

2012 FSA Imagery Requirements Survey: Summary Report

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Section 1 – Executive Summary

The USDA-FSA Aerial Photography Field Office (APFO) has been providing hard copy and digital imagery to support a wide range of customer driven imagery requirements for many years. 2011 is the last year of a 5 year contract cycle for the National Agriculture Imagery Program (NAIP), FSA’s primary imagery program. Thus, summer 2011 is the ideal time to gather and analyze existing and new requirements for imagery products in preparation for a new contract cycle.

The 2012 Imagery Requirements Survey was built using a web based survey engine. The survey was distributed to the FSA State GIS Specialists/Coordinators per guidance in AP-15. The survey was open throughout the month of July.

The survey:

- establishes a standardized feedback mechanism for current and future imagery requirements for FSA State and County Offices
- allows for analysis of current specifications versus existing and future requirements for imagery products in a timely manner, in order to adjust specifications as needed and as budget allows, for upcoming contract cycles
- allows for direct customer feedback to ensure continued imagery program development and improvement

The following is a brief synopsis of survey responses:

- Total Survey Responses = 415 (46 of which indicated they were State GIS Specialists/Coordinators)
- Only 31% of respondents indicated they still needed media copies of their imagery; however 65% of State GIS Specialists/Coordinators indicated they still needed media copies of their imagery. Of those respondents that indicated they needed media copies, the reasons given were, for use during network outages and for general backup. Approximately 30% of respondents also indicated media copies were needed for field work.
- Respondents indicated that CCMs are still an important product, but that they generally have less need for the quarter quad tiles. By analyzing Question 15 and Question 17, one can deduce that approximately 17% of respondents would still like CCMs delivered on media.
- 69% of respondents indicated they need imagery every year; 22% of respondents indicated they need imagery every other year.
- Grain Storage Facilities seem to be the size/spatial resolution cutoff regarding what needs to be clearly recognizable on the imagery; however upwards of 20% of respondents indicated they also need to see single trees. Based on the “other” responses to the program specific questions, the smallest objects that need to be clearly recognizable are hay bales, single trees, wellheads, and grain bins. However, there is probably a great disparity in the actual size of objects such as hay bales and grain bins.
- The vast majority of respondents indicated full county coverage was “very important”, and many indicated that seeing adjacent counties is important as well, regardless of whether they are in the same state or not.
- Respondents indicated quality of the imagery is as important as horizontal accuracy of the imagery. Both were predominately rated “very important”.
- Respondents indicated accessibility and speed of use of the imagery are both “very important”.
- Currency of the imagery, maintaining credibility with the customers, and time savings were also all rated as “very important”.
- 24% of respondents would like their imagery within 10 days of acquisition, another 9% would like it within 20 days, and 42% feel that within 30 days of acquisition is a good timeframe. Delivery of imagery within 30 days of acquisition meets most program needs, with the exception of disaster/emergency management, for which delivery within 10 days would be best.
- Almost 99% of respondents feel that knowing the year, month, and day of acquisition is enough detail; 1% felt they needed to know the hour of acquisition as well.
- 33% of respondents indicated that an accuracy specification of 6 meters to true ground is not good enough. Of those respondents, 65% said they would like to see a 2 meter to true ground accuracy specification, 28% indicated 3 meters, and 8% indicated 4 meters.

- Over 25% of respondents indicated that they needed access to imagery dating back 10 years. 27% of respondents indicated that they needed access to historical imagery dating back as far as possible. 77% of all respondents indicated Web Services as the preferred method for delivery of “historical” imagery.
- The ability to share imagery with Federal, State, and Local agencies, as well as with producers, without concern for copyright or licensing is important.
- Over 80% of respondents indicated that if they do not have imagery, they have to increase field work to accomplish their jobs; 39% indicated they would seek out other imagery sources to accomplish their work.
- 83% of respondents preferred natural color (NC) imagery over other options.

Conclusions

If conclusions were to be drawn at this point, it would be evident that the following basic specifications would meet the greatest proportion of the FSA users’ needs:

- ❖ Horizontal accuracy of better than 6-meters to true ground with target of 2-meters to true ground
- ❖ Spatial resolution of ½-meter to 1-meter
- ❖ Spectral resolution of at a minimum natural color (NC)
- ❖ Temporal resolution – yearly acquisition should still be the goal
- ❖ Geographic coverage – at a minimum, full county coverage + adjacent counties = full state coverage
- ❖ Work towards delivery timeframes of 10 days or less after acquisition
- ❖ Deliver media copies of the imagery – debatable
- ❖ Be able to share imagery openly without concern for copyright or licensing
- ❖ Access to historical imagery is increasingly important; delivery via web services for historical is preferred

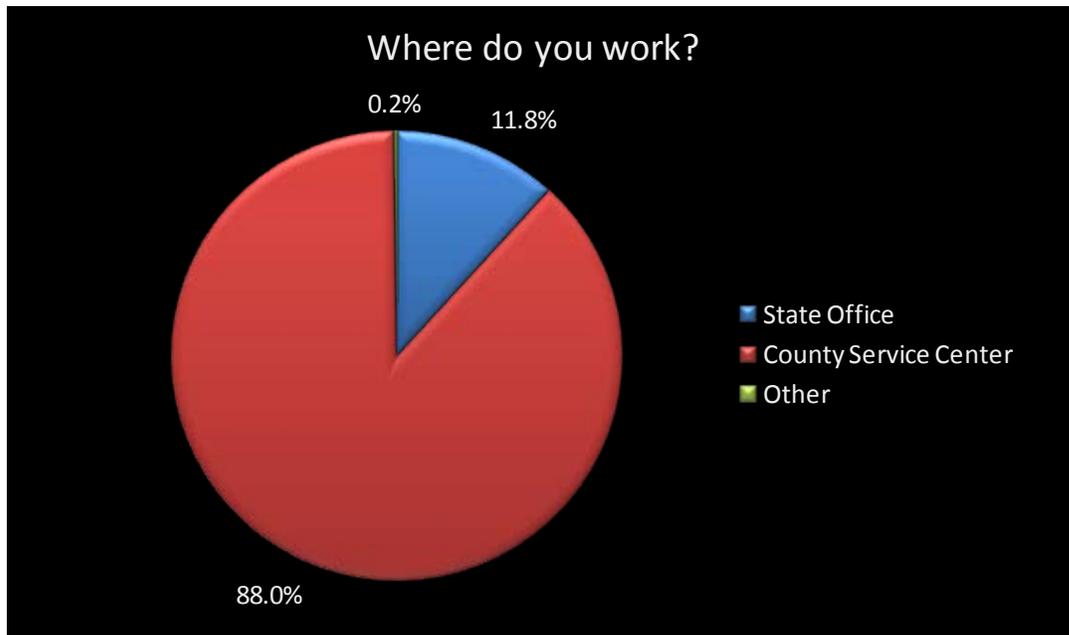
The above are just simple observations; much more can be concluded by reviewing and analyzing the entire report. In addition, for purposes of comparison, the 2008 FSA Imagery Requirements Survey Report may be found at the following link: http://www.fsa.usda.gov/Internet/FSA_File/2008_imageryreqsurveyreport.pdf

Section 2 – Question by Question Breakdown – General Questions

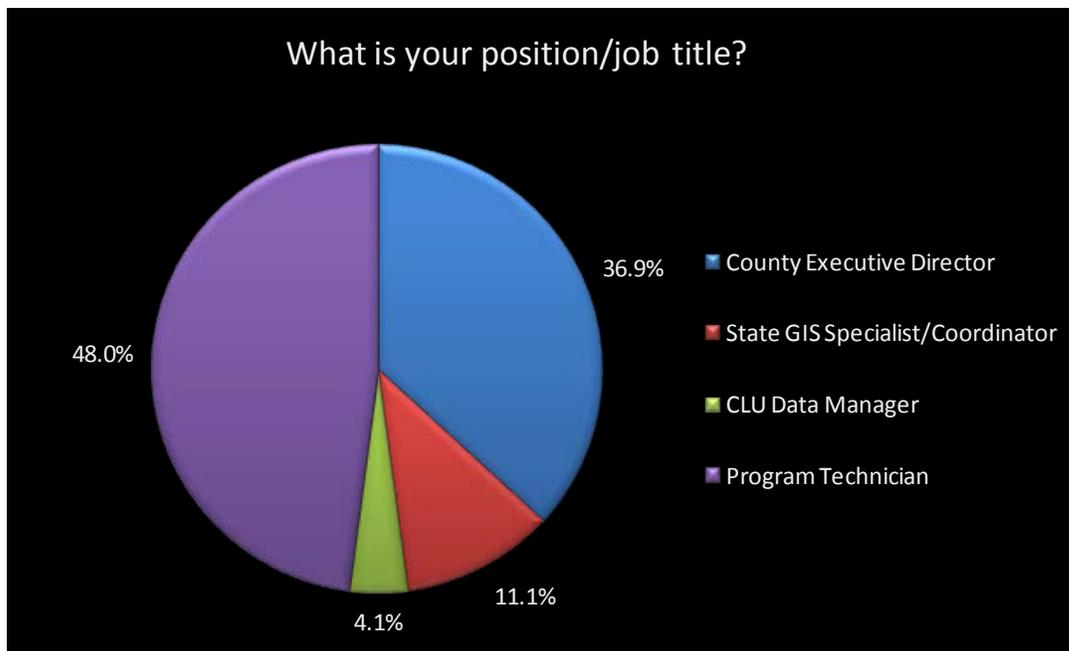
This section includes a question by question breakdown of the non-program specific survey responses.

Question 1 – Name – Responses varied.

Question 2 –



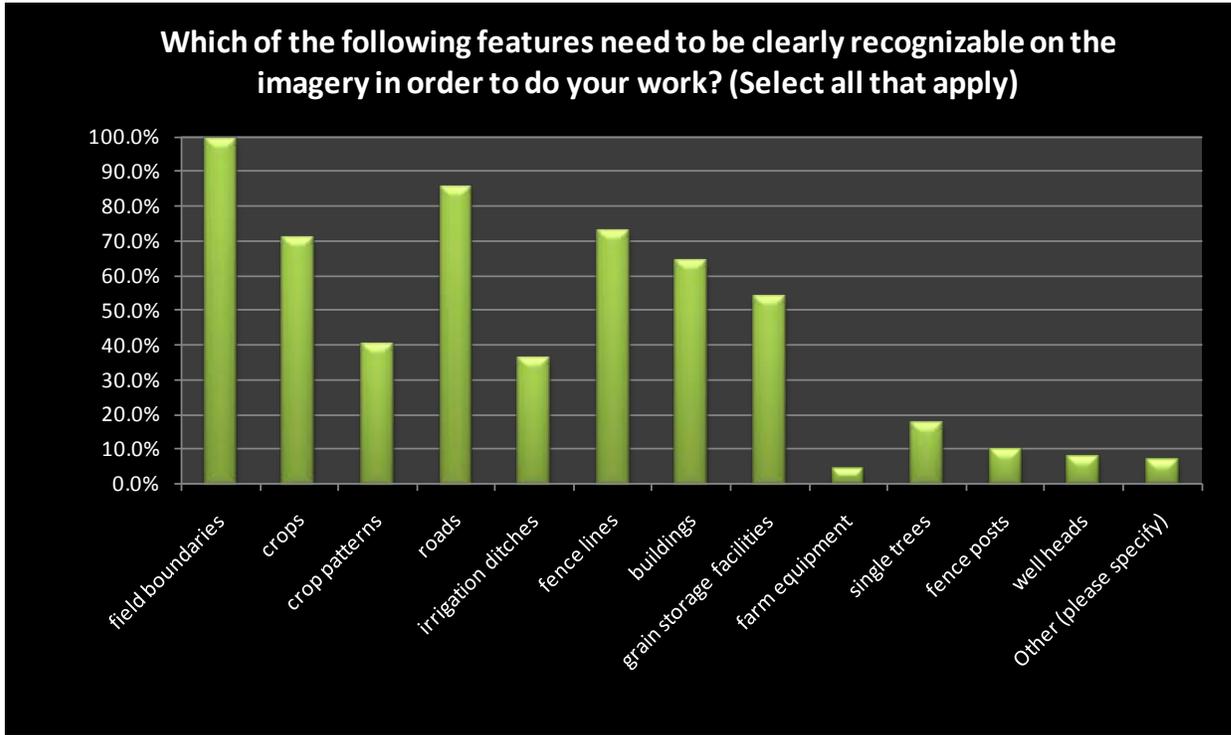
Question 3 –



Question 4 – What is your 2-digit state FIPS code? Responses varied.

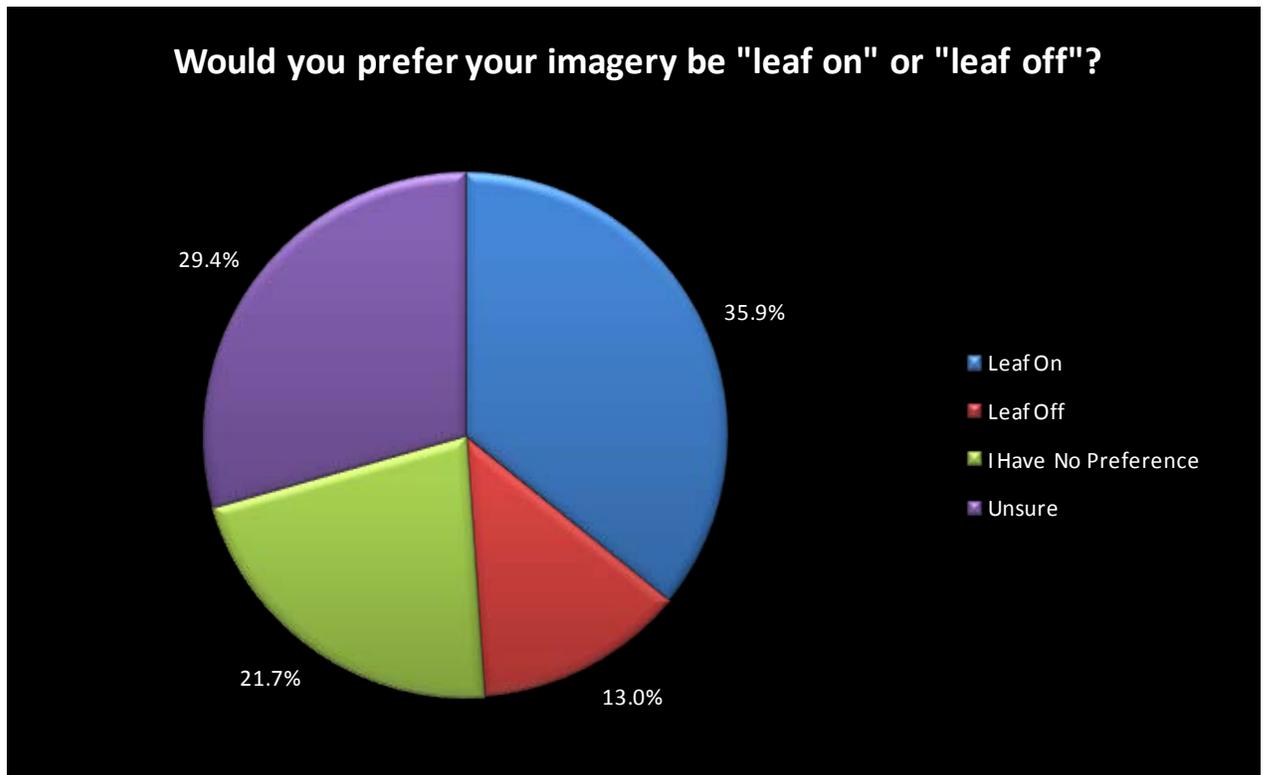
Question 5 – If you work in a County Office, what is the name of your county? Responses varied.

Question 6 –

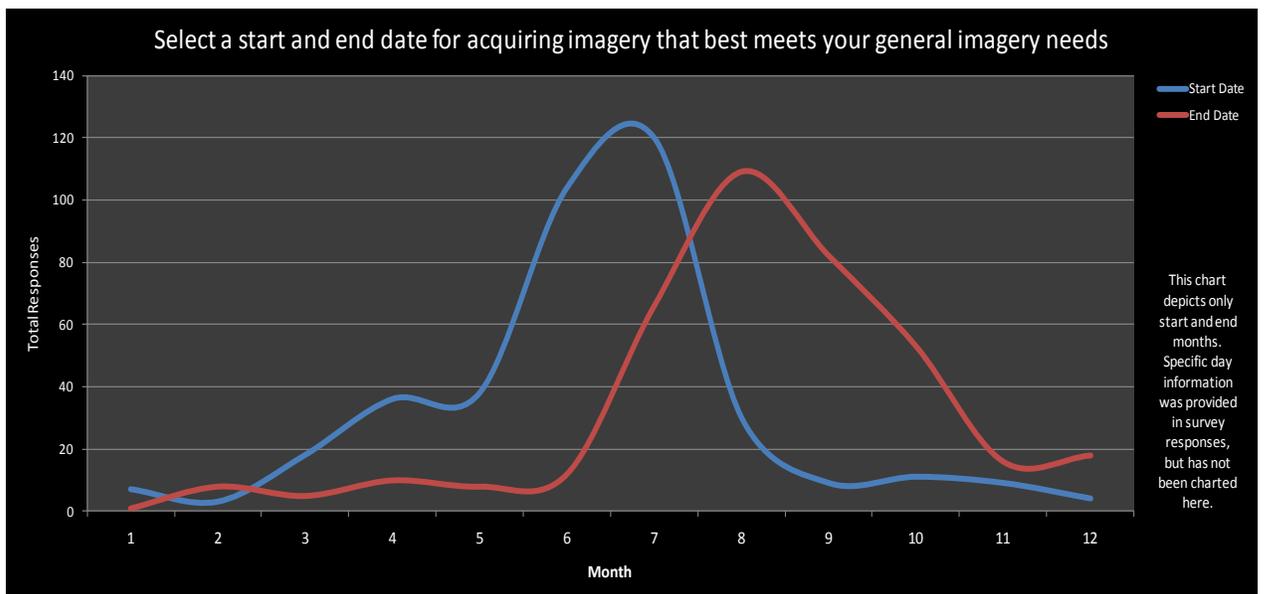


Question 7 – What is the smallest object you need to see clearly on the ground in order to do your work? Responses varied and included buildings, bins, trees, fence lines, crops, well heads, fence posts, ponds, and so forth. A complete list of raw survey responses can be found in Appendix A. Responses have been edited for spelling but not for content.

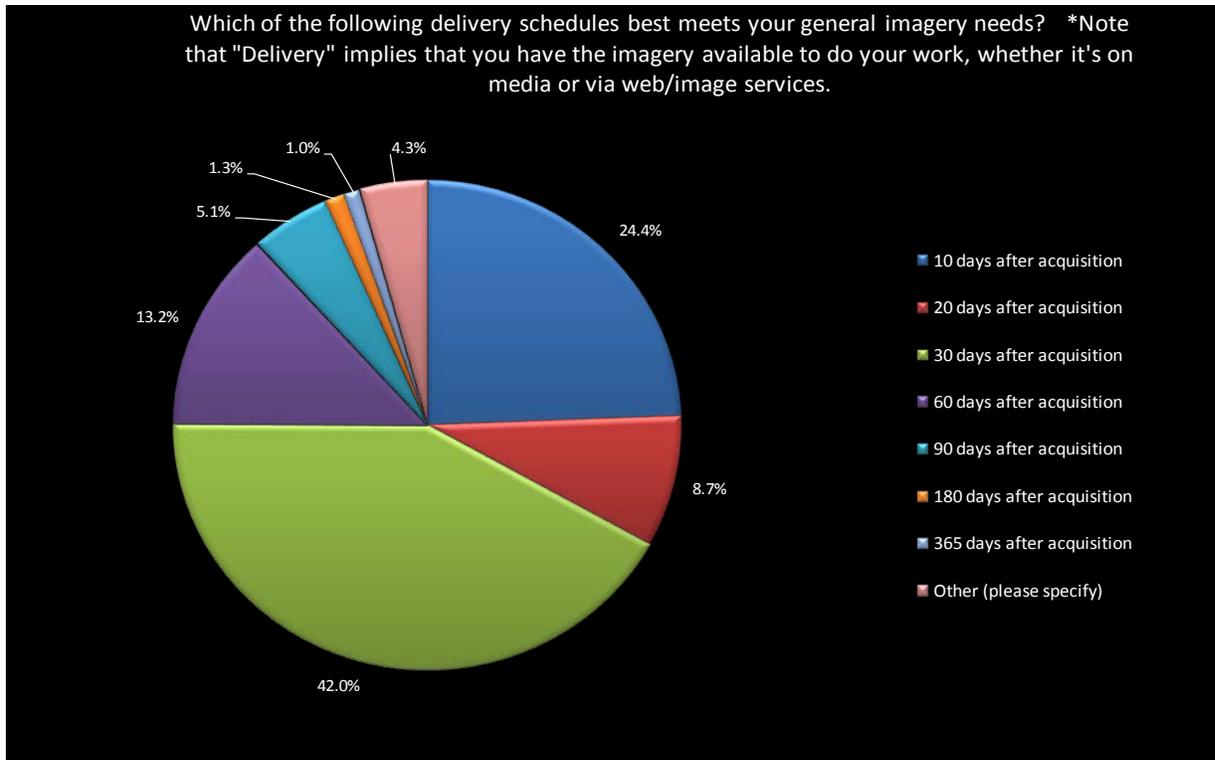
Question 8 –



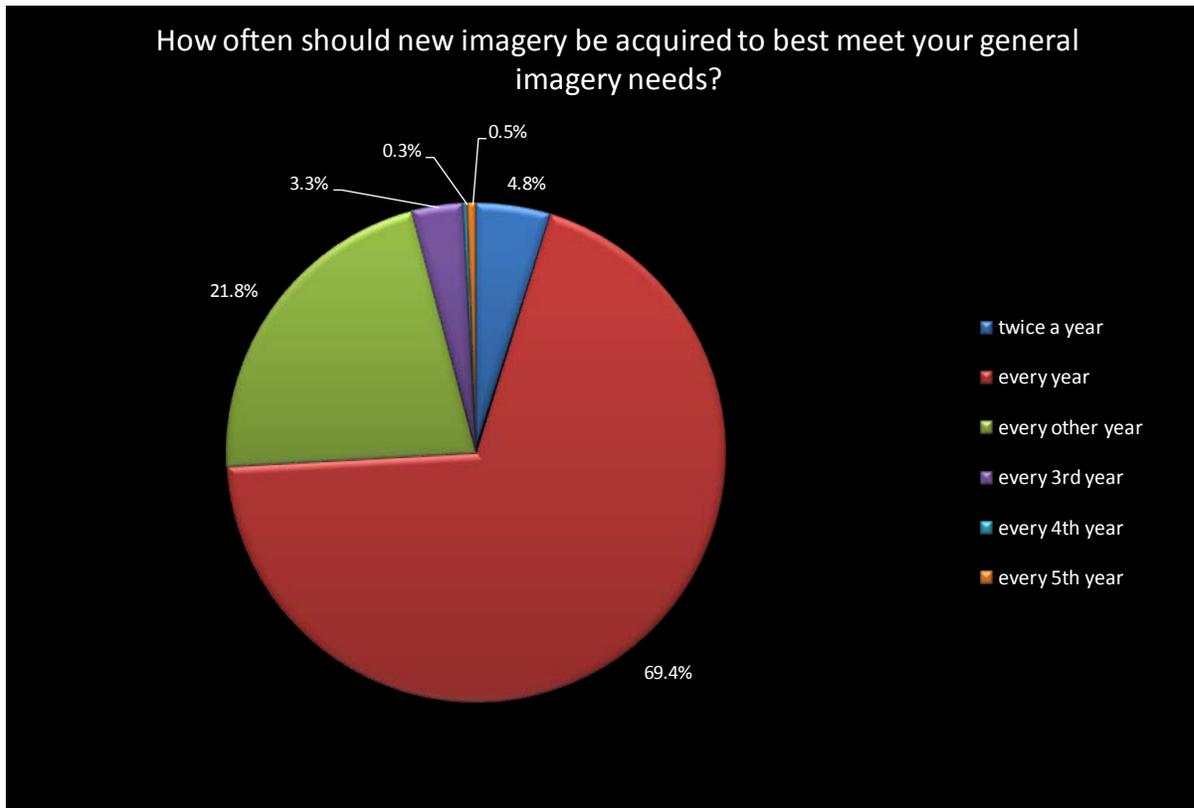
Question 9 –



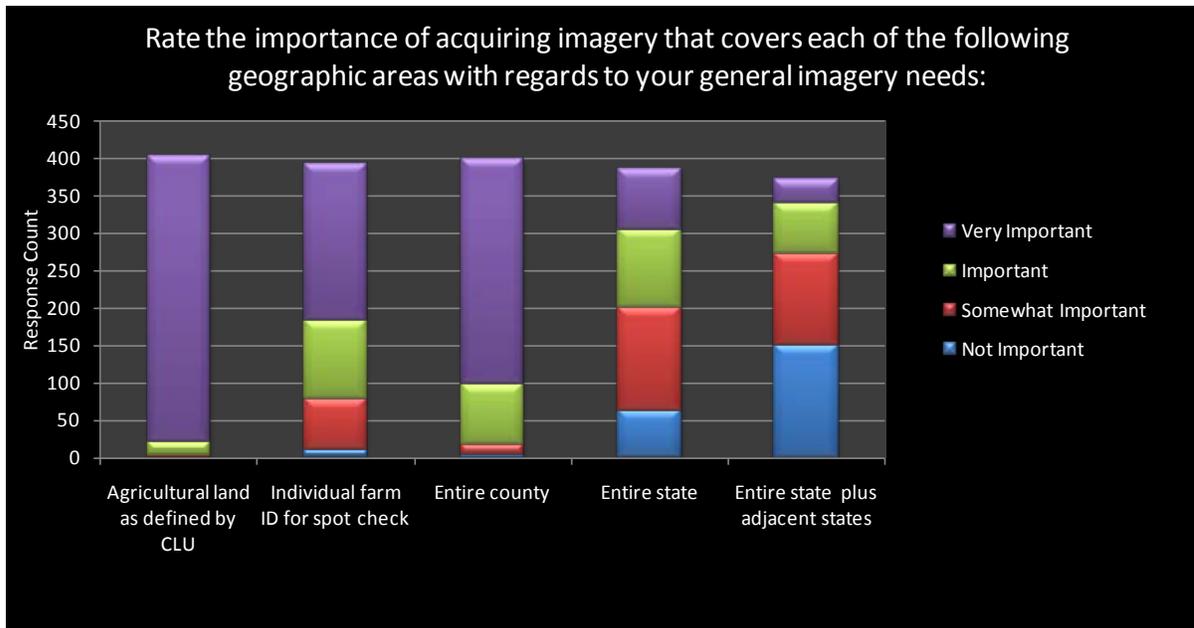
Question 10 – Which of the following delivery schedules best meets your general imagery needs? See chart below for structured responses. “Other” responses indicated that receiving the imagery as soon as possible is the best, or that it depends on crops, depends on sign-ups, and depends on compliance.



