United States Department of Agricultural

National Agricultural Statistics Service

Research and
Development Division
Washington, DC 20250

RDD Research Report

Number RDD-17-01

November 2017

NASS Infographics Usability Testing

Heather Ridolfo, PhD

This report has been prepared for limited distribution to the research community outside the U.S. Department of Agriculture (USDA). The views expressed herein are not necessarily those of NASS or USDA.

EXECUTIVE SUMMARY

The National Agricultural Statistics Service (NASS) recently developed infographics for the 2012 Census of Agricultural data release as a means to disseminate data in a quicker, more digestible format. Following the success of these infographics, NASS is developing an infographics toolbox that will be used to create infographics to represent NASS data from its regular statistical programs. These infographics can be created and shared via digital media (i.e. Twitter, Facebook, etc.) on a daily, weekly, or monthly basis.

Currently, NASS's Public Affairs Office (PAO) has a concept developed for the NASS Infographic Toolbox. This concept consists of several sample infographics that all have a consistent look and feel. Usability testing was conducted to assess the effectiveness, functionality, value and credibility of the infographics, as well as users' satisfaction with these infographics.

NASS's PAO has a database of data users and stakeholders who have volunteered to participate in public affairs related research. Nine volunteers from this database participated in the usability testing. Participants came from a variety of sectors and had various levels of engagement with the agricultural community and social media.

Participants were each presented six sample infographics and asked a series of questions to assess the infographics on five facets of usability: 1) usability (is the information clearly presented), 2) usefulness (does the content fulfill a need), 3) desirability (is the infographic appealing), 4) value (does it advance NASS's mission), and 5) credibility (is the information presented in the infographic trustworthy). At end of the interview, participants were asked additional debriefing questions on the value, credibility, and usefulness of these sample infographics.

A number of key findings came out of this research. In general, respondents liked the infographics and felt they would be very valuable in their work. However, a number of changes need to be made to the infographics to improve their usability and credibility. First, participants often felt more context was needed to interpret the statistics being presented in the infographics. In particular, participants wanted to know why the statistics were important and why they were relevant to their customers. Participants also wanted to see more trend data presented in the infographics. The images used in the infographics served to make the infographics more visually appealing, but they also affected interpretation of the statistics being presented. Although some images helped convey the information being presented, other images were distracting because participants did not feel they represented the data being presented, and in some cases the images caused participants to misinterpret the statistics. The language used in the infographics sometimes contained too much jargon. Participants also noted that the infographics needed to present the most up-to-date data and provide a reference date for the data being presented in order to improve the credibility of the infographics.

These results indicate the NASS Infographic Toolbox is a valuable tool for disseminating NASS data. However, more work is needed to improve the usability of the infographics. A number of recommendations are provided in the following report.

RECOMMENDATIONS

1) Provide more context in the infographics (e.g., trend data, information why estimates have changed over time, comparisons across commodities, comparisons of amount planted, harvested, and produced)
2) Make information presented in the infographics relatable by providing information such as state specific estimates and per farm averages
3) Remove created on date and provide the report name and date the data were published
4) Provide a direct link to the report that contains the statistics
5) Use the most up-to-date statistics
6) Use modern, recognizable images that best represent the data being presented
7) Avoid the use of jargon or technical terms
8) Use a minimal color scheme and be cognizant that certain colors may draw attention to particular elements in the infographic

TABLE OF CONTENTS

1. INTRODUCTION 1

2. METHODS 2

3. RESULTS 4

3.1 Infographic #1 (Cattle) 4

3.2 Infographic #2 (Soybeans) 7

3.3 Infographic #3 (Expenditures) 10

3.4 Infographic #4 (Corn) 13

3.5 Infographic #5 (Wheat) 16

3.6 Infographic #6 (Crop production) 19

3.7 Debriefing 21

4. CONCLUSION AND RECOMMENDATIONS 23

APPENDIX: Materials Used During Testing 25

NASS Infographics Usability Report

Heather Ridolfo[1]

Abstract

The National Agricultural Statistics Service (NASS) recently developed an infographics toolbox that will be used to create infographics to disseminate NASS data. The infographics will highlight data from reports such as the Crop Production reports, Crop Progress reports, and Hogs and Pigs reports and are intended to be shared via digital media (e.g., Twitter, Facebook, etc.). Usability testing was conducted to assess the effectiveness, functionality, value and credibility of the infographics, as well as users' satisfaction with sample infographics. Nine volunteers from a database of NASS data users and stakeholders participated in the research. Respondents liked the sample infographics and felt they would be very valuable in their work. However, a number of usability issues were uncovered that impacted the credibility of the infographics and the interpretation of the information presented.

Key Words: Infographics, data dissemination, usability

1. INTRODUCTION

An infographic is a visual image that can be used to represent information or data. National Agricultural Statistics Service (NASS) recently explored new uses of infographics for the 2012 Census of Agriculture (COA) data release. The goal was to provide more information to data users in a quicker, more digestible format. The COA infographics were a success amongst the target audience, primarily on digital media. To continue building on this success from the COA, NASS is exploring ways to incorporate infographics into the agency's overall dissemination of agricultural statistics.

The new goal is to develop a general NASS Infographics Toolbox that will be used to create infographics to represent NASS data from its regular statistical programs. These infographics can be created and shared via digital media (e.g., Twitter, Facebook, etc.) on a daily, weekly, and monthly basis. Examples include creating infographics to highlight key data from the Crop Production reports, Crop Progress reports, Hogs and Pigs reports, Cattle reports, Farm Production Expenditures reports and much more. The data presented can be at the national, regional, or state level.

Currently, NASS's Public Affairs Office (PAO) has a concept developed for the NASS Infographic Toolbox. This concept consists of several sample infographics that all use a similar color palette and have a consistent look and feel. Usability testing was conducted to assess the

[1] Heather Ridolfo is a Survey Statistician with the National Agricultural Statistics Service, Research and Development Division, 3251 Old Lee Highway, Room 305, Fairfax, VA 22030. The author would like to thank Krissy Young of PAO for her assistance on this research project.

effectiveness, functionality, value and credibility of the sample infographics, as well as users' satisfaction with these infographics. The following report will present findings from this testing.

2. METHODS

NASS's PAO has a database of data users and stakeholders who have volunteered to participate in public affairs related research. Fourteen individuals from this database were solicited for this research. In total, nine interviews were conducted. Participants came from a variety of sectors and had various levels of engagement with the agricultural community and social media. More information on participants' characteristics can be found in Table 1.

Table 1. Participant Characteristics

Participant	Sector	Job Related Tasks	Social Media Usage
1	Public Sector	Researches/analyzes agricultural sectors and general economics; develops actionable high quality articles and research reports on agricultural economics and other topics of interest to farmers; engaged in outreach in the agriculture community	Facebook and Twitter
2	Non-Government Volunteer Organization	Analyzes and formulates action to achieve educational improvement, economic opportunity and social advancement in the agriculture community	Facebook and Twitter
3	University Extension	Engages in strategic communications and media distribution for agriculture and natural resources programs	Facebook, Twitter, Instagram, and Pinterest
4	Market Analyst	Industry expert; analyzes NASS reports and provides updates to the public	N/A However his reports are often posted by others on Twitter
5	Public Sector	Disseminates NASS data on a weekly basis; keeps local audience up-to-date on crop conditions	Facebook and Twitter
6	University Public Media	Broadcaster; disseminates NASS data on radio and social media	Twitter
7	Marketing Agency	Brand development, strategic planning, creative development, interactive marketing media placement, social engagement and website development in the	Facebook, Twitter, Instagram, and YouTube

		ag/food/natural resources management space	
8	Nonprofit, Volunteer Organization	Empowers farmers and ranchers to connect with communities and consumers through social media platforms	Facebook, Twitter, Instagram, Pinterest, Periscope, and blogs
9	University Academic	Teaches Ag Economics	Light user of Facebook and Twitter

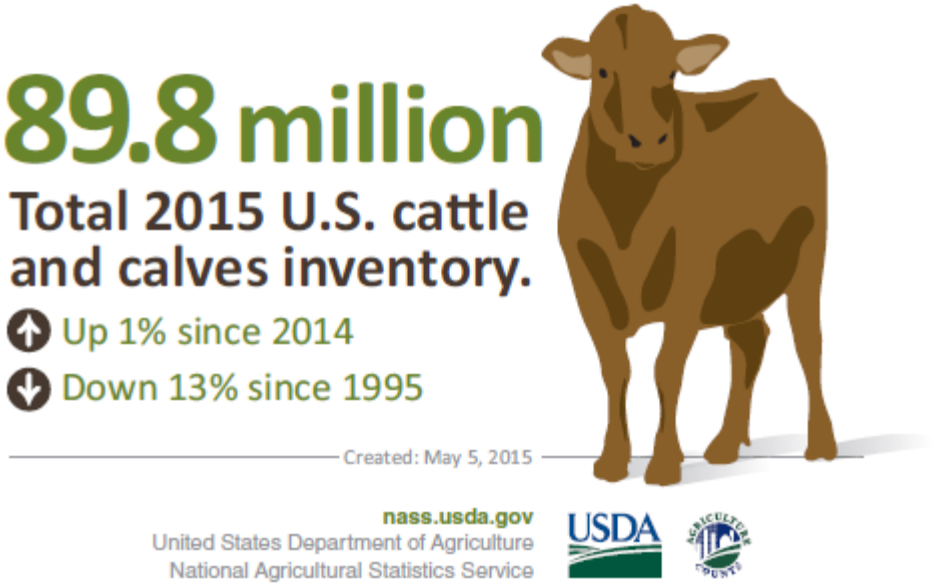
Usability testing was conducted on six sample infographics. The infographics presented statistics from several NASS reports and contained information on various topics including the cattle inventory, crop forecasts, planting and production, and farm expenditures. The infographics varied in terms of information provided. For example, some infographics provided statistics for a single year and others provided trend data over time.

