2008 NAIP Survey:
Summary Report

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Maps, Charts, and Tables

Section 1 – Executive Summary

The 2008 National Agriculture Imagery Program (NAIP) Survey was initiated as a means to assess NAIP based on feedback from the Farm Service Agency's (FSA) primary customers, the FSA State and County Offices. Per Notice AP-11, the 2008 NAIP Survey was distributed through a web-based medium to each FSA County Service Center via the State Geographic Information System (GIS) Specialists/Coordinators. Each State and County Office receiving 2008 NAIP (NH, VT, NY, CT, MA, PA, NJ, NC, VA, KY, TN, IN, WI, MN, SD, IA, KS, OK, and TX) imagery was directed to complete the survey.

The survey:
• establishes a standardized feedback mechanism for NAIP acquisition and delivery
• allows for adjustment of program strategy as necessary based on survey analysis
• will allow for analysis of previous, current, and future year feedback to ensure continued program improvement and development.

The following is a brief summary of survey responses:

Total Survey Responses = 1433

- 87% of respondents were either very satisfied or satisfied with 2008 NAIP overall acquisition and delivery.
- 84% of respondents were either very satisfied or satisfied with the timeliness of receipt of the imagery (to use for acreage compliance work).
- 92% of respondents were either very satisfied or satisfied with the dates the imagery was flown (based on what is visible on the imagery) for acreage compliance work.
- 91% of respondents were either very satisfied or satisfied with the quality of the imagery (for compliance work).
- Approximately 30% of offices receive 6-20 customer requests for NAIP per month; 13% of offices receive over 20 requests per month. Requests for NAIP hard or soft copy slightly decreased in each category for 2008 compared to 2007.

The following general conclusions may be drawn:

1. There was a slight improvement in the overall satisfaction of 2008 NAIP; however, there is still room for program improvement.
2. As was the case last year, improvement on the speed of delivery to the FSA State and County Offices from the time of acquisition may yield the greatest overall improvement to the program.
3. Users are becoming slightly more familiar with the Web Mapping Services from the Geospatial Data Warehouse and the data that is available for download on the Geospatial Data Gateway. There could be significant improvements in this area, such as training in the use of web services.

4. Image quality continues to improve each year. Specifically with regards to color, contrast, and lightness/darkness.
5. According to the responses, customer satisfaction with the quality of the imagery showed a slight improvement over 2007. This slight improvement brought the satisfaction ranking to almost 90%.

Section 2 - Overview

In 2008, FSA completed the 7th year of acquiring NAIP. The USDA-FSA Aerial Photography Field Office (APFO) is responsible for the acquisition, quality assessment, data delivery, and archiving of the NAIP imagery. FSA continues to adjust and modify NAIP processes to keep pace with technological advances in geospatial data acquisition and delivery as well as to meet the needs of FSA Service Centers and State Offices, their primary NAIP customers.

Feedback from NAIP users is vital for program improvement. To facilitate this, APFO prepared a survey for FSA State and County Office response. This is the fourth year for the NAIP Survey, which differs only slightly from the 2006 NAIP Survey. The 2005 NAIP Survey was administered using email and spreadsheets, whereas the 2006, 2007, & 2008 NAIP surveys were completed utilizing a web survey engine. This helped alleviate human error in survey scoring and analysis.

Per AP-11, FSA State Offices were to take one survey per State Office, and County Service Centers were to take one survey per county administered. This instruction was not always adhered to; however, based on analysis of the data, multiple responses from the same County did not skew the survey results significantly (approximately 1/2-1% in any given rating category).

Surveys were taken over a 37-day period, between January 22 and February 28, 2009.

The format of the survey varied to include the following types of questions: multiple choice, open ended, select all that apply, and numerically rated. Upon close of the survey, responses were downloaded from the survey website in a variety of formats, including a survey summary, raw answers, and parsed answers as needed. While analysis of survey returns could be performed endlessly, it is understood that the results herein really only scratch the surface of potential analysis.

APFO hopes to keep the current survey format stable for future years, streamlining questions and tightening user inputs as necessary. This will allow for a quality comparison of past and future survey results, enhancing feedback for program improvement.

2008 Completed Surveys
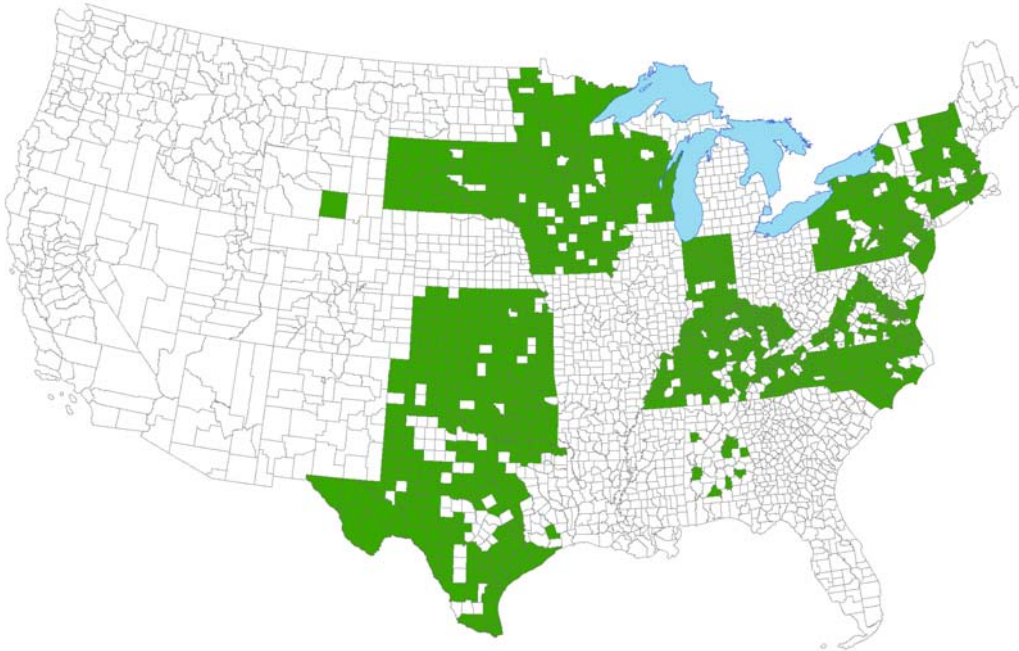
Map 1 – Completed Surveys

Map 1 depicts the 2008 NAIP Surveys that were completed via the web survey engine as of the closing date of the survey. Identification of counties that completed the survey was based on answers to question #5: "What is your 5-digit state and county FIPS code?". Answers to this question were joined to the CONUS counties database via the STATECTY field and all non-null values were mapped. Most states were very close to 100% completion. A few respondents (9) marked incorrect County FIPS codes.

Section 3 – Summary of Survey Results

The following section is a statistical breakdown of the survey on a question by question basis. At the end of this section there are a few examples of additional analysis, performed by comparing responses to multiple questions.

Questions with numerically rated answers had a range of 1-5, where
1 = Very Unsatisfied/Unusable,
2 = Unsatisfied/Poor,
3 = Neither/Fair(neutral),
4 = Satisfied/Good,
5 = Very Satisfied/Excellent.
NA/Unsure answers were also accepted.

Question 1. Name: Responses varied.
Question 2. Position: Responses varied.
Question 3. Today's Date: Responses ranged between Jan 30th and Feb 29th, 2008.

Question 4.

Where do you work?

Chart showing Count on the y-axis (0 to 1600) with two bars: County Service Center = 1415, State Office = 18.
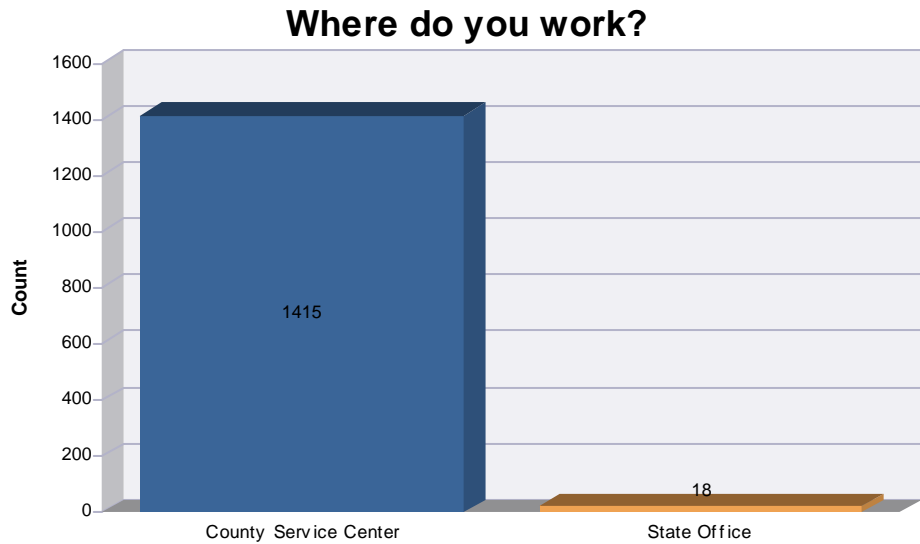
Chart 1 – Question 4

Question 5. What is your 5-digit State and County FIPS Code? Responses varied.
Question 6. What is your 2-digit State FIPS Code? Responses varied.

Question 7.

Did you use 2008 NAIP imagery for compliance purposes?

Chart 2 – Question 7
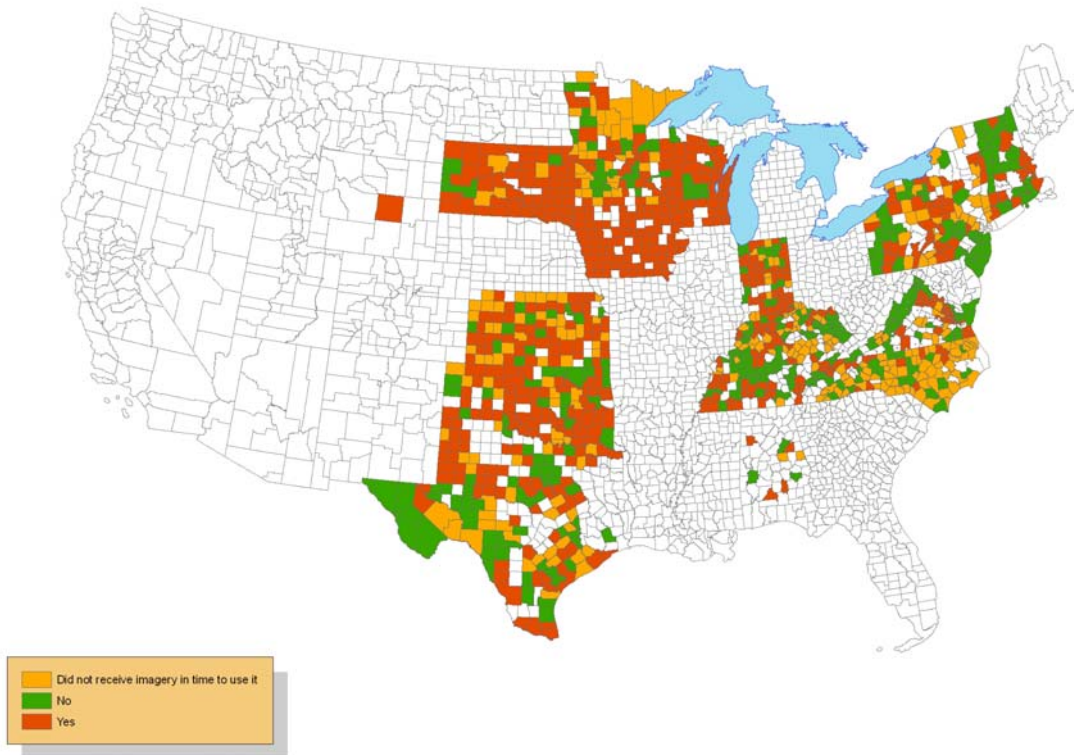
Map 2 – Compliance Usage of NAIP Imagery

Map 2 graphically depicts the 2008 NAIP Survey answers to the question: "Did you use 2008 NAIP imagery for compliance purposes?" This graphic shows that most of the counties in several of the Midwest states did use NAIP imagery for compliance purposes, while the majority of counties in the other states did not use it or it was not available in

time to use it. It should be noted that due to changes in policy regarding compliance checks, using imagery was not required in 2007 or 2008, according to Notice CP-617. However, the policy does not say that imagery could not be used where applicable. In fact, it states…"accuracy of the information on all FSA-578's associated with the producer will be determined by measuring the acreage (unless imagery is available) on all farms", which infers that imagery is still valid for compliance activities.

