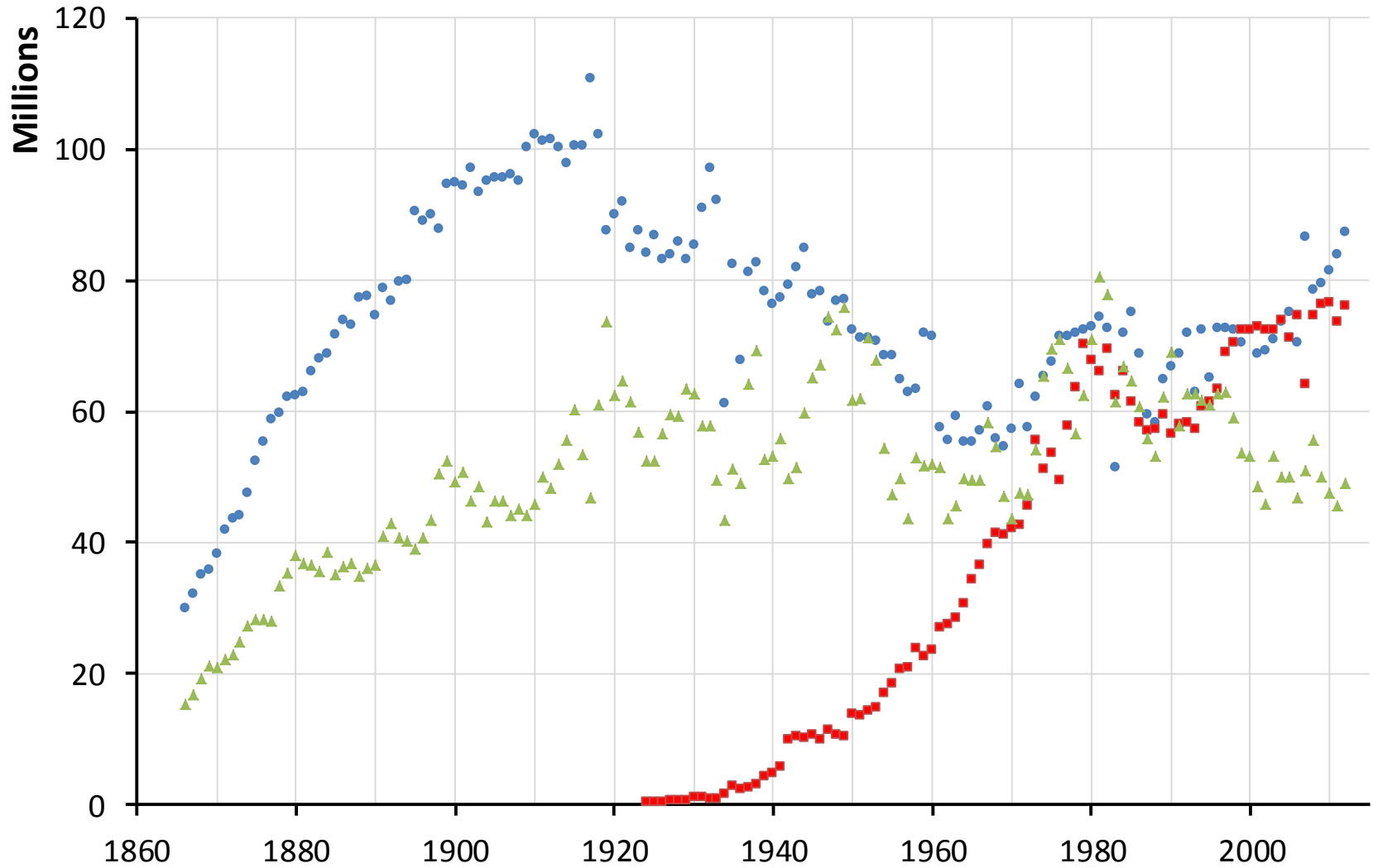


Cropland Area Monitoring Program at the National Agricultural Statistics Service



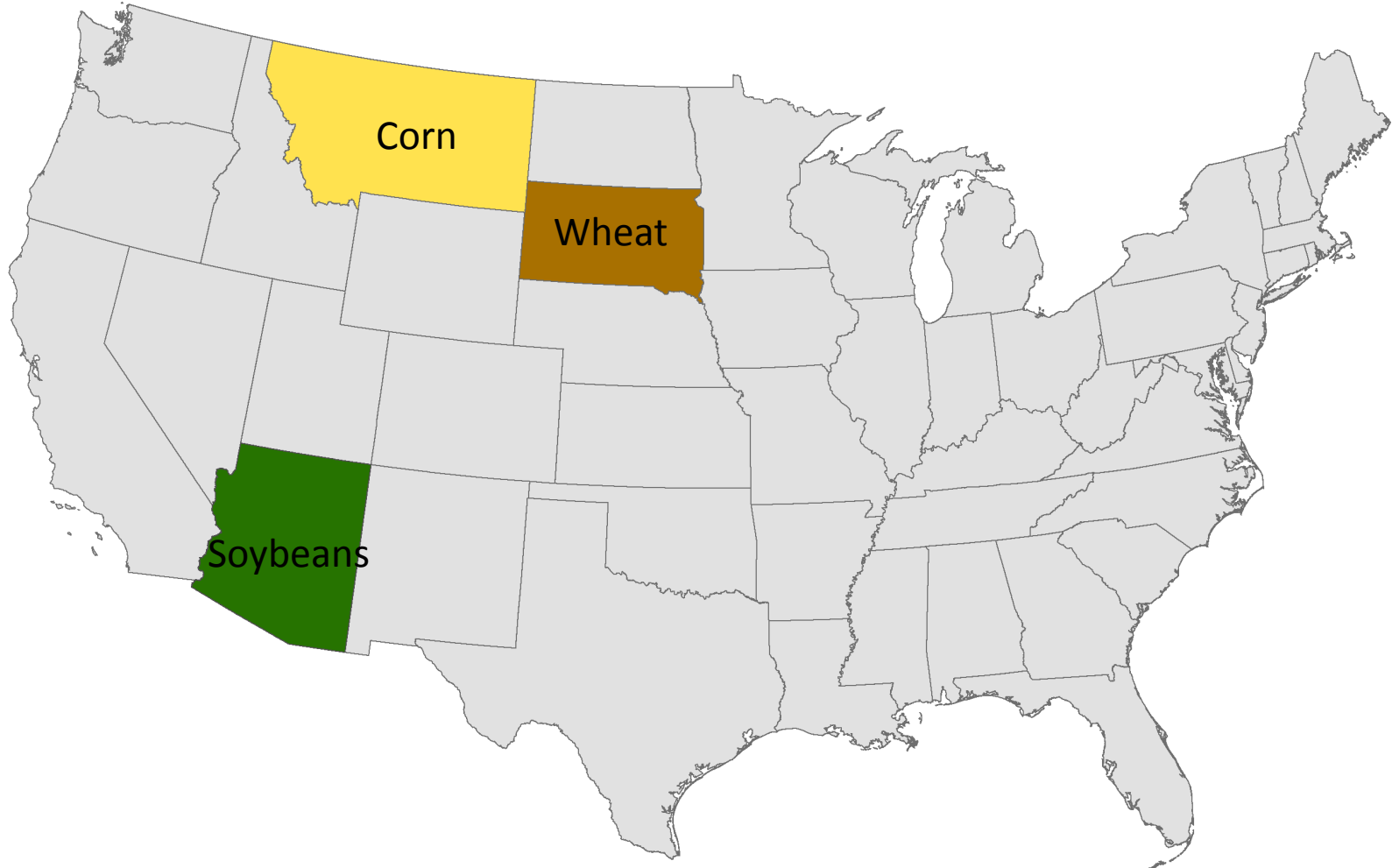
Rick Mueller
USDA NASS

United States Harvested Area (acres)



