Evolution of Methodology and Quality Measures Reports at USDA-NASS

2022 FCSM
Washington, DC

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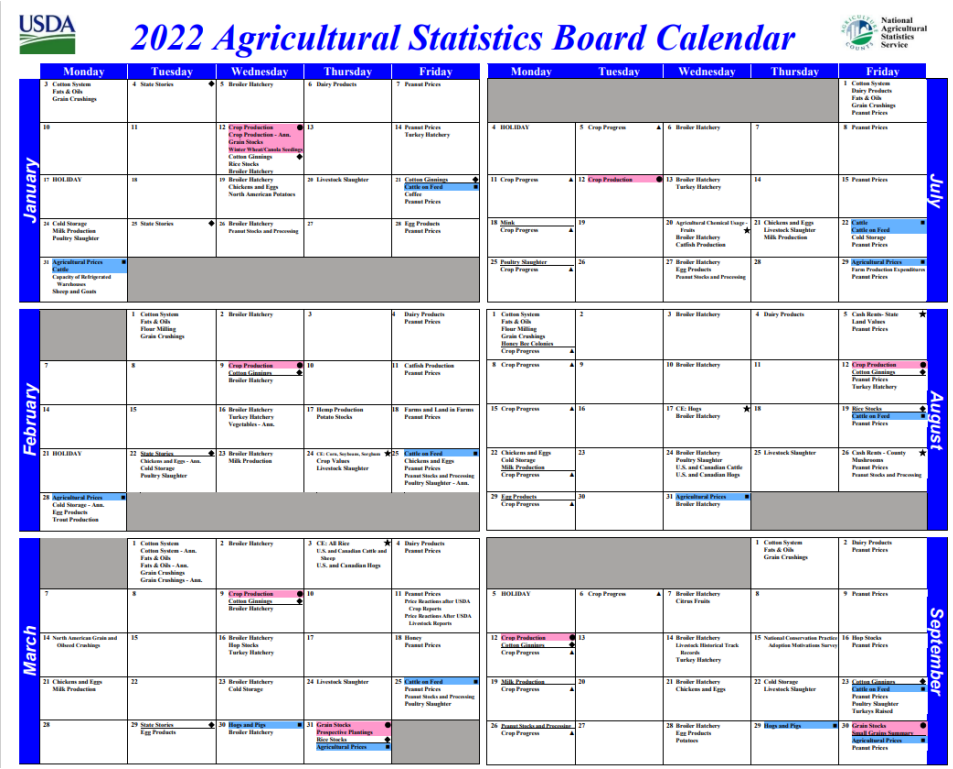
Overview

- Background
- Content
- Process
- Challenges
- Future

NASS Background

- Mission
  - To provide timely, accurate, and useful statistics in service to U.S. agriculture.
- Over 400 statistical releases published per year
  - Over 80 unique reports each year
  - Crops
  - Livestock
  - Economics
  - Environmental



