# Pasture, Rangeland, Forage Crop Insurance

Is this a good Risk Management Option for Me?

# Who are we?

USDA, Risk Management Agency (RMA)

- Mission: To promote, support, and regulate sound risk management solutions to preserve and strengthen the economic stability of America's agricultural producers.
  - Operate and manage the Federal Crop Insurance programs.
    - For crop year 2011, RMA ,managed over $113 Billion worth of insurance liability.
- We merely administer the program. We do NOT sell crop insurance products. Only crop insurance agents sell.
- RMA web site: http://www.rma.usda.gov/

# History

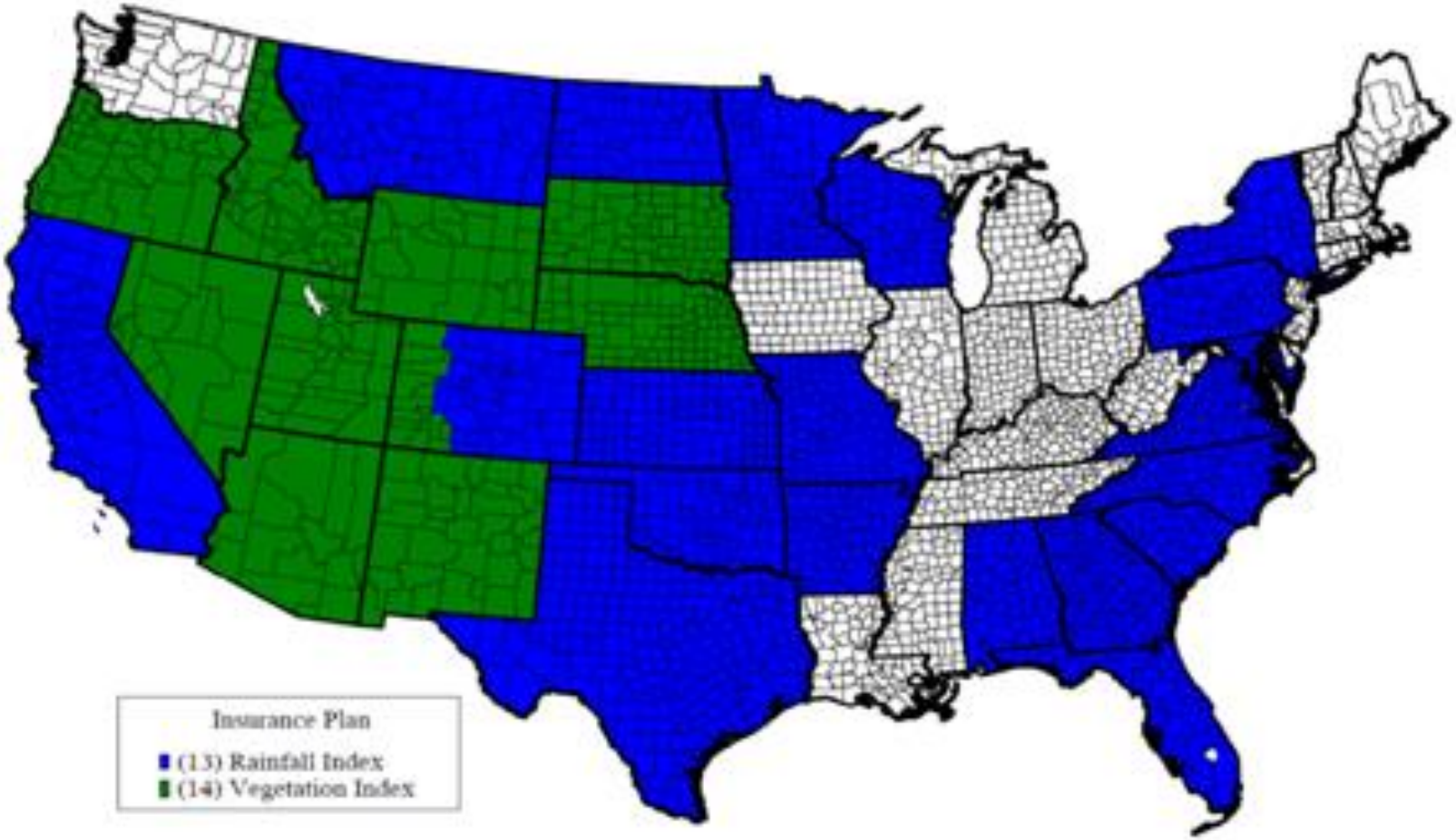
The Agricultural Risk Protection Act of 2000 (ARPA) mandates programs to cover pasture and rangeland

- Sec 522(c)(6) states: Research and Development Priorities – The corporation shall establish as one of the highest research and development priorities of the Corporation the development of a pasture, range, and forage program.

# Challenges

1. Various plant species
2. Timing of plant growth
3. Lack of individual/industry data
4. Vast range of management practices across the industry
5. Publicly announced prices not available
6. Crop continuously harvested via livestock
7. Various livestock species and segments

# 2012 PRF and API Pilot Areas



# Program Overview

AREA plan only

- Losses cover an area called a grid
- No individual coverage
  - Does NOT measure actual individual production
- Index – based on deviation from normal/historical
- No loss adjustments, records, etc.
- Timely payments
- Does not reward poor management practices
  - Producer cannot influence outcome/losses

# Crop Types

## Grazingland

- Established acreage of perennial forage
- Intended for grazing by livestock
- Acreage must be suitable for grazing

## Hayland

- Established acreage of perennial forage
- Intended for haying
- Acreage must be suitable for haying

# Program Overview

Not required to insure 100% of acreage

- Forage utilized in the annual grazing or hay cycle can be insured without insuring all acreage
- All acres within a property may not be productive, e.g., rocky areas, submerged areas
- Provides additional flexibility for the insured to design the coverage to their specific needs
- Because the program is an area program, there is no opportunity to 'move' production
  - Producer cannot affect outcome/loss

