A Summary of Issues Associated With the Modernization of Data Collection

Linda A. Lawson, Denise A. Abreu,
Claire Boryan, Michael Gerling, Rick Hardin
National Agricultural Statistics Service
1400 Independence Avenue, SW, Washington DC 20250

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Abstract

The National Agricultural Statistics Service (NASS) is considering the use of a permanent grid frame instead of its area frame for the June Agricultural Survey (JAS). The proposed grid frame would include sample units having roughly equal-sized and shaped areas called grids or grid cells. The grid cells would be stratified by agricultural intensity and content and then a stratified random sample drawn. As with the current area frame, every year 20 percent of the sampled grids would be rotated out and a new rotation of grids introduced. A challenge associated with this proposed approach is that only a portion of an agricultural field may lie within the selected grid whereas currently sampled units have boundaries that follow roads or other physical features.

Because of the presence of partial fields in a sampled grid cell, the use of mobile mapping technology may be critical for proper identification of the areas to be included in a sampled grid cell. Currently, enumerators identify fields within a sampled unit on an aerial photo. The mobile mapping instrument also allows electronic data entry. To test the concept of a grid cell, in conjunction with the mobile mapping instrument, enumerators in North Carolina, Pennsylvania and South Dakota visited with farm operators during Summer 2014. A sample of grid cells was selected in each state. For each sampled grid, the enumerators completed an evaluation form to obtain information on a variety of issues including 1) those associated with the grid concept, 2) use of a mobile mapping instrument, 3) connectivity and 4) visualization problems associated with the iPad (e.g. sun glare). This paper documents the research results and discusses future instrument enhancements as well as potential improvements in data collection activities.

I. Introduction

The National Agricultural Statistics Service (NASS) conducts the June Agricultural Survey (JAS), which uses an area sampling frame. The JAS sampling unit is a segment, which is about one-square mile of land with well-defined boundaries, such as roads or fences. Field enumerators currently use a hard copy aerial photo to identify JAS operator's land within the traditional JAS segment boundary. Enumerators draw the field boundaries on the aerial photo and report the crop type and acreage information on the paper questionnaire (Cotter et al., 2010).

The agency is considering the use of a permanent grid frame instead of its current area frame for the JAS. The proposed grid frame has units, which are roughly equal-sized and shaped areas called grid cells or grids. A challenge associated with this proposed approach is that fields may not be fully contained within a grid cell boundary. Because of the presence of partial fields, the use of mobile mapping technology may be critical for proper identification of the areas to be included in a sampled grid cell.

NASS has been testing and refining a prototype mobile mapping instrument. Although it is being used to test the grid frame concept, the mobile mapping technology has the potential to reduce costs by eliminating the need for data entry from paper questionnaires, to improve data quality with electronic edit checks, and to lengthen the data collection window since the data can be sent electronically, unlike the paper questionnaires, which are mailed. The mobile mapping instrument can be utilized to collect data on both traditional JAS segments and on grid cells. In 2014, enumerators used the prototype instrument to collect JAS data for grid cells in North Carolina, Pennsylvania and South Dakota. This paper documents the issues identified that are related to the use of the mobile mapping instrument and discusses future instrument enhancements as well as potential improvements in data collection activities. See Abreu et. al (2015), for information specific to testing the grid frame concept.

II. JAS Background Information and Proposed Grid Sampling Frame

The JAS is an annual area-frame-based survey with approximately 11,000 sample units known as segments. Enumerators are provided a paper aerial photo with the segment area outlined in red and are required to account for all land within the segment boundary (Figure 1).

Enumerators divide the segment into separate tracts of land that represent each unique operating arrangement. Each tract is assigned a letter and drawn in blue on the aerial photo (Figure 2). Tracts are then screened for agricultural activity of which about 42,000 of them are classified as Agricultural Tracts (Ag-Tracts).

Ag-Tract farm operators are contacted and asked general questions about their entire farming operation. Additional information is collected about all fields that fall within the segment boundary. Field boundaries are drawn in red on the aerial photo and labeled with a field number (Figure 3). Section D of the paper questionnaire, as shown in Attachment A, is used to record detailed information about each field (Cotter et al., 2010).