The usability testing was conducted remotely. Participants were presented the infographics via AT&T Connect.[2] Each infographic was presented individually and participants were asked to review the infographic before being asked a series of usability questions. All participants received the infographics in the same order. The usability questions assessed the infographics on five facets of usability: 1) usability (is the information clearly presented), 2) usefulness (does the content fulfill a need), 3) desirability (is the infographic appealing), 4) value (does it advance NASS's mission), and 5) credibility (is the information presented in the infographic trustworthy). At end of the interview, participants were asked additional debriefing questions on the value, credibility, and usefulness of these infographics. The materials used during testing can be found in the Appendix.

[2] AT&T Connect is an interactive collaboration tool which allows for audio conferencing and screen sharing via the internet.

3. RESULTS

3.1 Infographic #1 (Cattle)



The intent of Infographic #1 was to convey that in 2015, there were a total of 89.8 million cattle and calves in the United States and the number of cattle and calves has increased one percent since 2014 but decreased thirteen percent since 1995in the last 10 years. The aspect of the infographic that stood out the most to all respondents was the number: 89.8 million. Most of the participants also stated that the image of the cow stood out to them. Other elements of the infographic that stood out to some participants included the statistics indicating a change in inventory (up 1% since 2014, and down 13% since 1995), the color green used for the text, and the up and down arrows indicating change in inventory.

When asked what they thought this infographic was trying to convey, most participants indicated the number of “cattle” in the United States. A couple of participants used the terminology “cows” instead of cattle and one indicated that it was referring to “cattle and calves.” It’s important to point out the different terminology participants used since some participants indicated they were not sure what types of cows the infographic was referencing by looking at the image of the cow alone. Most participants also indicated that this infographic was conveying the change in the number of cattle over time.

Although the vast majority of participants understood the information this infographic was conveying, several participants indicated that this infographic lacked context that was important for understanding its message. This infographic was described by some as a “snapshot,” “trivia,” and “quick and dirty.” These participants felt they were left with more questions than answers. For example, one participant indicated that she didn’t know who the intended audience was and why these statistics should matter to them. She stated,

> I'm not sure it's relevant to put the difference between 2014 and 2015. I guess it gets back to what's the point of sharing this information. If the decrease is important, and the decrease in the carbon footprint, [it] would be important, visually, to show it's not as horrific as the animal rights people lead people to believe. To a rancher it would be a negative graphic. Why are we decreasing? Because of imports? Or more European countries are exporting? It falls back to who is the audience?

One participant felt the statistics were too vague and difficult to interpret. For example, one participant felt not the knowing the source of the statistic made it difficult for him to interpret the message. He stated,

> I understand it's total U.S. cattle. 89.8 million. 1% above… I don't know. Down 13% is a cool figure but since when? What does that mean? Down from 1995 to 2014? Or total average? It's a cool statistic but what am I supposed to get out of it?

Another participant questioned why 1995 was a relevant year to report. He asked, "Are you trying to show the 20-year difference or was 1995 the down-point in the cycle?"

One participant indicated that he did not know if the message was good or bad. He felt the number of cattle could be down because the process of producing beef is more efficient or because there is less consumption of beef.

Two participants did not like the terminology "inventory." One of these participants was concerned that others would not know what that term meant in reference to cattle. The other participant felt this term made it sound like we have "cow factories." He said the term inventory was appropriate when discussing things like the number of widgets a factory produced, not animals.

One thing that participants did like was the arrows indicating the increase and decrease in inventory. They felt it was a clear, visual indicator of change. One participant stated, "There's no mistaking up an up or down arrow."

In regards to the image of a cow, most participants thought the image helped them understand the information being conveyed. These participants often said things like, "I immediately know it has to do with cattle." Similarly, three participants indicated that they knew by looking at the image that the information didn't pertain to dairy cows. However, three participants did not like the image of the cow that was used. One participant asked, "If the audience is ranchers - it doesn't look like a steer and it doesn't look like a cow. It doesn't look like a bull. What is it?" Another participant indicated that the image looked like a "shadow figure" and that the cow needed to be outlined some more. On a similar note, one participant felt it would be better if the infographic said, "Beef cattle" instead of "cattle and calves." He said cattle and calves implies that these statistics include all types of cows and he doesn't think that was the intention.

The majority of participants liked the colors used in this infographic. One participant liked, in particular, that the statistics were all presented in the same color green and a few participants noted that the colors complement the USDA logo. However, a couple of participants did not like the

colors used in this infographic. These participants described the color scheme as "olivey" and "drab." But neither felt the colors detracted in any way from the information being presented. One participant commented that the color of the text indicating the increase and decrease in cattle inventory was washed out.

Participants all felt the information presented in this infographic was credible due to the inclusion of the USDA and NASS logos, the web address and the created on date. However, two participants indicated that the NASS logo was too small to read.

As mentioned above, the created on date added credibility to the statistics presented in this infographic. A couple of participants mentioned that they were looking for a date but had difficulty finding the date initially. Participants, who noticed this date, had different interpretations of its meaning. One person thought this date referred to the date of the report that contained the statistics. Another participant thought the infographic was conveying the cattle inventory as of May 5, 2015. Another participant was not sure what the date represented. She said, "This is saying when the inventory was taken or… I think when the slide was created." Participants' confusion regarding this date continued to be a problem throughout the test.

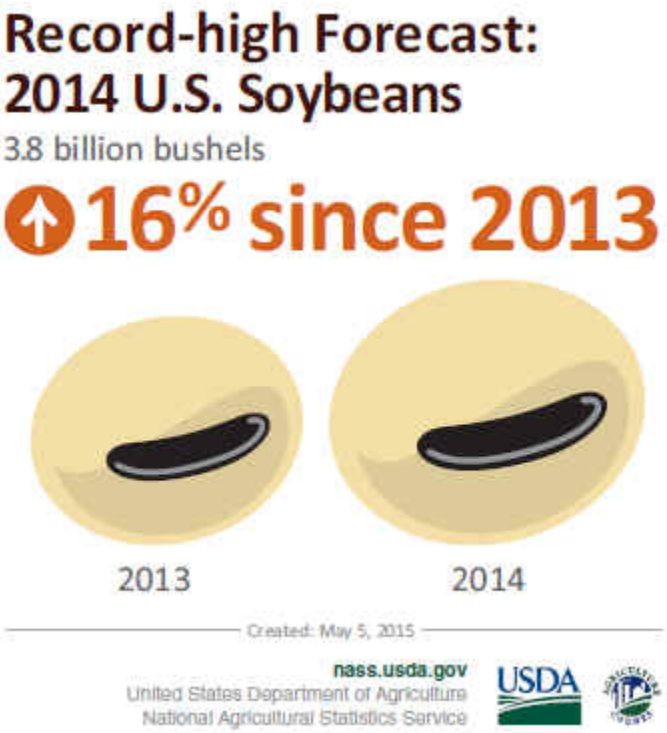
Most participants indicated that this infographic would be useful to them. They discussed using an infographic such as this one in publications, on social media, and at meetings. Two participants indicated it would not be useful to them. One of these individuals indicated this was because there was not enough context provided on the infographic, and another indicated the topic was not relevant to her job.

When asked what additional information they would like to see on this infographic, some participants indicated they needed to see more context as to why these statistics are important, and the message this infographic is trying to convey. Along these same lines, two participants indicated that the source of this data needed to be identified on the infographic. Others would like to see an infographic such as this one that was specific to their state or an infographic with statistics for the major cattle states. Finally, a couple of participants would like to see a graph that shows the cattle inventories over the last 20 years.

In summary, for the most part the information on this infographic was clearly conveyed and most found this infographic appealing. However, some participants indicated that more context was needed to interpret the meaning of these statistics. This could be achieved by making a number of changes:

1. Reword and/or add more text
2. Use of a different cow image or replace the cow image with a graph
3. Add the data source
4. Clarify the created on date
5. Provide additional infographics related to the topic that are state specific

3.2 Infographic #2 (Soybeans)



The intent of Infographic #2 was to convey that U.S. soybeans are forecast for a record-high 3.8 billion bushels in 2014, up sixteen percent since 2013. Participants indicated that different things stood out to them when they first looked at this infographic. The three things that stood out the most were the up arrow with the text '16% since 2013', the soybeans, and the text that reads 'record high forecast.' Several participants also mentioned the difference in size between the two soybeans. One person said they noticed the text that read 3.8 billion bushels.

Many participants indicated that it was not clear to them what this infographic was trying to convey. Only two people initially thought this infographic was conveying a forecast. All other participants interpreted this infographic as conveying how many bushels were "produced" or "harvested," and some noted that this was an increase since the previous year.

Several participants thought the term "forecast" was vague and didn't know what it meant. One person said they interpreted it as "projected production" but he was not sure. Some participants suggested that we change the word forecast to either "harvest" or "production." One participant asked what the record high forecast was referring to specifically. He wondered if this was production, exports, imports, or stocks.

Participants also questioned if this was really a forecast for 2014, since it is currently 2015. These participants thought we should know the production numbers by 2015. One participant said, "Looking at it, you think you're looking ahead but the data is 2014." Similarly, another participant said, "Why would you have a forecast for something that is more than a year ago?" Another

participant pointed out that the created on date was May 5, 2015 and stated he would have expected us to have production numbers for soybeans by this date.

