National Agricultural Statistics Service

Presentation for ISU Students

Nick Schauer
Deputy Director, Iowa Field Office
USDA-NASS
The History of NASS

- The USDA was founded by Lincoln in 1862.
- NASS, formerly known as the Division of Statistics and then the Bureau of Statistics, was founded in 1863.

NASS Field Offices

HQ Divisions Located in Washington DC
The NASS Mission

- To provide timely, accurate, and useful statistics in service to U.S. agriculture

NASS issues about 500 statistical reports each year and about 9,000 reports and news releases from its 46 field offices.
Coming in December 2012!

• Provides uniform data for every county in Iowa that …..
  – Helps farm organizations promote agriculture
  – Helps lending institution ensure operational loan funding is adequate
  – Helps determine if USDA service centers are staffed appropriately
  – Helps NRCS allocate funding to counties for their programs
  – Helps USDA Rural Development allocate loans to counties
  – Helps companies deliver products and services to counties more efficiently
NASS Principles

- Safeguard Confidentiality of individual’s data
  - Protected by law from any court or legislative action (U.S. Code, Title 7, Chapter 55, Section 2276)

- Independent and Impartial Analysis
  - No political influence in estimates and forecasts

- Timeliness

- Security
  - Release reports to all users at same time
Program Areas

- Commodities
  - Crops, Livestock, Poultry, Cold Storage
- Economics
  - Agricultural Prices, Ag Labor, Farm Production Expenditures
- Environmental
  - Pesticide usage
- Census of Agriculture
  - Uniform & comprehensive data for every county
- Reimbursable Surveys
## Where do the official statistics come from?

- Sample Surveys – Voluntary Reporting  [Confidentiality Pledge]
- Agriculture Census – Mandatory Reporting
- Administrative Data
How are the data collected?

- Mail
- Telephone
  - Individual State Offices
  - Data Collection Centers
- Personal Interview
- Internet
Sample Survey Process

1. Target Population

2. Sample

3. Generate Point Statistics
   Totals
   Ratios
   Precision

4. Estimation
   The value of the sample statistics are used along with other administrative sources to set estimates
Methodology

- Sampling Frames (target population)
  - Area Frame
  - List Frame
- Estimators (indications)
- Advantages - Disadvantages
Methodology – Area Frame

- All land area in Iowa
- Sample blocks of land called segments
- Collect agricultural data from the block of land
Methodology – Area Frame

- State is stratified based on percent of the land cultivated
- Strata are divided into “segments” (about 1 sq. mile)
2009 JAS Segment Center Points by Stratum

Segment Center Point
- Strata 10 - 19
- Strata 20 - 22, 24 - 28
- Strata 30 - 35, 38
- Strata 40 - 49
- Strata 50

[Map of the United States showing various strata points]
June Area Segments

- 418 segments throughout Iowa
Methodology – Area Frame

- Data collection by personal interview
- Account for all land within the segment boundaries
### Field Level Detail Recorded in Other Sections

- **Entire Farm Data**

### 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 2004.

1. **Total Acres in Field**
2. **Crop and use (specific)**
3. **Crop and use (general)**
4. **Waste, unclassified, hardwoods, and shrubbery**
5. **Woodlands**
6. **Prairie**
7. **Fallow or pasture**
8. **Irrigated land (except high desert irrigated)**

### Table Format

<table>
<thead>
<tr>
<th>Field Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field 3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- Field 1, Field 2, and Field 3 are within the blue tract boundary.
- Specific crop and use details are recorded in the table.
- General crop and use categories are also provided.

**Actions Needed:**
- Verify the crop and use information for each field.
- Ensure data accuracy for the 2004 season.
Advantages & Disadvantages

- **Area Frame**
  - Complete
  - Reduced non-sampling errors
  - Good for common commodities
  - Low maintenance

- **Area Frame**
  - Sensitive to outliers
  - Not good for rare commodities
  - Need physical boundaries
  - Costly data collection
Methodology – List Frame

- List of farms/farmers with associated information
- Sample a name
- Collect agricultural data from the name on the list for the farm(s) he/she operates