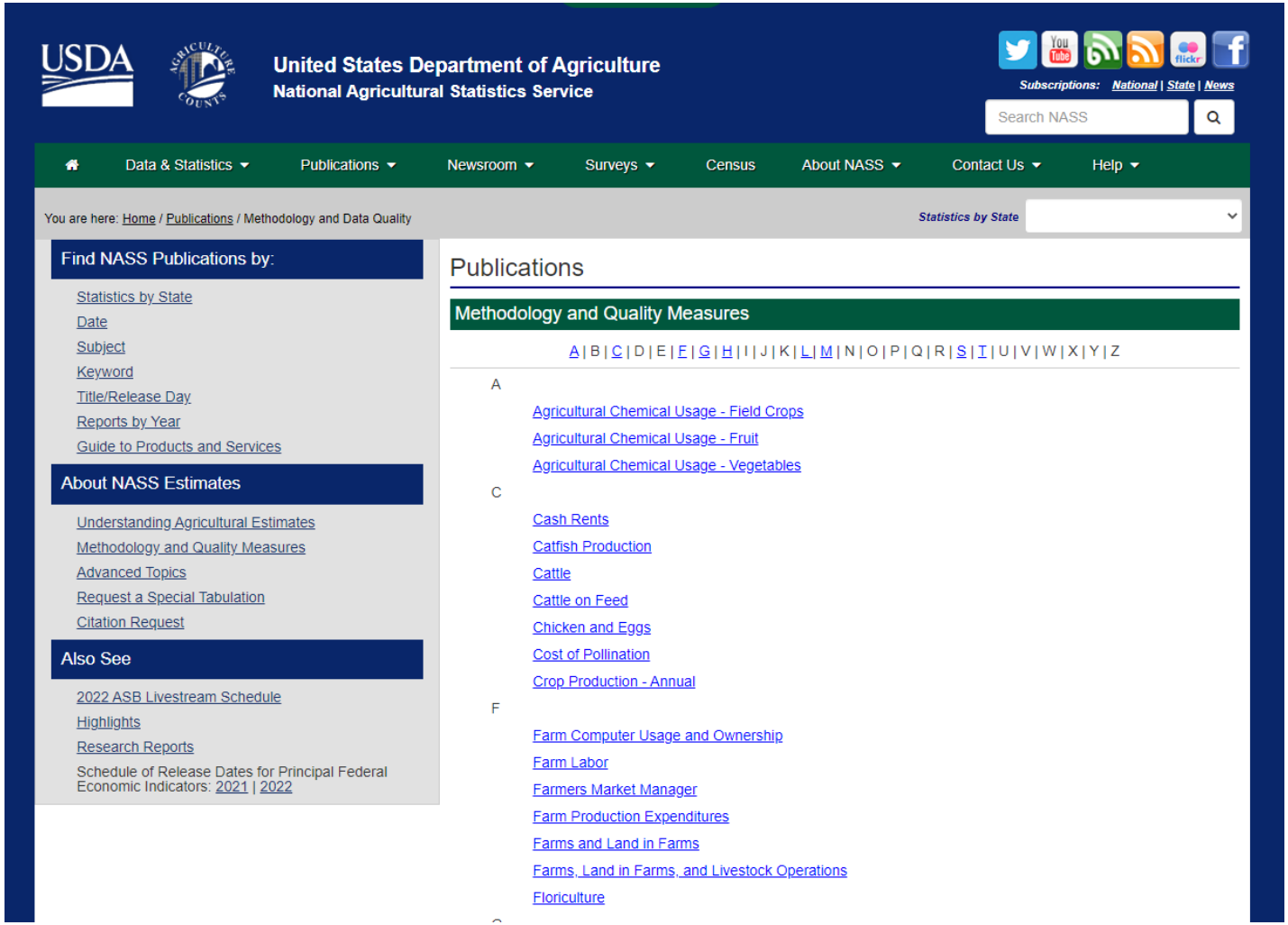
Background

- All federal statistical agencies required to produce survey documentation for data users
  - OMB Standards and Guidelines for Statistical Surveys, Section 7.3
- Nearly all our reports have always had a small section on methodology at the end of report
- Began publishing longer Methodology and Quality Measures (QM) reports in 2011
  - Currently publishing 28 unique QM reports
  - Several new reports added in last two years