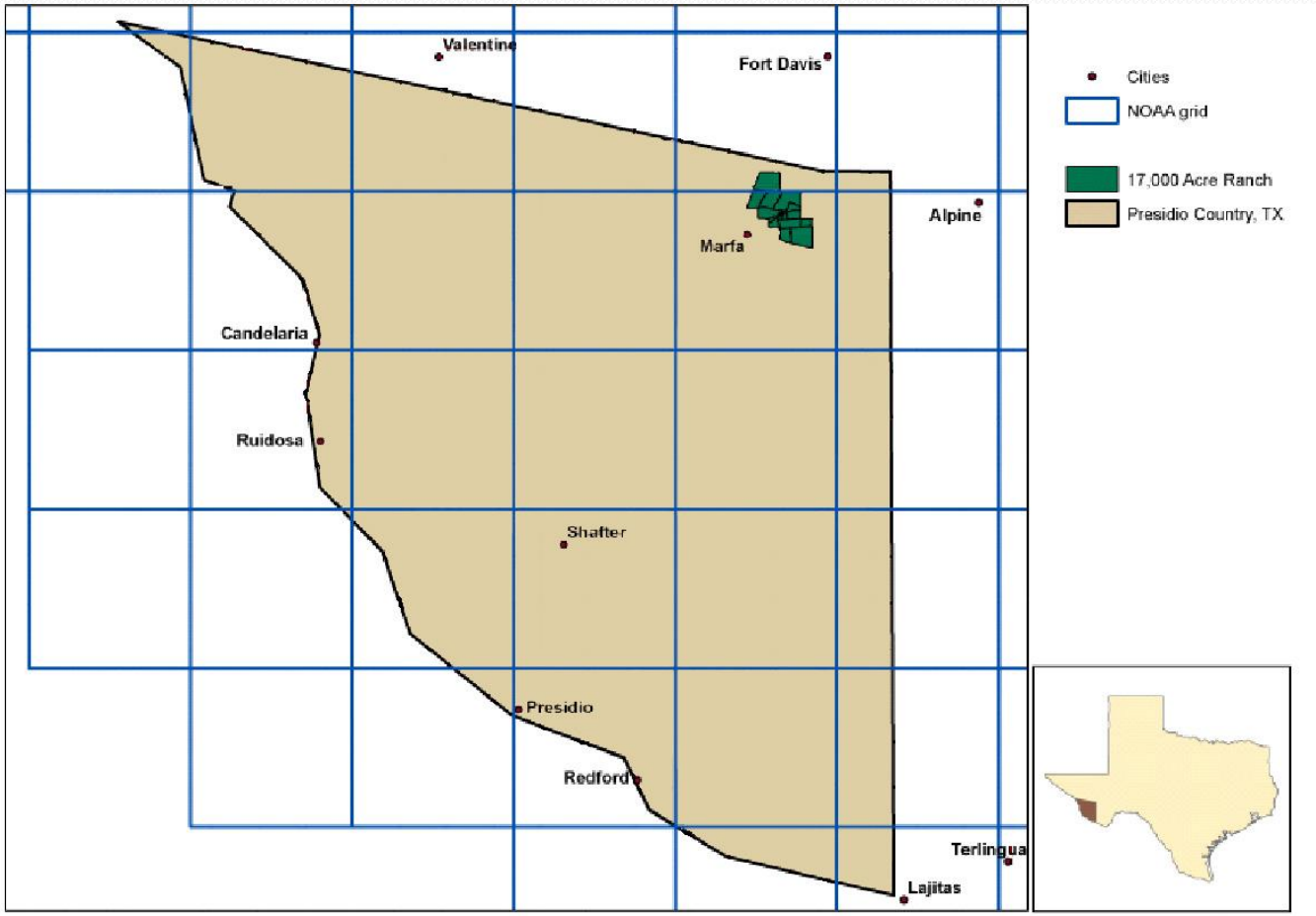
# Rainfall Index Overview

Rainfall Index Program

- Area Based Plan
  - Approximately 0.25 degree grid vs. county area
- Utilizes NOAA **Climate Prediction Center** data
  - Utilizes multiple point data, not a single point system
- Deviation from Normal 1948 to present
- Single Peril vs. Multiple Peril
  - Lack of Precipitation is the only cause of loss
- Review of Historical Indices is critical

# Grid Overview

- Area of insurance = 0.25° grids



# Rainfall Index Overview

Index Intervals

- Multiple Intervals offered – (11 intervals)
- Crop Year divided into 11, 2-month intervals
  - 1st Interval begins with January-February
- Ability for producers to manage appropriate timing risks
  - Correlate to individual growth patterns and production seasons and practices
- The 2-month intervals provide for greater reaction to precipitation events vs. a yearly average

# Rainfall Index Overview

Index Intervals

- The purpose of the program is to insure against lack of precipitation
  - Precipitation correlates to plant growth.
- Producers must select at least two 2-month intervals
  - Total annual forage production is influenced by precipitation in more than one 2-month interval; therefore, producers are required to insure in more than one interval.

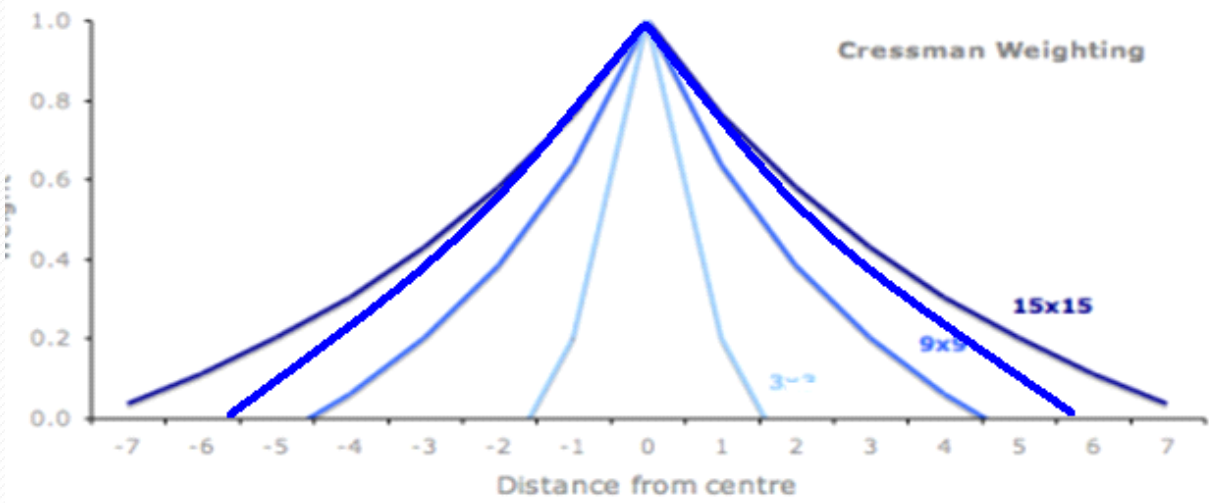
# Technical Description of CPC Gridded Rainfall Data

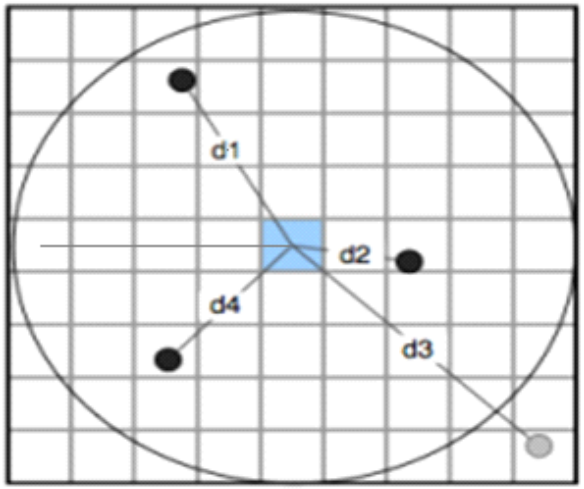
- Gridded rainfall data is pre-processed by NOAA
  - **RMA does not further process or change data**
- Total 6,000 reporting stations daily – minimum
  - Normally over 15000 report daily
- Only stations reporting data by the cut off are used.
- Stations reporting weekly or monthly are not used
- Cressman interpolation translates point information into gridded information

# Cressman Interpolation Methodology

- Interpolation is based on the idea that things closer together in space are generally more similar than those farther apart
- Estimates rainfall for a target grid using stations within a search radius around the grid
  - Search radius **varies regionally** by **season** and **density of the available stations/data sources**
  - NOAA currently uses 4 scans. **Magnitude of scan varies with region and season in some areas**
  - Impact of an individual station/data source on the target grid's precipitation decreases with increasing distance between the data source and the target grid

# NOAA CPC Uses Weighted Averaging Method




- Four Passes – with each successive pass, the scan radius is decreased, the weight of the closest station has higher effect on the target grid
- 4 passes insures that distant stations influence rainfall prediction in target grid, but weighting with distance decreases the influence

# Will this work for me?

- All first order weather stations reporting to NOAA CPC by their DAILY cut off time are used IF they pass the NOAA CPC quality control steps.
  - NOAA CPC does not release which stations report
  - Reviewing NWS, NCDC, WFO, producer gauge results to calculate or estimate results is not appropriate and will not provide useful comparisons.

# Will this work for me?

- Precipitation is interpolated to the grid and not measured within a grid.
  - You must understand that even if there is a weather station that reports daily to NOAA CPC inside your grid, the results will NOT equal that weather station
- Similar to NASS data used for area crop policies
  - Producers reporting to NASS – unknown
  - Surveys NASS eliminates in their quality control - unknown

# Program Overview – RI

Indemnity Overview

- The only insurable cause of loss is when the final grid index value is less than the coverage level (deductible) selected by the producer

- Indexes are based on normal/historical and deviation from normal/historical

# Will this work for me?

- Focus MUST be on the Historical Indices web site
  - Have past results tracked with observed results?
  - Do production trends follow historical indices results?

# Summary: Rainfall & Vegetation

- Critical that the Historical and Decision Support Tools are understood and used
  - Must spend time reviewing the historical and comparing to past production
- The basis of decision to purchase MUST be based on an analysis between the historical results as compared to a producer's results.
- As with any area plan – results may not track 100% of the time
- Critical the appropriate Index Intervals are selected

# RMA Website & Available Tools

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Enter search text Go

Browse by Subject

- Actuarial Documents
- Bulletins and Handbooks
- Crop Policies
- Data
- Federal Crop Insurance Corporation - FCIC
- Laws and Regulations
- Livestock
- Pilot Programs
- Reinsurance Agreements
- State Profiles
- Tools and Calculators

You are here: Home / Crop Policies / Rainfall and Vegetation Indices

## Crop Policies

### Rainfall and Vegetation Indices

The Rainfall and Vegetation Index plans of insurance are designed as risk management tools to insure against declines in an index in a designated area called a grid. They are primarily intended for use by producers whose crop production tends to follow the average precipitation or vegetation patterns for the grid. It is possible for you to have low crop production on the acreage that you insure and still not receive a payment under these plans. Because the program is designed for producers whose crop production tends to follow average patterns and not individual crop production, you should review the historical indices, additional tools, and information provided to determine if these programs are suitable for your risk management needs.

**Rainfall Index (RI)** - is based on weather data collected and maintained by NOAA's Climate Prediction Center. The index reflects how much precipitation is received relative to the long-term average for a specified area and timeframe. The program divides the country into six regions due to different weather patterns, with pilots available in select counties.