Figure 1: Segment outline indicating sampled area

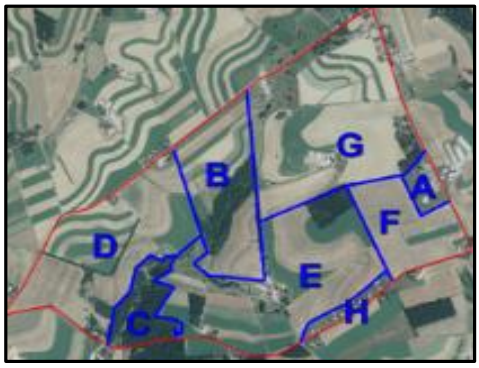

Figure 2: Segment divided into tracts representing unique land operating arrangements

Figure 3: Fields drawn in red for each Ag-Tract

The proposed grid frame, has units having roughly equal-sized and shaped areas called grid cells or grids. This permanent frame was developed based on the Public Land Survey System (PLSS), which lacks any physically identifiable boundaries. A challenge associated with this proposed approach is that fields may not be fully contained within a grid cell boundary. In these instances, information must be collected for the portion of the field that lies within the grid. Reporting accurate information on a partial field may be challenging, especially if the included area is only delineated on a printed aerial photo. One way to address this issue is to use a mobile mapping instrument, which incorporates GIS technology, to delineate fields and tracts within the grid cell. GIS calculations could be used to determine the acreage of each field (or portion of field) included in the grids, eliminating the need for agricultural operators to report acreage for partial fields. The mobile mapping instrument developed could handle both grid cells as well as traditional JAS segments. Figure 4 shows the grid frame concept (outlined in red) compared with a traditional JAS segment (outlined in purple).

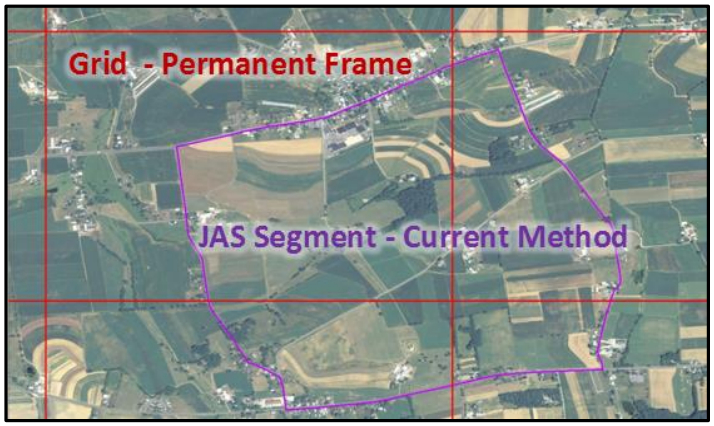

Figure 4: An illustration of a grid cell (outlined in red) compared with a segment (outlined in purple)

III. Overview of the Prototype Mobile Mapping Instrument

Development of the prototype JAS mobile mapping instrument began in 2012. The instrument is an offline-capable web application designed to run within the Safari browser on an iPad. A substantial amount of the JAS data collection takes place in rural areas that tend to have intermittent signal; therefore, it was essential that the instrument be able to operate without an Internet connection. Prior to data collection, enumerators run a cache routine to store the required imagery in the iPad's memory (Gerling et al., 2015).

Fields are delineated on digital imagery in place of the paper aerial photo. Detailed field information is captured in a streamlined electronic version of the Section D questionnaire. Field boundaries are captured as polygons with the Section D data linked as attributes (Figure 5).

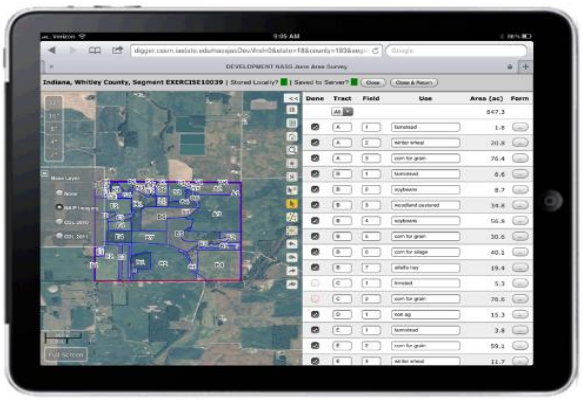

Figure 5: Mobile mapping instrument

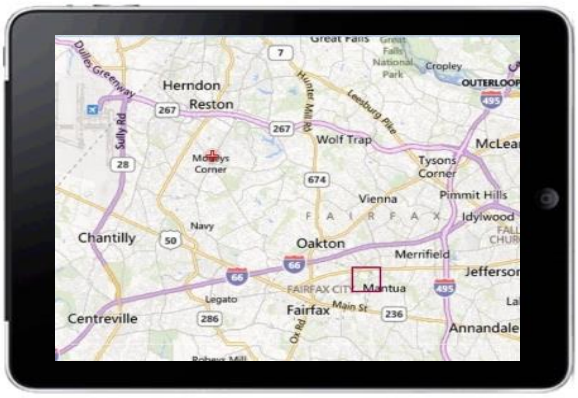

Figure 6: Geolocation feature

If a wireless broadband connection is available, the instrument transmits a copy of the data to the web server as it is entered or modified by an enumerator. Otherwise, the data remains stored locally on the iPad. All data are automatically transmitted to the web server whenever a wireless broadband connection is available. Up-to-date traffic light symbols are displayed to indicate if the data has been stored locally on the iPad, saved to the server or both.

