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# Assessing Engagement and Outreach Initiatives: A Pilot Study for the Grain Stocks Report

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# Executive Summary

The United States Department of Agriculture's (USDA's) National Agricultural Statistics Service (NASS) offers survey webpages designed to inform the public, including media, respondents, trade partners, and other interested parties about their surveys. Visitors to these webpages can find comprehensive information about the surveys, instructions and a link to web response, and other relevant materials. In 2020, NASS received valuable feedback from key data users concerning estimates related to grains and oilseeds storage. In response to this input, a technical review was initiated to evaluate both the quarterly-conducted Crops Acreage, Production, and Stocks (Crops APS) Survey and the Grain Stocks Report (GSR), which serve as the basis for producing quarterly *Grain Stocks* publications. Following the research, a recommendation was made to establish a team to tackle the challenge of improving response rates through enhanced outreach and engagement efforts (Ridolfo et al. 2021). The GSR Outreach Team was formed with the objective of refining strategies for outreach, engagement, and the effective communication of survey information exclusively to GSR respondents.

Upon evaluating the GSR, the Outreach Team identified a lower level of response for web submissions compared to phone or email methods. Despite providing a link and relevant information for web responses on the GSR webpage, analytics indicated decreased engagement on the GSR webpage in comparison to other survey webpages. The GSR webpage provides information on the *Grain Stocks* publication, which includes information collected from the two separate surveys: The Grain Stocks Report and the Crops APS Survey.

The pilot study outlined in this report had three primary objectives. The first objective was to delineate and assess new outreach, communication, and engagement activities tested during the December 2022 and March 2023 GSR quarterly survey. The second objective was to determine the feasibility of the study and assess its applicability to the entire GSR survey sample, given limited available resources. The third objective was to create an initial framework for a flexible outreach plan and an assessment tool that could be customized as necessary. The assessment tool would adhere to the standards of impact evaluation, a method that examines how the outcomes of interventions (such as outreach and engagement activities) are influenced and whether these effects are intentional or unintentional. Impact evaluations assess the effectiveness of a program and are commonly applied to evaluate design innovations. In contrast to monitoring, impact evaluations concentrate on enhancing implementation, reducing costs, and informing stakeholders about the efficacy of the outreach program.

Concentrating on new communication and engagement activities in Missouri and Illinois referred to as the Heartland Region by NASS, the pilot study evaluated applications, benefits, and limitations of outreach activities. The goal is to offer insights applicable on the national level and aid in the design of a targeted outreach program to enhance awareness, utilization of NASS data tools, web services, and potentially increase response.

During December 2022 and March 2023, a segment of the Heartland Region received one of two types of rack cards. One focused on the GSR webpage redesign, while the other highlighted the advantages of registering an eAuthentication account. Each rack card featured a quick-response (QR) code for convenient access, along with the website URL for recipients who preferred not to use the QR code or were unable to do so. QR codes are a type of barcode that stores information, such as a website link, to provide quick access through a digital camera.

The primary objective of this pilot study is to look at the feasibility of expanding the study at a national level. The study design was not set up to conduct statistical analysis; therefore, descriptive statistics are used to explain the findings. Results indicate that a targeted outreach program specific to the survey can effectively engage respondents, foster conversations, create partnerships, gather input for GSR webpage improvement, and inform respondents about new survey completion tools. Modifications were made to the QR code instructions for the March 2023 GSR survey. Upon introducing more detailed instructions on the rack cards, an uptick in QR scans was observed. However, establishing clear correlations between the rack cards, QR codes, and URLs leading to the GSR webpage proved challenging. It is plausible that recipients of the rack cards accessed the webpage by manually entering the URL or utilizing a saved link. While the surge in webpage visits indicates respondents are interested in engaging with the GSR webpage, it suggests a potential need for more interactive features on the GSR webpage.

In summary, the researchers wanted to understand strategies to encourage survey response and improve response rates through outreach and engagement activities. Engaging in meaningful conversations with operations, cultivating partnerships, and gathering valuable input, as observed in this research, contributed to increased engagement. The development of assessment tools and a structured framework serves to bolster outreach and engagement strategies. The full report, shown below, is organized into five sections: 1) Introduction and Background 2) Methods - Current Outreach Activities and New Outreach Activities, 3) Results, 4) Conclusions and Recommendations, 5) Limitations of the Evaluation of Outreach and Engagement Activities.

# RECOMMENDATIONS

Based on the initial pilot study, a list of short- and long-term recommendations have been provided below. For more detailed information about the findings and recommendations, see the results, limitations of the evaluation of outreach and engagement activities, and conclusions and recommendations sections.

**Short Term Recommendations**

1. Expand testing of outreach informational materials to the Grain Stocks Report (GSR) in FY24.

    a. Establish a uniform format for future survey informational materials, incorporating QR codes and/or rack cards.

    b. Continue assessing the efficacy of these informational materials.

    c. Establish effective partnerships that have connections and credibility with grain elevators and operators surveyed in the GSR.

    d. Conduct a Response and Non-Response Analysis Survey (RAS/NRAS) for the GSR. This will be conducted in partnership with the Standards and Survey Development Methodology Branch (SSDMB) using Qualtrics.

    e. Obtain access to tracking eAuthentication signups from NASS stakeholders, respondents, and external users.

    f. Continue to work with the Public Affairs Office on marketing and providing information on the GSR through social media outlets.

**Long Term Recommendations**

1. Develop a partner engagement and survey program outreach plan that can be customized for use for all NASS survey programs.

    a. Enhance visibility at survey-related conferences and meetings by collaborating with the field and partnering with other USDA agencies for conference booths. Develop distinctive booth outreach experiences for a more impactful presence.

    b. Establish uniformity in survey marketing informational materials and tools for collecting respondent feedback.

    c. Create a template for an outreach and engagement framework that establishes well-defined goals for each outreach activity. This template should evaluate the

current state of the survey program, outline the objectives for outreach activities, and incorporate measurable outcomes.

d. Create an impact evaluation tool for survey programs aimed at identifying and evaluating underperforming outreach activities.

# Evaluation of Engagement and Outreach Activities within the Grain Stocks Report

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**Abstract**

Sustaining engagement with both new and existing respondents proves to be an ongoing challenge for the Grain Stocks Report (GSR), given its unique community dynamics. The main objective of implementing targeted outreach, communication, and engagement activities within the GSR is to establish a foundation for a customizable outreach plan and assessment tool that are adaptable as needed. The creation of a survey-specific outreach program with focused activities that utilize rack cards and Quick Response (QR) codes allows researchers to assess effectiveness within targeted activities. The research emphasizes the survey program requirements and considers the constraints associated with specific outreach approaches. During a pilot study on the GSR, we observed increased engagement following the incorporation of additional outreach and engagement activities. However, assessing the long-term outcomes of these initiatives remains premature. The findings will inform the design of future studies on the GSR outreach and engagement strategies. Maintaining the engagement of both new and existing respondents remains an ongoing challenge for the GSR, making outreach and engagement particularly challenging.

## 1. INTRODUCTION AND BACKGROUND

The *Grain Stocks* publication is composed of quarterly surveys that provide detailed estimates of grains, oilseeds, and pulse crops stored in any commercial facility off the farm. The *Grain Stocks* publication includes information collected from two separate surveys: The Grain Stocks Report (GSR) and the Crops Acreage, Production, and Stocks (Crops APS) Survey. The GSR is conducted quarterly with reference dates of March 1, June 1, September 1, and December 1. The Crops APS Survey is conducted at the same time as the GSR and collects information on on-farm grain stocks. The Crops APS Survey also collects acreage, yield, and production data for various crops each quarter. These surveys are conducted in every state and measure stocks of barley, canola, corn, flaxseed, mustard seed, oats, rapeseed, safflower, sorghum, soybeans, sunflowers, and wheat. Estimates for grains, oilseeds, and pulse crops from the GSR are combined with on-farm stocks estimates from the Crops APS Survey and published in the *Grain Stocks* publication.

The target population is all entities in the United States that can store at least 1,000 bushels of grain (e.g., elevators, grain and oilseed processing plants, terminals, and any other facilities that store grain or oilseeds, excluding peanuts and rice) off the farm. The sampling frame is grouped into specialty and non-specialty operations and stratified using off farm grain storage capacity as a measure of size. For more information on the methodology on surveys used in the *Grain Stocks* publication, please see: Grain Stocks Methodology and Quality Measures.

In 2020, a technical evaluation of the GSR revealed a diminished level of response through the web in contrast to phone or mail. At the start of each quarterly survey, pre-survey letters are sent to respondents with instructions on how to complete the survey; however, the letter does not include the survey website. This disparity may be attributed to a low percentage of visitors to the GSR webpage, indicating that respondents may not be utilizing available web response tools. The primary goal of the NASS survey webpages is to educate the public about NASS survey programs. The intended audience for NASS survey webpages typically includes: the media, those sampled to respond to the survey, stakeholders, trade partners, and other interested parties. All NASS survey webpages provide a link and information on how to respond to the survey via the web using a respondent portal. The analytics of the GSR webpage also showed visitors spent less time on the GSR survey webpage as opposed to other similar survey webpages with a lower percentage of visitors. In response to these challenges, the GSR Outreach Team was formed to explore improved strategies for outreach, engagement, and delivering pertinent survey information to respondents regarding the GSR.

A pilot study was conducted to describe and assess new outreach, communication, and engagement activities exclusively implemented in Illinois and Missouri within the Heartland Region during the December 2022 and March 2023 quarterly GSR. At the time of this study, NASS operated twelve regional field offices nationwide (Appendix A), each tasked with overseeing implementation of the GSR. The study entails an exploration of the potential applications, benefits, and limitations associated with the deployment of these outreach and engagement activities. The goal of this research was to contribute a preliminary understanding of evaluating outreach and engagement that can be applicable to the GSR at a national level. Additionally, it aims to assist in designing an outreach program and activities that enhance awareness, such as the utilization of NASS data tools on the NASS website, increased visitation to NASS survey webpages, increased use of the eAuthorization webpage, and the eventual creation of an evaluation tool to measure the success of new outreach and engagement activities.

This report is organized into 5 sections: 1) Introduction and Background; 2) Methods - Current outreach activities and new outreach activities; 3) Results; 4) Conclusions and Recommendations; and 5) Limitations of the evaluation of outreach and engagement activities.

### 1.1 Common Outreach and Engagement Activities at other Federal Agencies

Several members from the GSR Outreach Team met with other federal statistical agencies to assess how they were engaging in survey outreach. The Outreach Sub-team met with staff from the Census Bureau and the Bureau of Economic Analysis (BEA) to discuss the use of Quick Response (QR) codes, infographics, and other common outreach and engagement activities. The Census Bureau and the BEA shared an overview of the outreach and engagement methods they presently employ to enhance participation. The conversation delved into the utilization of QR codes and their application in engagement activities, as well as the strategies for obtaining metrics for various initiatives.

### 1.2 Overview of Public Outreach Programs and Outreach Activities

Engagement with the farming population - already a challenging demographic to reach - becomes even more complex when disseminating information to businesses encompassing off-farm grain storage, including elevators, merchant mills, etc., falling under the GSR (Freimuth et al 1990). By integrating strategies that foster participation within the off-farm grain storage community and soliciting their input in decision-making regarding preferred communication methods, we can bolster our ability to establish connections and strengthen our partnership with the GSR program (Wiatrowski, 2008; Nguyen et al 2019; Freimuth et al 1990). Four outreach and engagement methods and strategies were identified as necessary for addressing the primary research objectives while also establishing the initial framework for a customizable outreach and assessment plan. These are public outreach, outreach activities, and community engagement.

*Public outreach* is a general term used to describe a variety of activities by a program to promote public awareness and understanding of a program (De Weger, E., Van Vooren, N., Luijkx, K.G. et al. 2018; Harrison et al 2009). Throughout this report, the term “outreach program(s)” is used to describe a specific type of public outreach. An outreach program generally targets participants or potential participants of a program that requires outreach activities to promote engagement and participation in the program’s services. Generally, outreach programs are detailed documents that contain the goals of the outreach, the intended audience (who will receive the information and who matters to the research), and a detailed collaboration plan with current and/or future partners (Cruickshank & Nowak, 2001; Levine-Clark & Carter, 2013; McCown et 2011; Sapienza et al 2007). Once an outreach plan is created, evaluations on outreach activities should occur regularly to ensure goals are being met and change activities that are producing poor results.

*Outreach activities* are embedded in the outreach program and occur throughout the year to promote and provide access to the program’s services (Riesch et al. 2013). Outreach activities are typically one-way communications designed to increase awareness and education about the program. Activities will often consist of newsletters, social media posts, and other marketing tactics that allow the recipient to passively receive the information. These activities are used to identify existing problems or challenges within the program and

to increase services participation and engagement (McCown et al 2011; Riesch et al. 2013; Sapienza et al 2007). Outreach activities are generally short-term as they are meant to be broad promotion of the program.