Background

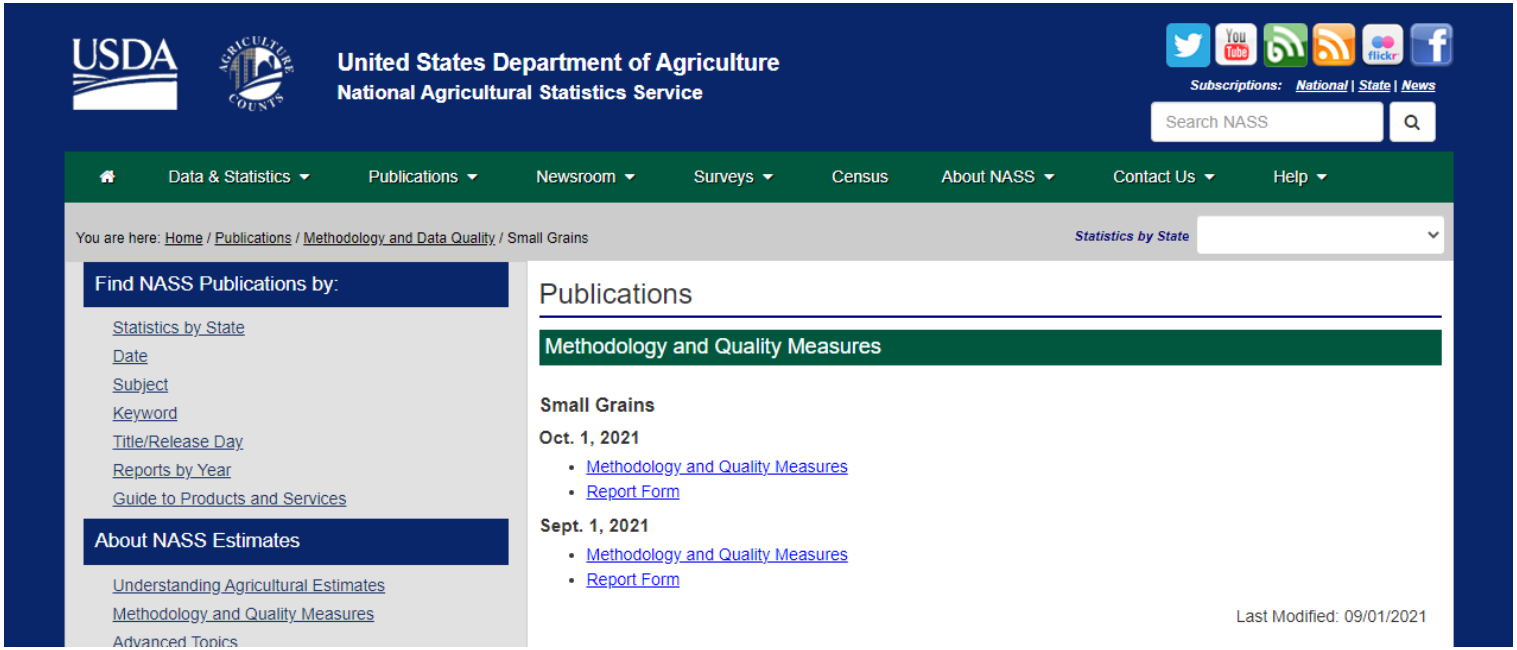
- QM reports created to:
  - Satisfy OMB Standards and Guidelines
  - Increase transparency
  - Provide additional data quality measures for published estimates
  - Publicly document our data collection instruments and survey methodology over time
  - Helps answer questions from our data users

Methodology and Quality Measures Reports



Content

- Methodology and Quality Measures report
- Report Form



Report Form

Section 2 - Crops 17

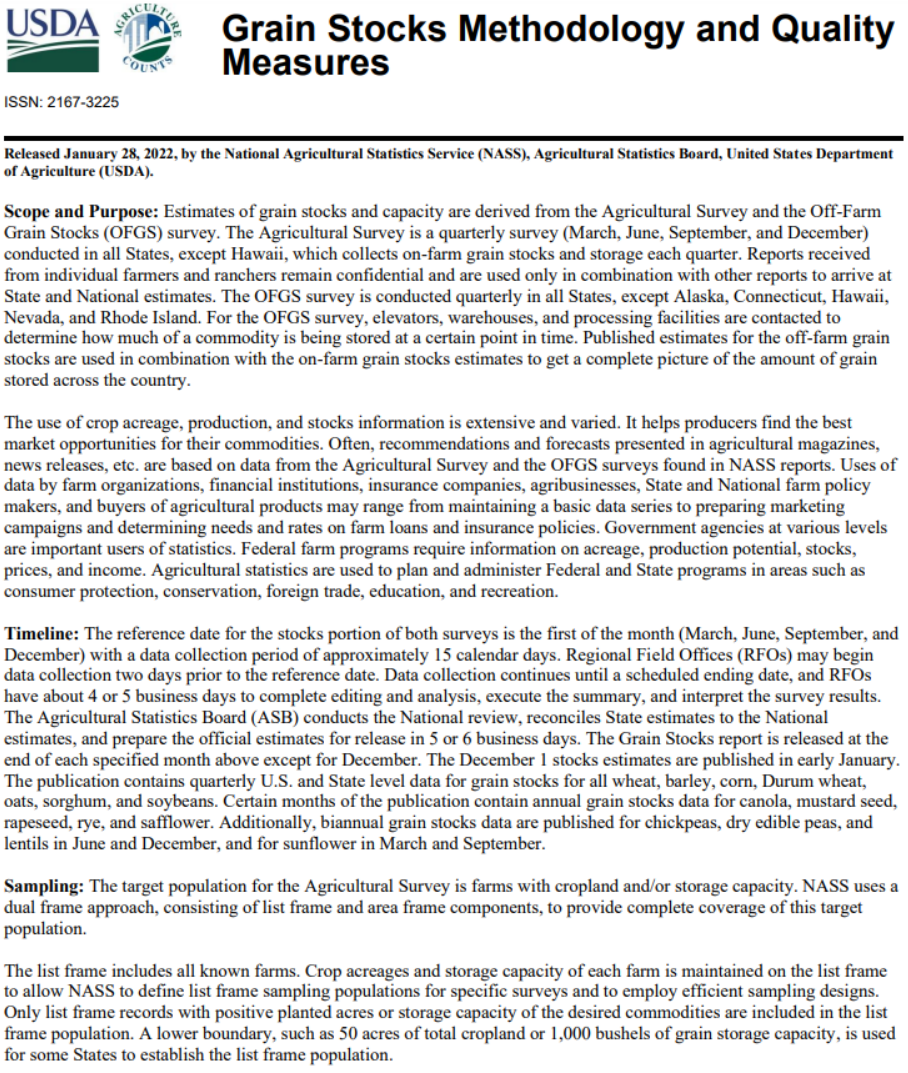
Now I would like to ask about crops grown during the 2021 crop year.