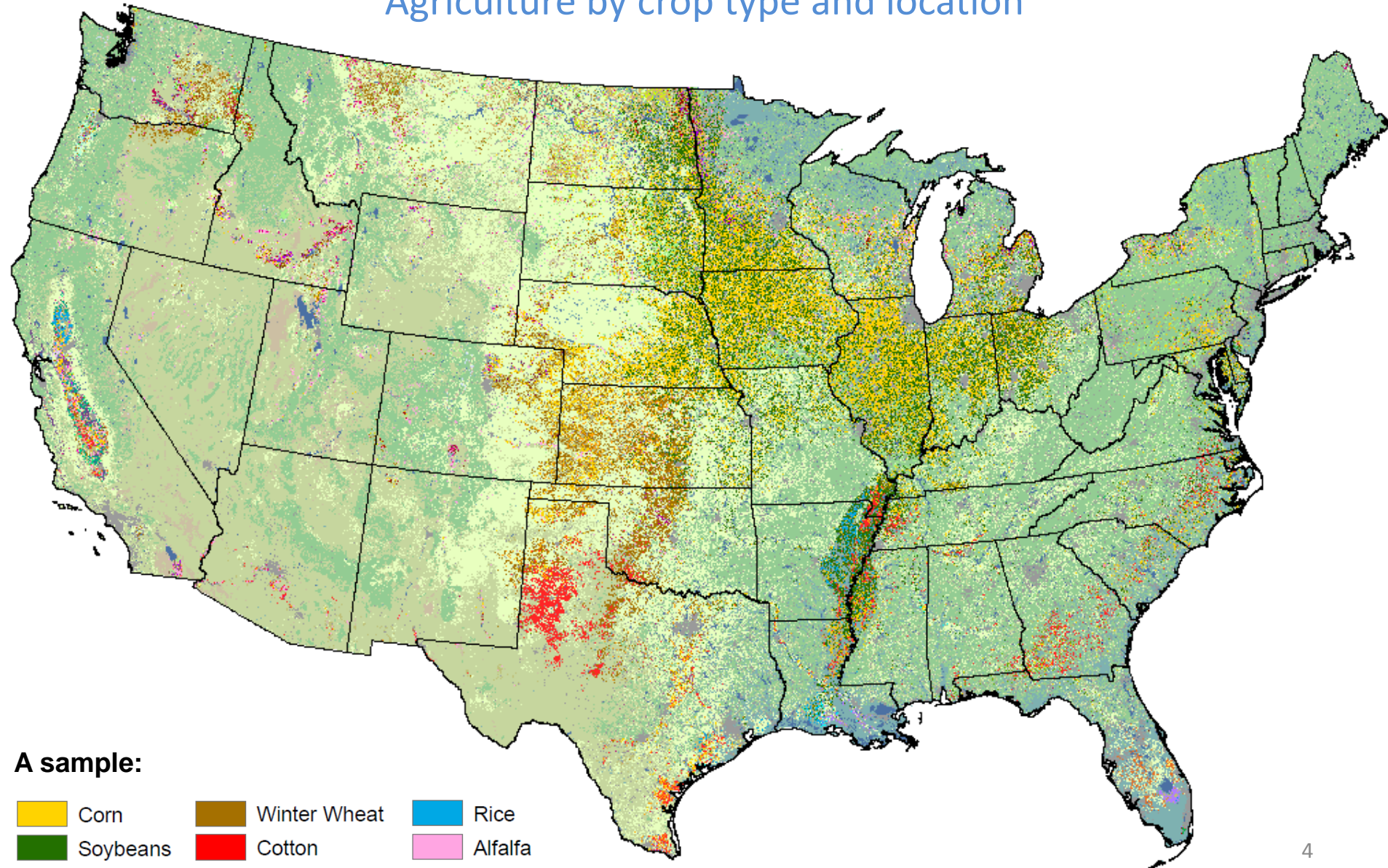
• Corn ■ Soybeans ▲ Wheat

Collapsed harvested area of major US crops for 2013



Cropland Data Layer 2012

Agriculture by crop type and location

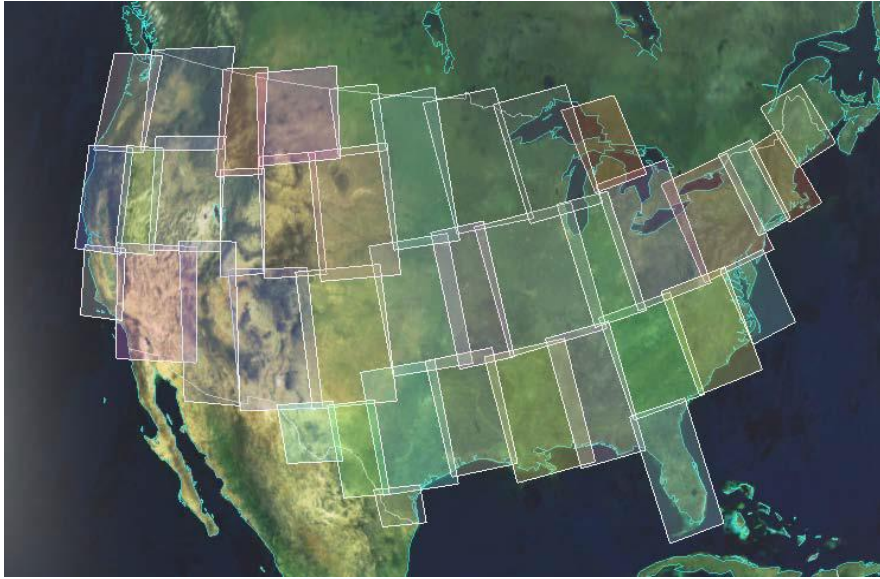


Crop Categories

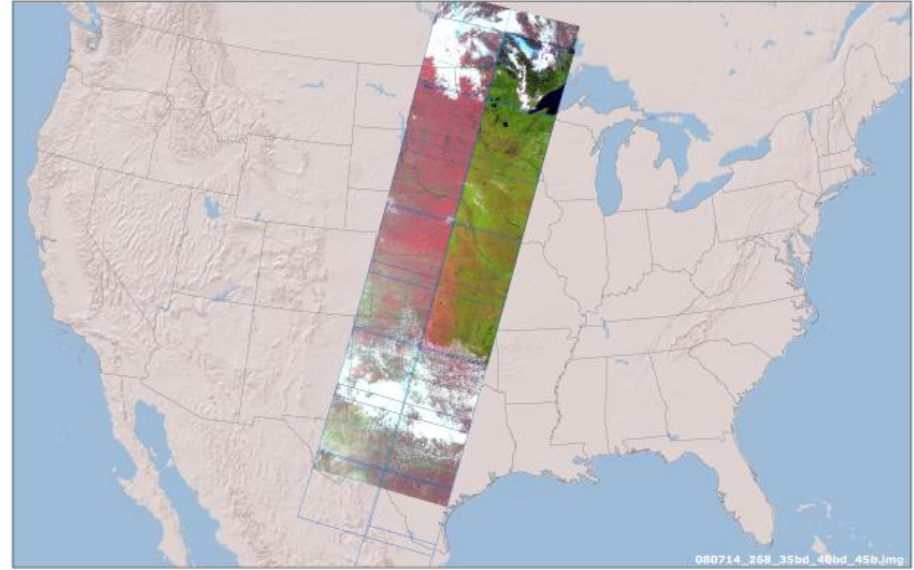
| | | | | | | | | | | | |
|----|--|----------------------|----|--|----------------------|-----|--|----------------------|-----|--|--------------------------|
| 1 | | Corn | 41 | | Sugarbeets | 73 | | Other Tree Fruits | 227 | | Lettuce |
| 2 | | Cotton | 42 | | Dry Beans | 74 | | Pecans | 228 | | Cucumbers |
| 3 | | Rice | 43 | | Potatoes | 75 | | Almonds | 229 | | Pumpkins |
| 4 | | Sorghum | 44 | | Other Crops | 76 | | Walnuts | 230 | | Lettuce/Durum Wht |
| 5 | | Soybeans | 45 | | Sugarcane | 77 | | Pears | 231 | | Lettuce/Cantaloupe |
| 6 | | Sunflower | 46 | | Sweet Potatoes | 80 | | Other Non-Tree Fruit | 232 | | Lettuce/Upland Cotton |
| 10 | | Peanuts | 47 | | Misc. Vegs. & Fruits | 92 | | Aquaculture | 233 | | Lettuce/Barley |
| 11 | | Tobacco | 48 | | Watermelons | 204 | | Pistachios | 234 | | Durum Wht/Sorghum |
| 12 | | Sweet Corn | 49 | | Onions | 205 | | Triticale | 235 | | Barley/Sorghum |
| 13 | | Pop. or Orn. Corn | 50 | | Pickles | 206 | | Carrots | 236 | | WinWht/Sorghum |
| 14 | | Mint | 51 | | Chick Peas | 207 | | Asparagus | 237 | | Barley/Corn |
| 21 | | Barley | 52 | | Lentils | 208 | | Garlic | 238 | | WinWht/Cotton |
| 22 | | Durum Wheat | 53 | | Peas | 209 | | Cantaloupes | 239 | | Soybeans/Cotton |
| 23 | | Spring Wheat | 54 | | Tomatoes | 210 | | Prunes | 240 | | Soybeans/Oats |
| 24 | | Winter Wheat | 55 | | Caneberries | 211 | | Olives | 241 | | Corn/Soybeans |
| 25 | | Other Small Grains | 56 | | Hops | 212 | | Oranges | 242 | | Blueberries |
| 26 | | DbL. Crop WinWht/Soy | 57 | | Herbs | 213 | | Honeydew Melons | 243 | | Cabbage |
| 27 | | Rye | 58 | | Clover/Wildflowers | 214 | | Broccoli | 244 | | Cauliflower |
| 28 | | Oats | 59 | | Sod/Grass Seed | 216 | | Peppers | 245 | | Celery |
| 29 | | Millet | 60 | | Switchgrass | 217 | | Pomegranates | 246 | | Radishes |
| 30 | | Speltz | 61 | | Fallow/Idle Cropland | 218 | | Nectarines | 247 | | Turnips |
| 31 | | Canola | 62 | | Pasture/Grass | 219 | | Greens | 248 | | Eggplants |
| 32 | | Flaxseed | 66 | | Cherries | 220 | | Plums | 249 | | Gourds |
| 33 | | Safflower | 67 | | Peaches | 221 | | Strawberries | 250 | | Cranberries |
| 34 | | Rape Seed | 68 | | Apples | 222 | | Squash | 251 | | Corn - Non-Irrigated |
| 35 | | Mustard | 69 | | Grapes | 223 | | Apricots | 252 | | Soybean - Non-Irrigated |
| 36 | | Alfalfa | 70 | | Christmas Trees | 224 | | Vetch | 253 | | WinWheat - Non-Irrigated |
| 37 | | Other Hay | 71 | | Other Tree Nuts | 225 | | WinWht/Corn | | | |
| 38 | | Camelina | 72 | | Citrus | 226 | | Oats/Corn | | | |

