



# Stemming the Rising Tide of Nonresponse



NASS RESPONSE RATE RESEARCH TEAM

FCSM 2018 Research and Policy Conference

March 8, 2018



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Census and Survey Division

Chief, Survey Administration Branch

Business Council Sponsor

- Research and Review of Nonresponse Literature
- Development of RRRT Work Plan
- Most Notable & Noteworthy Accomplishments
- Lessons Learned
- Q&A



# Nonresponse Literature Review

- A report from the American Academy of Political & Social Science - January 2013 edition:
  - Article: Explaining Rising Nonresponse Rates in Cross-Sectional Surveys (Brick and Williams)
- The common practice in surveys is to group the reasons for nonresponse into 3 major categories:
  - Noncontact (inaccessible), refusals, and other reasons
- *“Other reasons” category typically are: (Consistent w/Groves & Couper 1998)*
  - *Language problems*
  - *Being away during data collection*
  - *Poor health*
- More recent research on cell phones shows growth in cell-phone only population may effect the extent of coverage and nonresponse (Brick et al. 2006)

Six reasons for nonresponse:

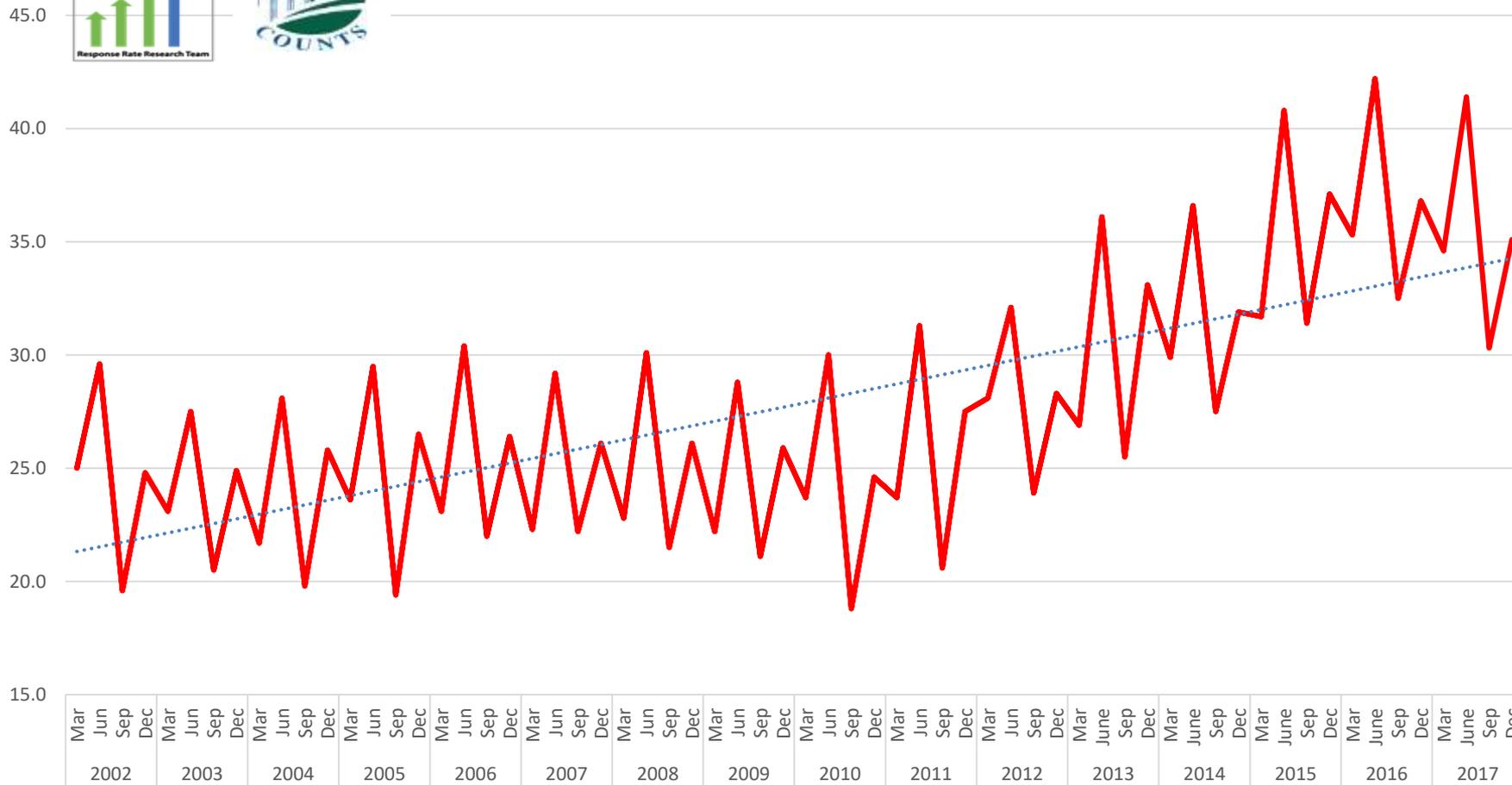
- (1) Failure of the data collector to locate or identify the sample unit
- (2) Failure to make contact with the sample unit
- (3) Refusal of the sample unit to participate
- (4) Inability of the sample unit to participate
- (5) Inability of the data collector and sample unit to communicate
- (6) Accidental loss of the data or questionnaire