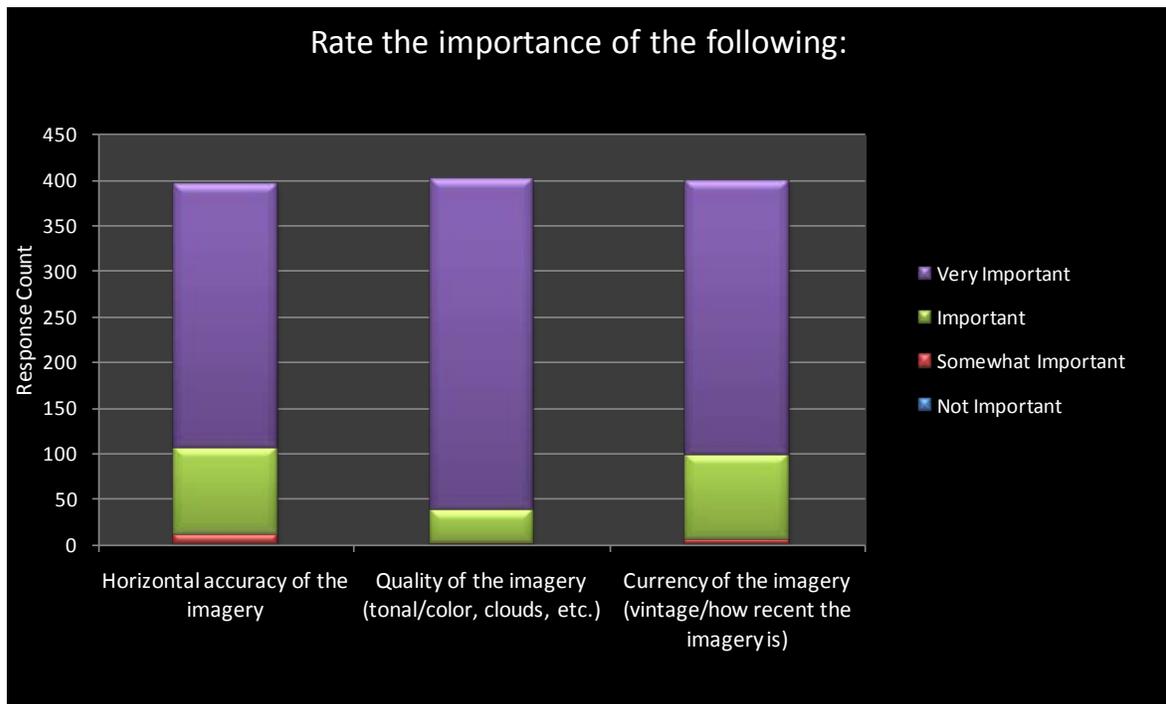
Question 11 –



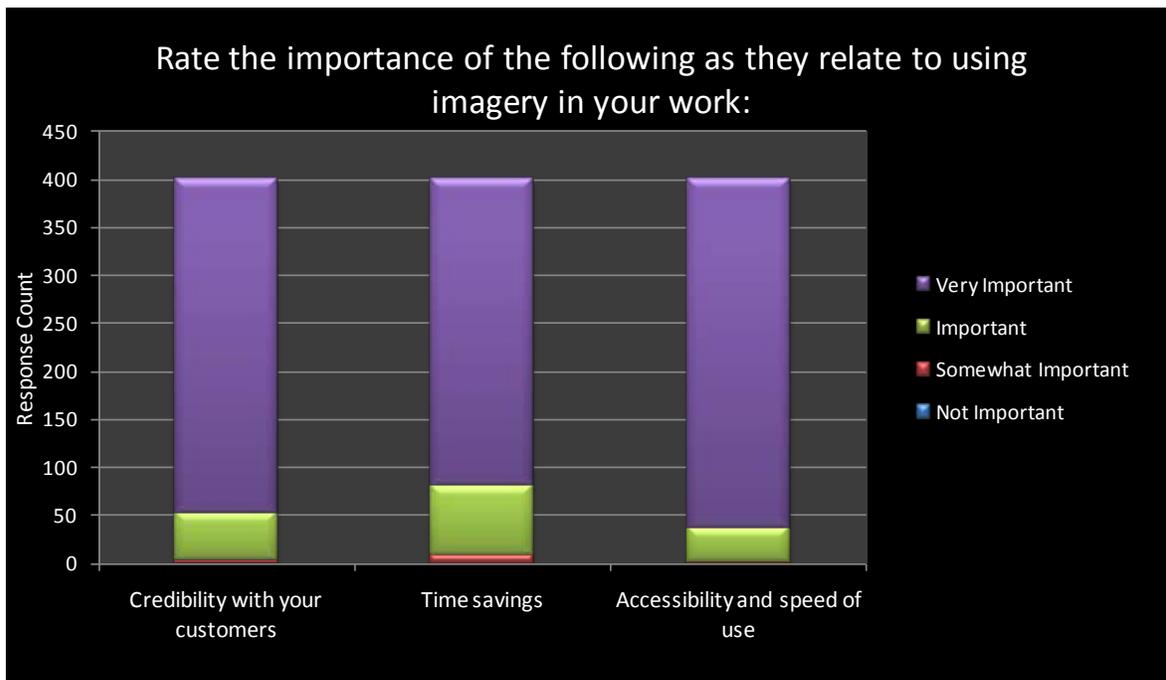
Question 12 – Rate the importance of acquiring imagery that covers each of the following geographic areas with regards to your general imagery needs. See chart below for structured responses. “Other” responses indicated to a large degree that receiving imagery for adjacent counties is extremely important, whether the adjacent counties are in the same state or not.



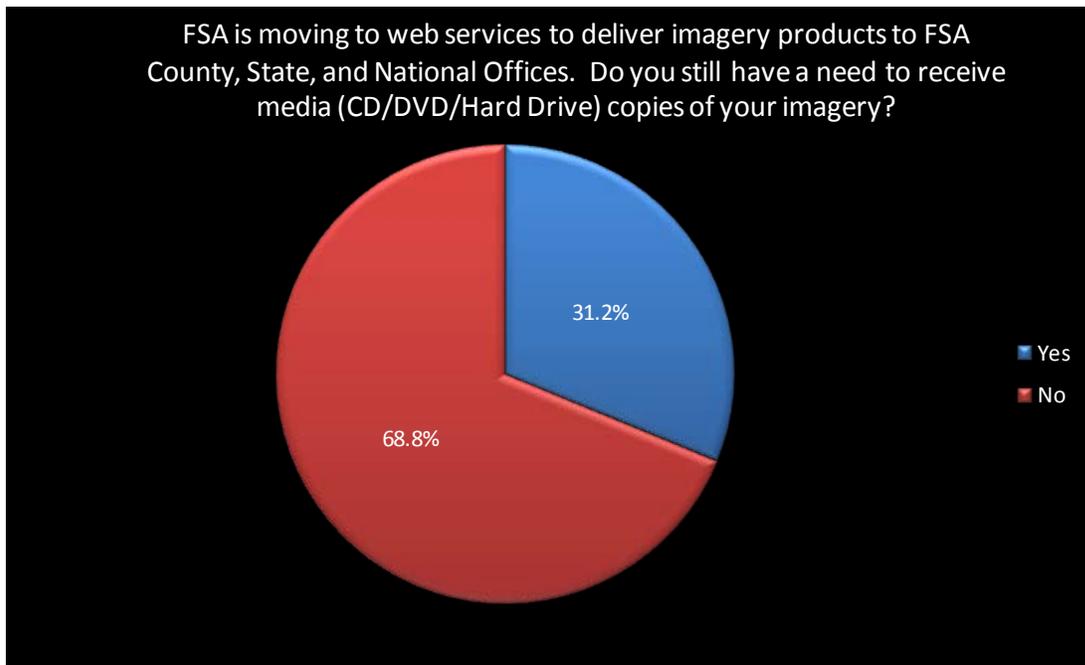
Question 13 –



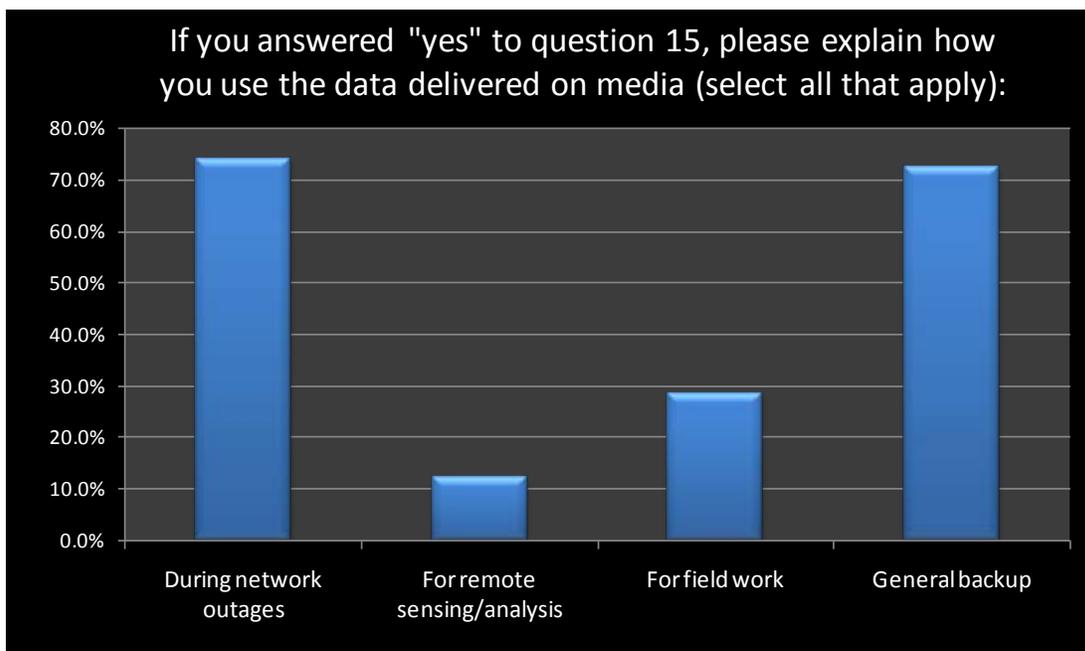
Question 14 –



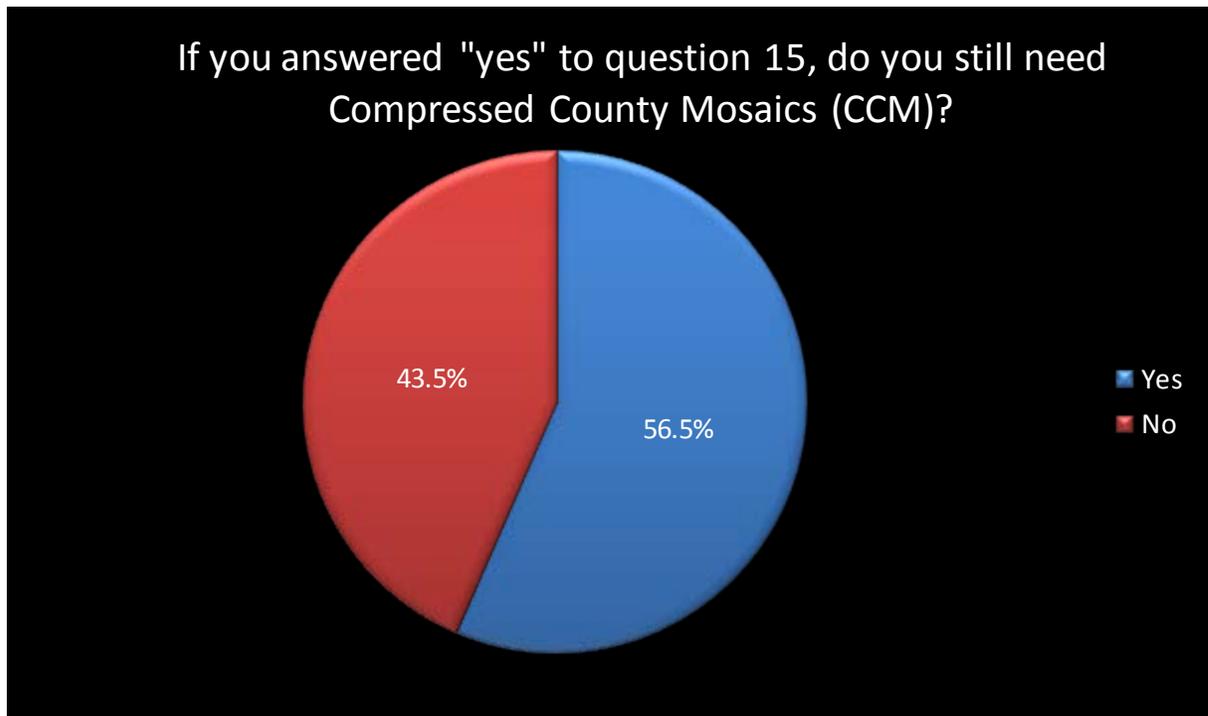
Question 15 –



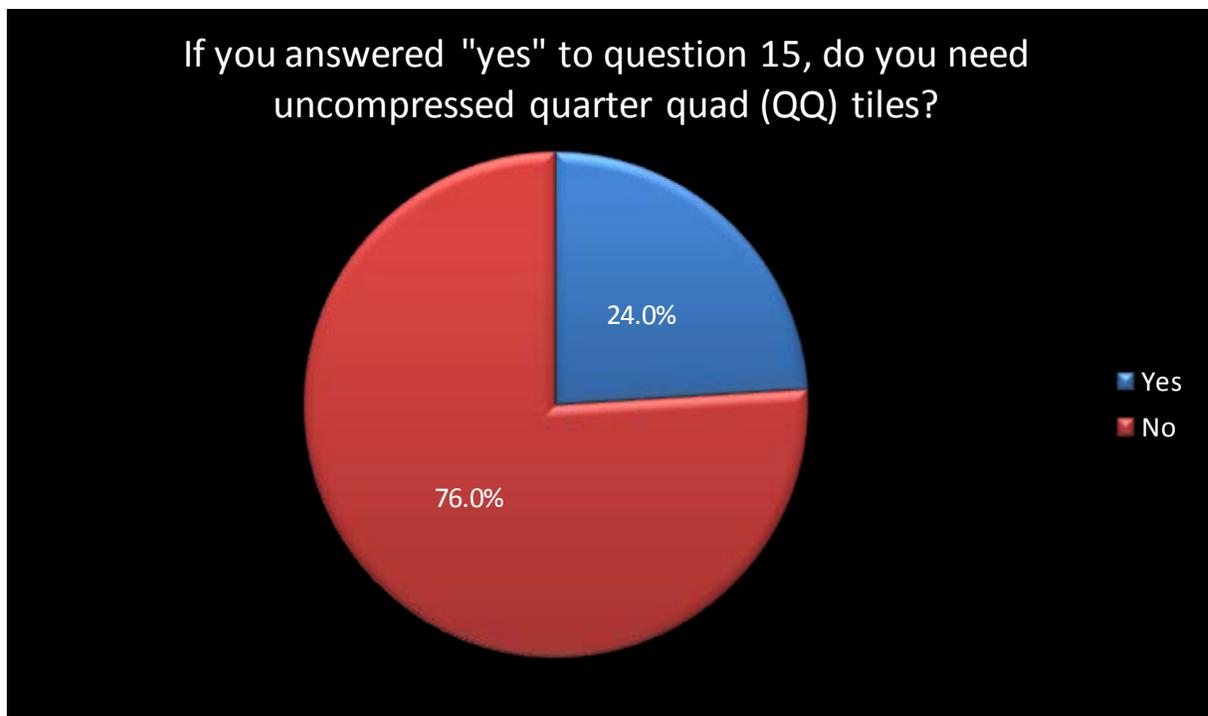
Question 16 – If you answered “yes” to question 15, please explain how you use the data delivered on media (select all that apply). See below for structured responses. “Other” responses seemed to indicate media copies were used when the network is slow, and to share data with other agencies/partners.



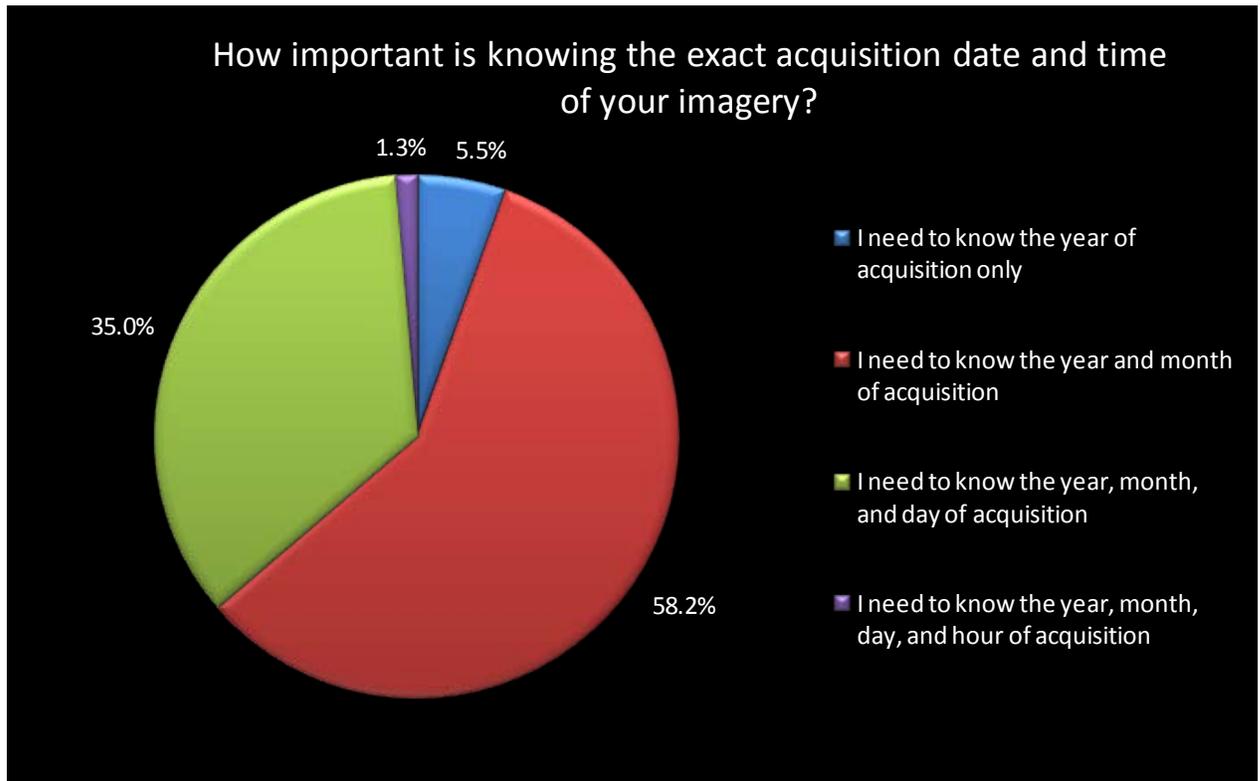
Question 17 –



Question 18 –

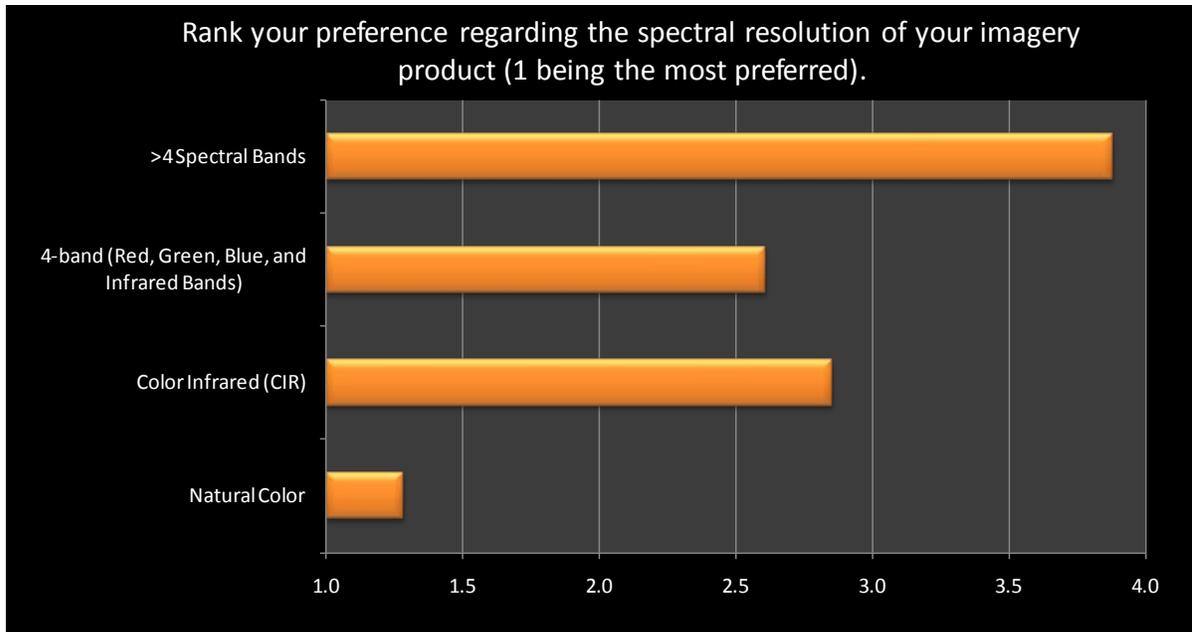


Question 19 –

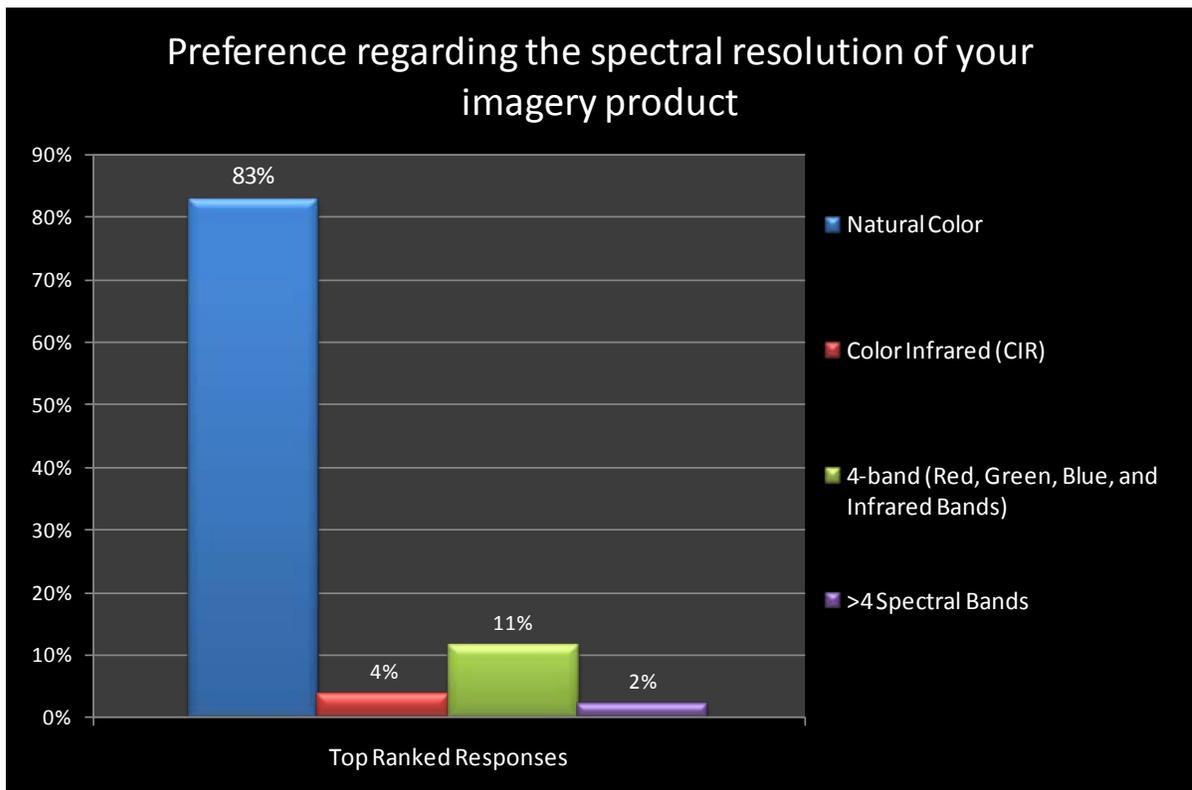


Question 20 – What other information do you need to know about your imagery product that you do not currently receive? Responses varied. Raw survey responses can be found in Appendix B. Responses have been edited for spelling but not for content.

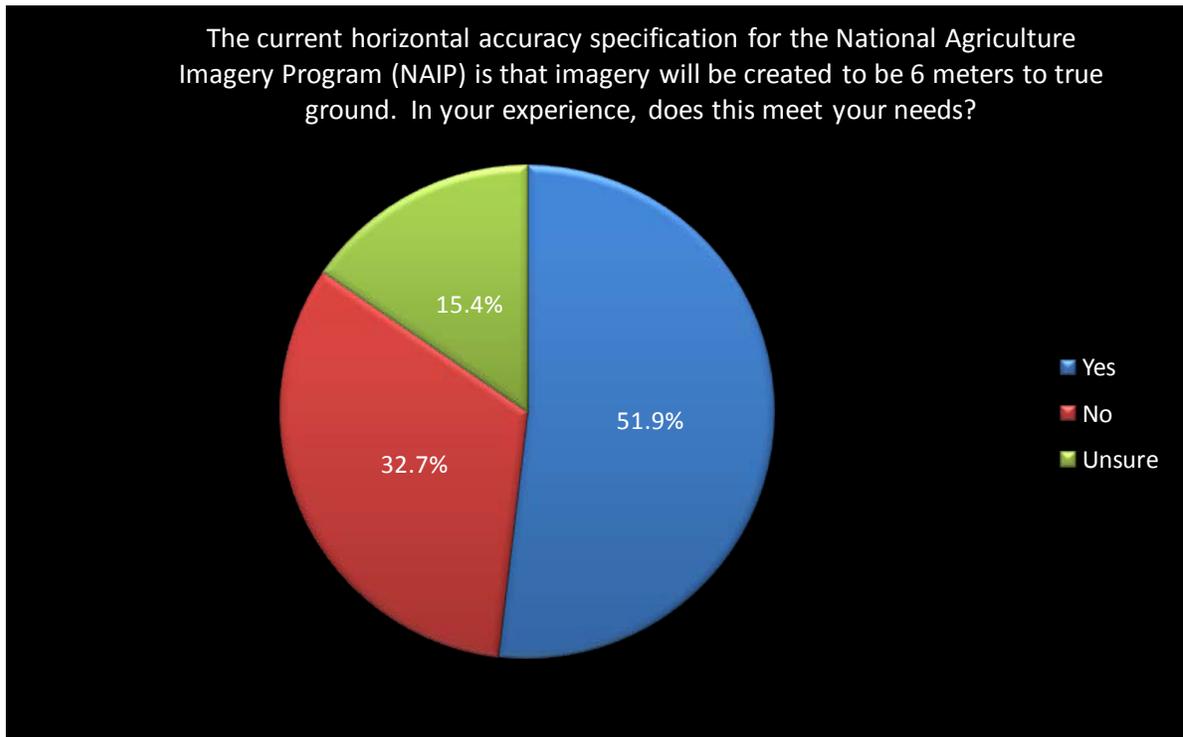
Question 21 – Note that this question asked for a ranking; what is shown is the average ranking, with 1 being the most preferred. The closer to 1 the response is, the more preferred it was by the survey takers (e.g. Natural Color was the most preferred). Around 83% of respondents preferred Natural Color imagery.