The instrument contains a wide range of Geographic Information Systems (GIS) tools and features. Enhancements are made each year to improve usability. A sophisticated geolocation feature was added to the prototype instrument in 2014 to help the enumerators orientate themselves in relation to the segment or grid cell (Figure 6).

IV. Aerial Imagery Part of the Instrument

The aerial imagery part of the instrument displays a red segment or grid cell boundary overlaid on digital imagery on the left side of the screen (Figure 5). This can also be run in full screen mode (Figure 7). The digital imagery is obtained from the National Agricultural Imagery Program (NAIP), which acquires aerial imagery during the agricultural growing seasons in the continental U.S. Typically, this digital ortho-rectified aerial photography is available to governmental agencies and the public within two to four months after acquisition.

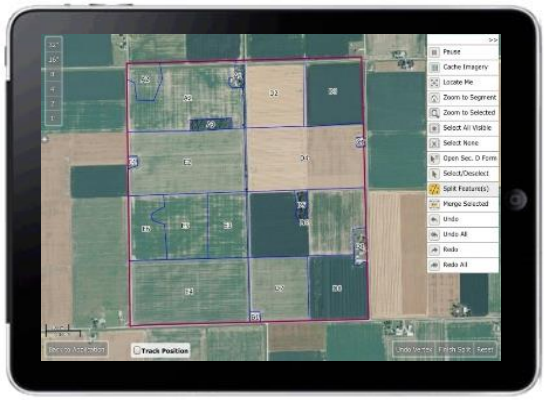

Figure 7: Instrument shown in full screen mode

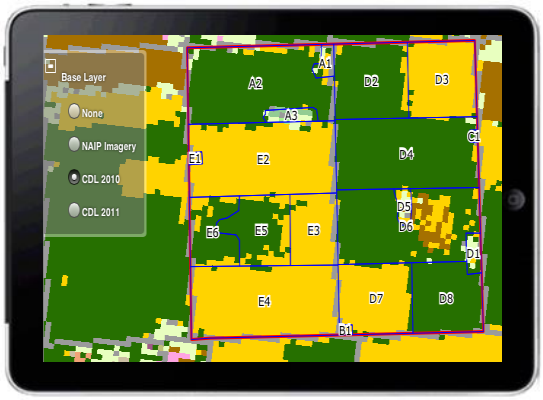

Figure 8: Displaying the CDL in place of the NAIP imagery

The instrument is capable of presenting additional resource material using Web Map Service (WMS) overlays. This allows the ability to replace the NAIP imagery with another layer, such as roads or the Cropland Data Layer (CDL) (Figure 8). The CDL is an annual crop specific land cover product, depicting more than one hundred unique crop categories across the nation. NASS derived this cropland area monitoring program via remote sensing (satellite data) using a supervised land cover classification approach. The national CDL product (Boryan et. al (2011)) is available on NASS's CropScape web portal at http://nassgeodata.gmu.edu/CropScape.

The majority of the functions are performed within the aerial imagery part of the instrument using the various tools created within OpenLayers, which is an open-source JavaScript mapping library and provides basic web and GIS functionality.

In the current JAS enumeration process, enumerators use a blue grease pencil to outline tracts and a red grease pencil to outline fields on the paper aerial photo. The process within the mobile mapping instrument requires "splitting" a segment or grid cell into tracts and fields instead of outlining them. The polygons representing each of the fields are created by using the split feature tool. Splitting ensures that all land parcels are included within the segment or grid cell boundary.

The split tool was integrated into a toolbar on an OpenLayers map in the instrument. The map allowed a loaded segment or grid displayed over NAIP aerial imagery to be repeatedly split into component tracts and fields. A merge tool was also developed for updating/correcting errors made when splitting. Several additional tools were added to the OpenLayers map, including zoom tools, selection tools, and undo/redo buttons to make it more user friendly. The mobile mapping instrument has touch screen pinch zooming capabilities, but also includes buttons to quickly zoom to preset levels.

V. Electronic Section D Form

The right side of the mobile mapping instrument main screen (Figure 9) displays the calculated GIS acreage along with general information about all of the polygons or fields that have been delineated on the aerial imagery. A button to the right of each field is used to open the electronic Section D form (Figure10).