(Lynn, 2008)

# The Nonresponse Tidal Wave



Crops APS Non-Response, 2002-2017, by quarter



## Our Goal



We are working to improve response rates by :

- Strengthening survey processes
- Decreasing respondent burden
- Leveraging relationships
- Improving enumerator training
- Communicating more accurately and consistently with all stakeholders
- Adding value by listening to producers and stakeholders

## Team Membership

The team has been in existence since 2016. All NASS Divisions are represented on the team.

RRRT created a survey with 13 questions related to response rate:

- 85 pages of **feedback** from our 12 Regional Field Offices (RFOs)
- 588 pages of **feedback** from 158 (NASDA) National Association State Departments of Agriculture - Field & Phone Supervisor Enumerators
- 41 pages of **feedback** from 62 NASS Headquarters and National Operations Division staff
- Completed 6 Farmer Feedback Listening Sessions (CA, ID, MI, MO, ND, & MO)

# 13 Sub-Teams

- Undeliverable As Addressed (UAA)/Disconnect Team
- Stakeholder Relations Team
- NASDA Training Team
- Survey Timeline Team
- Respondent Burden Index Team
- Deadwood Team
- Sample Review Team
- Callout Review Team
- Strategic Optimized Sample Selection Team
- Enhanced Data Collection Team
- Increasing Cooperation & Engagement (ICE) Team
- Farmer's Feedback Team
- Inaccessible Investigative Team



# Most Notable Accomplishments

## Deadwood Sub-Team

Deadwood – Records on our sample frame that are active, but in reality there is some evidence they could be out of business or scope.

Approved Operational Decision – DM-02-18, Decision Memorandum from NASS Administrator, January 24, 2018.

## UAA/Disconnect Sub-Team

**USDA NASS Response Rate Research Team**

### Handling Disconnects and Missing Phone Numbers

**UAA/Disconnect Sub-Team**  
The UAA/Disconnect Sub-Team was assigned to analyze current procedures for handling NASS survey samples with disconnected phone numbers and undeliverable as addressed (UAA) returns in order to improve the processing plan (pre-survey, during survey, and post-survey). The goal was to resolve disconnected phone numbers and UAA in order to update data collection methods on our list frame to make data collection more efficient. As a result of this team's successful efforts, we will continue to improve the quality of contact information of records sampled for future surveys.

**RT** USDA NASS Response Rate Research Team

**Tips for Survey Administrators**

- ✓ Failure to review or remove disconnected phone numbers result in decreased efficiency for DCI.
- ✓ List need review the sample in LMS and not send any records without phone numbers to the DCI. They may be called as they only in field contact. If yes to the DCI, the DCI will automatically red-records with no phone as non-REI, and no data collection will be completed on those records.
- ✓ FMS recently updated LMS records to the FMS database about four times a year and adds new phone numbers if available. FMS will not the reference FMS record linkage once a year starting in January. LMS records are only updated if the new phone number is not represented in the LMS record history table.
- ✓ If the record has no phone number, do NOT send it to the DCI. Mail the survey to the producer in field interview if.
- ✓ In the General Management Tool (GMT), review the "Uncontacted Only" tab for inaccurate contact or possible phone updates.

For the top ten tips for handling UAA/Disconnects visit <http://www.nass.usda.gov/ResponseRate/ContactedOnlyTips.aspx>

Garrett Tillman  
Chief, Survey Administration Branch/CSD  
ORCA - National Agriculture Statistics Service

United States Department of Agriculture  
National Agricultural Statistics Service

**USDA NASS Response Rate Research Team**

### Handling Undeliverable As Addressed Returned Mailings

**UAA/Disconnect Sub-Team**  
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**RT** USDA NASS Response Rate Research Team

**Tips for Survey Administrators**

- ✓ If the record shows "Phone Status = DC" do NOT mail the survey to the producer. Field interview is phone interview such records.
- ✓ In the General Management Tool (GMT), review the "Uncontacted Only" tab for inaccurate contact or possible address updates.
- ✓ Update LMS and/or FMS GMT to remove UAA.