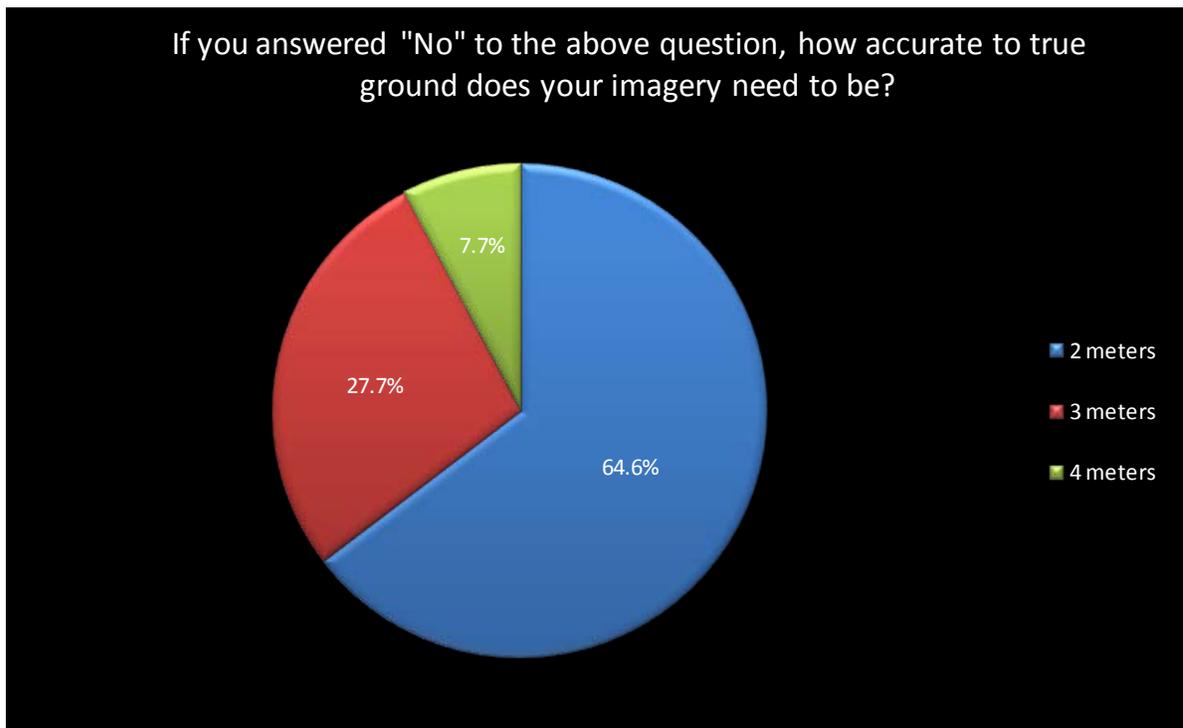
Another way of looking at the responses to this question is only to look at the top ranked response by each survey taker. Top ranked responses are charted below.



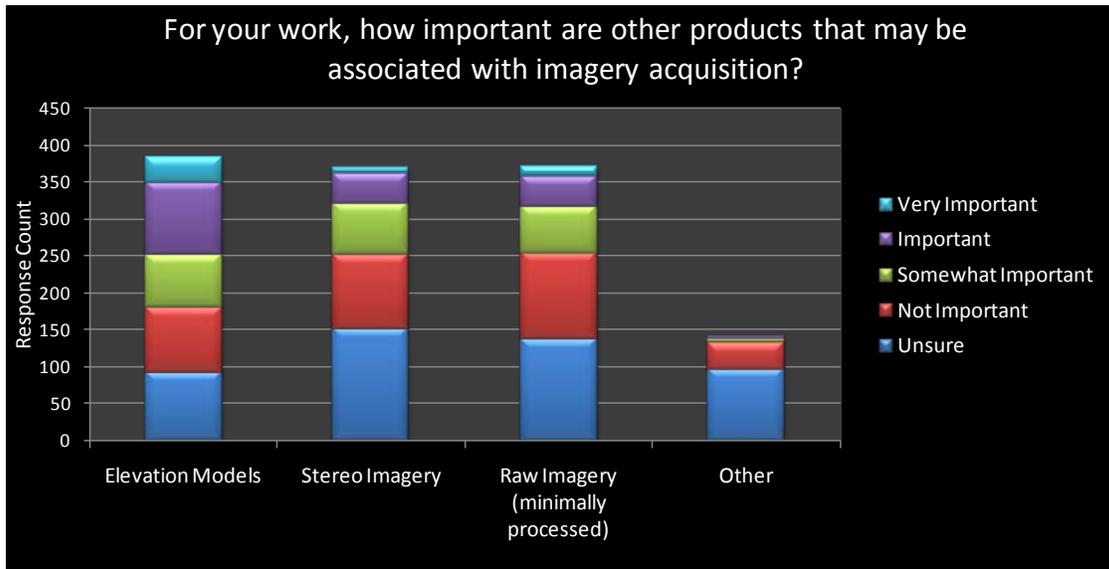
Question 22 –



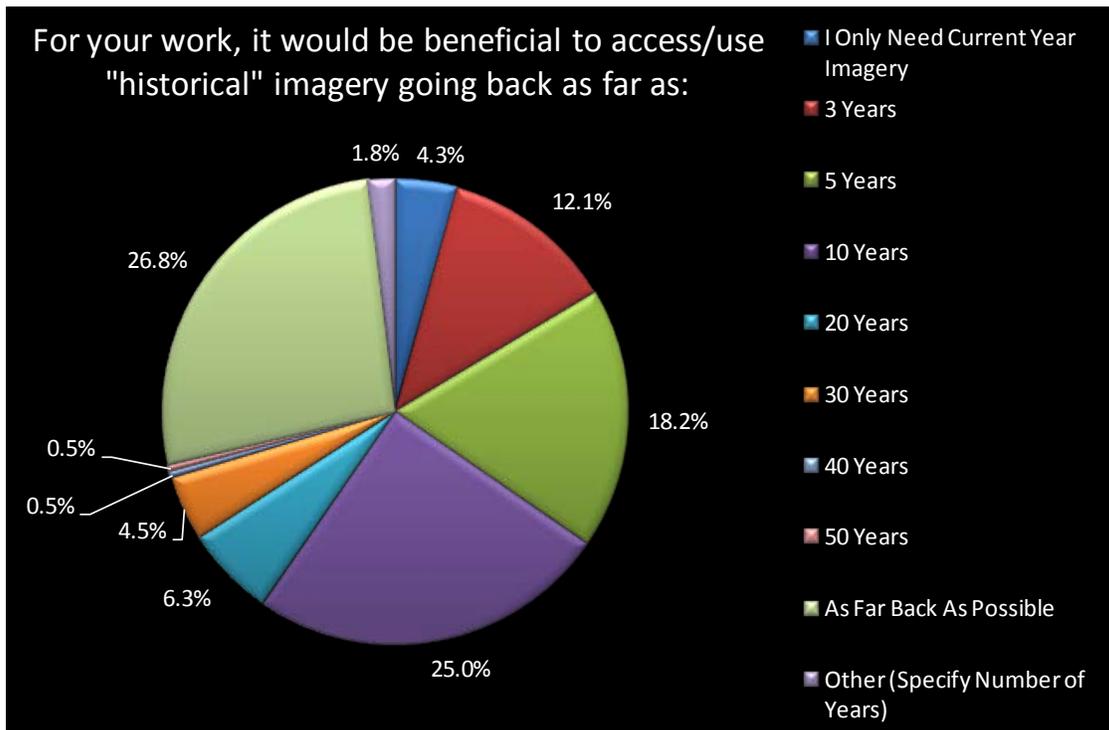
Question 23 – Several “other” responses were indicated. These responses varied from 1 meter, to matching the accuracy of the GPS, or in comparison to fence measurements.



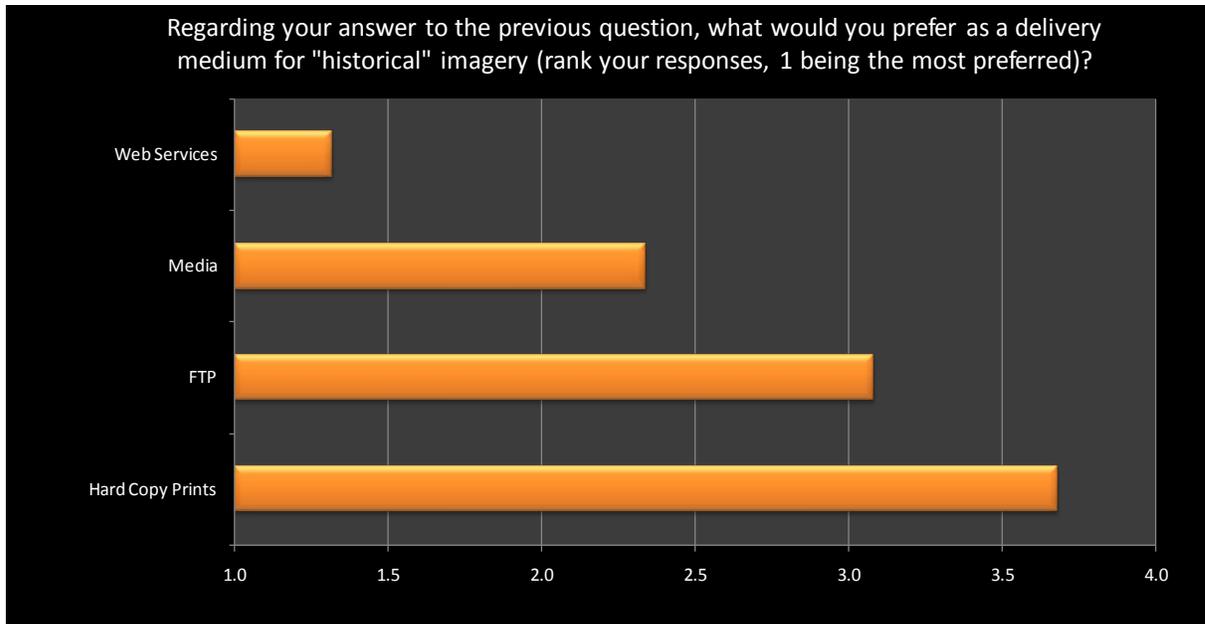
Question 24 –



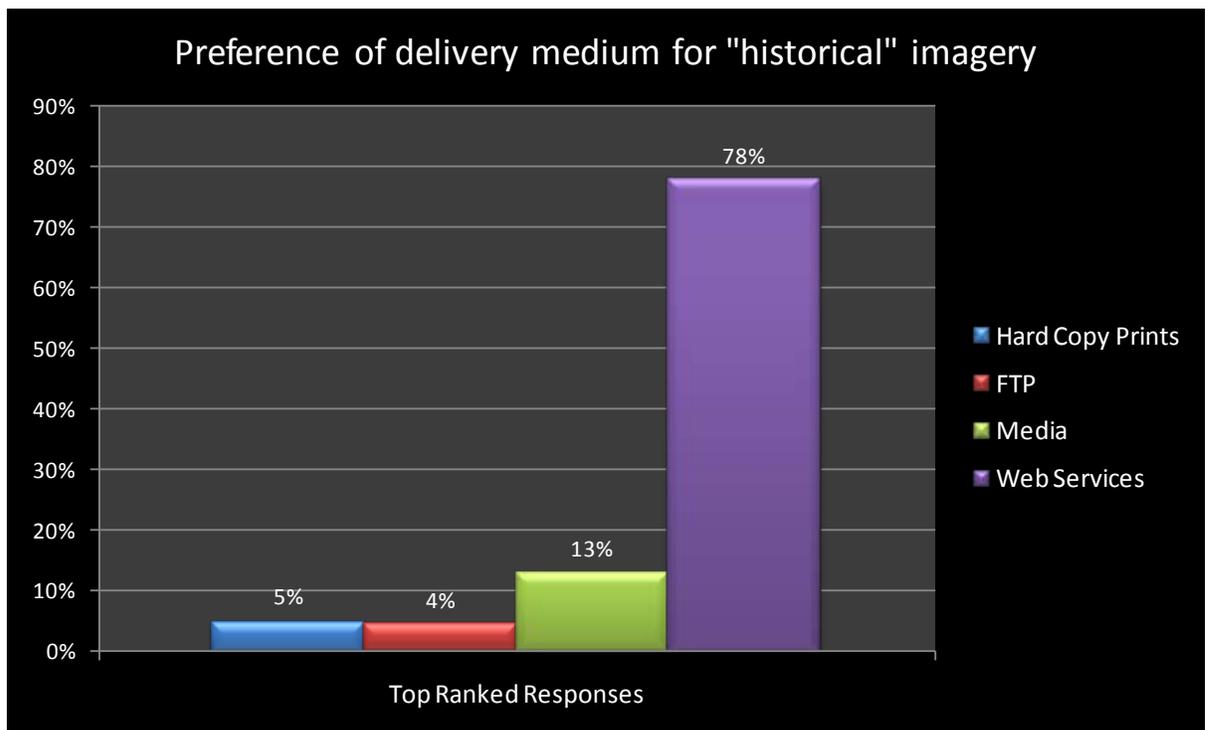
Question 25 – For your work, it would be beneficial to access/use “historical” imagery going back as far as...See the chart below for structured responses. “Other” responses indicated that customers needed to see imagery going back to the early 1980’s to coincide with the Farm Bill, and for appeals, historic fence lines and water courses, legal matters, crop history, CRP, compliance, and eligibility.



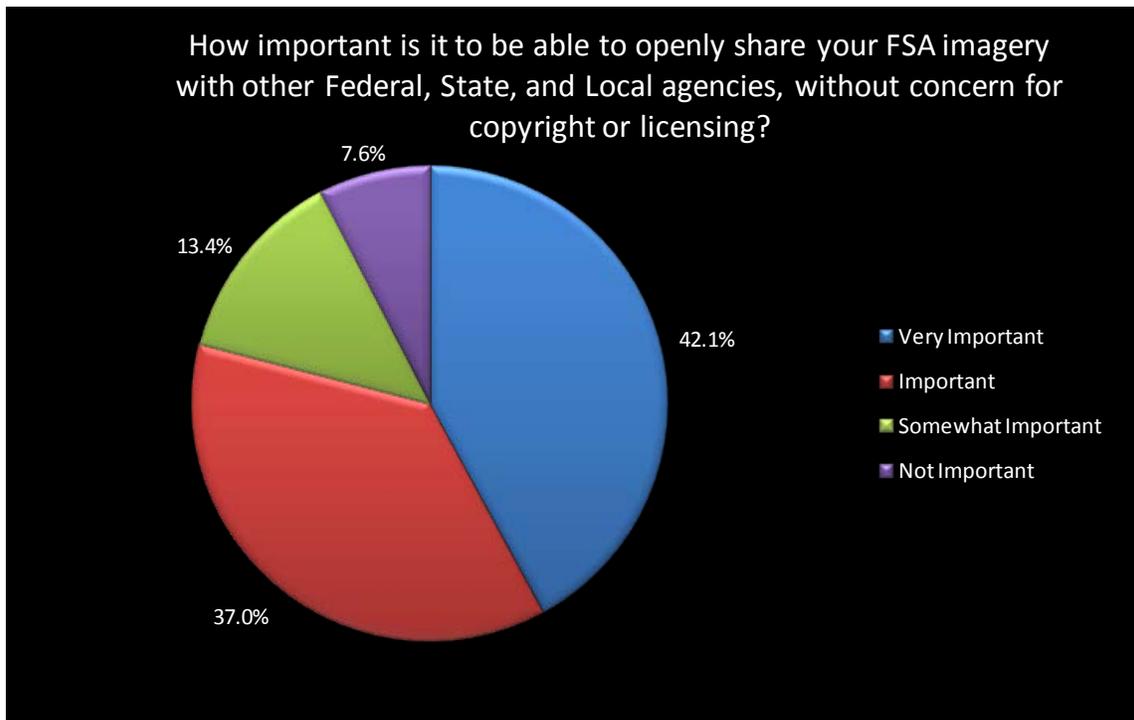
Question 26 – Note that this question asked for a ranking; what is shown is the average ranking, with 1 being the most preferred. The closer to 1 the response is, the more preferred it was by the survey takers (e.g. Web Services is most preferred). Around 78% of respondents preferred Web Services as the delivery method for historical imagery.



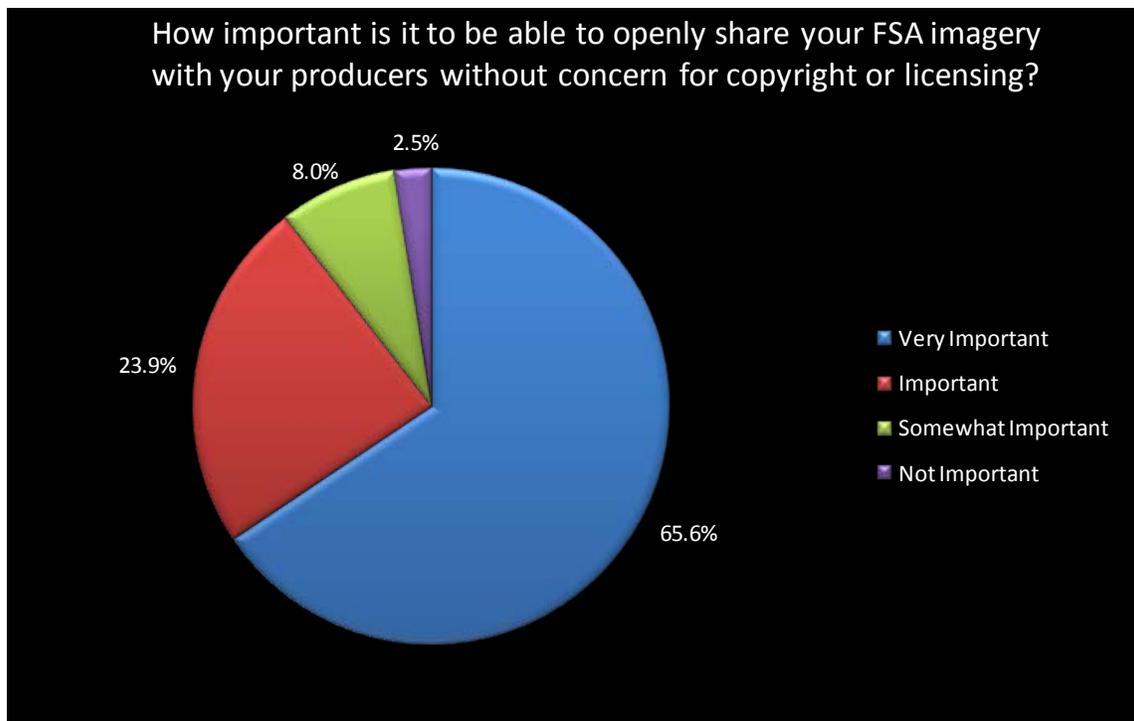
Another way of looking at the responses to this question is only to look at the top ranked response by each survey taker. Top ranked responses are charted below.



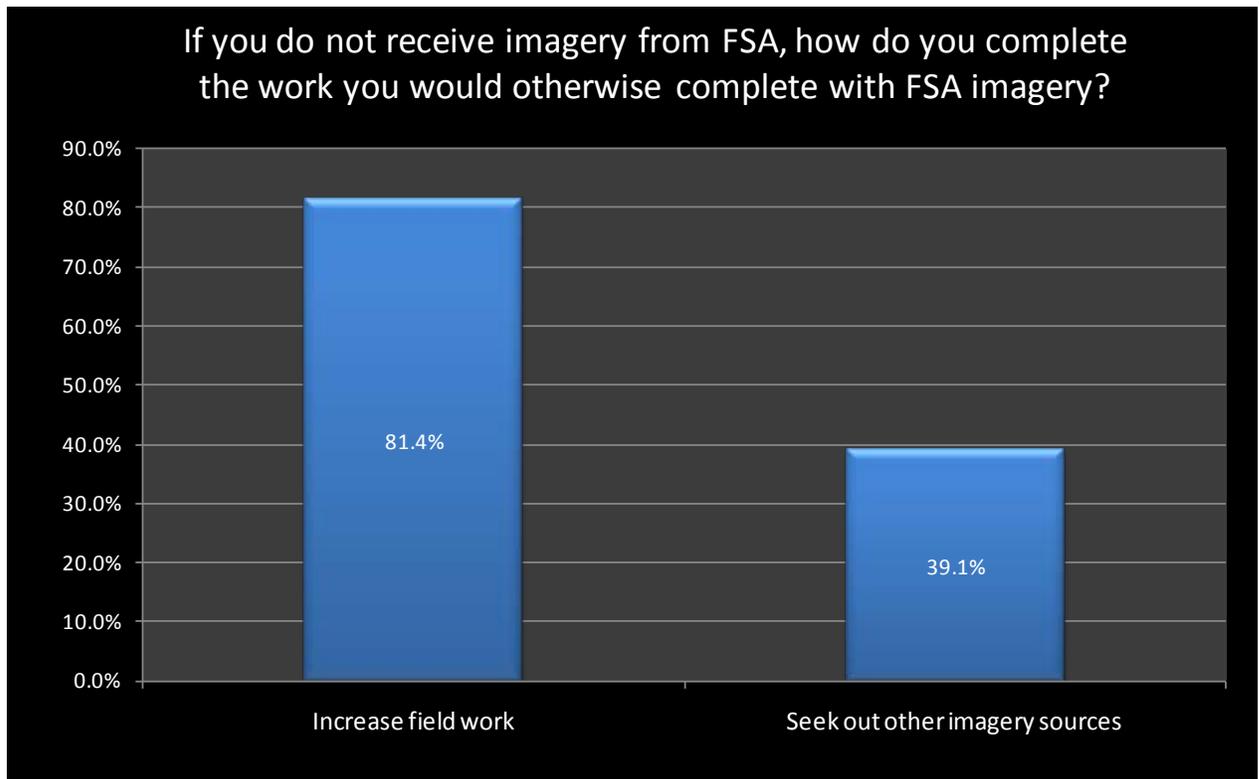
Question 27 –



Question 28 –



Question 29 –



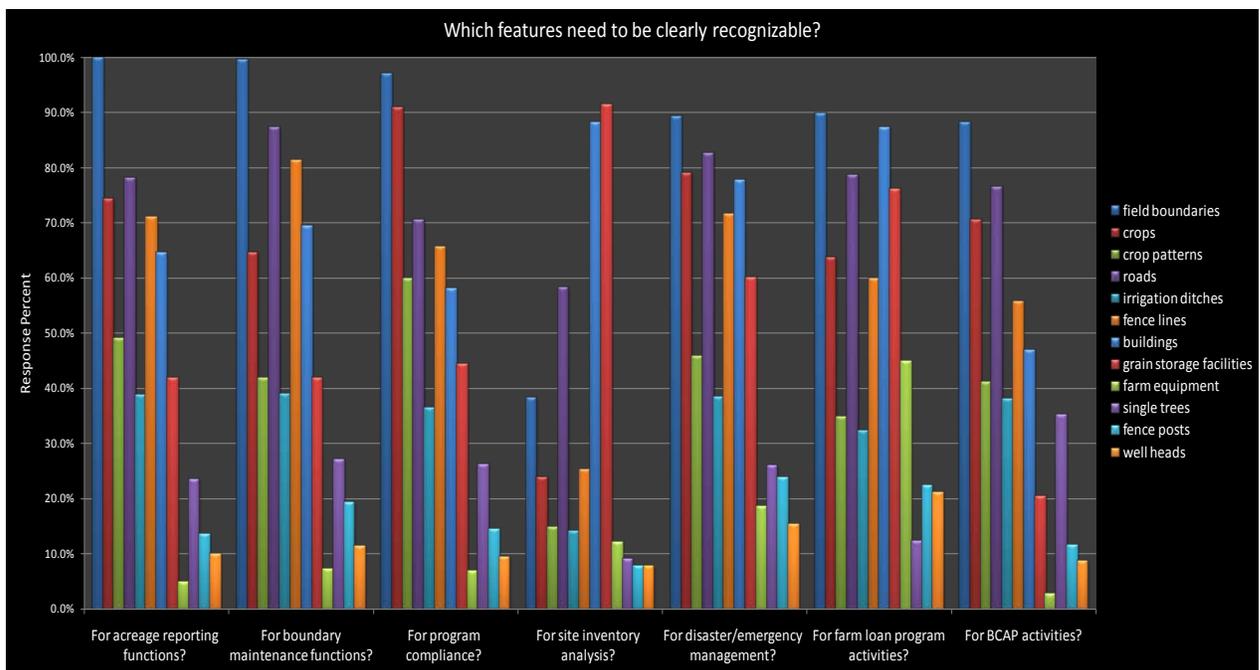
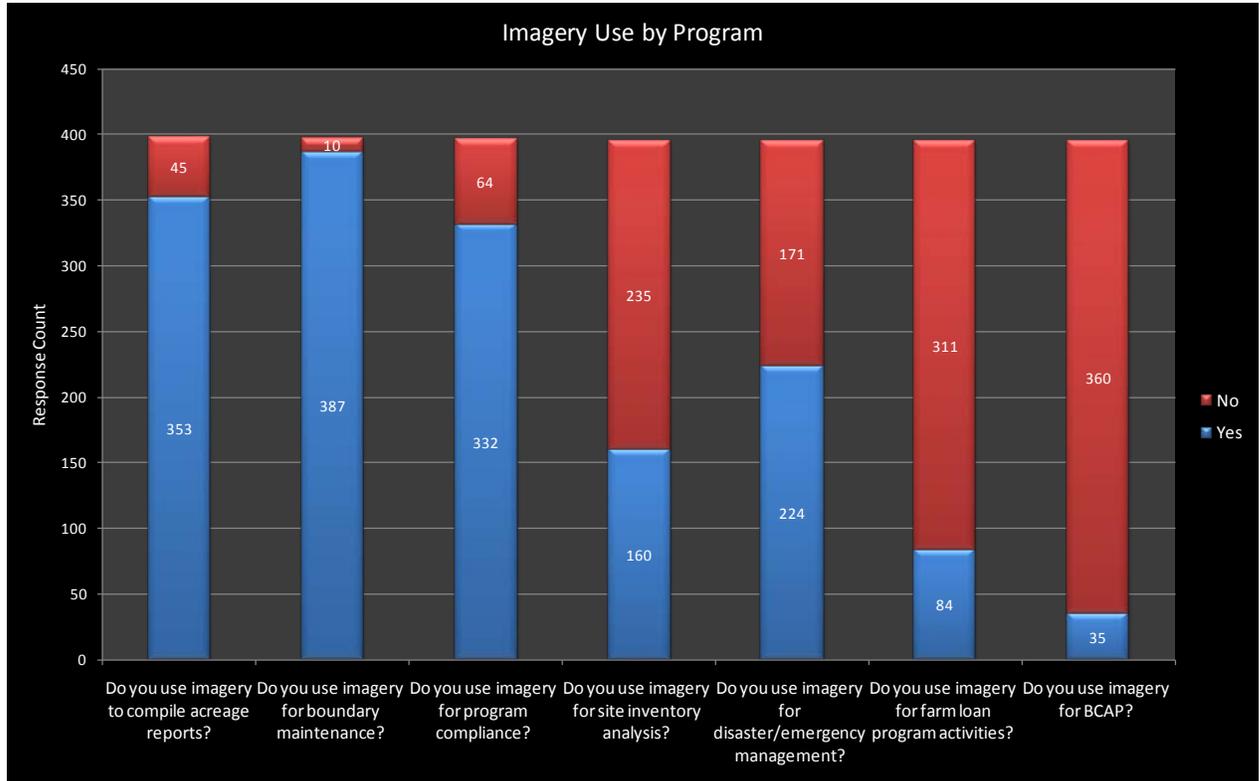
Question 30 – Please explain the impacts of not having quality current, accurate imagery to work with, in the completion of your work. Responses varied. Responses were plentiful, and ranged from increased field work, increased time to do work, decrease in compliance and spot check accuracy, increased fraud, waste and abuse, decreased accuracy in all aspects of work, to not being able to their jobs at all. A good summary statement of all responses would be that it would take more time to do the job, and the quality/accuracy of the work would decrease. Raw responses can be found in Appendix C. Responses have been edited for spelling, but not for content.