- RI Basic Provisions (PDF)
- Crops covered:
  - Apiculture
  - Pasture, Rangeland, Forage (PRF)

**Vegetation Index (VI)** - is based on the U.S. Geological Survey's Earth Resources Observation and Science (EROS) normalized difference vegetation index (NDVI) data derived from satellites observing long-term changes in greenness of vegetation of the earth since 1989. The program divides the country into six regions due to different weather patterns, with pilots available in select counties.

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# RMA Website & Available Tools

- Laws and Regulations
- Livestock
- Pilot Programs
- Reinsurance Agreements
- State Profiles
- Tools and Calculators

PRF Archive

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- PRF Fact Sheet
- Frequently Asked Questions
- County Availability (PDF): Map | Text
- Basic Provisions (PDF)
- Policy Provisions (PDF)
- Insurance Standards Handbook (PDF)
- Training Materials
- Grid ID Locator: Interactive Map
- Grid ID Locator: Latitude/Longitude Lookup
- RI and VI Reports (requires Grid ID from above)
- Decision Support Tool
- Historical Indices

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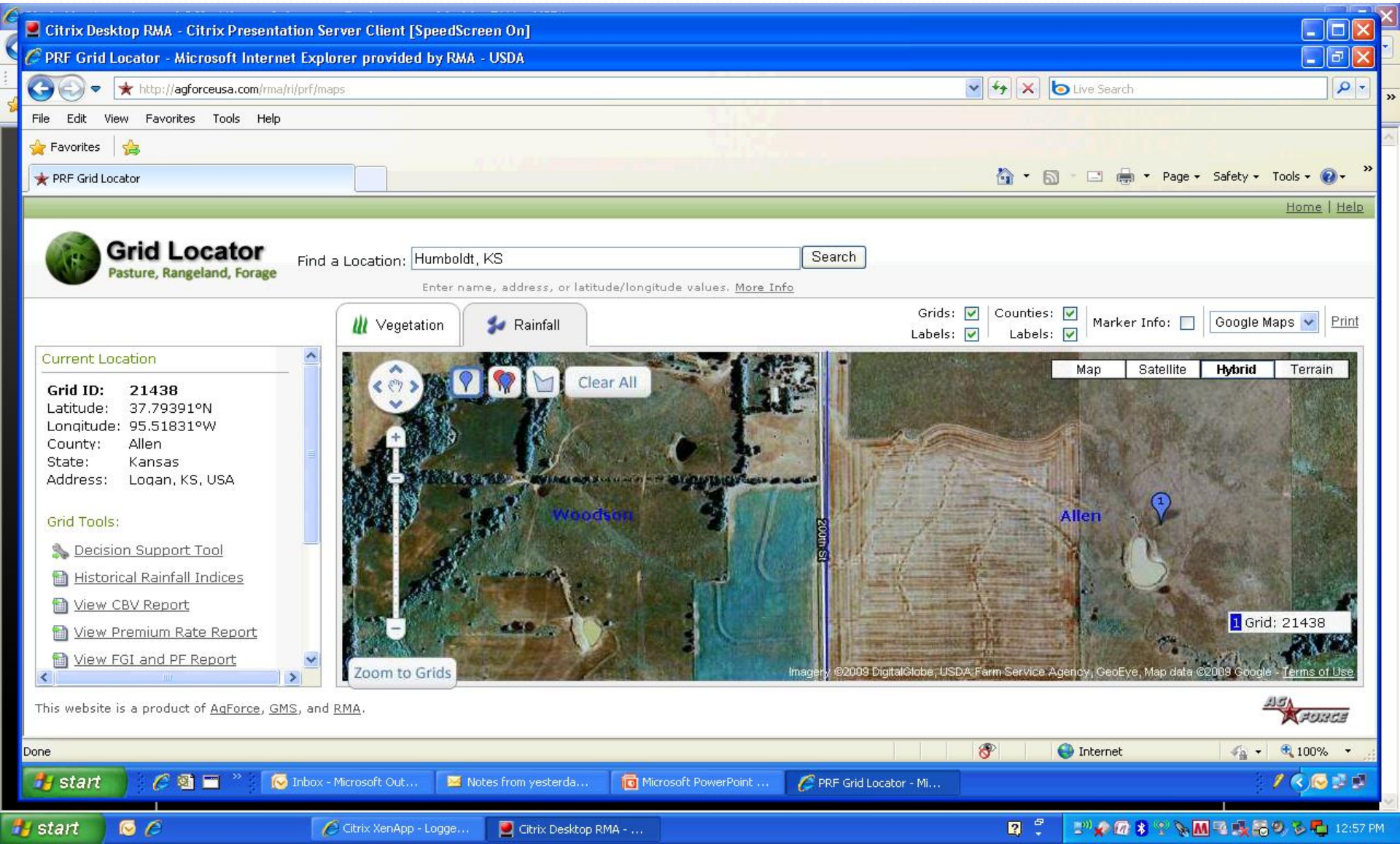
**Forage Production Index** - is based on NASS county level hay yield data (all hay or alfalfa hay). The index reflects how much hay is produced relative to the long-term trend for the

# PRF GRID ID LOCATOR MAP



# PRF Decision Support Tool

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PRF Decision Support Tool - Microsoft Internet Explorer provided by RMA - USDA

http://agforceusa.com/rma/ri/prf/dst?active_tab=graph&load_chart=true

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PRF Decision Support Tool

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**Please Select a Location:** State: Kansas County: Allen Grid: 21438 Grid Locator

**Protection Information**

Insured Crop Type: Grazingland

Coverage Level (%): 90

Protection Factor (%): 100

Share (%): 100

Insurable Acres: 600

Sample Year: 2009

**Graph**

Type:

Index Values Estimated Indemnities

Range:

Start 1948 End 2009

Intervals:

Table Graph

Click here for 2009CY Final Indices

| Index Interval | Insured Acres per Index Interval | Policy Protection per Unit | Premium Rate per $100 | Total Premium ($/acre) | Premium Subsidy ($/acre) | Producer Premium ($/acre) | Actual Index Value | Indemnity ($/acre) |
|---|---|---|---|---|---|---|---|---|
| Jan-Feb | 100 | $2,208 | 22.87 | $5.05 | $2.58 | $2.47 | 46.4 | $10.70 |
| Feb-Mar | N/A ? | $0 | 19.47 | $0.00 | $0.00 | $0.00 | 130.8 | $0.00 |
| Mar-Apr | 100 | $2,208 | 14.65 | $3.23 | $1.65 | $1.59 | 216.1 | $0.00 |
| Apr-May | N/A ? | $0 | 12.23 | $0.00 | $0.00 | $0.00 | 160.5 | $0.00 |
| May-Jun | 100 | $2,208 | 14.33 | $3.16 | $1.61 | $1.55 | 98.8 | $0.00 |
| Jun-Jul | N/A ? | $0 | 16.58 | $0.00 | $0.00 | $0.00 | 98.0 | $0.00 |
| Jul-Aug | 100 | $2,208 | 17.21 | $3.80 | $1.94 | $1.86 | 106.9 | $0.00 |
| Aug-Sep | N/A ? | $0 | 19.23 | $0.00 | $0.00 | $0.00 | 195.1 | $0.00 |
| Sep-Oct | 100 | $2,208 | 20.26 | $4.47 | $2.28 | $2.19 | N/A | N/A |
| Oct-Nov | N/A ? | $0 | 20.63 | $0.00 | $0.00 | $0.00 | N/A | $0.00 |
| Nov-Dec | 100 | $2,208 | 21.73 | $4.80 | $2.45 | $2.35 | N/A | N/A |
| Per Acre | N/A | N/A | N/A | $4.09 | $2.09 | $2.00 | N/A | $1.78 |
| Policy Total | 600 | $13,248 | N/A | $2,452 | $1,251 | $1,201 | N/A | $1,070 |

County Base Value per Acre $24.53

Calculate

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# Ex. - Information & Options

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PRF Decision Support Tool

Page Safety Tools

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**Graph**

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Index Values Estimated Indemnities

Range:

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| Policy Total | 600 | $13,248 | N/A | $2,452 | $1,251 | $1,201 | N/A | $1,070 |

| | |
|---|---|
| County Base Value per Acre | $24.53 |
| Dollar Amount of Protection per Acre | $22.08 |
| Total Insured Acres | 600 |
| Total Policy Protection | $13,246 |
| Subsidy Level | 51% |
| Maximum % of Insured Acres per Index Interval | 60.0% |

Calculate

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# Example of Information - Chart

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PRF Decision Support Tool

Page Safety Tools

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Insurable Acres: 600

Sample Year: 2009

**Graph**

Type:

Index Values  Estimated Indemnities

Range:

Start 1948  End 2009

Intervals:

Jan-Feb  Feb-Mar  Mar-Apr
Apr-May  May-Jun  Jun-Jul
Jul-Aug  Aug-Sep  Sep-Oct
Oct-Nov  Nov-Dec

Graph View  Chart View

| Year | Jan-Feb | Feb-Mar | Mar-Apr | Apr-May | May-Jun | Jun-Jul | Jul-Aug | Aug-Sep | Sep-Oct | Oct-Nov | Nov-Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | 46.4 | 130.8 | 216.1 | 160.5 | 98.8 | 98.0 | 106.9 | 195.1 | N/A | N/A | N/A |
| 2008 | 191.3 | 171.5 | 117.5 | 149.4 | 178.8 | 142.5 | 122.4 | 160.7 | 149.8 | 111.6 | 94.8 |
| 2007 | 106.0 | 112.9 | 120.8 | 122.8 | 203.8 | 226.7 | 104.7 | 28.7 | 89.6 | 101.3 | 84.9 |
| 2006 | 29.9 | 69.1 | 124.6 | 108.6 | 57.6 | 55.1 | 76.3 | 47.8 | 48.2 | 68.8 | 108.4 |
| 2005 | 230.1 | 71.9 | 32.2 | 74.9 | 124.5 | 129.1 | 201.4 | 152.9 | 40.8 | 55.9 | 68.9 |
| 2004 | 110.7 | 176.7 | 167.8 | 110.0 | 121.7 | 131.2 | 109.0 | 54.8 | 83.7 | 196.8 | 175.4 |
| 2003 | 100.9 | 144.6 | 127.1 | 110.0 | 93.5 | 58.1 | 106.5 | 127.7 | 53.6 | 44.6 | 89.1 |
| 2002 | 103.5 | 57.3 | 83.0 | 152.1 | 137.8 | 79.2 | 54.9 | 44.4 | 75.3 | 78.9 | 60.6 |
| 2001 | 230.5 | 159.9 | 86.1 | 87.8 | 112.3 | 135.2 | 92.3 | 92.8 | 109.5 | 48.8 | 32.2 |
| 2000 | 131.1 | 174.6 | 88.1 | 48.3 | 116.7 | 138.3 | 58.3 | 34.9 | 99.9 | 116.9 | 64.2 |
| 1999 | 175.9 | 101.8 | 141.8 | 158.6 | 130.1 | 103.5 | 62.9 | 137.3 | 140.7 | 82.7 | 161.1 |
| 1998 | 82.4 | 125.3 | 131.8 | 59.4 | 81.1 | 139.0 | 102.7 | 161.1 | 257.0 | 240.3 | 179.4 |
| 1997 | 205.1 | 165.0 | 96.3 | 104.8 | 102.2 | 117.2 | 134.4 | 120.7 | 99.2 | 78.3 | 120.4 |
| 1996 | 38.8 | 39.8 | 59.5 | 84.1 | 98.2 | 88.5 | 90.5 | 122.2 | 114.8 | 120.7 | 105.4 |
| 1995 | 58.3 | 44.8 | 78.2 | 168.3 | 174.5 | 107.0 | 72.4 | 47.4 | 15.4 | 7.4 | 60.1 |
| 1994 | 78.4 | 57.7 | 191.9 | 152.1 | 38.6 | 70.9 | 121.7 | 86.1 | 73.1 | 173.6 | 179.0 |
| 1993 | 133.2 | 106.0 | 88.0 | 125.0 | 116.5 | 121.4 | 110.3 | 144.8 | 155.3 | 77.4 | 91.2 |
| 1992 | 92.7 | 118.2 | 117.0 | 75.3 | 83.0 | 195.6 | 214.5 | 105.9 | 95.8 | 169.8 | 271.5 |
| 1991 | 38.8 | 31.1 | 79.4 | 111.6 | 83.2 | 56.7 | 39.8 | 60.2 | 98.8 | 107.4 | 143.6 |
| 1990 | 168.7 | 170.8 | 122.9 | 167.3 | 164.9 | 113.4 | 106.5 | 63.7 | 41.6 | 80.2 | 87.7 |
| 1989 | 68.7 | 111.5 | 66.3 | 49.7 | 89.8 | 107.2 | 164.9 | 165.2 | 120.3 | 74.0 | 7.1 |
| 1988 | 58.6 | 109.6 | 171.1 | 100.4 | 27.2 | 62.4 | 87.1 | 74.1 | 75.3 | 74.7 | 93.3 |

Done  Internet  100%

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# Example of Information - Graph

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PRF Decision Support Tool

Page Safety Tools

Insured Crop Type: Grazingland

Coverage Level (%): 90

Protection Factor (%): 100

Share (%): 100

Insurable Acres: 600

Sample Year: 2009

Graph

Type:

Index Values Estimated Indemnities

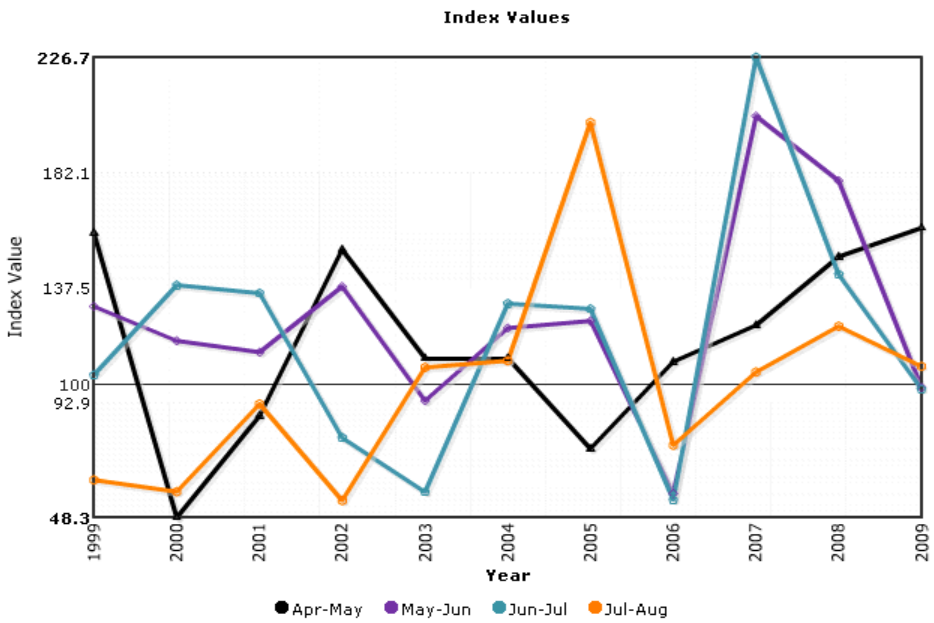
Range:

Start 1999 End 2009

Intervals:

- [ ] Jan-Feb
- [ ] Feb-Mar
- [ ] Mar-Apr
- [x] Apr-May
- [x] May-Jun
- [x] Jun-Jul
- [x] Jul-Aug
- [ ] Aug-Sep
- [ ] Sep-Oct
- [ ] Oct-Nov
- [ ] Nov-Dec

