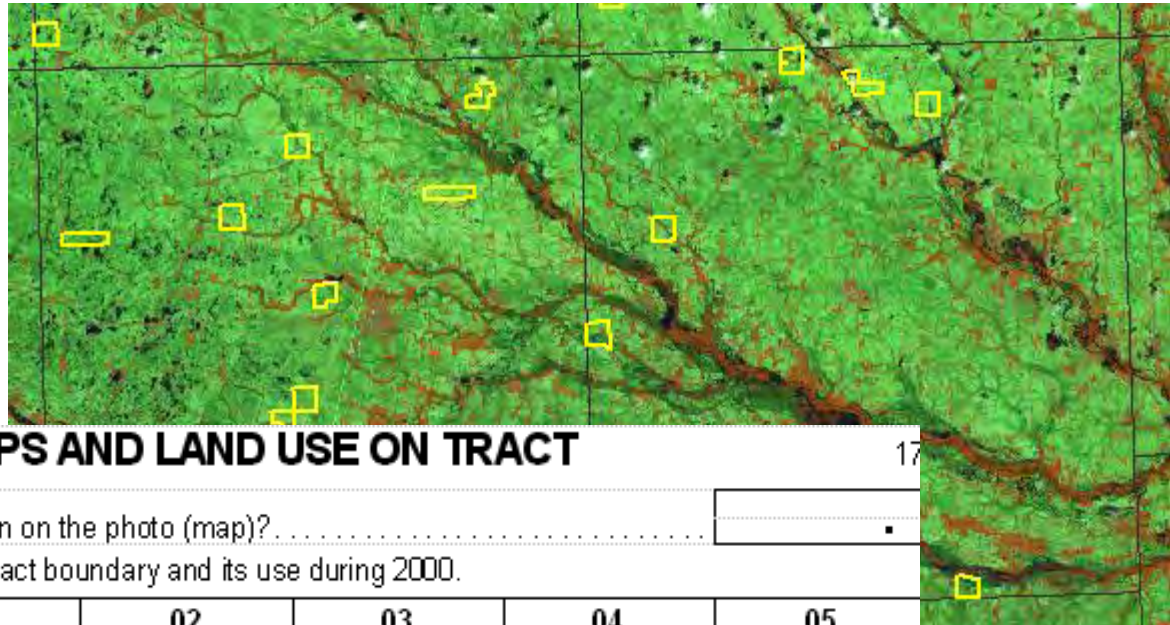
NASA MODIS Terra  
(16-day NDVI composite)





# NASS June Ag Survey

- Probability based
- Area frame stratification based on land use
- Sample units one square mile



PAGE 2

## SECTION D - CROPS AND LAND USE ON TRACT

17

How many acres are inside this blue tract boundary drawn on the photo (map)?  .

Now I would like to ask about each field inside this blue tract boundary and its use during 2000.

FIELD NUMBER	01	02	03	04	05
1. Total acres in field	828 .	828 .	828 .	828 .	828 .
2. Crop or land use. [Specify]					
	812				

# Data Partnerships



- Foreign Agricultural Service

- Resourcesat-1 AWiFS



- Farm Service Agency

- Common Land Unit “ground truth”



- US Geological Survey

- National Land Cover Dataset



- US Geological Survey/ NASA

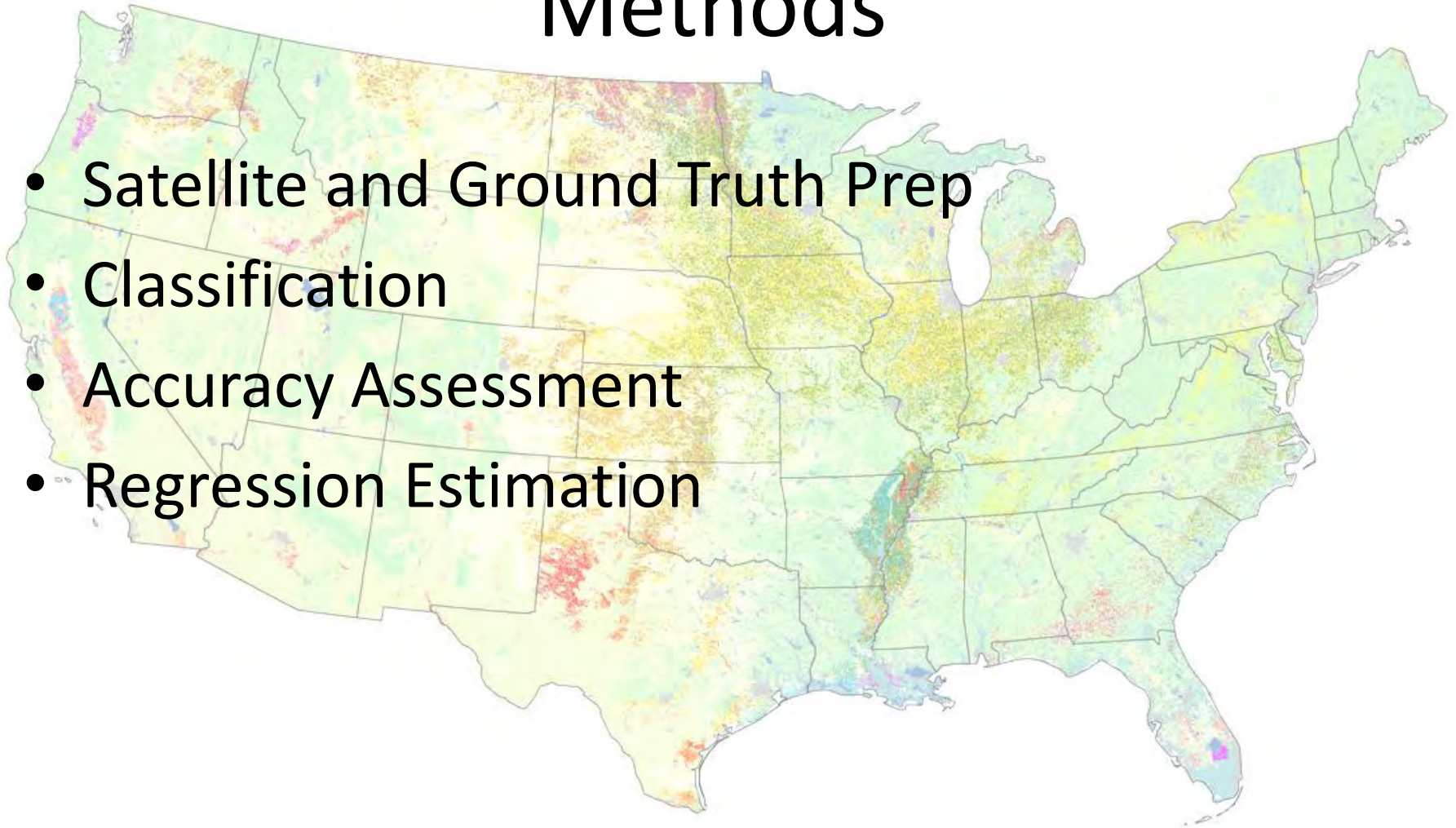
- Landsat TM 5 & 7





# Methods

- Satellite and Ground Truth Prep
- Classification
- Accuracy Assessment
- Regression Estimation