- Please report for all land you operate, including land you rent from others.
- If harvest is not complete, make your best estimate of acres and total production.
- Report crops grown for any purpose for the 2021 crop year, even if the crop has been grazed off, plowed under, or abandoned.
- EXCLUDE prevented planted acreage (originally intended crop that was unable to be planted).
- Acres for all other purposes: Acres of the crop used for hay, pasture, cover crop, abandoned, etc.

			Corn
1.	Corn: (EXCLUDE popcorn and sweet corn.)		
a.	Acres planted for all purposes?	Acres	530
b.	Acres harvested and to be harvested for grain? (EXCLUDE seed corn.)	Acres	400
c.	Total grain production? (EXCLUDE seed corn.) OR	Bushels	401
d.	Yield per acre of grain harvested? (EXCLUDE seed corn.)	Bu/Ac	704
e.	Acres harvested and to be harvested for seed corn?	Acres	398
f.	Total seed corn production? (Report actual total production. Do not report the settlement account bushels.) OR	Bushels	399
g.	Yield per acre harvested for seed corn? (Report the actual yield per acre. Do not report the payment yield.)	Bu/Ac	391
h.	Acres cut for silage?	Acres	373
i.	Total silage production? OR	Tons	376
j.	Yield per acre of silage cut?	Tons/Ac	393 •___
k.	Acres of corn for all other purposes?	Acres	379

Content

- Survey Methodology
  - Scope and Purpose
  - Timeline
  - Sampling
  - Data Collection
  - Survey Edit
  - Analysis Tools
  - Nonsampling Errors
  - Estimators
  - Estimation



Grain Stocks Methodology and Quality Measures

ISSN: 2167-3225

Released January 28, 2022, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, United States Department of Agriculture (USDA).

Scope and Purpose: Estimates of grain stocks and capacity are derived from the Agricultural Survey and the Off-Farm Grain Stocks (OFGS) survey. The Agricultural Survey is a quarterly survey (March, June, September, and December) conducted in all States, except Hawaii, which collects on-farm grain stocks and storage each quarter. Reports received from individual farmers and ranchers remain confidential and are used only in combination with other reports to arrive at State and National estimates. The OFGS survey is conducted quarterly in all States, except Alaska, Connecticut, Hawaii, Nevada, and Rhode Island. For the OFGS survey, elevators, warehouses, and processing facilities are contacted to determine how much of a commodity is being stored at a certain point in time. Published estimates for the off-farm grain stocks are used in combination with the on-farm grain stocks estimates to get a complete picture of the amount of grain stored across the country.