2013 Cropland Data Layer Inputs

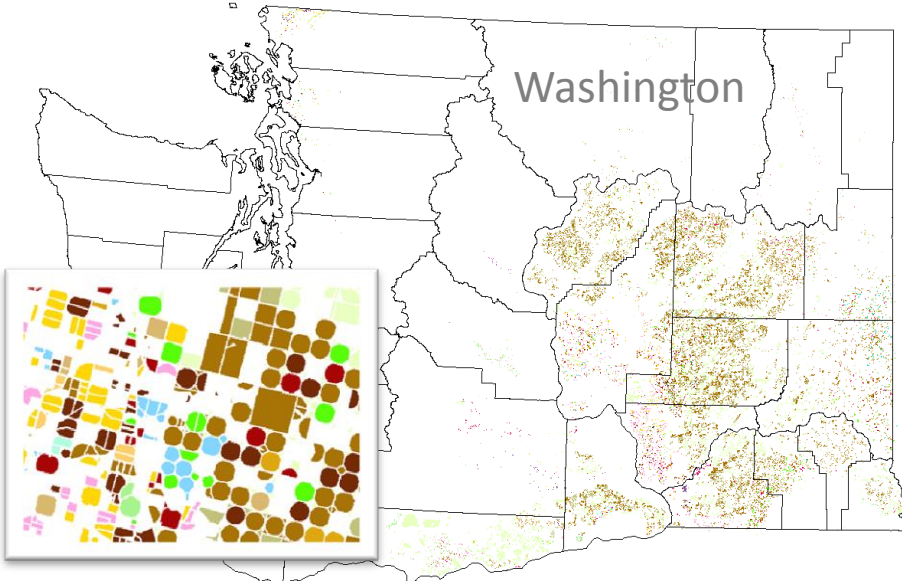
Satellite Imagery – Deimos-1 & UK2



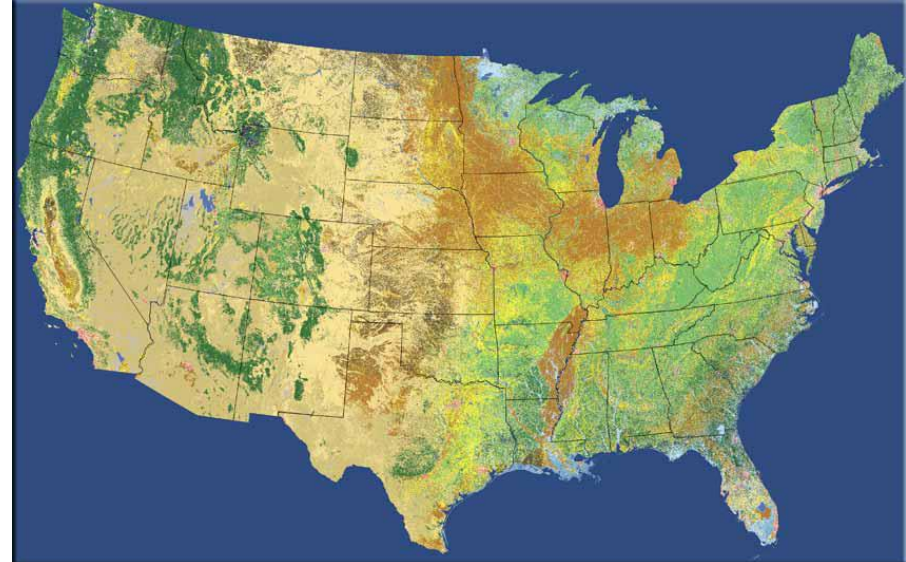
Satellite Imagery – Landsat 8



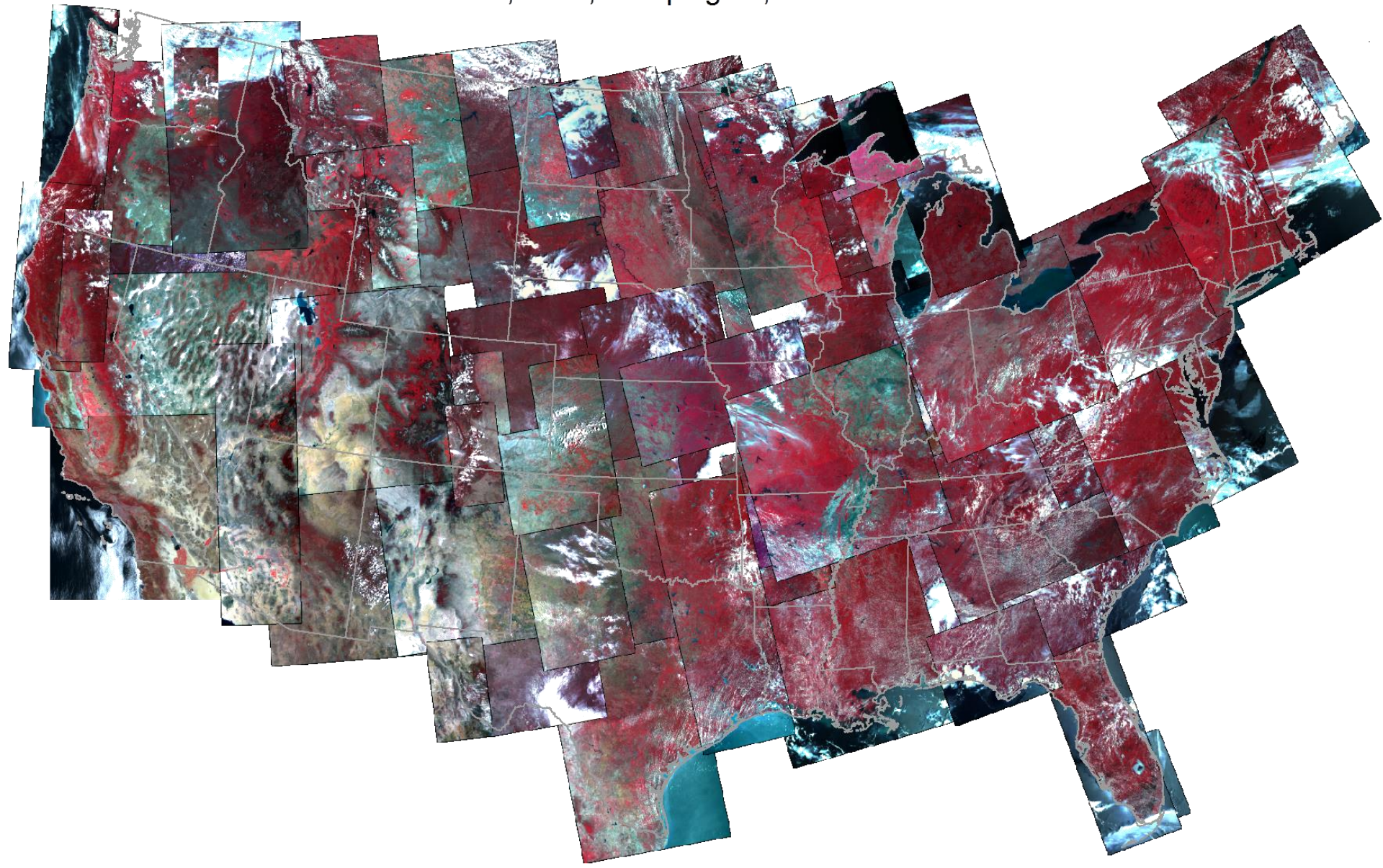
Farm Service Agency: Common Land Unit



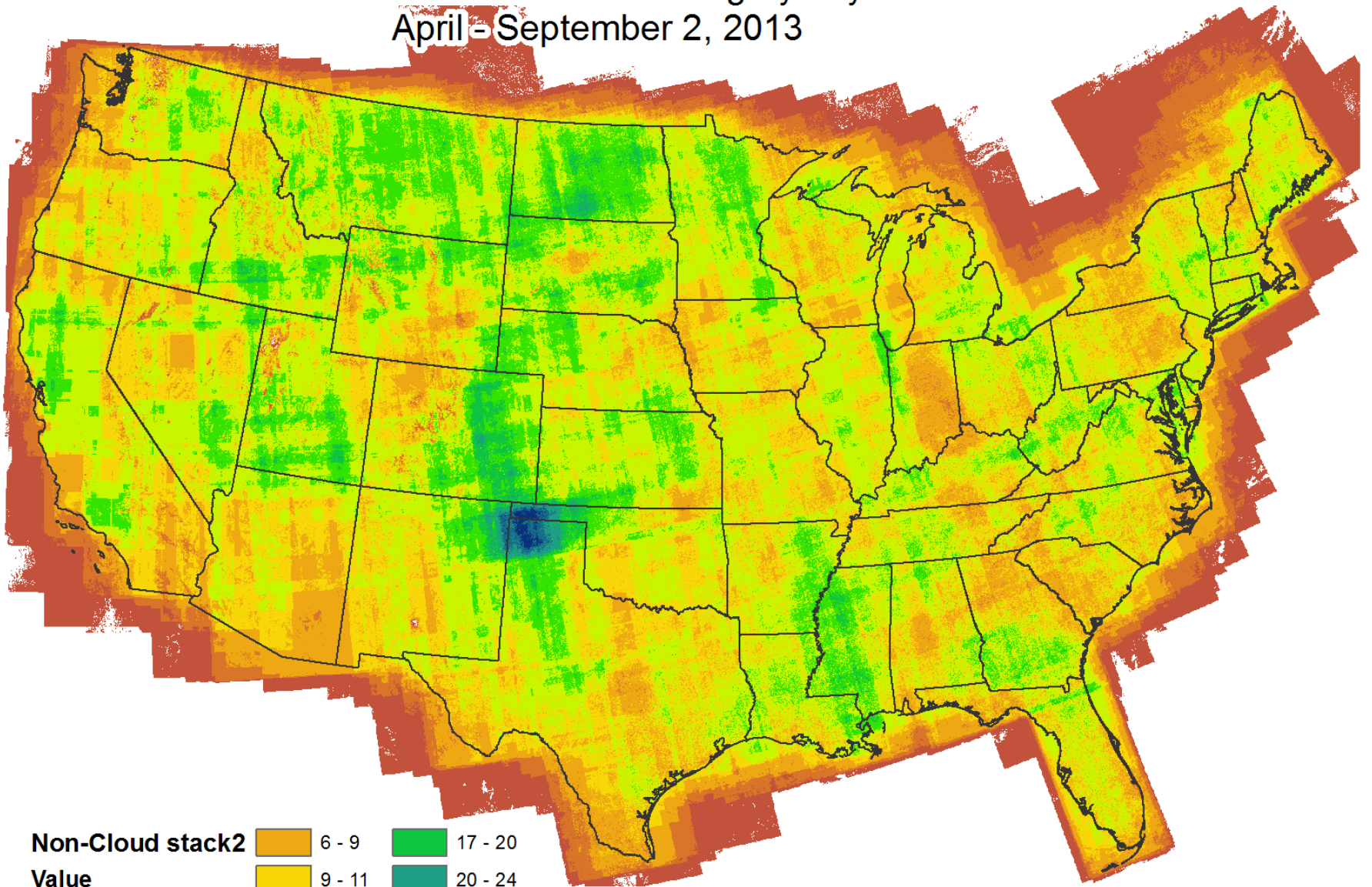
2006 USGS NLCD & Derivative products



DMC, 2013, Campaign 5, Jun 16 - Jun 30

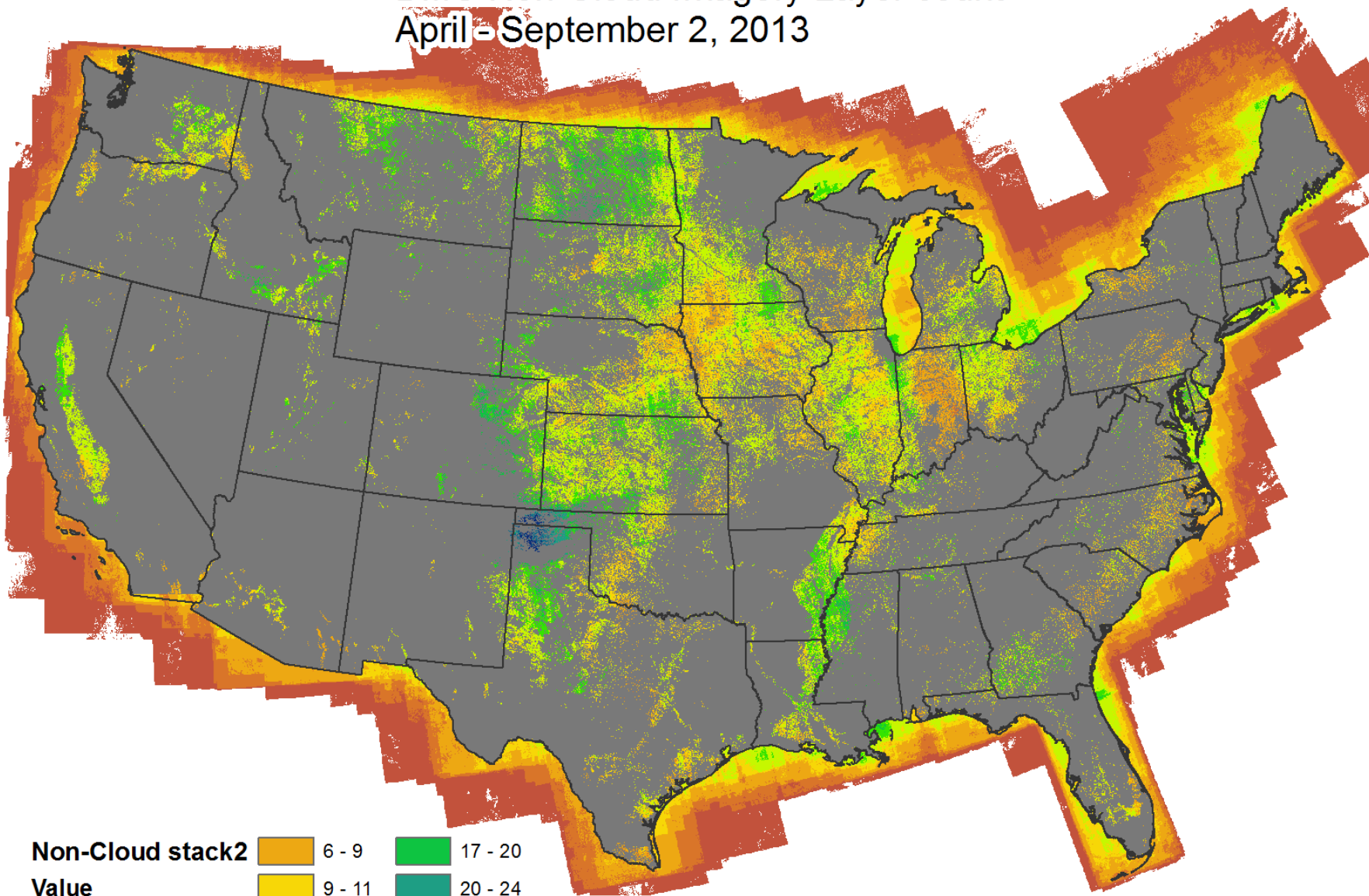


DMC Non-Cloud Imagery Layer count April - September 2, 2013