<table>
<thead>
<tr>
<th>Name, Address</th>
<th>Cropland</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abraham Lincoln</td>
<td>500</td>
<td>0</td>
</tr>
<tr>
<td>1555 Fifth Avenue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lincoln, IA 55626</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ima Farmer</td>
<td>1000</td>
<td>50,000</td>
</tr>
<tr>
<td>321 Cherry Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iowa City, IA 52240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmer Brown</td>
<td>2000</td>
<td>100,000</td>
</tr>
<tr>
<td>985 Oak Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adel, IA 52240</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Methodology – List Frame

- Stratified based on size/type of farm
- Sample size varies by stratum
- Larger operations sampled at a higher rate

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Boundaries</th>
<th>Population</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td>Cropland 200 - 599</td>
<td>5,184</td>
<td>152</td>
</tr>
<tr>
<td>65</td>
<td>Capacity 1 – 14,999</td>
<td>17,628</td>
<td>585</td>
</tr>
<tr>
<td>66</td>
<td>Cropland 600 - 1,599</td>
<td>2,068</td>
<td>129</td>
</tr>
<tr>
<td>72</td>
<td>Capacity 15,000 - 49,999</td>
<td>17,931</td>
<td>751</td>
</tr>
<tr>
<td>73</td>
<td>Capacity 50,000 – 299,999</td>
<td>8,318</td>
<td>450</td>
</tr>
<tr>
<td>78</td>
<td>Cropland 1,600 - 4,999</td>
<td>2,137</td>
<td>212</td>
</tr>
<tr>
<td>79</td>
<td>Capacity 300,000 – 999,999</td>
<td>229</td>
<td>26</td>
</tr>
<tr>
<td>95</td>
<td>Cropland 5,000+</td>
<td>66</td>
<td>66</td>
</tr>
<tr>
<td>97</td>
<td>Capacity 1,00,000+</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>53,572</strong></td>
<td><strong>2,382</strong></td>
</tr>
</tbody>
</table>
Advantages & Disadvantages

- **List Frame**
  - Inexpensive data collection
  - Can target commodities
  - Reduced sampling variability
  - Cost efficient

- **List Frame**
  - Not complete
  - Increased non-sampling errors
  - Goes out of date quickly
  - High maintenance
Methodology – Multiple Frame

- Combines the Strength of Each Sampling Frame
  - List
    - Less Costly Data Collection
    - Rare & Specialty Commodities
  - Area
    - Complete Coverage by using portion not on the list (NOL)
Methodology – Administrative Data

- FSA certified planted acreage data for crops
  - Have access to county totals
    - Aggregate to State level
    - Considered a minimum (not all farmers certify)
  - Not complete and available until October
- Import & Export data
- Slaughter data for livestock
Methodology – Remote Sensing, Cropland Data Layer

- Uses Satellite Imagery
- NASS Area Frame and Farm Service Agency data used for ground truth
- Regression-based acreage estimator
Methodology – Remote Sensing, Cropland Data Layer

• Satellite imagery available after crop canopies
  – Helps determine mid-season and year-end acreage estimates
  – Helps assess the impact of weather disasters
Acreage & Yield Data Collection

Crop Production Cycle

NASS Survey, Estimation, and Publication Cycle

When farmers are planning... estimate planting intentions.

After farmers have planted... estimate acreage.

Throughout growing season... forecast yield & production.

At end of season... estimate final acreage, yield, production.
Timeline for 2012- Crop Corn and Soybean Numbers

2012
Feb
NASS “Grain Stocks” report

Mar
NASS “Prospective Plantings” report

May
NASS “Grain Stocks” report

June
NASS “Grain Stocks” report

Aug
First NASS (survey-based) corn and soybean production forecasts

Sept
NASS 2nd, 3rd, & 4th corn/bean forecast

Oct
NASS “Grain Stocks” report

Nov
NASS “Grain Stocks” report

2013
Jan
First official U.S. supply/demand forecasts from WAOB

Feb
NASS final acreage, yield and production

From: World Agricultural Outlook Board
Agricultural Outlook Forum updates 2011/12 outlook from “Baseline”
<table>
<thead>
<tr>
<th><strong>March Intentions Data Collection</strong></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>March Crops/Stocks Survey</strong></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Data Collection</strong></th>
<th>Feb. 26 – March 15</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Sample Size</strong></th>
<th>Approx 86,000 farms ~3,100 in Iowa</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Collection Methods</strong></th>
<th>phone, mail, internet, personal interview</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Data Items</strong></th>
<th>Acres planted and to be planted to specific crops, quantities of grains and oilseed stored on-farm</th>
</tr>
</thead>
</table>
### June Data Collection