For the top ten tips for handling UAA/Disconnects visit <http://www.nass.usda.gov/ResponseRate/ContactedOnlyTips.aspx>

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United States Department of Agriculture  
National Agricultural Statistics Service

# Investigating the Effect of Distributing a Brochure to Boost Response Rates

## In their words . . .

"Farm programs and commodity markets depend on accurate data from NASS. We encourage farmers and ranchers to take the time to complete these important surveys."

- Chip Bowling, National Corn Growers Association

"Our job is to develop export markets all around the world, and the cornerstone of that is knowing where we are competitively, how many acres. We . . . use [NASS data] every day."

- Tom Sleight, U.S. Grains Council

"We look at supply and demand estimations for our short-term and long-range decision making. . . NASS tends to be a very reliable source of accurate data."

- Richard Wilkins, American Soybean Association

"We use NASS's service frequently in business planning. We need unbiased third-party sources of information that we can rely on to build these business plans."

- Diane Martin, Syngenta Seeds

"We rely on data from NASS almost on a daily basis. . . really the full spectrum of data products that NASS offers. We are avid users of that data just to help inform our decision making."

- Geoff Cooper, Renewable Fuels Association

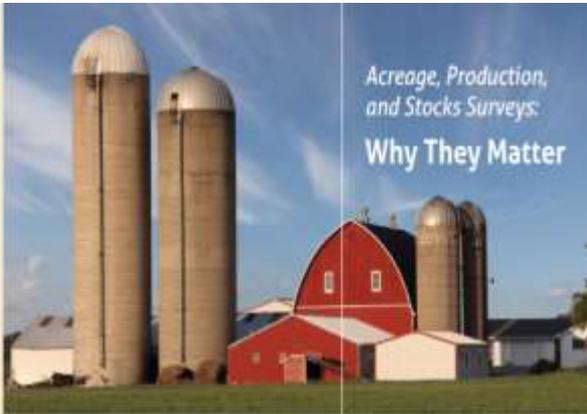
"NASS has the strongest data for calculating the payments issued to those who participate in the Agriculture Risk Coverage (ARC) - County program. The more producers who respond to the confidential NASS surveys, the stronger our calculations become."

- Farm Service Agency

## For more information

For help in filing out the survey, call or email NASS Customer Service: 800-727-4540 | [nass@nass.usda.gov](mailto:nass@nass.usda.gov)

For more about the APS survey program, see [www.nass.usda.gov/Surveys/Guide\\_to\\_NASS\\_Surveys/Crops\\_Seeds/index.php](http://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Crops_Seeds/index.php)



## Acreage, Production, and Stocks Surveys: Why They Matter

### Confidentiality

Our mission is to produce timely, accurate, and useful statistics in service to U.S. agriculture. In doing so, we are fully committed to protecting your privacy and your data.

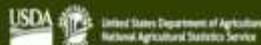
The information you provide will be used for statistical purposes only. Your responses will be kept confidential and any person who willfully discloses ANY identifiable information about you or your operation is subject to a jail term, a fine, or both. This survey is conducted in accordance with the Confidential Information Protection provisions of Title V, Subtitle A, Public Law 107-547, and other applicable federal laws. For more information on how we protect your information, please visit [www.nass.usda.gov/confidentiality](http://www.nass.usda.gov/confidentiality).

USDA is an equal opportunity provider, employer, and lender

If USDA's National Agricultural Statistics Service asks you to fill out the Acreage, Production, and Stocks quarterly survey, you might wonder whether it matters that you take time to respond and return the survey.

It does. Farmers and ranchers, USDA, businesses, exporters, researchers, economists, policymakers, and others use this information to make better decisions for you and your industry.

Let's see how you and others use the data.



About 80,000 Farmers receive the quarterly Acreage, Production, and Stocks (APS) Survey one to four times per year. Depending on where you live and the commodities you grow, you may receive one or more of these quarterly surveys.