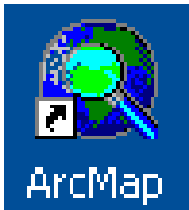
# Commercial Software Suite



- Imagery Preparation
  - ERDAS Imagine



- Image classification
  - Decision tree software
    - See5 [www.rulequest.com](http://www.rulequest.com)



- Ground Truth Preparation
  - ESRI ArcGIS



- Acreage Estimation
  - SAS



# Cropland Data Layer and Acreage Estimation Processing Flow

## Input Vector Data

NASS JAS segments    FSA CLU    USGS NLCD



## Tabular Data

JAS eData    FSA 578

STATE	COUNTY	FSA	ACRES
01	001	001	1000
01	001	002	2000
01	001	003	3000
01	001	004	4000
01	001	005	5000
01	001	006	6000
01	001	007	7000
01	001	008	8000
01	001	009	9000
01	001	010	10000
01	001	011	11000
01	001	012	12000
01	001	013	13000
01	001	014	14000
01	001	015	15000
01	001	016	16000
01	001	017	17000
01	001	018	18000
01	001	019	19000
01	001	020	20000
01	001	021	21000
01	001	022	22000
01	001	023	23000
01	001	024	24000
01	001	025	25000
01	001	026	26000
01	001	027	27000
01	001	028	28000
01	001	029	29000
01	001	030	30000
01	001	031	31000
01	001	032	32000
01	001	033	33000
01	001	034	34000
01	001	035	35000
01	001	036	36000
01	001	037	37000
01	001	038	38000
01	001	039	39000
01	001	040	40000
01	001	041	41000
01	001	042	42000
01	001	043	43000
01	001	044	44000
01	001	045	45000
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01	001	047	47000
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01	001	061	61000
01	001	062	62000
01	001	063	63000
01	001	064	64000
01	001	065	65000
01	001	066	66000
01	001	067	67000
01	001	068	68000
01	001	069	69000
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01	001	072	72000
01	001	073	73000
01	001	074	74000
01	001	075	75000
01	001	076	76000
01	001	077	77000
01	001	078	78000
01	001	079	79000
01	001	080	80000
01	001	081	81000
01	001	082	82000
01	001	083	83000
01	001	084	84000
01	001	085	85000
01	001	086	86000
01	001	087	87000
01	001	088	88000
01	001	089	89000
01	001	090	90000
01	001	091	91000
01	001	092	92000
01	001	093	93000
01	001	094	94000
01	001	095	95000
01	001	096	96000
01	001	097	97000
01	001	098	98000
01	001	099	99000
01	001	100	100000



Extract JAS intersecting pixels



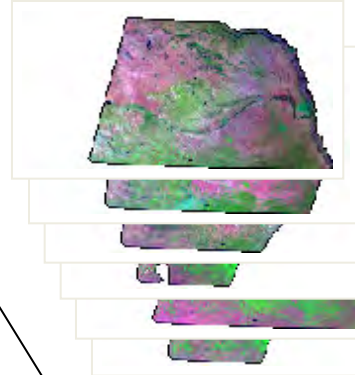
Link and assess data sets

**Estimation**

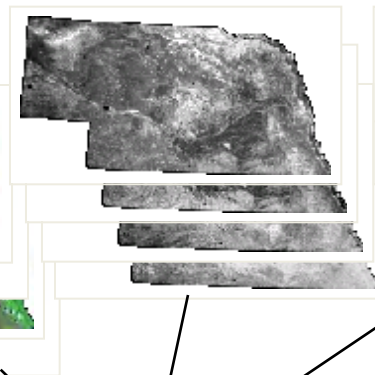
Customized for acreage estimation

Pixel count vs. reported acreage

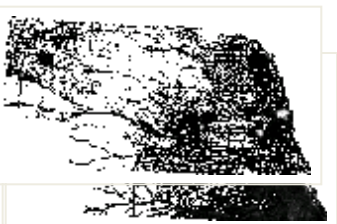
IRS Resourcesat-1 raw AWiFS summer time series



NASA Terra MODIS 16-day NDVI prior fall and summer time series



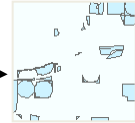
USGS NLCD 2001 Impervious & Canopy



USGS NED Elevation



Non-agricultural Ground truth



Agricultural Ground truth



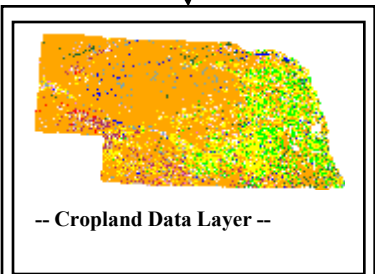
Manages and visualizes datasets



Derives decision tree-based classification rules



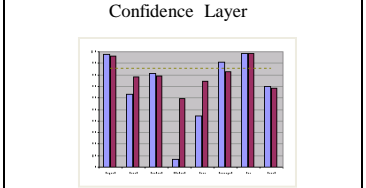
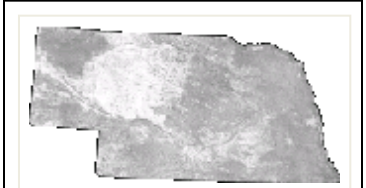
Generated rule set



State and county crop acreage statistics

NASS Internal Only

## Output



## Diagnostics

# Accuracy Statistics

Crop-specific covers only	*Correct	Accuracy	Error	Kappa
OVERALL ACCURACY**	2368649	83.10%	16.90%	0.7891

Cover Type	Attribute Code	*Correct Pixels	Producer's Accuracy	Omission Error	Kappa	User's Accuracy	Commission Error	Cond'l Kappa
Corn	1	460221	93.78%	6.22%	0.9272	94.47%	5.53%	0.9351
Sorghum	4	63253	57.82%	42.18%	0.5677	77.37%	22.63%	0.7660
Soybeans	5	1870	48.85%	51.15%	0.4882	94.02%	5.98%	0.9401
Sunflower	6	26389	61.28%	38.72%	0.6087	74.09%	25.91%	0.7375
Sweet Corn	12	905	54.75%	45.25%	0.5474	92.73%	7.27%	0.9272
Barley	21	7877	66.47%	33.53%	0.6636	71.55%	28.45%	0.7145
Durum Wheat	22	0	n/a	n/a	n/a	0.00%	100.00%	0.0000
Spring Wheat	23	2286	48.46%	51.54%	0.4839	49.02%	50.98%	0.4895
Winter Wheat	24	817165	92.79%	7.21%	0.9030	95.50%	4.50%	0.9389
Rye	27	285	14.57%	85.43%	0.1455	31.39%	68.61%	0.3135
Oats	28	4483	33.63%	66.37%	0.3344	47.41%	52.59%	0.4720
Millet	29	70479	79.66%	20.34%	0.7900	66.96%	33.04%	0.6606
Speltz	30	85	85.00%	15.00%	0.8500	49.13%	50.87%	0.4913
Canola	31	0	n/a	n/a	n/a	0.00%	100.00%	0.0000
Flaxseed	32	0	n/a	n/a	n/a	0.00%	100.00%	0.0000
Safflower	33	577	31.26%	68.74%	0.3120	19.97%	80.03%	0.1992
Alfalfa	36	174154	72.85%	27.15%	0.7109	85.82%	14.18%	0.8472
Other Hay	37	54825	39.87%	60.13%	0.3862	80.78%	19.22%	0.7995
Sugarbeets	41	4381	80.64%	19.36%	0.8061	83.04%	16.96%	0.8301
Dry Beans	42	12029	68.64%	31.36%	0.6844	54.83%	45.17%	0.5459
Potatoes	43	12742	85.17%	14.83%	0.8511	91.00%	9.00%	0.9096
Other Crops	44	0	0.00%	100.00%	0.0000	n/a	n/a	n/a
Misc. Veggies. & Fruits	47	0	n/a	n/a	n/a	0.00%	100.00%	0.0000
Watermelons	48	25	6.35%	93.65%	0.0634	39.68%	60.32%	0.3968

**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

# Accuracy Assessments

	Cover Type	Attribute Code	*Correct Pixels	Producer's Accuracy	Omission Error	Kappa	User's Accuracy	Commission Error	Cond'1 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.