Questions 8, 9, and 10 were only available to answer if the individual taking the survey selected "yes" to Question 7, "Did you use 2007 NAIP imagery for compliance purposes?" If they selected "no" or "did not receive imagery in time to use it", skip logic was used in the survey engine to jump to Question 11.

Question 8. 2008 Mean Score = 4.04 2007 Mean Score = 3.91, 2006 Mean Score = 3.24

How satisfied are you with the delivery time of the 2008 NAIP imagery in order for it to be useful for acreage compliance work?
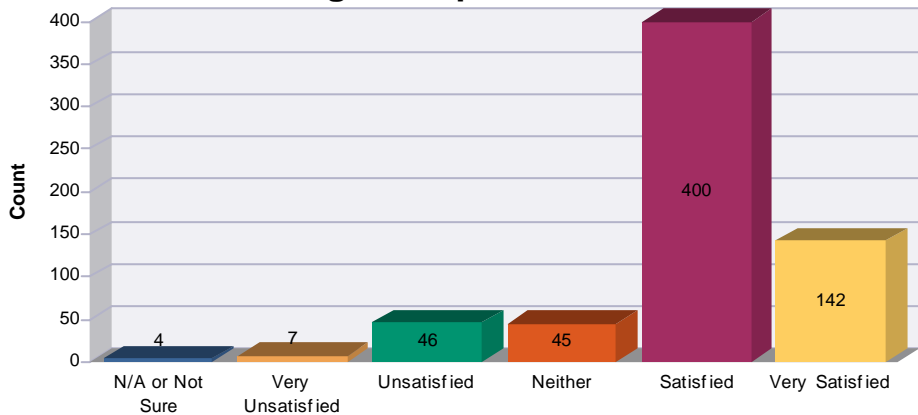

Chart 3 – Question 8

Question 9. 2008 Mean Score = 4.05 2007 Mean Score = 4.02, 2006 Mean Score = 3.53

Based on what is visible on the imagery for acreage compliance work, how satisfied are you with the dates the imagery was flown?
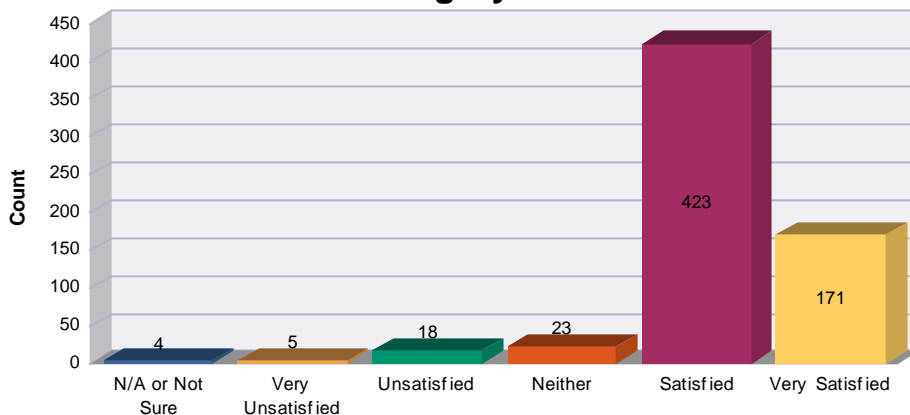

Chart 4 – Question 9

Question 10. 2008 Mean Score = 4.18 2007 Mean Score = 4.00 2006 Mean Score = 3.69

How satisfied are you with the overall quality of the imagery for acreage compliance work?
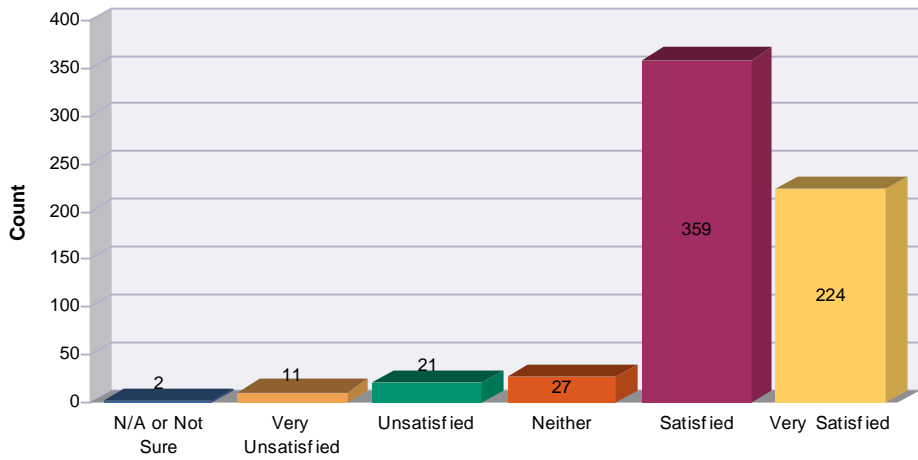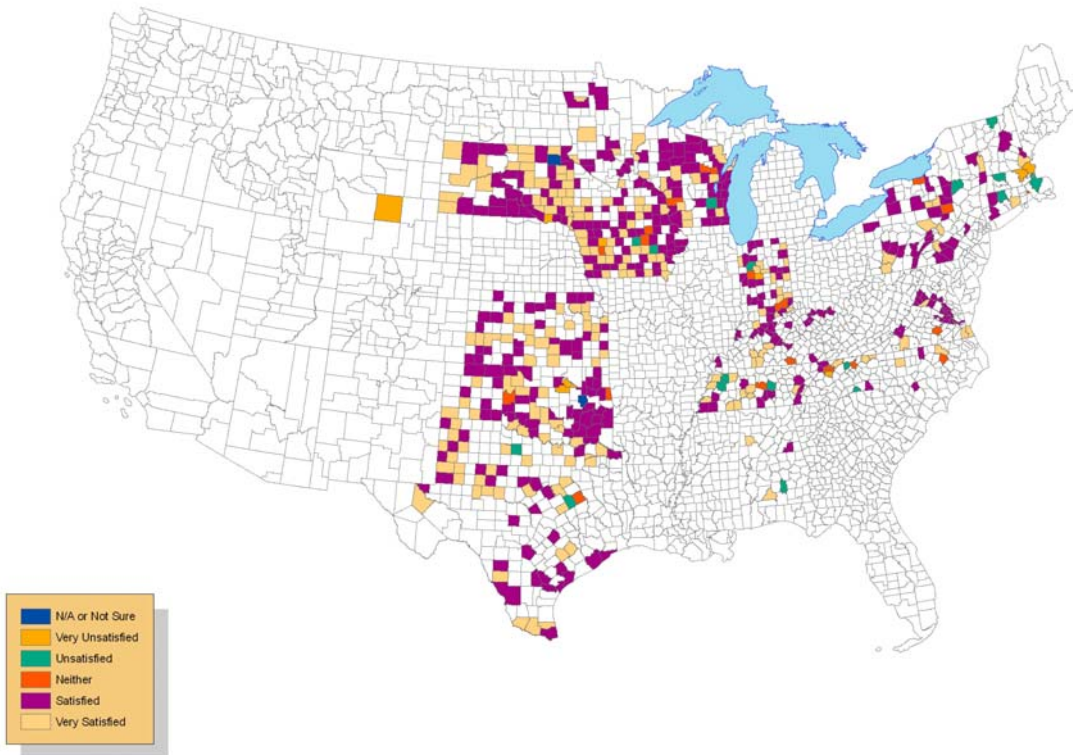

Chart 5 – Question 10

How satisfied are you with the overall quality of the imagery for acreage compliance work?

Map 3 – Overall Quality of Imagery for Acreage Compliance Work

Question 11.

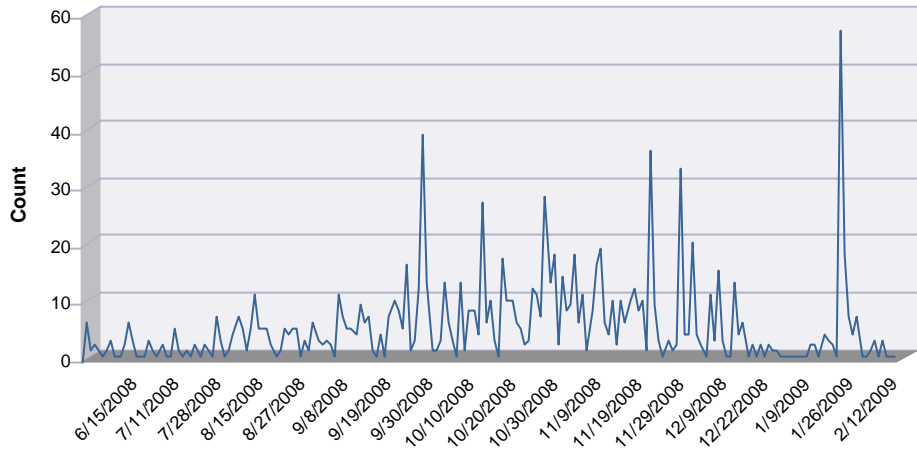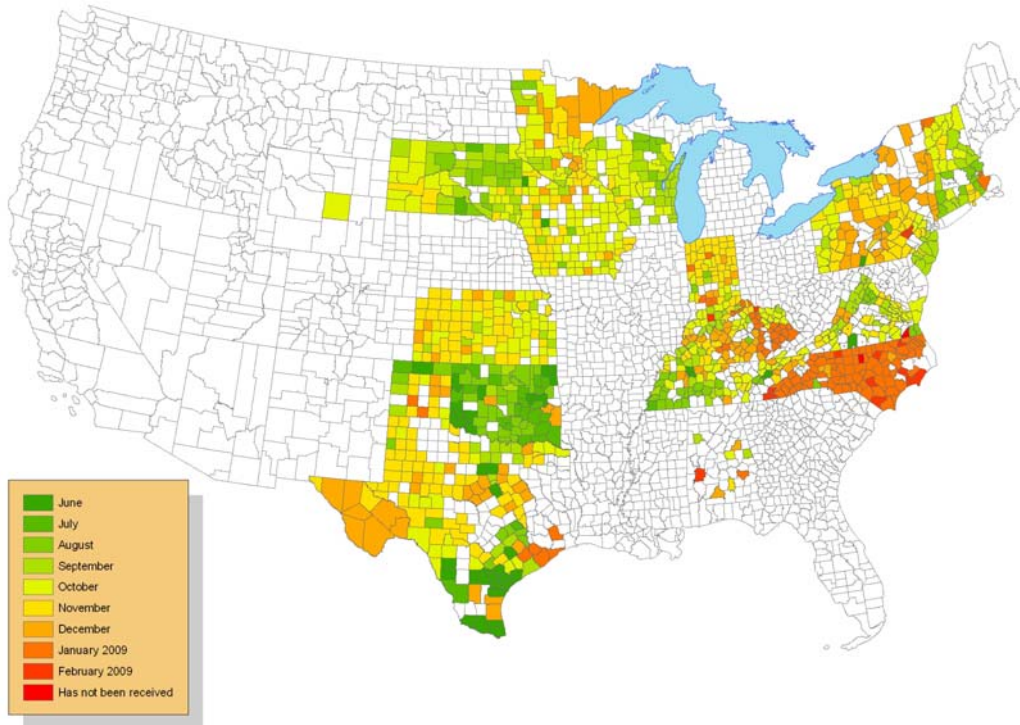## On what date did you receive your 2008 NAIP imagery?

Chart 6 – Question 11

Month 2008 NAIP imagery was recieved by counties

Map 4 – Month Imagery was Received by Counties

Question 12. If 2008 NAIP imagery for your entire area could have been collected on a single day, what day would have been ideal? The first or middle day of the month was selected by respondents more often than other dates, but the chart does depict, in general, July-August as the crucial time frame for acquisition.

If 2008 NAIP imagery for your area could have been collected on a single day, what day would it have been?