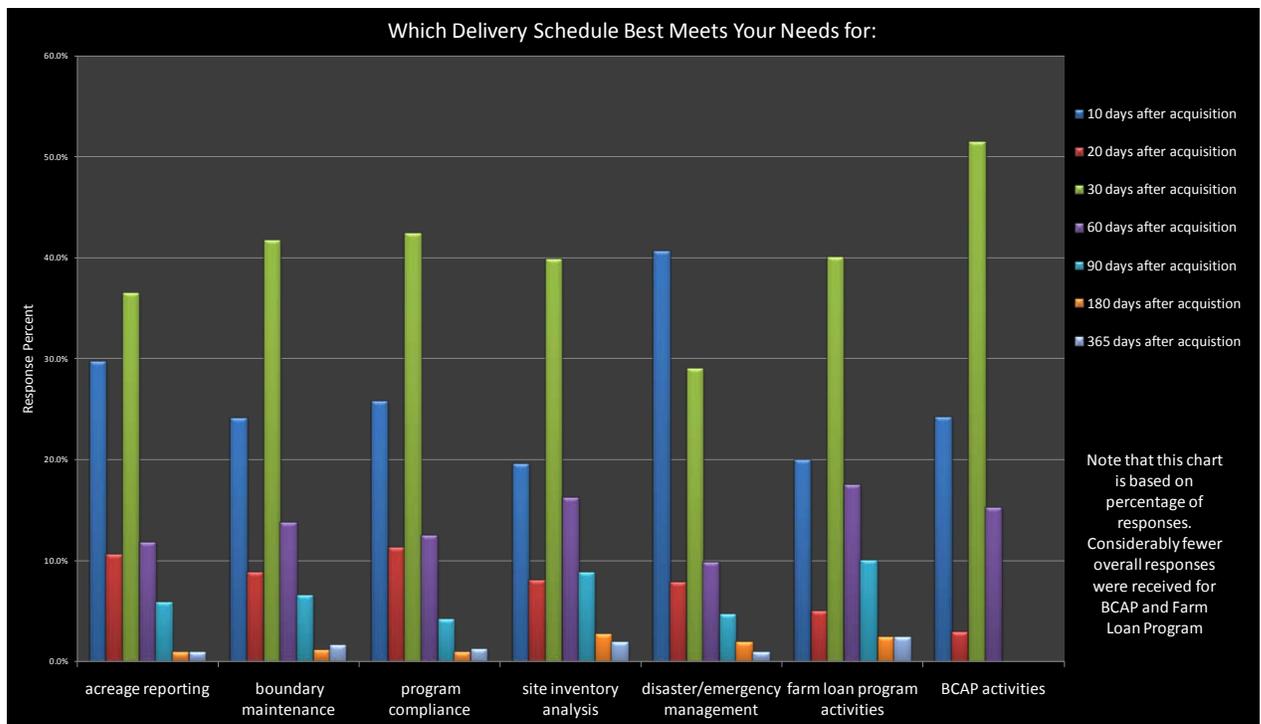
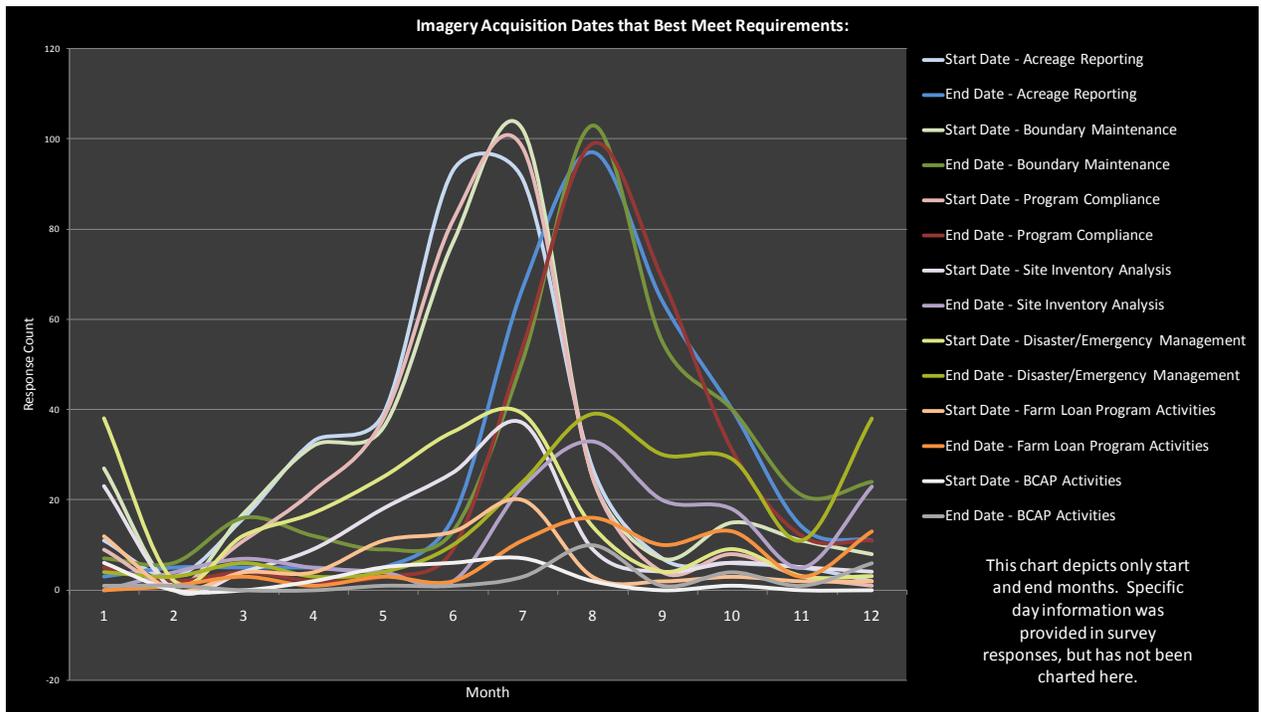
Questions 31- 86 – These are program specific questions. See Section 3.

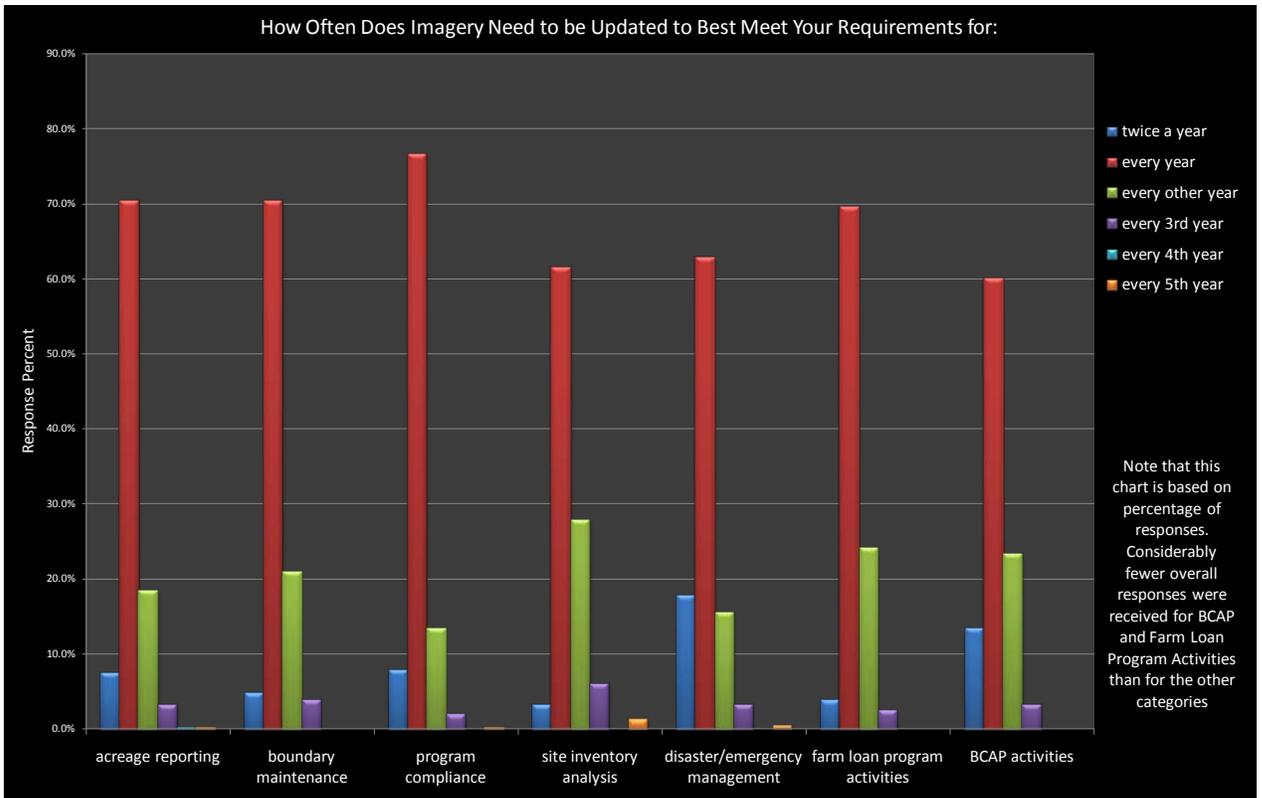
Question 87 – Is there anything else you would like to add regarding your imagery requirements? Responses varied. A few trends were noticed in the responses. First, there was significant discussion related to infrastructure, speed on use, thin client, etc. Also, several responses seemed to indicate that intermingling leaf on and leaf off acquisitions would be extremely beneficial. Raw responses can be found in Appendix D. Responses have been edited for spelling but not for content.

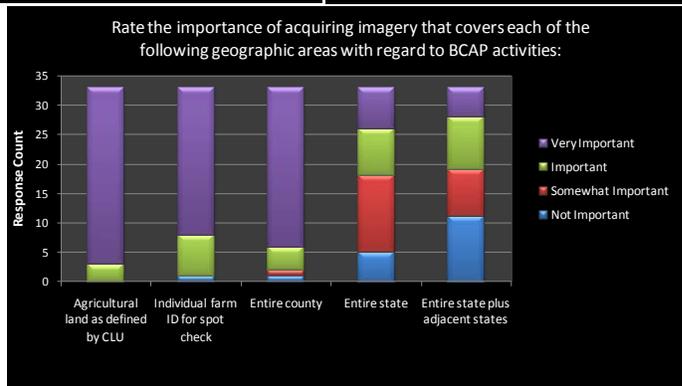
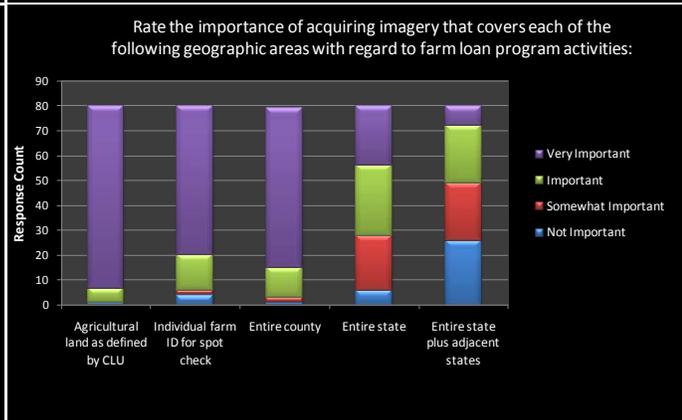
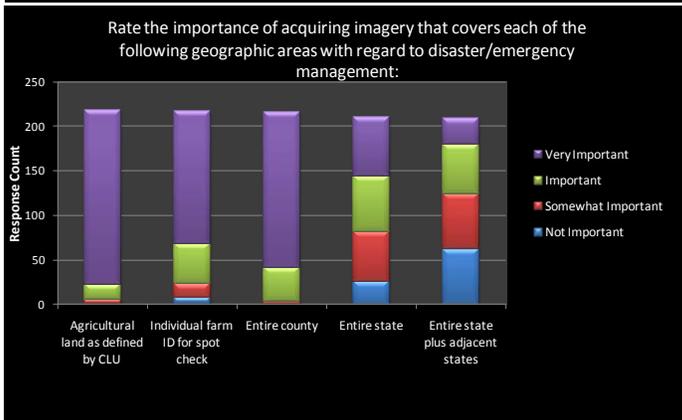
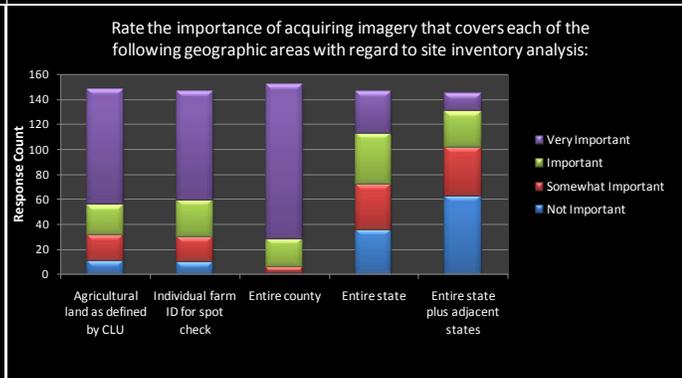
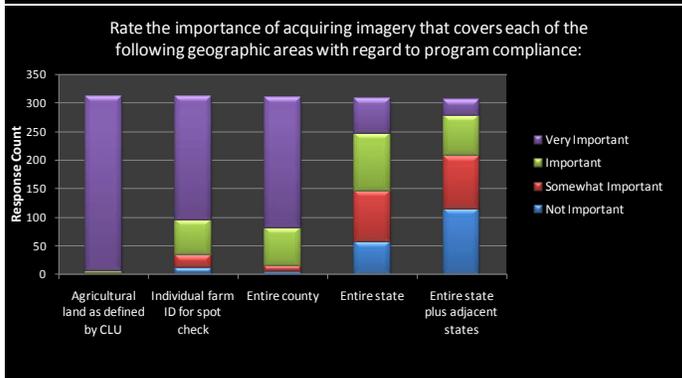
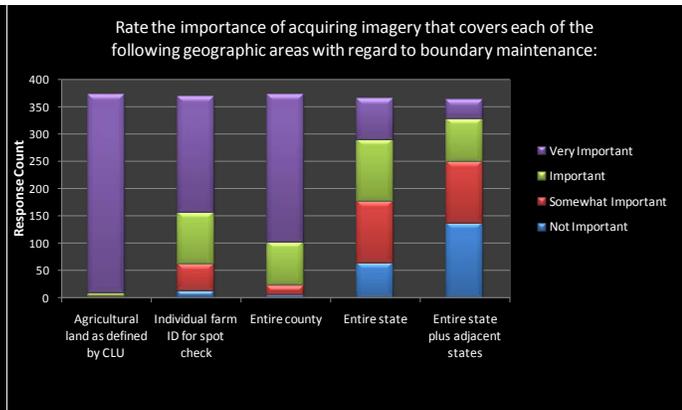
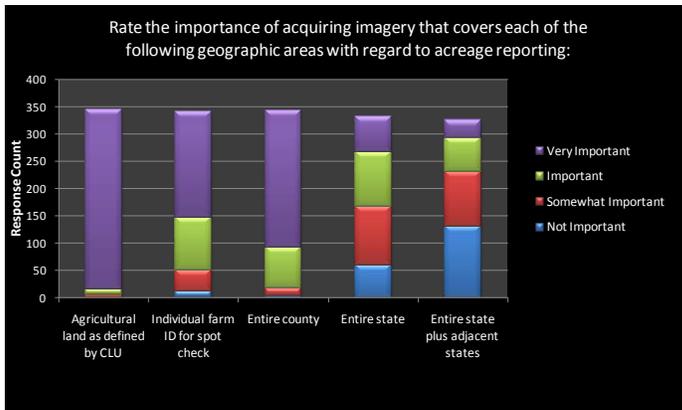
Section 3 – Program Specific Questions – Aggregated Responses

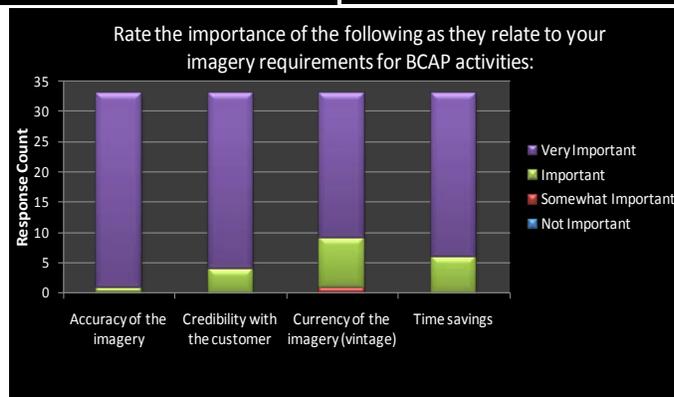
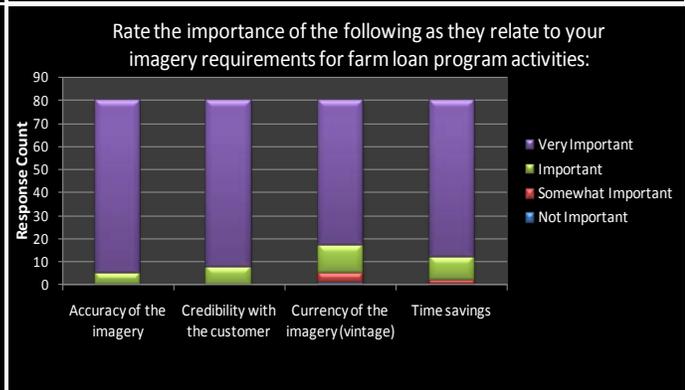
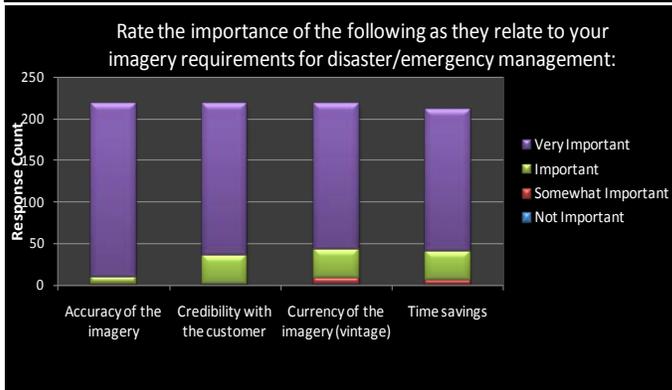
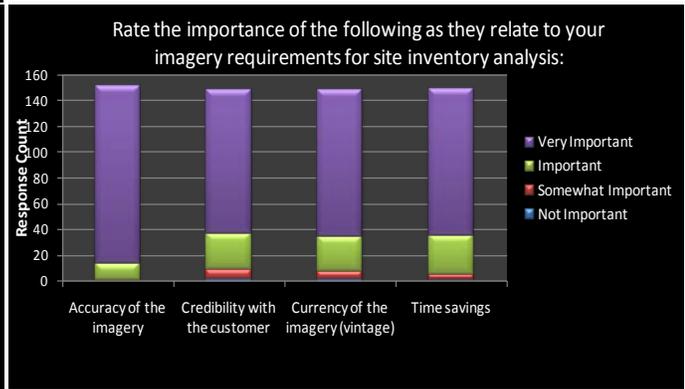
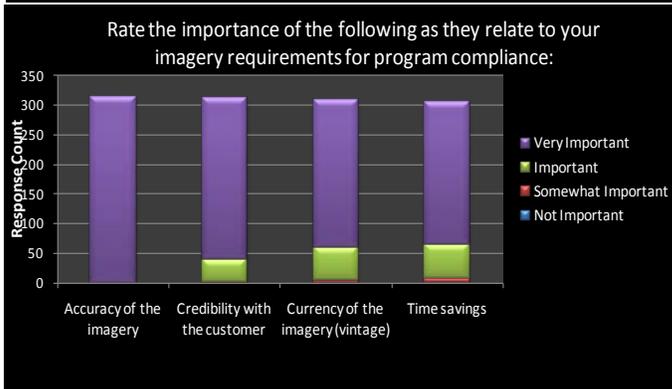
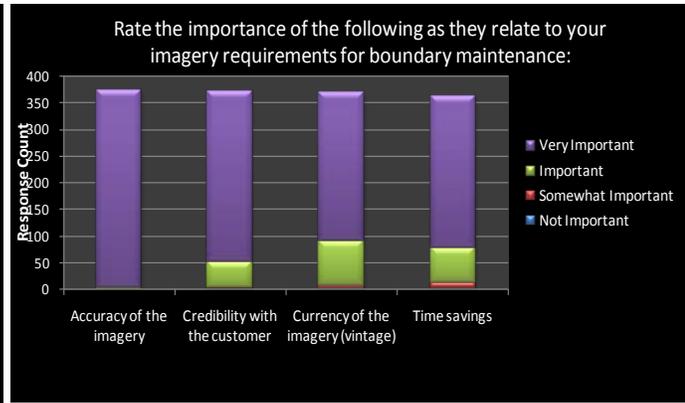
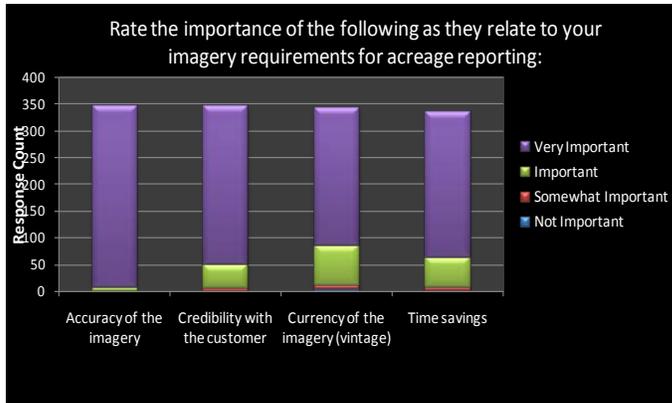
In this section program specific questions have been merged for purposes of simple visual analysis. Since each chart or set of charts references responses to 7 separate questions from the survey, question numbers have not been identified here.











Appendix A – What is the smallest object you need to see clearly on the ground in order to do your work?

The following bulleted entries are raw responses from survey question 7. Responses have been edited for spelling, but not for content.

- 1 foot diameter
- 1 meter-3 meter
- 1-Meter Imagery is sufficient.
- 20 square feet
- 20' x 20' building
- 3'X3' hunting blind, cattle
- 4 X 6 round bale
- 4 X 6 round hay bale
- 4X6 round bales
- 5ft x 5ft round hay bale
- 6-12 foot diameter tanks
- a building
- A clear decisive line on a field boundary is the most important thing.
- A distinction between crop practices. For example a plow line or a fenced off windbreak.
- a fence post
- A Tree
- a tree or small structure
- Barn
- barn
- Barn/House
- Barns
- barns & sheds
- bin
- bin site or fence line
- Bins
- bins
- BINS
- Bins
- Bins/buildings/roads
- boundaries between crops, roads, ditches, and streams
- brush
- building
- building
- Building
- building
- building
- building sites
- building, fence line
- buildings
- buildings and grain storage
- buildings of any kind
- buildings, esp. houses
- Buildings, Grain Bins
- Buildings, ponds
- buildings, round hay bales
- buildings
- bushes
- bush's used as land marks
- cattle
- center irrigation pivots
- center pivot point
- Center Pivot Point
- clearly be able to see a pond or large rock pile in a field
- Combine
- Corn stalks
- corner posts, waterways
- Creeks
- crop
- crop
- crop boundaries/pattern
- crop patterns & field boundaries
- Crop Rows
- crops
- Crops

- field boundary
- Field Boundary
- field edge
- field roads
- Fields
- filed boundaries
- Fruit trees
- Gas well heads
- grain bin
- grain bin ~30 ft diameter
- grain bins
- grain storage facilities
- grain storage facilities
- grain storage facilities
- Grain Storage Facilities
- Grain storage facilities (bins)
- grain storage facility
- hay bale
- Hay Bales
- hay bales
- hay bales
- Hay bales - large round
- hedge rows or other object 6-8 feet in width
- hedge rows, tree lines and other field border/boundary delineations
- house
- House and or new building
- house/barn-buildings
- houses
- houses
- Irrigation
- irrigation ditches
- It would be helpful to be able to see fence posts/fence lines. It would also be a great advantage to be able to identify the type of crop, but I didn't mark crops in the last question because we can function without that. If the budget continues to get smaller, being able to identify crop types in the office would be a big money saver.
- large hay bales
- large hay bales
- Large Trees
- Larger single trees or groups of smaller trees
- livestock
- multiple tree rows
- objects one meter or less
- On farms with small acreages, it would be helpful if you could zoom in to see "rows" of crops. Many of these producers grow a variety of several crops which are often NAP crops.
- Orchards/Trees, missing tree spaces, Tree lines, buildings
- Pecan trees
- Pivot center
- pivot irrigation well head
- Pivot tract and rock piles
- Plant
- pond
- Pond
- pond
- Pond
- ponds
- Property Lines
- roll bales
- Rooftops
- round bale of hay
- Round Bale of Hay
- Round bales of Hay
- row crops
- shrubs
- single tree
- single grain bins
- single medium/large tree
- Single Tree
- Single tree
- single tree

- Single Tree
- single tree
- single tree
- single trees
- Single trees
- single trees and hedgerows wetlands
- Small building
- small building
- small building
- small buildings
- small buildings
- Small Buildings/Structures
- small bush
- small bushes; blueberries, raspberries, strawberries
- small fields
- small fields
- small grain bin
- small grain bins / small grain storage buildings
- small rock piles
- small shed
- small structures
- Small Tree
- smaller farm outbuildings
- so far it has been trees
- springs & water systems in pastures
- square hay bale
- Square hay bale
- Stone walls
- stone walls (e.g., fence lines), evidence of erosion,
- Storage facilities - It would be nice to see smaller than that, but I don't think we have a program need at this time. Other agencies, local government may have a greater need.
- streams/rivers
- structures- grain facilities, barns and houses
- The center of irrigation pivots
- the crop and crop boundary
- tower of center pivot irrigation
- Tractor
- Tree
- tree rows
- Tree?
- trees
- Trees (rows)
- trees and buildings
- Trees which need to be removed from fields.
- trees/brush
- vehicle
- water troughs
- Well head
- Well heads
- Well heads
- Well heads
- Well heads
- Wells
- wetlands/non-crop lines

Appendix B – What other information do you need to know about your imagery product that you do not currently receive?

The following bulleted entries are raw responses from survey question 20. Responses have been edited for spelling, but not for content.

- Accuracy
- I can generally tell what time of year the imagery was flown because of what is growing.....except in these years of extreme drought; I need to know the resolution accuracy and the approx error % for skew.....helps with accurate measurements....that may not even be an issue with today's technology.
- Month when it was taken
- Resolution
- That it is the same scale as before so CLU fits the imagery
- The resolution would be nice - 1 meter, 2 meter, etc.
- Time of day acquisition was taken to account for shadows.
- We need to know how often we will be getting new imagery, so we can better plan for the future.
- While annual leaf-on imagery would be beneficial for compliance purposes, acquiring leaf-off once every 3-4 years is important for purposes. This is also the preferred method for other non-USDA customers.

Appendix C – Please explain the impacts of not having quality current, accurate imagery to work with, in the completion of your work

The following bulleted entries are raw responses from survey question 30. Responses have been edited for spelling, but not for content.