*Community Engagement* is a type of outreach activity; however, it is a more active method of implementing change (De Weger, E., Van Vooren, N., Luijkx, K.G. et al. 2018; McCown et al 2011). Engagement is based on creating and sustaining relationships that are built and maintained over time. Community engagement is a two-way communication or activity where the recipient provides inputs and becomes a part of the program process. Activities consist of forums, web-based feedback, community-based committees, and interactive web programs where the user can actively participate in the process of the program (McCown et al 2011; Bureau of Economic Analysis 2022). Community engagement activities are meant to be long-term activities that are relationship building and beneficial to the community.

## 2. METHODS

### 2.1 Pilot Study Target Population - Heartland Region GSR Respondents

In the planning phase of the pilot study, a comprehensive review was conducted for each NASS-assigned region to assess the potential engagement of outreach target activities during the study. Illinois and Missouri, the two states in the Heartland Region, were selected to participate in the study. States in the Heartland Region were selected for several reasons. First, the distribution of grain elevators and the percentage of corn, soybeans, and wheat growers are more evenly spread compared to other regions. Second, the region has single elevators that typically report through hard copy mail returns, while multi-unit operations facilities are reporting both through mail and via the internet.

### 2.2 Outreach Activities for the GSR

Currently NASS employs outreach (marketing) initiatives to encourage response to survey programs. Public outreach efforts for the GSR prior to the experiment included a public webpage with information about the GSR, pre-survey letter, some social media postings about the GSR, tradeshow participation, field outreach efforts by state statisticians and regional staff, and partner outreach (newsletter, email, calls, etc.). The public webpage for GSR provides information on the surveys in the Grain Stocks Report and links to access the quarterly reports from data acquired during each GSR survey cycle.

The pre-survey letter for GSR was sent to respondents to remind them of the reasons why completing the GSR is important and the different ways to complete the survey. In addition, several social media posts were made to X (formerly Twitter) to promote and encourage respondents to complete the GSR survey. For the December 2022 data collection, the X social media posts were made on 12/13/2022 (Figure 1) and 12/16/2022 (Figure 2). Images

of the tweets are shown below. The images and text are very similar between the two posts. The 12/13/2022 post received 1,144 impressions, four engagements, and three reactions. The 12/16/2022 post received 1,588 impressions, sixteen engagements, two reactions, and two shares.


Figure 1 Grain Stocks Report X Social Media Post, December 13, 2022


Figure 2 Grain Stocks Report X Social Media Post, December 16, 2022

For the March 2023 data collection, the X social media posts were made on 03/03/2023 (Figure 3) and 03/09/2023 (Figure 4). These posts were made before the data collection ended. Images of the tweets are shown below. The images and text are the same across both posts. The 03/03/2023 post received 1,890 impressions, twenty-nine engagements, four reactions, and one share. The 03/09/2023 post received 1,842 impressions, fourteen engagements, three reactions, and one share.


Figure 3 Grain X Social Media Post, March 3, 2023,


Figure 4 Grain X Social Media Post, March 9, 2023

## 2.3 Outreach and Engagement Activities

Outreach activities are intended to engage an audience and provide information on a particular subject matter to the public. The objective of outreach and engagement activities for this study was to explain the benefits of responding to the GSR request, introduce new web tools, and create new levels of engagement with GSR respondents. For the purposes of this research, each activity was evaluated to assess its impact on GSR respondents against its intended objective.

To inform an outreach program for potential respondents of the GSR survey, we conducted three new outreach and engagement activities: 1) rack cards to encourage visiting the GSR webpage or signing up for eAuthorization account with the option of using the URL or QR codes for easy access; 2) a redesign of the GSR webpage, and 3) a feedback survey to encourage visitors to provide feedback on data and information they would like to see on the webpage. The rack cards are an engagement/outreach activity, QR codes are engagement activity, website redesign and feedback survey are also engagement activities. The pilot study predominantly focused on outreach and engagement activities as there was already a framework of existing outreach and engagement materials to expand upon in the GSR survey program.

### 2.3.1 GSR Rack Cards

Two rack cards were created which included identifying the purpose for each rack card, intended audience, key messages, and sources for the information. The Outreach Team and NASS's Public Affairs Office (PAO) collaboratively opted to design two racks cards: one focusing on a GSR web push campaign and another promoting creating eAuthentication login and its benefits. The GSR web campaign card provided information on the latest features of the GSR webpage, such as data visualizations, a crop progress map, and grain stocks videos. The second rack card aimed to educate respondents about the advantages of creating an eAuthentication account. An eAuthentication (eAuth) is the system used by USDA agencies such as NASS for customers to obtain accounts that will provide them access to USDA/NASS web applications and services, including the NASS respondent portal. The benefits of using eAuth include completing surveys without a survey code, access to multiple USDA web applications, and the ability to view prior completed surveys.

The rack cards served a dual purpose as the Outreach Team aimed to assess whether sending them to respondents would either increase engagement with the GSR survey and/or provide an alternative to survey responses (web response), which might be a more convenient option for businesses.

Once a draft of the rack card was prepared by PAO, it was shared with the Outreach Team for their initial review. During the weekly team meetings, the initial draft was reviewed thoroughly, and feedback was provided. After finalizing the rack cards, they were sent out along with the pre-survey letter and questionnaire during the December 2022 and March 2023 quarterly surveys. Figures 5 and 6 are images of the first version that was used for GSR and eAuth Rack Cards for both December and March. Figure 5 has a QR code that takes respondents to the GSR webpage. Figure 6 has a QR code that takes respondents to the eAuthentication login website.


Figure 5 GSR Webpage Rack Card

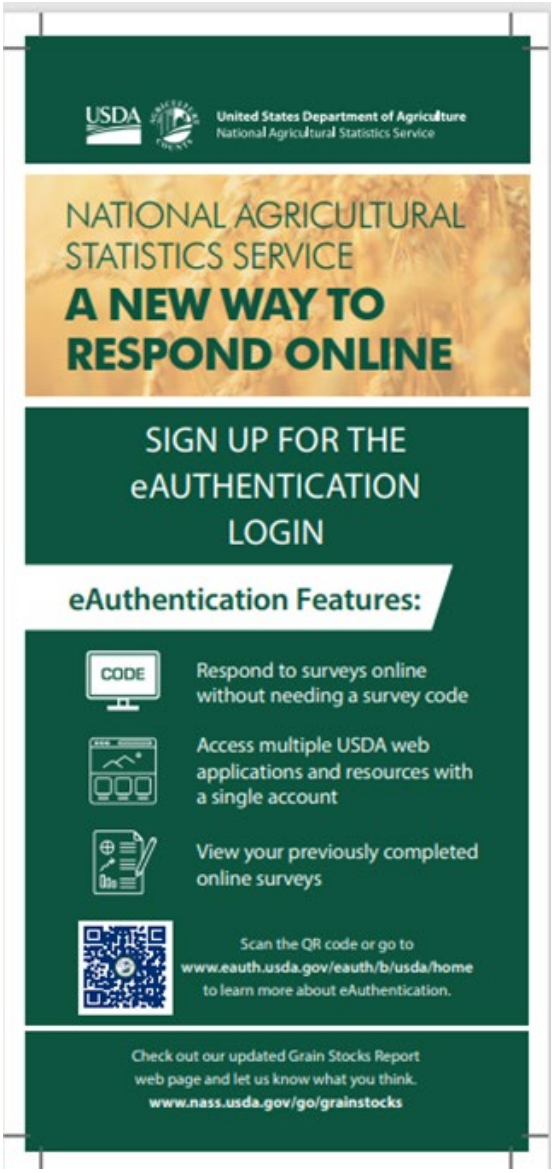


Figure 6 GSR eAuthentication Rack Card

This study was not set up to draw statistical inference, but to be exploratory and informative. To that end, the rack cards were divided into two treatment groups and one control group. The control group was provided with a pre-survey letter and questionnaire without any additional materials. Treatment Group 1 received the GSR webpage rack card (Figure 5), while Treatment Group 2 received the eAuthentication rack card (Figure 6). All groups received the pre-survey letter and questionnaire for the GSR.

The project design was employed to get a broad range of records across previous responses, previous response modes (e.g., web, paper, telephone), and operation grain storage capacity such that descriptive statistics could be used to explore relationships between types of outreach to survey response and webpage interaction.

The response and mode variables were retrieved for the last four quarters (December 2021 to September 2022) for all mailed out records in the GSR sample. The previously reported grain storage capacity was retrieved from NASS's list frame. Records were sorted on these variables and systematically assigned to one of the two treatment groups or the control group.

### 2.3.2 QR Codes

Each rack card contained a QR code created in InDesign to open the webpages for the GSR and the eAuthentication sign up webpage, as shown in Figures 7 and 8, respectively. The intent of the QR codes was to provide easy access to locating both webpages using a smartphone or tablet device. The GSR Outreach Team used a direct call to action method with the phrase "WE WANT TO HEAR FROM YOU!" to direct the recipient of the rack card to the QR code. Details as to why the recipient should scan the QR code were placed underneath the QR code and the call to action.


Figure 7 Original Webpage Rack Card

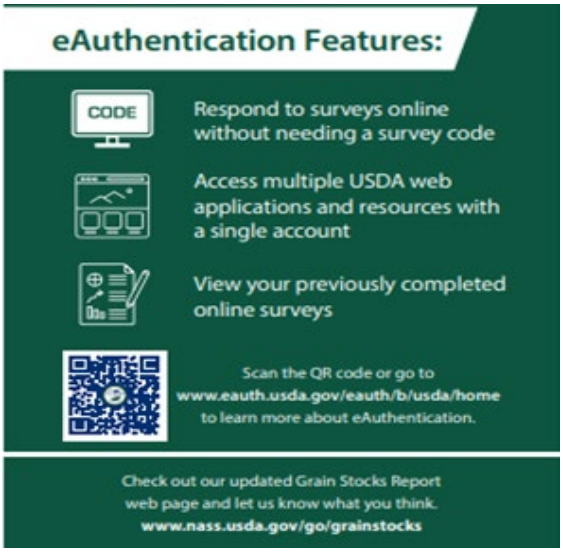


Figure 8 Updated QR instructions on eAuthentication Rack Card

None of the rack cards sent in December 2022 were scanned by recipients using the QR codes during the December 2022 GSR. Adjustments were made to the instructions for scanning QR codes, as depicted in Figure 8.

In March 2023 GSR, more detailed instructions on QR code scanning were incorporated based on testing conducted by the Census Bureau (Rivas, 2022). The outcomes of the modified rack card (Figure 9) did show an increase in the number of scans compared to the original rack card (Figures 7 and 8).

Specifics regarding QR code scans are outlined in the results section. It is important to note that only one rack card is presented, as no modifications were made to the eAuthentication rack card due to the inability to track QR code usage.


Fig. 9 GSR Rack Cards, March 2023, Version 2

### 2.3.3 GSR Webpage Redesign and Feedback Survey

NASS survey webpages' primary purpose is to inform the public about our survey programs, data releases from surveys, and data tools created for public use. A survey webpage's target audience generally includes media, respondents, stakeholders, trade partners, and other interested parties. Figure 10 shows an image from the original GSR survey webpage prior to any edits being made. To assist in outreach efforts and increase the visibility of the GSR, updates were made to the GSR webpage. The goal of refreshing the GSR survey webpage was to increase the number of visitors to the webpage. Edits made to the GSR survey webpage were done to create a repository of GSR information for respondents. The webpage redesign reflected tabs for webpage visitors to easily access information and locate up-to-date information on GSR. A feedback survey was created to allow visitors to the page to request changes to the webpage that would create value for the visitors to the GSR survey webpage and encourage repeat visits. An intial exploration was conducted to look at other NASS survey webpages that were similar to the GSR to understand what elements might improve the GSR webpage design.