APS Quarterly Survey	What We Ask	Who Uses the Data?
<p><b>March</b></p> <p>Provides the first indication of acreage and stock levels for the year.</p>	<ul style="list-style-type: none"> <li>• Acres you have planted and intend to plant</li> <li>• Grains/seeds stored on your operation</li> <li>• Cash rents (every other year)</li> </ul>	<ul style="list-style-type: none"> <li> <b>Farmers</b> - to make decisions about your operations, including planting and marketing plans.</li> <li> <b>USDA agencies</b> - to evaluate and administer various farm programs, particularly Agriculture Risk Coverage (ARC) and other insurance, disaster, commodity, conservation, credit, and loan programs.</li> </ul>
<p><b>June</b></p> <p>Provides the first estimates of that year's expected production and supply of major commodities.</p>	<ul style="list-style-type: none"> <li>• Acres you have planted and intend to plant</li> <li>• Acres harvested and to be harvested for small grains</li> <li>• Use of genetically modified/ genetically engineered seeds</li> <li>• Grains/seeds stored on your operation</li> <li>• Economic data</li> </ul>	<ul style="list-style-type: none"> <li> <b>Agribusinesses</b> - to develop marketing strategies and plans for an orderly flow of goods and services among producing, processing, marketing, transportation, storage, and related sectors.</li> <li> <b>Agriculture traders</b> - to evaluate U.S. export potential, and <b>international customers</b> - to determine whether the United States remains a reliable supplier of major commodities.</li> </ul>
<p><b>September</b></p> <p>Provides the basis for official USDA estimates of the year's acreage, production, and yield for small grains.</p> <p>Combined with data from the County Agricultural Production Survey, provides county-level yields for small grains.</p>	<ul style="list-style-type: none"> <li>• Acres planted and harvested for small grains</li> <li>• Yield for small grains</li> <li>• Grains/seeds stored on your operation</li> <li>• Unharvested production for small grains (barley, oats, rye, and wheat)</li> </ul>	<ul style="list-style-type: none"> <li> <b>Commodity markets</b> - to establish futures and commodity prices.</li> <li> <b>Federal and state agencies</b> - to administer agriculture programs as well as programs related to trade, education, recreation, and consumer protection.</li> </ul>
<p><b>December</b></p> <p>Provides the basis for official USDA estimates of the year's acreage, production, and yield for row crops, as well as supply estimates for the following year.</p> <p>Combined with data from the County Agricultural Production Survey, provides county-level yields for row crops.</p>	<ul style="list-style-type: none"> <li>• Acres planted and harvested for row crops</li> <li>• Yield for row crops</li> <li>• Grains/seeds stored on your operation</li> <li>• Unharvested production for row crops (corn, cotton, soy, sorghum, peanuts, pulses, alfalfa, rice, sorghum, soybeans, sweet potatoes, tobacco)</li> </ul>	<ul style="list-style-type: none"> <li> <b>Researchers, economists, extension agents, farm media, and others</b> - to identify and analyze emerging issues, trends, and their implications.</li> </ul>

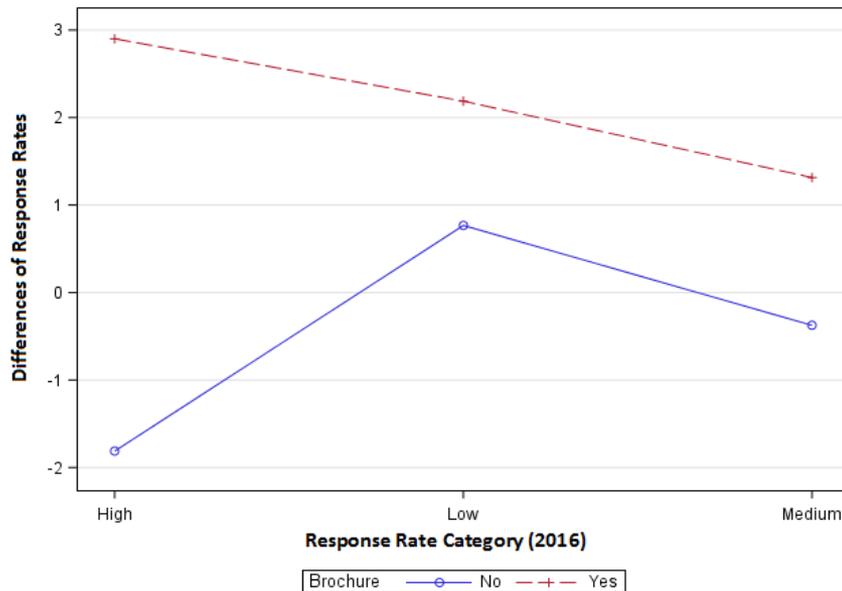
# Investigating the Effect of Distributing a Brochure to Boost Response Rates

