

## Evolution of Web Surveys at USDA's National Agricultural Statistics Service

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reasons why respondents did not use the Web to report their data is also presented.

### 1. Introduction and Background

The United States Department of Agriculture's National Agricultural Statistics Service (NASS) surveys the Nation's farms, ranches and agribusiness. NASS analyzes, summarizes data and sets official estimates for all facets of agriculture. There are approximately two million farms and ranches in the U.S. About 20% of them are larger commercial establishments, while the rest are considered smaller operations.

NASS administers approximately 400 surveys per year, which ranging from very simple inquires with three to four questions to those that are over 30 pages long. The respondents for these surveys fall into two distinct populations: Agribusinesses and farmers. The majority of surveys are voluntary. Many of the larger farming operations and agribusinesses are contacted multiple times during the year. Some agribusinesses can be contacted as much as 52 weeks a year.

There are Field Offices in 46 States. These Field Offices are responsible for assigning data collection modes based upon the resources available in the state and are responsible for any data collection agreements with respondents.

As with many other government statistical agencies, NASS is required to provide respondents the option of completing surveys on the Internet (also referred to as the World Wide Web or the Web). At NASS, the Web option is never the only option given to respondents it is used in conjunction with other modes. One issue with Web reporting within NASS is that since the individual Field Offices are in charge of assigning modes and contacting respondents, it is not known how many respondents were sent an invitation and instructions to complete the survey on the Web.

This paper examines NASS Web response rates over time and summarizes respondent attitudes regarding NASS Web reporting options by categorizing Web respondent comments over two time periods. The results of an Internet Usage Project which recorded the

### 1.1 The History of Web Instruments within NASS

NASS began offering the Web as a reporting option in 2002, with the Cotton Ginnings Survey. The Cotton Ginnings Survey is conducted biweekly, six months a year. The targets of the survey are agribusinesses known as Cotton Gins. Most of the Cotton Ginnings surveys are composed of two questions and so is fairly simple in structure in comparison to other NASS surveys. This made it an excellent candidate for the first Web survey. The strategy for incorporating the Web as a reporting option for a survey within NASS was two fold: by putting "simple" surveys (one page) on the Web, NASS would not only help with paper reduction but would also hopefully reduce respondent burden. The surveys selected tended to be surveys done weekly or monthly with mainly agribusiness populations. As more features were developed and "growing pains" were worked through, complex surveys that required skipping were also put on the Web. The more complex surveys tended to target farms and ranches.

By July 1, 2005 there were 57 NASS surveys on the Web and the overall response rate at that time was 1.7%. Response rates for surveys targeting farms in 2005 were 1.2% and the response rate for surveys targeting agribusinesses were 6.6%. As of February 1, 2007, there were 125 NASS surveys that offered the Web reporting option with an overall Web response rate of 1.8%. Almost 1.5 million samples were uploaded with over 27,000 completed. The response rate for surveys targeting farms was 1.3% and 8.2% for agribusinesses.

### 1.2 Summary of Web Comments

When respondents submit surveys via the Web, they are invited to enter a comment on the data collection site and share their opinion of the Web survey. These comments are closely examined to alert staff to possible problems.

Respondent comments were summarized at two different time periods during NASS's Web history.

The first summarized comments from 2002 until July 1, 2005 (there were 311 comments from 41 surveys on the Web Site during this time period), and the second summarized comments from July 2, 2005 until January 31, 2007 (there were 1,208 comments from 108 surveys). Table 1 contains the results of both summaries and their resulting classifications. At both times the majority of respondents noted that they liked

the Web Site. The category Web Complaints had the next highest number of comments for both periods. Web Complaints contained comments specifically to the Web Instrument, such as log in problems, speed and printing problems Etc. Survey Complaints was the category that had the third largest number of comments and these comments were targeted at survey content, whether Web or other mode.