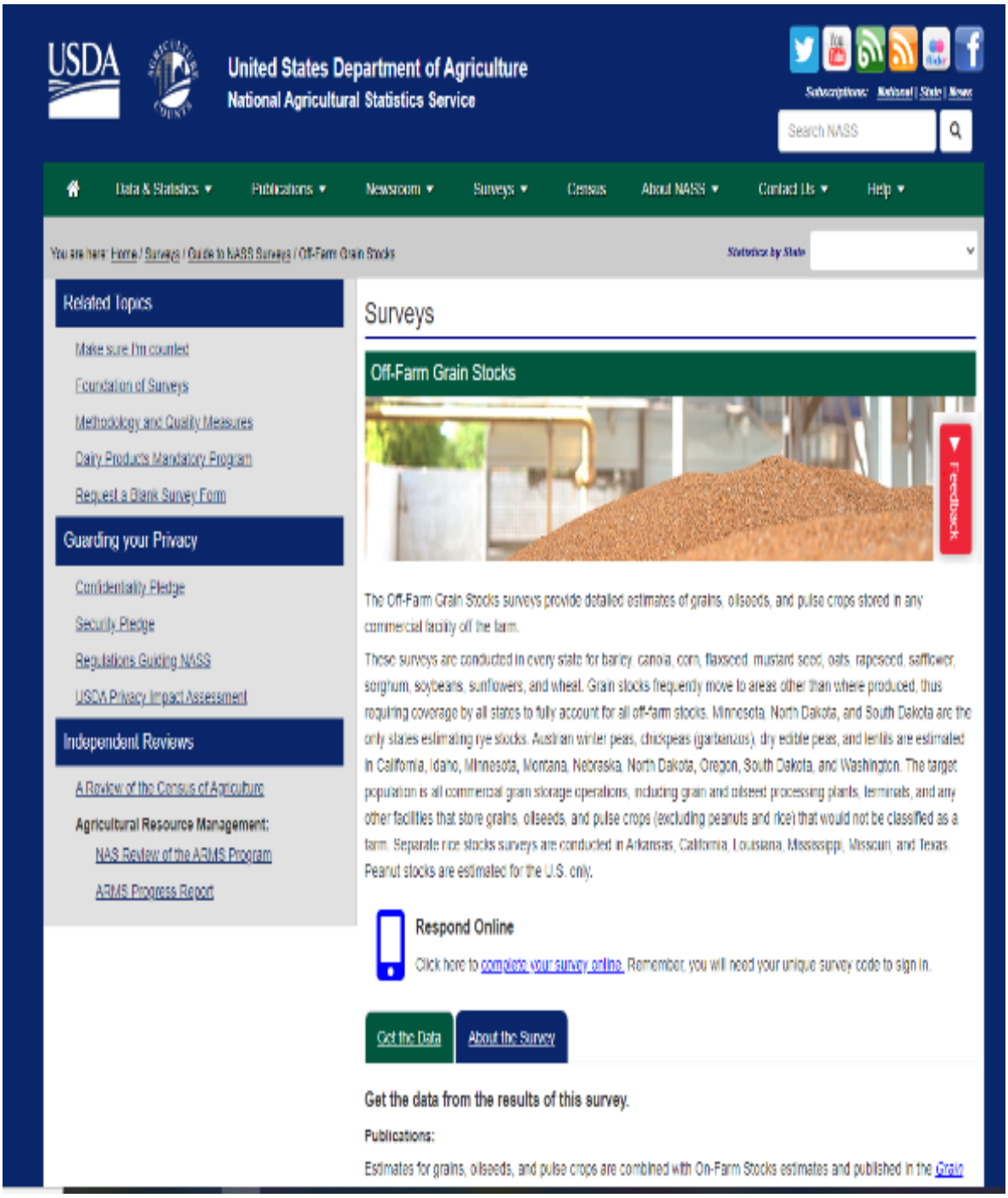


Figure 10 Original GSR webpage

Table 1 shows summary webpage analytics that were pulled to identify variations in user engagement across a variety of NASS webpages. A variety of webpages for different commodities were looked at, in addition to the GSR webpage.

User engagement was evaluated looking at the total number of unique visitors, the average time spent on a webpage, and the bounce rate.

Table 1. NASS Survey Webpage Views Comparison

| Survey Webpage | Unique Page Views | Average Time Spent on Webpage | Bounce Rate |
|---|---|---|---|
| Agricultural Prices Paid | 5,092 | 1:54 | 52.73% |
| Cash Rents | 12,776 | 2:19 | 55.05% |
| Cattle Inventory Survey | 5,122 | 3:03 | 64.16% |
| Crops Stocks | 2,234 | 2:07 | 65.06% |
| Grain Stocks Report (GSR) | 474 | 3:24 | 61.21% |
| Hogs | 2,264 | 3:19 | 70.13% |

* Data acquired from 1 September 2021 to 18 September 2022 from Google Analytics.

For the average amount of time a user spent visiting the webpage, a higher number here can demonstrate higher interest with the page or it can indicate more time has been spent due to difficulties finding information or navigating the page. Bounce rates look at the percentage of webpage visitors that entered the webpage and left it without any interaction (e.g., clicking a link). A higher number here can demonstrate lower engagement.

As shown in Table 1, the exploration revealed that the GSR exhibited a low number of webpage views. For engagement, the average time spent on the GSR website was higher, compared to other similar survey webpages; however, the bounce rates indicate low interactivity within a visit. These findings underscored the necessity for focused outreach and engagement activities to promote the GSR webpage, stimulate web responses, and attract visitors to utilize NASS web tools. To assist in attracting webpage visits and interactivity, several revisions and updates were made to the GSR survey webpage (Figure B.1 in Appendix B). Updates to the webpage included the following:

1. A revised introduction explaining the purpose of the survey and the dates which the GSR quarterly survey occurs (Figure B.2 in Appendix B);
2. New YouTube video links containing report briefings and GSR survey-related streaming videos with the most up-to-date information concerning commodities or reports related to the GSR survey (Figure B.3 in Appendix B);
3. A data visualization tab with clickable icons to the most frequently requested commodities from the GSR and their US state rankings by year (Figure B.4 in Appendix B);
4. A frequently asked questions (FAQs) tab provides FAQs based on questions that are most often asked in the field (Figure B.5 in Appendix B); and,
5. A feedback survey.

The final version of the GSR webpage is shown in Figure 11.0 below.

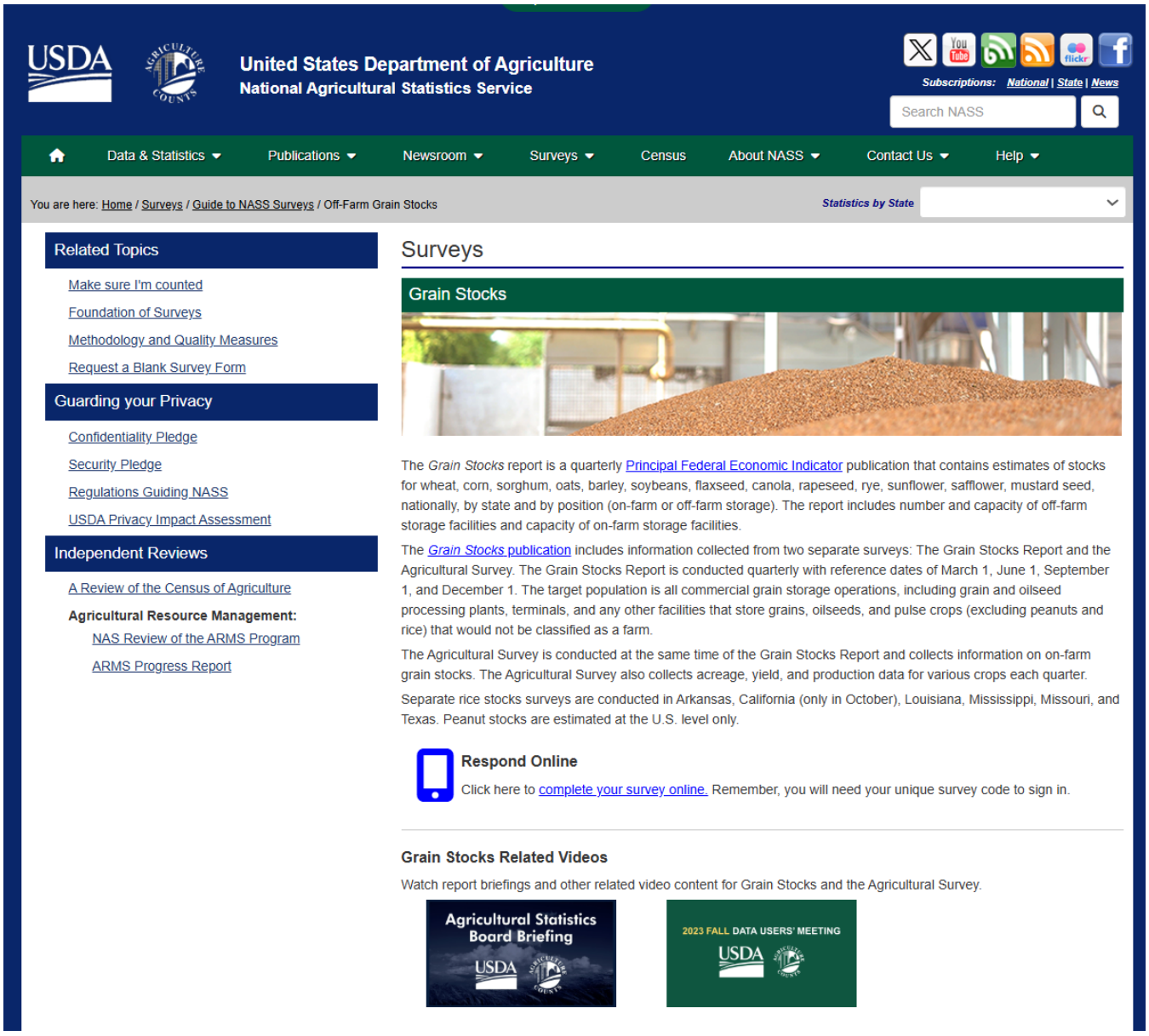


Figure 11 Final Version of the GSR Webpage (top part of the webpage)

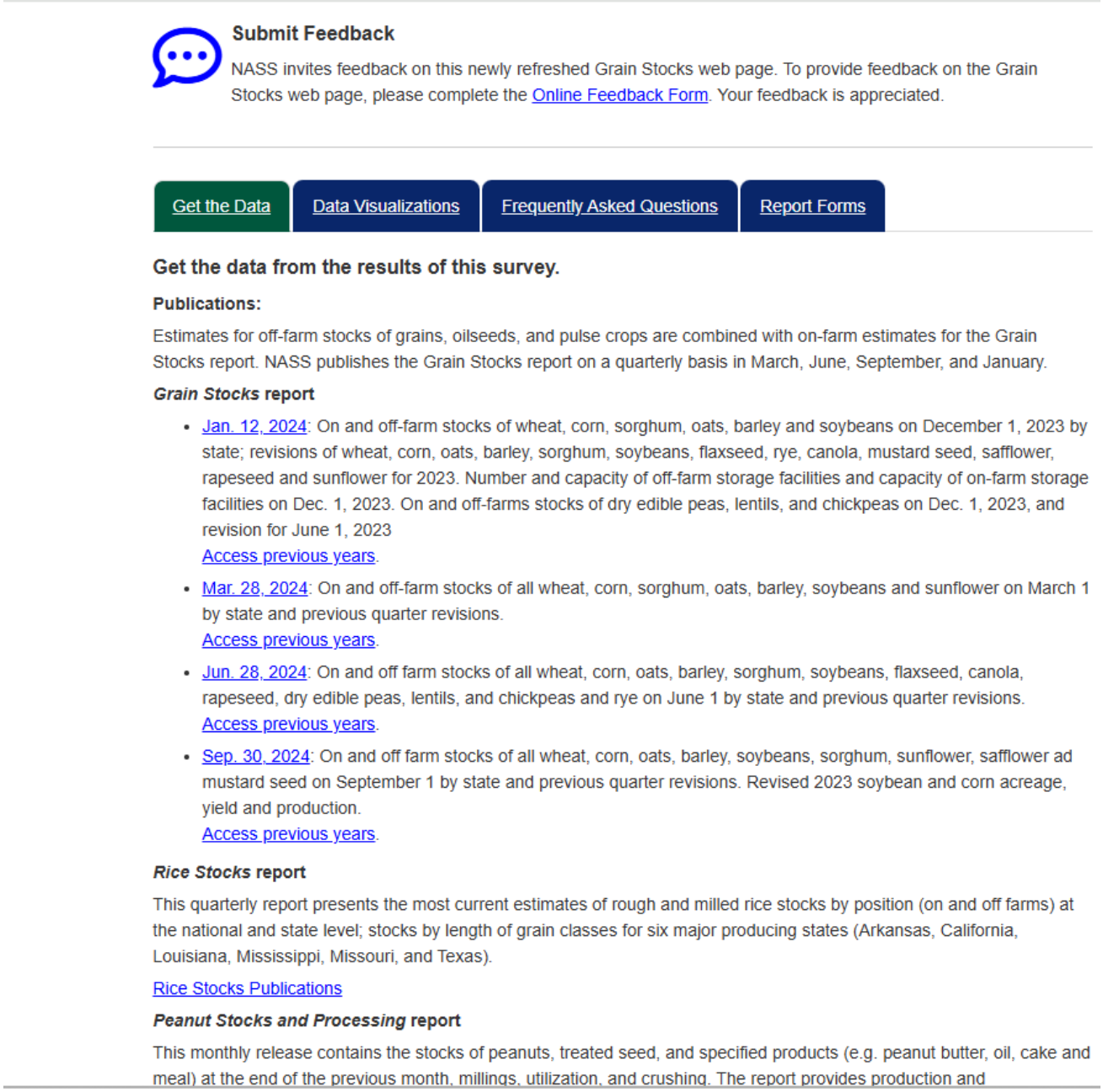


Figure 12 Final Version of GSR Webpage (bottom part of the webpage)

# 3. RESULTS

## 3.1 Response Rates

### 3.1.1 Overall Response Rates for the Heartland Region

One of the main goals of engaging in outreach is to increase the visibility of the survey and encourage survey responses. To help examine the efficacy of outreach efforts, the response rates for the GSR were examined. The survey response rates during the December 2022 and March 2023 data collections for the Heartland Region were compared to the previous year's data collections. The prior years response rates were used as a comparison group as no additional outreach efforts or mailings were conducted in any of the states in the region during that time. *Please note that these comparisons have not been evaluated for statistical significance.* For the December 2022 data collection in the Heartland Region, the 2021 response rate was 79.8% and the 2022 response rate was 80.4%. The change in response rate for the December data collection was an increase of +0.7% (December 2022 GSR Board Report). For the March 2023 data collection, the 2022 response rate was 78.8% and the 2023 response rate was 79.1%, an increase of +0.3% (March 2023 GSR Board Report).