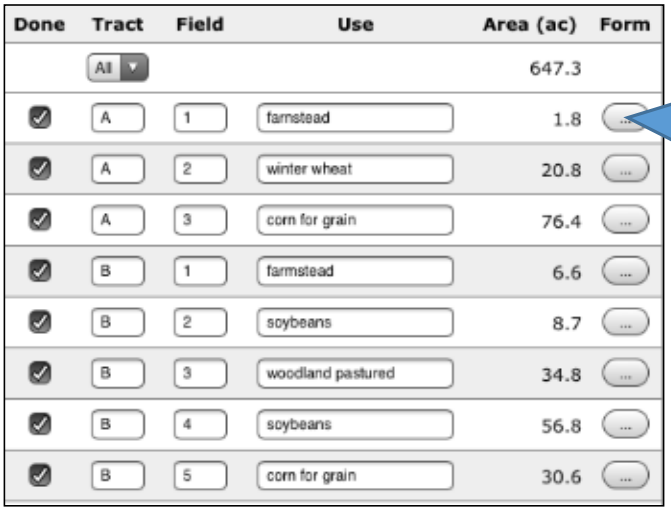

Figure 9: The right side of main screen displays the calculated GIS acreage and general field information

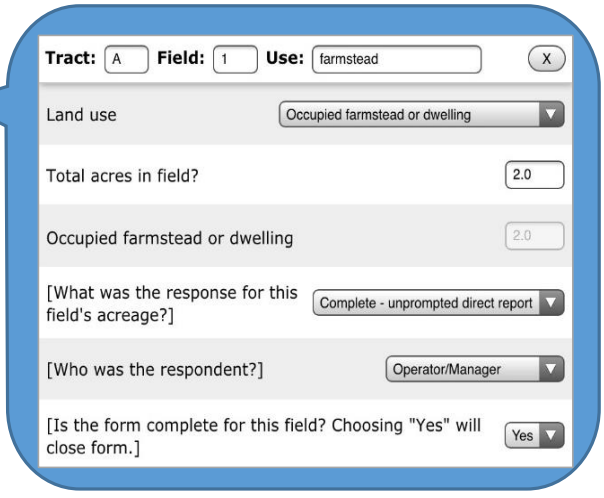

Figure 10: A view of the opened Section D form for the first field in the table

The mobile mapping instrument provides a highly optimized version of the paper Section D form. The specific details for each field are captured in a survey like format containing drop down menus and basic edit checks. Skip rules and validation logic were specified per-question dynamically. This effectively reduces the complex paper table as shown in Attachment A, to a handful of questions that relate to the specific crop or land use (Figure 11).

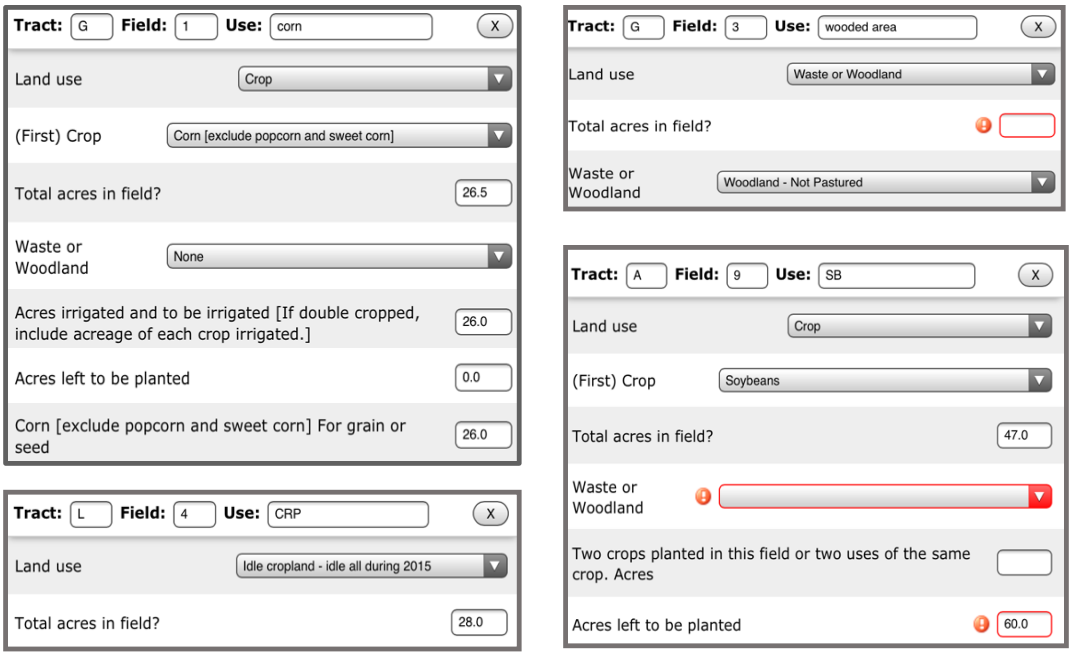

Figure 11: Skip rules facilitate streamlined questions specific to each crop or land use. Indicators pinpoint missing information and any data inconsistencies found during basic edit checks

VI. Field Data Collection Test

During Summer 2014, enumerators in North Carolina (NC), Pennsylvania (PA) and South Dakota (SD) visited with farm operators to test the concept of grid cells in conjunction with the mobile mapping instrument. A sample of 20 grid cells was selected in each state. Field enumerators identified a total of 917 tracts, which are unique farm operations, (457 agricultural and 460 non-agricultural). Enumerators delineated all the fields and attempted to conduct interviews with farm operators for all tracts with agriculture.