Graph View Chart View

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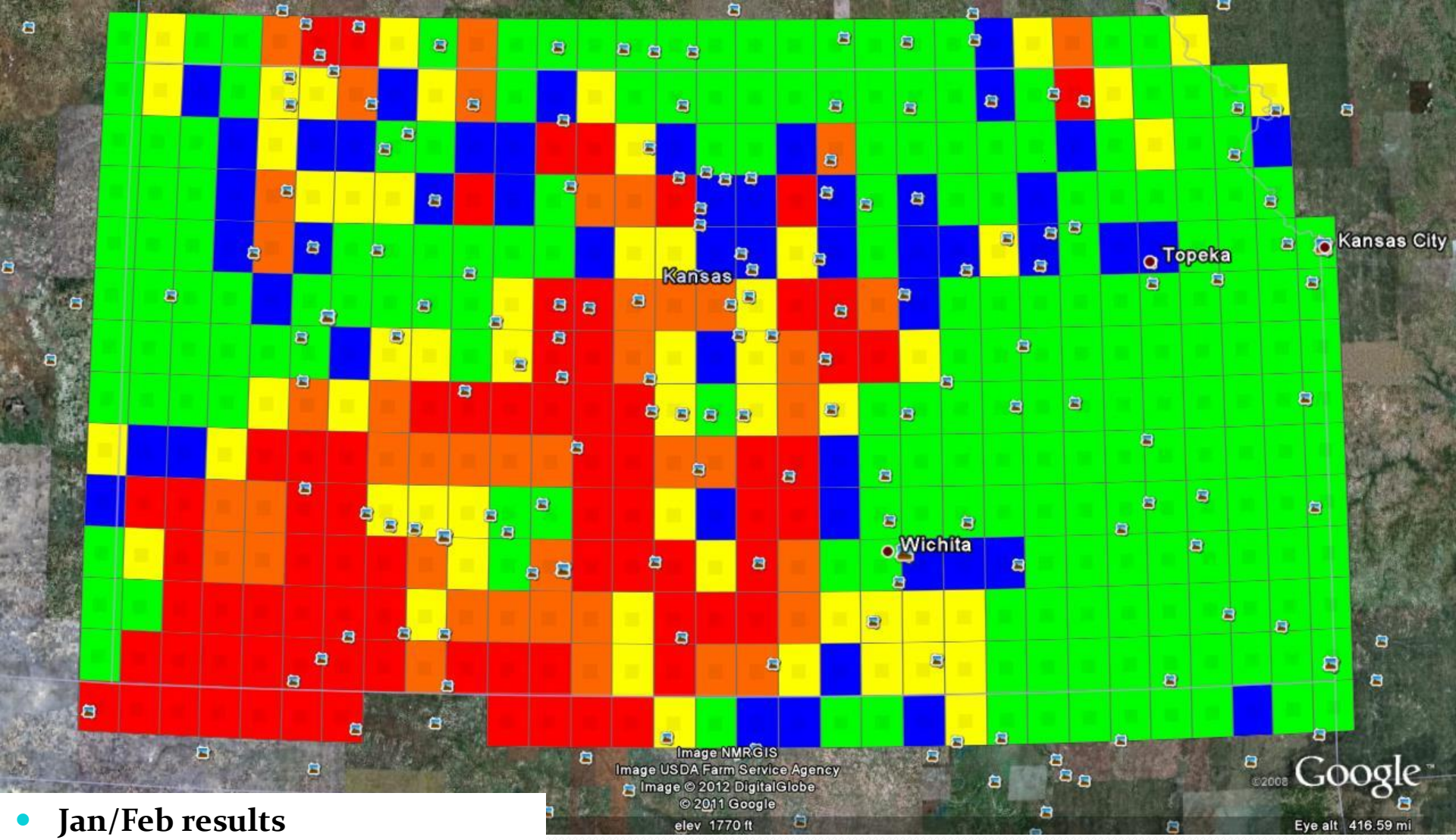
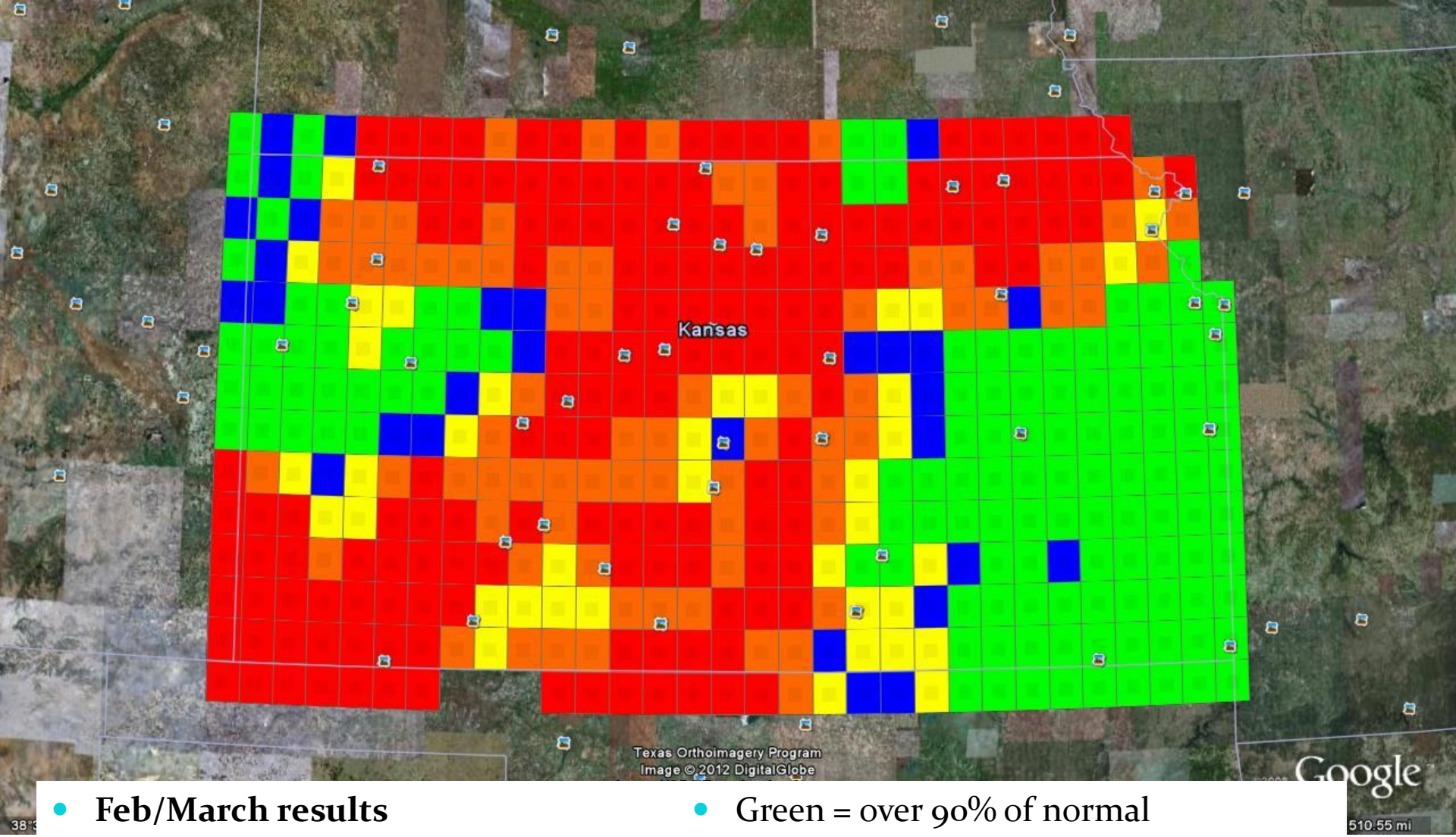



- **Jan/Feb results**
- Green = over 90% of normal
- Blue = 80% to 90% of normal
- Yellow = 70% to 80% of normal
- Orange = 60% to 70% of normal
- Red = 60% of normal or below