## Stakeholder Relation Sub-Team Split-Plot Sample Design

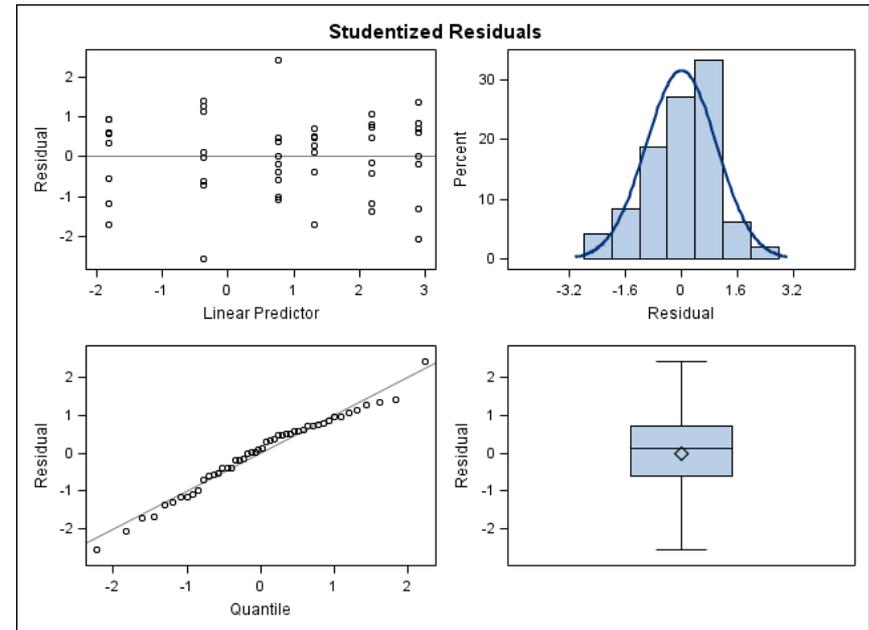
- Mailed a brochure title “Why They Matter” with survey questionnaires for half the sample
- Rated the previous year’s response rates levels (low, medium, high) as a block factor
- States within each level were randomized to either receive a brochure or not
- The response variable focus is the current year’s total useable response rate
- The predictor variables: (Brochure: 1 = Yes, 0 = No), % response rate comparison, and capture differences of brochure use comparison to 2016
- Data analysis: (1) A random intercept logistic model fitted for the 2017 total useable response rate; (2) A regression model fitted for the difference in response rates between 2016 and 2017