Table 1: Agricultural and Non-Agricultural Tracts by State

	North Carolina		Pennsylvania		South Dakota		All 3 States	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Agricultural Tract	136	36.3	239	54.4	82	79.6	457	49.8
Non-Agricultural	239	63.7	200	45.6	21	20.4	460	50.2
Total	375	100.0	439	100.0	103	100.0	917	100.0

Table 2: Completed, Partial and Estimated Ag-Tract Interviews by State

	North Carolina		Pennsylvania		South Dakota		All 3 States	
	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent
Complete Live Interview	86	63.3	171	71.5	66	80.5	323	70.7
Refusal Partial Interview	18	13.2	11	4.6	3	3.7	32	7.0
Estimated (No Contact)	32	23.5	57	23.9	13	15.8	102	22.3
Total	136	100.0	239	100.0	82	100.0	457	100.0

For each sampled grid cell, the enumerators completed the evaluation form shown in Attachment B to obtain information on issues associated with the grid concept, use of a mobile mapping instrument, connectivity and glare associated with the iPad. In addition to providing a yes/no response, enumerators wrote notes on the back of the form describing the nature of any positive response. This enabled proper determination of the exact cause of the issue encountered.

VII. Reported Issues: Aerial Imagery Part of Instrument

Enumerators were asked whether they had any problems using the aerial imagery part of the instrument. Their responses were tabulated for each of the 457 agricultural (Ag) tracts completed. Table 3 displays the number of times field enumerators experienced difficulty navigating within the aerial imagery portion of the mobile mapping instrument. It was concerning that issues occurred during almost 40% of all Ag-Tract interviews. The Pennsylvania enumerators may have had more problems due to the complexity of their grid cells, which contained numerous small fields.

Table 3: Frequency of Reported Issues Using the Aerial Imagery Part of Instrument

	North Carolina		Pennsylvania		South Dakota		All 3 States	
	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent
Yes	11	9.6	42	22.0	10	12.7	63	16.4
Sometimes	36	31.3	41	21.5	11	13.9	88	22.8
No	68	59.1	108	56.5	58	73.4	234	60.8
Total [1/]	115	100.0	191	100.0	79	100.0	385	100.0

1/ There were 72 instances of non-response that are not accounted for in the total. Counts by state: NC-21, PA-48 and SD-3.

All positive responses were investigated, and the vast majority of the issues reported were based upon difficulty splitting fields, a failed merge or unresponsiveness of the touch screen. Various factors can contribute to an enumerator struggling with splitting fields. The main difficulty reported was accidentally double-tapping on the screen before the polygon was complete. This erased all of the vertices and forced them to start over. The option to double-tap to complete the split was removed, and the vertices are now retained when a split fails.

A merge will fail if all of the selected areas are not adjacent to one another. The enumerators were inadvertently selecting additional fields while using the select tool to move around so a pan tool was added, allowing them to navigate without selecting. Pop-up warning messages were also clarified to indicate the number of fields involved and the reason the merge failed. Additional training exercises focusing specifically on the merge process were created.

A number of enumerators commented that the iPad touch screen was unresponsive at times. They were particularly frustrated by the fact that it seemed to mainly occur when they were trying to delineate the field boundaries in the middle of an interview. It was discovered that the touch screen became unresponsive when the user's finger wiggled as it pressed a button. This instability was previously undetected because testing and training were primarily done with the iPad on a flat surface whereas these tests were conducted holding the iPad in one hand while standing outside. Programmers were able to fix this by specifying that slight finger movements were to be ignored.

VIII. Reported Issues: Electronic Section D Form

Enumerators were asked whether they had any problems completing the electronic Section D. Their responses were tabulated for each of the 457 Ag tracts completed. Table 4 displays the number of times field enumerators reported issues while answering the questions within Section D of the mobile mapping instrument.

Table 4: Frequency of Issues Reported While Completing the Electronic Section D Form

	North Carolina		Pennsylvania		South Dakota		All 3 States	
	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent
Yes	6	5.3	21	11.3	4	5.1	31	8.2
Sometimes	5	4.4	44	23.7	3	3.8	52	13.7
No	103	90.3	121	65.0	72	91.1	296	78.1
Total [1/]	114	100.0	186	100.0	79	100.0	379	100.0

1/ There were 78 instances of non-response that are not accounted for in the total. Counts by state: NC-22, PA-53 and SD-3.