Both data collection periods saw an increase in responses from the previous year's data collection when the outreach strategies were being conducted, which included the marketing insert mailing. While we cannot definitively say that the increase in response rates for the Heartland Region was solely due to outreach strategies that were conducted, any increase in survey response rates is important to note.

### 3.1.2 Overall Response Rates of the December 2022 Experiment

The summary results for the December 2022 experiment are presented initially, followed by the outcomes of the second experiment in March 2023. In the December 2022 experiment, 301 respondents participated in the experiment, receiving one of two versions of the rack card or they were part of the control group.

Table 2 illustrates the comparisons among treatment groups and between groups, based on respondents who completed the survey and those who did not. As noted previously, the study was not designed to evaluate statistical significance between treatment and control, but does provide informative descriptive statistics.

| Table 2. Overall Response Rates of the December 2022 GSR Experiment (percent) | | | |
|---|---|---|---|
| | Responded | Did Not Respond | Total |
| Control (n=100) | 66.00 | 34.00 | 100.0 |
| Treatment 1 - eAuthentication Web Push (n=100) | 72.00 | 28.00 | 100.0 |
| Treatment 2 - GSR Web Push (n=101) | 63.37 | 36.63 | 100.0 |

When contrasting the control group (n=100) with treatment group 1 (eAuthentication Web Push) (n=100), there was a slight increase in the percentage of respondents who completed the survey, with 72% in treatment group 1 compared to 66% of completed surveys in the control group. Treatment group 2 (GSR Web Push) shows a lower percent response with 64% of completed surveys compared to the control group of 66% of completed surveys. The contrast between Treatment 1, which had a completion rate of 72%, and Treatment 2, with 64% of completed surveys, highlights a difference between the two in our study.

| Table 3. Response Rates of December 2021 GSR Compared to December 2022 GSR Combined Treatment Groups (percent) | | | |
|---|---|---|---|
| | December 2021 GSR (n=201) | December 2022 GSR Combined Treatments (n=201) | Change |
| Responded | 66.78 | 67.66 | +0.88 |
| Did Not Respond | 33.22 | 32.34 | -0.88 |
| Total | 100.00 | 100.00 | |

Table 3 shows the response rates for the same sampled participants, who received any treatment, across consecutive years, comparing the December 2021 GSR, where no experiment was conducted, to the December 2022 with the addition of the treatments. The response rates from the respondents were compared between the December 2021 GSR and the December 2022 GSR experiment. A slight increase of 0.88% in the completed response rate did occur in the December 2022 experiment with combined treatments.

### 3.1.3 Overall Response Rates for 2023 March Experiment

Table 4 presents the comprehensive response rates for the March 2023 experiment. In this study there were 201 respondents, receiving the same rack cards as in the December experiment, or they were assigned to the control group. Differing from the

December experiment, two respondents were excluded and treated as missing due to a change in their status. Both the control group (n=100) and Treatment group 1 (n=100) exhibited identical survey response rates during the March 2023 experiment. However, Treatment group 2, with a response rate of 63%, demonstrates a slightly lower response rate as compared to the control group, which had a 65% response rate.

| Table 4. Overall Response Rates of the March 2023 GSR Experiment (percent) | | | |
|---|---|---|---|
| | Responded | Did Not Respond | Total |
| Control (n=100) | 65.00 | 35.00 | 100.00 |
| Treatment 1 - eAuthentication Web Push (n=100) | 65.00 | 35.00 | 100.00 |
| Treatment 2 - GSR Web Push (n=99) | 63.64 | 36.36 | 100.00 |

Table 5 shows the response rates amalgamated between the March 2022 GSR and the March 2023 treatment groups 1 and 2. The March 2023 experiment exhibited a 4.00% decrease in completed survey response rates.

| Table 5. Response Rates of the March 2022 GSR Compared to March 2023 Combined Treatment Groups (percent) | | | |
|---|---|---|---|
| | March 2022 GSR (n=199) | March 2023 GSR Combined Treatments (n=199) | Change |
| Responded | 68.32 | 64.32 | -4.00 |
| Did Not Respond | 31.68 | 35.68 | +4.00 |
| Total | 100.00 | 100.00 | |

### 3.1.4 December 2022 and March 2023 Response Rates Compared

| Table 6. Response Rates of December 2022 GSR Compared to March 2023 GSR Combined Treatment Groups (percent) | | | |
|---|---|---|---|
| | December 2022 Experiment (n=201) | March 2023 Experiment (n=199) | Change (+/-) |
| Responded | 67.66 | 64.32 | -3.34 |
| Did Not Respond | 32.34 | 35.68 | +3.34 |
| Totals | 100.00 | 100.00 | |

Notably, when contrasting the combined experiment groups from December 2022 with the combined experiment groups from March 2023, there was a 3.34% decrease in completed survey response rates as shown in Table 6. In December 2022, the completed response rate was 67.66%, with a 32.34% non-response rate. In comparison, the March 2023 response rate was 64.32% for completed responses, with a 35.68% non-response rate.

## 3.2 GSR Webpage Analytic Results

To assist in outreach efforts and increase the visibility of the GSR, updates were made to the GSR webpage. A goal of refreshing the GSR webpage was to increase the number of visitors to the webpage and increase visitor engagement. To measure webpage traffic, two analytic websites were used, Google Analytics and Siteimprove. Results from both analytics are presented below.

### 3.2.1 Google Analytics Results

To look more broadly at web analytics, we used Google Analytics. Please note that the GSR webpage is hosted on a public website with no security measures employed, such as password protection, that could prevent access to the general public. As such, there is a possibility that visitors other than those operators who received the rack card could have been coming to the website.

To account for internal staff visiting the site, web crawlers, or other repeat visitors, we are presenting results for both new and all users for unique page views. Each of these terms are defined as such:

**Google Analytic Definitions**

**Unique page views:** this is the number of sessions in which the website is viewed once, it excludes repeated views of a single page.

**New users:** This counts an individual visitor only once of how many times they visited the dashboard. In other words, a person who visited the website three times only accounts for one unique visitor.

**All users:** This counts each individual visit to the website. In this metric, a person who visited the dashboard three times accounts for three visits. Using this count may be a better way to capture "weighted" interest.

Figure 13 Google Analytic Definitions

Additionally, the previous year's data collection periods' web analytics are also presented for a comparison of website usage. Please note that the Google Analytics results presented in this report take into account different iterations of the GSR webpage. For example, the web address https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Off-Farm_Grain_Stocks/index.php is captured as well as the slightly different web address, https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Off-Farm_Grain_Stocks/.

To look at user engagement with the GSR webpage, the following metrics were collected: average time spent on the page and bounce rate. Definitions for these metrics are shown below:

**User Engagement Definitions**

**Average time spent on page**: The average amount of time a user spent visiting the page. A higher number here can demonstrate higher engagement with the site.

**Bounce rate**: The rate of sessions in which the visitor entered the website and left it without any interaction. A higher number here can demonstrate lower engagement.

Figure 14 User Engagement Definitions

| Table 7. December 2022 QR Code Experiment, GSR Google Web Analytics, 2022 compared to 2021 | | | | |
|---|---|---|---|---|
| | **December 2022 QR Code Experiment 12/01-12/20/2022** | | **Previous Year Comparison 12/01-12/20/2021** | |
| User Type | New | All | New | All |
| Unique Page Views | 27 | 85 | 10 | 21 |
| Average time spent on site (min:sec) | 3:44 | 3:50 | 2:59 | 2:06 |
| Bounce rate | 59.26% | 47.47% | 75.00% | 75.00% |

Table 7 shows the Google web analytics for the first round of the QR experiment for the December 2022 GSR data collection period as compared to the December 2021 GSR data collection. Across all the measured web analytic metrics, the 2022 December GSR webpage showed improvement, when compared to the previous year's metrics. For unique page views, for both new and all users, there was an increase in the number of visitors to the GSR webpage, going from 21 all and 10 new users in December 2021 to 85 all and 27 new users in December 2022. Looking at the average amount of time spent on the GSR webpage, which can be an indication of user engagement, the average time spent was higher for both new and all users in December 2022 when compared to December 2021. Average time spent went from 2:06 for all and 2:59 for new users in December 2021 to 3:50 for all and 3:44 for new users in December 2022. Finally, looking at the bounce rate, which is also an indication of engagement with the site (e.g., something was clicked on in the site), bounce rates were higher for the December 2021, with 75% of sessions bouncing for both new and all users, indicating only 25% of users clicked something on the GSR webpage. In December 2022, bounce rates lowered to 47.47% for all and 59.26% for new users.

The device used to access the GSR webpage (e.g., desktop, mobile phone, and tablet) was examined for both December 2021 and December 2022. Most of the GSR webpage traffic was by desktop, with only two new users for each timeframe accessing the webpage through mobile phone and none through tablet.

While we cannot definitively say that the increase in the number of webpage visitors and engagement with the webpage was solely due to outreach strategies that were conducted, it is important to note the increased visibility of the GSR webpage that was achieved during the timeframe the campaign cards were first mailed.

| Table 8. March 2023 QR Code Experiment, GSR Google Web Analytics, 2023 compared to 2022 | | | | |
|---|---|---|---|---|
| | **March QR Code Experiment 03/01-03/20/2023** | | **Previous Year Comparison 03/01-03/20/2022** | |
| User Type | New | All | New | All |
| Unique Page Views | 36 | 125 | 11 | 26 |
| Average time spent on site (min:sec) | 2:23 | 3:30 | 0:58 | 1:27 |
| Bounce rate | 67.86% | 64.84% | 54.55% | 54.55% |

Table 8 shows the Google web analytics for the second round of QR experiment for the March 2023 GSR data collection period compared to the March 2022 GSR data collection. Similar to the first QR code experiment, there were improvements in several measured web analytic metrics, unique page views, and average time spent on the site. For unique page views, for both new and all users, there was an increase in the number of visitors to the GSR webpage, going from 26 all and 11 new users in March 2022 to 125 all and 36 new users in March 2023. Looking at the average amount of time spent on the GSR webpage, which can be an indication of user engagement, the average time spent was higher for both new and all users in March 2023 when compared to March 2022. Average time spent went from 1:27 for all and 0:58 for new users in March 2022 to 3:30 for all and 2:23 for new users in March 2023. Finally, looking at the bounce rate, which is also an indication of engagement with the site, bounce rates were higher for March 2023, with 64.84% of all and 67.86% of new users that had sessions bouncing, compared to 54.55% for all and new users in March 2022.

The device used to access the GSR webpage (e.g., desktop, mobile phone, and tablet) was examined for both March 2022 and March 2023. Most of the GSR webpage traffic was by desktop, with only one new user accessing the webpage by mobile phone in March 2022 and eight new users accessing the webpage through mobile phone in March 2023.

| Table 9. December 2022 QR Code Experiment Compared to March 2023 QR Code Experiment, Google Web Analytics | | | | |
|---|---|---|---|---|
| | **December QR Code Experiment 12/01-12/20/2022** | | **March QR Code Experiment 03/01-03/20/2023** | |
| User Type | New | All | New | All |
| Unique Page Views | 27 | 85 | 36 | 125 |
| Average time spent on site (min:sec) | 3:44 | 3:50 | 2:23 | 3:30 |
| Bounce rate | 59.26% | 47.47% | 67.86% | 64.84% |

Table 9 shows the Google web analytics for the first round of the QR experiment during the December 2022 GSR data collection period compared to the second round of the QR experiment during the March 2023 GSR data collection. There was an increase in the number of unique page views for all and new users during the second QR code experiment compared to the first, increasing from 85 all and 27 new users in December 2022 to 125 all and 36 new users in March 2023. Looking at the average amount of time spent on the GSR webpage, the average time spent was higher for both new and all users in December 2022 when compared to March 2023. Average time spent went down from 3:50 for all and 3:44 for new users in December 2022 to 3:30 for all and 2:23 for new users in March 2023. Finally, the bounce rates were higher for March 2023, with 64.84% of all and 67.86% of new users that had sessions bouncing, compared to 47.47% for all and 59.26% for new users in December 2022.