Chart 7 – Question 12

Question 13. Given that a single date is not possible, what flying season do you feel would have been acceptable to meet your compliance needs? The chart below depicts the answers to this question graphically by identifying the ideal flying season start and end month responses.
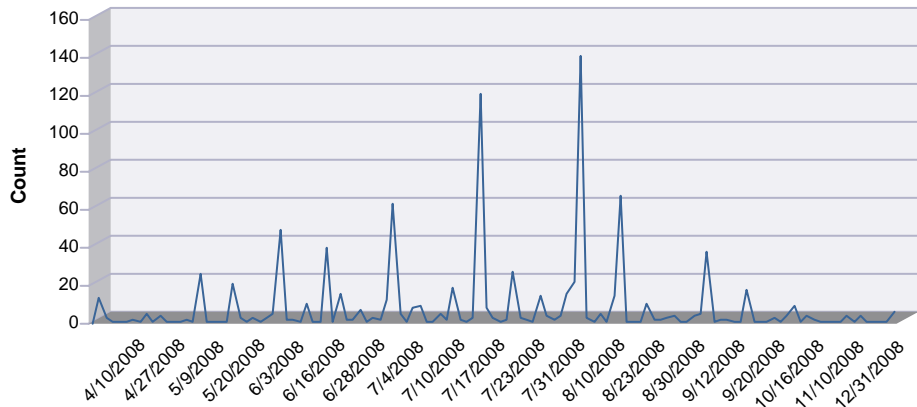
Given that a single date is not possible, what flying season do you feel would have been acceptable to meet your farm program needs? (Start Date - Month)

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End Date - Month
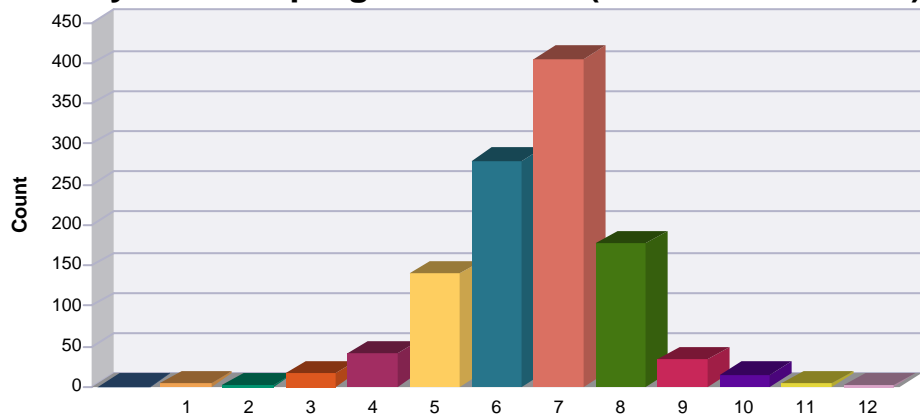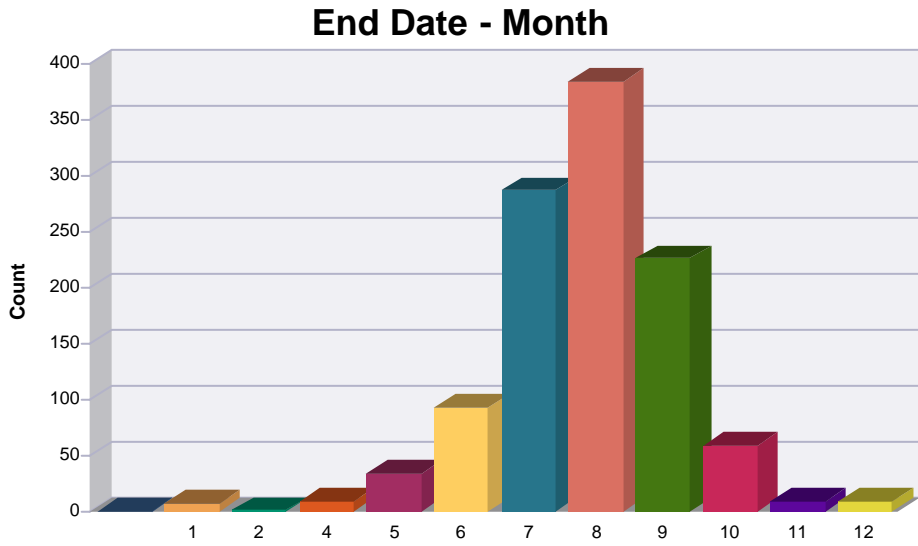
Charts 8 – Question 13

Question 14. 2008 Mean Score = 4.06 2007 Mean Score = 3.90 2006 Mean Score = 3.60

Rate the image quality in terms of darkness/lightness:
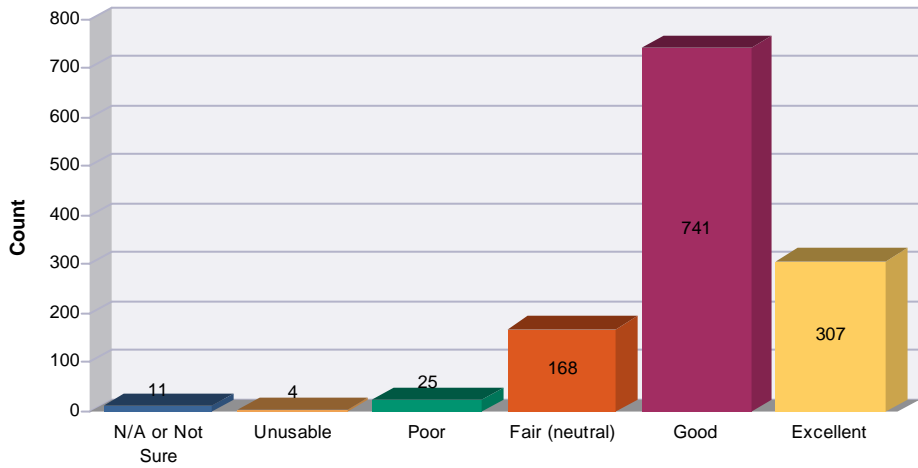
Chart 9 – Question 14

Question 15. 2008 Mean Score = 4.03 2007 Mean Score = 3.87 2006 Mean Score = 3.56

Rate the image quality in terms of contrast:
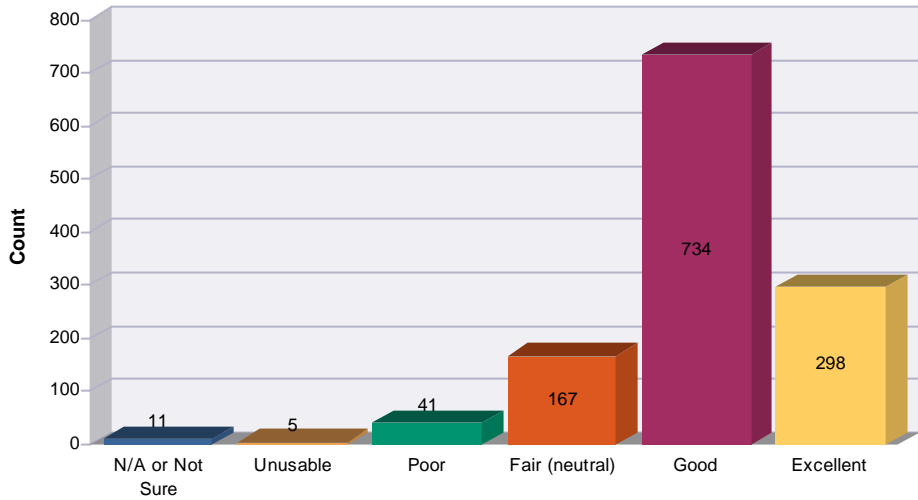
Chart 10 – Question 15

Question 16. 2008 Mean Score = 4.05 2007 Mean Score = 3.86 2006 Mean Score = 3.58

Rate the image quality in terms of color:
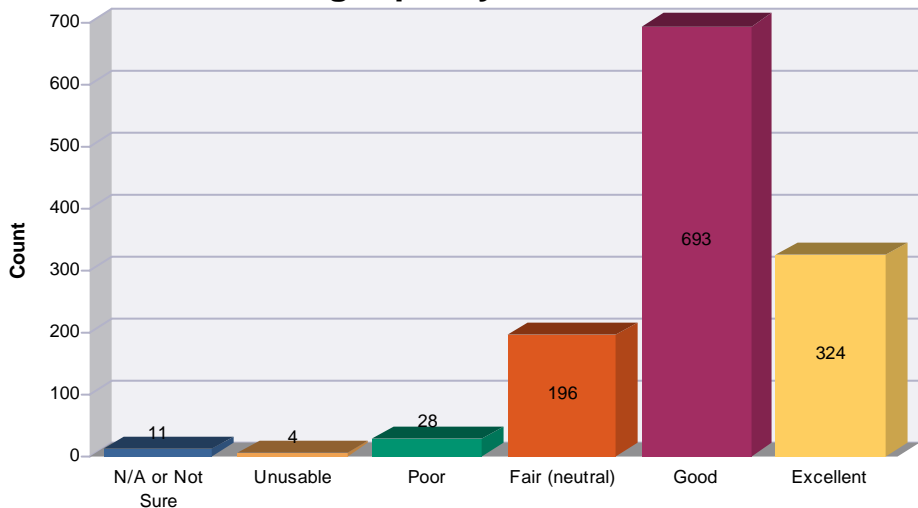
Chart 11 – Question 16

Question 17. 2008 Mean Score = 4.08 2007 Mean Score = 3.97 2006 Mean Score = 3.41

Overall, how satisfied are you with 2008 NAIP acquisition and delivery in your County/State?
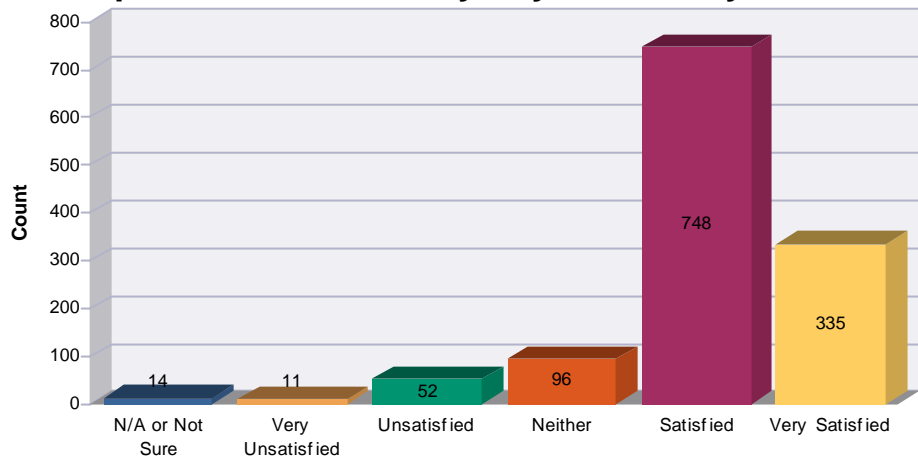
Chart 12 – Question 17

Map5 – Overall Satisfaction of Imagery Acquisition and Delivery

Question 18.   Does CLU need to be edited to match the 2008 NAIP imagery?
This question was new to the 2008 NAIP survey. A = Yes, in locations of land use change. B = Yes, due to shifts in the imagery from previous base imagery. This question was added to gauge if CLU needed to be edited with the arrival of new NAIP imagery and for what reasons.

Does CLU need to be edited to match the 2008 NAIP Imagery?