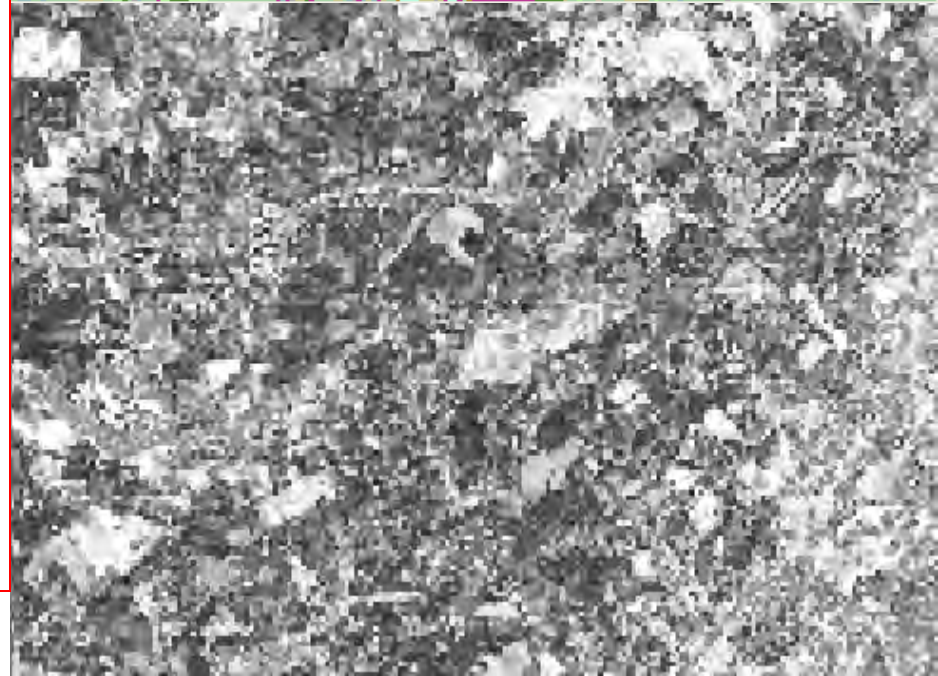
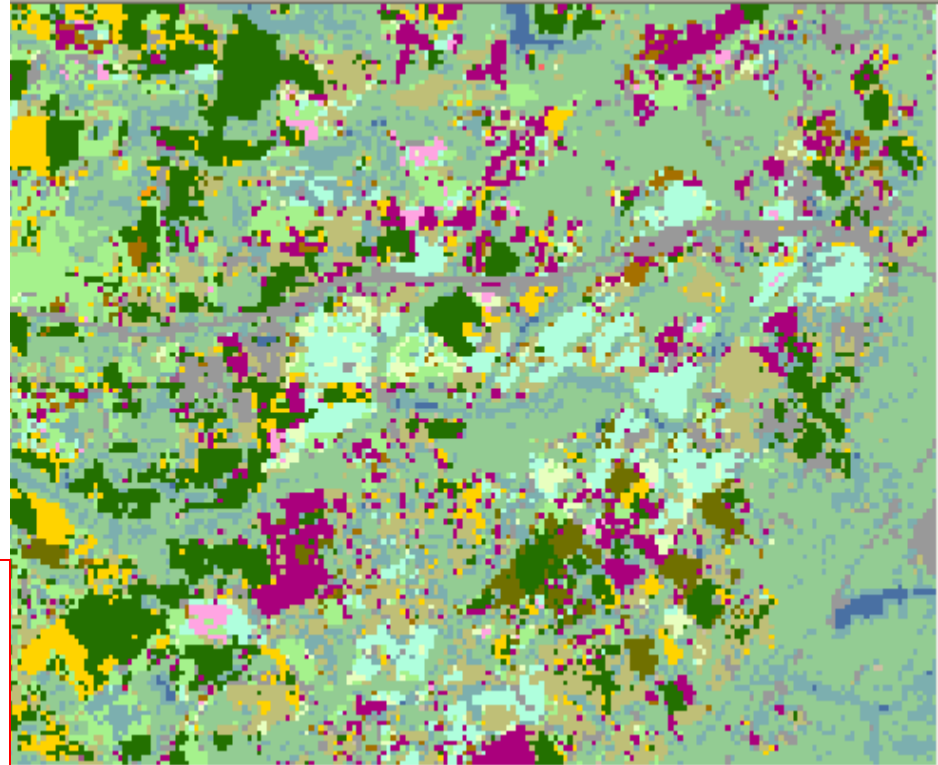
**Kappa Coefficient:** A statistics measure of agreement, beyond chance, between two maps.



# Confidence Layer



Defined not as a measure of accuracy for a given pixel; but rather how well it fit within the decision tree ruleset.