| Non-Cloud stack2 | | |
|------------------|---------|---------|
| Value | | |
| 1 - 3 | 6 - 9 | 17 - 20 |
| 3 - 6 | 9 - 11 | 20 - 24 |
| | 11 - 14 | 24 - 27 |
| | 14 - 17 | 27 - 33 |

DMC Non-Cloud Imagery Layer count April - September 2, 2013



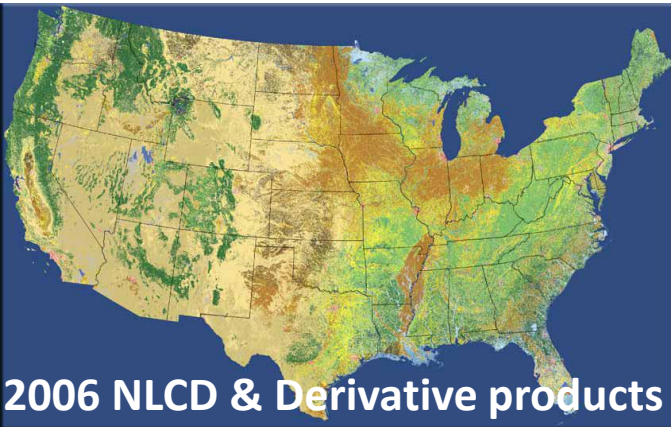
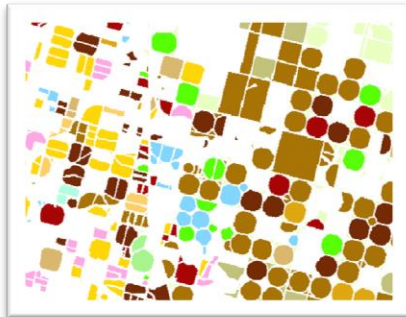
Non-Cloud stack2

| Value | Color | Value | Color |
|---------|---------------|---------|-------------|
| 1 - 3 | Red | 17 - 20 | Light Green |