The decrease in metrics was most likely due to repeat exposure to the campaign cards that was sent to the same respondent over a period of two quarters. The most probable, yet unverified, cause may be attributed to two reasons. First, the respondents may be experiencing what is commonly known as Ad Fatigue, where repeated exposure to campaigns leads to overexposure, diminishing the respondent's interest (Uzzo, 2020). Another plausible explanation for this occurrence could be that respondents received the request in the beginning of farming season, rendering them unable to allocate additional time to engage with outreach materials. Visitors to the webpage likely exhibited similar behaviors to the campaign cards as they saw no changes to the webpage during the March survey quarter and spent less time on the site.

### 3.2.2 Siteimprove Results

Siteimprove analytics was used to further investigate visitor behavior for the GSR webpage. A Behavior Map was set up for the GSR webpage, which captured Heat Maps, Scroll Maps, and Click Maps. Behavior Map is a feature in Siteimprove's Analytics module that allows a visual, page-level understanding of what visitors do when interacting with a website.

**Siteimprove Behavior Map Definitions**

**Heat Map**: is a visual overlay that collects click coordinates (or finger touch coordinates on mobile devices) by all visitors on a specific page. The Heat Map maps all visitors' attention by marking the page with colored spots ranging from dark (cold; little attention) to warm (bright; a lot of attention).

**Click Map**: is a quantification of the Heat Map; a visual overlay marking each interactive element with a colored circle. The color of the circle indicates the number of interactions, using the same color gradient as in the Heat Map and Scroll Map, ranging from dark to bright colors. By hovering one of the circles (elements) on the page, you can see how many times the element has been clicked during the selected time period and the visits to the element on the page. By clicking on an interactive element, you will be able to see a more detailed view of the element.

**Scroll Map**: is a visual representation of how far visitors are willing to scroll to find what they are looking for on your page. The Scroll Map contains color gradients like the Heat Map. Visitor attention is measured from lowest to highest (from dark to bright colors). Rather than mapping heat spots, like the Heat Map, the Scroll Map evaluates the horizontal lines on a webpage. The Scroll Map is useful for an evaluating page with long pieces of information. It can uncover whether visitors scroll all the way to the end of the page.

Figure 15 Siteimprove Behavior Map Definitions

The device used to access the GSR webpage (e.g., desktop, mobile phone, or tablet) was examined for both time frames presented in the results. No mobile phone or tablet device use was captured in the Siteimprove results. All results presented below are based on desktop access.

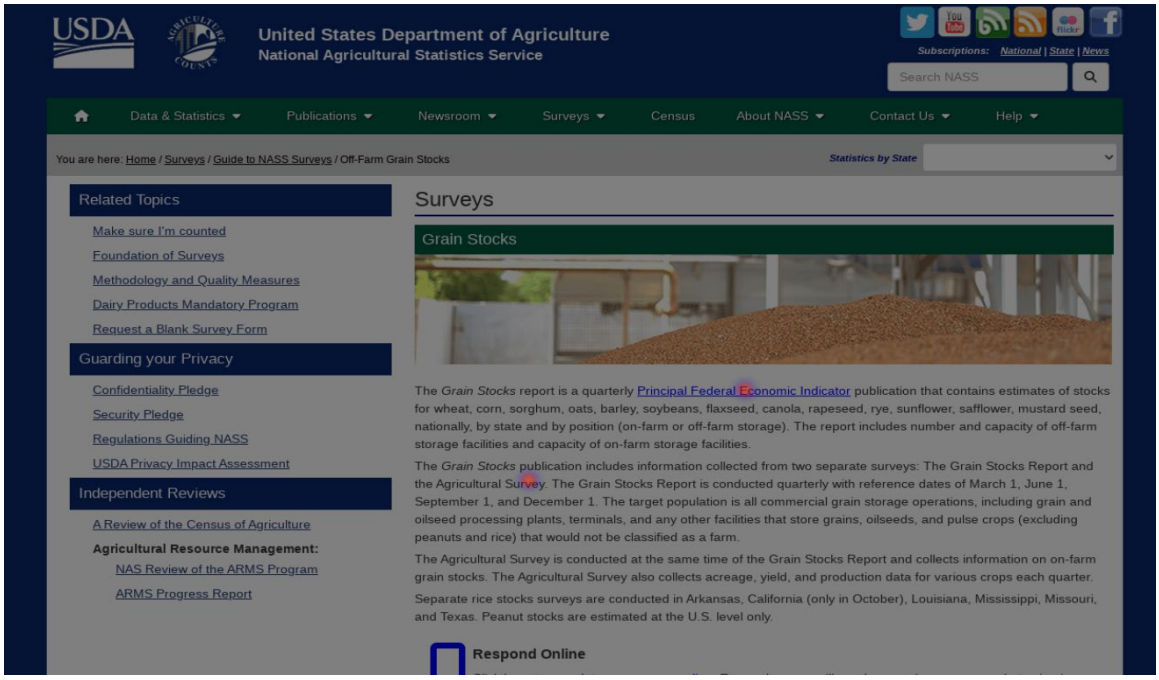


Figure 16 Heat Map Example, QR Experiment 1, December 2022

In Figure 16, the red dots indicate that for the December 2022 QR experiment, the attention of visitors was focused primarily on the link to the Principal Federal Economic Indicator and information about the *Grains Stocks* publication. All the attention captured in the Heat Map is shown at the top of the website.

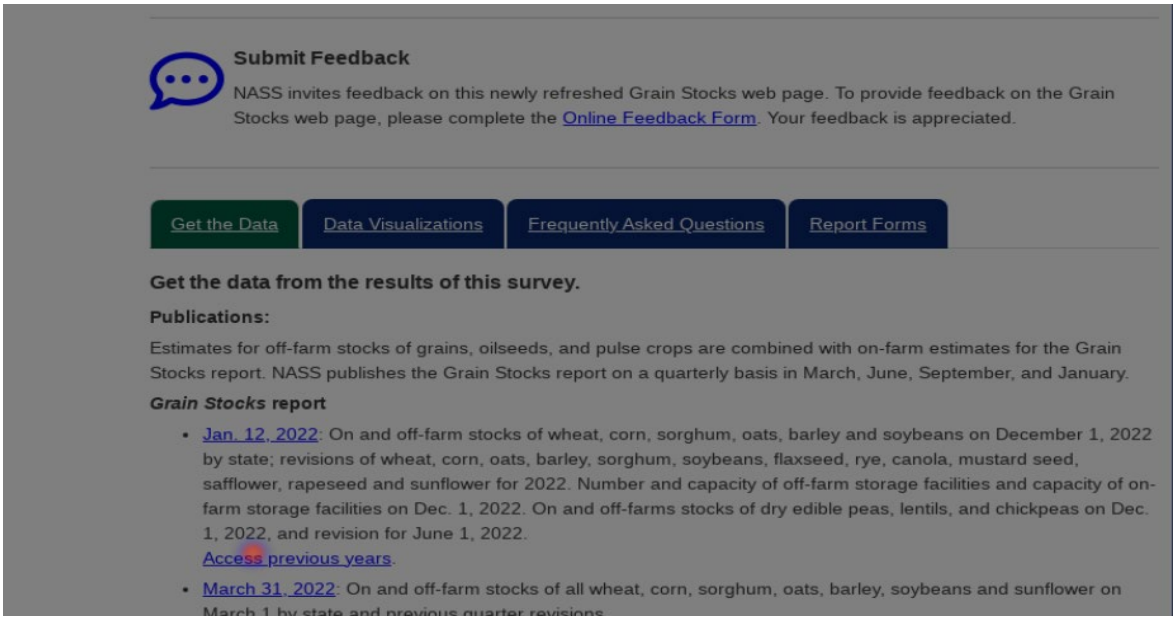


Figure 17 Heat Map Example, QR Experiment 2, March 2023

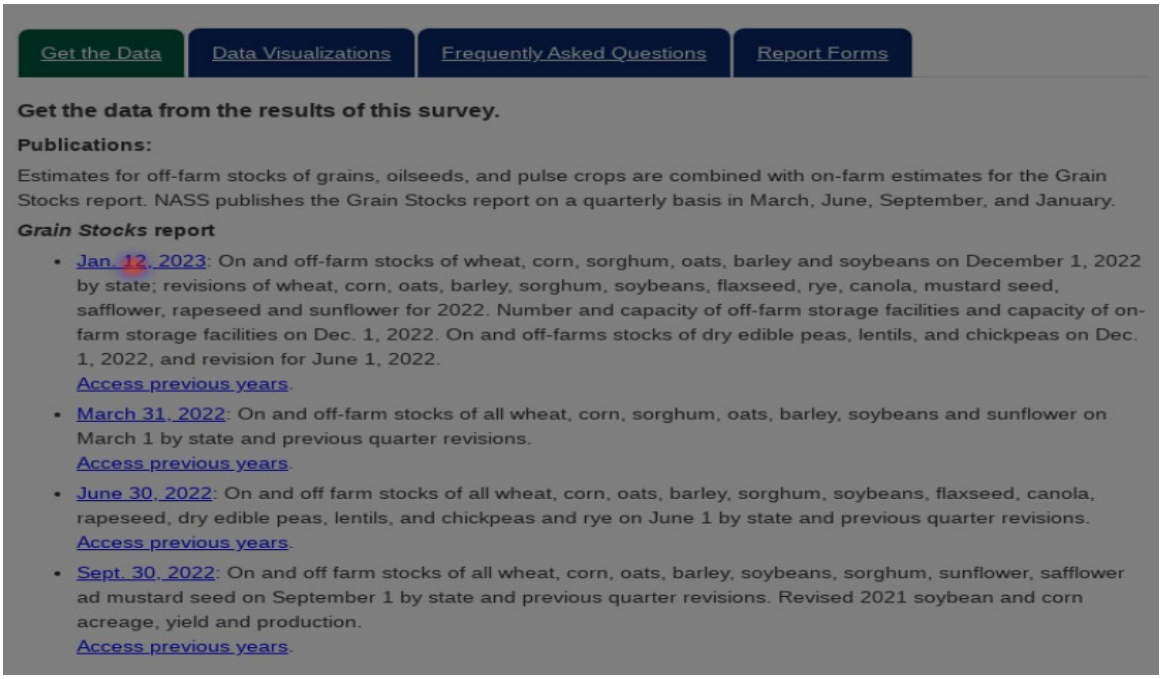


Figure 18 Heat Map Example, QR Experiment 2, March 2023

In Figures 17 and 18, the red dots indicate that for the March 2023 QR experiment, the attention of visitors was focused primarily on the link to the most current *Grain Stocks* publication and accessing previous years publications. It is worth noting that these links are further down on the GSR webpage and would likely require scrolling to view.

Figures 19 and 20 show Scroll Map examples from December 2022 and March 2023 QR code experiment times, respectively. In Scroll Maps, visitor attention is measured from lowest to highest (from dark to bright colors). Figure 19, showing the Scroll Map for the December 2022 QR code experiment, shows very little scrolling occurring towards the end of the website, with most scrolling occurring around the overview paragraph. This is similar to findings for the Heat Maps (Figure 16) and Click Maps (Figures 21 and 22). Figure 20, showing the Scroll Map for the March 2023 QR code experiment, shows that, like the previous data collection period, visitors scrolled around the overview paragraph, but additionally visited lower on the website around the publication section. This is consistent with findings for the Heat Maps (Figures 17 and 18) and Click Maps (Figures 23 and 24 for the March 2023 QR code experiment.