# Remote Sensing Regression Estimation



# Regression-based Acreage Estimator

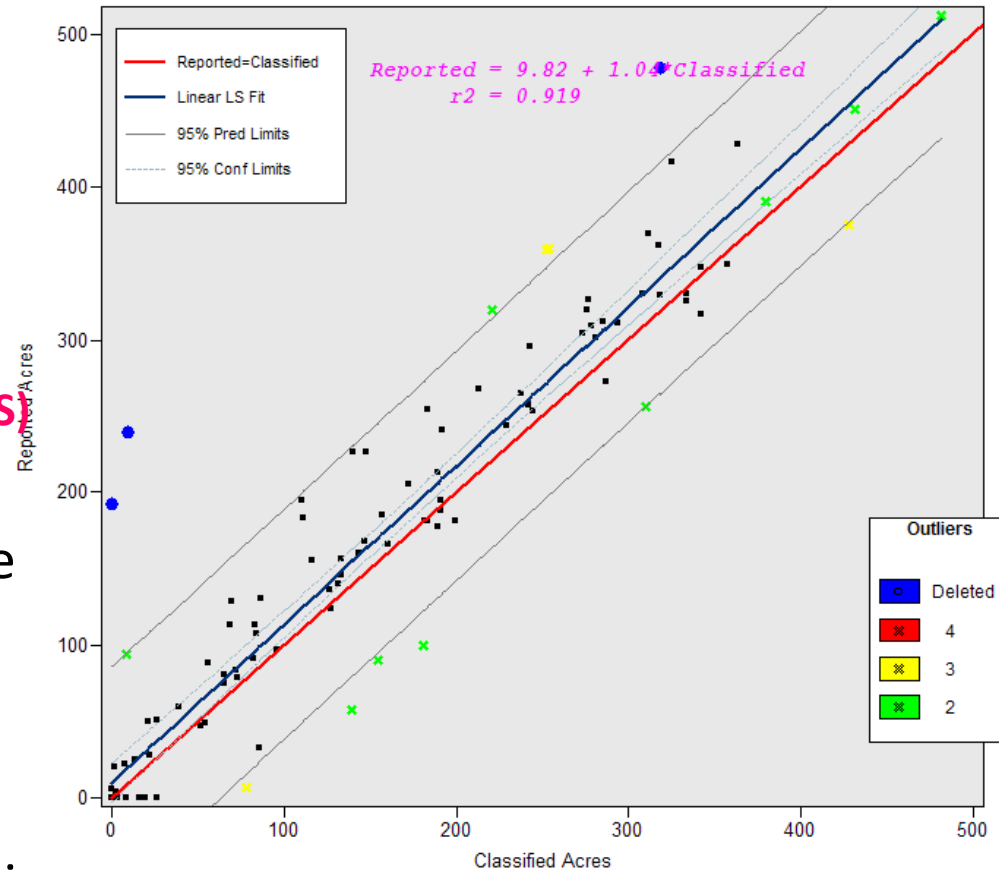
State: SD08 AD: 00 Crop: Corn\_PL  
Stratum: 11 Version: v1a

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



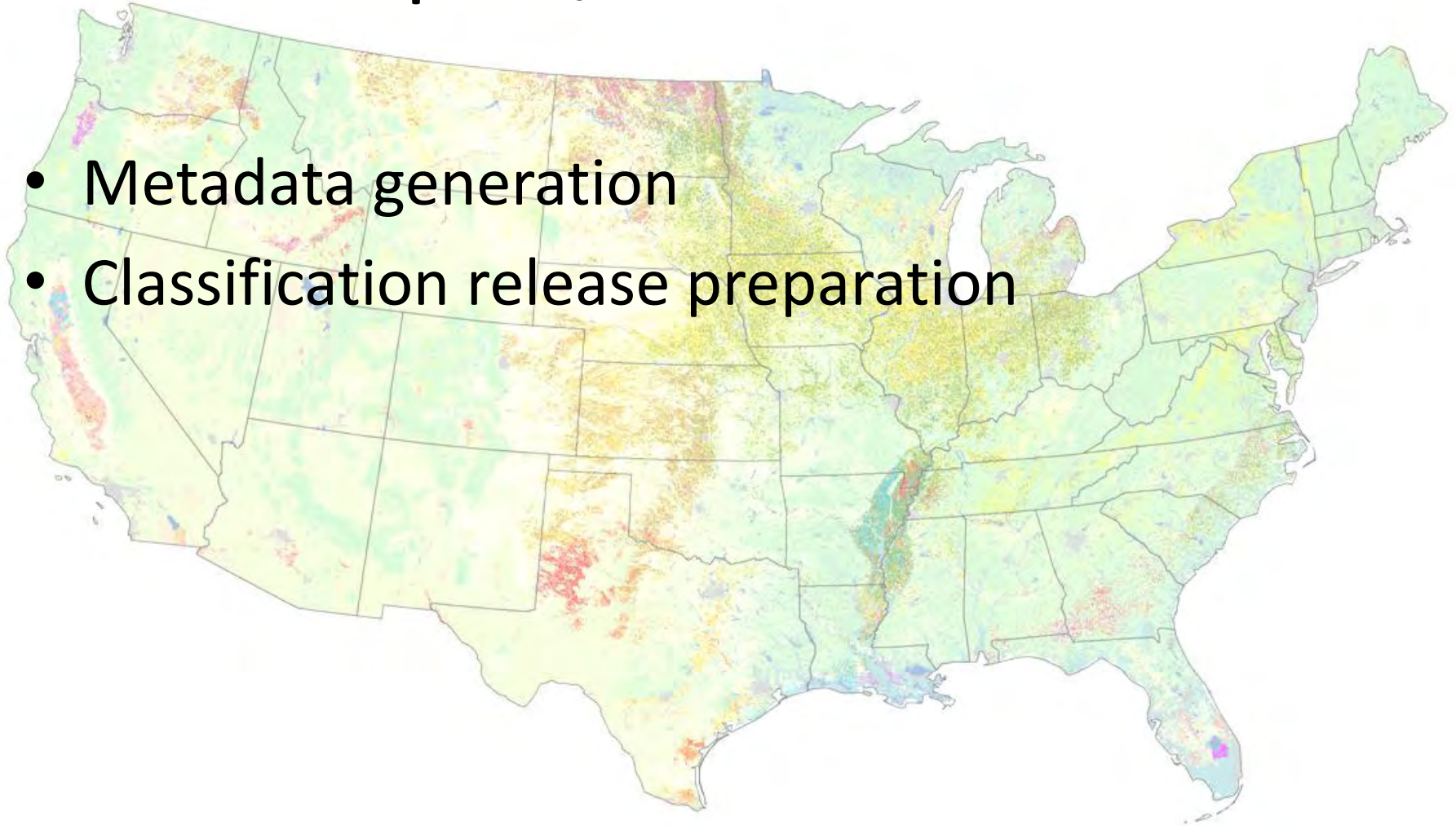
[IMG file description: \\_080922\\_](#)

Acreage not just about counting pixels



# Outputs/Dissemination

- Metadata generation
- Classification release preparation



# CDL Metadata

- Published on each CDL product

Raster  
Attribute Domain Values and Definitions: ROW CROPS 1-20

Categorization Code	Land Cover
"1"	Corn
"2"	Cotton
"3"	Rice
"4"	Sorghum
"5"	Soybeans
"6"	Sunflowers
"10"	Peanuts
"11"	Tobacco
"12"	Sweet Corn
"13"	Popcorn or Ornamental Corn

Map\_Projection\_Name: Albers Conical Equal Area  
Albers\_Conical\_Equal\_Area:  
Standard\_Parallel: 29.500000  
Standard\_Parallel: 45.500000  
Longitude\_of\_Central\_Meridian: -96.000000  
Latitude\_of\_Projection\_Origin: 23.000000  
False\_Easting: 0.000000  
False\_Northing: 0.000000  
Planar\_Coordinate\_Information:  
Planar\_Coordinate\_Encoding\_Method: row and column  
Coordinate\_Representation:  
Abscissa\_Resolution: 56  
Ordinate\_Resolution: 56  
Planar\_Distance\_Units: meters  
Geodetic\_Model:  
Horizontal\_Datum\_Name: North American Datum of 1983  
Ellipsoid\_Name: Geodetic Reference System 80  
Semi-major\_Axis: 6378137.000000  
Denominator\_of\_Flattening\_Ratio: 298.257223563