The "3.8 billion bushel" statistic was often overlooked and a couple of participants suggested that it was because of its location, font size and color. One person recommended swapping the position of the "record high forecast" and the "3.8 billion bushels." He said, "What you really want to know is the size."

As with Infographic #1, participants indicated that more context needed to be provided in this infographic. A couple of participants indicated they didn't know if it was good or bad that soybean production was increasing. "Give me a little more context. I have no idea if 16% increase is good or bad. Is there too many soybeans or are we finally producing enough for what we need?" Similarly, another participant stated that she didn't know why this information was important. She indicated there could be a number of reasons why it's important to know that the number of bushels are increasing such as to convey the benefits of genetic modification, to convey that the soybeans market is improving, successful and growing, or to convey the work of farmers.

Only one participant said she liked the images of the soybeans. Most participants said they didn't know what the images were until the read "soybeans." A couple participants admitted that they had never seen a soybean before. Some participants described these images as looking like "a fetus in utero," "a weird happy face," and "a little odd." Some participants noted the difference in size between the two soybeans. A couple of participants simply commented that the size of the soybeans was depicting the change in the amount of soybeans between 2013 and 2014. Others questioned whether the 2014 soybean was actually 16% bigger than the soybean for 2013. One person stated, "Is that 2014 bean actually 16% bigger? If it is, that's cool. If not, it tells me that it's bigger. If it's not actually bigger by 16% than it's misleading."

A few others did not interpret these images as depicting the change in the amount of soybeans between 2013 and 2014. Instead they interpreted these images as saying the size of the soybeans have increased. One participant stated, "Well I know it says bushels increased by the two soybeans next to each other makes me believe bushels increased because the size of the beans increased." She said the extreme spectrum of consumers will see people shooting needles into beans and saying farmers are pumping them full of steroids. She then said, "Maybe we are growing larger beans year to year. Not to my knowledge… I think it's just trying to say the bushels have increased."

Participants suggested using alternative images for this infographic such as soybean pods or soybean plants. One participant suggested using two bushel baskets for each year and have a larger bushel basket for 2014 than 2013. Another participant suggested showing the same sized soybeans but more of them for 2014 than 2013.

As with Infographic #1, some participants indicated that they liked the up arrow indicating the increase in soybeans. One person indicated that he didn't notice this arrow at first. He thought it looked more like a bullet point because of the circle around it.

The created on date was problematic again in this infographic. One participant questioned whether it meant the date the infographic was made or the date when the data was published. He indicated that he would rather see something that read "data as of (insert date)."

In terms of the colors used in this infographic, some participants said they didn't like the color used for "record high forecast." It was described by some as "brown" or "icky brown" and "bland." A couple of participants mentioned they liked the orange color used for the "16% since 2013." As noted above, a couple of participants felt the "3.8 billion bushels" did stand out because of the color. One person suggested using the green color used on Infographic #1. A couple of people questioned the color of the soybeans and one stated that it could be a darker shade.

The majority of participants thought the information displayed in this infographic appeared credible. In most cases, this was because of the USDA logo. One woman stated, "Anything above that I'm going to believe." A couple of people also mentioned that the information appeared credible because the data came from NASS. One person indicated it appeared credible to her because the percent increase seemed plausible. One person, however, said he would discount the information in this infographic since it says it's a forecast for 2014 and we are currently in 2015. He said, in general, he does not trust forecasts because they are always wrong.

Most participants felt this infographic was useful to them. These individuals felt it was relevant to their work and would use this infographic in publications, on social media, and in meetings. A couple of participants indicated it would be even more useful if it had state specific information or compared soybeans to other commodities. One participant who indicated that it was not useful to him, said it left him with more questions than answers.

When asked what additional information they would like to see on this infographic, participants gave a variety of suggestions. Some participants brought up previous points they made, such as the word forecast needs to be changed to harvest or production. One participant suggested including acres planted and a map with the states where soybeans are grown. Others also indicated that they needed more context. These individuals wanted to know why this information is important to know and whether the change in the past year is good or bad. Others indicated that they would like state specific information and some individuals wanted to see soybeans compared to other commodities. A couple of participants indicated that comparing two years of data was not enough to distinguish a trend. Instead these participants would rather see multiple years of data. One of these individuals stated, "One year doesn't make a trend. It makes it look like it's trying to make you think that it is. It's a little deceiving." The other individual suggested using a bar chart with 5 years of data instead of the images of the soybeans or show the number of bushels for each year with up and down arrows. Finally, one person wanted to see the date the estimates were produced and the report name.

In summary, participants had difficulty interpreting the intent of this infographic. The term forecast was vague and participants were confused by the dates used in the infographic. Like Infographic #1, this infographic lacked context needed to interpret the statistics. Most participants did not like the images of soybeans used and in some cases, the sizes of the soybeans were misinterpreted. The following changes could be made to improve clarity:

1. Replace the soybean image
2. Clarify the created on date
3. Include publication name and date
4. Forecasts alone are only useful before commodities are produced. If disseminating forecast data after commodities have been harvested or produced, include the harvest and production numbers

3.3 Infographic #3 (Expenditures)

The intent of Infographic #3 is to convey that the total U.S. farm production expenditures in 2013 were $367.3 billion and that the average per farm was $175,270. The three things that stood out the most to participants with this infographic were the image of the farm, the "367.3 billion" and the "per farm average." When asked what they thought this infographic was trying to convey, participants stated the amount farms are spending on production, that it is expensive to run a farm, and "total expenditures" and "per farm average." For example, when asked about her first impression of this infographic, one person said, "That it costs a lot of money for farming. To me, it looks like a stack of money with a farm on top and then reading that it equals 367 billion farm production expenditure… it takes a little bit of time to understand those huge numbers."

In fact, several participants commented that the total number (367.3 billion) is not important. They felt it was a big number that was hard to interpret. On the other hand they really liked having the per farm average and thought it should be more prominent. A couple of participants commented that the term "expenditure" was very technical. One person stated that we needed to use more lay terms. He said, "Production expenditures sounds like it came directly from a report." He recommended using more lay terms such as, "How much farms spend to make farm goods."

A couple of participants commented that the information on this infographic was hard to interpret without the necessary context, such as how much was spent in previous years, where the money was spent, how much income was made, and how expenditures vary across farm size. But more

importantly, some participants misinterpreted this infographic as conveying how much money farmers make. This was largely associated with the image of the farm on top of the dollar bills.

Although a couple of participants indicated that they liked this image, several participants indicated that they did not, mainly for the reason cited above. These individuals thought this image implied that farmers are rich. One individual, who understood that the infographic was trying to convey expenditures, thought the image made it seem like "look at all the money we're spending," meaning they have lots of money to spend.

Several participants also commented that they didn't know what the image of money was when they first looked at the infographic. A couple of people commented that the money looked like "layers of the earth" and a "soil profile." Although one person thought this was an interesting graphic, it did not help him understand the information being conveyed.

> I wouldn't say the image itself does a whole lot to benefit the information. But I still kind of like it. It's kind of unique. I don't know if it's meant to be but it looks like dollar bills stacked and it also looks like layers of the earth. It's an interesting image but it doesn't really get me anywhere. I like it but I wouldn't say it's helpful.

One person also commented that it looked like the farm was sinking in mud.

Another issue a couple of participants raised with this graphic was that the image of the farm was outdated. These participants described this image as an "ideal farm," and one that is easily recognizable by the general population. But it does not depict what modern farms look like and they felt some farmers and ranchers may take issue with this. When asked what a modern farm might look like, one participant said, "I would keep the machine shed and keep the shape of the barn - maybe tan (instead of red) - and I'm not sure how well it would stand out. A lot of places are no longer using silos. You see that with dairies in WI. In IL a lot of people are taking them down." The other participant described a modern farm in Wisconsin as having barns that look like the one in the image but with open sides and curtains that come down and temperature control. She also said it would not have a silo.

Two participants also questioned the date of the data (2013) presented in this infographic. Both of these participants wondered why data from 2014 was not being used. One of these participants commented that the created on date was 2015 and that made him wonder if that meant that there is no data from 2014 or is the data for 2014 not compelling enough to report.

The majority of participants like the colors used in this graphic. Some participants mentioned that they did not like the gray color used for per farm average. They questioned why it was a different color from the number ($175,270). One person stated, "I think the per farm average in gray could easily be in the same blue or green. It's an extra color that's not necessary." One participant thought the equal sign following $367.3 billion was not necessary. He thought it was clear it was representing the 2013 total.

All the participants felt the information presented on this infographic appeared credible and this was due to the USDA and NASS logos. However, one participant commented that it would appear

more credible if it had the most up-to-date data. Another participant questioned whether these statistics were correct. She stated, “I’m not a math whiz but I know we have 76,000 farms alone in IL and $175,000 per farm – 367 billion seems low to me.”

Most participants indicated the information presented on this infographic was useful to them with a caveat – they wanted more context. They indicated they needed to know what was meant by expenditures and breakdowns, such as how much family farms are spending, what farmers are spending to produce different commodities and state specific information. In general, participants felt the per farm average was the most important information on this slide

When asked what additional information they would like to see on this infographic participants often said more context. Participants felt that presented statistics for one year was not useful or interesting. They wanted to know how expenditures have changed over time and whether the statistics presented on this infographic were good or bad. One person stated,

> It’s a nice piece of trivia. There’s not enough context for it to stick with me or give me any value. Maybe the per farm number is horrible or a good thing. I don’t have any context. I don’t know the message it’s trying to convey.