The use of crop acreage, production, and stocks information is extensive and varied. It helps producers find the best market opportunities for their commodities. Often, recommendations and forecasts presented in agricultural magazines, news releases, etc. are based on data from the Agricultural Survey and the OFGS surveys found in NASS reports. Uses of data by farm organizations, financial institutions, insurance companies, agribusinesses, State and National farm policy makers, and buyers of agricultural products may range from maintaining a basic data series to preparing marketing campaigns and determining needs and rates on farm loans and insurance policies. Government agencies at various levels are important users of statistics. Federal farm programs require information on acreage, production potential, stocks, prices, and income. Agricultural statistics are used to plan and administer Federal and State programs in areas such as consumer protection, conservation, foreign trade, education, and recreation.

Timeline: The reference date for the stocks portion of both surveys is the first of the month (March, June, September, and December) with a data collection period of approximately 15 calendar days. Regional Field Offices (RFOs) may begin data collection two days prior to the reference date. Data collection continues until a scheduled ending date, and RFOs have about 4 or 5 business days to complete editing and analysis, execute the summary, and interpret the survey results. The Agricultural Statistics Board (ASB) conducts the National review, reconciles State estimates to the National estimates, and prepare the official estimates for release in 5 or 6 business days. The Grain Stocks report is released at the end of each specified month above except for December. The December 1 stocks estimates are published in early January. The publication contains quarterly U.S. and State level data for grain stocks for all wheat, barley, corn, Durum wheat, oats, sorghum, and soybeans. Certain months of the publication contain annual grain stocks data for canola, mustard seed, rapeseed, rye, and safflower. Additionally, biannual grain stocks data are published for chickpeas, dry edible peas, and lentils in June and December, and for sunflower in March and September.

Sampling: The target population for the Agricultural Survey is farms with cropland and/or storage capacity. NASS uses a dual frame approach, consisting of list frame and area frame components, to provide complete coverage of this target population.

The list frame includes all known farms. Crop acreages and storage capacity of each farm is maintained on the list frame to allow NASS to define list frame sampling populations for specific surveys and to employ efficient sampling designs. Only list frame records with positive planted acres or storage capacity of the desired commodities are included in the list frame population. A lower boundary, such as 50 acres of total cropland or 1,000 bushels of grain storage capacity, is used for some States to establish the list frame population.

Content

- Sample size and survey response rate
  - Follow OMB Standards and Guidelines for Statistical Surveys (Guideline 3.2.2)
  - Matches what is submitted for OMB docket renewal

Trout Survey Sample Size and Response Rates – United States: 2021-2022

	2021		2022	
	Sample size	Response rate	Sample size	Response rate
	(number)	(percent)	(number)	(percent)
Arkansas	5	100.0	5	80.0
California	25	60.0	24	83.3
Colorado	33	72.7	35	80.0
Georgia	10	70.0	10	60.0
Idaho	20	85.0	19	78.9
Michigan	22	59.1	18	77.8
Missouri	12	91.7	12	91.7
New York	21	66.7	18	83.3
North Carolina	30	80.0	27	77.8
Oregon	10	60.0	10	60.0
Pennsylvania	43	27.9	35	57.1
Utah	19	94.7	18	100.0
Virginia	19	84.2	17	64.7
Washington	20	60.0	20	70.0
West Virginia	19	100.0	18	88.9
Wisconsin	33	75.8	32	78.1
Other States	79	84.8	75	70.7
United States	420	72.6	393	75.6