Category	Count
Yes, in locations of land use change	415
Yes, due to shifts in the imagery from previous base imagery	80
No	311
Not Sure	163
Both A and B	287
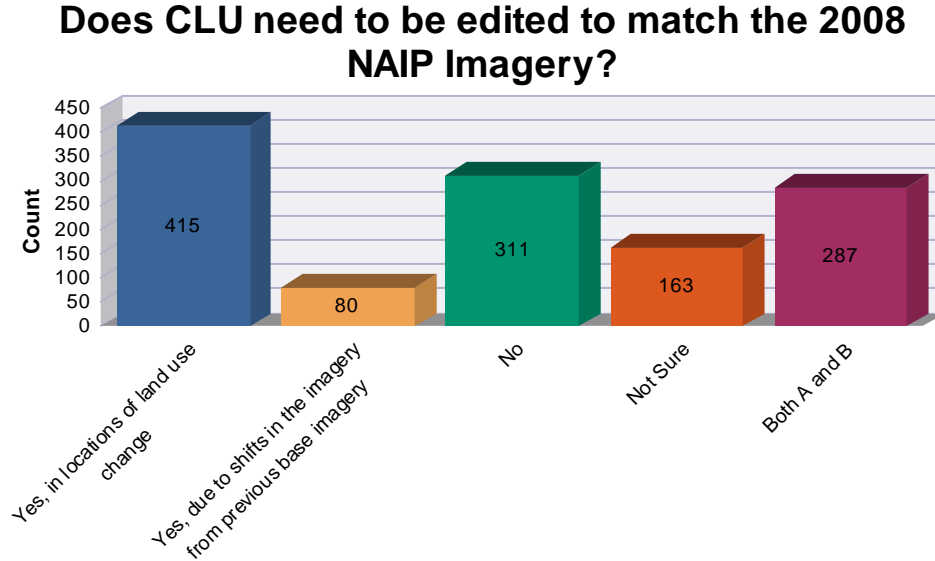
Chart 13 – Question 18

Question 19. Responses varied

The crop type of primary importance in your area in terms of largest amount of acerage
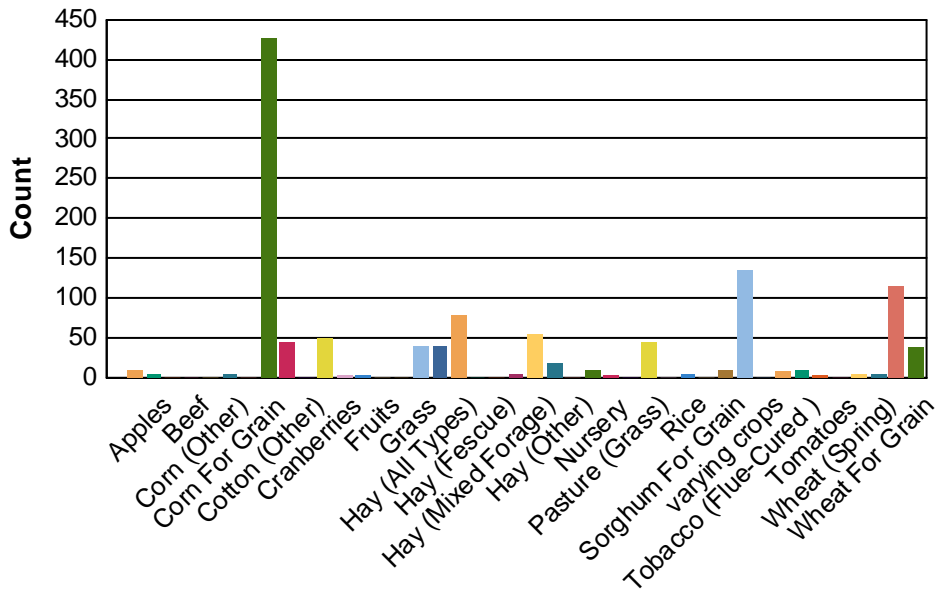
Chart 14 – Question 19

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Question 20. Responses varied

The crop type of primary importance in your area in terms of highest dollar value
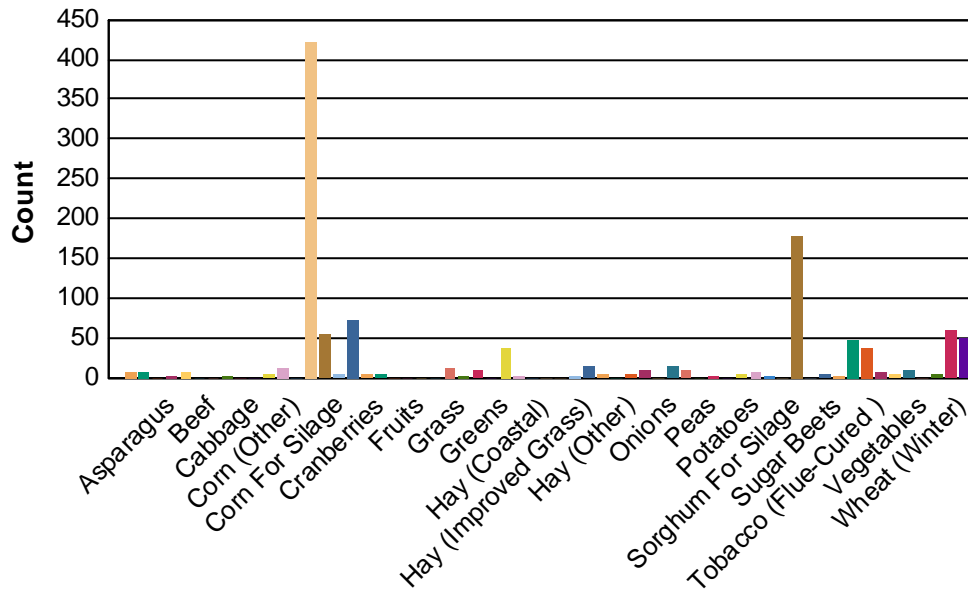
Chart 15 – Question 20

Questions 21 & 22. The crop type of secondary importance in your area in terms of acreage and in terms of dollar value is: Responses varied for each question.

Question 23.

Was 2008 a typical growing season?
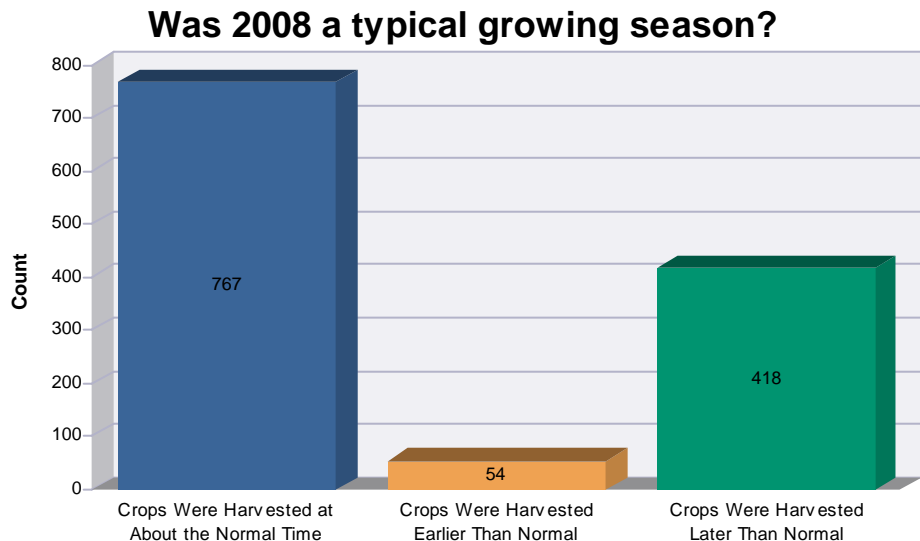
Chart 16 – Question 23

Was 2008 a typical growing season?
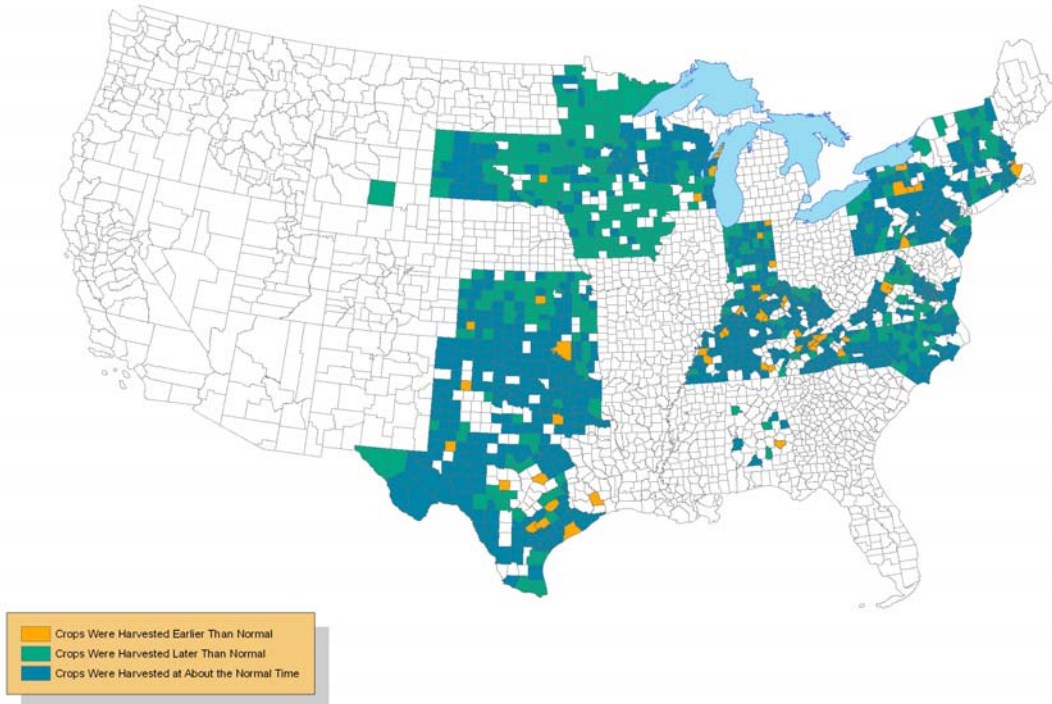
Map 6 – Typical Growing Season

Question 24. Mark the following activities that the 2007 NAIP imagery is useful for. This question allowed for a select all that apply response, including a category for other, allowing for open ended responses. A summary of open ended responses to this question can be found in Appendix A.

Mark the following activities that the 2008 NAIP imagery is useful for?
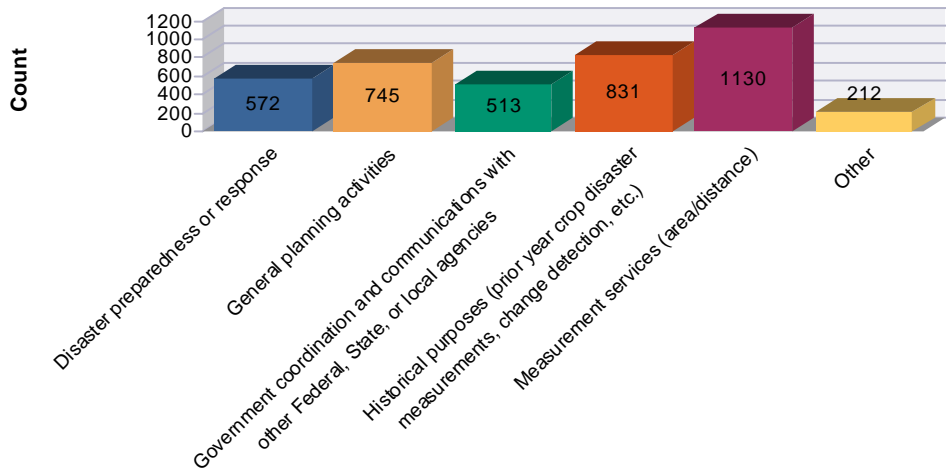
Chart 17 – Question 24

Question 25.

**Web Mapping Services (WMS) using Geospatial Data
Warehouse (GDW) data are available to you by
adding the Image Web Service to your ArcMap
Session. Do you use these services?**
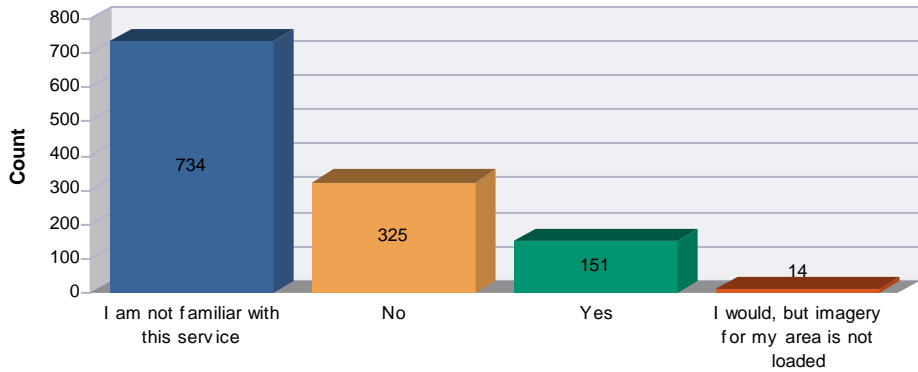
Chart 18 – Question 25

Question 26.