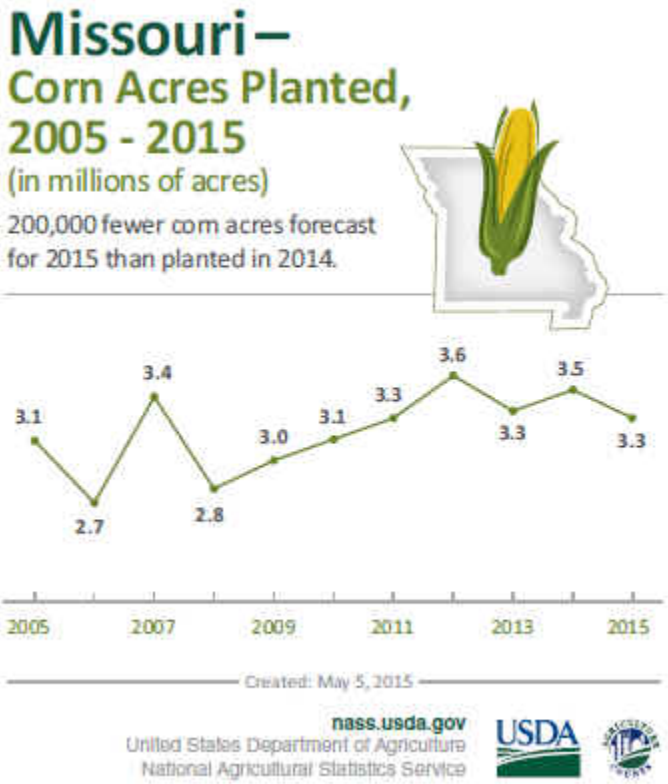
Another participant emailed statistics on farm expenditures after the interview which stated, "Per farm, the average expenditures total $191,500 compared with $175,270 in 2013, up 9.3 percent." She felt it is important to note that farming expenditures have increased substantially on a per farm average.

Participants also wanted a clearer explanation of what expenditures were and where farmers were spending their money. One participant stated, “It might be nice to show a column of seed and what seed costs. Column with tractors and what they cost – on average what a farmer spends on tractors per year. Livestock. What it costs to produce livestock.” One participant stated he was interested in seeing a comparison of expenditures to produce specific commodities like grain, soybeans, and corn. Participants were also interested in knowing how expenditures varied by farm size and how expenditures compared to income or expenditure as percent of revenue. Additionally, participants would like to see more up-to-date statistics and state specific statistics regarding expenditures. The source of the data needs to be cited as well as the date the data were published and a direct link to the data needs to be provided.

In summary, participants generally liked the per farm expenditure on this infographic, however this statistic needed more context. The image of the farm on a stack of dollar bills was not well-received by most participants and in some cases it led the participants to believe the infographic was conveying the wealth of farmers. The following changes may improve clarity and usefulness of this infographic:

1. Remove the image of a farm on a stack of money
2. Focus on per farm average expenditures
3. Show trends in expenditures over time
4. Don’t use the term expenditures
5. Create other infographics that convey expenditures per commodity, farm size, and infographics that are state specific

3.4 Infographic #4 (Corn)



The intent of infographic #4 was the covey that in 2015, Missouri planted 3.3 million acres of corn and the ten year trend. In general, participants had a positive reaction to this infographic. They felt this infographic provided more context than the other infographics. One person's first reaction was, "That it's Missouri and Corn. Corn acres planted. Oh! That's what I wanted them to do for the soybean one. Yeah I like that a lot. That's really cool. That's very useful." Others described it as more dynamic and complex. One participant stated, "It presented more complete information than the others I've seen."

When asked what stood out to them initially, participants often stated that it was about corn and Missouri, acres planted, trend data over time with 200,000 fewer acres forecasted. They also noticed the image of the corn within the state of Missouri.

When asked what they thought this infographic was trying to convey, some participants stated it was showing the trend in corn acreage in Missouri, others stating it's showing the trend in acres planted in Missouri over time, both interpretations noting the general upward trend with more recent declines. One participant stated that these statistics were from the March 31st Perspective Planting Report and that "It's telling me how many acres of corn I can expect Missouri to plant." Another participant said she wasn't sure what this infographic was conveying. She said, "I'm really not sure. At first, they're having a decrease in acres planted and the next question is why, and why is it important to me?" She asked if the decline in acres planted was because of urban growth,

climate/weather issues, or because soybeans are higher priced than corn so they're planting more soybeans than corn.

A couple of participants mentioned that this infographic took a little longer to digest than the other ones but they didn't mind since it provided them with a lot more information. Many participants commented that they liked this infographic better than the others because it showed trend data in the graph and it stated "200,000 fewer acres forecast for 2015 than planted in 2014." Still, a few participants commented that more context needs to be provided in order for them to interpret the numbers. They asked questions such as, if theirs is less corn is this something we should be concerned about; is this decline related to urban growth, climate/weather issues, because soybeans are higher priced than corn; is this a trend that we could expect to see in another 10 years; and what's responsible for the dip in 2006 and 2008?

Almost all of the participants indicated that they liked the image of the corn in the state of Missouri and many commented that they knew right away by looking at the image that this infographic was going to be talking about corn in Missouri. Although one participant commented that he wouldn't have known that was the state of Missouri unless it said "Missouri." He stated, "I'm not sure I would have picked out that is Missouri. But everyone from that area would but having the word Missouri there for everyone who doesn't know is good." One participant suggested putting kernels on the corn "so it looks less like a banana in a stock."

Participants also commented that they liked the combination of the image with the graph showing the trend over time. One participant commented that graphs on their own can be boring and are not eye catching and the image makes the infographic much more visually interesting. Some participants noted that the graph was missing a label for the y-axis and that it took them a minute to figure out what the data points were referencing. One person stated, "Is the 3.1 million of acres and the 2.7 million acres? I'm not sure what these numbers represent. I know it says 2005 – 2015 in millions of acres and is that what the graphic is representing?" These participants both suggested removing "millions of acres" from the text above the graph and using it as a label for the y-axis. A couple of participants suggested making the color of the dates on the x-axis a darker shade of green. One participant indicated that she liked that the data points were labeled. However, several participants pointed out that the 2015 number is a forecast and should be labeled accordingly.

Participants had a few other comments about the visual elements in this infographic. One participant felt there was too much text between "Missouri" and the graph. Some participants commented that there did not need to be a hyphen following Missouri. Once again, participants wanted to see the source of this data for example the report name and the date of the report.

Almost all of the participants said they liked the colors used in this infographic. However, one participant commented that the colors were a little plain and a couple of participants thought the color used for "Missouri" should be changed. One person thought this color was green and the other thought it was blue. One suggested using dark gray and another suggested using the same color blue from the USDA logo.

All of the participants thought the information on this infographic appeared credible. They once again cited the USDA logo as adding credibility and one participant commented that the data

seemed reasonable and therefore she felt that it was credible. However, one participant questioned whether the 2007 number was accurate or if it was the result of a problem with data collection. He thought this looked like a large increase for one year. This made him question the credibility of the information a little. Another participant felt the credibility could be increased by adding the report name from which the data came and the date the report was released.

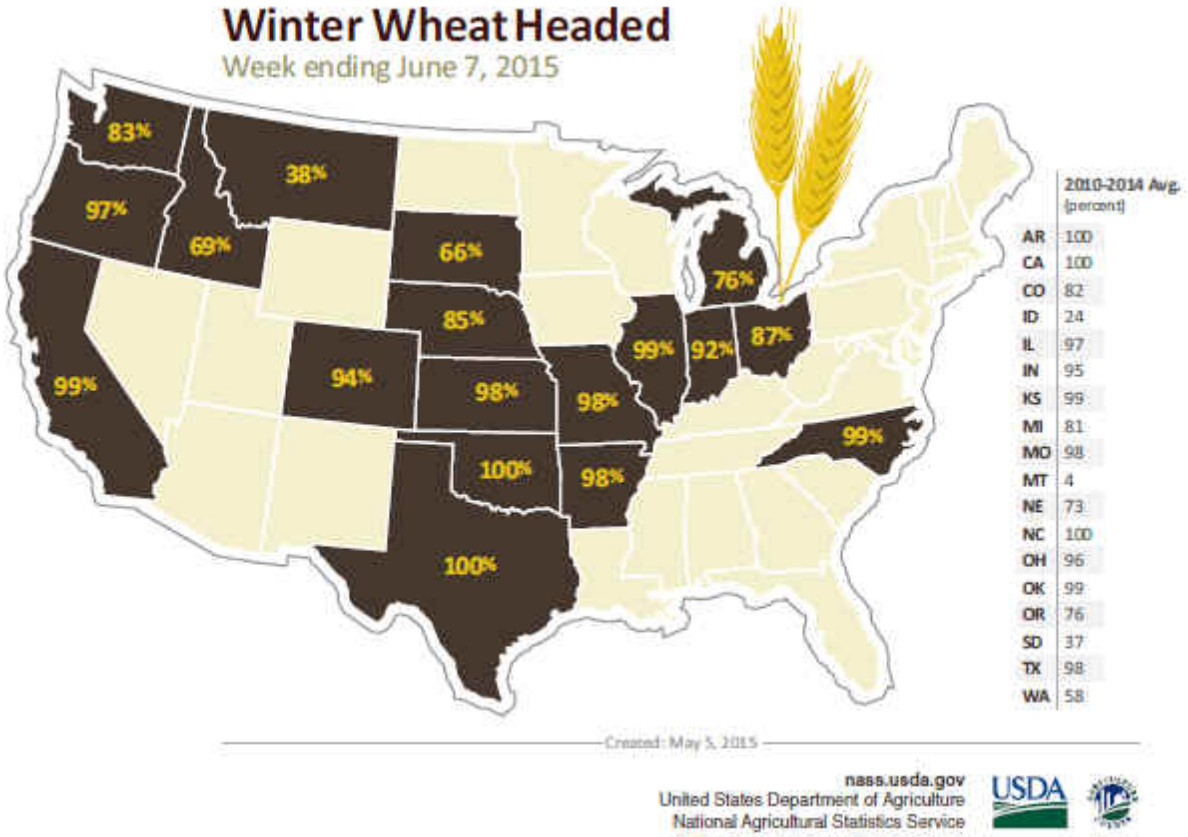
The participants all thought this infographic was useful because of the way the information was presented, but most did not find it useful because they are not interested in data on Missouri. For the most part, participants would be interested in seeing infographics such as this for states that were relevant to them.