Figure 19 Scroll Map Example, QR Code Experiment 1, December 2022 GSR


Figure 20 Scroll Map Example, QR Code Experiment 2, March 2023 GSR

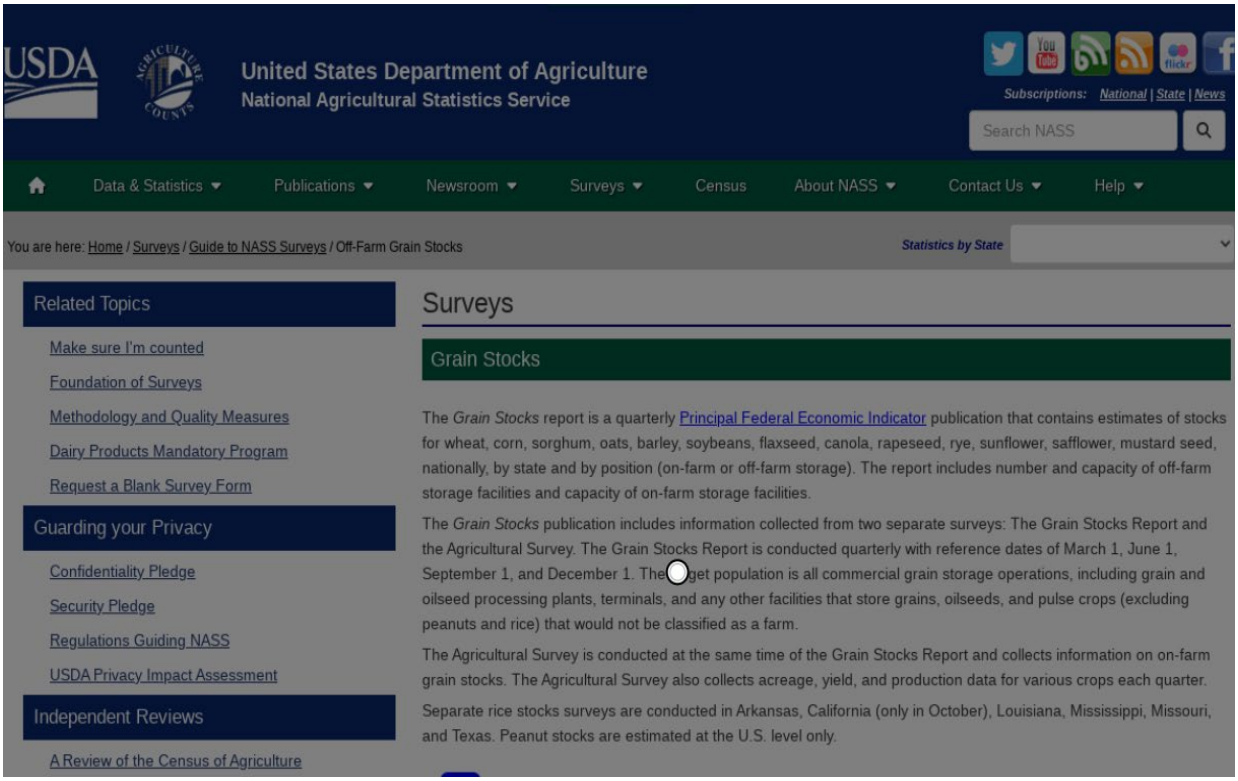


Figure 21 Click Map Example 1, QR Code Experiment 1, December 2022 GSR

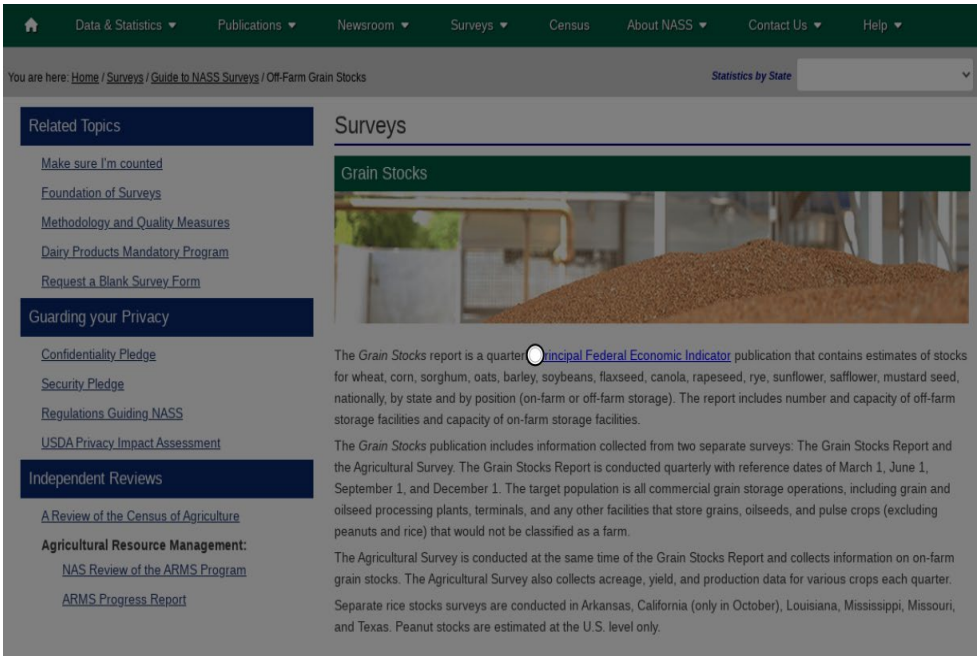


Figure 22 Click Map Example 2, QR Code Experiment 1, December 2022 GSR

In Figures 21 and 22, the white dots indicate that for the December 2022 QR experiment the visitors clicked on the link to the Principal Federal Economic Indicator and information about the *Grains Stocks* publication. This shows similar information to the Heat Map in Figure 16.

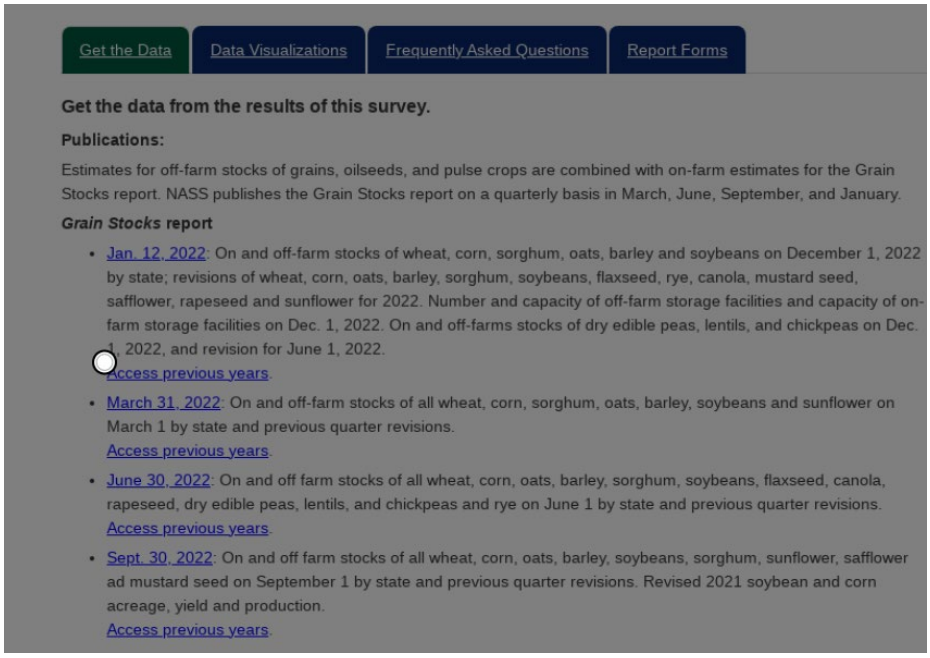


Figure 23 Click Map Example 2, QR Code Experiment 1, March 2023 GSR

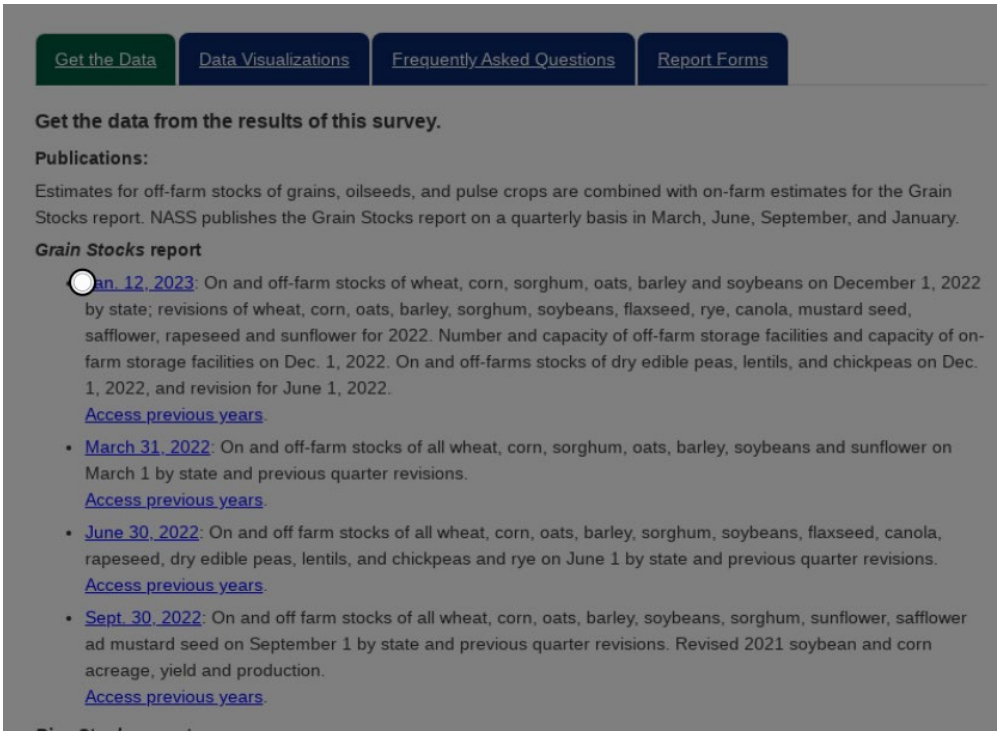


Figure 24 Click Map Example 2, QR Code Experiment 1, March 2023 GSR

In Figures 23 and 24, the white dots indicate that for the second QR experiment visitors clicked the link to the most current *Grain Stocks* publication and accessed previous years' publications. It is worth noting that these links are further down on the GSR webpage and would likely require scrolling to view this information. These findings show similar information to the Heat Map in Figures 17 and 18.

Other analytic metrics were captured with Siteimprove, such as page visits, number of clicks, and number of page scrolls. Behavior Maps were only captured for the exact web address of: https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Off-Farm_Grain_Stocks/. Other variations of the website, such as https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Off-Farm_Grain_Stocks/index.php, were not captured and this can account for differences between Google Analytics results and Siteimprove results for metrics, such as page visits/views.

**Siteimprove Metric Definitions**

**Page View**: is a count of how many times a page has been viewed on a website or the chosen group within the chosen period of time. All page views are counted no matter how many times a user has visited the website in the chosen period of time.

**Number of Clicks**: how many times an element has been clicked during the selected time period.

**Number of Page Scrolls:** how many times a visitor has scrolled horizontally on the website during the selected time period.

Figure 25 Siteimprove Metric Definitions

Table 10. December 2022 QR Code Experiment compared to March 2023 QR Code Experiment, Siteimprove Web Analytics

| | **QR Code Experiment 1 12/01-12/20/2022** | **QR Code Experiment 2 03/01-03/20/2023** |
|---|---|---|
| User Type | All Users | All Users |
| Page Visits | 16 | 4 |
| Clicks | 3 | 1 |
| Page Scrolls | 31 | 6 |

Table 10 shows the Siteimprove web analytics for the December 2022 QR experiment GSR data collection period compared to the March 2023 round of the QR experiment. There was a decrease in the number of page visits for all users between the December and March QR code experiments, from sixteen in December 2022 to four in March 2023. Looking at the engagement within webpage, the number of clicks decreased between the December 2022 and March 2023 QR code experiments, from three in December 2022 to one in March 2023. The number of page scrolls decreased between the first and second QR code experiments, from 31 in December 2022 to 6 in March 2023. The decrease in metrics was most likely due to repeat exposure to the campaign cards that was sent to the same respondent over a period of two quarters, similar to findings from the Google Analytics.

### 3.3 Web Feedback Form

To further assess and capture feedback on the GSR webpage, a feedback form was created and implemented. While visiting the GSR webpage, respondents had the opportunity to submit feedback by clicking a Feedback icon that appears as a banner on the webpage.

Responses were voluntary but were encouraged in the rack card marketing for the GSR web refresh, see Figure 26.