- **Feb/March results**
- Green = over 90% of normal
- Blue = 80% to 90% of normal
- Yellow = 70% to 80% of normal
- Orange = 60% to 70% of normal
- Red = 60% of normal or below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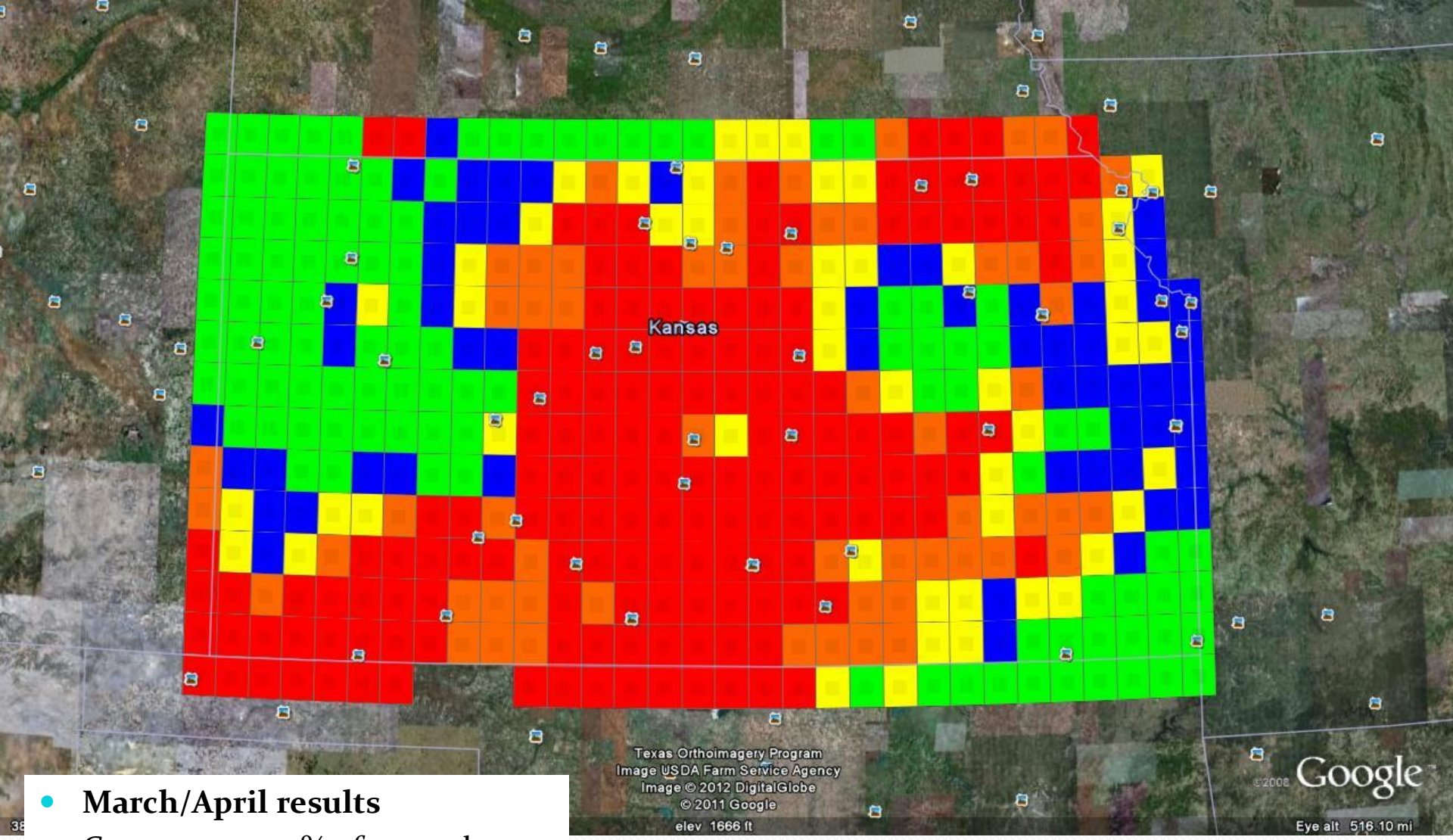
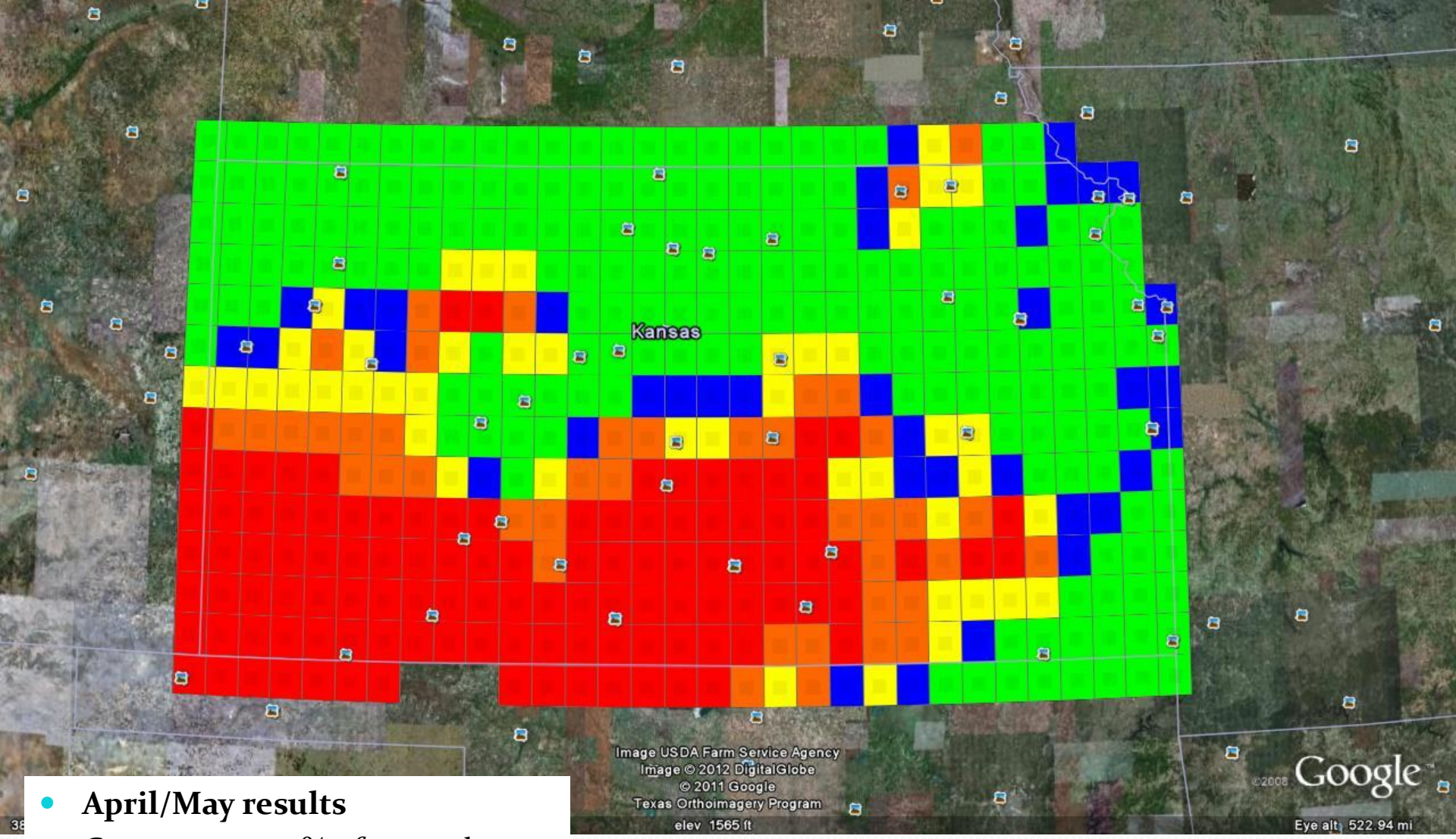
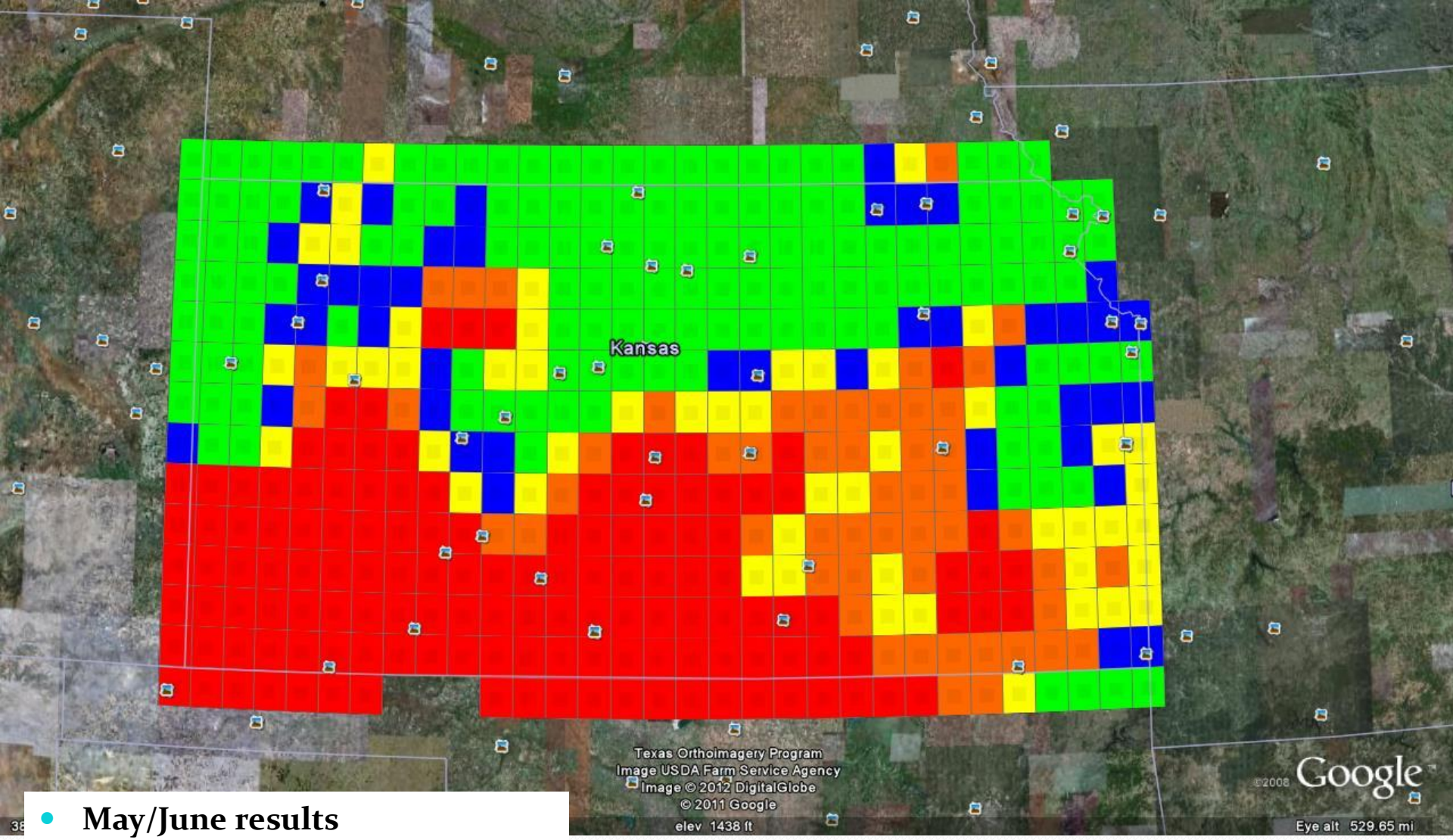