Content

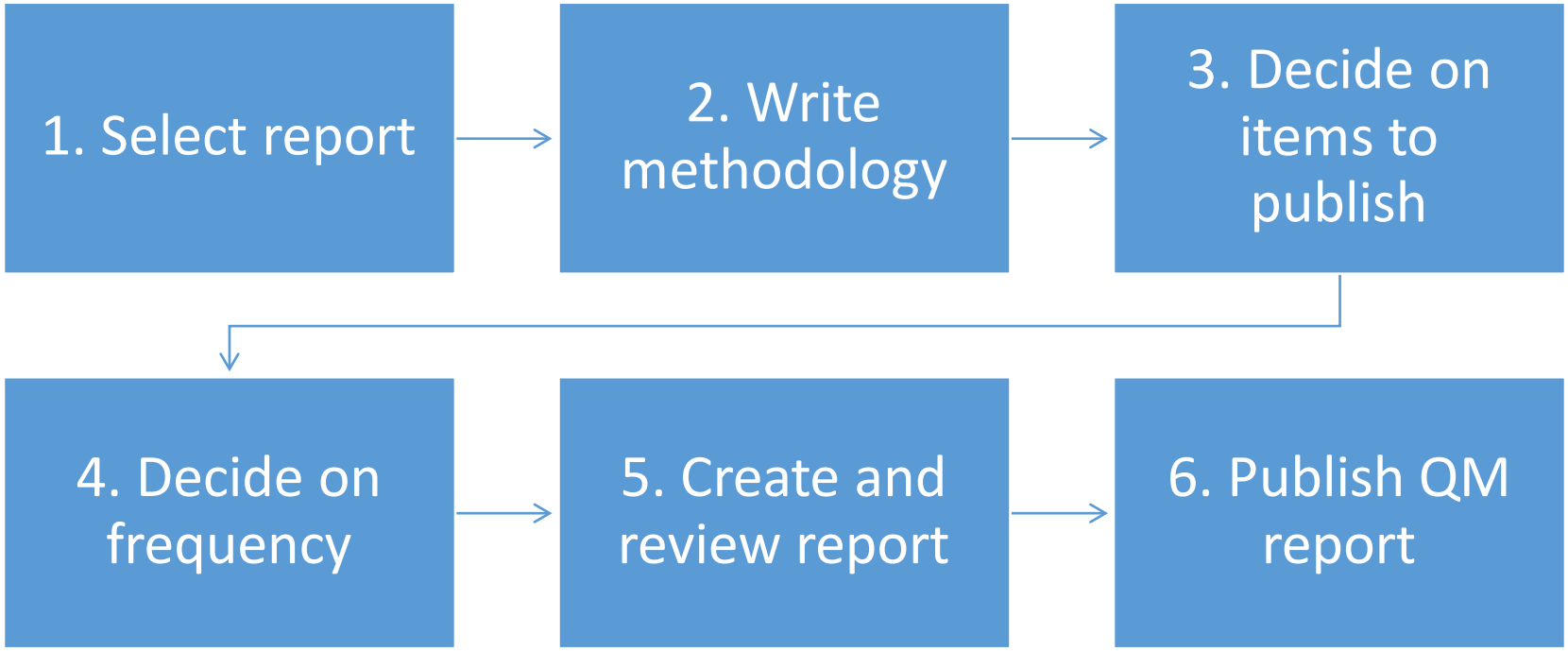
- Weighted item response rate
  - Proportion of the survey estimate that is reported and expanded by original sampling weight
  - Measures all types of nonresponse adjustment (imputation, reweighting, calibration, etc.)
- Coefficient of Variation (CV)
  - Ratio of standard error to survey estimate expressed as %
  - Many surveys are a census so no sampling error

Content Example

Quality Metrics for Mink Pelts Produced and Females Bred – Selected States and United States: 2020-2022

State	Weighted item response rate			
	Pelts produced		Females bred to produce kits	
	2020	2021	2021	2022
	(percent)	(percent)	(percent)	(percent)
Idaho	66.0	54.3	62.0	46.4
Illinois	91.8	100.0	92.3	100.0
Iowa	90.8	73.3	92.2	70.5
Michigan	100.0	100.0	100.0	100.0
Minnesota	72.4	73.6	73.3	73.7
Oregon	73.6	44.9	73.1	40.8
Pennsylvania	77.1	100.0	75.6	100.0
Utah	66.9	69.2	65.5	65.9
Washington	75.1	75.5	76.4	74.7
Wisconsin	94.0	72.8	94.4	70.5
Other States	46.9	89.2	47.4	88.7
United States	74.6	71.1	75.1	68.8

Process


1. Select report
2. Write methodology
3. Decide on items to publish
4. Decide on frequency
5. Create and review report
6. Publish QM report

Challenges

- One NASS report contains information from multiple surveys
  - Grain Stocks
  - Annual Crop Production
- What is collected on survey is not directly published
  - Chicken and Eggs
- Keeping report standardized but also customized

Future

- What's next?
  - Expand to more reports
  - Implement more automation to make report generation easier
  - Follow decisions made by Dissemination team for all NASS reports
    - Most likely QM not in static reports

Questions?