## CLASSIFICATION INPUTS:

AWIFS DATE 20080413 PATH 264 ROW(S) &QUADRANT(S) 35b 40d 45bd  
AWIFS DATE 20080418 PATH 265 ROW(S) &QUADRANT(S) 35bd 40abcd 45abd  
AWIFS DATE 20080427 PATH 262 ROW(S) &QUADRANT(S) 40bd  
AWIFS DATE 20080428 PATH 267 ROW(S) &QUADRANT(S) 40d 45bd  
AWIFS DATE 20080503 PATH 268 ROW(S) &QUADRANT(S) 35bd 40bcd 45abd  
AWIFS DATE 20080512 PATH 265 ROW(S) &QUADRANT(S) 40bcd 45abd  
AWIFS DATE 20080517 PATH 266 ROW(S) &QUADRANT(S) 35d 40bd 45b  
AWIFS DATE 20080606 PATH 270 ROW(S) &QUADRANT(S) 40d 45b  
AWIFS DATE 20080614 PATH 262 ROW(S) &QUADRANT(S) 35bd 40bd 45b  
AWIFS DATE 20080625 PATH 269 ROW(S) &QUADRANT(S) 40d 45b 50bd  
AWIFS DATE 20080629 PATH 265 ROW(S) &QUADRANT(S) 40bd 45b  
AWIFS DATE 20080704 PATH 266 ROW(S) &QUADRANT(S) 35a 40d 45bd  
AWIFS DATE 20080713 PATH 263 ROW(S) &QUADRANT(S) 35abcd 40abd 45abd  
AWIFS DATE 20080715 PATH 273 ROW(S) &QUADRANT(S) 35cd 40abcd 45abd  
AWIFS DATE 20080802 PATH 267 ROW(S) &QUADRANT(S) 35d 40abcd 45abd  
AWIFS DATE 20080808 PATH 273 ROW(S) &QUADRANT(S) 35d 40bc 45a  
AWIFS DATE 20080812 PATH 269 ROW(S) &QUADRANT(S) 35c 40ac 45a  
AWIFS DATE 20080904 PATH 264 ROW(S) &QUADRANT(S) 40bd 45bd  
AWIFS DATE 20080909 PATH 265 ROW(S) &QUADRANT(S) 35bd 40bd  
AWIFS DATE 20080914 PATH 266 ROW(S) &QUADRANT(S) 40d 45bd  
AWIFS DATE 20080915 PATH 271 ROW(S) &QUADRANT(S) 45bd 50b

MODIS 16 DAY NDVI COMPOSITE DATE 20071016  
MODIS 16 DAY NDVI COMPOSITE DATE 20071101  
MODIS 16 DAY NDVI COMPOSITE DATE 20071117  
MODIS 16 DAY NDVI COMPOSITE DATE 20080305  
MODIS 16 DAY NDVI COMPOSITE DATE 20080321  
MODIS 16 DAY NDVI COMPOSITE DATE 20080406  
MODIS 16 DAY NDVI COMPOSITE DATE 20080422  
MODIS 16 DAY NDVI COMPOSITE DATE 20080508  
MODIS 16 DAY NDVI COMPOSITE DATE 20080524  
MODIS 16 DAY NDVI COMPOSITE DATE 20080609

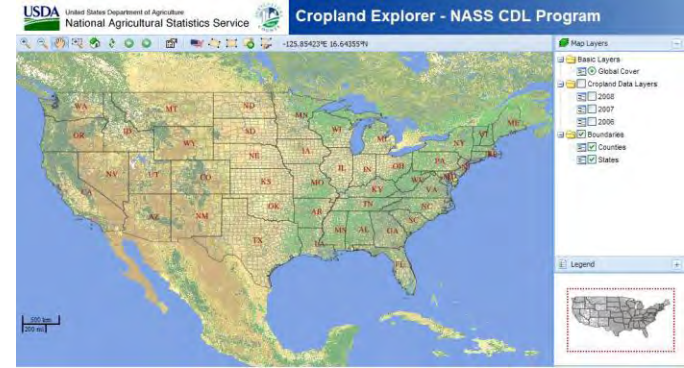
USGS, NATIONAL ELEVATION DATASET ELEVATION  
USGS, NATIONAL LAND COVER DATASET 2001 TREE CANOPY  
USGS, NATIONAL LAND COVER DATASET 2001 IMPERVIOUSNESS



# NASS Geospatial Dissemination Needs

- No online geospatial information access
  - No geospatial crop visualization & browsing
  - No geospatial query capability
  - No geospatial online analytics
- NASS needed...
  - Capabilities for on-line geospatial crop information access, geospatial query and on-line analytics via interactive maps
  - Disseminate all data to decision makers and users via real time retrieval, processing and publishing over the web through standards-based geospatial web services

# CropScape



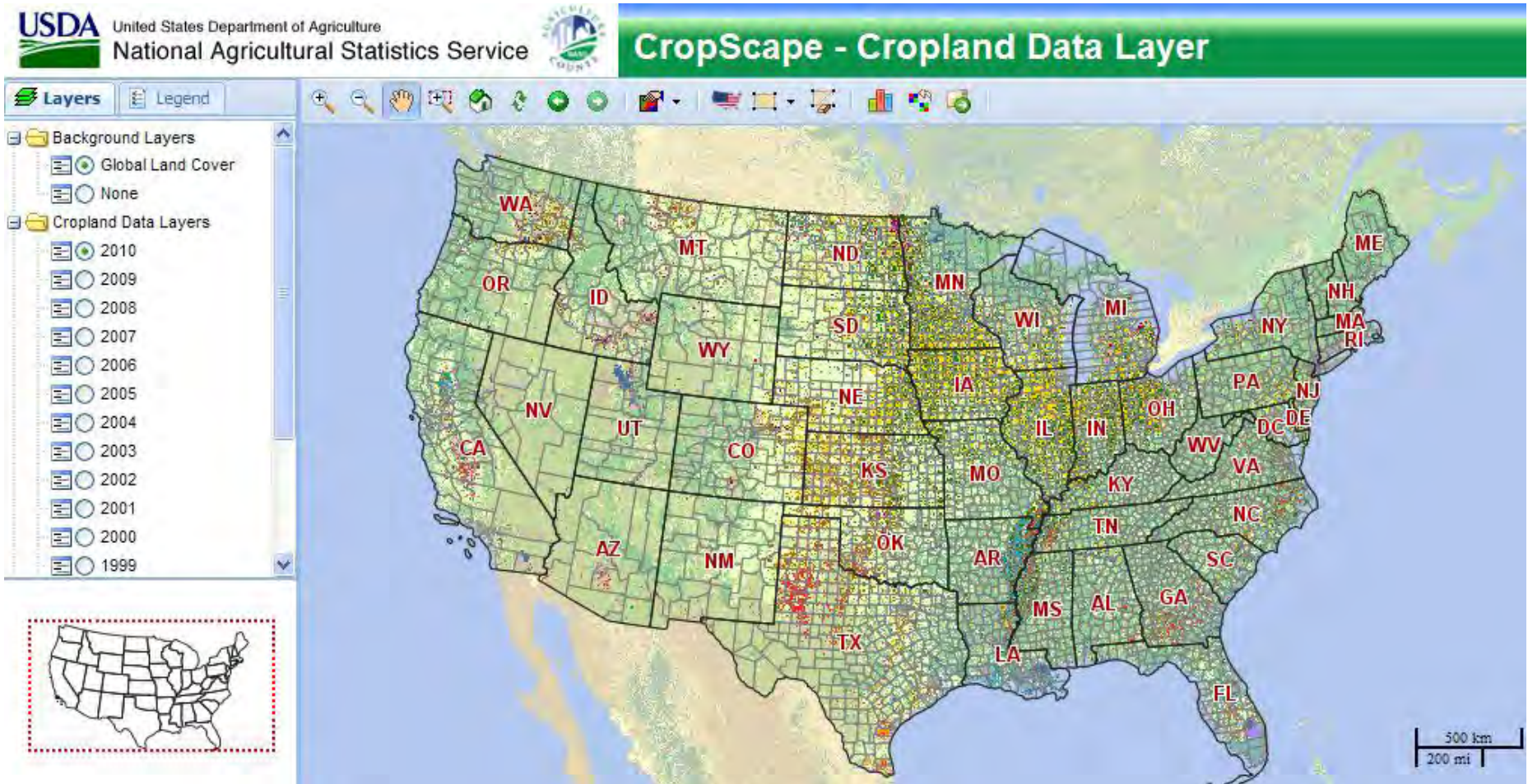
- Develop CropScape web portal
- A web service based interactive map visualization, dissemination and querying system for U.S. cropland
  - No burden on users
    - No client software development & installation
    - No special software tools needed
  - Equitable cropland information access, automatic 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