When asked what additional information they would like to see on an infographic such as this most participants said no additional information would be needed. However, one participant said he wanted more context. He wanted to know why this information mattered and, in particular, if we should be concerned that less corn is being planted. One participant said it would be interesting to have soybean acreage planted on this graph as well. Another participant said she would like a graphic such as this for all the corn states and one for the total U.S., and she would like the same for soybean acreage planted.

In summary, participants liked this infographic a lot. They felt this infographic provided the context that was missing from the previous infographics. There were a few minor changes that could be made to this infographic to improve clarity:

1. Move “millions of acres” to the y-axis
2. Change the color of “Missouri” to the blue used in the USDA logo
3. Remove the dash following Missouri
4. Place the “200,00 fewer acres below Missouri and move the “Corn Acres Planted 2005-2015” to above the graph
5. Use a darker shade of green for the dates on the x-axis
6. Indicate that 2015 is a forecast by placing (est.) below the number
7. Add data source and date

3.5 Infographic #5 (Wheat)



The intent of Infographic #5 was to convey that amount of winter wheat headed as of the week ending June 7, 2015 in the major winter wheat states, and how that amount compared to the five-year average for each state. For example, as of the week ending June 7, 2105, 100 percent of the winter wheat was headed in Texas, two points ahead of the five-year average. The majority of the participants first noticed the states that were highlighted on the map. A few participants also noticed the heading "winter wheat headed" and the table on the right showing the "2010-2014" data.

When asked what they thought this infographic was trying to convey, most participants mentioned the percent of winter wheat headed as of June 7th and some added that it was also comparing those numbers to the 5 year average. A couple of participants mentioned it was a weekly report. There were a few participants who said they didn't know what it was trying to convey but both indicated they didn't know much about wheat and one did not know what the term "headed" meant. One participant said, "I guess heads of wheat that have presented and I know the timing of when that happens in our area…. I'm assuming that's what it means. I don't know."

In general the participants did like the use of graphics in this infographic. They often commented that they liked the map of the U.S., the table with the 5 year average on the right, and the wheat. For the most part, participants also thought the information on this infographic was conveyed clearly. However, several participants mentioned that the table on the right was hard to interpret.

At first glance, one participant thought the table contained the same numbers that were presented in the map. She stated, "I think it's good there's the two columns with states and percentages. I'm not sure why that would be relevant but for someone who doesn't know their states, it's good information to have. Oh! That's the average percent 2010-2015 and the graphic is just 2015." One participant identified the report this data was from but he was also unsure what the table on the right was at first glance. He said,

> It's from the weekly crop progress report. The thermometer on the right took me a minute to figure out. Oh that's the previous average. Oh it's 5 years. I use this report every week. I like the right side. It needs to say rolling 5 year average above the 2010-2014. If you don't know what that is it's hard to tell just looking at it.

Similarly, it was not clear to another participant whether the numbers presented in the table pertained to the average amount of wheat planted as of June 7th in the years 2010-2014 or if it was the average amount of wheat planted within the same timeframe (e.g., first week in June). Finally, two participants thought the numbers were very small and hard to read. A couple of individuals also commented that you have to know your geography in order to compare the numbers in the table to the numbers presented on the map.

For the map, participants liked the contrast of colors used, where states for which we have data were highlighted, and they liked the placement of percentages for each state within the state borders. However, participants did not always view these colors in the same way. Some people perceived the states that were highlighted as brown and others perceived them to be black. Some people also saw the states that were not highlighted as yellow and others saw them as tan, and one person thought it looked like "glow in the dark" yellow. Additionally, the colors (however they saw them) were very polarizing – some people liked them and some did not. For example, a couple of people thought the colors worked well and described them as winter wheat type colors. However, one woman, who saw the states as brown, described the color as "ugly" and "icky brown." Another person simply said he did not like the black and yellow. One participant suggested using colors such as green and red to indicate if states are complete or behind in progress.

A couple of participants also questioned why some states did not contain data. For example, one participant said, "The question I have is do the others states not grow wheat? Are these the main wheat growing states?" A few participants mentioned that some people, who are not good at geography or are not American, may not know the names of states and that it might be necessary to add state abbreviations to the map.

As mentioned above, several participants mentioned liking the image of the wheat at the top of the U.S. map. However, one person felt the image needed to be more defined. Another participant didn't like the location of the wheat. She suggested tilting it and placing it in the lower left corner of the infographic or leave it where it is and tilt it.

Participants also mentioned a few other minor things regarding this visual appearance of this infographic. One participant commented that the spacing between wheat and headed made it appear as if wheat and headed was one word and he didn't think it was. This same participant also

commented that it looked like “Week ending June 7, 2015” was not aligned with “Winter Wheat Headed;” however he thought this might be an optical illusion. Another participant also commented that the created on date looked out of place in this infographic.

In terms of the credibility of the information presented on this infographic, all but one participant said the information appeared credible. One participant said he was not familiar enough with winter wheat to make that assessment. The others felt it appeared credible because of the USDA logo and because the statistics appeared plausible. However, one participant pointed out that the infographic says “Winter wheat headed week ending June 7, 2015” and the created on date was “May 5, 2015. He said, “Either you have a crystal ball or one of those (dates) is wrong.”

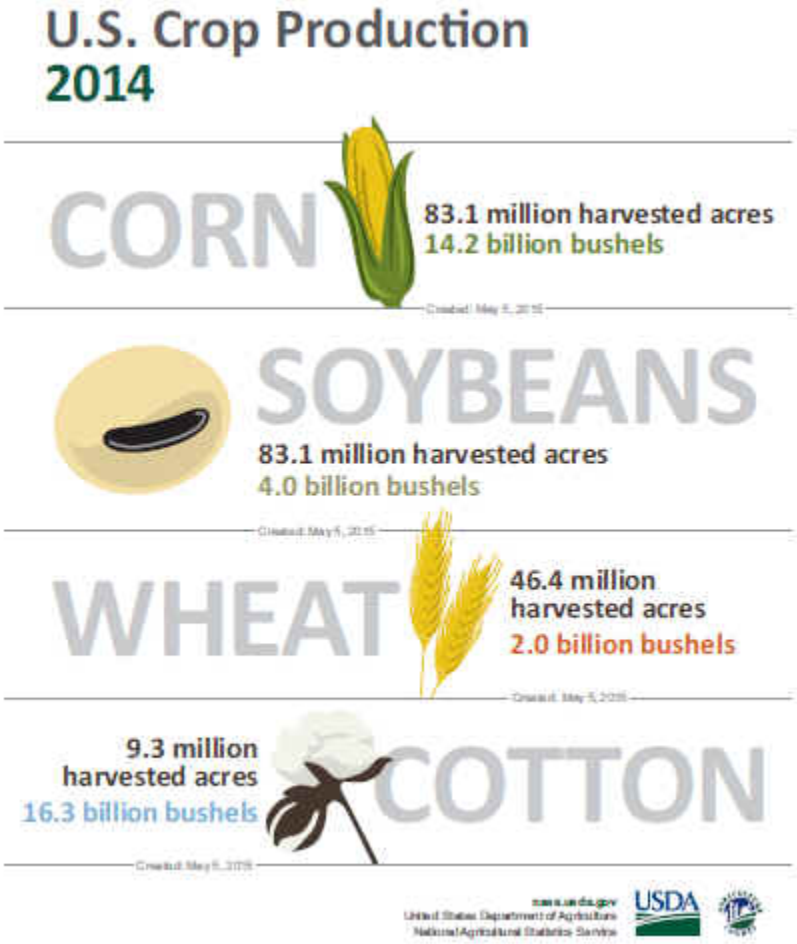
Only three of the participants said this infographic would be useful to them. Two said it’s something they would use weekly, and one of these participants said it was useful specifically because it gives you a sense of how wheat is maturing. The other participants did not think this infographic was useful because wheat is not a commodity grown in their state and/or is not a commodity they encounter in their job. However, one participant mentioned he would like to see an infographic such as this for other commodities. He said, “In general, how it’s done is good. If it was corn production, I’d be all in.”

When asked what other information they would like to see on an infographic such as this one, a couple of participants indicated it would be good to include the national average and the 5 year national average on this infographic. One participant thought it would be interesting to know the average harvest date. She said in agriculture there is a lot of controversy regarding the use of Roundup to get plants ready to harvest. She thought it would be good to show when “heads come out” in July and when they were harvested to show the lack of need for Roundup. She finds herself often telling people that it’s not common practice in the U.S. but never has any data to back it up. Another participant mentioned the report name, “Crop Progress,” and the report date need to be included in the infographic. In terms of other similar infographics, one participant thought it would be interesting to see what percent of each state’s output of wheat was part of the U.S. output.