- Greater travel expense to verify field, crop, tract, and farm boundaries. 2. Increased visits to the farm and field for Measurement service. 3. More time spent out of the County FSA Office. 4. The lack of imagery would significantly hamper some of the work that the office staff is able to perform from the imagery. Staff would have to wait until verification of data was made on the ground. 5. Field reporters would be necessary to complete some of the data verification as the CED would not possibly be able to keep up in the large county operations.
- Accuracy of acreage is important for correct producer program payments. Inaccurate field areas would result in over or underpayments of most or all FSA County programs.
- Acreage accuracy
- acreages could be off due to new developments such as houses and other buildings
- Acreages need to be accurate - imagery must be clear to determine field & crop boundaries
- Activities that we would normally do on the imagery would have to be done out in the field and there is limited time, personnel and funds to do that, and it would cost the producer more in the end....
- Additional expenses incurred by COF. Undue hardship on employees.
- All measurement services would have to be completed in the field with travel. Verifying crop boundaries and crops raised would require a field trip. Accurate and yearly maps are required for reconstitution purposes.
- All of our programs require a crop acreage report. Good imagery allows us to ask pertinent questions and concerns on eligibility.
- An increase in field work would be required. Land changes would be impossible to detect. Making changes to the CLU would be a guess in many cases. All aspects of work would increase in duration along with a decrease in the quality of work performed.
- Annual flights are needed for a better picture of problem areas and to alleviate the necessity of fieldwork except to verify noncompliant observations. Saves time and \$ and with current budgets being the way they are we need some means to monitor noncompliance with conservation programs; disaster such as prevented planting. Especially when prevented planting can now be approved without a field visit. Certain producers (who give FSA programs a bad name) who scam and cheat know what our cycles are and every year when we get ahead of schedule on NAIP - noncompliance is noted in conservation programs such as haying or grazing by those who try to cheat because think they have no one watching. It also is a hard valid documentation of such violations. Farmers talk and when someone tells them we have no money for field visits- those few who push the limits will. Idaho has many remote and not easily accessed areas where it is easy to slip a few animals to graze on CRP when they know there will be no one checking. Those who know COC give a blanket determination that prevented planting is countywide may come in; report fields as prevented planting when in actuality they are both scamming FSA and RMA. Imagery is key to detecting trespass on federal lands; disaster areas and with the expansion of our program reaches to forestry and livestock; it has become a valuable tool. Without current and accurate imagery it will be impossible to decrease spending as far as it comes to program compliance. Compliance program has been stripped and without imagery - we might as well just give all who ask a check. Budgets have required states to let all temporary staff go which include summer interns, field inspectors and compliance staff. These temporary & intermittent employees have been a key in compliance and without them accurate and timely imagery is key. The NAIP program is very valuable to FSA.

- Any acreages will be inaccurate, resulting in inaccurate payments per acre for various programs.
- Are have to go to the field or use a I think this is the right point method
- As crop certification becomes increasingly crucial to administer disaster programs; current & accurate cropland acreage is imperative.
- At the county office level it is very important to accurate imagery services available. Without the imagery our work would be greatly impacted.
- At this time in my counties, we have new land going into crop production. New imagery helps draw the areas in crops more accurately.
- Boundaries, ground cover, and land usage change constantly. Having current and accurate imagery is vital to completing program work accurately and timely for customers and thereby using program funding wisely.
- By not having current imagery, our farm boundaries would not be as accurate, therefore, causing acreage to be inaccurate. In addition, it would be a disservice to the producer.
- By not having this imagery we are not able to effectively do our jobs. It affects all aspects of work, such as, crop acreage reporting, CRP, CREP, measuring fields and parts of fields, constantly changing land use from ag to non-ag, producers identifying new land, stream movement, ditches between fields, converting wetlands
- Cannot make changes to farms or determine acreages accurately
- Cannot make important decisions involving acreages
- Causes more travel/and time to complete compliance spot checks.
- Changes in land use are not readily tracked without up to date imagery.
- CLU border accuracy is also questioned. Travel budgets are very poor and we still need to complete compliance without losses to staff from budget cuts. One main need will for the use in disaster programs, land changes from flooding, fires, etc. The imagery can be used by FEMA and DES
- CLU is always changing, so current imagery is helpful if CLU lines need to be updated to reflect correct acres for crop reporting and disaster program purposes
- CLU is not as accurate as it could be
- CLU's from previous year's creation need to match up exactly with the current year's photography.
- Compliance and Updating of farm data would be very difficult. It would be expensive and inaccurate.
- Compliance checks, updating acreage is easier, less time consuming for COF than doing field measurement services
- compliance issues arise with older imagery
- Compliance operations would become very expensive or would cease to exist. GIS mapping would gradually become obsolete and only be useful for local history assignments.
- Compliance says it all. That's what this is all about. COMPLIANCE
- Compliance spot checks must be completed in the field with physical inspections. This takes many hours in the field and strains already tight budgets and reduces our face time with customers.
- Concern with processing appeals for CRP. Concern with updating the CLU with field boundary changes due to roads, farmers bringing new land into production, farmers taking land out of production, and changes made to field boundaries due to flooding,
- Correct field boundaries due to non agricultural changes which potential affect program participation and payments.
- Could not meet program requirements.
- Creates a great deal of added work for the County offices.
- Creates image that agency is not efficient and records are inaccurate.
- Cropland updates and compliance would require more field time. Without budget \$ it just wouldn't get done so program integrity would be compromised.

- Current imagery eliminates many situations that would require the use of a field assistant as well as the associated costs such as mileage, salary, etc. Up to date imagery helps maintain program integrity when the money for field work is non-existent. It can also help identify possible program violations, resulting in more accurate program payments and a reduction in fraudulent behavior.
- Current imagery is needed to help producers make accurate acreage reports when changes have been made to their farm such as tree removal or other boundary changes. I have at least 4 dozen farm maps that need work when I get new imagery and if I don't get it this year, there will be 2 years of acreage reports using only "guess work" for acres. Also NRCS would like us to delineate areas for sod busting and tree clearing before the work is done. Current imagery would allow us to correct these "imagined" lines as soon as the work is done. Current imagery is also needed for compliance work and to check historical crop boundaries for programs such as CRP and HELC/WC. Most producers do not let us know when small changes are made to fields. They see the "big picture" and to be accurate we need to see the "real picture". Sometimes the difference can be substantial.
- Current imagery provides a service to our producers by allowing the county office to discuss changes with the producer while they are in the office. This minimizes a producer's chances of contract violations due to cropland changes. Often times a producer makes changes after his crops are harvested and since they may not visit the office for several months, they forget that we are not aware of the change.
- Current, accurate imagery gives one a base line to review to get a good idea about the subject area without actually having to go to the field. Good imagery can allow one to find potential issues and resolve up front in loan processing with the individual applicant. If the imagery is current and accurate it can be used for compliance review process also, saving time for one can focus on tracts where it may appear an issue is versus reviewing all areas in the field.
- Current, accurate imagery is vital to my work. I maintain our land records database and without current imagery it is extremely difficult to process divisions of land. Also, without imagery that includes the crops in the fields, we cannot take a complete, accurate acreage report or complete compliance activities.
- difficult to identify areas of new breaking, urban development, energy development (wind farms and oil wells), unable to clearly identify areas of prevented plant acres
- Difficulty determining eligibility for CRP and other FSA programs.
- Don't know that I could perform my job at the same level of consistency that I do with the imagery that I currently use
- Due to continual work done by producers of clearing ground or creating conservation practices, the accuracy of our acres and field boundaries would be constantly out of date. Also, the expense of field work would increase dramatically.
- Due to the annual changes in cropping, it is very important for compliance purposes that we have a true current imagery.
- Due to the heavy traffic of oilfield locations, our jobs are significantly more challenging keeping the current status of farms updated in the Farm Record services. Due to CRP and other programs requiring correct certifications, current imagery makes our jobs easier.
- Environmental Assessments would be adversely affected. Debt for Nature maps would be more difficult to create.
- expensive field work or cost of obtaining other imagery sources when farms require spot check
- False reports, abuse of insurance claims, erroneous cost share payments, eligibility and conservation issues.
- farm boundaries are not correct therefore, farm acres and crop acres are incorrect
- Farm Records are a backbone for many of our programs. Imagery and GIS are used on a daily basis to create, modify, and spot check these records.
- Field boundaries constantly change and need adjusted for our counties, pivots are added often because of attention given to water issues in our county.

- Field boundaries may not be correct resulting in inaccurate acreage reports.
- Field boundaries will be inaccurate and it would be difficult to add newly cleared cropland. Farms would become harder to identify. Crop reports would become less accurate as the photos got older.
- Field work would be a tremendous factor; it would take 10 times as many man hours. Which would take a larger chunk out of the budget
- For Compliance determinations images must be high quality or they are useless.
- Gives the ability to provide more accurate data to our producers and aids when making map corrections to boundary line and cropland changes
- Hampers program delivery and accuracy of correct acres being reported.
- Having current data helps to detect changes in land use more easily. This is an important issue in Florida. Additionally, other US gov't agencies use this data for a variety of purposes so currency is important to them also.
- Having the current imagery helps us carry more accurate acres for the producer when they indicate they have brought land in or out of production instead of "guessing" and drawing in the dark.
- Here in California land use can change yearly, it is important to have current imagery to maintain and accurate and up to date CLU. Also with decreased field visits, if we had yearly imagery, we could do a faster and more accurate compliance checks.
- higher cost in completing spot checks
- Horizontal accuracy of 2 meters or less will increase the accuracy of the imagery from year to year, improve our credibility with our customers, and save time in the County Office.
- Huge lost time - easier compliance - service center boundary is over 200 miles from top to bottom
- Hugely increased time in the field for spot checks and measurement services. We also use imagery for CRP haying and grazing and certification changes.
- Hurricanes have occurred since the last image therefore the land and structures have changed.
- I think we certainly need to find ways to leverage the investments FSA has made in imagery acquisition. In my 8 years working with NAIP, we've really not had any guidance on how to do that. I'm thinking of remote sensing technologies. What we do with imagery depends on the programs we administer. But, here in Virginia, and in other fast growing states conversion of farmland to other uses has impacts on program participation, and producer compliance. I've heard that FSA GIS responds (reacts) to requests from program managers. My observation is that program managers don't have a clue what impacts GIS / Imagery can have. So, we have to get together and, as I said above, find ways to leverage the imagery investment. I think it has both political and economic contribution.
- I would have to do more field inspections
- I would not be able to do my job; we don't have the budget to go out and spot check in person. We have major changes every year that we need to be able to see, so we can get accurate measurements. We need to be able to see what crops are planted, and if Conservation plans are being followed.
- If imagery is not available, additional on-site field inspections will need to be conducted. Due to weather conditions, it could be difficult for office staff to travel to some of the locations due to water over the roads, etc.
- If we do not have quality current imagery we cannot help our producers with all of their needs
- If we do not receive imagery each year, it will create not seeing the manipulation of wetlands which has been a huge issue to date. If we could have complete imagery each year we could keep most work in the office and not have to go into the field to try and measure with the outdated GPS/backpack systems we have.
- Imagery is an integral part of the FSA mission, and having current, accurate imagery facilitates base mapping and compliance work.
- Impact agency's ability to update and maintain the CLU layer timely.
- Imperative to FSA Function, crop reporting

- impossible to keep CLU boundaries and thus acreage reports accurate and up-to-date, have to do more field work to do GPS measurements instead of in-office measurements
- Impossible to maintain farm records with outdated imagery.
- In order to maintain the integrity and quality of crop reporting, it is important to have imagery updated periodically to ensure proper field boundaries.
- In our area, there is rapid conversion of farmland to residential/urban use. This transition can affect farmers' eligibility for program payments, so it's important that we keep accurate acreage documentation on each farm and convert land that is not being farmed to non-ag use promptly to avoid erroneous payments to farmers.
- In this age of technology, there are no reasonable excuses for not having quality, CURRENT, accurate imagery. Farming operations, field boundaries, land use, etc. change every day. Up to date information is crucial for accurate records. If we are not provided current imagery, our records do not get updated timely. Farmers/ranchers visiting the FSA offices deserve to have their records as accurate as possible. Why are we not utilizing satellite imagery?
- In this digital age, it is important to keep current imagery. It not good when "Google Earth" has more current imagery and our customers let us know that it does.
- Inability to collect accurate and current information.
- Inaccurate acreage reporting
- Inaccurate acreages get reported and then the producer could be liable for errors in reporting crops and their acreages.
- Inaccurate acreages, due to large of oil well drilling
- Inaccurate crop and acreage reporting
- Inaccurate crop reporting, inaccurate fields, loss of credibility with producers
- Inaccurate crop/acreage reporting with the potential to result in overpayments or program ineligibility.
- Inaccurate issue of payments. Requires more field work and measurement services. Poor farm information regarding acres and distinguishing irrigated and non irrigated acres, verifying fields being planted. Numerous reasons as to why poor imagery affects the accuracy of our work
- Inaccurate work that reflects in all programs we handle.
- Inaccurate work, poor credibility and customer service
- Inadequate reporting of crops, incorrect farm records that could result in issuing erroneous payments to producers. Current, accurate imagery is a must for the agency to operate efficiently.
- Inadequate service to producers affecting their crop reporting and acres for insurance and program purposes. Inability to quickly see conservation violations.
- Incorrect acreages that could result in incorrect payments.
- Increased field work, increased costs, increased need for additional manpower and increased time needed for completion.
- Increase of spot checks and measurements services in the field.
- Increase the amount of field work and the expense.
- Increased field work time spent for field work for field/crop location and acres and for spot checks
- Increased field work without access to a vehicle and in a one person office, office has to be closed.
- Increased field work, decreased accuracy, decreased producer service, and ultimately decrease efficiency.
- increased time, increased travel, less certain of accuracy
- Increased travel and field assistant expenses, slower delivery of completed work product. Much less efficient.
- Increased workload
- increasing amount of ground being broken out places a greater need of establishing field boundaries

- It becomes very difficult to accurately maintain farm records when imagery is not received annually. The lack of current quality imagery increases the costs associated with on the ground field work.
- It complicates our daily work especially during acreage reporting times.
- It creates a hostile environment with producers because our records are not current.
- It greatly impacts the completion of my work. For example, when our county received the 2009 imagery, a portion of the imagery that was associated with quite a few of our producers was unusable due to missing imagery. There have been many changes in this area and I will not be able to update the CLU layer until the next imagery is available.
- It is difficult in verifying applications for programs.
- It is difficult to assess the accuracy of cropland and/or the acreage that is to actual use for a specific year when there is ongoing commercial and/or residential development.
- It is extremely important to have current and accurate imagery within our office. We use imagery data for almost every program, crop insurance reasons, and disaster programs and definitely for compliance purposes. Without accurate and current imagery our efficiency and accuracy in conducting business would be hurt.
- It is hard to know where to locate boundaries when the image is blurry. When imagery does not correctly align with the previous years your CLUs are all off and producers don't like to see the CLU lines in their fields.
- It is important to me to have yearly imagery so I can correctly divide fields for Recons and do compliance checks which minimizes travel and field visits, saving on budget.
- It is the bases of all farm records and affects all aspects of our work at FSA
- It is the basis for everything we do. If we don't have accurate current imagery we can't be accurate in our program administration.
- It makes is difficult to update current land use and boundaries.
- It provides poor customer service without quality imagery. Many customers are using GPS to measure fields at ground level before reporting crops to FSA. FSA needs imagery that is current with field boundaries that are identifiable. Tree shadows in imagery cause a lot of measurement errors as compared to GPS. This results in poor customer service. Our measurements and the ground measurements should be very close.
- It requires us to "guess" at field changes as advised by producers. We almost daily have producers who need to change field boundaries, due to reconstitutions, home/shop building, or other changes in land use. Without imagery, we have to attempt to figure out what the actual boundaries of the changes are. We "assume" what they told us they planted is accurate and true. Increased field work/cost to travel to areas to perform spot checks.
- It requires increased field visits when imagery is not up to date and it decrease efficiency.
- It will increase travel expenses as COF personnel will have to travel to the field to perform work as needed.
- It would affect the ability to be able to determine the effects of development on our cropland, and accurately draw field boundaries.
- It would be a great negative impact in our ability to do compliance work for producers.
- It would be impossible to complete, even know with so much development and ownership changes I feel we are behind at times, and it frustrates the producers that we could be forced to use imagery that is not reflecting the current lay of the land.
- It would be impossible to do my job adequately without quality, current and accurate imagery. I would have to go out into the field to do any spot checks whatsoever. I could not make simple acreage determinations when producers make their annual crop reports. Creating or modifying land use boundaries would obviously be less accurate resulting in inaccurate and unreliable calculations of yields, program benefits, and insurance benefits.

- It would be very difficult to complete our job. FSA, producers, and other agencies have become very dependent on the imagery. In our area the fields are so large it would be a huge disadvantage as far as accuracy is concerned.
- It would be very hard to measure and do compliance without up to date imagery
- It would greatly hinder the ability to do our work, and after several years would make it impossible to complete the work that is mandated by law.
- It would greatly increase the man hours for the increase in field work.
- It would keep us from accurately updating your maps and make spot checking more difficult.
- It would make crop reporting much more difficult. Would also make map corrections a lot more difficult.
- It would make my job completely impossible.
- it would make our job all but impossible
- It would require much more time to be spent on the farm measuring and locating specific areas. Taking crop reports would be nearly impossible.
- Jeopardizes compliance with FSA programs
- keep up to date on buildings roads and other construction on crop land
- Lack of proper map documentation for customer files
- Large quantities of time and money spent in the field doing manual GPS. Not being able to spot check accurately without doing a field visit.
- Less accurate crop reporting. Harder to determine when noncompliance issues occurred. Less accurate CLU.
- loss of historical data for future program eligibility purposes
- Loss of time and production doing my daily work. Like the ease of calling up and printing the image.
- Lowers the accuracy of information giving to producers.
- Major impact in regards to integrity and implementation of farm programs. Without accurate imagery, the programs implemented could and would be seriously compromised.
- makes accurate reporting very hard
- Makes it difficult to take accurate crop reports.
- Makes the job nearly impossible.
- Many cases it is not done or unreliable. When dealing with programs after the fact it requires more research of files. In many cases we are unable to prove violations or eligibility.
- Many FSA programs are acreage-based, Imagery is at the core of resources that are required to carry out our responsibilities. Accuracy and quality help us make the best use of the taxpayer dollar; therefore, inaccurate imagery can contribute to inaccurate measurement, inaccurate findings, or violation oversights.
- Many FSA programs assisting the American Farmer depend on acreage and reliable acreages determinations in order to process and/or evaluate regulations of these programs. Inaccurate imagery or imagery of poor quality would undermine our credibility with the farmer as well as our ability to serve them.
- Means more time/work, traveling to farms, measuring & adapting photocopies to actual field conditions
- More expenses involved with field visits in a time when there is no funding available; and increased time spent with producers.
- More time and less accurate.
- Needed for required crop reports.
- No imagery would delay many tasks that we complete, such as cropland changes on CLU's until that time when we would receive new imagery.
- not able to show producers accurate acreage planted to crops, etc
- Not able to verify crops planted, new ground, chicken houses, hog farms and cropland changes.

- Not applicable
- Not being able to accurately delineate current cropping lines for compliance and other reasons.
- Not being able to take out non agricultural areas, such as building and/or houses.
- Not enough time or employees to do the field work.
- Not having accurate imagery impacts a producer's total acreage which then impacts program areas such as the SURE, ACRE and NAP programs when calculating yields and payment acres.
- Not having accurate up to date acreages for cropland and pastures would be difficult to have the disaster programs and DCP program payments made correctly.
- Not having current quality imagery would affect the majority of the work we complete in the county office. It is very important that imagery is current to keep the office and producers current with production.
- Not having current, accurate imagery will result in many of our FSA records to not be up to date. Government payments to the producer hinges on accurate field boundaries. Many producers break & plant new cropland areas & fail to accurately report them to us. In addition, cropland that has recently been devoted to non-agricultural needs to be drawn out & CLU's adjusted accordingly. Many conservation programs look at the crop planting history on an annual basis using imagery. Producers are required to accurately report these areas; however, without imagery it is very hard to make compliance determinations. Field work is very expensive & not as accurate. Also, imagery is used to determine disaster areas in our county for disaster payments.
- Not having current, quality imagery drastically reduces the integrity of our agency. Every aspect of our programs is based on the imagery we provide to the producers for them to certify with FSA.
- Not having currently/accurate imagery causes the county offices to fall behind with keeping track of land use changes.
- Not having imagery affects the accuracy of our CLU's since land changes occur every year. It limits the services we can provide our producers and would increase the field work for county office employees at a time when cost savings are most crucial to the county office.
- Not having quality, current, accurate imagery makes it difficult to complete our work. Having it allows us to see 'non-compliance' issues without waiting for a whistle blower. The more accurate - the more that we can see. We could even see tile lines this year which makes it easier for farmers when wanting to do tile maintenance. Having quality imagery helps us to see what we are getting into, before going out to the field, and may in some cases negate the need to go out in the field.
- Not having quality, current, and accurate imagery would make certification more difficult, as well as making more difficult to complete random daily tasks such as environmental reviews for Farm Loan Programs.
- Not only would the efficiency of our work suffer, but also the quality and integrity would decline. It doesn't appear we will ever be able to have enough staff to do the work, so we must take advantage of these tools to work more effectively.
- Not receiving imagery yearly increases the field workload requiring all spot checks to be completed by field visit and GPS measurement service. Not receiving imagery also leads to inaccuracy when delineating cropland changes and completing ownership changes. All changes made in years without imagery have to be kept on a register and then reviewed when imagery is received. This includes any CRP contract enrolled in years with no imagery.
- Not being able to keep up with all the land changes as well as being up to date with the producers. harder to certify with incorrect imagery
- Our producers expect office staff to be able to view and measure CLU as requested. We need good tools to do our job.
- Our programs are annual. Outdated imagery erodes customer confidence and our ability to conduct timely program delivery in a cost effective manner starting in the COF.
- Our work will not be as accurate and may lead to improper payments

- Outdated imagery will decrease our credibility w/our customers, it will decrease the efficiency in the office, it will decrease our accuracy of our work and it will lead to missing important changes/updates that occur since the last imagery.
- Poor customer service, inaccurate acreages for crop reporting.
- Possible violations and other criminal activities.
- Producer acreage reports would be incorrect, boundary lines could not be updated as needed, changes could not be timely documented, federal and state agencies and private businesses that rely on the imagery would be using outdated data to make current plans and decisions.
- Producers are always changing things, field boundaries, conservation structures, fences...so it is important to keep the CLU layer as accurate as possible.
- Producers are constantly reporting housing lots being taken out of cropland. Many are also installing new irrigation systems.
- producers cannot identify crops for acreage reporting
- Producers like to see updated imagery showing field changes or boundary changes that happen during the year.
- Producers' participation in our various programs could not be completed correctly. This would result in inaccurate computation for payment.
- Program compliance depends on accurate reports made with GIS.
- Program eligibility can be compromised
- Quality imagery is essential for small acreage certifications, site identification, and producer confidence in our services.
- Quality of course is directly related to accuracy and most important current imagery is a record of activity on the ground saving time and money for program verification (field work)
- Quality imagery is definitely one of the most important tools we use. Not having good imagery would make our job difficult, if not impossible in many situations.
- Quality imagery is our only means of accurately determining the location and acreage of cropland which is the foundation of every program. Accurate imagery prevents having to adjust the CLU layer to a new base layer and saves thousands of man hours. Current imagery increases the relevance and credibility of our data and specifically our acreage reports.
- Regular spot checks would have to be done in field and with budget being tight that might not happen.
- Requires more field work, time and expense. Loss of credibility with customers.
- Requires time and resources for field visits to acquire GPS data for map updates.
- Resolution of available imagery needs to be more defined in order to make out defining characteristics of farms.
- Results in missed data & harder time helping our producers
- Run the risk of making improper program payments on "guessing" if land is cropland, other ag or non-ag
- Slower turnaround times for administered services: measurements for stored grain, planted acreage and conservation programs, as well as reporting of crops for production, insurance, and program compliance.
- Substantial delays in processing requests.
- Takes longer to complete projects with more cost. (So time and money)
- Takes out a lot of guessing.
- Task would not be possible in today's GIS environment and decrease efficiency and accuracy
- The imagery allows employees to stay in office to make field use determinations.
- The information is a valuable tool for us and the producers.
- The need for current and accurate imagery is very important to maintain farm records, assist with crop reports, acreage determinations when needed. One important layer that is also needed is a survey layer as identifying land based on property descriptions is very useful and helps with land

disputes and appeals. The imagery has also proven to be very helpful with certain program appeals.

- the whole compliance program would lose all integrity without accurate imagery
- There are a lot of fields that are restripped or irrigation circles being added. Plus field boundaries are constantly changing.
- There is a great deal of natural gas drilling activities that requires removal of cropland and CREP/CRP acreage. This county has over 900 active CREP/CRP contracts. Without annual imagery program integrity is compromised.
- There would be major increases in time and expense of having to do increased field work and extra personnel to complete compliance activities required by law.
- This can cause many problems with accurate producer reporting and compliance determinations
- Time is money and in today's budget crunch we don't have the funds or time to make field visits to make CLU and boundaries determinations when we are responsible for such large geographical areas with varied topography and vast broken tract of forest lands
- Time is the essence. Also, it would cost the government less money than field visits.
- Time savings; field reporter wages.
- Time spent doing actual field work/farm visits to verify crops and other land use becomes difficult.
- Time spent out of the office, travel expense, and workload.
- tough on budgets and availability of time
- Unable to accurately determine CLU boundaries which would result in more field work which would take more time and be more costly.
- Unable to certify acreage amounts and field boundaries.
- unable to complete field timely, more expensive
- Unable to maintain a accurate Common Land Unit database, and intern reducing the accuracy of payments to producers.
- Unable to tell if buildings have been erected on cropland acreage. Unable to see if the acreage is being maintained as it is supposed to be.
- Unable to update maps and CLU layer without spending large amounts of time in the field.
- Unable to Update or Draw new CLU data--> cannot update current acreage reports for producers--> incorrect payments
- Unreliable spot check resources, unreliable crop reports and acres.
- Up to date imagery is very important in our county. Our producers are constantly making changes in the acres that are farmed.
- Updating farm records due to land use changes. Identifying program violations
- Urbanization changes occur quite often, so it is necessary to have complete, current and accurate imagery
- Very difficult to accurately certify crops, difficult for spot checking purposes for compliance with FSA Programs.
- very discouraging to producers not to have accurate information
- Very frustrating that you cannot tell what has gone out of production and is not being farmed.
- Waster time on producing maps for land no longer in ag use; leaf on imagery takes more time to explain to each producer boundaries
- We are the major record holder of all agriculture land. No one else has our data base. Water rights and court actions are impacted by what we/have on file. Businesses use the records to determine fair and non bias billings. It would be a shame not to have a quality product for the landowners, public and national security.
- We cannot take accurate crop reports which results in inaccurate planted acres, disaster acres and sometimes payment acres. RMA also uses our crop reports for insurance purposes.
- We cannot take accurate crop reports without accurate field boundaries. We make payments bases on this information and so does crop insurance. Accurate crop information is the basis for many

- FSA and other agency programs. Without imagery we will be unable to see possible wetland and HELC violations and many of these will not be found timely.
- We can't accurately measure and verify farm fields.
 - We could not provide our producers with accurate information which could disqualify them from many government programs
 - We have a lot of sod busting done in this office. It would really help to be able to see it. Also with the flooding it would help with the disaster programs
 - We have many changes to our cropland use being around a city that is expanding and in a county that has many new farm sites/acreage homes every year.
 - We need current imagery during reporting time showing field boundaries to determine acreages planted.
 - We need current imagery to stay knowledgeable of the changes that happen in the Metro area.
 - We need high quality, up to date aerial photography to support the mission of our agency.
 - We need imagery every year for historical purposes and to continue to be progressive with the most up to date information for our producers, our agency & sharing information with other agencies.
 - We need leaf off imagery at least once every 4 years
 - We need to be able to see newly built houses to take them out of ag, cleared woods to put back into ag production.
 - We need to receive the imagery so we can check for sod busted acres, etc.
 - We often have owners and/or operators who feel their acreage is not accurate because of surveys, tax office records, what they have been told, etc. High quality, accurate, and current photos allows producers to see what we are measuring, and allows us to make changes if necessary. Having up to date imagery helps us insure the accuracy of cropland and base acres on the farms.
 - We use the imagery daily with producers applying for a variety of programs.....some involving crop acreage reports, pasture identification and conditions; owner/operatorship issues, disaster identification; conservation needs (where are tanks/ what is the extent of brush and tree canopy? where are area of problematic noxious and invasive plants?; etc.....if you can't see them on the imagery, you are left with every one making judgment calls on what is going on. Also, my biggest problem has been accessing the imagery that I have now.....it is like not having it at all since County has been "migrated". I have had several producers ask me if we were on "dial-up". This did not happen before migration. Now producers have to bring in info from "Google-Earth"...or we just have to guess at it or "get it later when the system works".....very embarrassing.
 - We would have to do a lot more traveling to ensure that farmland is still farmland given the urbanization in this area
 - We would not be able to do our job, at all.
 - With current maps, producers and staff are able to more accurately correct field and tract boundaries.
 - With decreased budget, which affects our travel, we are becoming more reliant on the imagery for compliance purposes.
 - Without accurate imagery, we can't be accurate updating our CLU layer which affects our office credibility with producers and the reliability of acres for Farm Programs. If imagery is not updated annually, we need to complete field visits to update the CLU layers for cropland changes. Field visits are time consuming and expensive.
 - Without current imagery the increase in field work would be immense. Spot checks, measurement services and general upkeep would all require field work.
 - Without current imagery, all work is done in the field with GPS greatly increasing time and expenses
 - Without having accurate imager it would be difficult to complete any work. Our county office uses imagery to verify CRP acres, measuring services, spot checks, and to determine acres for

acreage reporting. Also producers rely on our maps to help with their own operation, using them with fertilizer companies, crop insurance, and for Nutrient Management plans.