<table>
<thead>
<tr>
<th></th>
<th>June C/S Survey</th>
<th>June Area Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Collection</strong></td>
<td>May 29 – June 15</td>
<td>May 29 – June 15</td>
</tr>
<tr>
<td><strong>Sample Size</strong></td>
<td>Approx 73,500 farms</td>
<td>Approx 11,000 segments</td>
</tr>
<tr>
<td></td>
<td>~3,000 in Iowa</td>
<td>418 in Iowa</td>
</tr>
<tr>
<td><strong>Collection Methods</strong></td>
<td>phone, mail, internet, personal interview</td>
<td>Personal interview</td>
</tr>
<tr>
<td><strong>Data Items</strong></td>
<td>Acres planted to specific crops, acres expected to be harvested, quantities of grains and oilseed stored on-farm</td>
<td>Information on land use within segment, quantities of grains and oilseed stored on entire farm, &amp; livestock inv.</td>
</tr>
</tbody>
</table>
Why do March Intentions Usually Differs from June Acreage?

Usual Planting Progress

March Survey

June Survey

6 weeks

Corn
Soybeans
Determining Production

Production = 

Harvested acres \times Yield

- June Crops/Stocks Survey and Area Survey – updated as needed to reflect current growing conditions based on survey, satellite, and FSA acreage data
- December Crops/Stocks Survey
  - Satellite Imagery
  - FSA Acreage Data

Agricultural Yield Surveys
Objective Yield Surveys

December Crops/Stocks Survey
Obj. Yield Survey
Determining Production

Production = 

<table>
<thead>
<tr>
<th>Harvested acres</th>
<th>X</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>June Crops/Stocks Survey and Area Survey — updated as needed to reflect current growing conditions based on survey, satellite, and FSA acreage data</td>
<td>FORECAST</td>
<td>Agricultural Yield Surveys</td>
</tr>
<tr>
<td>December Crops/Stocks Satellite Imagery FSA Acreage Data</td>
<td>FINAL</td>
<td>Objective Yield Surveys</td>
</tr>
<tr>
<td></td>
<td></td>
<td>December Crops/Stocks Survey Obj. Yield Survey</td>
</tr>
</tbody>
</table>
Crop Yield Surveys

- NASS conducts two surveys for yield
  - Agriculture Yield Survey
    - List frame survey conducted in all States (May – November)
  - Objective Yield Survey (Corn & Soybeans)
    - Area frame survey conducted in major States (Aug. – Dec.)
Crop Yield Surveys

- **Agricultural Yield**

  **Objective Yield**

Sample Selected From:

**List Frame - June Crop/Stocks Survey**
- crops of interest
- rotated out reps
- exclude extreme ops
- exclude NOL

**Fields recorded on the June Area Survey**
- crops of interest
- Each acre has equal chance of selection
- More than 1 sample may fall in same field
Agricultural Yield Survey

- Acres Harvested (or to be harvested)
- Expected Yield (based on farmers assessment of yield prospects until harvest)
- Reference date – 1st of the month
- Mail, phone, internet

Yields to reflect conditions as of 1st of month

Data collection starts 25th of previous month
## Agricultural Yield Survey

### Sample Size (approximate)

<table>
<thead>
<tr>
<th>Month</th>
<th>U.S.</th>
<th>Iowa</th>
</tr>
</thead>
<tbody>
<tr>
<td>August</td>
<td>28,000</td>
<td>800</td>
</tr>
<tr>
<td>September</td>
<td>13,000</td>
<td>400</td>
</tr>
<tr>
<td>October</td>
<td>15,000</td>
<td>400</td>
</tr>
<tr>
<td>November</td>
<td>11,000</td>
<td>400</td>
</tr>
</tbody>
</table>
Objective Yield Surveys

- Randomly selected fields
  - Initial interview to update/verify acreage, ask permission
- 2 Randomly located plots per field
- Objective measurements made in the fields
  - Measure Row Width
  - Count Plants (or stalks)
  - Count Fruit (pods, ears, or proxy early in season)
  - Weigh Fruit (pods, ears, or proxy early in season)
  - Gleanings (harvest loss)
Objective Yield Survey