In summary, this graphic was generally well-received and the information was conveyed well. However, some small changes would be needed to improve its ease of use.

1. Indicate in the heading why certain states are highlighted
2. Consider changing the colors used on the map
3. Increase the font size for the table on the right

3.6 Infographic #6 (Crop production)



The intent of Infographic #6 was to convey the 2014 crop production for four major commodities: corn, soybeans, wheat and cotton. Participants indicated that different things stood out to them when they first looked at this infographic. Several people mentioned they were drawn to the corn and the cotton images. Many participants also noticed that information on acres harvested and bushels were presented for each commodity. Some participants noted the heading "crop production." Some were drawn to the colors used for wheat and cotton bushels. A few others also mentioned, the soybean image, the wheat image, the words "soybean," "wheat," "corn" and "cotton," and the created on date.

When asked what they thought this infographic was trying to convey, most participants said the amount of acres harvested and bushels produced for the four commodities. Others indicated it was a summary of the crop production for the major U.S. crops. Many appreciated that the number of acres harvested and bushels produced were listed. One participant said, "It's very intriguing. Because I don't usually display these together, but showing how many acres produced is quite staggering. It's a good comparison." One participant indicated that she would like to see these numbers on the infographics for corn and soybeans. Participants described this infographic as, "easy to read," "quick, simple and easy," "pretty clear and concise," and "visually appealing."

Although participants generally liked this infographic, some participants had questions about what this infographic was trying to convey and some felt more context was needed. One participant questioned whether this was presenting the final counts or if this was data for some point in time. He said he assumed it was the final count for 2014 since the created on date was May 5, 2015. Another participants wondered if we should have reported planted acres instead of harvested acres. He said, "I like that it tells me the harvest acres. Is that the acres you actually want to convey? More often than not the trade uses the planted acres. We tend to harvest fewer than we plant." Some participants felt this infographic needed more context. One participant questioned whether the number of acres harvested and bushels produced would be meaningful to the average person as standalone numbers. Two other participants wanted to know the trend over time for these commodities. One of these participants stated, "Information about a given point in time is much more useful if compared to the past." The other participant felt this infographic couldn't stand alone because it's missing "the story" that goes with the data.

In regards to the imagery used, several people commented that they still did not like the image of the soybean. A couple of participants suggested, once again, that we use an image of a soybean in a pod. However, a couple of participants who did not like the soybean in Infographic #2, did say that they thought it worked better in the context of the other commodity images. Some participants mentioned that the cotton image needed some tweaking. One participant didn't realize it was cotton when he first looked at it, he said the cotton ball looked like "a bug or popcorn." Some participants thought there was not enough contrast between the cotton ball and the background and that the stem of the cotton stood out more than the cotton itself. Additionally, one person said she liked the color of the stem but another indicated that he did not, he said, "The stem of the cotton needs to be green. Is that black or brown? It probably needs to be changed." In terms of the corn and wheat images, one person felt they could be more defined. Finally, two participants indicated they really liked how the commodities were off-set from each other.

A couple of participants felt improvements could be made to the header of the infographic. One person commented that the header looked like "someone felt they had to put a head on this but didn't have a lot of confidence in it." He said the font size was too small and the color needed to change. He suggested using the same font that is used for the commodities. Two others also mentioned that 2014 should be on the same line as "crop production" and one person felt the color of "crop production" should be green. One participant was confused about the reference to, and placement of, the created on date. He said, "I wonder why you need to tell me it was created May 5, really small, four times."

Participants generally liked the colors used for the commodity name and the number of acres harvested. However, several people questioned the use of color for the bushels. One person questioned why the acres harvested were all in black and the number of bushels were presented in different colors for each commodity. He felt that the same color should be used for acres harvested and bushels. However, if it is important to distinguish between bushels and acres harvested, then the same color should be used for bushels across the different commodities. Some participants thought the colors used for the number of cotton and wheat bushels made those two numbers stand out from the rest. One person said, "I do see that it's put in order of which crop produces the most.

But the red and blue stick out so much. It seems like you're putting more importance on these two." Others simply did not like the choice of colors used. A couple of people mentioned they did not like the color used for the soybean bushels. One person said, "I like them a lot. The only one I'm not digging is the 4.0 billion under soybeans. It's the only one that doesn't pop. Maybe make it brown. All the others work." Another person stated, "I see what they're doing with the colors – green for corn, brown for wheat, colors of the crop. I don't mind orange for wheat. I'm not crazy about the blue with cotton."

All of the participants thought this information in this infographic appeared credible. Again, they cited the USDA logo, and one person mentioned that she has a good sense of the number of acres harvested and bushels produced for these commodities, and these numbers seem plausible. One person did note that the number of harvested acres for corn and soybeans was the same. This made him question whether someone copied and pasted the number and forgot to change it.

Almost all of the participants felt this infographic was useful. One participant said "Absolutely, because we are a general commodity organization. It's good to show them all." One participant said it would be useful to her if the data presented was specific to her state. Two participants described this infographic as "trivia" and a "snapshot" and said they did not find this infographic particularly useful. They indicated that more context was needed to show how these numbers have changed over time.

When asked what additional information they would like to see on an infographic such as this one, two people mentioned yield. As mentioned above, a couple of participants indicated they wanted more context to understand the numbers. One of these participants said, "Information about a given point in time is much more useful if compared to the past." Similarly, another participant said it would be interesting to have additional infographics like this one for different years.

In summary, participants generally liked this infographic. They liked that numbers for harvested acres and bushels were presented. They thought it was visually interesting. Some participants who did not like the soybean image used in Infographic #2, did like it in this context. Several participants mentioned they did not like the choice of colors used for bushels. The following changes may improve clarity:

1. Place the header (crop production 2014) on one line, and make the font larger and all one color
2. Make bushels all one color
3. Provide more contrast between the cotton and the background
4. List the source data and date instead of the created on date.

3.7 Debriefing

During the debriefing, participants were asked if it was clear to them where the data in these infographics came from. Most participants either said the data came from the USDA or that they "assumed" that it came from the USDA. Two people said it came from USDA and NASS and one person said it came from NASS. A couple of participants pointed out that the infographics don't

explicitly say the data come from USDA, and the source of this data might not be obvious to others who are less familiar with USDA and NASS data. A couple of suggestions were made to improve the link between USDA/NASS and these infographics, including making the logos and web address larger, providing a link to the survey from which the data come, and adding a web address linking them to the survey.

When asked if they knew by looking at the infographic where they could go to find more information, some participants said yes, they could go to the USDA/NASS website. Others indicated that it was not clear. Several participants mentioned that they knew where to go but they didn't think others would. These same participants indicated that the NASS website is hard to navigate and people interested in these statistics would be better off using Google to find the information. Several participants suggested that we provide a direct link to the data on the infographic rather than directing them to the NASS homepage. One person said, "I'm sure if I went to the address (listed on the infographic), I would get the standard issued government site and I'm not going to be able to find this data." He thought it would be better to list a web address with an easy URL to take you to the page where you could get additional information on this data. Another person indicated that ERS does this with materials that they disseminate. A couple of participants also mentioned that it would be useful to directly point users to the web link on the infographic by saying something like "For more information go to: (insert web address)."

All the participants thought using infographics was an effective way for NASS to disseminate data findings. Some participants commented that people love visual displays of data and they thought these infographics would be easy to share on social media. Participants often described these infographics as concise and easily digestible. When asked how often they would like to see data presented in this way, most participants said as often as data is published or reports come out. Others said as often as possible. One person said he would like to see them anytime state specific statistics are disseminated. Another person said two times a year. There was one person who said he would not use them because they do not provide enough context.

Most participants said they would use these infographics in their work. One person said,

> I see reports and I think how do I take this information and make it into something I can use?' I see these and I think it's easy; something I can share with the general public, and I don't have to put any thought into it. I don't have to do anything to it to share. It's easily digested information.

Participants said they would distribute them through reports, newsletters, blogs, websites, social media (Facebook and Twitter), and at meetings. Some indicated they would use them as often as they were made available. Others said 2-3 times a week, 2 times a month, and once a quarter. However, two participants felt the effectiveness of these infographics depends on the intended audience and the objective of the infographic being clearly defined. These individuals said they would not use these infographics unless more context was provided with them.

All but two participants said they were actively engaged in social media. Most of these participants use Facebook and Twitter, and all but one of the people on Twitter follow NASS. Some also used Instagram, Pinterest, Periscope, YouTube, and Google Plus. Most of the participants thought social

media would be a good way for NASS to share infographics. However, one person said again that the objective of the infographics needs to be clearly defined before sharing them on social media. One person who is not active on social media, felt he could not comment on whether or not they would be good to share on social media.

Finally, the created on date caught many participants' attention and they often indicated that they were looking for a date on the infographic. They thought this information added credibility and gave the reader a sense of how current the data were. However, as detailed above, participants did not all interpret the created on date in the same way, and in some cases this led to confusion. After several participants mentioned the created on date, I began asking participants of their interpretation of it during the debriefing. One person thought the created on date referred to the date the infographic was made. One person said he assumed the created on data referred to the date the infographic was made and that the data presented was the most up-to-date data available at the time it was made. Others indicated they were unsure what it meant. Often they asked if the created on date referred to the date the infographic was made, or the date the data presented in the infographic were published. Participants were in agreement that a date was needed, as it added credibility to the information presented on the infographic. The date they were looking for was the date the data presented in the infographic were published.