Harmonize ALL historical CDL products to standards:  
color scheme, categories, projection, metadata

# 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

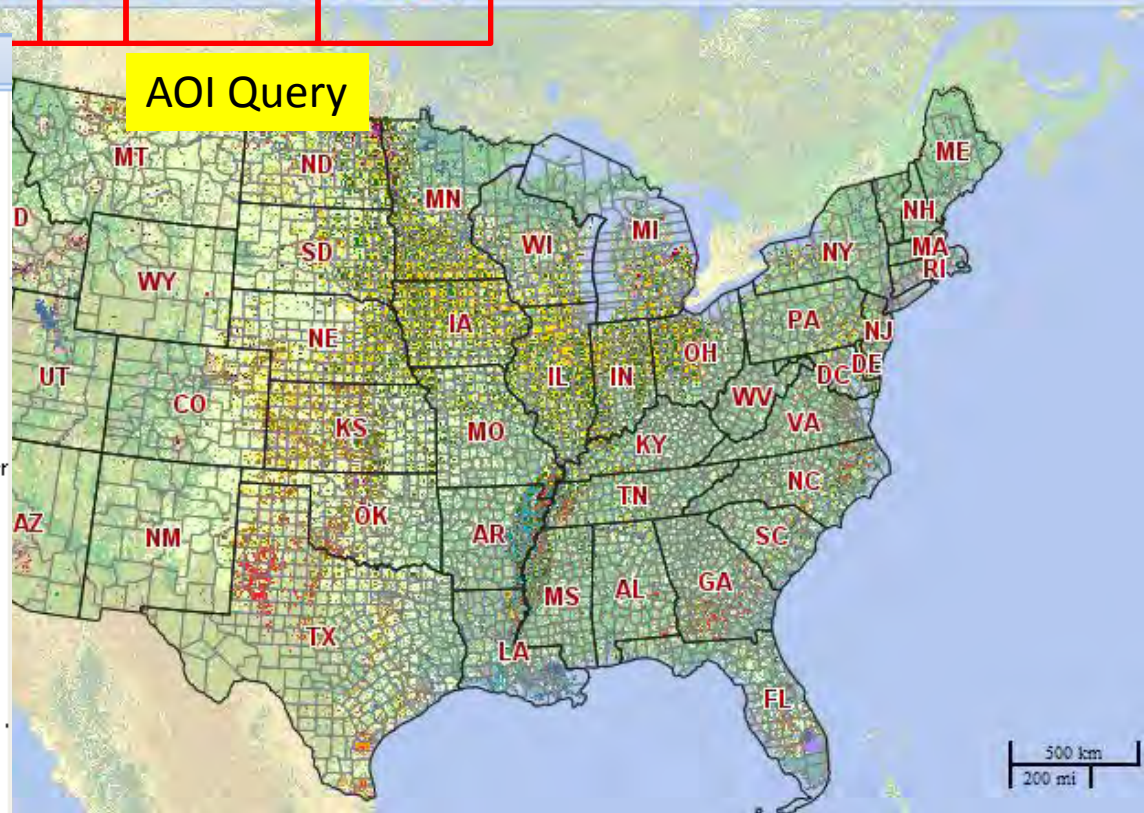
Layer/Legend

Layers Legend

Cropland Data Layer:

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

AOI Query



Map Overview



# CropScape Mashups

The screenshot displays the KDF Bioenergy Knowledge Discovery Framework website. The header includes the KDF logo, the text "BIOENERGY KNOWLEDGE DISCOVERY FRAMEWORK U.S. DEPARTMENT OF ENERGY", and navigation links for "Login" and "Request Account". A search bar is present on the right. Below the header is a navigation menu with "Home", "Map", "Data Library", "About", and "Contact". The main interface features a yellow toolbar with "My Layers", "Add Data", and "Attribute Query" buttons, along with standard map controls like zoom, pan, and home. On the left, a "My Layers" panel lists several data layers: "Base Map", "Ethanol Refinery Capacity", "Transload", "Unit Train", "Biodiesel Refinery Capacity", "RFA Biorefineries", and "2010 Cropland Data Layer". The central map area shows a satellite-style view of a landscape with various colored overlays representing the data layers. Four red circles highlight specific features on the map: a small green triangle in the upper right, a larger green triangle in the center, a small yellow circle in the lower right, and a small green triangle in the lower left.

KDF BIOENERGY KNOWLEDGE DISCOVERY FRAMEWORK U.S. DEPARTMENT OF ENERGY

Login Request Account Like 48

Home Map Data Library About Contact

My Layers Add Data Attribute Query

- Base Map
- Ethanol Refinery Capacity
- Transload
- Unit Train
- Biodiesel Refinery Capacity
- RFA Biorefineries
- 2010 Cropland Data Layer





# 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: [dropdown menu]

Or Select a County  
County:

Reset

ASD

Define Area of Interest By State/ASD/County

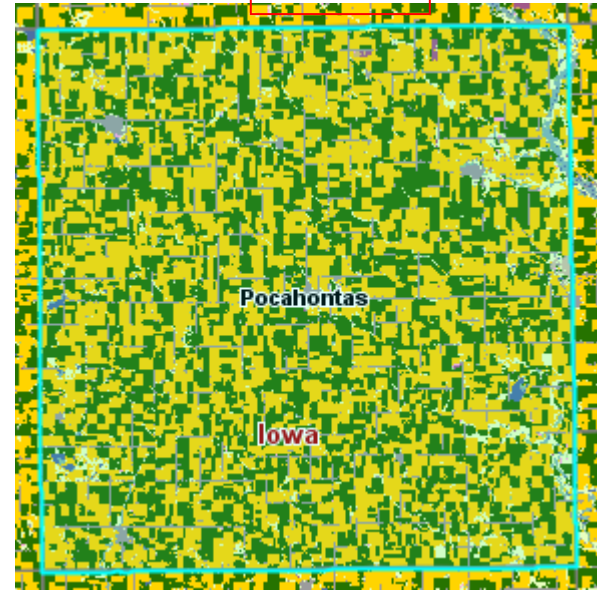
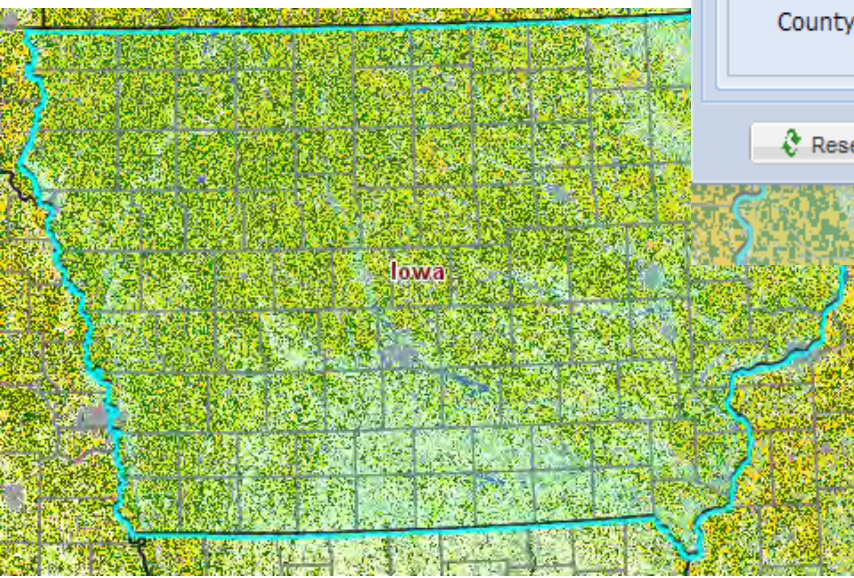
Select a State  
State: Iowa

Select an ASD  
ASD: Select an ASD...

Or Select a County  
County: Pocahontas

Reset Submit Cancel

County



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



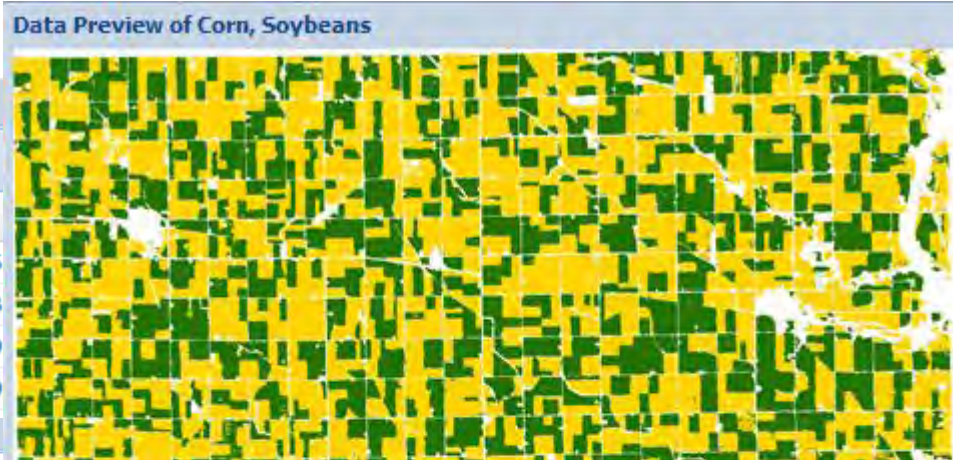
# CropScape Stats

Pie/Histogram/Graphic

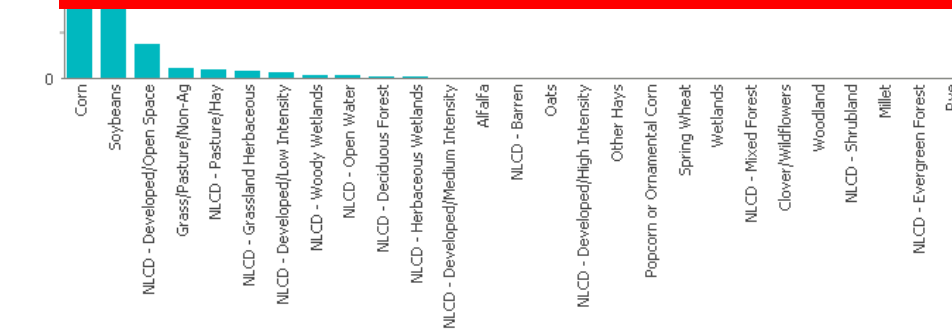
2010 Cropland Data Layer Statistics for Pocahontas, Iowa

Note: Pixel counts are not official estimates.

Value	Category	Pixel Counts	Acreage
1	Corn	807149	179505
5	Soybeans	669233	148833
121	NLCD - Developed/Open Space	84172	18719
62	Grass/Pasture/Non-Ag	23425	5209

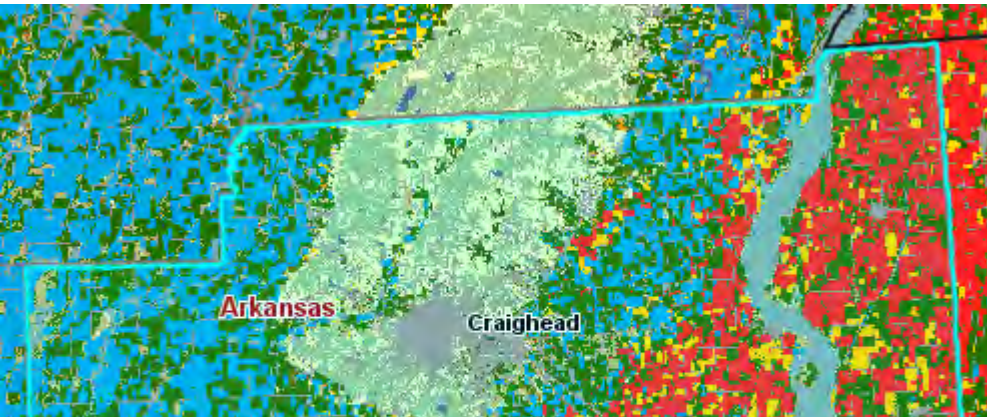


Pixel counting is usually downward biased when compared to official estimates. Counting pixels and multiplying by the area of each pixel will result in biased area estimates and should be considered raw numbers needing bias correction. Official crop acreage estimates at the state and county level are available at <http://www.nass.usda.gov/>.