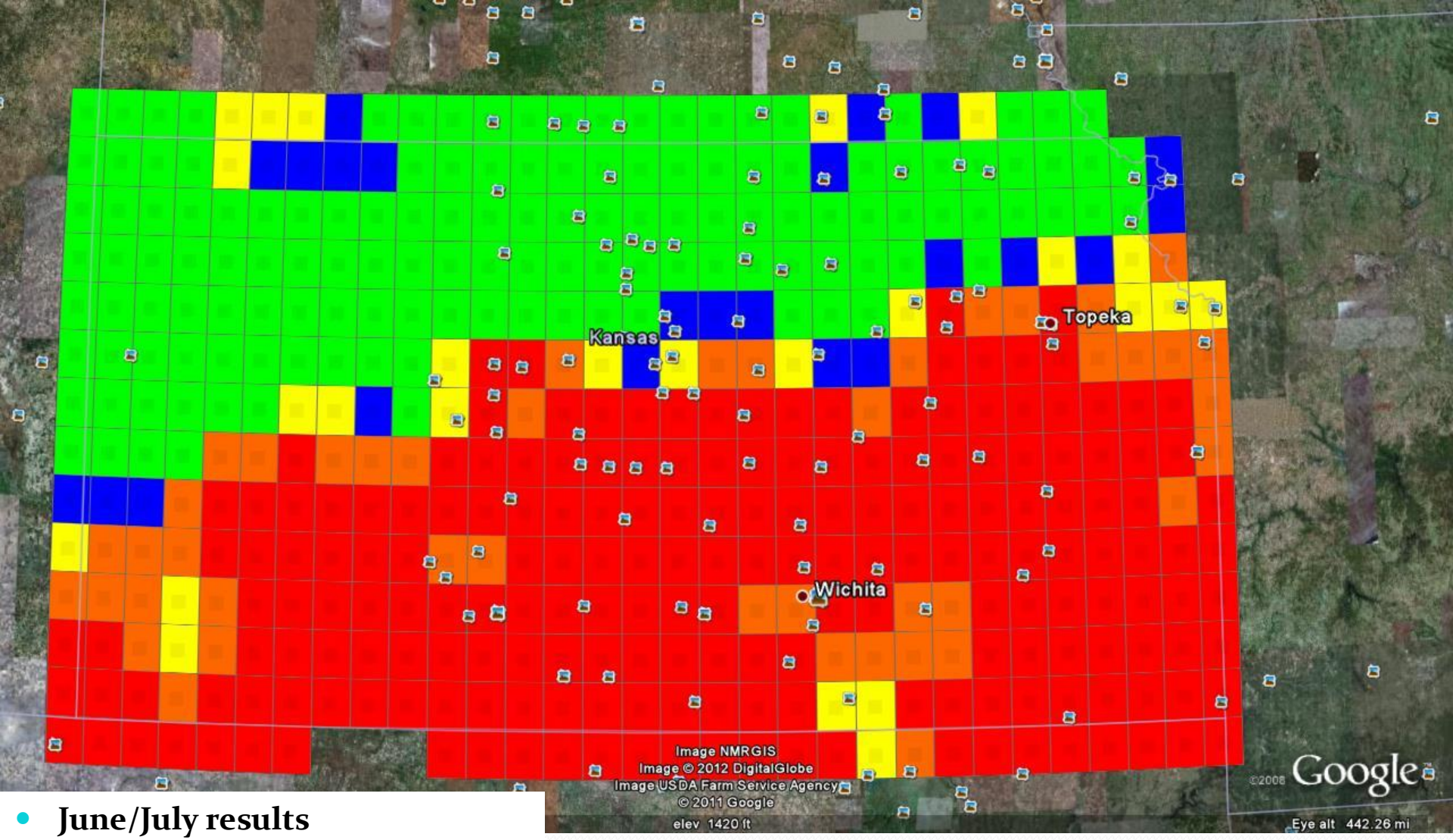

- **March/April results**
- Green = over 90% of normal
- Blue = 80% to 90% of normal
- Yellow = 70% to 80% of normal
- Orange = 60% to 70% of normal
- Red = 60% of normal or below



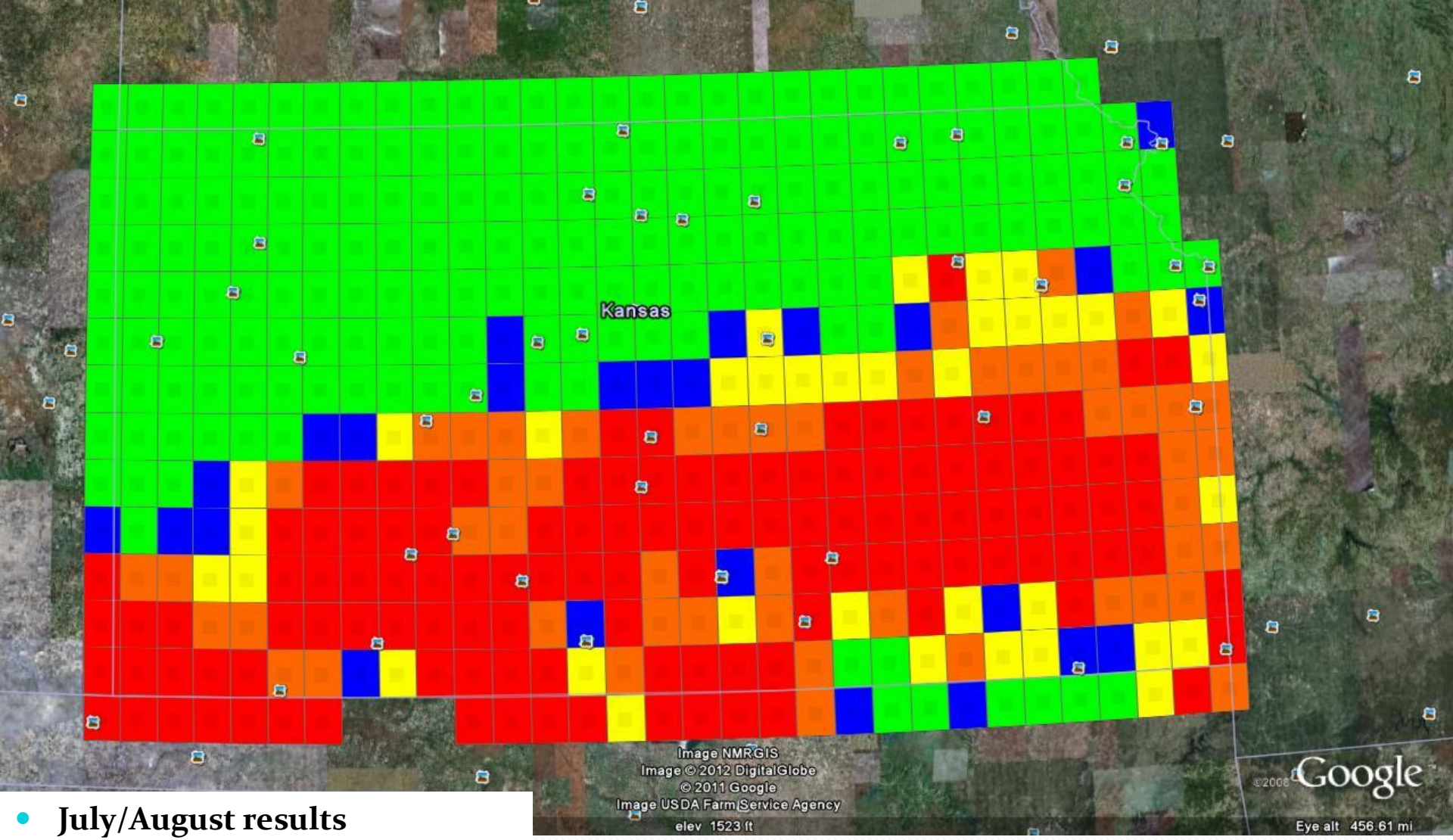

- **April/May results**
- Green = over 90% of normal
- Blue = 80% to 90% of normal
- Yellow = 70% to 80% of normal
- Orange = 60% to 70% of normal
- Red = 60% of normal or below