4. CONCLUSION AND RECOMMENDATIONS

In general, participants were excited to learn that NASS was developing infographics to disseminate data. Many participants said they would use infographics such as these in their work and would primarily share them via social media. However, a number of improvements would need to be made to the infographics before they would use them.

Participants felt that more context was often needed to help them interpret the information being presented in the infographics. In particular, participants wanted to see more trend data (i.e., comparisons of estimates across 5 or more years), information on why estimates have changed over time, comparisons across commodities, and comparisons of amount planted, harvested, and produced for specific commodities. Participants were also interested in seeing infographic that were more relatable to their states and their customers. This would entail creating infographics that are state or region specific and smaller estimates such as per farm estimates rather than national averages.

In order to improve the credibility of the infographics, participants wanted to see a reference to the report that contained the data and the date of publication. In addition, several participants also would prefer the infographics to contain a direct link to the reports rather than a link to the NASS home page.

The images used in the infographics should be modern and easily recognizable. They should also accurately represent the data being presented. Participants generally felt the images used made the infographics more visually appealing, but they also affected interpretation of the statistics being presented. Although some images helped convey the information being presented, other images

were distracting because participants did not feel they represented the data being presented, and in some cases the images caused participants to misinterpret the statistics.

In a couple of the infographics, technical terms were used that participants did not understand. To reach the broadest audience, lay terminology should be used instead of jargon or technical terms.

Finally, in some infographics the colors used were distracting. In these cases, participants' eyes were drawn to certain text because of the color used and this led participants to believe that NASS was highlighting certain statistics in the infographic. This can be misleading and lead to misinterpretation of the information being presented. The infographics should utilize a minimal color scheme and designers should be cognizant of how the use of color can convey meaning beyond the written test. Based on these findings, I recommend the following changes for the NASS Infographics Toolbox as a whole:

Overall Recommendations:

1) Provide more context in the infographics (e.g., trend data, information why estimates have changed over time, comparisons across commodities, comparisons of amount planted, harvested, and produced)
2) Make information presented in the infographics relatable by providing information such as state specific estimates and per farm averages
3) Remove created on date and provide the report name and date the data were published
4) Provide a direct link to the report that contains the statistics
5) Use the most up-to-date statistics
6) Use modern, recognizable images that best represent the data being presented
7) Avoid the use of jargon or technical terms
8) Use a minimal color scheme and be cognizant that certain colors may draw attention to particular elements in the infographic

APPENDIX: MATERIALS USED DURING TESTING

PAO Infographics Usability Testing
July 2015

Background

An infographic is a visual image that can be used to represent information or data. NASS recently explored new uses of infographics for the 2012 Census of Agriculture data release. The goal was to provide more information to data users in a quicker, more digestible format. The Census of Agriculture infographics were a success amongst the target audience, primarily on digital media. To continue building on this success from the Census of Agriculture, NASS is exploring ways to incorporate infographics into the agency's overall dissemination of agricultural statistics.

The new goal is to develop a general NASS Infographics Toolbox that will be used to create infographics to represent NASS data from its regular statistical programs. These infographics can be created and shared via digital media (i.e. Twitter, Facebook, etc.) on a daily, weekly, monthly basis. Examples include creating infographics to highlight key data from the Crop Production reports, Crop Progress reports, Hogs and Pigs reports, Cattle reports, Farm Production Expenditures report, and much more. The data presented can be at the national, regional, or state level.

Currently, the Public Affairs Office (PAO) has a concept developed for the NASS Infographic Toolbox. This concept consists of several sample infographics that all have a consistent look and feel. The goal of the usability testing is to assess how effective the infographics are at conveying official statistics and users' satisfaction with these infographics. Usability testing will be conducted to examine potential users' perceptions of the concept, and the functionality, value and credibility of the infographics. PAO will continue to develop the concept based on this findings from the research. Once final, the goal is to begin incorporating the new infographics into our data dissemination efforts in late-summer 2015.

Methods

Nine participants will be recruited through the PAO database of volunteers. This database includes data users and stakeholders who have volunteered in the past to participants in PAO testing. Participants from a variety of sectors will be recruited for this study.

Usability testing will be conducted via AT&T Connect. Prior to the test each participant will be contacted by the moderator to ensure they are able to connect through AT&T connect. Participants will be sent a reminder the day before the test. At the start of the test, the interviewer will introduce the task and answer any questions. Each infographic will be presented individually and the participant will be asked to review the infographic for a minute before being asked a series of usability questions. The usability questions will assess the infographics on five facets of usability: usable (is the information clearly presented), useful (does the content fulfill a need), desirable (is the infographic appealing), valuable (does it advance NASS's mission), and credible (is the information presented in the infographic trustworthy). At end of the interview,

respondents will be asked additional debriefing questions on the value, credibility, usefulness of these infographics. The usability and debriefing questions can be found below.

Usability questions:

(Useable)

What stands out to you initially?

What information do you think this infographic is trying to convey?

Is the information conveyed clearly? If not, what do you feel is missing?

Does the imagery help you understand the information that is being presented? Why/why not?

How do you feel about the use of colors in this infographic?

Is there anything you like in particular; anything you don't like? (Desirable)

(Useful)

Is there other content or information you would like to see on an infographic such as this?

Is the information presented on this infographic useful to you?

(Credible)

Does the information appear credible? Why/why not

General debriefing questions

Is it clear to you where this data comes from? (credibility)

Do you know where you can go to find more information about this data? (Useable)

Do you think this is an effective way for NASS to disseminate data findings? Why/why not? (Valuable)

How often would you want to see data presented in this way? (Useful)

Would you use these infographics? How often? For what purpose? (useful)

Are you engaged in social media channels (which ones)? Do you currently follow NASS on Twitter? (Value)

Do you think this infographic would be useful for disseminating information via social media? (Valuable)

PAO Infographics Usability Testing Interview Guide

Interviewer:

Respondent:

Date:

NASS is currently developing an Infographics Toolbox that will be used to create infographics to represent NASS data from its regular statistical programs. The goal was to provide more information to data users in a quicker, more digestible format. As we develop these infographics we want to get feedback from data users such as yourself. We're interested in your general reactions to these infographics and how well they convey the intended information. I'm going to present several infographics to you and after you review each one, I'm going to ask you a series of questions to measure your reaction to these infographics. Do you have any questions before we begin?

Infographic #1 (Cattle)

What stands out to you initially?

What information do you think this infographic is trying to convey?

Is the information conveyed clearly? If not, what do you feel is missing?

Does the imagery help you understand the information that is being presented? Why/why not?

How do you feel about the use of colors in this infographic?

Is there anything you like in particular; anything you don't like?

Is there other content or information you would like to see on an infographic such as this?

Is the information presented on this infographic useful to you?

Does the information appear credible? Why/why not

Infographic #2 (Soybeans)

What stands out to you initially?

What information do you think this infographic is trying to convey?

Is the information conveyed clearly? If not, what do you feel is missing?

Does the imagery help you understand the information that is being presented? Why/why not?

How do you feel about the use of colors in this infographic?

Is there anything you like in particular; anything you don't like?

Is there other content or information you would like to see on an infographic such as this?

Is the information presented on this infographic useful to you?

Does the information appear credible? Why/why not

Infographic #3 (Expenditures)

What stands out to you initially?

What information do you think this infographic is trying to convey?

Is the information conveyed clearly? If not, what do you feel is missing?

Does the imagery help you understand the information that is being presented? Why/why not?

How do you feel about the use of colors in this infographic?

Is there anything you like in particular; anything you don't like?

Is there other content or information you would like to see on an infographic such as this?

Is the information presented on this infographic useful to you?

Does the information appear credible? Why/why not

Infographic #4 (Corn)

What stands out to you initially?

What information do you think this infographic is trying to convey?

Is the information conveyed clearly? If not, what do you feel is missing?

Does the imagery help you understand the information that is being presented? Why/why not?

How do you feel about the use of colors in this infographic?

Is there anything you like in particular; anything you don't like?

Is there other content or information you would like to see on an infographic such as this?

Is the information presented on this infographic useful to you?

Does the information appear credible? Why/why not

Infographic #5 (Wheat)

What stands out to you initially?

What information do you think this infographic is trying to convey?

Is the information conveyed clearly? If not, what do you feel is missing?

Does the imagery help you understand the information that is being presented? Why/why not?

How do you feel about the use of colors in this infographic?

Is there anything you like in particular; anything you don't like?

Is there other content or information you would like to see on an infographic such as this?

Is the information presented on this infographic useful to you?

Does the information appear credible? Why/why not

Infographic #6 (Crop production)

What stands out to you initially?

What information do you think this infographic is trying to convey?

Is the information conveyed clearly? If not, what do you feel is missing?

Does the imagery help you understand the information that is being presented? Why/why not?

How do you feel about the use of colors in this infographic?

Is there anything you like in particular; anything you don't like?

Is there other content or information you would like to see on an infographic such as this?

Is the information presented on this infographic useful to you?

Does the information appear credible? Why/why not

General debriefing questions

Is it clear to you where this data comes from?

Do you know where you can go to find more information about this data?

Do you think this is an effective way for NASS to disseminate data findings? Why/why not?

How often would you want to see data presented in this way?

Would you use these infographics? How often? For what purpose?

Are you engaged in social media channels (which ones)? Do you currently follow NASS on Twitter?