# 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.

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

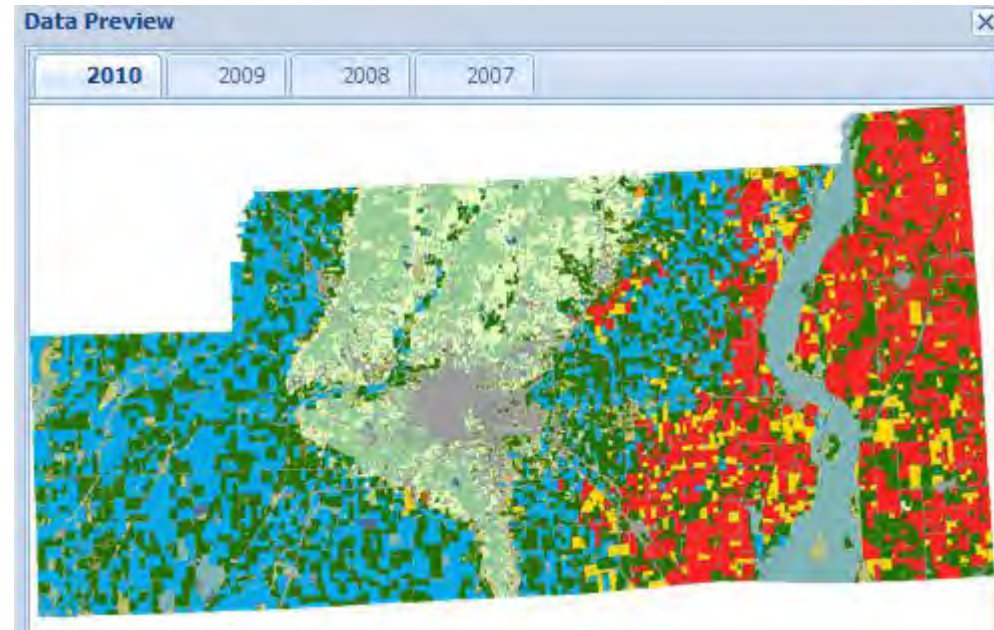
Specify Years and Projection

Download Files from Server

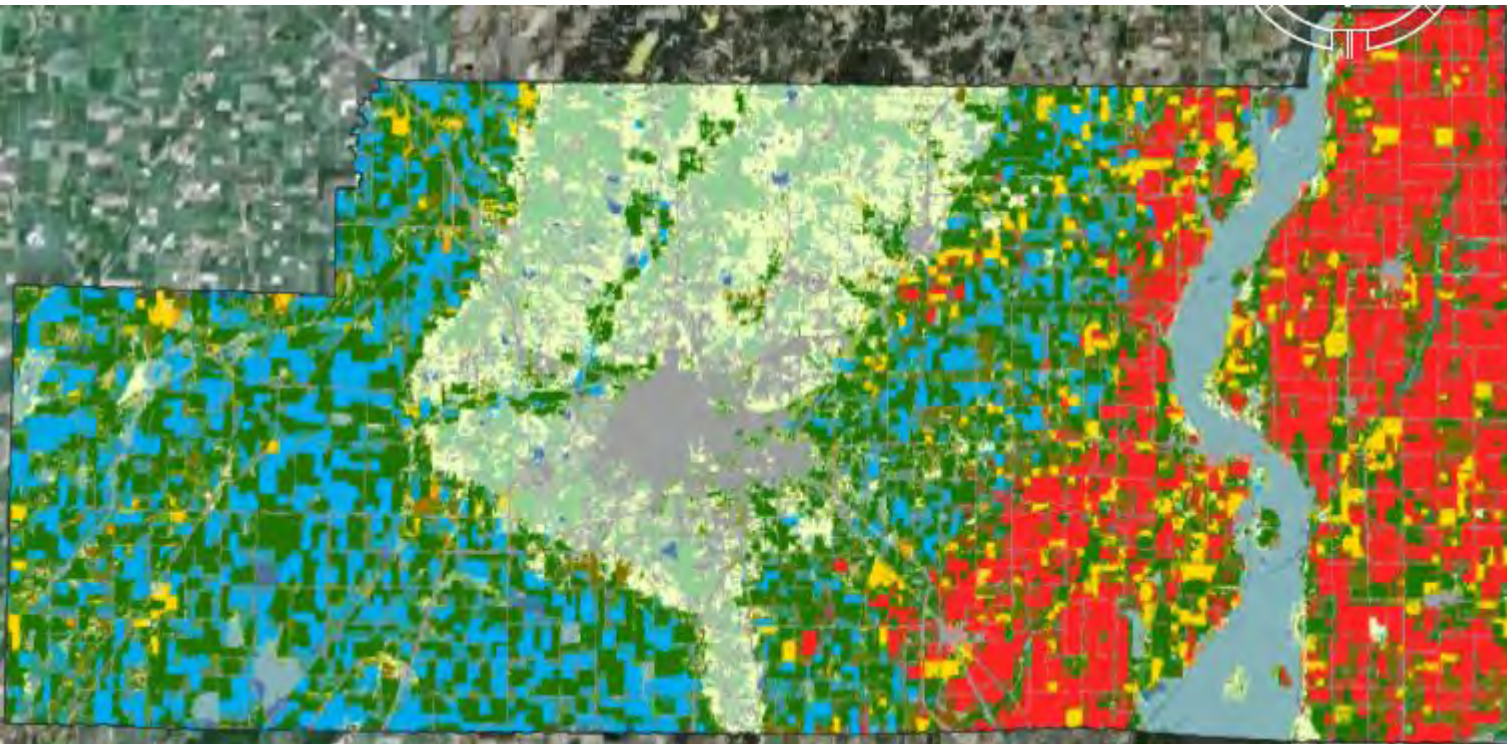
[http://129.174.131.228/nass\\_data\\_cache/polygonclip\\_201101180/](http://129.174.131.228/nass_data_cache/polygonclip_201101180/)

Download Preview Export as KML

Preview and Download



# CropScape w/ Google Earth



Craighead



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



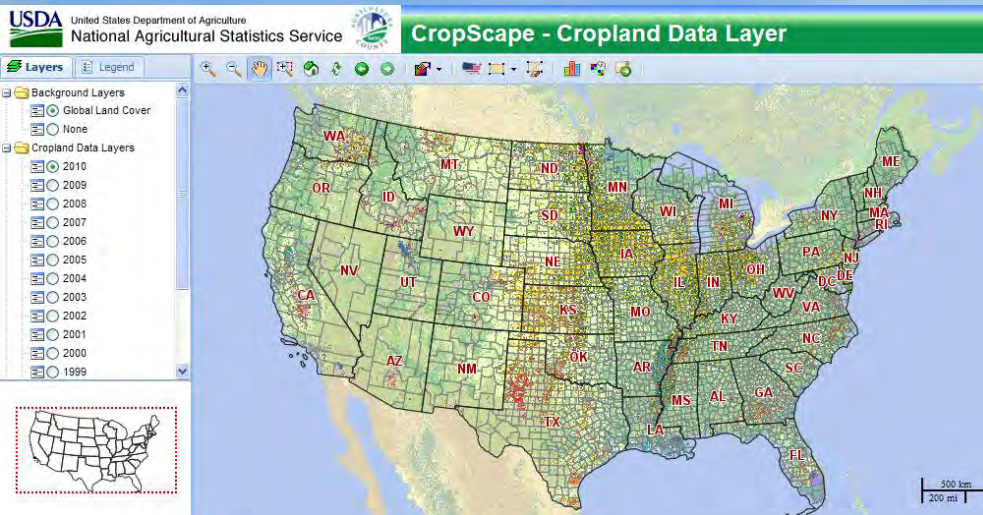
# CropScape Future

- Enhance existing functions
  - Change analysis mapping
  - Online map generation for production & printing
- Add new capabilities
  - Multi-county analysis
  - Client data layer mash-up (capability to add data by user)
  - Multi-year crop acreage statistical change graphics for state, county, or area
- Feasibility study for hosting on commercial cloud computing service, such as Amazon Cloud



# 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)



# Thank you!



Spatial Analysis Research Section  
USDA/NASS R&D Division

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