**If you do use the WMS associated with the GDW,
how useful is it?**
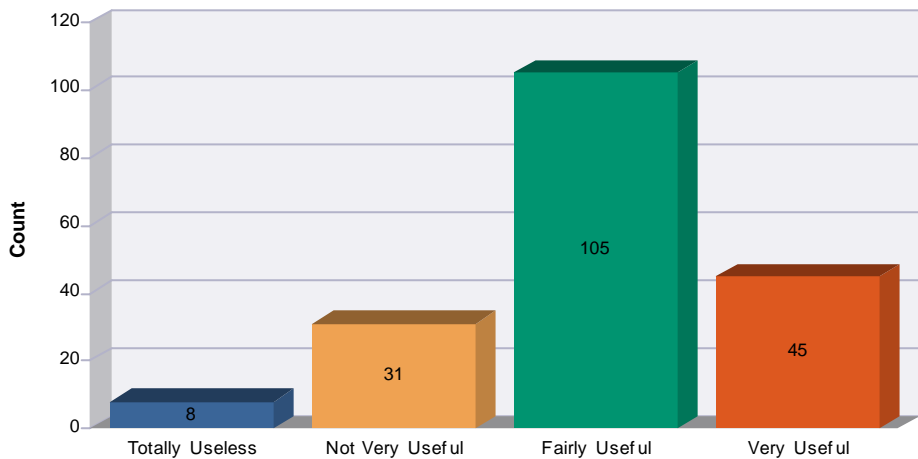
Chart 19 – Question 26

Question 27.

Do you use the USDA Resource Data Gateway?
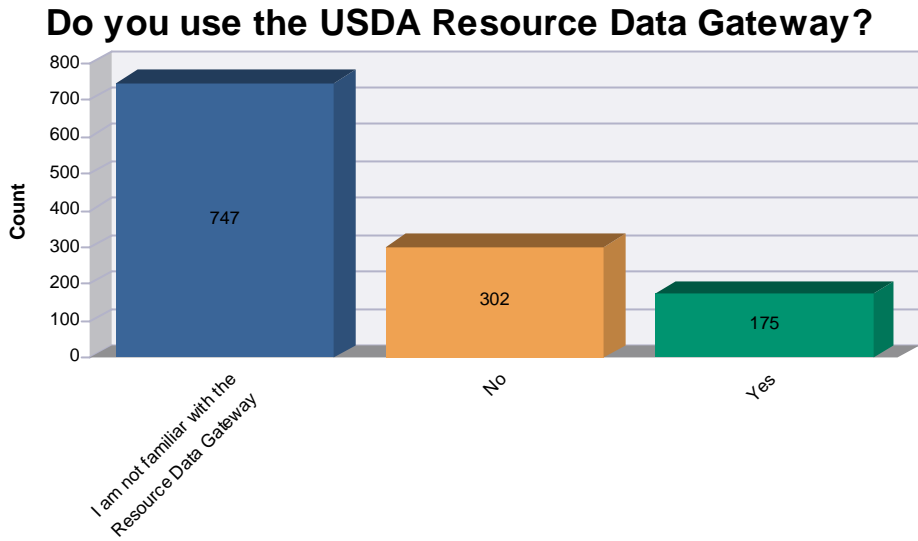
Chart 20 – Question 27

Question 28.

If you do use the USDA Resource Data Gateway, how useful is it?
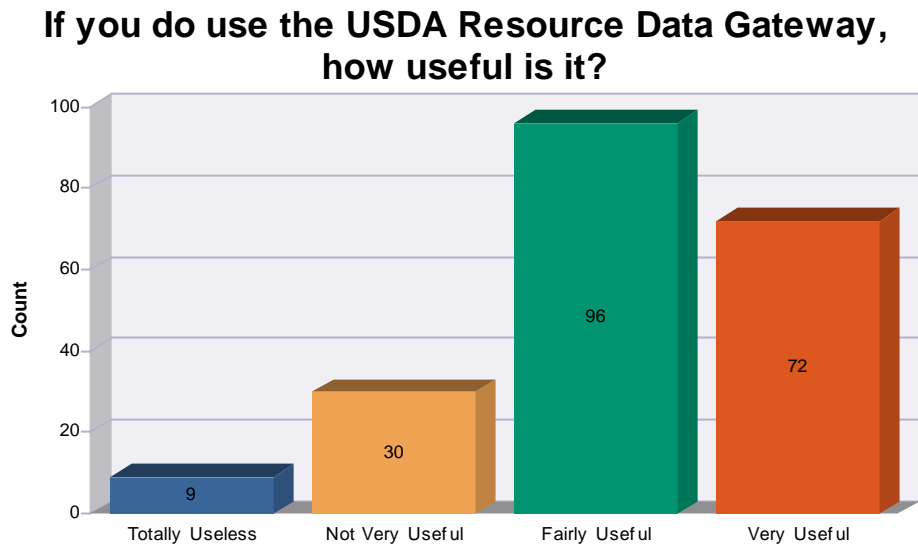
Chart 21 – Question 28

Question 29.

How many requests for copies of the NAIP imagery, either hard copy or softcopy does your office receive?

Count

No requests	330
>20 Per Month	162
16-20 Per Month	69
11-15 Per Month	104
6-10 Per Month	197
1-5 Per Month	362
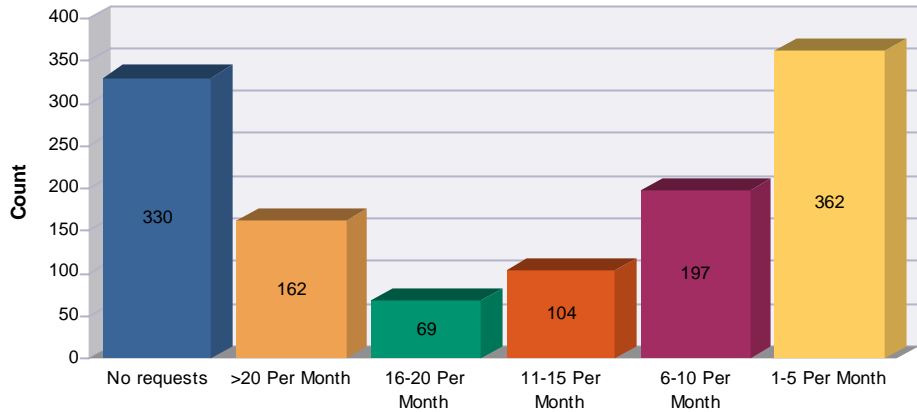
Chart 22 – Question 29

Question 30. This question was new to the 2008 NAIP survey.

Was the 4-Band Infra-Red Imagery Useful?

Count

Not Applicable	238
Not Sure	497
No	105
Yes	384
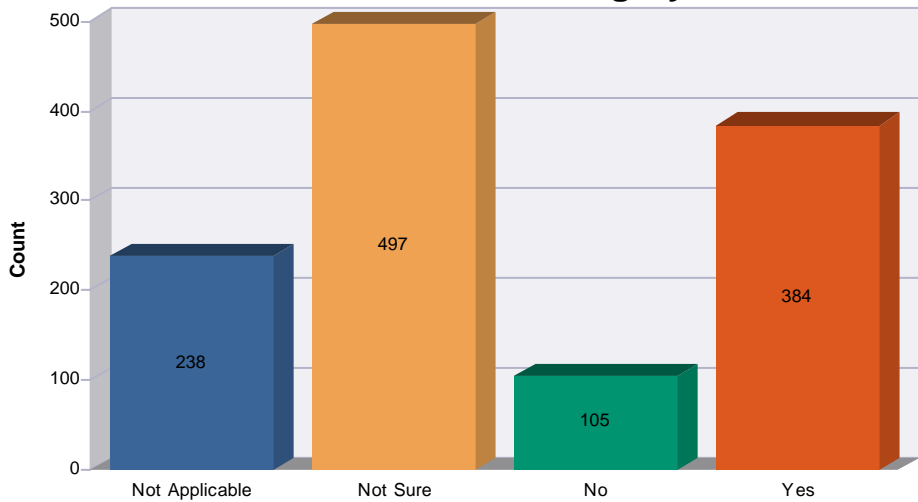
Chart 23 – Question 30

Question 31. Do you have any recommendations to improve the NAIP program? This question allowed for open ended responses. A summary of these responses can be found in Appendix B.

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Section 4 – Comparing 2007 to 2005 and 2006 Survey Results

Three questions from the 2008 NAIP Survey were essentially identical to questions asked in both the 2005, 2006 & 2007 NAIP Surveys. The questions were:

Question 8: How satisfied are you with the delivery time of the 2008 NAIP imagery in order to be useful for acreage compliance work?
Question 9: Based on what is visible on the imagery for acreage compliance work, how satisfied are you with the dates the imagery was flown?
Question 17: Overall, how satisfied are you with 2008 NAIP acquisition and delivery in your County/State?

The following chart depicts the survey responses as percentages with regards to the numerical ratings (ratings scale outlined at the beginning of Section 3). Note that categories may not add up exactly to 100%, as NA/Unsure answers in the 2005 survey were omitted, and NA/Unsure answers in the 2006, 2007 & 2008 survey were NOT omitted, but left off this chart for purposes of comparison. Values were also rounded to the nearest percent.

| Q8	2005	2006	2007	2008	Q9	2005	2006	2007	2008	Q17	2005	2006	2007	2008
1	14%	14%	1%	1%	1	8%	6%	1%	1%	1	8%	8%	1%	1%
2	17%	14%	7%	7%	2	12%	10%	4%	2%	2	13%	11%	4%	4%
3	22%	22%	7%	7%	3	21%	25%	5%	3%	3	23%	26%	9%	7%
4	20%	28%	67%	62%	4	35%	38%	70%	65%	4	33%	40%	71%	60%
5	26%	19%	16%	22%	5	24%	17%	18%	26%	5	23%	13%	15%	27%

Table 1 – Survey Results Comparison

In comparing the survey for the past 4 years, percentages in the 2008 very satisfied rating category (5) went up substantially compared to the 2006 and 2007 ratings, and compare favorably to the 2005 ratings. The rating category of satisfied (4) went down slightly in 2008 from 2007 but was still larger than 2005 and 2006. Neutral answers (3) decreased in 2008 compared to 2007, 2006 and 2005. Unsatisfied responses (2) as well as the very unsatisfied rating (1) stayed level at 1% with 2007 responses.

The charts below graphically depict the percentages from the table above.

Question 8 Comparison:
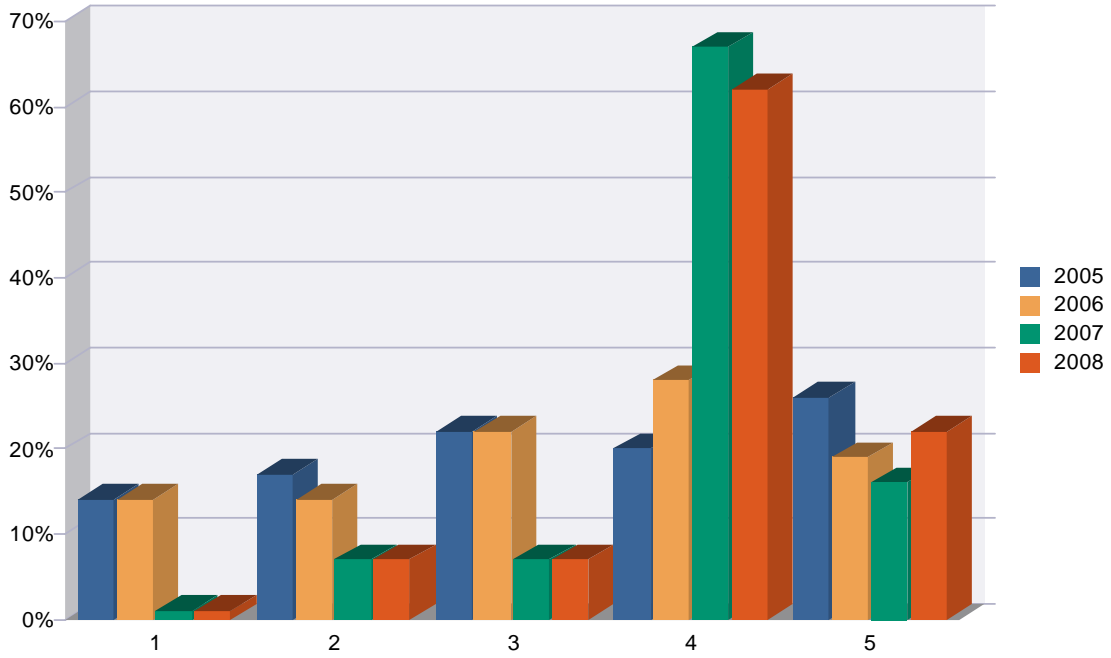
Chart 24 – Comparison of Question 8 Over 4 Years