NC and SD enumerators reported no issues completing over 90% of the Ag-Tracts. The primary complaint of the Pennsylvania enumerators was having to scroll through a list of 32 "other" crops that were not alphabetized. The survey form designed for PA was much more complicated than in the other states due to an extensive listing of other crops. In 2015, the other crop question was eliminated from the instrument due to a policy change eliminating the need to specify the type of other crop.

Some enumerators from each state reported frustration with the placement of the calculated GIS acreage. If the respondent did not know the number of acres in a field, the enumerator had to close the Section D survey form to view the calculated acres in the general table and then reopen the survey form in order to continue. The program was changed to also display the calculated GIS acres for each field at the bottom of the Section D form (Figure 12).

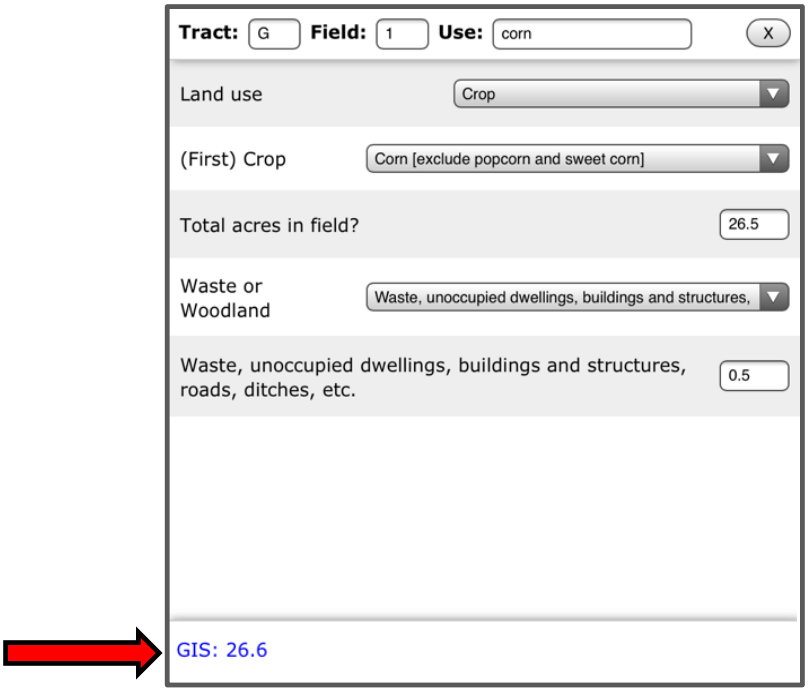

Figure 12: Shows the additional placement of calculated GIS acreage

IX. Reported Issues: Connectivity

Enumerators were asked to report any issues related to connectivity. Their responses were tabulated for each of the 457 Ag tracts completed. Table 5 displays the number of times field enumerators reported connectivity problems. Even though the mobile mapping instrument was designed to function without an internet connection, there were connectivity problems 9% of the time.

Table 5: Frequency of Connectivity Related Issues

	North Carolina		Pennsylvania		South Dakota		All 3 States	
	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent
Yes	24	20.9	7	3.7	4	5.1	35	9.1
Sometimes	32	27.8	41	21.6	0	0.0	73	19.0
No	59	51.3	142	74.7	75	94.9	276	71.9
Total [1/]	115	100.0	190	100.0	79	100.0	384	100.0

1/ There were 73 instances of non-response that are not accounted for in the total. Counts by state: NC-21, PA-49 and SD-3.

In areas of low signal strength, the geolocation feature actually timed out and caused the instrument to malfunction. NC may have experienced more issues due to the mountains and poor cellular coverage. The geolocation feature was removed from the instrument.

The Pennsylvania enumerators misunderstood the cache routine. They thought that it automatically cached all zoom levels when in reality it was not designed to capture the higher zoom levels they needed to view the smaller fields. The training has been modified to help enumerators identify areas that are not cached. They will be instructed to switch the iPad to airplane mode after running the cache routine. This will prevent any signal and display a pink tile in place of any imagery that has not been cached. They will then turn airplane mode off and cache any additional imagery needed before heading out to the field.

Some of the connectivity issues were instances when the NAIP imagery was not available. The instrument is dependent on public servers for hosting aerial photography (www.nationalmap.gov). To avoid the NAIP unreliability, all images required for testing will be stored on the same server as the mobile mapping instrument.