| 3 - 6 | Orange | 20 - 24 | Teal |
| 6 - 9 | Yellow-Orange | 24 - 27 | Dark Teal |
| 9 - 11 | Yellow | 27 - 33 | Dark Blue |
| 11 - 14 | Light Green | | |
| 14 - 17 | Green | | |

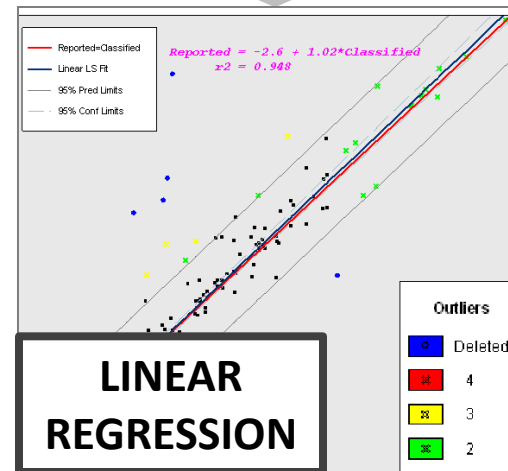
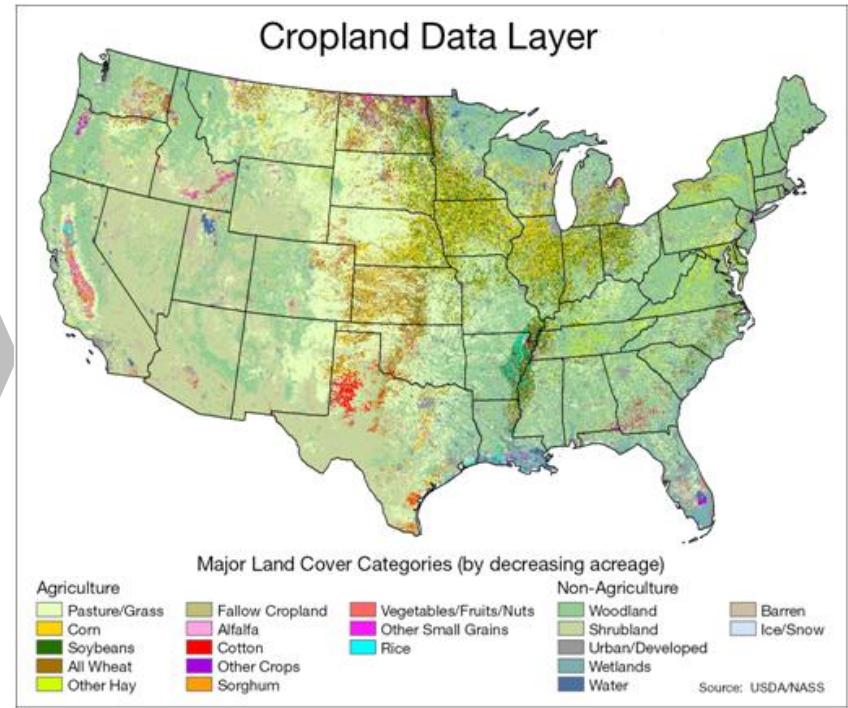
Cropland Data Layer Inputs/Processes/Outputs



Ground Truth:
Farm Service
Agency
Common
Land Units



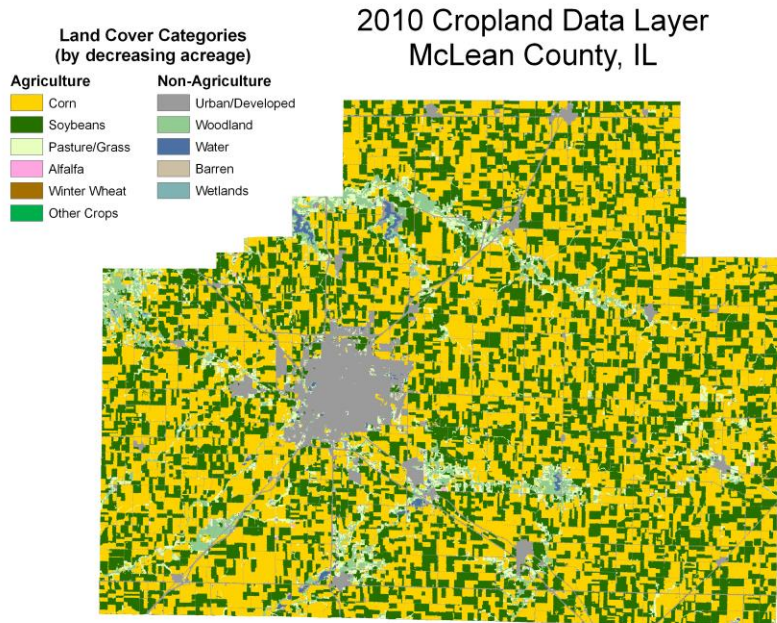
C
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LINEAR
REGRESSION