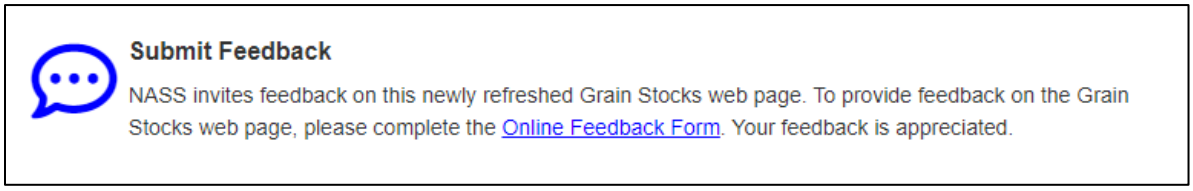


Figure 26 Example of Submit Feedback Banner

Clicking on the feedback icon directed respondents to the following questions:

- Please rate your experience of the Grain Stocks Report webpage
  - 5 – Outstanding
  - 4 – Very Satisfactory
  - 3 – Satisfactory
  - 2 – Unsatisfactory
  - 1 – Poor
- Did you face any of the following issues with the Grain Stocks Report webpage? Please select all that apply:
  - Trouble navigating the site
  - Missing content
  - Webpage content not relevant
- Would you like to provide any other comments or suggestions?

Figure 27 provides a screenshot of how the questions appeared once the Online Feedback Form was clicked.

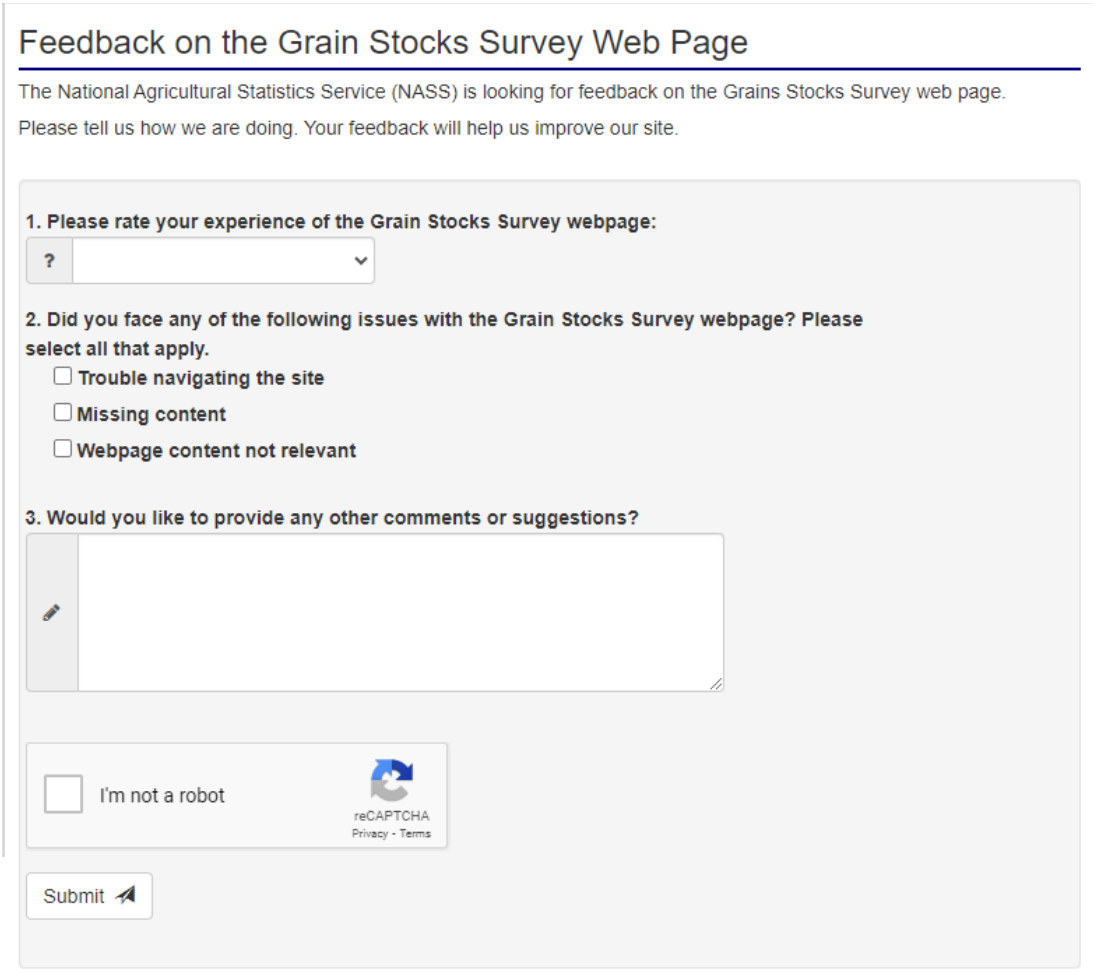


Figure 27 Example Online Feedback Form

Responses to the feedback form were sent to an email address created specifically for this research project which both researchers had access (sm.nass.research@usda.gov). Across both QR code experiment data collection periods, only one feedback form was submitted. The feedback that was received is shown below:

1. Rate the webpage: > "1 – Poor"

2. Did you face any of the following issues when getting to this page? > "Website content not relevant"

3. Would you like to provide any other comments or suggestions? > "your link goes to the Office of Management & Budget DATED under the OBAMA administration! VERY OUTDATED!"

Due to the limited feedback received, it could indicate that the link to the feedback survey should appear higher on the webpage making it more visible. Another way to make the feedback survey more visible is to have a pop-up feature that shows the link when the site is visited or modify existing metrics to improve engagement. With these changes, a higher increase in feedback or recommendation for changes that would benefit the visitor to the site may be observed.

## 4. CONCLUSION AND RECOMMENDATIONS

Improving efficacy of engaging respondents can be achieved by creating a tailored outreach program with activities specifically designed for each survey. This approach facilitates meaningful conversations with operations, fosters partnerships, collects valuable input for improving the GSR survey webpage, and informs respondents about new tools available for survey completion. When campaign cards were changed to include more detailed instructions, an increase in QR code scans did occur; however, we could not find clear relationships between the rack cards, QR codes, and URLs linking to the GSR webpage. Recipients of the rack cards may have typed in the URL or used a saved link to access the webpage. The increase in webpage visits does show the respondents are interested in engaging with the GSR webpage, but may require more engaging features on the webpage. If the GSR survey continued mailing campaigns in addition to including these materials for in-person outreach events, we should see further involvement from operators and receive information on what tools and information will be beneficial to them. Throughout the study, the Outreach Team assumed repeated exposure to new products would encourage repeated visits to the GSR webpage or further exploration of eAuth benefits, etc. (Hekkert et al. 2013). What we discovered was a repeated exposure to new outreach products did not increase visibility to the GSR survey webpage or QR code scans.

The summary statistics of both December 2022 and March 2023 treatment groups did not appear to reveal any notable differences. It is important to note that the research's primary objective was not to look for statistically significant differences but to explore the feasibility of expanding outreach efforts. The research aimed to utilize a small sample size for the development of outreach activities and the creation of an evaluation assessment tool. This method was designed to ultimately enhance the success of survey programs by providing respondents with simplified response methods and relevant survey information. Looking at the descriptive statistics between December 2021 and December 2022 as well as March 2022 and March 2023, a slight decrease in the response rate was observed when comparing the December 2022 and March 2023 experiment groups, but this was not tested for statistical significance.

The study suggests the introduction of new outreach materials may have a positive impact. The absence of a noticeable increase in the March 2023 results aligns with our earlier observations as mentioned in the preceding paragraph. It reinforces the notion that repeated exposure to new outreach materials with no immediate changes did not enhance visibility for either the GSR survey webpage or QR code scans. The limitations of the research hindered a more comprehensive explanation of this phenomenon and are addressed in Section 5.

To help improve the respondent experience and gain more information about whether current promotion and public awareness efforts are being successful, we recommend a Response Analysis Survey (RAS) and a Nonresponse Analysis Survey (NRAS) with respondents and nonrespondents, respectively, as follow-up surveys to a future GSR survey. The cost associated with this data collection effort would be relatively small, as it would be conducted through an online survey platform, Qualtrics.

NASS has previously conducted nonresponse analyses to gain a better understanding of survey nonresponse and aid in determining what areas in the data collection process need improvement (including promotion and/or public awareness). These analyses studied the Farm Costs and Returns Survey (FCRS), a predecessor to Agricultural Resource Management Survey (ARMS) with many overlapping topic areas (O'Connor, 1991; O'Connor, 1992), and ARMS 3 (Gerling et al., 2008). More recently, response and non-response analysis was conducted on ARMS 2, focusing on the experiences of not just non-responders but on why respondents chose to answer a survey (Herrell and Van Horn, 2023). The benefit of conducting both response and non-response analysis in surveys is that it allows the motivating factors behind operator behaviors, including perceptions on the usefulness of the data, marketing materials, and influences on future survey response behaviors, to be identified.

Based on these findings, the following changes are recommended:

**Short Term Recommendations**

1. Expand testing of outreach informational materials to the GSR in FY24.

    a. Establish a uniform format for future survey informational materials incorporating QR codes and/or rack cards.

    b. Continue assessing the efficacy of these informational materials.

    c. Establish effective partnerships that have connections and credibility with elevators and operators surveyed in the GSR.

d. Conduct a Response and Non-Response Analysis Survey (RAS/NRAS) for the GSR. This will be conducted in partnership with the Standards and Survey Development Methodology Branch (SSDMB) using Qualtrics.

e. Obtain access to tracking eAuthentication signups from NASS stakeholders, respondents, and external users.

f. Continue to work with PAO on marketing and providing information on the GSR through social media outlets.

**Long Term Recommendations**

1. Develop a partner engagement and survey program outreach plan that can be customized for use for all NASS survey programs.

    a. Enhance visibility at survey-related conferences and meetings by collaborating with the field and partnering with other USDA agencies for conference booths. Develop distinctive booth outreach experiences for a more impactful presence.

    b. Establish uniformity in survey marketing informational materials and tools for collecting respondent feedback.

    c. Create a template for an outreach and engagement framework that establishes well-defined goals for each outreach activity. This template should evaluate the current state of the survey program, outline the objectives for outreach activities, and incorporate measurable outcomes.

    d. Create an impact evaluation tool for survey programs aimed at identifying and evaluating underperforming outreach activities.

## 5. LIMITATIONS OF THE EVALUATION OF OUTREACH AND ENGAGEMENT ACTIVITIES

While the research fulfilled the requirements for a qualitative pilot study, it fell short of meeting the researchers' expectations on various fronts. The limited sample size in this initial endeavor restricted insights into respondent and stakeholder behaviors when exposed to new engagement and outreach materials. Participants in the sample received identical rack cards for both the December 2022 and March 2023 experiments. It is crucial to emphasize that with the research design and the small sample size, this pilot did not allow for statistical testing, but if an experiment is designed for the entire GSR sample on a national level such testing could be conducted.

Challenges arose in collecting analytics and assessing new engagement activities on the NASS and eAuthentication webpages.

Integration issues persisted, particularly with the eAuthentication website, which is managed by the USDA rather than NASS. Consequently, tracking changes in site visitors or eAuth signups related to the QR code on the eAuthentication rack card proved unfeasible. Additionally, the research was unable to isolate NASS employees who used the NASS survey webpages during the December and March evaluations. The analytics programs used could not separate NASS employee's webpage visits who may be located outside of Washington, D.C headquarters from a non-employee visitor.

Furthermore, the analytics from Siteimprove required setting up a Siteimprove campaign for each website URL in order to capture detailed information. This means that we did not capture users and behaviors for any variations of the GSR webpage address that may have been used. Future research should better account for additional variations on the GSR webpage address to get a more complete understanding of user's interactions with the site. For example, ideally, we would want to capture variations such as: https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Off-Farm_Grain_Stocks/index.php as well as https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Off-Farm_Grain_Stocks/.

Another compromise in the research involved conducting a pilot study to reduce costs, with the intent to implement a fully developed outreach and impact evaluation tool for the GSR the following year. Since the research will not be implemented on a national level for the GSR, the development of a prospective impact evaluation template, applicable universally across all NASS surveys, could not be fully conceptualized. Ultimately, the research can only yield results specific to the new engagement activities and lacks the capacity for a universal application of impact evaluations to NASS survey outreach endeavors.

The small sample size of this initial effort gave the research a limited but useful insight into respondent and stakeholders behaviors when provided new engagement and outreach materials. Future studies should include a more robust experimental design expanded beyond two states to be able to produce more generalizable results. The respondents included in the sample for this research received the same rack cards for both the December 2022 and March 2023 quarterly survey.

Attempts were made to gather user feedback on the GSR webpage by creating a feedback form. A limitation of this feedback form was that it was static, and users had to click an additional button to be prompted to provide feedback. This is different than how most of the feedback is gathered across the NASS website. Future research should look at alternative ways to gather user feedback, especially given only one feedback response was received. Future research could look to have better integration with existing feedback surveys that are currently being conducted on the NASS website.

Despite these limitations, the research did reflect engaging the GSR respondent community was effective, even on a small scale. Ongoing research at the national level for the GSR may provide a better understanding of how to target respondents for outreach programs that

encourage response. Addressing some of these challenges at the national level is likely to increase the efficacy of engaging respondents and to create partnerships as the outreach can become tailored to the feedback received.