- Without Imagery there are increased field visits. It is also more difficult to track farm changes. Current imagery is very important for program integrity, especially where (due to budget) travel funds are limited.
- Without quality and current imagery, I am unable to identify areas that have changed that would affect our current field boundaries. Also we are unable to do compliance checks in the office and would have increased field work.
- Without quality current, accurate imagery we would not be able to load correct acreages for all our necessary programs and for RMA purposes. This could directly and indirectly affect producers and their payments.
- Without quality, current, accurate imagery to work with, we could not provide the quality and reliability of service to our producers, as they have come to expect and trust from the FSA.
- Without the current and accurate imagery, we are not precise in our records. Not being correct in our records with the producers, can cost the producers inefficient insurance amounts, as well as affect the programs they participate with in our offices.
- Without the imagery we spend more time in the field, more man hours are spent with less accuracy and efficiency.
- Without the imagery, it would increase visits to the field to insure the accuracy of what has been reported by the producer. And in many cases, the producer asks for measurements on their fields and with quality Imagery, we can do this in the office. Also in cases of natural disasters such as wildfire, it is very useful to have good imagery to help identify burned areas and fences, poly pipe, buildings etc.
- would be impossible to do the job we perform when it comes to reporting crops accurately
- Would be unable to complete required work
- Would be unable to update CLU's and perform aerial compliance.
- Would have to travel to the field more.
- would increase field work, decrease accuracy of data, hamper the reliability of analysis of the different tracts of land, prohibit accountability
- Would increase workload and cost travel money
- Would make farm reconstitutions and CLU maintenance more difficult due to constant changes in everyday farm operations.
- Would make our jobs very difficult and timely to complete tasks.
- Would not be able to provide accurate crop acreages to producers. Accuracy of contract acres and payments would decrease,
- year spot checks of crops for compliance
- You can't see the changes taking place.

Appendix D – Is there anything else you would like to add regarding your imagery requirements?

The following bulleted entries are raw responses from survey question 87. Responses have been edited for spelling, but not for content.

- Software glitches include: lost connection to printer, kicked off web, lost indicators for CLU selected, color wheel not functioning 2) High usage nationwide caused: multiple shut downs, error message requiring computer re-start, snail-style processing of vertex moves/template load/toggling to only one farm/minimize annotations/changing layers in use (Everything was bogged down to a crawl which is detrimental to production during increased customer activity.) 3) Work interruptions require longer timeframe before program shutdown - multiple "refresh" and attempts to re-open GIS - may take up to 20-30 minutes before program will restart after automatic shutdown.
- 2011 imagery was very nice for our county...thank you.
- Access through Citrix is very slow and a pain in the you know where !!!!!
- Accuracy is very important when updating aerial photography from one year to the next, so that all existing CLU's line up each year. Thanks!
- Aerial imagery and GIS are the best advances made by our agency in the 30 plus years I have been working. Farmers, landowners, technical service providers, insurance companies, foresters, real estate and taxing authorities constantly use the imagery in the execution of their daily businesses. One of the absolute best services that USDA/FSA can provide to their tax paying constituents. This is why it needs to be accurate and current.
- As for the question about if we preferred leaf on or leaf off. We actually prefer both depending on the geographical area. In the cropped areas of the State, we need leaf on. However, in the wooded/forested areas, we desperately need leaf off. In the areas where we were able to get leaf off the one time, those counties were very excited about the imagery. They were finally able to see roads that were never before visible. Also, many CLU delineations were made much more accurate by not having the canopy block field borders.
- At certification producers notify us of changes on their farm and we are to make changes to their farm BEFORE Oct 1 if taking land out of production. Having imagery in Aug would help us be more accurate instead of drawing in the dark and having to go back when we get the imagery and adjust if need be. It is double the work
- BCAP is not an active program with us at this time. If it became active, then the previous answers would hold true with this program also
- Because of the large volume of acreage changes in our area, annual imagery is extremely important. Without new imagery this year, our office will have a large increase in field cost and delayed services provided to producers. Thank you for the opportunity to provide input.
- Clear and true color imagery. The last couple of years the imagery has been either blurry or the color wasn't correct.
- Consider making budget reductions in some other area. Annual photos are an invaluable record for administering FSA programs.
- Current imagery is essential to the county office. It seems that as large as USDA is, that partners could be found for imagery for yearly imagery. Many commercial applications use imagery which is updated much more often than yearly.
- Due to the difficulty encountered acquiring FL data during spring/summer, the acquisition period is very long. It would probably be preferable at this point to go leaf off to collect faster. Additionally, this would help in partnering with state gov't and other agencies. The last section of this survey is unnecessarily redundant and will no doubt result in numerous calls from field offices with questions on how to answer and complaints about the repetitive nature in the req'd responses.

- Faster Processing Speeds when viewing and updating maps and CLU projects.
- GIS is functioning way too slowly. Edits take too much time. Performance needs to be improved without sacrificing quality of imagery.
- Hampden County, Massachusetts needs to have imagery taken of the path of the 6/1/2011 tornadoes in order to carry out EFRP requirements.
- Hard copies of imagery are not necessary as long as they are available for purchase by outside sources for a reasonable price.
- Hate when I am working on the layer trying to do a pivot and I am called to the counter for over 15 minutes and when I come back the system has shut down and all my work has disappeared. The system timing out is a big problem. Having the layer and the map marker not keeping up with changes and having to export all the time to get an updated map from the layer-is time consuming and a pain. Also editing lines is a pain- you move a point and it takes forever for the system to move the line. With all that- it is still wonderful to work with the layer and all the different editing tools available.
- Horizontal accuracy for NAIP. The key is to provide a product which has sufficient clarity to be used for multiple programs keeping in mind the cost/benefit ratio. The imagery product being provided has been a handy tool to have available to use in every day processes. Note: Question #3 - did not allow one to just put info. in the other box so had to mark Program Technician and list in other box - Farm Loan Officer
- Horizontal accuracy of 2 meters or less will increase the accuracy of the imagery from year to year, improve our credibility with our customers, and save time in the County Office.
- I believe that determining where our food is grown is FSA's single greatest contribution to our nation. NAIP imagery allows us to efficiently accomplish this mission.
- I feel that it is extremely important to receive new updated imagery each year. Without new imagery, many of our services will be delayed a year and our records maintained in our office will be much less accurate and producer friendly. I also highly recommend a horizontal accuracy of 2 meters. This quality will make our work much more accurate and increase our agency credibility with our producers.
- I feel very strongly about having current imagery available. I would like to know why, if the Federal government has satellites currently in space, we are not utilizing up-to-date satellite imagery?
- I really appreciate the yearly imagery we have received in the past. Our county has been flooded 3 of the past 4 years and the imagery and quality has been a huge help with several of the programs. Thanks so much!
- I would like the sharpest picture possible and receive it every year
- I would like to stress the importance of having imagery every year, in order to provide the most current information to our producers, for use within our own agency and sharing with other agencies. Producers are constantly making changes and as an agency we need to keep up with those changes. Also every year imagery helps with the integrity and compliance of our programs.
- Ideally, I believe leaf-off imagery every third year and leaf-on imagery every year in between would greatly satisfy base mapping needs and compliance needs. Additionally, having the ability to add multiple years in a CLU project via the web is very useful. For the south, leaf-off allows a user to easily map base features like field boundaries accurately, and the user can easily discern pines and hardwoods. Thank you for all you do!
- If the refresh rate could be speeded up--would help tremendously!
- Illinois updated to GIS, and the need to stay current and updated and as accurate as possible will always be important.
- Imagery has been a very important tool in our area. Having a state specialist to assist in the layers and data has been a life saver and time management saver. The public likes our product and respects what we have been able to do. Field compliance is better and simple. For CRP is has been a time saver you can't really understand unless your from the old school. As time goes on everyone

that uses our product likes it better than all the other products on the market. I think we are just now starting to see how we can use imagery for ag. This imagery FSA uses represents modern agriculture and the we are the respected agency that can delivery this product. As time goes on more and more sectors are using us for this service. I have yet to have a disaster program since having this imagery. However, pass disaster would indicate a need to have current imagery for use in the county and state office.

- Imagery has been of great quality. The problem is the method of delivery, ie, Citrix; Need major improvements in speed delivery.
- In regards to receipt of updated imagery...it would be really helpful to receive updates prior to onset of our acreage reporting season in April.
- In using the imagery for disaster related programs. The dates of flight would depend on the disaster and the time of year the disaster happened. The imagery dates are impossible to guess.
- Is it possible to improve the quality of the imagery from the image server in thin client? The imagery is very grainy and hard to identify field boundaries when zoomed in
- It would be very beneficial to receive imagery twice annually in a best case scenario, ideally once with a high quality leaf off image for boundary maintenance, and once again during July/August for compliance and other uses.
- just to emphasize that having access to current and historical imagery helps to ensure accurate work, also having a way to access the data on a local level (when servers are down or creating slow work environment) to complete work timely would be great.
- Keep up the great work. It is really appreciated in the field offices to have such a great time saver.
- Leaf off dates could be anytime during the year as long as there is no snow cover. We estimated this to be between Mar 15 and Oct 31.
- NAIP program is valuable to many other agencies including APHIS who has been using NAIP in plant and field quarantine areas. I have requests from Idaho military, county and State governments and commercial industry such as Forest mills and chemical and quarry industry who would love to partner but cannot due to contracting issues.
- Now that the imagery is stored and accessed via the web the updating of CLU boundaries is more time consuming than ever. Seeing the application improved to speed up the process will be great in time savings, which will result in money savings. The estimated time to update one average CLU record can take as many as 30 minutes which should take 10 minutes maximum. There are times when a record is being updated and the application will "knock you out" and the work has to be restarted causing further loss of time. On one note, Texas has great support at the State Office level as the personnel always manage to correct a problem.
- Our county would like to emphasize that it is important the imagery is accurate and better quality control established before the imagery is released. A huge portion of the 2009 imagery in our county is unusable due to failure in these areas. Because of this, it has been very frustrating working with producers in this area.
- Please find a budget for imagery to be given to us every year. Our GIS system is used almost daily on updating maps.
- Please give us annual imagery, TIMELY. It would save lots of staff time in the field, also would save energy use (gasoline for site visits)
- Please help states streamline/define the process to obtain specific location, higher resolution, historical or timely collected imagery from existing government archives for specific needs that occur. The lack of annual imagery, regardless of accuracy or resolution is a severe shortfall in delivering USDA programs and exposes the agency to compliance/appeal issues. Thanks, NAIP is important to us!
- Receipt of imagery is very important to this service center as there is a large acreage of fruits and vegetables planted. In addition, this COF has numerous transfers from Florida; imagery from North Florida in needed as well.

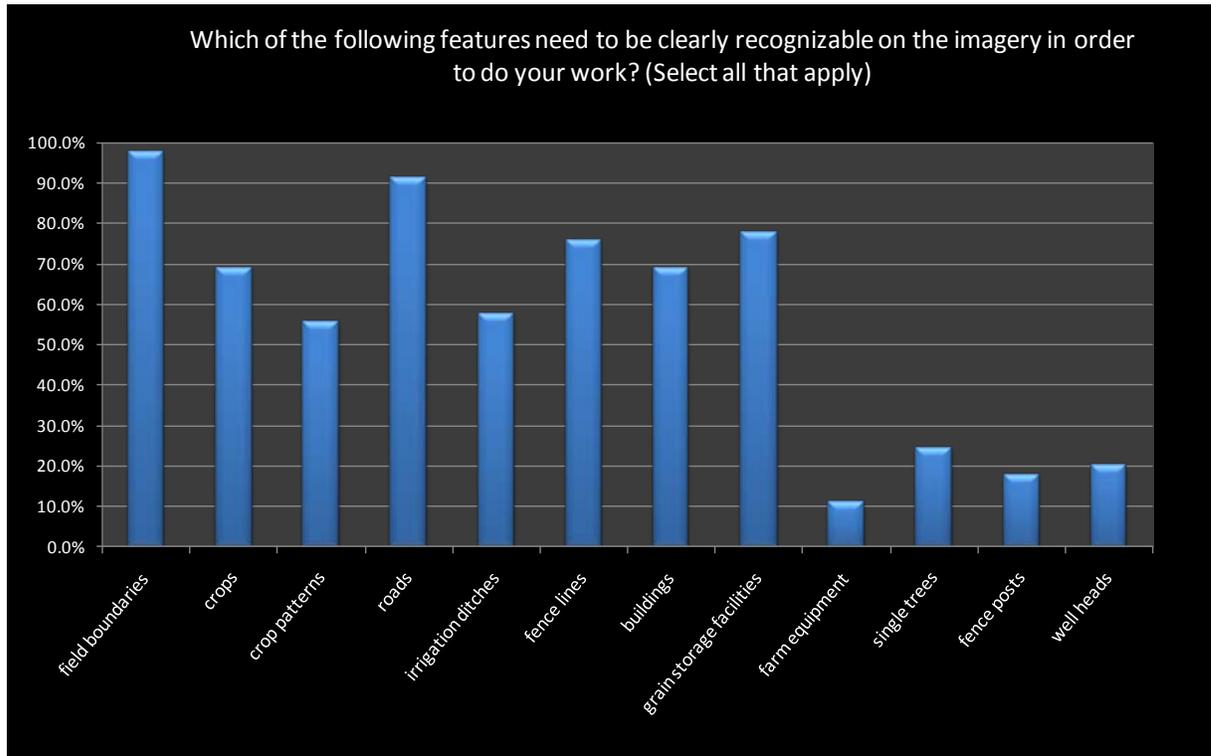
- Receiving imagery on an annual basis would result in huge cost & time savings for the agency. In addition, the use of the imagery for program compliance purposes could be expanded to include annual reviews.
- The folks at APFO have been super helpful and friendly whenever I've need assistance - Thank you to all!
- the higher the accuracy, detail and frequency of the imagery, the more useful it will be in completing work in the office rather than travelling to do field work
- The imagery has been acceptable in quality for the last approx 8 years. It would be nice to get it more timely like the month of August or September if possible instead of November.
- The imagery we have right now is very good quality. We just have major problems being able to access it and keep it running for more than a very few minutes.....which is probably not an Aerial Photo Field Office issue....but we do not need to spend the money getting the imagery if we can't use it. Thank you so much.
- The less blurry and more defined the photos then the better it is for us in the office to utilize them.
- The main reason I would like to see the imagery flown at a later date is we have so many people that hay native grass in this county and it is always the end of July or August before it gets done. I also believe that it is important to have it flown a least once a year.
- The more often imagery is received, the more accurate we can be with our disaster programs and compliance programs.
- The most important factor is clarity. If we have good clear, current imagery it is really fairly easy to do any of the work that we need to do.
- The product we have now is very good. We need to continue to receive imagery at least every other year, with at least the quality of resolution we have now. I prefer natural color to infrared.
- The quality of the imagery that will help you identify an object in a field is a cow rather than a tree is helpful.
- The questions about date acquisition are all dependant on the year and disaster event. No one date or range can be answered without knowing if or when a disaster would occur.
- This new citrix program does not work very well.
- Time is a big issue. To adequately service producers a system which allows for real time adjustments is critical. Slow systems do not allow for efficient work.
- Timeliness and ease of use of web based imagery.
- Timely receipt of accurate, high resolution imagery allows us to complete agency requirements and mission most effectively.
- We have become very dependent on the imagery. It would be nice if we could leave the imagery up for the whole workday, without having to sign in after a small amount of time. At this time, we are not using the imagery for site inventory because we don't have any activity but I see the imagery being a very good source when there is activity in those programs.
- We need "leaf on" imagery due to the ability to see the different crops that are planted, but it would be wonderful to have "leaf off" imagery every few years in addition. Some producers feel our measurements are off due to the excessive tree "overhang" into the fields. In other words they are planting crops under what the imagery shows as trees. Also, we really need access in Thin Client to all of the old imagery that is available.
- We need accurate imagery yearly that is of high definition that clearly defines field boundaries. We need to use this for compliance with certification as well as for CRP and disaster programs. CLU is a very important tool for us to use now and in the future but it depends on the accuracy of the imagery as to how valuable/useable the information is to us.
- We need imagery at least 1 m resolution, 1:12,000 map accuracy standards, every years, received in time to complete current year compliance spot checks and to be used for the following year acreage reporting. If imagery meets these needs, it will meet all others. - Thanks!
- We need imagery each year in order to complete our work accurately and efficiently.

- We would like it available to us as soon as possible after October 1st of the year it is taken in order to complete compliance and updates before farm program signup begins and changes to farm records can no longer be made without causing receivables/headaches.
- When asked if our county would prefer Leaf On or Leaf Off... Both are beneficial. It is nice to have Leaf off imagery every few years. It shows drainage, buildings etc better than leaf on. However, we need summer imagery to identify crops that are being grown.
- When printing a map I would prefer that the whole section print on a standard sheet of paper. I don't care for a 2 acre parcel taking up the whole page and then 300 acres not fitting on a page. We prefer one whole section per map like our original maps were. The farmers were used to that as were we. I realize that we can zoom in and out but it would be nice if the printing were defaulted to fit one whole section on a page.
- With all the changes that can happen in a county from year to year, it is nice to be able to pull up a yearly photo and be able to view it with the producer and when a producer is trying to explain a boundary to you, a picture is worth a thousand words.
- With reduced budgets for field inspections current imagery is more critical now than ever before.
- Would like imagery to be as clear as the "Bird's Eye View" using BING
- Would like to have higher resolution imagery.
- You are doing a good job. Consistency is the key. If only budgets would allow, a yearly flight would be ideal.

Appendix E – State GIS Specialists/Coordinators General Question Responses

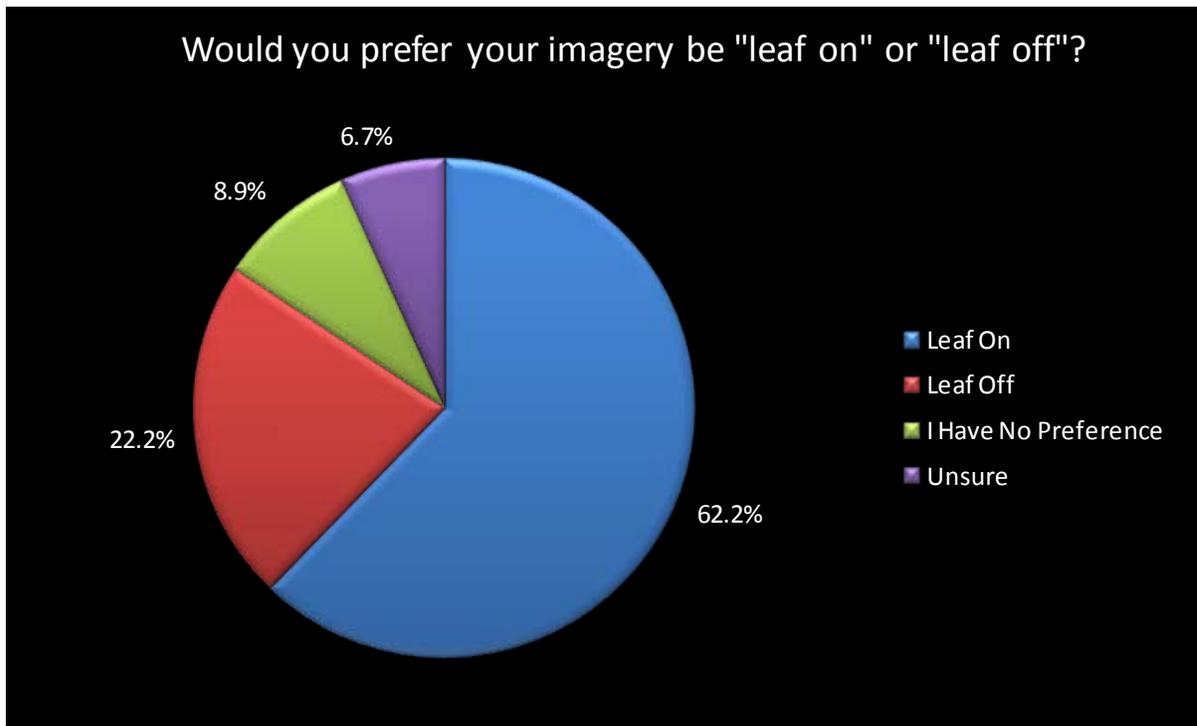
This section takes the general questions from the survey and shows only responses from the State GIS Specialists/Coordinators.

Question 6 –

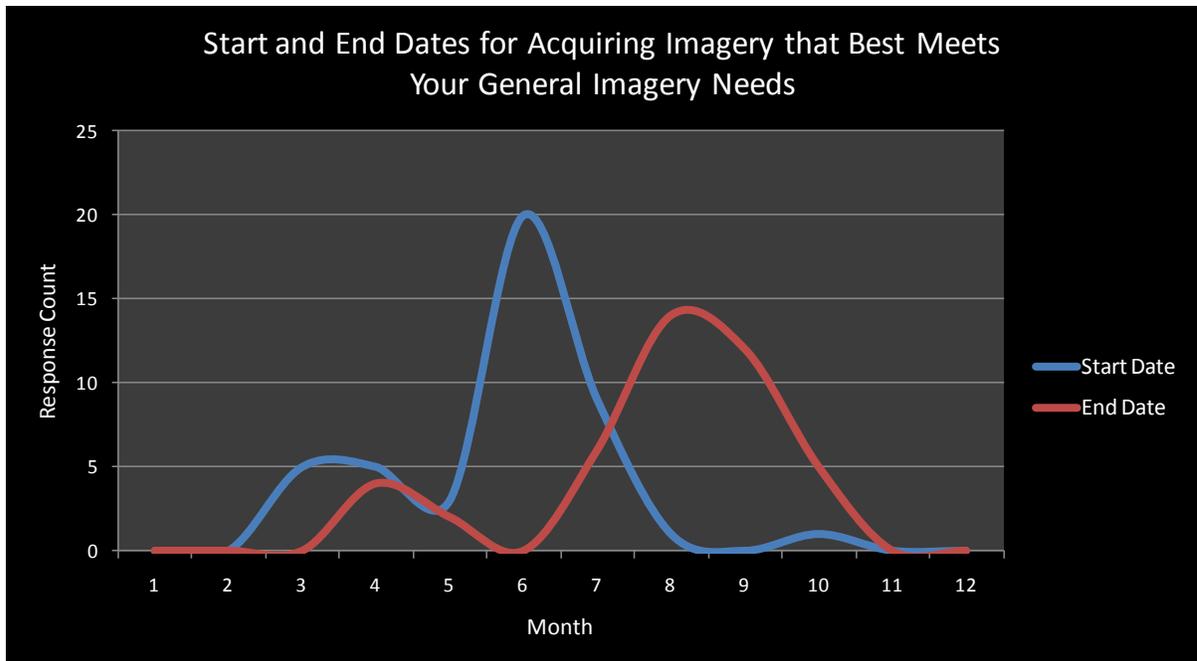


Question 7 – See Appendix A for all responses (both State and County Office responses)