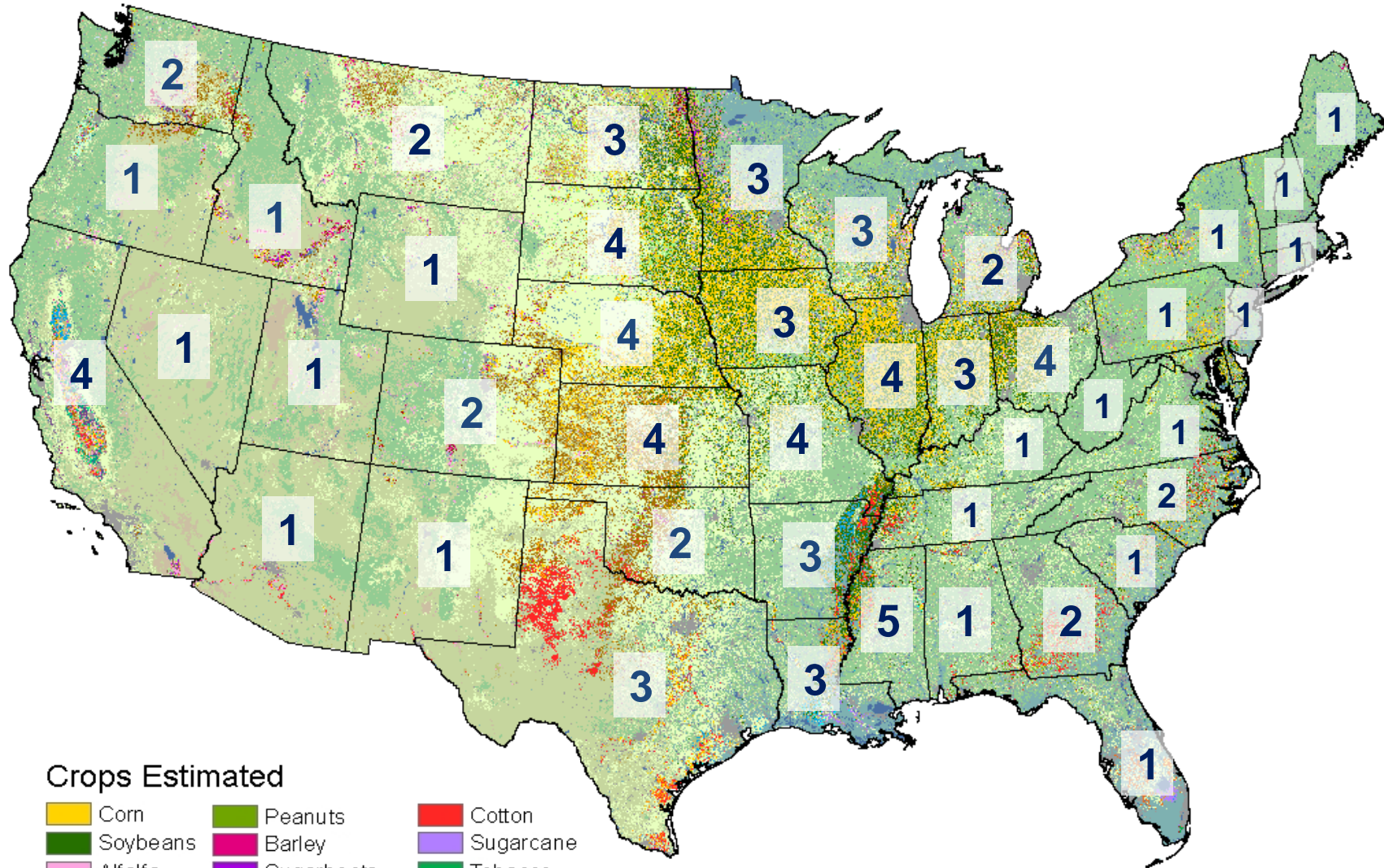
CROP
ACREAGE
ESTIMATES

CDL Generalities



- Annual land cover classification targeted to identifying *circa* summer cultivated crops
- Encompasses all of conterminous USA (since 2008)
- 56m or 30m resolution
 - Depending on year; 30m since 2010
- Built with a supervised boosted classification tree methodology
 - Implemented with See 5.0
- Utilizes ground/training data from USDA Farm Service data
 - Ancillary data from National Land Cover Database
- Highly robust for dominant crop types
 - corn, soybeans, wheat, rice, cotton, etc.
- Used internally by NASS to estimate planted acreage amounts

CDL 2013



of CDLs scheduled

Crops Estimated

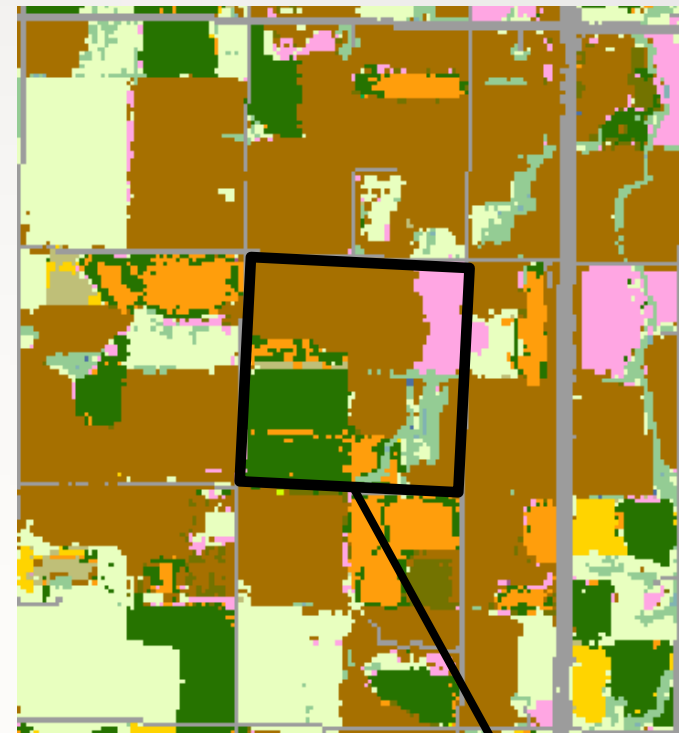
- | | | |
|-----------|--------------|-----------|
| Corn | Peanuts | Cotton |
| Soybeans | Barley | Sugarcane |
| Alfalfa | Sugarbeets | Tobacco |
| Rice | Dry Beans | Sorghum |
| Canola | Spring Wheat | Potatoes |
| Flaxseed | Winter Wheat | |
| Sunflower | Durum Wheat | |

SECTION D - CROPS AND LAND USE ON TRACT

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] | | | | | |
| 3. | Occupied farmstead or dwelling | 843 | | | | |
| 4. | Waste, unoccupied dwellings, buildings and structures, roads, ditches, etc. | --- | --- | --- | --- | --- |
| 5. | Woodland | 831 | 831 | 831 | 831 | 831 |
| 6. | Pasture Permanent (not in crop rotation) | 842 | 842 | 842 | 842 | 842 |
| | Cropland (Used only for pasture) | 856 | 856 | 856 | 856 | 856 |
| 8. | Idle cropland - Idle all during 2000 | 857 | 857 | 857 | 857 | 857 |
| 9. | Two crops planted in this field or two uses of the same crop. | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| | [Specify second crop or use] | | | | | |
| | Acres | 844 | 844 | 844 | 844 | 844 |
| 10. | Acres left to be planted | 610 | 610 | 610 | 610 | 610 |
| 11. | Acres irrigated and to be irrigated [If double cropped, include acreage of each crop irrigated] | 620 | 620 | 620 | 620 | 620 |
| 16. | Winter Wheat (include cover crop) Planted | 540 | 540 | 540 | 540 | 540 |
| | For grain or seed | 541 | 541 | 541 | 541 | 541 |
| 18. | Rye (include cover crop) Planted | 547 | 547 | 547 | 547 | 547 |
| | [Exclude ryegrass] For grain or seed | 548 | 548 | 548 | 548 | 548 |



REGRESSION
VARIABLES:

Dependent
Y

Independent
X

| | Enumerated JAS Segments | CDL Classified Acres |
|----------|-------------------------|----------------------|
| Soybeans | 227 | 273 |
| Wheat | 337 | 541 |