X. Reported Issues: Visibility

Up to this point, summary tables refer to all 457 agricultural tracts. To study visibility issues and, in particular, whether the farm operator had any difficulty viewing the iPad screen, instances of refusal or non-response are excluded, allowing the focus to be on 323 completed interviews. Table 6 displays the results to the screen visibility question.

Table 6: Number of Interviews with Impaired Screen Visibility

	North Carolina		Pennsylvania		South Dakota		All 3 States	
	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent	Number of Ag-Tracts	Percent
Yes	21	26.2	87	57.6	6	9.2	114	38.5
Sometimes	15	18.8	17	11.3	22	33.9	54	18.2
No	44	55.0	47	31.1	37	56.9	128	43.3
Total [1/]	80	100.0	151	100.0	65	100.0	296	100.0

1/ There were 27 instances of non-response that are not accounted for in the total. Counts by state: NC-6, PA-20 and SD-1.

Glare, especially in bright sunlight, hinders the ability to collect data and needs to be significantly reduced to avoid visibility difficulties, which were observed in over half of all interviews. Pennsylvania reported the highest level of difficulty, which is likely due to difficulty viewing smaller fields as the test area in PA had almost twice the number of fields per grid cell than the test areas in the other two states.

Two modifications were made to the instrument in an effort to improve visibility: (1) adjusting the color scheme and (2) increasing the width of the segment border to distinguish it from roads.

Additional training will be provided to show enumerators how to quickly switch on (Figure 13) and off (Figure 14) the iPad invert colors option.

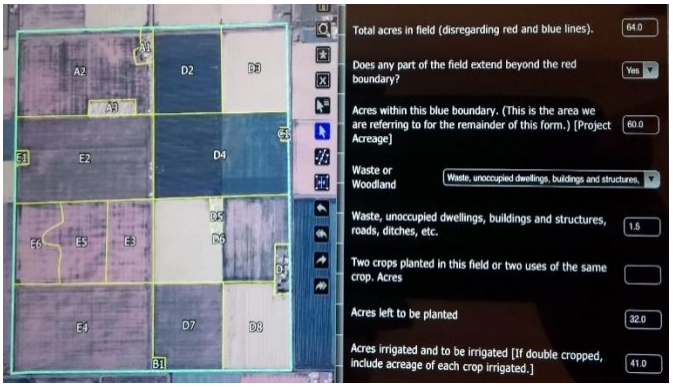

Figure 13: iPad screen with invert colors option turned on

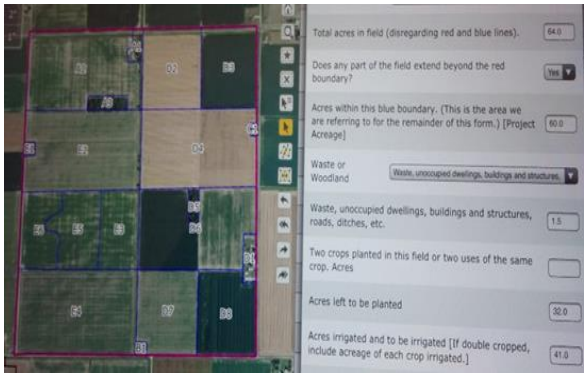

Figure 14: Normal view of iPad screen with invert colors off

The enumerators will also be provided new iPad cases that can be easily be tilted to avoid sun glare (Figure 15).

Figure 15: iPad case with rotary handle

XI. Summary

The best practices to enhance usability of the mobile mapping instrument is to simplify the design. Many enumerators in rural areas do not have high speed WiFi in their homes, therefore it is important to be mindful of connectivity limitations. Sophisticated GIS features may not be practical due to connectivity requirements. Further, enumerators need to have a higher level of technical expertise than with the current operational procedures. Efforts will continue to obtain feedback from enumerators on instrument enhancements and to test the instrument in all possible environments.

Enumerator training should incorporate more role-play practice that mimics live interviews. Additional practice should be provided on specific skills. In addition to training enumerators on the fundamentals, tips, such as the use of airplane mode and the invert colors option, should be provided to better prepare enumerators for what they will encounter during live interviews.

Screen visibility on the iPad continues to be a problem and needs to be significantly reduced. Efforts will continue to identify new devices and screen protectors as they come on the market.

XII. References

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Attachment A

JAS Questionnaire

SECTION D – CROPS AND LAND USE ON TRACT

How many acres are inside this blue tract boundary drawn on the photo (map)?..... .

Now I would like to ask about each field inside this blue tract boundary and its use during (year).