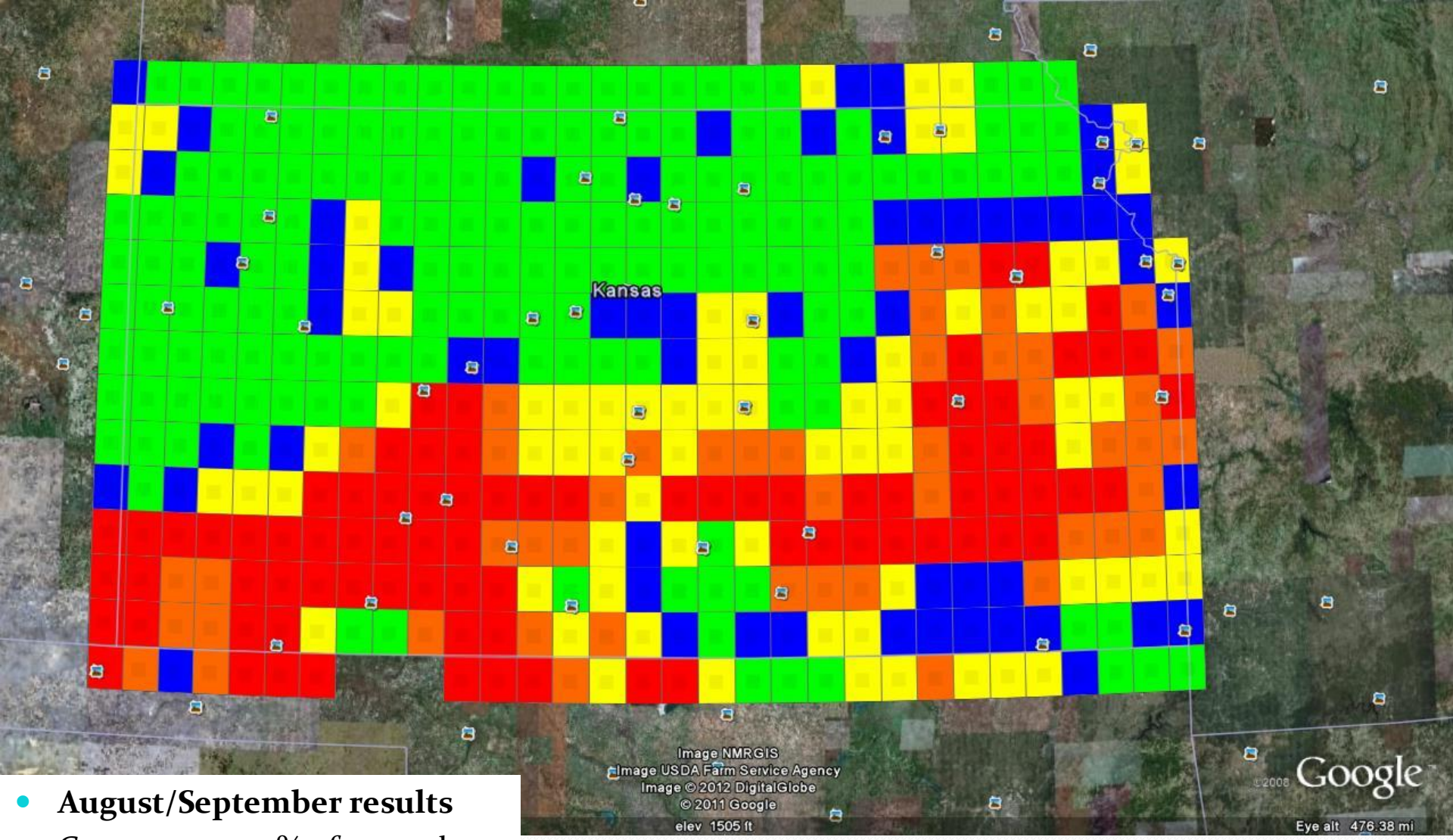

- **May/June results**
- Green = over 90% of normal
- Blue = 80% to 90% of normal
- Yellow = 70% to 80% of normal
- Orange = 60% to 70% of normal
- Red = 60% of normal or below



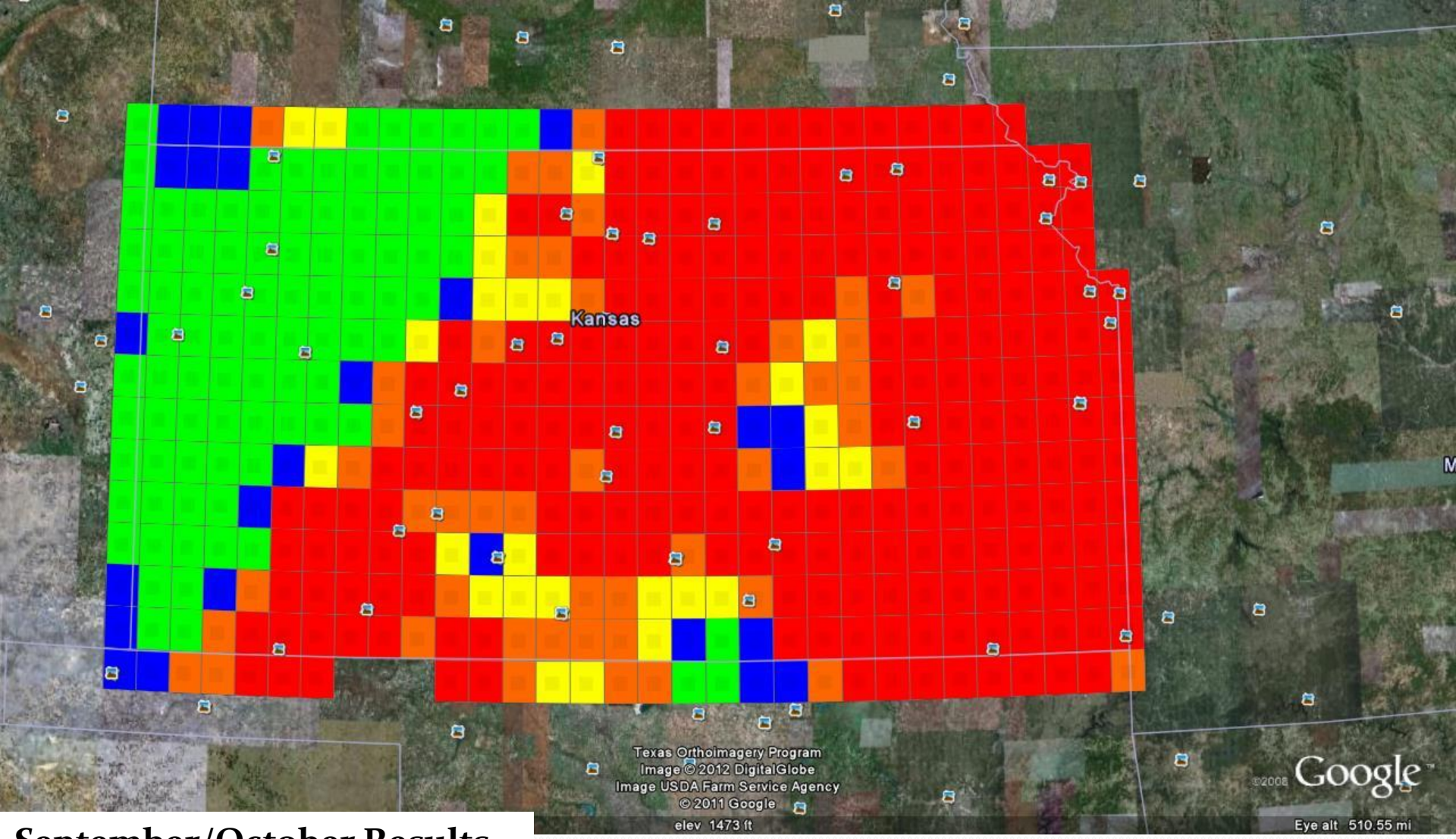

- **June/July results**
- Green = over 90% of normal
- Blue = 80% to 90% of normal
- Yellow = 70% to 80% of normal
- Orange = 60% to 70% of normal
- Red = 60% of normal or below




- **July/August results**
- Green = over 90% of normal
- Blue = 80% to 90% of normal
- Yellow = 70% to 80% of normal
- Orange = 60% to 70% of normal
- Red = 60% of normal or below




- **August/September results**
- Green = over 90% of normal
- Blue = 80% to 90% of normal
- Yellow = 70% to 80% of normal
- Orange = 60% to 70% of normal
- Red = 60% of normal or below




**September/October Results**

Green = over 90% of normal
Blue = 80% to 90% of normal
Yellow = 70% to 80% of normal
Orange = 60% to 70% of normal
Red = 60% of normal or below

# Questions?

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