Table 1. Categories of Web Data Collection Site Responses

Category	Number of Comments 2007	Percentage of Comments 2007	Number of Comments 2005	Percentage of Comments 2005
Liked Web Site	371	29.0	97	31.2
Web Complaints	324	25.4	92	29.6
Survey Complaints	285	22.3	38	12.2
Survey Comments	237	18.6	59	19.0
Survey Refusal	9	0.7	6	1.9
Reported "No Comment"	27	2.1	19	6.1
Called too Early	22	1.7	—	—
Got incorrect Survey Code	3	0.2	—	—
Total	1,278	100	311	100

Table 2. Web Complaints by Number and Percentage

Category	Number of Comments 2007	Percentage of Comments 2007	Number of Comments 2005	Percentage of Comments 2005
Experienced Log In Problems	28	8.7	13	14.3
Long Download Time	49	15.2	15	16.4
Problems Printing	15	4.6	11	12.1
Lack of Edits	43	13.3	6	6.6
No use of Previously Reported Data	20	6.2	3	3.3
Web does not Match the Paper Form	42	13.0	14	15.4
Received Miscellaneous Errors	16	5.0	7	7.7
Paging Issues	20	6.2	3	3.3
Data did not stay in the Form	15	4.6	3	3.3
Navigational Problems	50	15.5	13	14.3
Want Survey Code and/or Survey Results Emailed	25	7.7	4	3.3
Total	323	100.0	92	100.0

Table 3 Survey Complaints By Number and Percentage

Category	Number of Comments 2007	Percentage of Comments 2007	Number of Comments 2005	Percentage of Comments 2005
Questionnaire Complaints	274	96.1	24	63.2
Security Concerns about SSN	6	2.1	9	23.7
Survey Purpose Unclear	5	1.8	5	13.1
Total	285	100.0	38	100.0

Survey complaints actually increased for the 2007 comment period. This was probably due to the fact more complex/longer surveys were being put on the Web during this period, including some surveys that were asking income and expenses of farmers. Survey Comments were related to information offered by the respondent about the survey topic. These were not complaints about the Web site or survey purpose. The other categories ranged from those that went through the survey to refuse to do it, respondents who felt that they were contacted via other modes before they had a chance to complete the survey via the Web and a small number said that they had received an invalid survey code.

Web complaints and Survey complaints were further categorized in Tables 2 and 3. The comments from the 2002 until 2005 showed that respondents were unhappy with the long download time for surveys; they also felt that the Web survey version did not match the paper survey; there were problems actually logging into the survey; and even after login, respondents reported difficulty navigating through the survey. When comments were categorized again in 2007, long download time, navigational problems and lack of standardization between the paper and the Web form were still issues. There were less problems logging in to the system but more desire by respondents to have edits such as automatically summing totals in the form. Login problems potentially decreased because of improved instructions and return visits especially by those respondents in weekly and monthly surveys. The increase in navigational problems and lack of edits are due to the fact more complex/longer surveys were now available on the Web. While attempts have been made to decrease download time, the majority of farms are in rural areas and thus dialup is probably the most common type of Internet connection.

When Survey Complaints were categorized as shown in Table 2, the majority of complaints were based on questionnaire content. This has only increased as more complex/long surveys have been brought on line.

In an effort to find out why more respondents do not complete their surveys on the Web, an Internet Usage project was developed. Questions were added to three surveys to discover why respondents didn't complete their survey on the Web.

## 2. Methods

### 2.1 Internet Usage Project

The questions on Internet Usage were added to the December 1, 2005 Cotton Ginnings Survey, the October 2006 Agricultural Labor Survey and the March 2007 Agricultural Survey. These surveys were selected for a variety of reasons. As stated earlier in this paper, the Cotton Ginnings Survey is bimonthly and was the first survey within NASS that offered a Web option, because it has only a few questions and its target population is Agribusinesses. The Cotton Ginnings sample ( $n=665$ ) is also relatively small. Field Offices typically mail a questionnaire to potential respondents one week before the survey reference date. The Web instrument is made available on the mail date and telephone follow up begins about 3 days before the end of data collection.

The Agricultural Labor Survey is conducted quarterly, samples very large farms and nurseries and includes an Area Frame component which tends to be small farms. The Agricultural Labor paper form has 8 pages and the sample size every quarter is about 14,515. The survey reference period for Labor is one week. At the time of this study Field Offices had the option of mailing an informational copy of the survey near the end of the survey period or a paper version a little earlier for mail back. Most Field Offices used the informational copy, which has now been discontinued. Telephoning for the Labor Survey began immediately after the reference period ended.

The March Agricultural Survey is one of the quarterly crops/stocks surveys which targeting large and small crop farms with a reference date of March 1. Like the Agricultural Labor Survey there is an Area Frame component which is made up of small farms. The paper version is 12 pages and the sample size is about 85,000. The questionnaires were mailed five days prior to the start of telephone data collection. (February 27). The Web instrument was available the day after surveys were mailed.