# Investigating the Effect of Distributing a Brochure to Boost Response Rates

**Figure 1: Plots of least-squares means from the random intercept logistic regression model**



**Figure 2: Plots of residuals from the regression model**



2017 March Prospective Acreage Planting Survey

# Sample Review Sub-Team

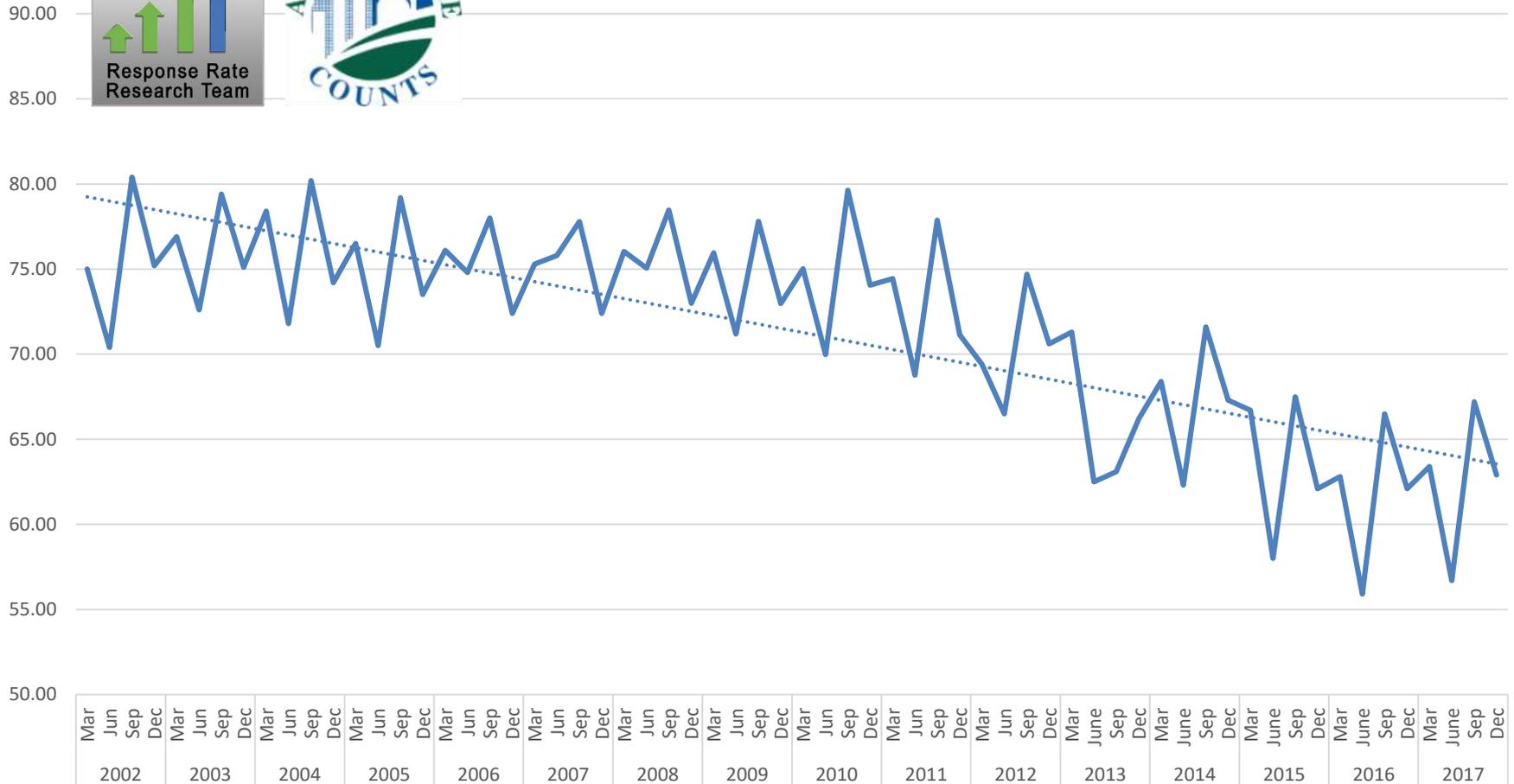
- Developed and streamlined aggregate and detail level response history data
- ***HR\_PCT\_XYR*** = % of complete responses for 1 year, 3 year, and 5 years respectively
- ***HR\_Surveys\_Xyr*** = Total number of surveys for 1 year, 3 year, and 5 years respectively
- ***HR\_Mode\_Xyr*** = Preferred mode of completion for 1 year, 3 year, and 5 years respectively
- The team is working on new propensity score models:
  - Model #1 – Identify records most likely to be completed via field enumeration
  - Model #2 – Identify records most likely to be completed via Mail/CATI
- Discovering ways to incorporate impact: quantiles, variables/strata, breakpoints
- Benefit: Provides a clear cutoff for potential high impact operations

- Review the old Joint Burden Index process
- Implemented and integrated an RBI calculation
- A high burden indicator will be loaded in Survey Management Service
- This will reduce staff time to determine best data collection strategy
- The burden is indicated with the use of these variables x1 (number of surveys), x2 (number of contacts), x3 (total OMB survey time)
- Based on level of burden, surveys involved, and response history the best data collection strategy can be planned
- Other possible things that could help in the decision process:
  - Create a profile of your high burden records
  - Ask field supervisors/enumerators what they know about these operations
  - Review existing record level comments