Washington - October

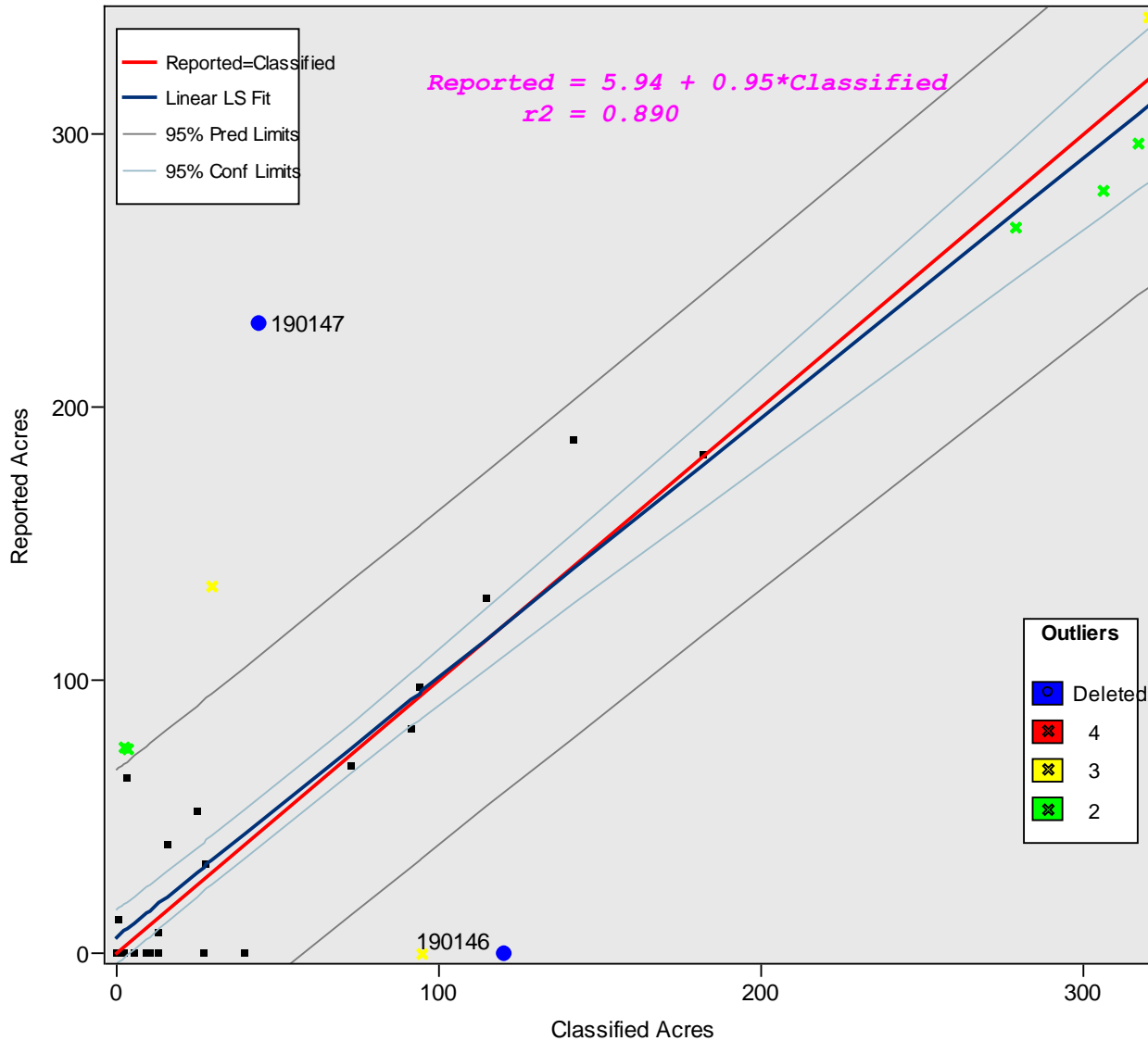
Winter Wheat – Stratum 11

R²

Jun – 0.769

Sep – 0.883

Oct – 0.890



Arkansas - October

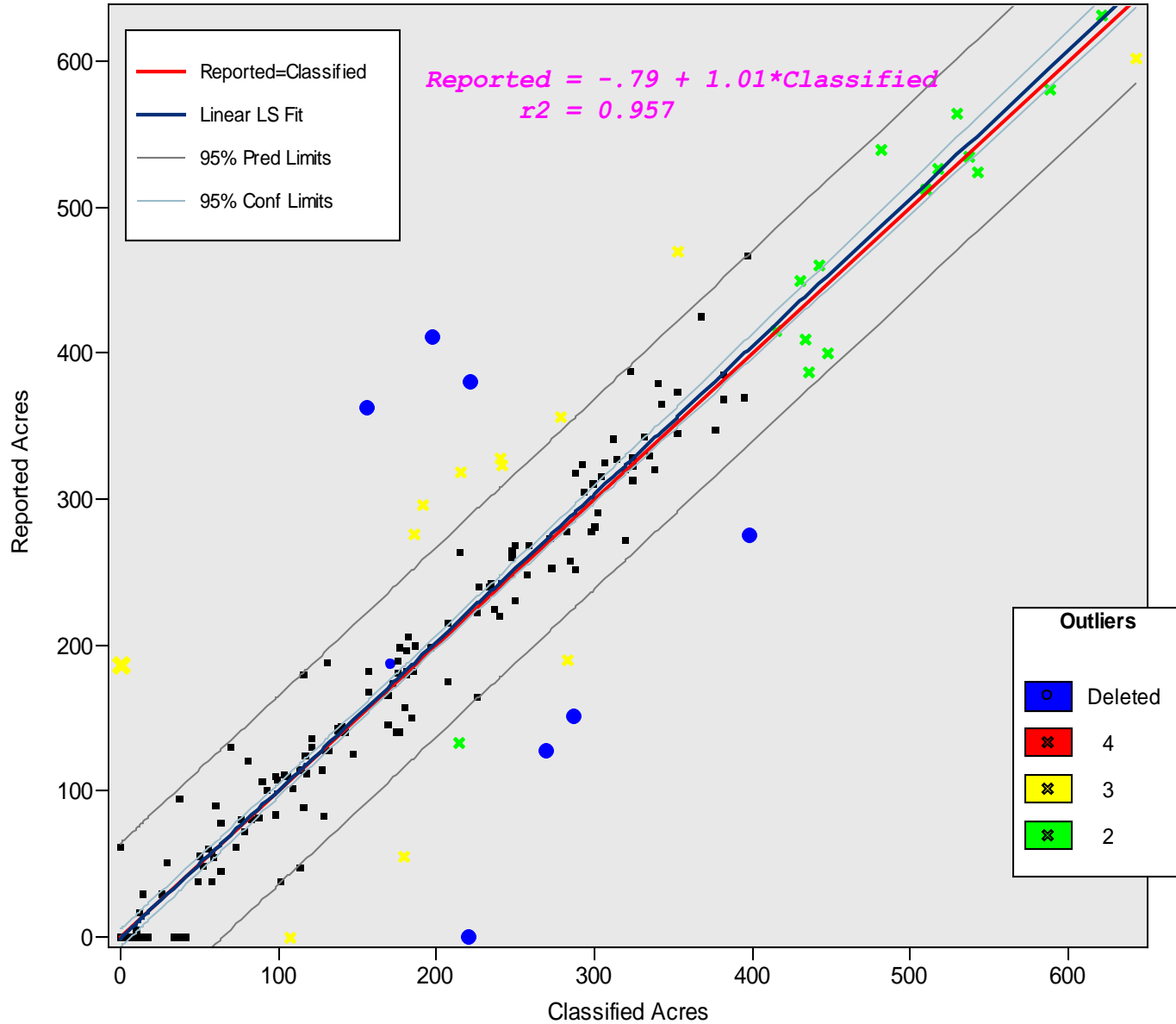
Rice - Stratum 11

R²

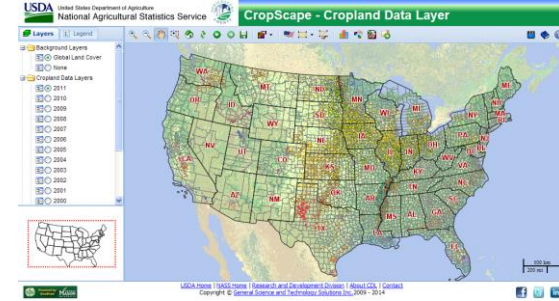
Aug - 0.948

Sep - 0.950

Oct - 0.957



CropScape



- 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
 - Data mashable
 - Democratization of data
 - Open access, timely delivery, and geospatial navigation
- Collaboration with George Mason University/Center for Spatial Information Science and Systems (CSISS)