Headquarters provides a template for a survey invitation to be used for all surveys on the Web but Field Offices currently have the ability to change or discard the invitation.

Three questions were used to assess the interest in NASS survey WEB options:

1. Do you have access to the Internet?
2. Did you know this survey can be completed on the Internet? (Asked only when respondents reported having Internet access)

3. What was the main reason you did not complete this survey on the Internet? (Asked when respondents reported having prior knowledge of Web options for NASS surveys)

These questions were first added to December 1, 2005 Cotton Ginnings mail version and CATI instruments because when the paper instrument is returned it is keyed into CATI. The other surveys only offered the questions in CATI as the paper returns were keyed into another editing system. During the Cotton Ginnings Survey it was found that CATI required that the first two questions be answered with a “yes” or “no” even if the question was not answered on paper or the respondent reported that they did not know. This caused many enumerators to indicate no reason given for the third question (major reason not completed on the Internet). Adjustments were made to the next two surveys allowing enumerators to enter “Don’t Know” as an option for questions 1 and 2. This significantly decreased the number of “No reason given” recorded for both surveys (Table 4). The question pertaining to the main reason that they did not complete the survey on the Internet was an open ended question for Cotton Ginnings and Labor. Based upon results from these

two surveys a check list was developed for the March Agricultural Survey.

The Web response rate for Cotton Ginnings was 4.5%. The Labor and March agricultural Survey Web response rates were 1.6% and 1.8% respectively.

### 3. Results

#### 3.1 Internet Access

Internet access rates significantly varied across all three surveys (Table 4). December 2005 Cotton Ginnings Survey respondents reported the highest Internet access rates (75.79%). This was expected since Cotton Ginnings respondents are agribusinesses and may tend to use computers more frequently, especially for work. Cotton Ginnings respondents were also more likely to report via the Web. October 2006 Agricultural Labor and March 2007 Agricultural Survey respondents reported similar levels of Internet access (59.57% - 60.63%). Although on all three surveys, more than half of the respondents reported access to the Internet.

Table 4 Do You Have Access to the Internet?

Survey	Yes		Don't Know <sup>3</sup>		No		Total	$X^2_{\text{Within Survey Variation}}$
	Count	Percent	Count	Percent	Count	Percent		
December 2005 Cotton Ginnings	504	75.79	0	0.00	161	24.21	665	176.92 ( <i>df</i> = 1)*
October 2006 Agricultural Labor	2,734	60.63	296	6.56	1,479	32.80	4,509	1977.90 ( <i>df</i> = 2)*
March 2007 Agricultural Survey	18,172	59.57	1,347	4.42	10,985	36.01	30,504	14,018.64 ( <i>df</i> = 2)*

$X^2_{\text{Between Survey Variation}} = 134.81, df = 4, p < .05$

3. “Don’t Know” was not an available response option on December 2005 Cotton Ginnings

\* Significant at the .05 level

#### 3.2 Knowledge of Web Options

Knowledge of Web options significantly varied across surveys (Table 5). Of those respondents reporting Internet access, the majority reported knowledge of Web options on the December 2005 Cotton Ginnings Survey, but not on the October 2006 Agricultural Labor Survey or the March 2007 Agricultural Survey. It’s not surprising that the percentage of respondents with Internet access reporting knowledge of Web options on the Cotton Ginnings Survey surpassed that of Labor and Agriculture, since the survey has been

available online since 2002; however, it is concerning that less than half of respondents reporting Internet access on Labor and Agriculture knew their survey could be completed on the Web.

#### 3.3 Reasons for Refusing to Use Web Options

Respondent reasons for refusing to use Web options significantly varied across surveys (Table 6).

Table 5 Did you know you could do this survey on the Internet?