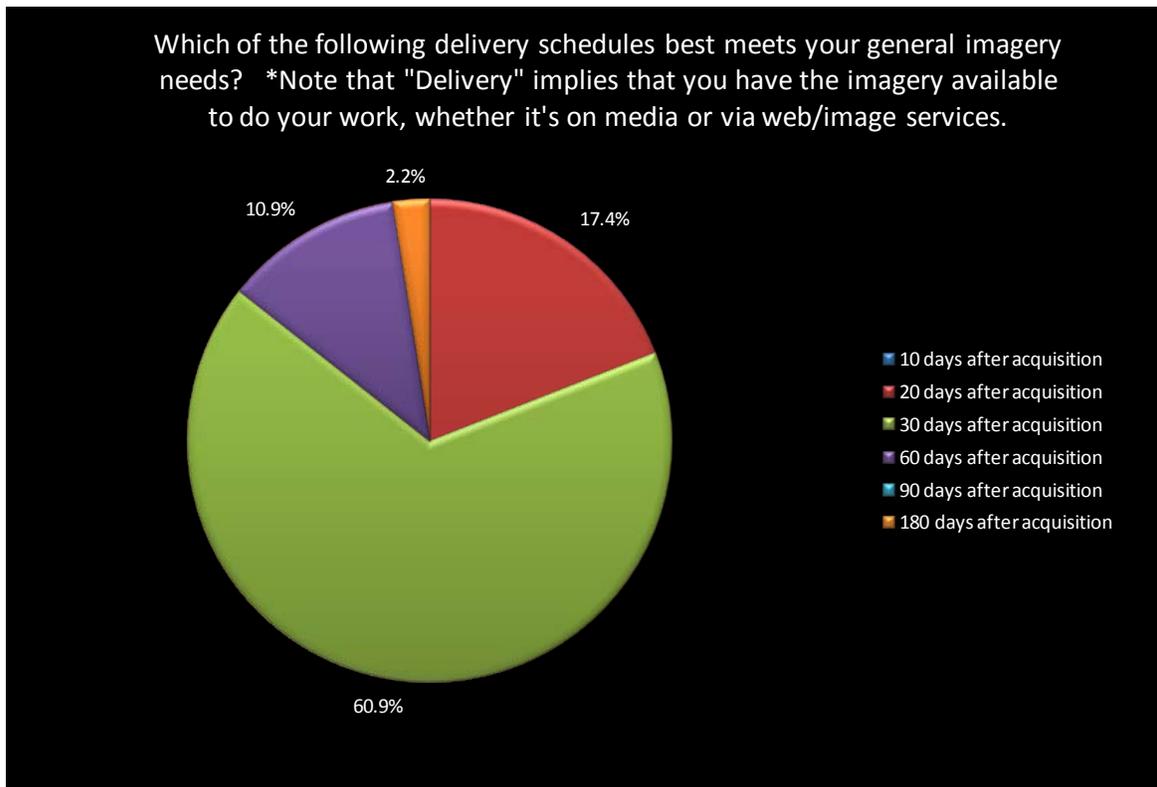
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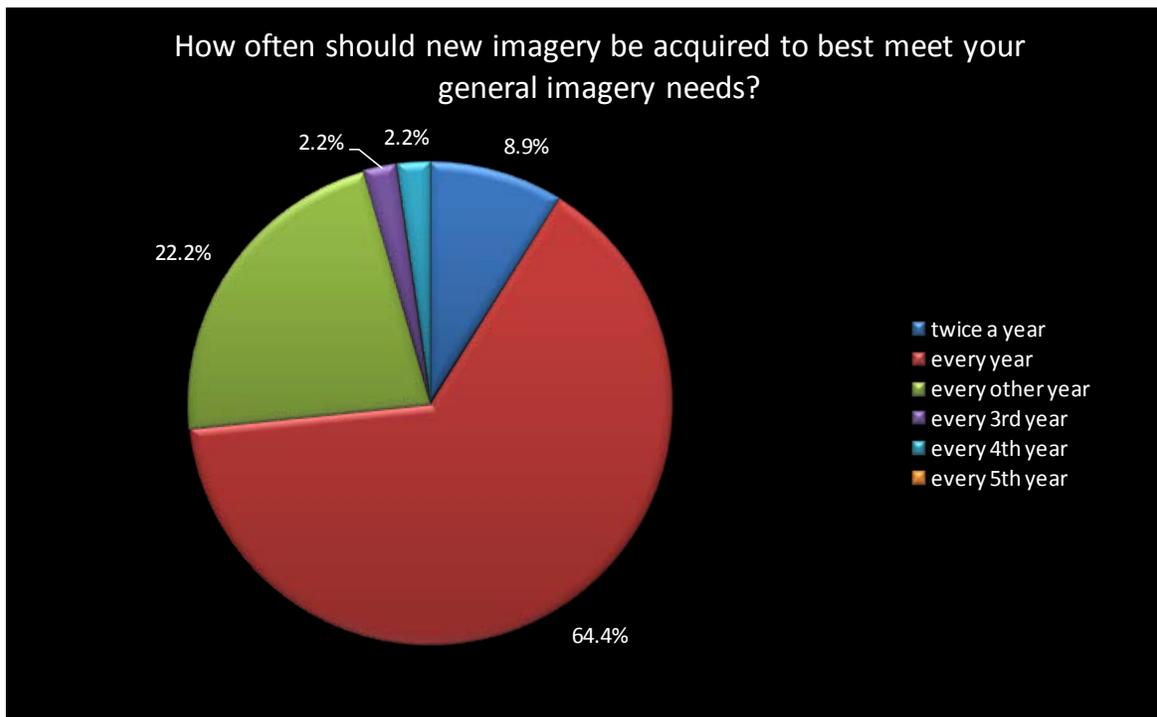
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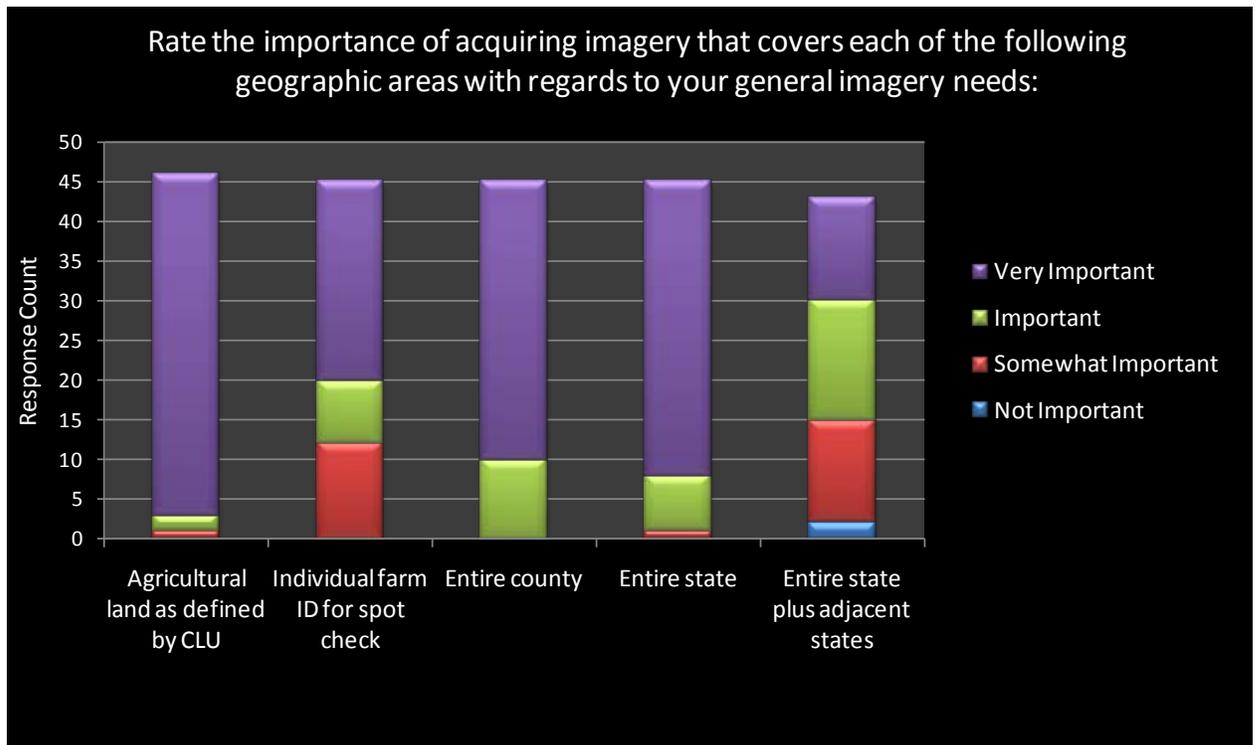
Question 10 –



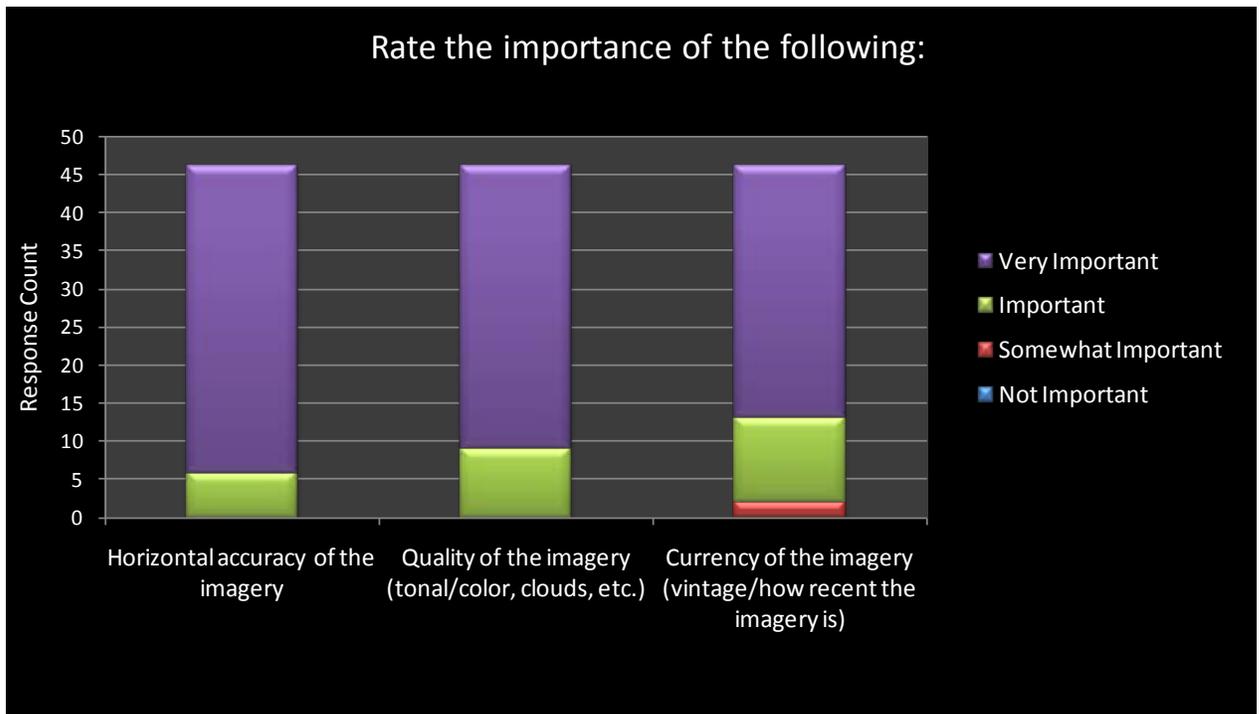
Question 11 –



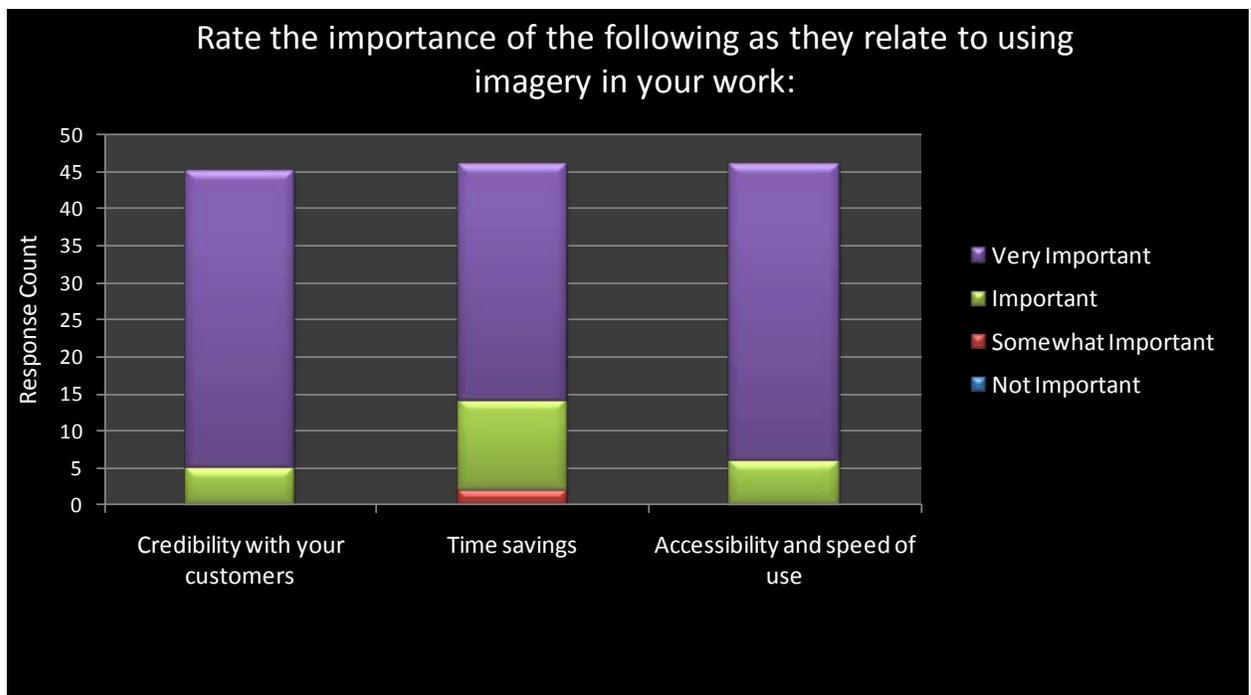
Question 12 –



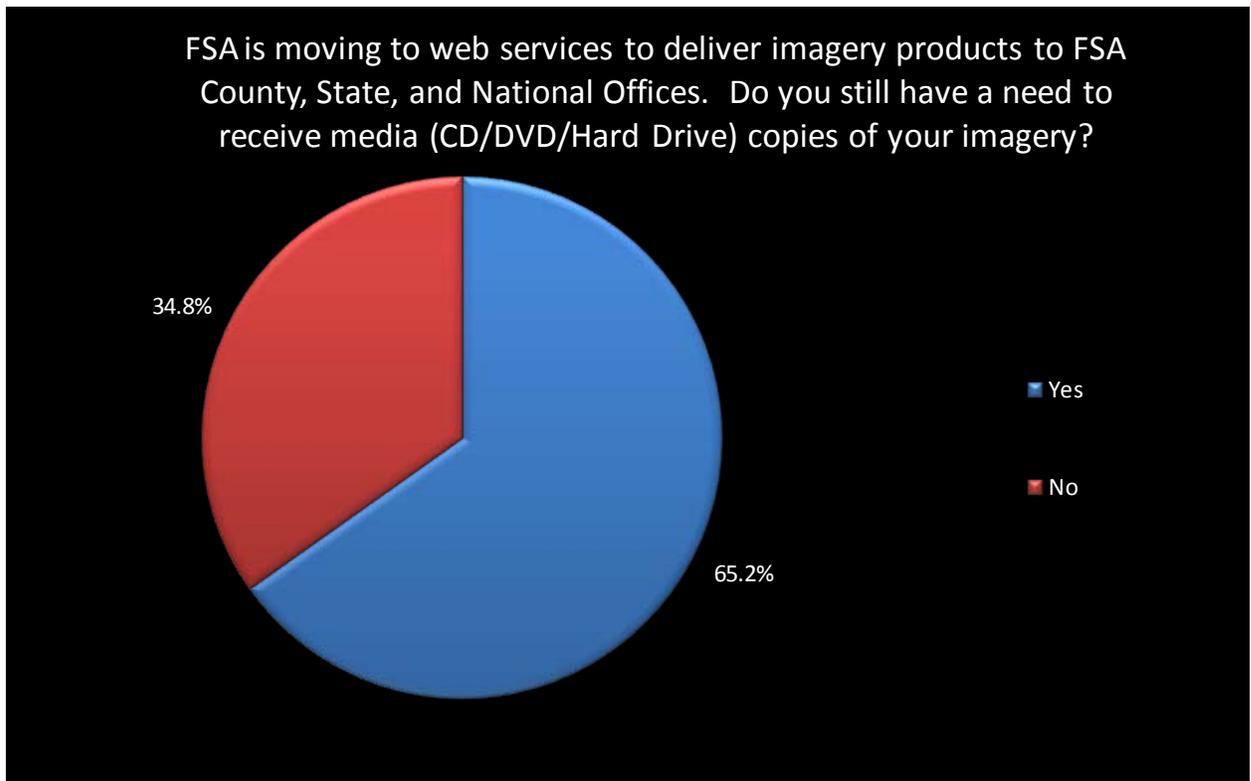
Question 13 –



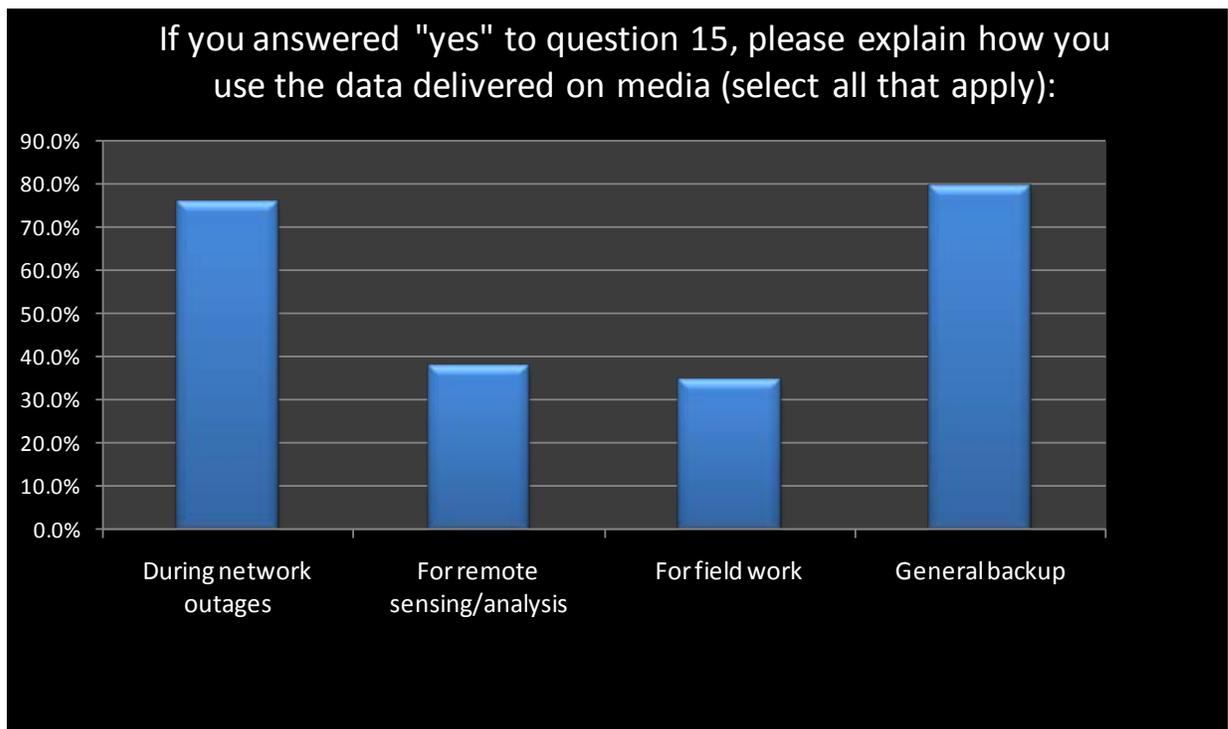
Question 14 –



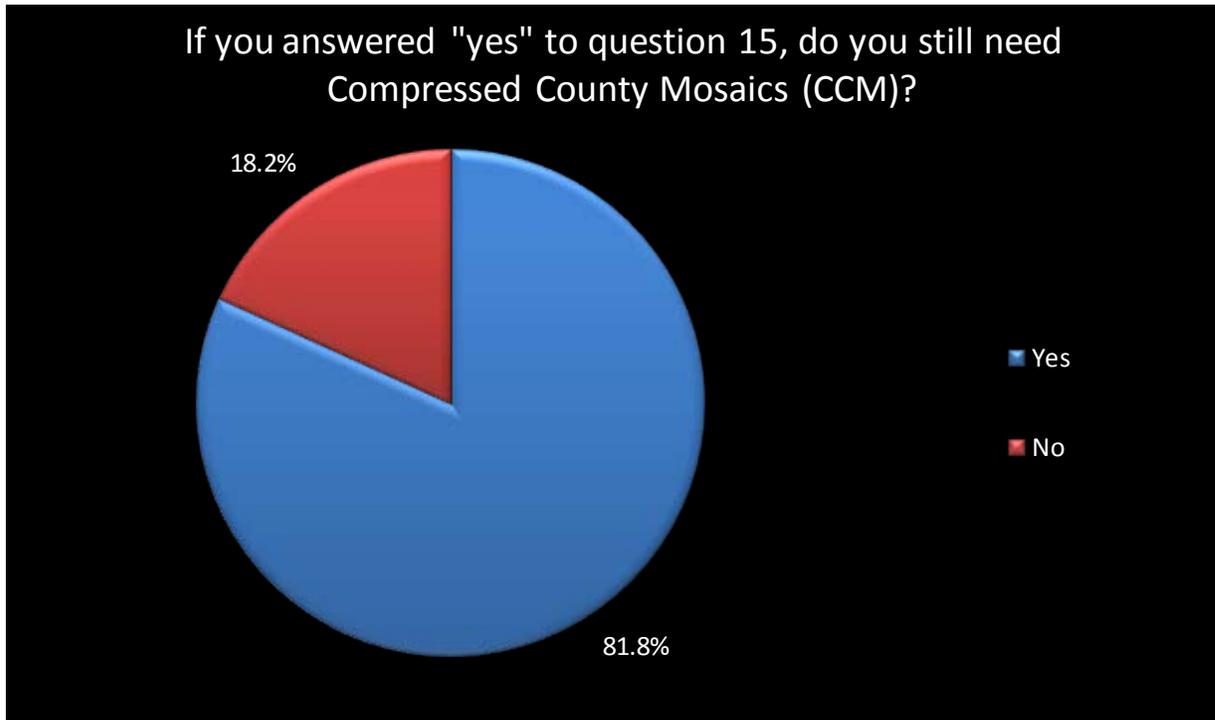
Question 15 –



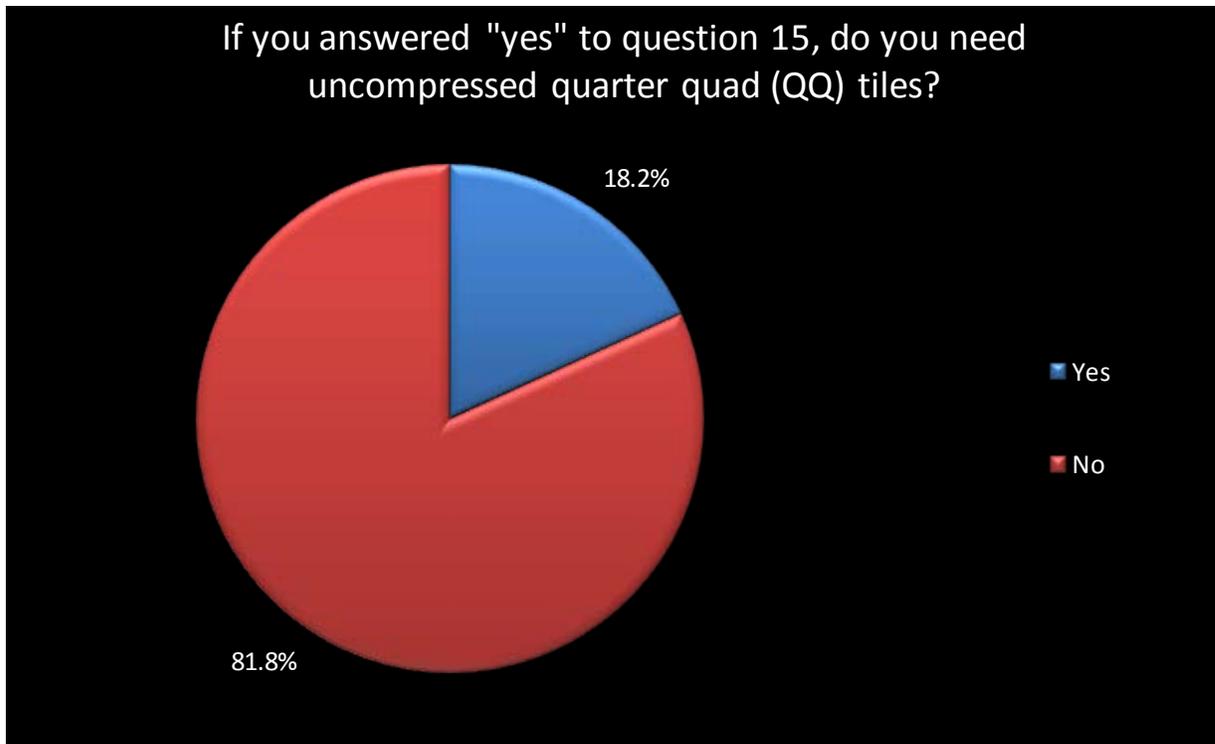
Question 16 –



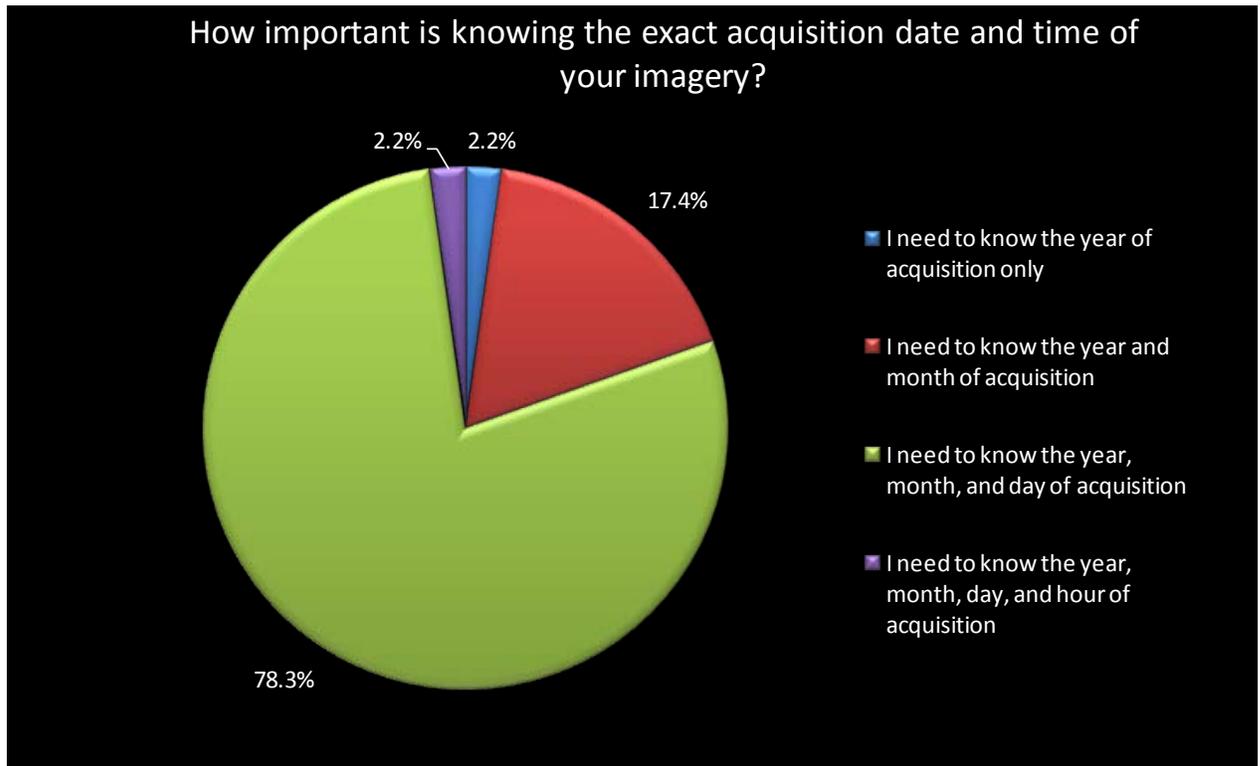
Question 17 –



Question 18 –

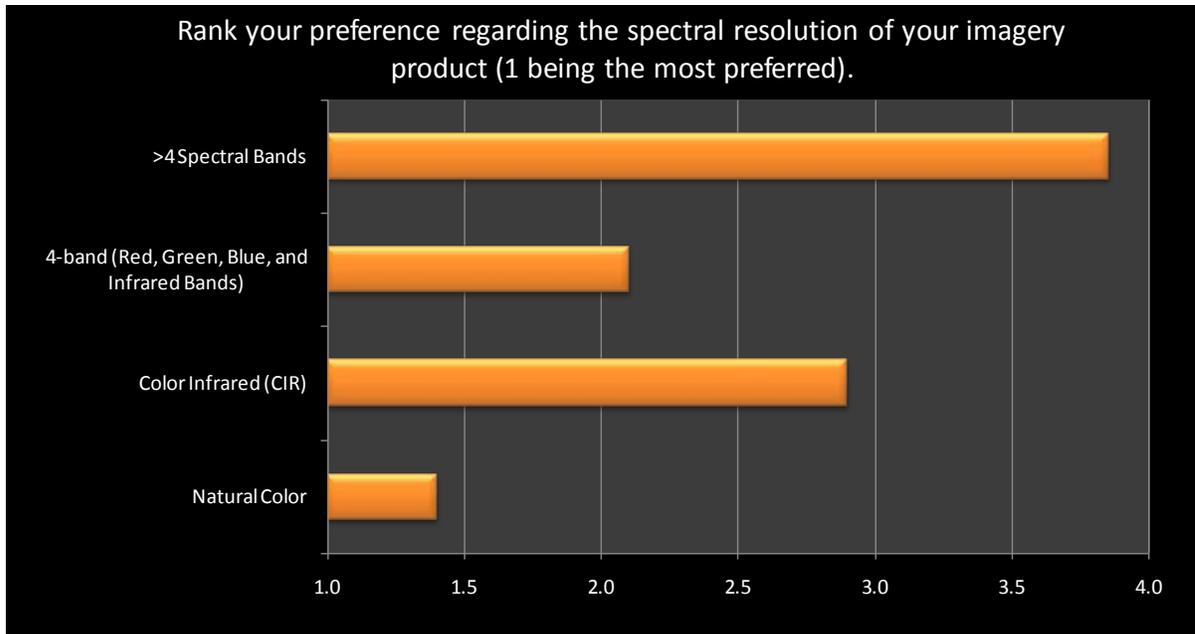


Question 19 –

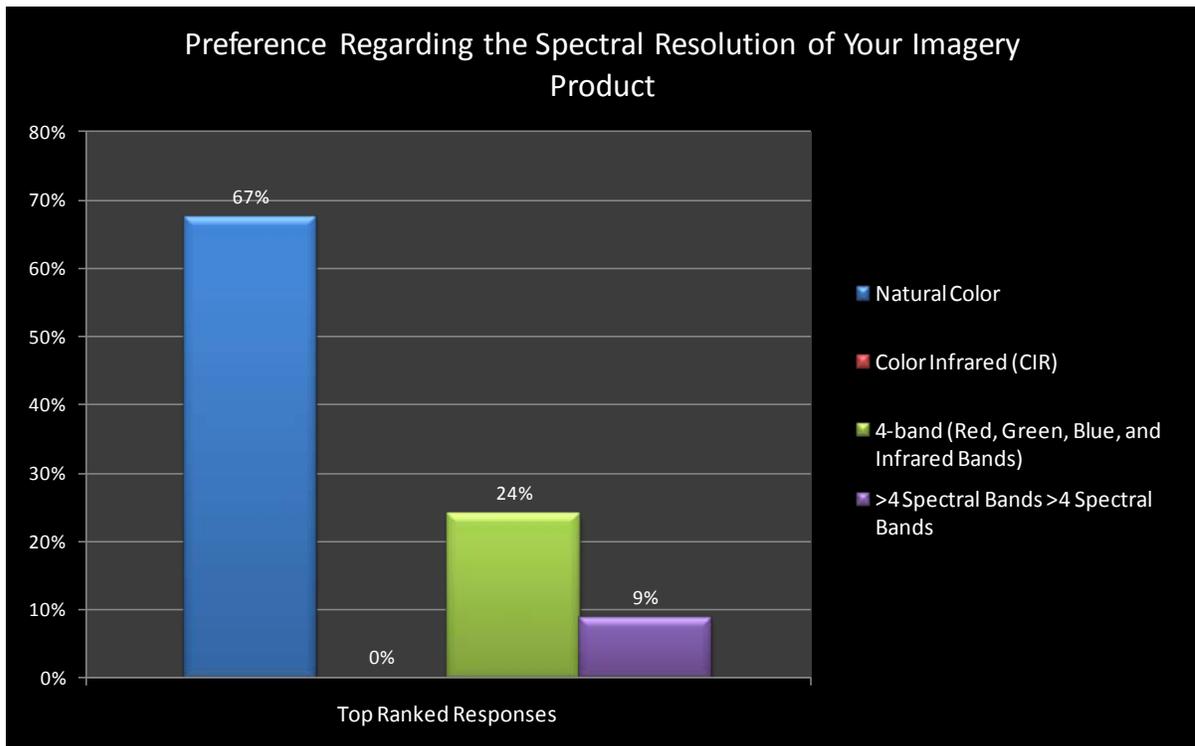


Question 20 – See Appendix B for all responses (both State and County Office responses)