# Stemming the Rising Tide of Nonresponse

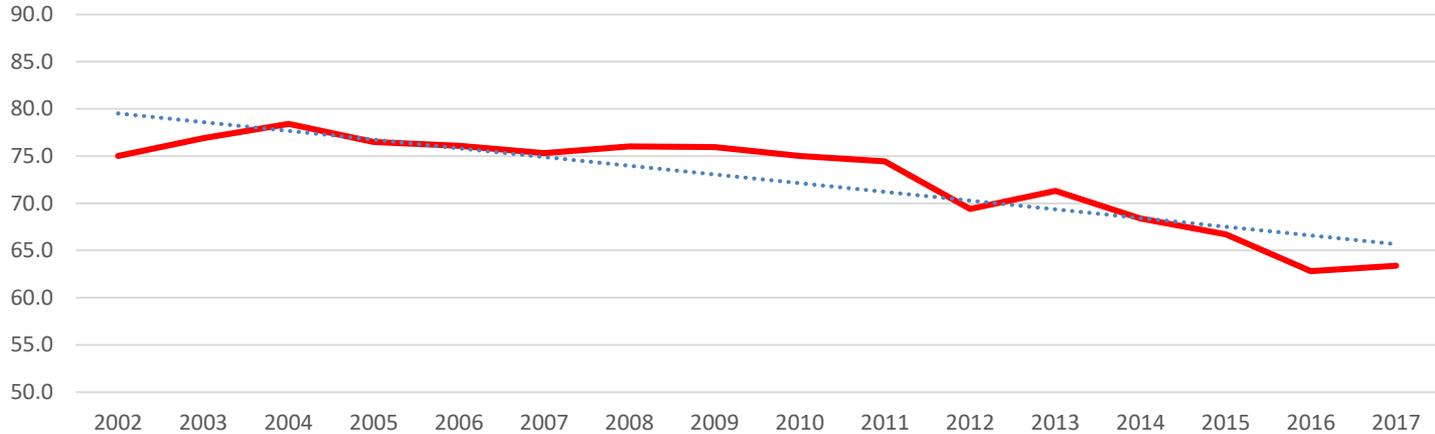


Crops APS Useable Response, 2002-2017, by quarter

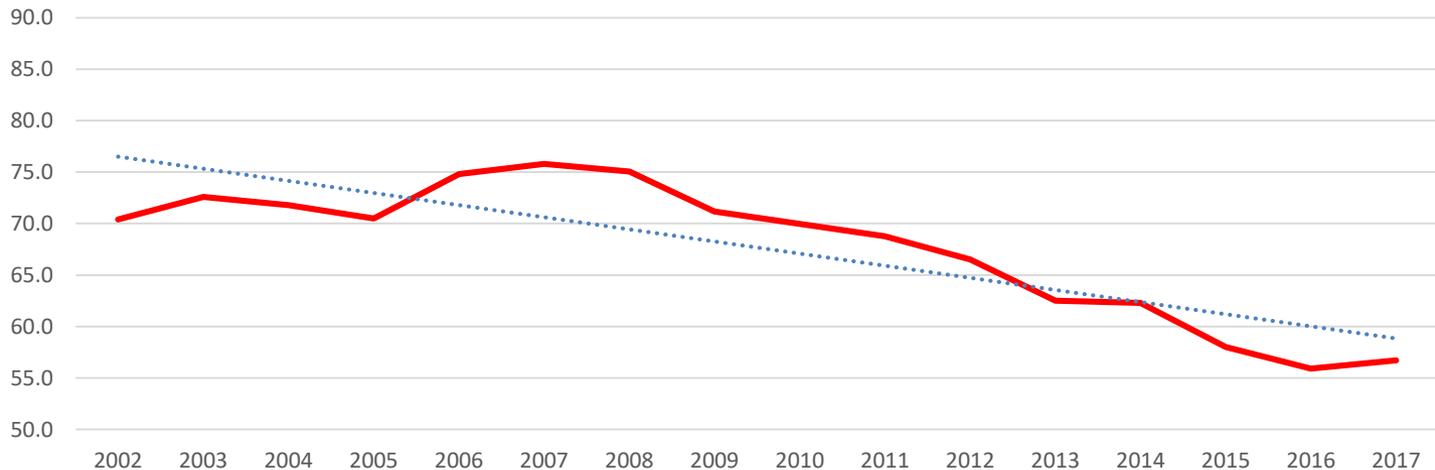


# Stemming the Rising Tide of Nonresponse

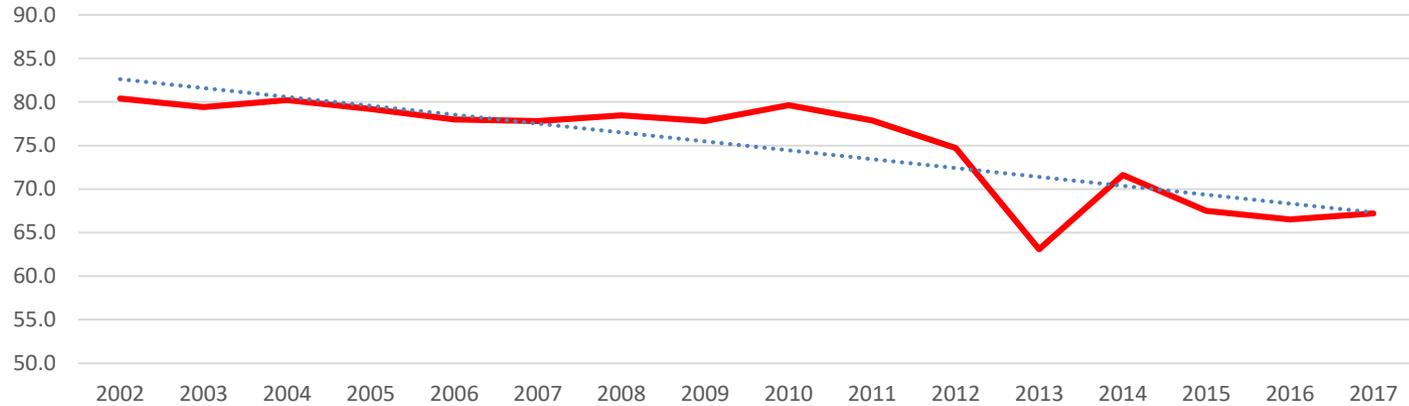
Useable Response March 2002-2017



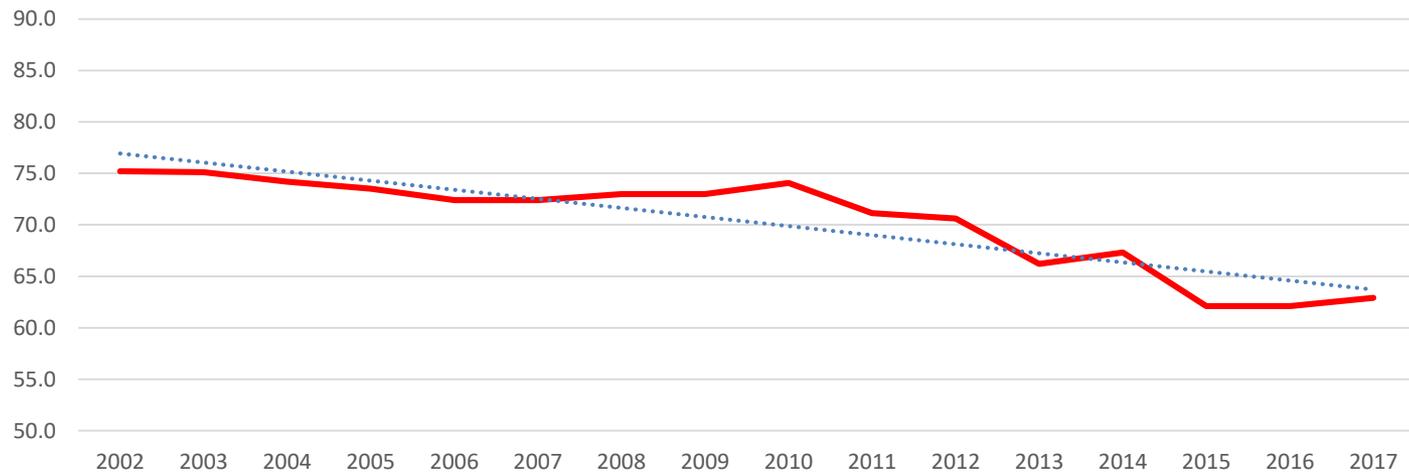
Useable Response June 2002-2017



Useable Response September 2002-2017



Useable Response December 2002-2017



“Routine is the enemy of instinct. So break the mold! While it’s important to establish routines, schedules, and systems of operation, it’s just as important to know when to change them. Routines without ongoing assessment lead to stagnation and mediocrity. Most individuals, teams, and organizations rise to a challenge or fall to the familiar. It’s better to change and fail than to settle for the status quo.”

(Bishop TD Jakes, 2014)

# RRRT Team Members

Jill Bishop  
Valbona Bejleri  
Andrew Dau  
Gail Gregory  
Andy Higgins  
John Hilton  
Greg Lemmons  
Dan Lofthus  
Beckie McCracken\*

Barbara Rater  
Shirley Samson  
Jamila Sani  
Marcella Simmons\*  
Jodie Sprague  
Gerald Tillman  
Shareefah Williams  
Tyler Wilson  
Linda Young



Over 150 NASS employees participated as  
Members of the 13 RRRT Sub-Teams

\*NASDA Supervisors (Field & Phone)

# Selected References

Brick, Michael J. and Williams, Douglas (2013). Explaining Rising Nonresponse Rates in Cross-Sectional Surveys 2013. Westat.

Brick, Michael J., Dipko, Sarah, Presser, Stanley, Tucker, Clyde, and Yuan, Yangyang (2006). Nonresponse bias in a dual frame sample of cell and landline numbers. *Public Opinion Quarterly* 70 (5): 780-93

*Groves, Robert M. and Couper, Mick P. (1998). Nonresponse in household interview surveys. New York, NY: John Wiley.*

*Lynn, Peter (2008). "The Problem of Nonresponse". International Handbook of Survey Methodology, 2008. Institute for Social and Economic Research (ISER). University of Essex*