- Data collected from about 25\textsuperscript{th} of previous month through the 3\textsuperscript{rd} of the survey month
- Return to the same plots for several months until crop is mature or harvested
- Personal interviews and field visits
Objective Yield Surveys

Samples consist of 2 plots randomly located within each selected field and scientifically placed within the field with predetermined locations.
Objective Yield Surveys

Soybeans

- Enumerators use a *frame* when laying out soybean sample plots

![Diagram](image_url)
Objective Yield Surveys

\[
\text{net yield} = \text{number of fruit per acre} \times \text{weight per fruit} - \text{harvest loss per acre}
\]
### Objective Yield Components and Forecast Variables

<table>
<thead>
<tr>
<th>Crop</th>
<th>Component</th>
<th>Forecast Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>Ears</td>
<td>- stalks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ears &amp; ear shoots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ears with kernels</td>
</tr>
<tr>
<td></td>
<td>ear weight</td>
<td>- historic average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- length over husk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- kernel row length</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ear diameter</td>
</tr>
<tr>
<td>Soybeans</td>
<td>Plants pods per plant</td>
<td>- plants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- main stem nodes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- lateral branches</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- blooms, dried flowers &amp; pods</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- pods with beans</td>
</tr>
<tr>
<td></td>
<td>pod weight</td>
<td>- historical average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- pods with beans</td>
</tr>
</tbody>
</table>

Variables used to measure the number of fruit and weight vary each month based on the stage of maturity.
Objective Yield Survey

- CORN  \( n=1860 \) (only half completed in August)
- 10 states average \(~85\%\) of U.S. corn production
Objective Yield Survey

- **SOYBEANS**  n=1835 (only half completed in August)
- **11 states average ~85% of U.S. soybean production**
**FINAL Acreage, Yield, & Production**

\[
\text{Production} = \text{Harvested acres} \times \text{Yield}
\]

<table>
<thead>
<tr>
<th>Harvested acres</th>
<th>X</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>June Crops/Stocks and Area Surveys — updated as needed to reflect current growing conditions based on survey, satellite, and FSA acreage data</td>
<td>FORECAST</td>
<td>Agricultural Yield Surveys</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Objective Yield Surveys</td>
</tr>
</tbody>
</table>
County Estimates

- Combines December Crop/Stocks survey & a supplemental county survey
- Set Planted, Harvest, Production, & Yield by county
- Iowa – Corn, Soybeans, Oats, Alfalfa Hay, Other Hay, Cattle, Cash Rents (separate data collection)
Quarterly Grain Stocks

- Estimates provided for stocks as of March 1, June 1, September 1, and December 1
- Total Stocks in all positions is comprised of 2 parts based on location of the grain:

  - Total Stocks
  - On Farm Stocks
  - Off Farm Stocks
## Grain Stocks Data Collection

<table>
<thead>
<tr>
<th></th>
<th><strong>On Farm Stocks</strong></th>
<th><strong>Off Farm Stocks</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Collection</strong></td>
<td>Survey of Farmers (Mar, Jun, Sep, Dec)</td>
<td>Census of Facilities (Mar, Jun, Sep, Dec)</td>
</tr>
<tr>
<td><strong>Sample Size</strong></td>
<td>66,000-84,000 farms</td>
<td>8,900 facilities</td>
</tr>
<tr>
<td></td>
<td>2,400-3,000 in Iowa</td>
<td>900 in Iowa</td>
</tr>
<tr>
<td><strong>Collection Methods</strong></td>
<td>phone, mail, internet, personal interview</td>
<td>mail, phone, internet</td>
</tr>
<tr>
<td><strong>Data Items</strong></td>
<td>Whole grains and oilseeds stored on the farm regardless of ownership or intended use</td>
<td>Whole grains and oilseeds stored in commercial storage facility</td>
</tr>
</tbody>
</table>
## Crop Balance Sheet