<http://nassgeodata.gmu.edu/CropScape>





Layers Legend

Visual Tools

Area of Interest

Maps/Downloads

Cropland Data Layers

- 2012
- 2011
- 2010
- 2009
- 2008
- 2007
- 2006
- 2005
- 2004
- 2003
- 2002
- 2001
- 2000
- 1999
- 1998
- 1997

Crop Mask Layer

- Crop Mask Layer (2007-2012)

Boundary Layers

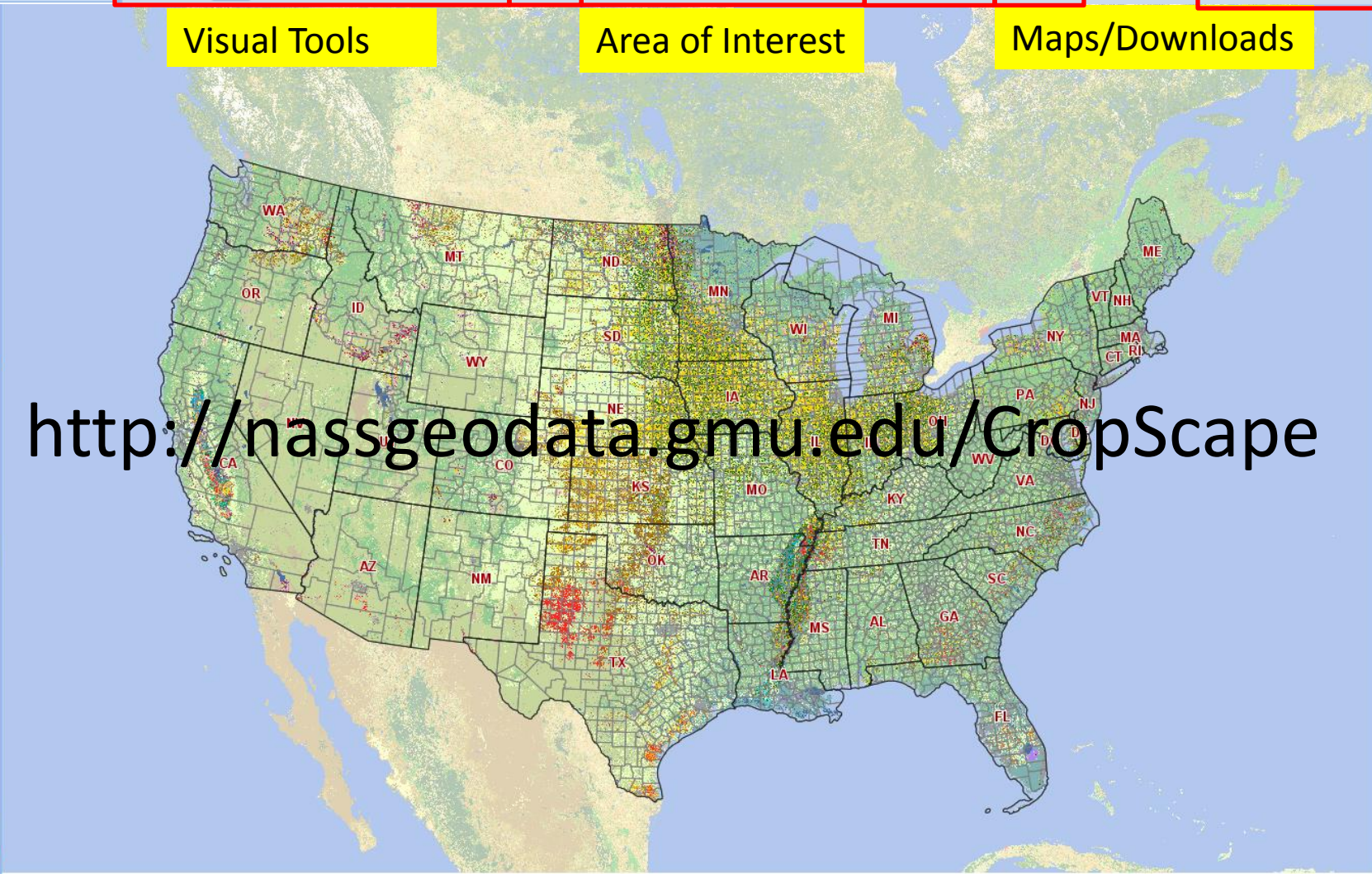
- County
- ASD
- State

Water Layers

- Rivers
- Lakes

Road Layers

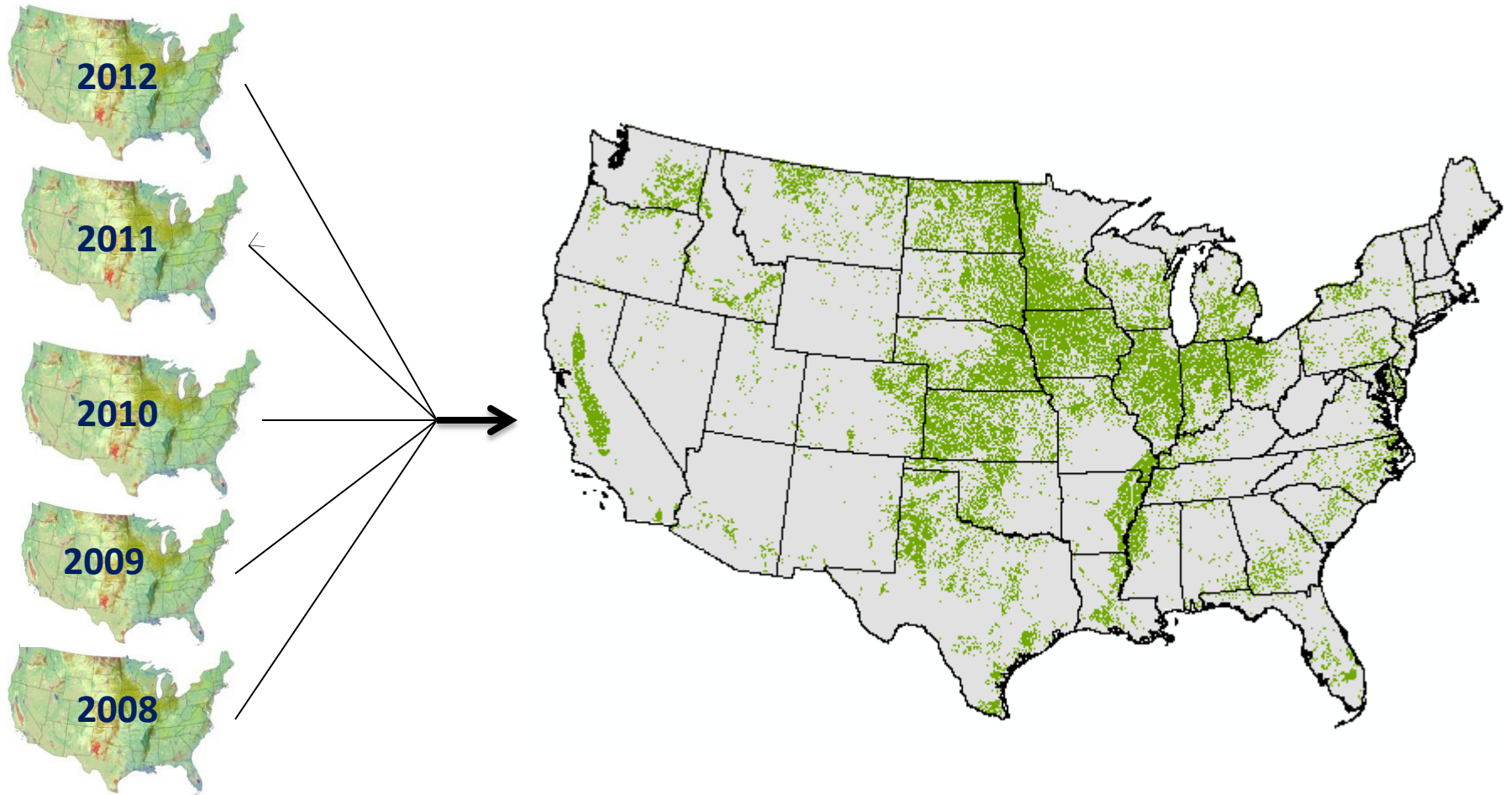
- Freeway System (National)
- Major Highways (Regional)



<http://nassgeodata.gmu.edu/CropScape>

Social Media

The NASS 2012 Cultivated Layer created from 2008-2012 CDL data



Questions?



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