Question 9 Comparison:
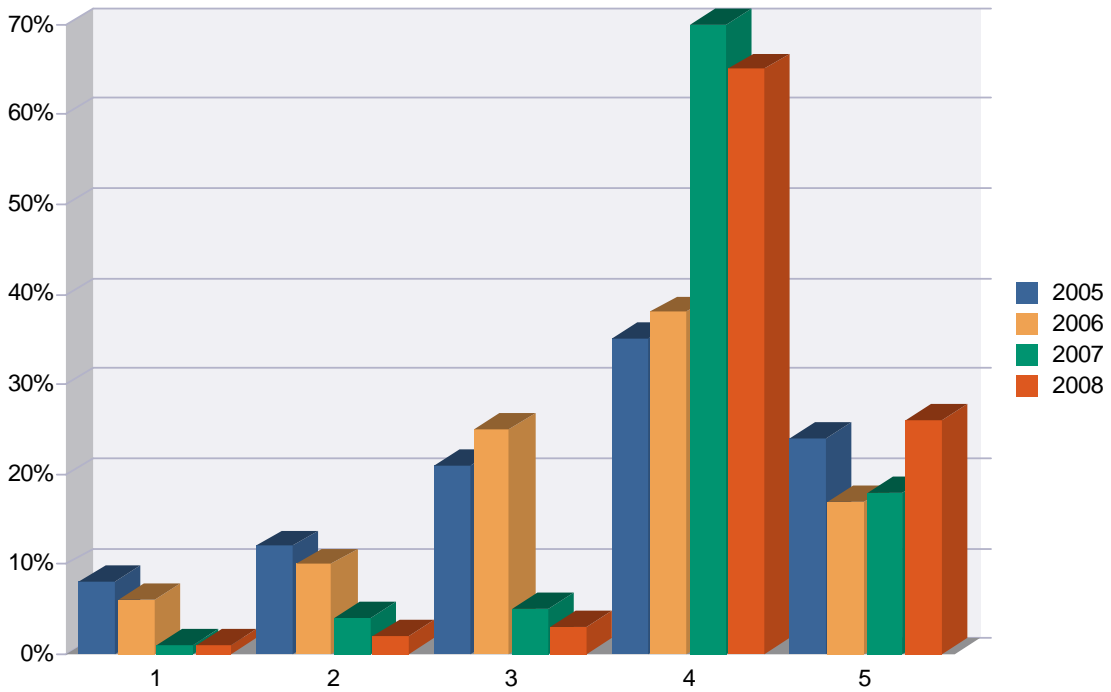
Chart 25 – Comparison of Question 9Over 4 Years

Question 17 Comparison:
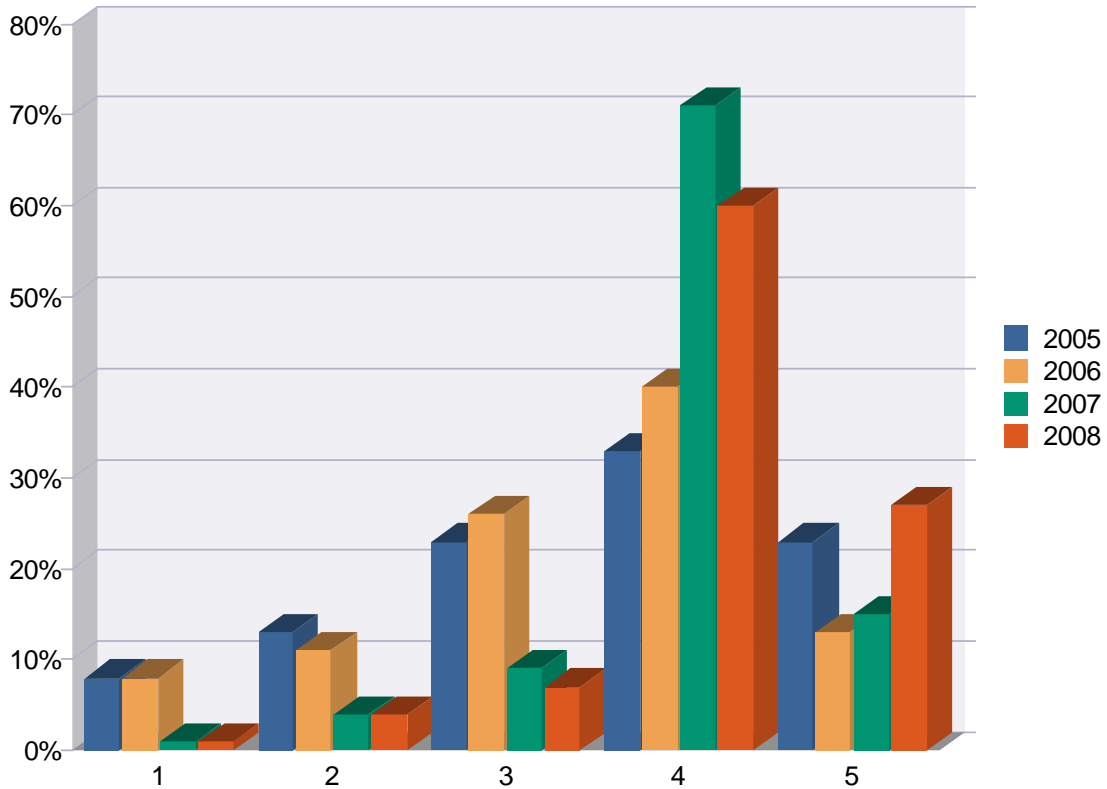
Chart 26 – Comparison of Question 17 Over 4 Years

Comparing 2008 to 2007 & 2006 Survey Results

In 2008, respondents were asked if 2008 was a typical growing season and how many requests they receive for NAIP each month. The same two questions were included in the 2007 & 2006 survey. The following charts show the changes in crop growing conditions and the trends for NAIP requests in county service centers. Question 23 - There was a large increase in responses indicating that 2008 was a year in which crops were harvested later then normal compared to both 2006 and 2007.   Question 14,15,16,29 – In 2006 there was not a choice of "No Requests" but "1-5" category total compares favorably to the total of "No Requests" and "1-5" combined. Questions 14, 15, and 16 all showed continued improvement in color, contrast, and lightness/darkness quality from 2007 to 2008. The 2008 responses for Q29 are similar to the 2006 responses in that both years had less frequent requests for NAIP compared to 2007.

Question 23 Comparison: Was 2008 a typical growing season?

Was 2006 a typical growing season?

Crops Were Harvested Later Than Normal
15.43%

Crops Were Harvested Earlier Than Normal
12.27%

Crops Were Harvested at About the Normal Time
72.30%
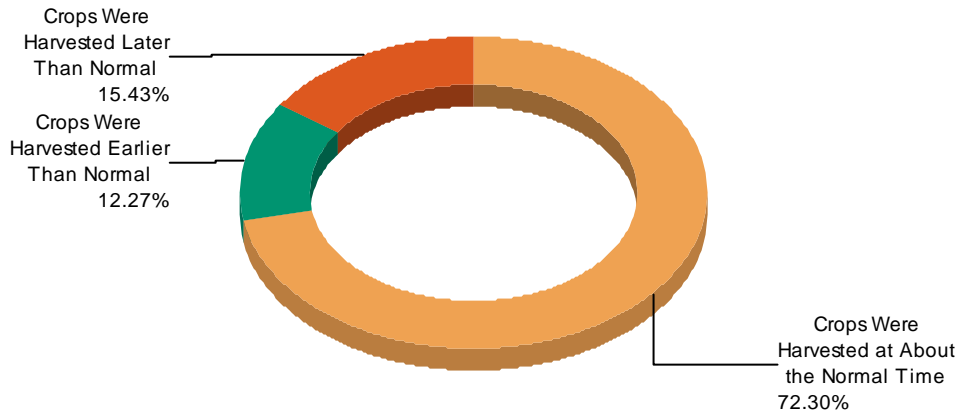
Chart 27 – Comparison of Question 23 Over 3 Years

Was 2007 a typical growing season?

Crops Were Harvested Later Than Normal
15.14%

Crops Were Harvested Earlier Than Normal
21.29%

Crops Were Harvested at About the Normal Time
63.57%
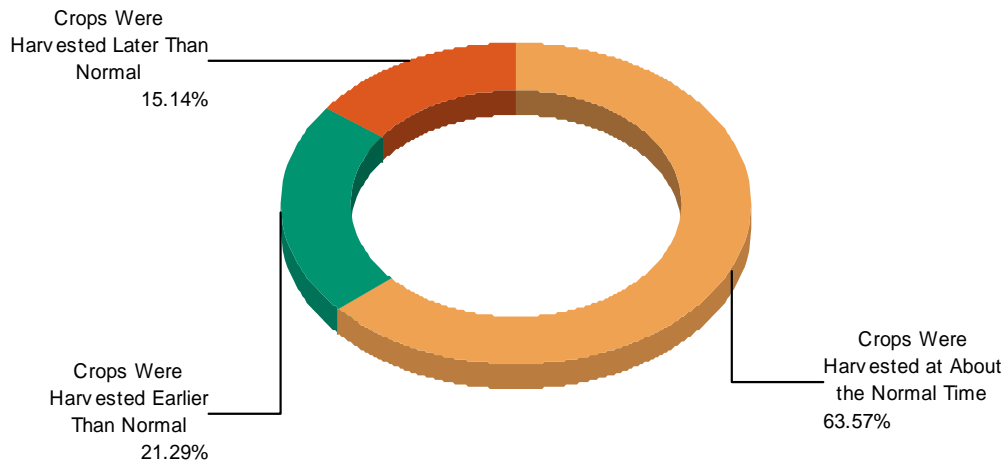
Chart 28 – Comparison of Question 23 Over 3 Years

Was 2008 a typical growing season?

Crops Were
Harvested Later Than
Normal
33.74%

Crops Were
Harvested Earlier
Than Normal
4.36%

Crops Were
Harvested at About
the Normal Time
61.90%

Chart 29 – Comparison of Question 23 Over 3 Years

Question 14 Comparison: Rate the image quality in terms of darkness/lightness:

2006 Rate the image quality in terms of darkness/lightness:

1
1.36%

2
5.35%

3
20.14%

5
25.82%

4
47.34%
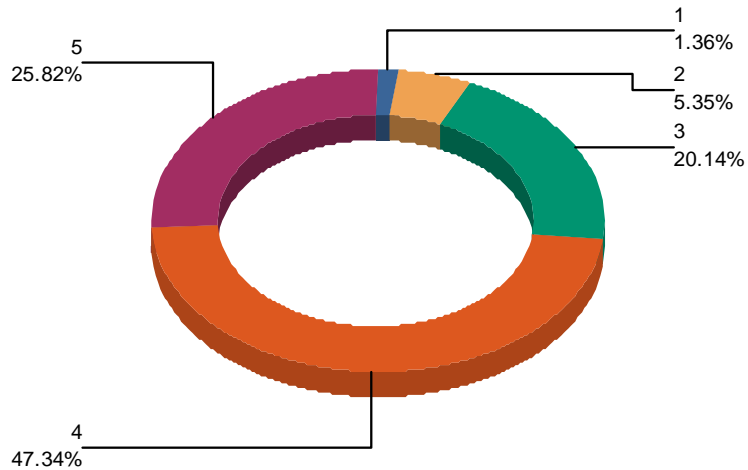
Chart 30 – Comparison of Question 14 Over 3 Years