### Beginning Stocks
- **Supply**
  - + Production: NASS
  - + Imports: U.S. Census Bureau

### Disappearance
- - Exports: U.S. Census Bureau
- - Food & Industrial Use (Ethanol & by products): Millers, Crushers, WAOB, Calculated by WAOB
- - Seed: NASS, ERS
- -(+) Residual (feed, in-transit, shrinkage, imbalance, error, etc.):

### Stocks on Hand
- On-Farm Grain Stocks: NASS
- Off-Farm Grain Stocks: NASS
What about Livestock Estimates?

- Frequency of reports mainly determined by production cycle
  - Quarterly Hog report (Mar, Jun, Sep, Dec)
  - Semi Annual Cattle report (Jan, Jul)
  - Monthly Cattle on Feed report

- Other livestock reports also available
Hog & Pig Survey

- Target population = all hog owners
- Conducted quarterly
- Multiple frame survey design
  - Gives everyone who owns hogs a chance to be selected for the survey
- Sample is stratified by size of operation
  - Larger operations sampled at a higher rate
  - Nationally, 8,800 or 11,600 owners in contacted depending on the quarter
  - Over 1,400 in Iowa
Estimates from the Quarterly Hog & Pig Survey

- All Hogs & Pigs
- Breeding Herd Inventory
- Market Hog Inventory
  - By weight group
- Sows Farrowing, Litter Rate, Pig Crop
  - Litter rate by size of operation for U.S.
- Farrowing Intentions
  - Next 3 months
  - 3 to 6 months
Hog & Pig Estimating Program

- Quarterly Estimates Published
- Quarterly Survey/Annual Estimates Published
- Annual Survey/Annual Estimates Published
Cattle Survey

- Target population = all operations w/ cattle
- Conducted in January and July
  - State estimates only published in January report
- Multiple frame survey design
  - Gives every cattle operation a chance to be selected for the survey
- Sample is stratified by size and type
  - Larger operations sampled at a higher rate
  - Nationally, about 40,000 producers contacted
  - Over 2,100 in Iowa
Estimates from the Cattle Survey

- All Cattle & Calves
- All Cows that have calved
  - Beef cows and Milk cows that have calved
- Heifers 500 pounds and over
  - Beef and Milk cow replacements
  - All other heifers
- Steers 500 pounds and over
- Bulls 500 pounds and over
- Calves under 500 pounds
- Calf Crop
- Total Cattle and Calves on Feed (all size lots)
Cattle on Feed Surveys

1000+ COF Survey
- Federally Funded
- Conducted monthly
- List Frame census of all lots with 1000+ hd capacity
  - Add any new lots
- Data collected mostly by personal interview

LT 1000 COF Survey
- State Funded
- Conducted monthly
- List Frame survey of lots w/ LT 1000 hd capacity
  - Not complete coverage
- Data collected by mail and phone
LT 1,000 Hd Capacity COF Survey

- February - Mail to all operations with LT 1000 head capacity - about 13,000 lots
- For Subsequent Months - Select a sample of February survey respondents
  - Stratified Replicated Sample
    - About 1,100 sampled each month
    - Sample is stratified by February reported capacity
    - Replication scheme limits operators to 6 contacts per year but allows 40% carryover of the sample from month to month
    - Have about 600 good reports each month
### Estimates from the COF Survey

- Monthly 1000+, LT 1000, & total cattle on feed in all lots
  - Quarterly steers, heifers, & cows/bulls on feed for 1000+ lots
- Number placed during the month
- Number marketed during the month
- Other disappearance during the month

#### All Cattle on Feed, Iowa

<table>
<thead>
<tr>
<th>Item</th>
<th>Lots 1,000+ Head (1,000 Head)</th>
<th>Lots Less than 1,000 Head (1,000 Head)</th>
<th>All Lots (1,000 Head)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle on Feed, December 1, 2010</td>
<td>630</td>
<td>655</td>
<td>1,285</td>
</tr>
<tr>
<td>December Placements</td>
<td>93</td>
<td>150</td>
<td>243</td>
</tr>
<tr>
<td>December Marketings</td>
<td>80</td>
<td>60</td>
<td>140</td>
</tr>
<tr>
<td>December Other Disappearance</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Cattle on Feed, January 1, 2011</td>
<td>640</td>
<td>740</td>
<td>1,380</td>
</tr>
</tbody>
</table>
Interpreting the Survey Indications

- Indications include direct measures and ratios
  - Normally have more than one indication to set estimate/forecast

- Guiding principles for setting yield forecasts
  - Reference period = 1\textsuperscript{st} of the month
  - Do not extrapolate beyond data collection period
  - Assume normal conditions the remainder of the season

Two Questions:
- Historically, how well have the indications performed?
- Is there a consistent bias in the indications?