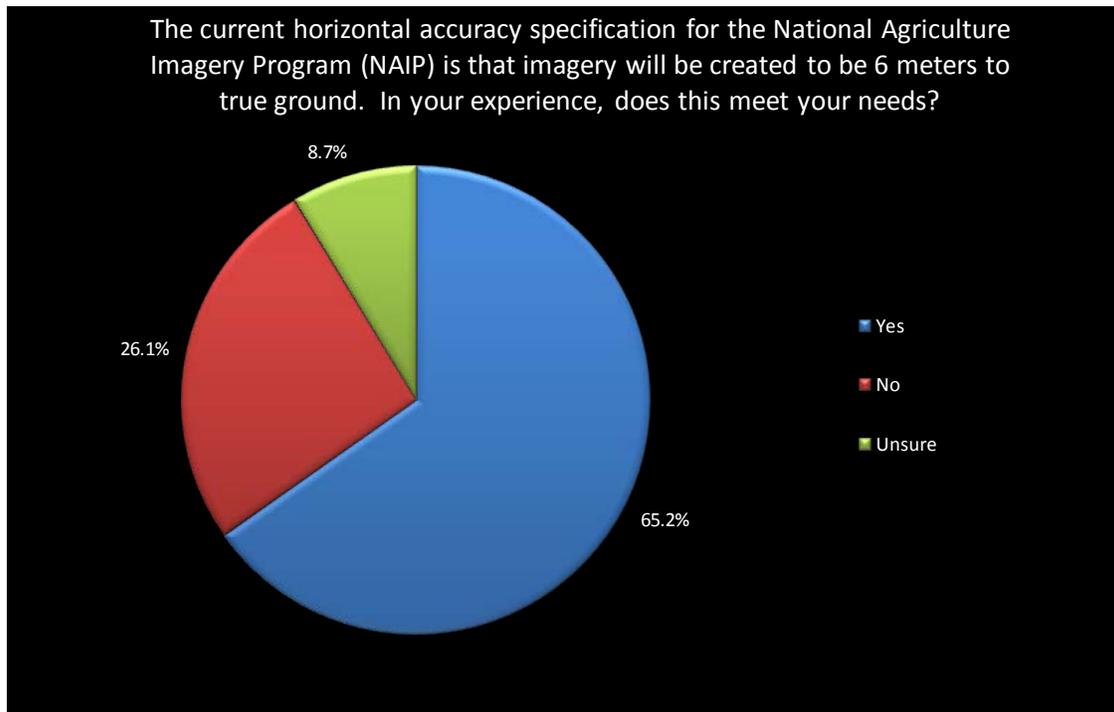
Question 21 – Note that this question asked for a ranking; what is shown is the average ranking, with 1 being the most preferred. The closer to 1 the response is, the more preferred it was by the survey takers (e.g. Natural Color was the most preferred). Around 67% of respondents preferred Natural Color imagery.



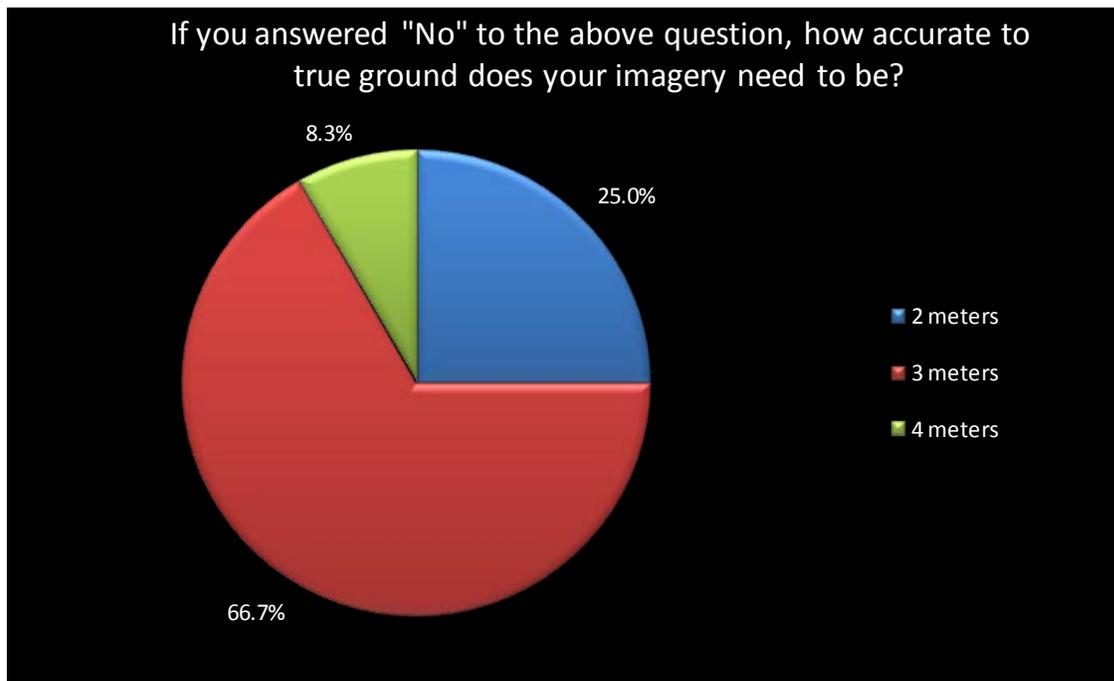
Another way of looking at the responses to this question is only to look at the top ranked response by each survey taker. Top ranked responses are charted below.



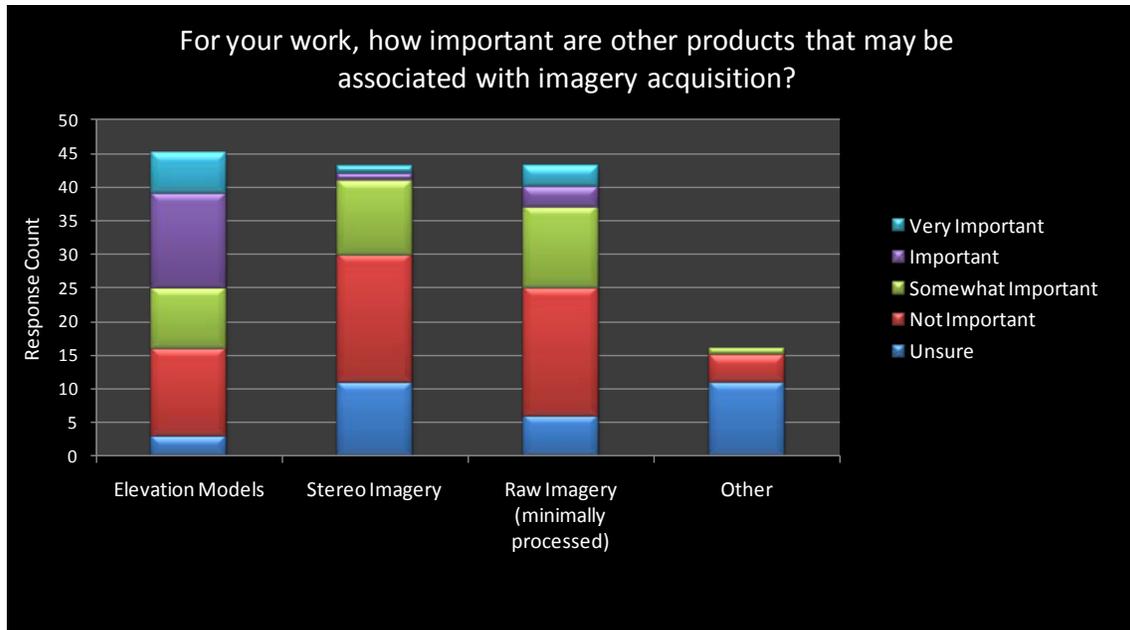
Question 22 –



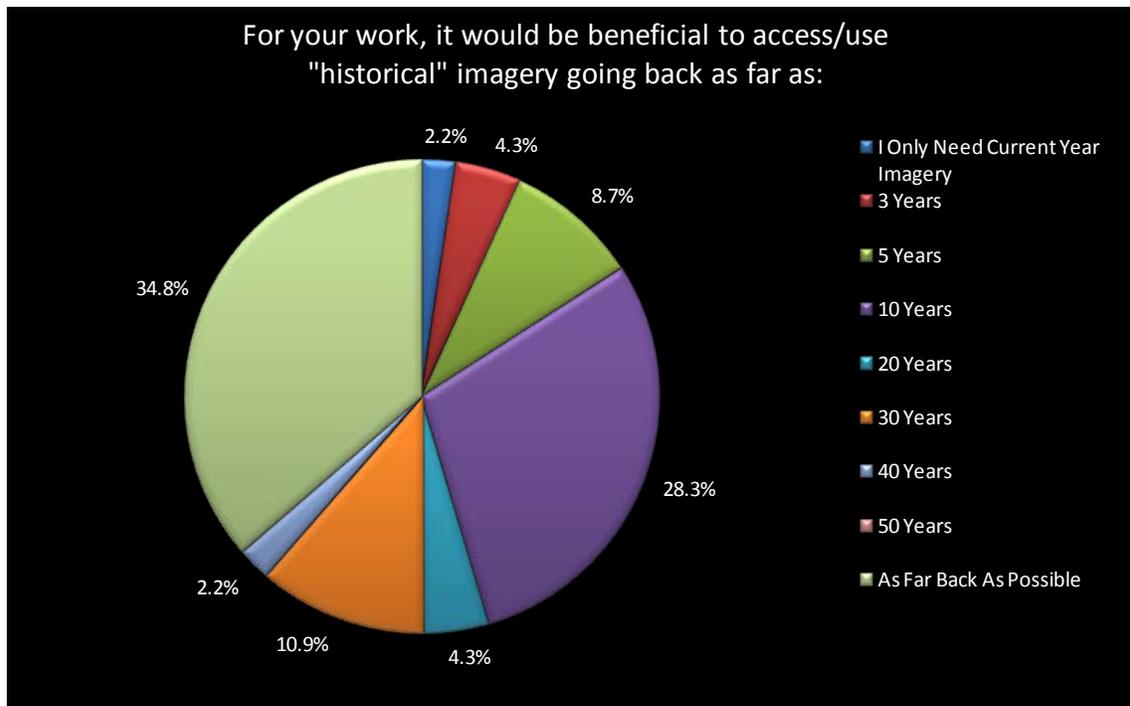
Question 23 –



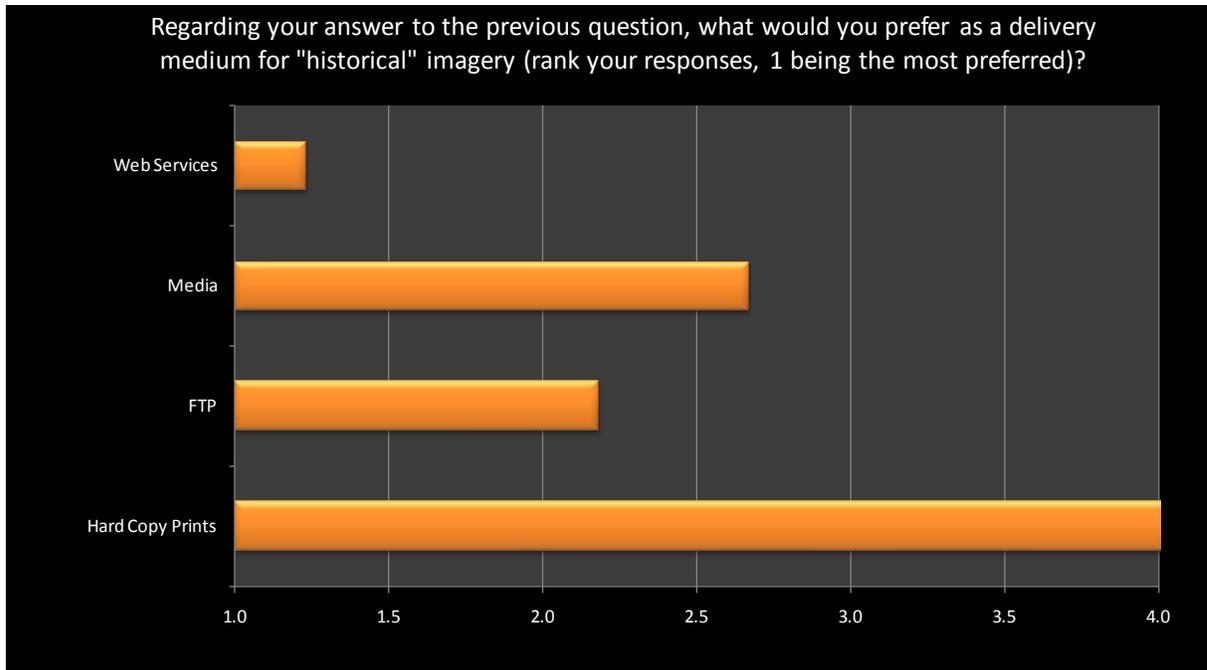
Question 24 –



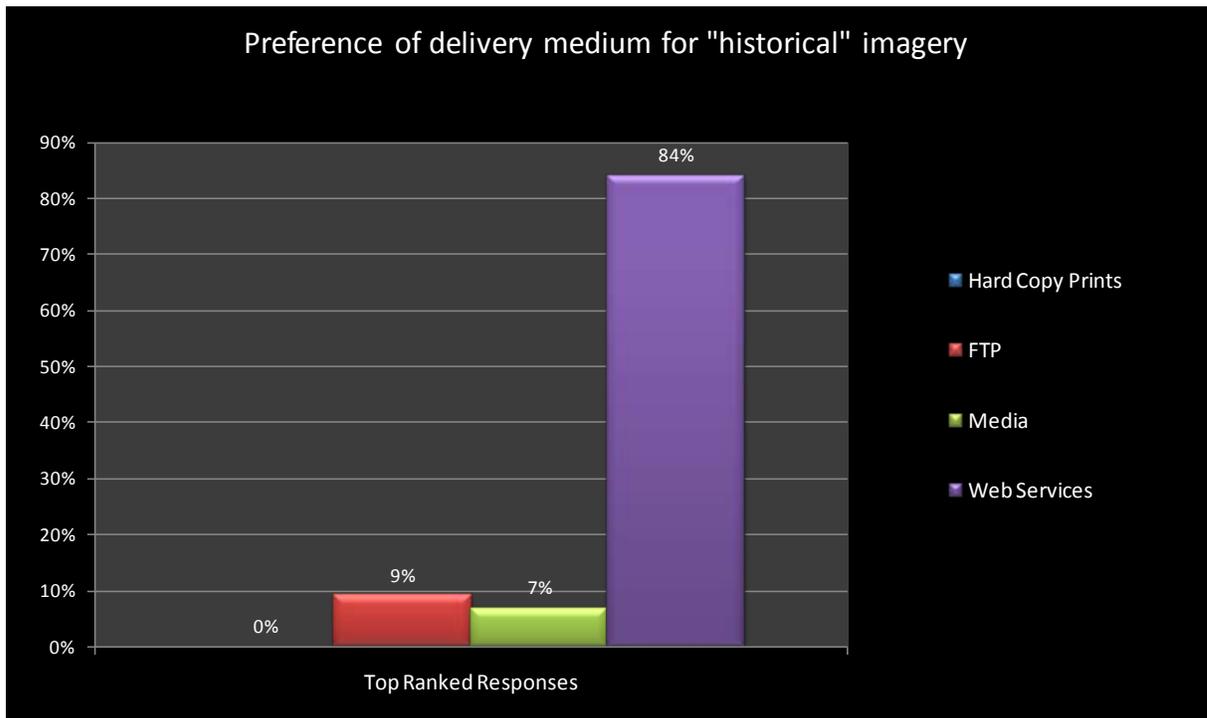
Question 25 –



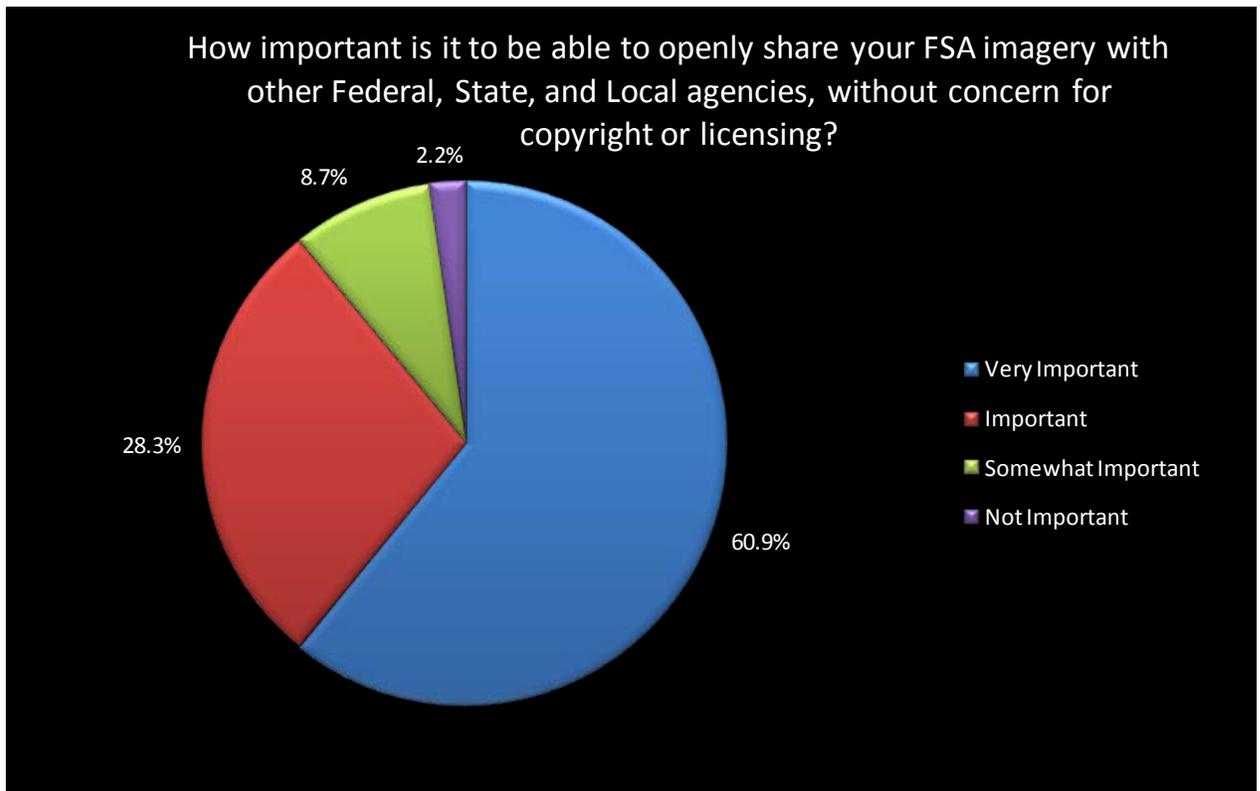
Question 26 – Note that this question asked for a ranking; what is shown is the average ranking, with 1 being the most preferred. The closer to 1 the response is, the more preferred it was by the survey takers (e.g. Web Services is most preferred). Around 84% of respondents preferred Web Services as the delivery method for historical imagery.



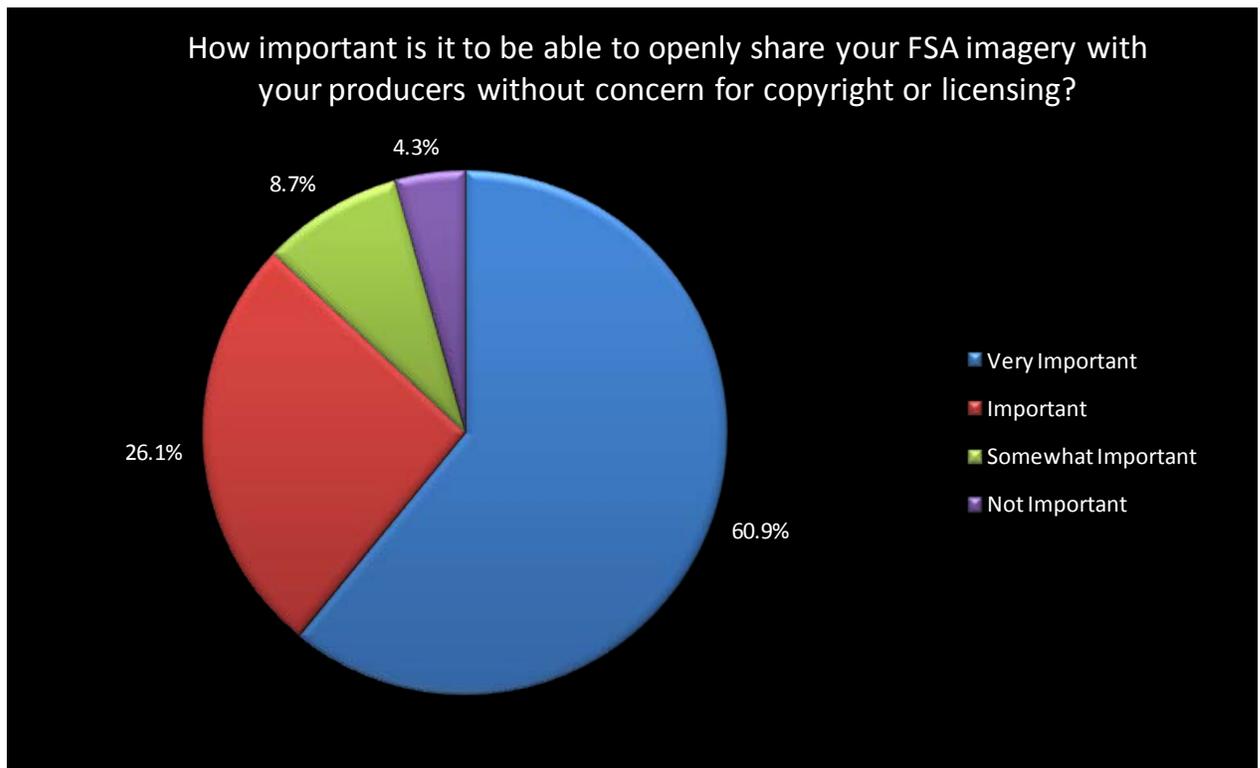
Another way of looking at the responses to this question is only to look at the top ranked response by each survey taker. Top ranked responses are charted below.



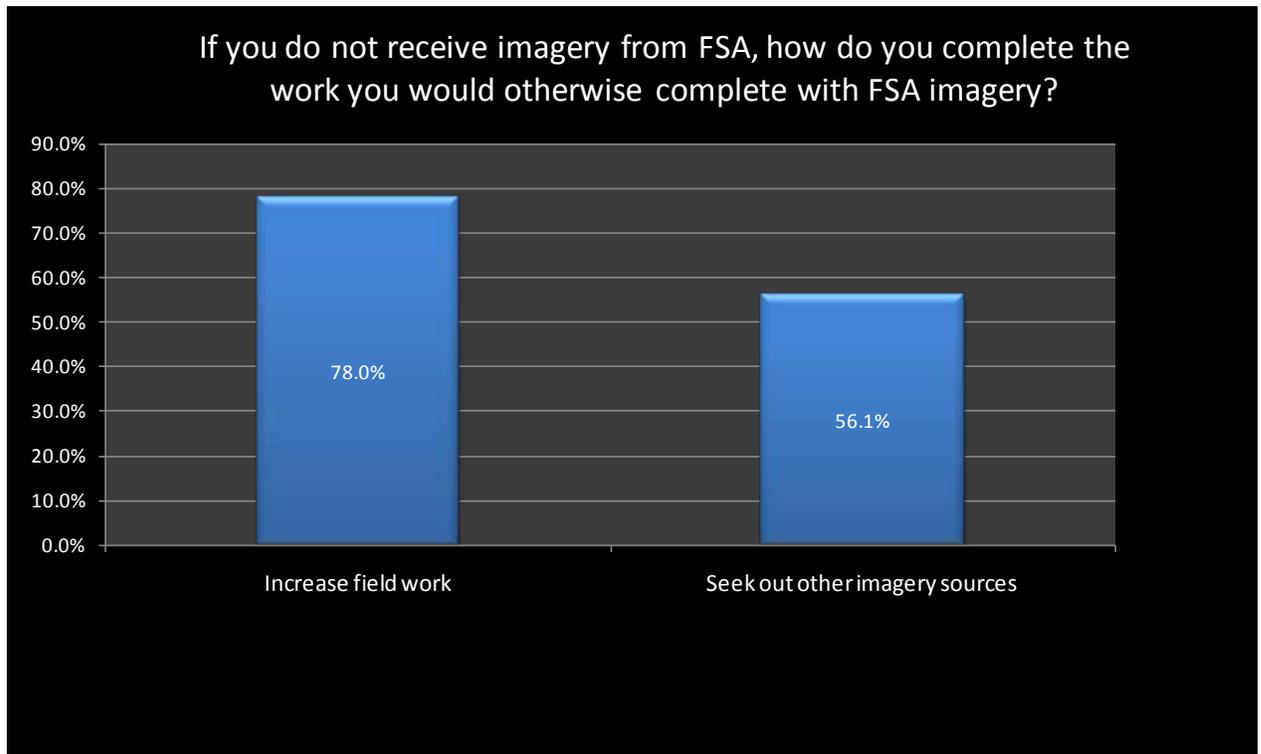
Question 27 –



Question 28 –



Question 29 –



Question 30 – See Appendix C for all responses (both State and County Office responses)