2007 Rate the image quality in terms of darkness/lightness:

Excellent
16.09%

N/A or Not Sure
0.35%

Unusable
0.35%

Poor
3.63%

Fair (neutral)
17.30%

Good
62.28%
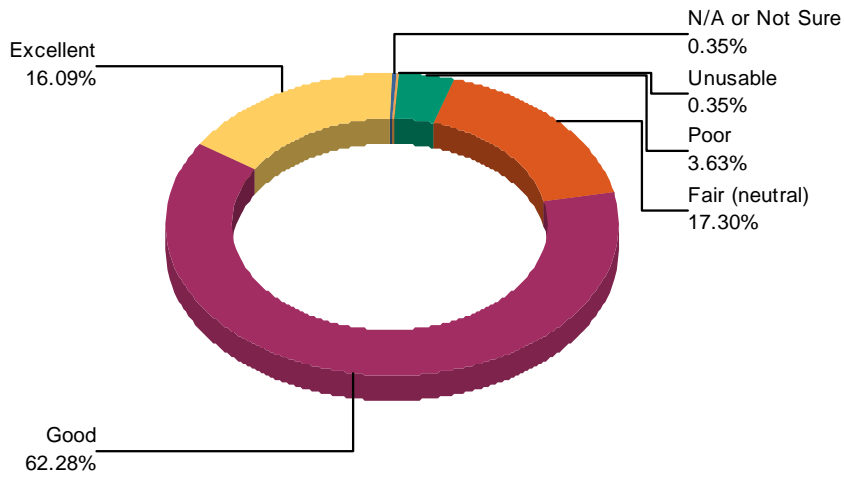
Chart 31 – Comparison of Question 14 Over 3 Years

2008 Rate the image quality in terms of darkness/lightness:

Excellent
24.44%

N/A or Not Sure
0.88%

Unusable
0.32%

Poor
1.99%

Fair (neutral)
13.38%

Good
59.00%
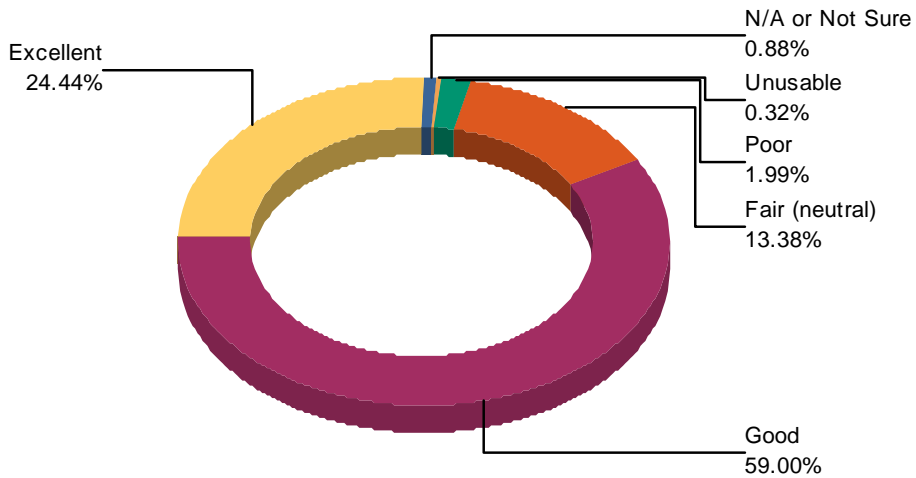
Chart 32 – Comparison of Question 14 Over 3 Years

Question 15 Comparison: Rate the image quality in terms of contract:

2006 Rate the image quality in terms of contrast:
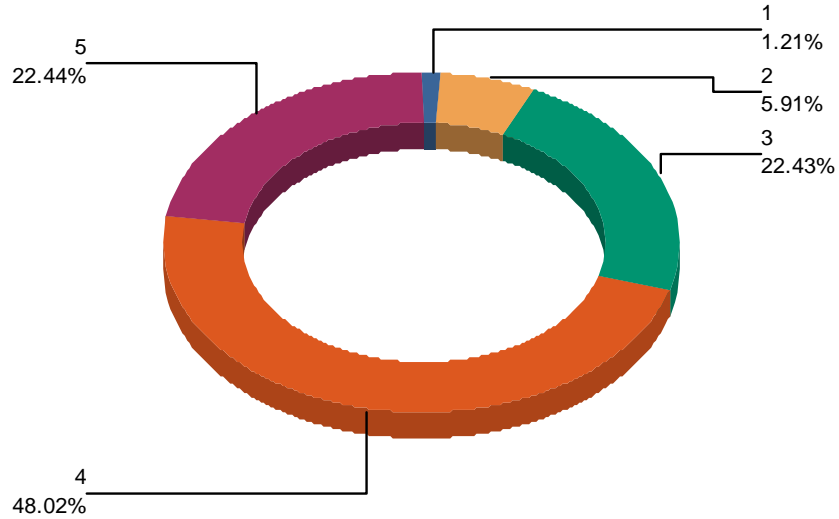
Chart 33 – Comparison of Question 15 Over 3 Years

2007 Rate the image quality in terms of contrast:
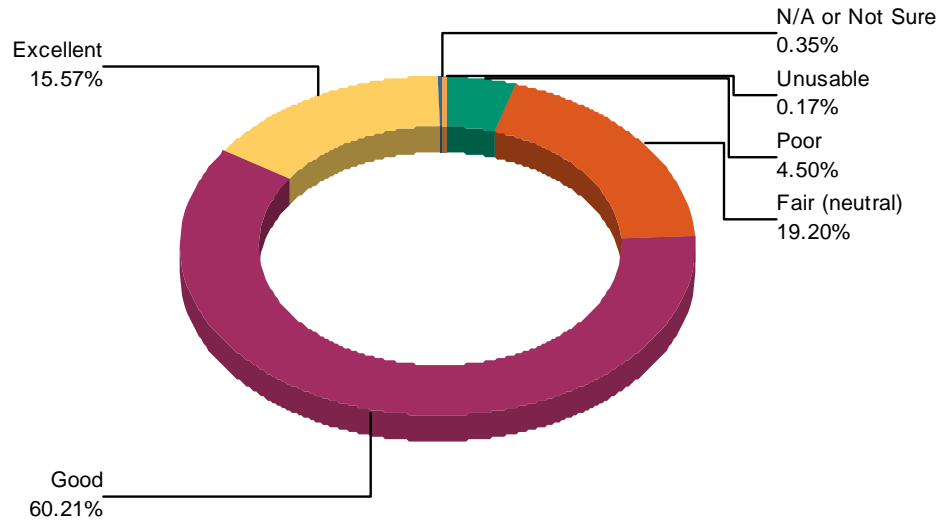
Chart 34 – Comparison of Question 15 Over 3 Years

2008 Rate the image quality in terms of contrast:

N/A or Not Sure
0.88%

Excellent
23.73%

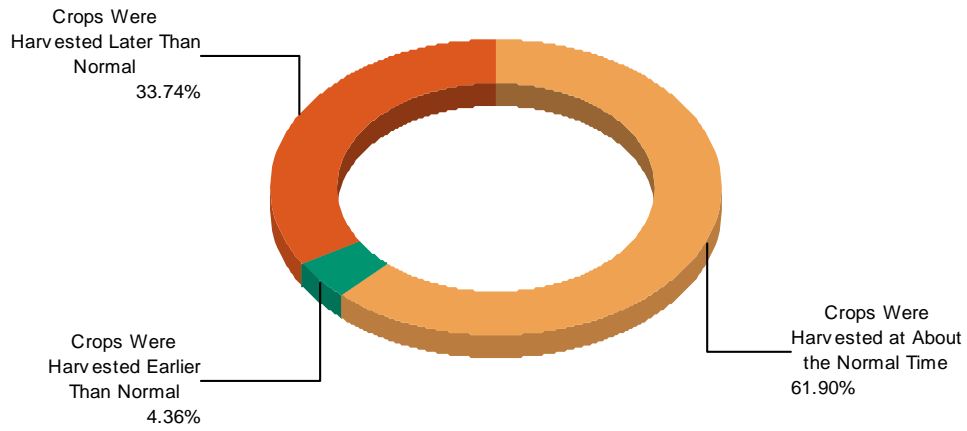Unusable
0.40%

Poor
3.26%

Fair (neutral)
13.30%

Good
58.44%
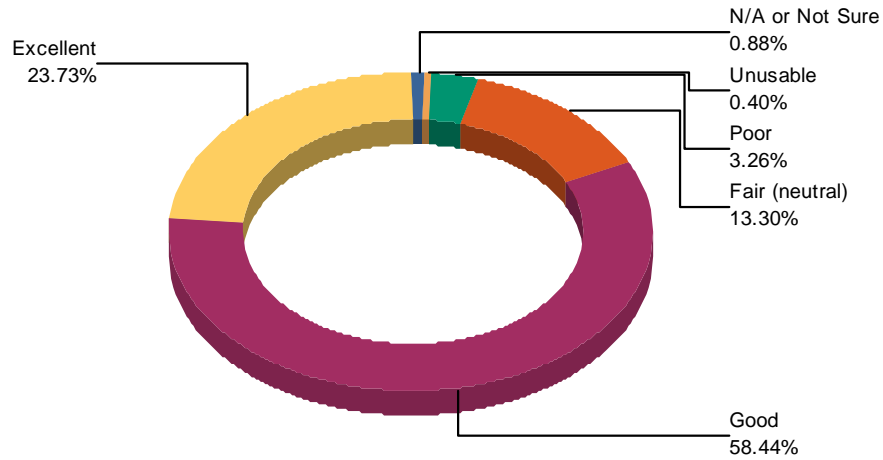
Chart 35 – Comparison of Question 15 Over 3 Years

Question 16 Comparison: Rater the image quality in terms of color:

2006 Rate the image quality in terms of color:

5
26.90%

1
1.48%

2
5.85%

3
20.66%

4
45.11%
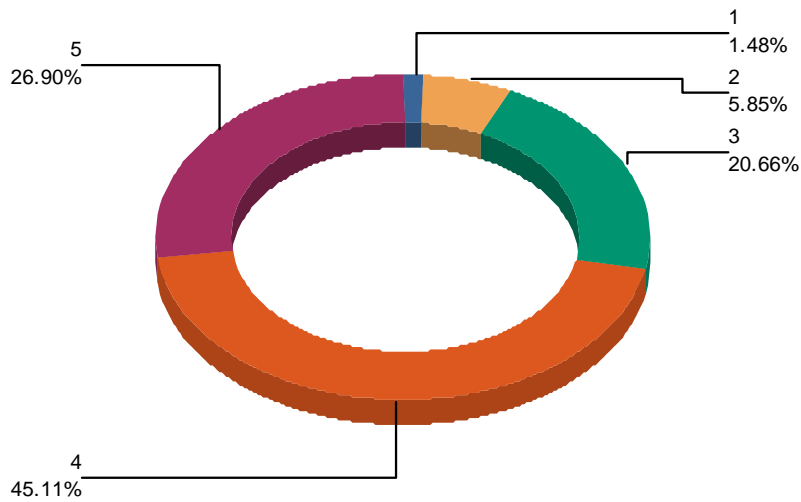
Chart 36 – Comparison of Question 16 Over 3 Years

2007 Rate the image quality in terms of color:

N/A or Not Sure
0.35%

Excellent
15.92%

Unusable
0.17%

Poor
5.36%

Fair (neutral)
19.03%

Good
59.17%
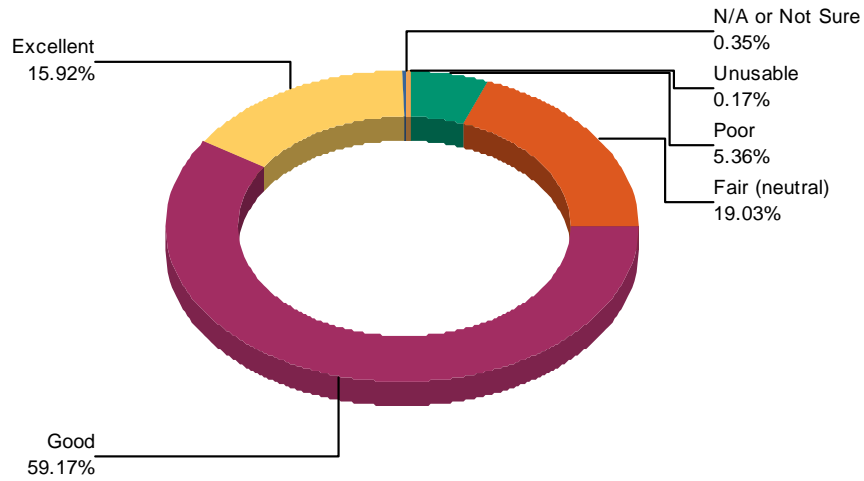
Chart 37 – Comparison of Question 16 Over 3 Years

2008 Rate the image quality in terms of color:

N/A or Not Sure
0.88%

Excellent
25.80%

Unusable
0.32%

Poor
2.23%

Fair (neutral)
15.61%

Good
55.18%
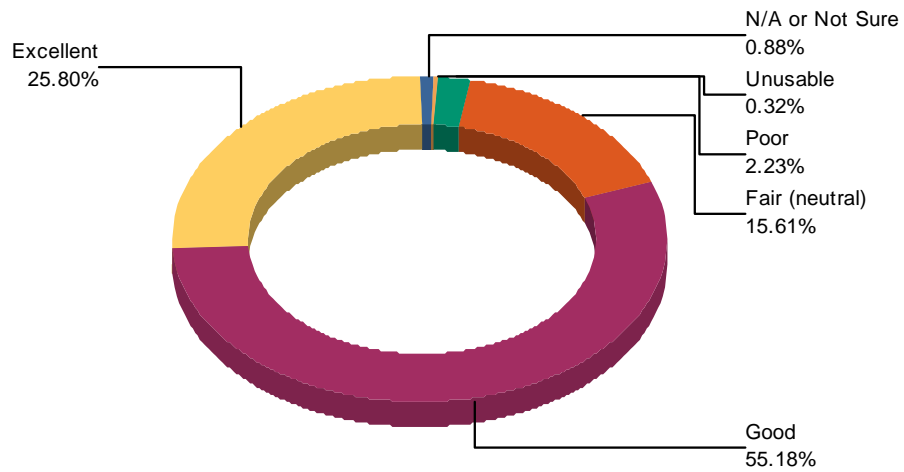
Chart 38 – Comparison of Question 16 Over 3 Years

Question 29 Comparison: How many requests for copies of the NAIP imagery, either hard copy or softcopy does your office receive?