	Field Number		01	02	03	04	05
1.	Total acres in field		828 .	828 .	828 .	828 .	828 .
2.	Crop or land use. [*Specify*]						
3.	Occupied farmstead or dwelling		843 .				
4.	Waste, unoccupied dwellings, buildings and structures, roads, ditches, etc.		841 .	841 .	841 .	841 .	841 .
5.	Woodland	**NP = Not Pastured**	83_ .	83_ .	83_ .	83_ .	83_ .
		P = Pastured	☐ NP ☐ P	☐ NP ☐ P	☐ NP ☐ P	☐ NP ☐ P	☐ NP ☐ P
6.	Pasture	Permanent (not in crop rotation)	842 .	842 .	842 .	842 .	842 .
		Cropland (used only for pasture)	856 .	856 .	856 .	856 .	856 .
8.	Idle cropland – idle all during (year)		857 .	857 .	857 .	857 .	857 .
9.	Two crops planted in this field or two uses of the same crop.		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
		[*Specify second crop or use.*]					
		Acres	844 .	844 .	844 .	844 .	844 .
10.	Acres left to be planted		610 .	610 .	610 .	610 .	610 .
11.	Acres irrigated and to be irrigated [*If double cropped, include acreage of each crop irrigated.*]		620 .	620 .	620 .	620 .	620 .
16.	**Winter Wheat** (*include cover crop*)	Planted	540 .	540 .	540 .	540 .	540 .
17.		For grain or seed	541 .	541 .	541 .	541 .	541 .
20.	**Oats** (*include cover crop*)	Planted and to be planted	533 .	533 .	533 .	533 .	533 .
21.		For grain or seed	534 .	534 .	534 .	534 .	534 .
24.	**Corn**[*exclude popcorn and sweet corn*]	Planted and to be planted	530 .	530 .	530 .	530 .	530 .
25.		For grain or seed	531 .	531 .	531 .	531 .	531 .
29.	**Other uses** of grains planted (*Abandoned, silage, green chop, etc.*)	Use					
		Acres	.	.	.	.	.
30.	**Hay**	Alfalfa and Alfalfa Mixtures	653 .	653 .	653 .	653 .	653 .
31.	[*Cut and to be cut for dry hay.*]	Grain	656 .	656 .	656 .	656 .	656 .
33.		Other Hay	654 .	654 .	654 .	654 .	654 .
34.	**Soybeans**	Planted and to be planted	600 .	600 .	600 .	600 .	600 .
35.		Following another harvested crop	602 .	602 .	602 .	602 .	602 .
51.	**Other crops**	Acres planted or in use	___ .	___ .	___ .	___ .	___ .

Attachment B

Evaluation Form (Front)

Area Frame Modernization Research Team 2014 JAS-CAPI Phase 3Test Enumerator Evaluation Form Project Code: 504	State	Segment	USDA	National Agricultural Statistics Service	U.S. Department of Agriculture Rm 5030, South Building, 1400 Independence Ave., S.W. Washington, DC 20250-2000 Phone: 1-800-727-9540, Fax: 202-690-2090 Email: nass@nass.usda.gov
	___	000_____			

Item	Description	TRACT																
	TRACT LETTER	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
		Enter: 1-Yes, 3-No, 2-Sometimes																
101	Problems with Grid Segments (Partial field problems, etc.)																	
102	Problems with Aerial Imagery Part (Zooming, Splitting, Functionality, NAIP, etc)																	
201	Any Problems with Section D Form Experienced (Navigation, Questions, Drop Downs, etc.)																	
301	Connectivity Problems (3G/4G)																	
302	Screen Visibility Problems (glare, sunlight, etc.)																	
		Enter: Number of Minutes																
406	Time spent **with** the farmer completing Section D & Photo?																	
407	Time spent **without** the farmer completing Section D & Photo?																	
		Enter: 1-Morning, 2-Afternoon, 3-Evening																
401	Time of Day that the Interview was Conducted																	
		Enter: 1-Indoors, 2-Outside, 3-Other																
402	Where was the Interview Conducted																	
		Enter: 1-Enthusiastic, 2-Ambivalent, 3-Reluctant																
403	Respondent's Receptiveness to this Technology in data collection																	

Attachment B

Evaluation Form (Back)

Please Comment on All Aspects of this Data Collection Process with Comments as Detailed as Possible for this Segment.

099 Grid Segments: If Item 101 is" Yes" or "Sometimes", please comment and include tract letter where applicable.
100 GIS/Aerial Imagery: If Item 102 is" Yes" or "Sometimes", please comment and include tract letter where applicable.
200 Section D Form Comments: If Item 201 is" Yes" or "Sometimes", please comment and include tract letter where applicable.
300 iPAD Specific Comments: If any of items 301-302 are " Yes" or "Sometimes", please comment and include tract letter where applicable.
400 General Comments: Relating to Items 401-407, Respondent Burden, Training, or Anything else.

Enumerator Name:	501 Enumerator ID _ _ _ _ _ _	502 MM DD YY Date: _ _ _ _ _ _