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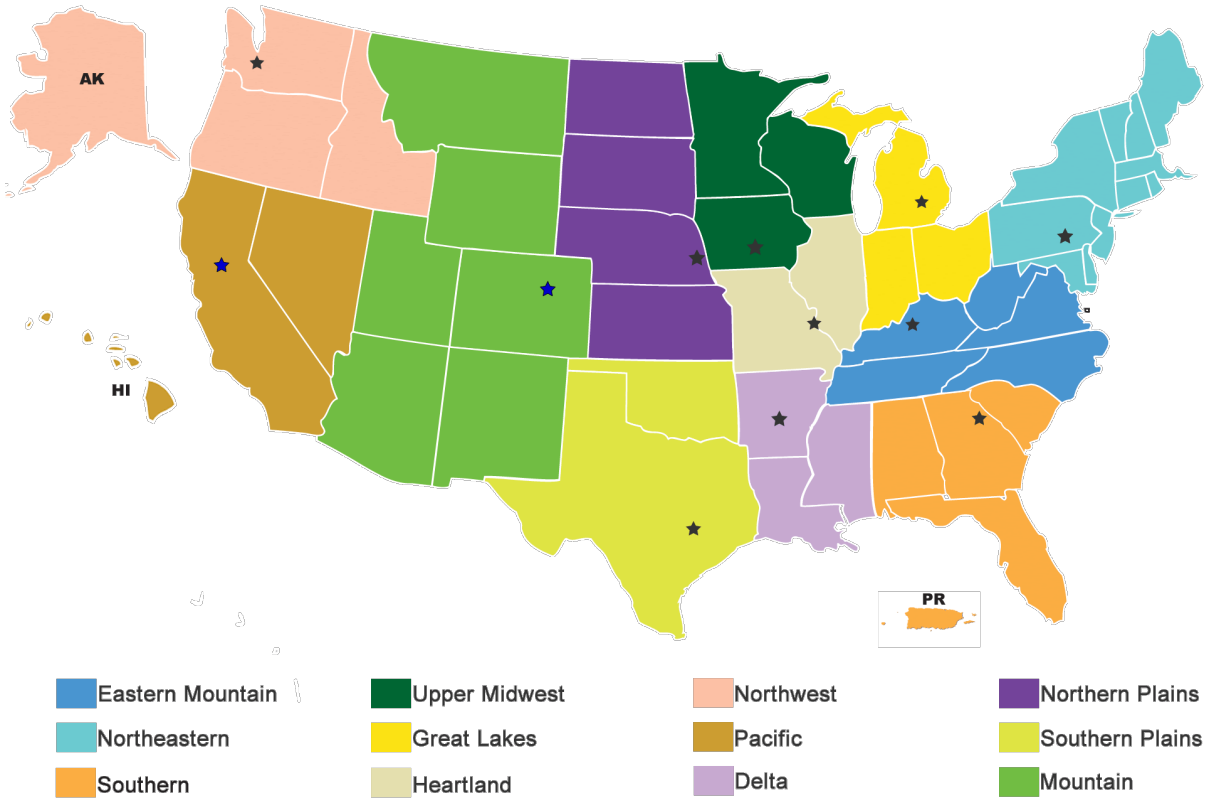
**APPENDIX A** Map of NASS Regions during time of study



**APPENDIX B** Updated GSR webpage


Figure B.1 Updated GSR webpage

**Grain Stocks Introduction:** Revised GSR survey introduction that explains the purpose of the survey and the dates which the GSR quarterly survey occurs.

**Grain Stocks Report Related Videos:** Contains report briefings and GSR survey related streaming videos to provide the visitor with the most up to date information concerning commodities or reports related to the GSR survey.

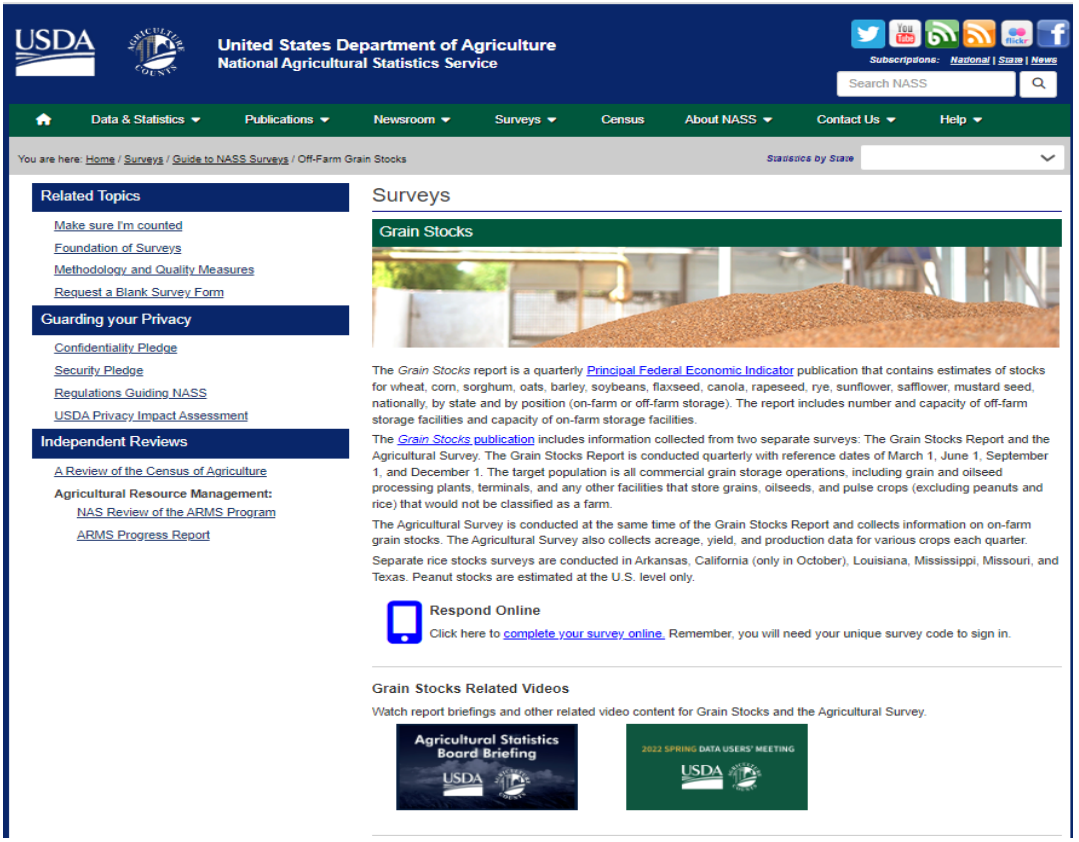



Figure B.2 Update of the GSR survey webpage, top

**Get the Data Tab:** Contains repository for GS reports from the current and previous year for easy access. If the visitor is interested in previous years, they can click on the link for archived reports.

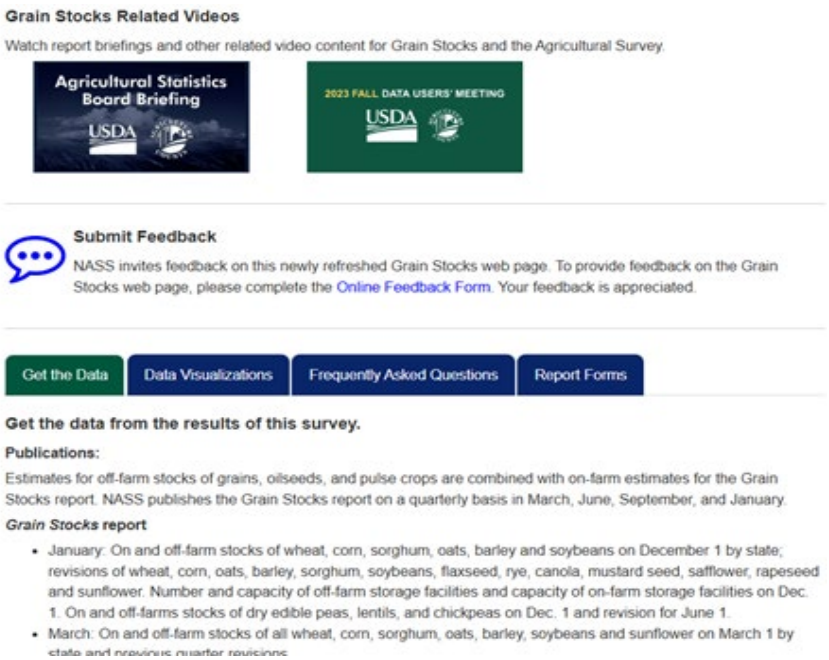



Figure B.3 Get the Data Tab

**Data Visual Tab:** Data visualization tab was added to the GSR survey webpage. It contains clickable icons to the most frequently requested commodities from the GSR survey. Visitors to the site can click on the "data visualizations" tab and select a commodity to show a visualization of US state rankings by year.

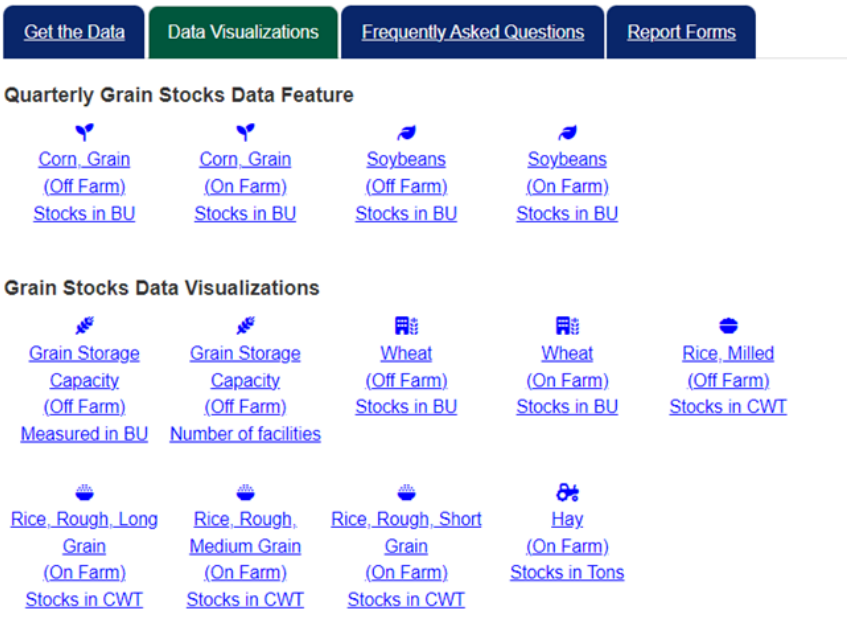



Figure B.4 Data Visualization Tab

**Frequently Asked Questions Tab:** A frequently asked questions tab provides FAQs based on questions that are most often asked in the field. The draft GS survey webpage has been present on the NASS website since December 2022.

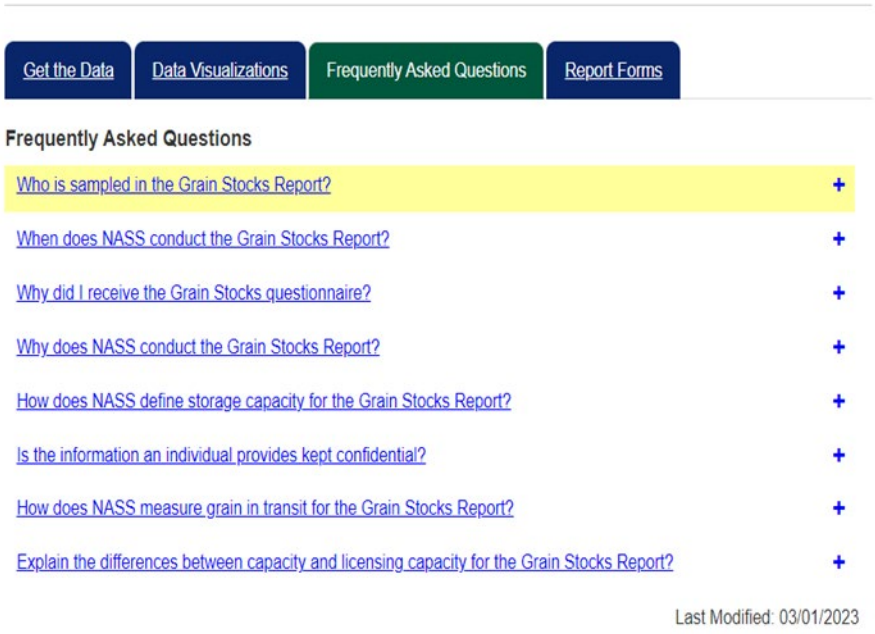



Figure B.5 Frequently Asked Questions Tab