2006 Requests for NAIP

>20 Per Month
10.89%

16-20 Per Month
5.41%

11-15 Per Month
7.90%

6-10 Per Month
12.97%

1-5 Per Month
62.83%
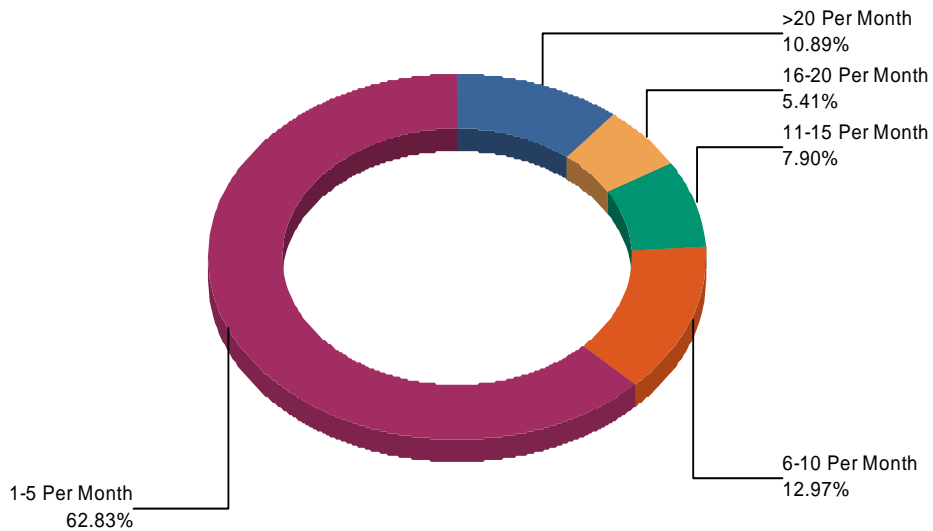
Chart 39 – Comparison of Question 29 Over 3 Years

2007 Requests for NAIP

No requests
20.80%

>20 Per Month
18.21%

16-20 Per Month
7.26%

11-15 Per Month
12.34%

6-10 Per Month
12.94%

1-5 Per Month
28.46%
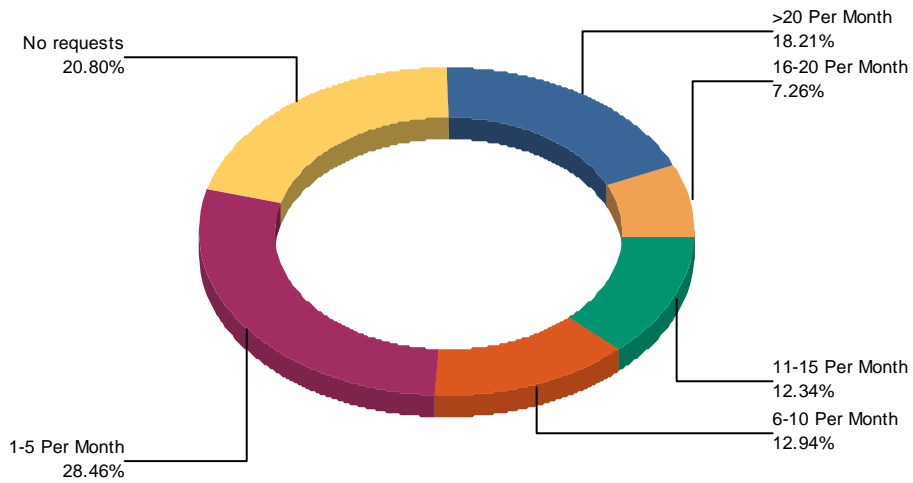
Chart 40 – Comparison of Question 29 Over 3 Years

2008 Requests for NAIP

No requests
26.96%

>20 Per Month
13.24%

16-20 Per Month
5.64%

11-15 Per Month
8.50%

6-10 Per Month
16.09%

1-5 Per Month
29.58%

Chart 41 – Comparison of Question 29 Over 3 Years

Section 5 – Recommendations for NAIP Based on Survey Results

The purpose of the NAIP survey is to help assess and improve the program from year to year. Many conclusions may be drawn from the results of the 2008 NAIP Survey. As discussed in last year's survey results, improvements to NAIP could be calculated in a purely statistical manner, where customer satisfaction is assessed each year, with a goal of 100% satisfaction. However, due to factors out of our control, such as weather, early and late crop harvest dates, fires, crop types, processing and equipment issues, the technology curve, and so forth, 100% satisfaction is by no means a realistic goal for NAIP. A more realistic measurement of success is in looking at the trends from year to year.

Program improvement should be based on an increase in satisfaction of the primary customer (FSA State and County Offices). NAIP is one method by which FSA compliance activities may take place, and is currently accepted as a means to update a St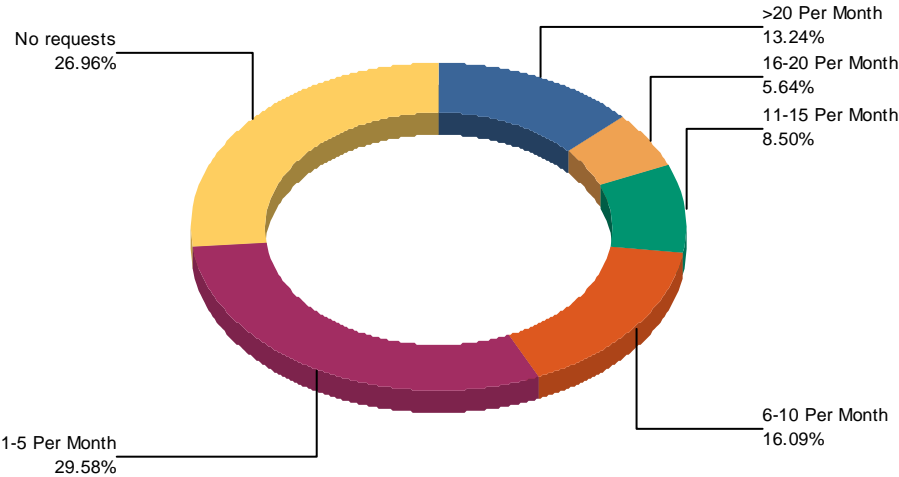ate's official FSA ortho base for GIS. This year maintained the marked improvement in the overall satisfaction of imagery received by the County and State Offices shown in 2007. Overall satisfaction went up from 86% in 2007 to 87% in 2008.

Specifically, suggestions to improve NAIP based on survey results include:

1. Based on a recommendation from the 2006 survey, notify the states as early as possible regarding counties or areas that could not be flown. This is extremely important in order to complete compliance activities in a timely manner; however, this is also based on compliance activity policy. In 2007, a pilot Web Mapping Service, which identifies what areas have been acquired in "real time", was developed. This service should be continually improved each year and made readily available to State and County Offices.
2. Again this year, based on comments from respondents, improving the speed of delivery from the time of acquisition to the FSA State and County Offices could yield significant improvement to the program. Tracking data from the vendor to the FSA County Office would help APFO assess all aspects of delivery time.
3. Question 18 – Does CLU need to be edited to match the 2008 NAIP Imagery? This question should be monitored in future years to see how responses change once all states have moved to the absolute horizontal control specification. This question will be particularly useful once a state has been acquired twice using the absolute horizontal control specification.
4. The results of the Question 30 – Was the 4-band Infra-Red Imagery Useful? indicate that more information and training could be provided to increase awareness and use of 4-band imagery.
5. Continue to improve the color/contrast/light/dark specifications in combination with the monitor calibration procedures to increase quality ratings of questions 14 thru 17.
6. Consider posting imagery in a web service immediately upon receipt for use in county offices to alleviate some of the delivery delays.

Section 6 – Recommendations for Changes to Survey for 2009

The subscription service for the web survey engine was renewed last year, and most likely will be renewed each year as long as APFO continues to conduct the survey. A 2009 NAIP Survey can be issued some time near the beginning of 2010, with an approved notice from FSA. Using the same survey medium would allow for comparative analysis of multi-year survey data, as the method and many of the questions would remain consistent.

Several minor changes to the survey, based on errors or oversights discovered in the 2007 NAIP Survey, are outlined below:

1. The AP-11 Notice was sent out in early December but the survey was not open until late January. The AP notice should be held back for release until just before the survey is ready to open.
2. Additional questions about enhancements to NAIP, such as absolute horizontal accuracy, seamline polygons indexes, various compression formats, timeliness of delivery and 4-band imagery could also be included.
3. Consider a separate survey or separate questions in the survey for those states that did not receive imagery to see how those states are affected.
4. Modify question 2 to include a drop down list of the common County and State positions to standardize the responses, with an opportunity for "other" responses.
5. Consider asking a question to rate the importance of the quality of imagery versus the timeliness of acquisition.
6. Consider asking what type of imagery, such as natural color, CIR, or both, would be best for most farm program purposes.
7. Consider asking if receiving imagery only through a web service instead of a CCM deliverable would affect business operations.

Appendix A – Alternative Uses of NAIP

Question 24 of the 2008 NAIP Survey asked the respondents to list the activities for which FSA County and State Offices use NAIP. This question was a 'select all that apply' type of question, and was accompanied by the additional option for an open ended response.

Of the 'select all that apply' categories, the following is a list of the standard responses (shown in Section 3) with percentages of the total number of customers responding. These percentages were almost identical to the responses from 2006 and 2007.

- 82% of respondents find NAIP useful for measurement services
- 59% of respondents find NAIP useful for historical purposes
- 53% of respondents find NAIP useful for general planning activities
- 41% of respondents find NAIP useful for disaster preparation
- 37% of respondents find NAIP useful for government coordination

From the open ended response portion of this question, many additional FSA uses of NAIP were identified by the state and county users. In general, alternative uses included but were by no means limited to:

- Acreage reporting and map changes
- Support federal farm programs
- Conservation practices
- Compliance
- Crop Identification
- Education
- Irrigation determinations
- Land classification
- General monitoring
- Agricultural certification
- Program eligibility
- Real estate/land sales
- Construction and development
- General mapping activities
- Providing customers maps
- Environmental issues
- Drought determinations
- Flooded area determinations
- Public health and safety
- Water rights
- Rangeland assessment
- Forest management plans
- Appeals
- Activities involving Conservation Reserve Program (CRP)
- Activities involving Common Land Unit (CLU)

Appendix B – Recommendations to Improve NAIP

Question 31 of the 2008 NAIP Survey asked what recommendations customers may have to improve the NAIP program? Open ended responses varied greatly, but general trends noted the following:

- Deliver the imagery in a more timely manner
- Fly the imagery in a more timely manner
- Fly more often
- Fly twice a year
- Fly complete county and state coverage every year
- Improve quality
- Increase resolution
- Overcome infrastructure, hardware, and software issues
- Increase training