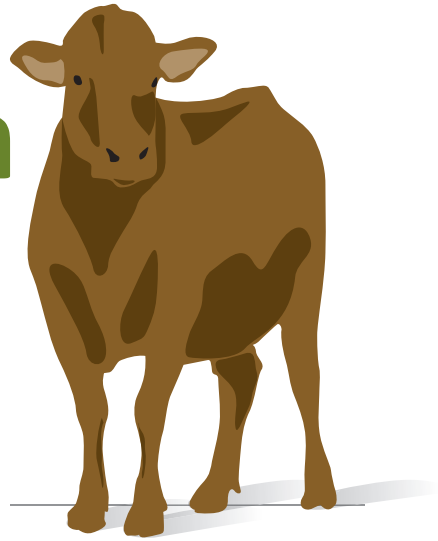
Do you think this infographic would be useful for disseminating information via social media?

89.8 million

Total 2015 U.S. cattle and calves inventory.

Up 1% since 2014

Down 13% since 1995



Created: May 5, 2015

nass.usda.gov
United States Department of Agriculture
National Agricultural Statistics Service

Record-high Forecast: 2014 U.S. Soybeans

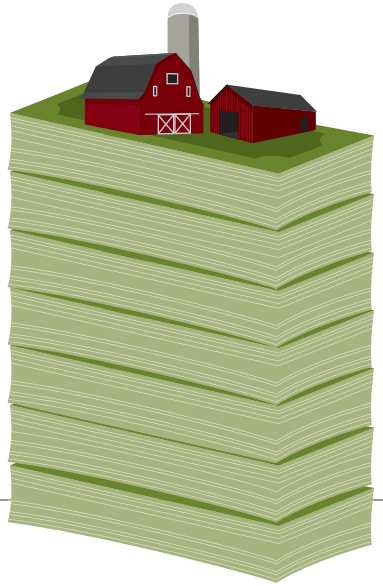
3.8 billion bushels

↑ 16% since 2013

2013 2014

Created: May 5, 2015

nass.usda.gov
United States Department of Agriculture
National Agricultural Statistics Service



$367.3 billion =

2013 U.S. farm production expenditures

$175,270 = Per farm average

Created: May 5, 2015

nass.usda.gov
United States Department of Agriculture
National Agricultural Statistics Service

Missouri –
Corn Acres Planted, 2005 - 2015
(in millions of acres)

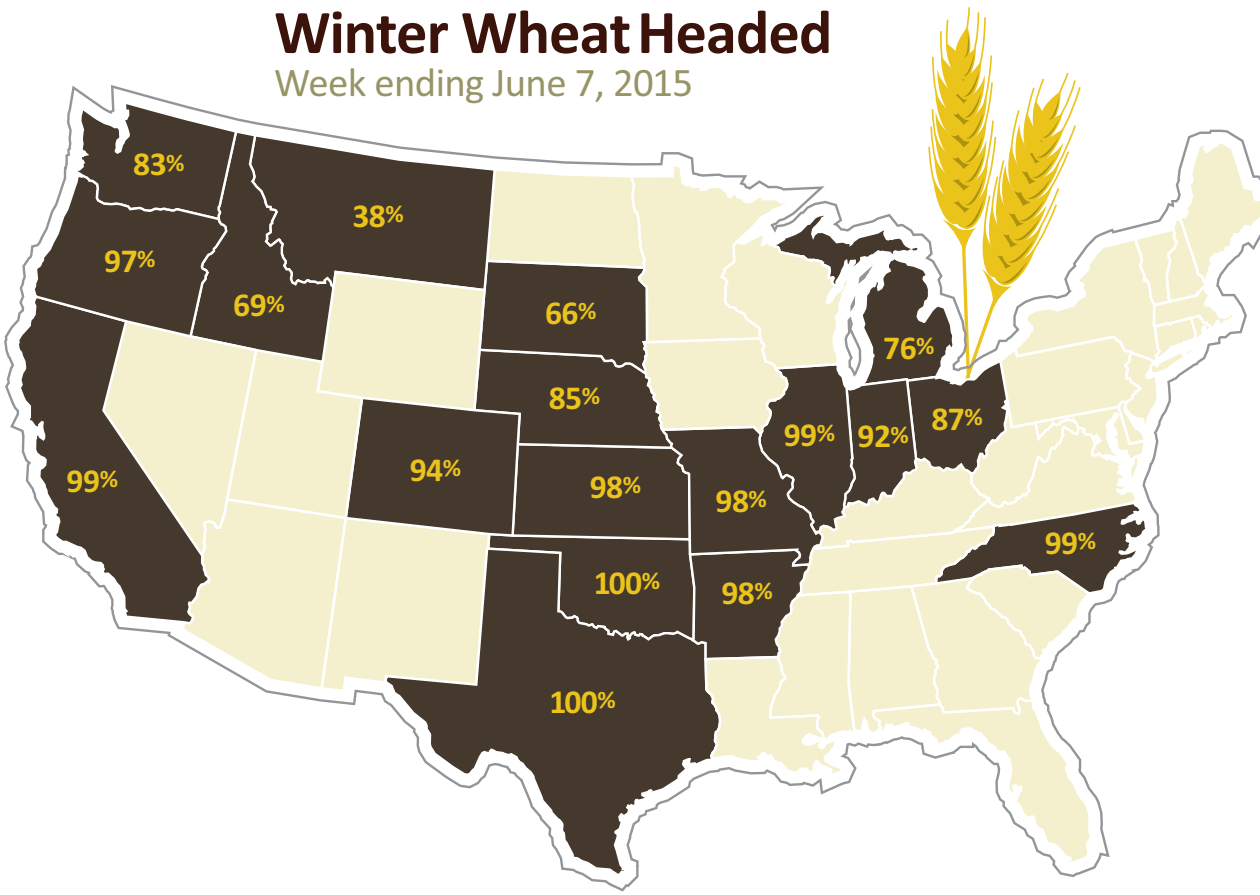
200,000 fewer corn acres forecast for 2015 than planted in 2014.

Created: May 5, 2015

nass.usda.gov
United States Department of Agriculture
National Agricultural Statistics Service

Winter Wheat Headed

Week ending June 7, 2015

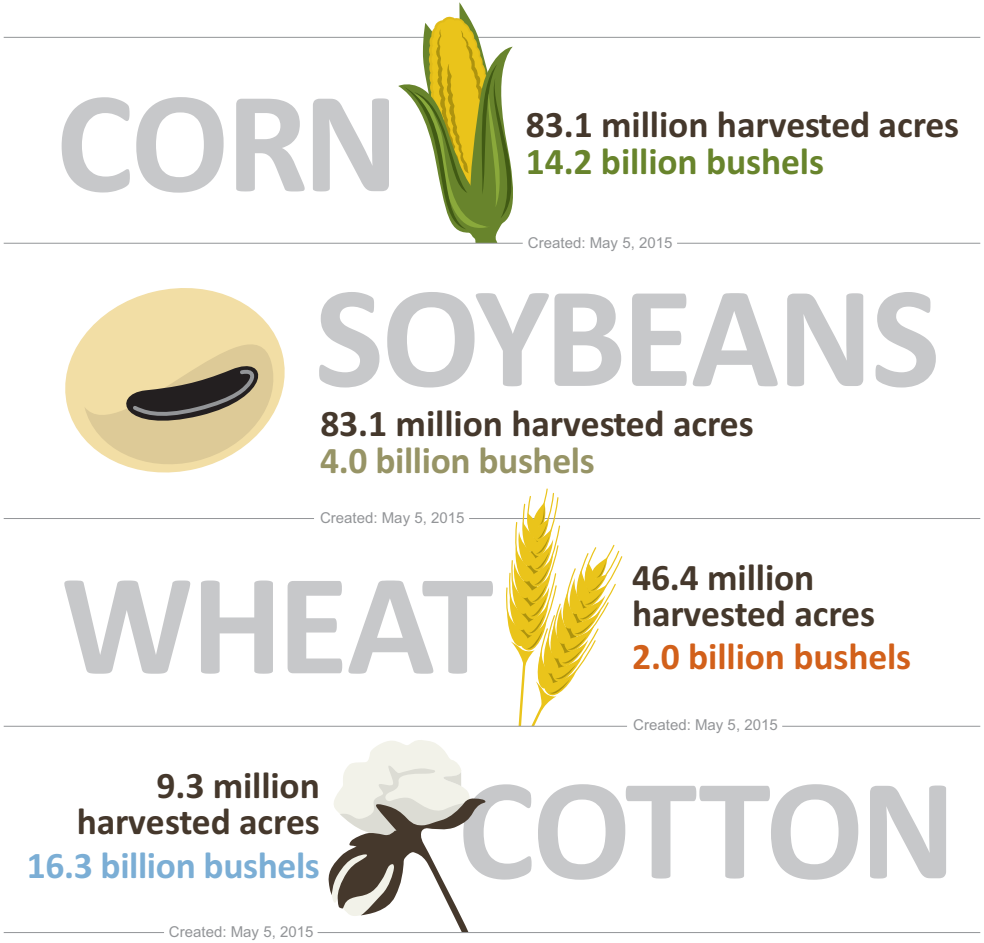


	2010-2014 Avg. (percent)
AR	100
CA	100
CO	82
ID	24
IL	97
IN	95
KS	99
MI	81
MO	98
MT	4
NE	73
NC	100
OH	96
OK	99
OR	76
SD	37
TX	98
WA	58

Created: May 5, 2015

nass.usda.gov
United States Department of Agriculture
National Agricultural Statistics Service

U.S. Crop Production
2014



nass.usda.gov
United States Department of Agriculture
National Agricultural Statistics Service

NASS Fact Tank

Infographic Color Palette

Logo Colors

Core Colors

Secondary Colors