Survey	Yes		Don't Know <sup>3</sup>		No		Total	$X^2_{\text{Within Survey Variation}}$
	Count	Percent	Count	Percent	Count	Percent		
December 2005 Cotton Ginnings	365	72.56	0	0.00	138	27.44	503	102.44 ( $df = 1$ )*
October 2006 Agricultural Labor	611	22.35	444	16.24	1,679	61.41	2,734	985.27 ( $df = 2$ )*
March 2007 Agricultural Survey	6,307	34.07	908	5.00	10,957	60.30	18,172	8,350 ( $df = 2$ )*

$$X^2_{\text{Between Survey Variation}} = 930.09, df = 4, p < .05$$

3. "Don't Know" was not an available response option on December 2005 Cotton Ginnings

\* Significant at the .05 level

The two main reasons December Cotton Ginnings respondents with Internet access and knowledge of Web options, did not report data electronically was because they felt other modes were quicker/faster (26%) or they did not have enough time/were too busy (14%). The majority of October 2006 Agricultural Labor Survey respondents with Internet access and knowledge of Web options, did not report data electronically because they did not have enough time/were too busy (30%), do not like using computers/Internet (19%), or claimed their survey was sent out too late (14%). The majority of March 2007 Agricultural Survey respondents with Internet access and knowledge of Web options, did not report data electronically because they do not like using computers/Internet (23%), do not have enough time/too busy (22%), or they preferred a telephone call (13%).

Although it is not surprising that attitude towards computers or the Internet was not a major factor in Cotton Ginnings agribusiness respondents with Internet access refusing to report data electronically, it is interesting that attitude towards the computer and the Internet was a major reason for both October Labor Survey respondents and March Agricultural Survey respondents with Internet access refusing to report data electronically.

Overall, based on average frequency percents across surveys, the three main reasons given by respondents with Internet access and knowledge of Web options for refusing to report data electronically were: 1) Not enough time/too busy (22%), 2) Does not like using computer/Internet (15%), and 3) Other modes are quicker/faster (13%).

Table 6 Coded Reasons for not Responding on the Web.

Code	Reason Description	Agricultural Survey		Agricultural Labor		Cotton Ginnings	
		Count	Percent	Count	Percent	Count	Percent
1	Other modes (telephone, fax) are quicker or easier.	300	4.8	55	9.5	75	25.5
2	Does not like using computers / Internet.	1,482	23.4	110	18.9	8	2.7
3	Problem with the NASS Website.	118	1.9	19	3.3	14	4.8
4	Prefers a telephone call	824	13.0	18	3.1	10	3.4
5	Telephone call is prompt to complete survey.	235	3.7	5	0.9	7	2.4
6	Did not have enough time. / Too busy.	1,385	21.9	177	30.5	41	14.0
7	Competition for use of computer.	79	1.3	3	0.5	4	1.4
8	User problem with computer	269	4.2	23	4.0	6	2.0
9	Fear of computer viruses.	16	0.3	7	1.2	2	0.7
10	(claimed) Completed on-line	31	0.5	6	1.0	--	--
11	Web notice was sent out too late.	197	3.1	80	13.8	--	--
12	The letter said someone would call.	81	1.3	26	4.5	--	--
13	Did not think Survey applied to them.	24	0.4	10	1.7	--	--
14	Other reason.	842	13.3	19	3.3	26	8.8
15	No reason given.	435	6.9	23	4.0	101	34.3
	Total	6,318	100.0	581	100.0	294	100.0

#### **4. Summary**

While the Web will probably never be the sole mode of data collection for any NASS survey of farms and agribusinesses it should be a better utilized mode than is seen currently. This is necessary for NASS to decrease respondent burden and data collection costs. Even though responding via the Web is a self administered mode and self administered modes tend to have lower response rates than interviewer assisted modes, Web rates for NASS should be higher than we are currently experiencing . The Internet Usage Project has shown that over half of NASS respondents have access to the Internet but Web response rates for NASS surveys are well below this figure.

The knowledge of the NASS Web reporting option was alarmingly low for the Labor and Agricultural Surveys. This points to a need to improve and increase the availability of the Web option to potential respondents. Since Field Offices with in NASS are in charge of this task they are the point where the most gains can be made. Efforts should be made to train all Field Office personnel as to the importance of Web data collection as a way to reduce respondent burden and as a cost savings. Also, all Field Offices should use the standard invitation to complete the survey on the Web especially for respondents who have never had the opportunity to complete the survey on the Web.

Based upon comments received by respondents NASS is investigating the addition of simple edits to the Web instruments as a way to decrease respondent burden. NASS is also very aware of the complaints of long download times which could hamper the addition of complex edits. NASS is also upgrading equipment in an effort to decrease downloading time.