Tools – difference tables, charts, supporting analysis balance sheet
Interpreting the Survey Indications

Difference Table: Corn, Yield, Objective Yield Survey by month

<table>
<thead>
<tr>
<th>Year</th>
<th>Board</th>
<th>Aug</th>
<th>Diff</th>
<th>Sept</th>
<th>Diff</th>
<th>Oct</th>
<th>Diff</th>
<th>Nov</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>126.0</td>
<td>144.0</td>
<td>-18.0</td>
<td>141.7</td>
<td>-15.7</td>
<td>142.2</td>
<td>-16.2</td>
<td>140.2</td>
<td>-14.2</td>
</tr>
<tr>
<td>2004</td>
<td>136.0</td>
<td>144.1</td>
<td>-8.1</td>
<td>147.0</td>
<td>-11.0</td>
<td>145.8</td>
<td>-9.8</td>
<td>142.6</td>
<td>-6.6</td>
</tr>
<tr>
<td>2005</td>
<td>137.0</td>
<td>149.8</td>
<td>-12.8</td>
<td>147.0</td>
<td>-10.7</td>
<td>144.9</td>
<td>-7.9</td>
<td>143.8</td>
<td>-6.8</td>
</tr>
<tr>
<td>2006</td>
<td>122.0</td>
<td>145.5</td>
<td>-23.5</td>
<td>136.5</td>
<td>-14.5</td>
<td>134.4</td>
<td>-12.4</td>
<td>131.0</td>
<td>-9.0</td>
</tr>
<tr>
<td>2007</td>
<td>148.0</td>
<td>163.3</td>
<td>-15.3</td>
<td>164.5</td>
<td>-16.5</td>
<td>160.9</td>
<td>-12.9</td>
<td>152.8</td>
<td>-4.8</td>
</tr>
<tr>
<td>2008</td>
<td>162.0</td>
<td>172.6</td>
<td>-10.6</td>
<td>178.3</td>
<td>-16.3</td>
<td>170.2</td>
<td>-8.2</td>
<td>164.4</td>
<td>-2.4</td>
</tr>
<tr>
<td>2009</td>
<td>162.0</td>
<td>162.3</td>
<td>169.5</td>
<td>168.2</td>
<td>164.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Diff 10-yr  -16.1  -15.4  -10.3  -6.1
Diff 5-yr   -14.0  -13.8  -10.2  -5.9

std err  14.7  12.9  7.4  4.1
Interpreting the Survey Indications

OCTOBER CORN YIELD
(bushels)

Time Series Chart
Interpreting the Survey Indications

Survey Indication: 167

Forecast = 168 bu.

Ag Yield vs. Obj. Yield

Ind. + 1 Std. Error

Ind. - 1 Std. Error
Other Analysis - Objective Yield Survey Components

Corn Objective Yield Data, Iowa

- Plants per Acre
- Ears per Acre

Graph showing trends in corn objective yield data from 2001 to 2011 in Iowa.
Balance Sheet Review

- **Supply:** Beginning Inventory + Pig or Calf Crop + Imports +

- **Disposition:** Commercial Slaughter - Farm Slaughter - Death - Exports -

- Indicated Inventory =
- Estimated Inventory
- Residual
Estimate / Forecasts - Work Flow

Field Offices

Review Survey Data At State Level

IDAS, etc.

Set State Recommendations

“mini-boards”, etc.

Prepare Justification

Comments on weather, markets, etc.

Send to Washington

Headquarters

Review Survey Data At National Level

Pre-board, commodity specialists

Set Regional & National Targets

Agricultural Statistics Board

Reconcile State Recommendations With National Targets

Non-spec: pre-board Spec: post-board

Completed in Lock-up
Agricultural Statistics Board
Since 1905, the ASB has secured its data to prevent leaks from influencing speculative trading markets.

Armed guards stand watch outside of the lock-up area to prevent disclosures.
Agricultural Statistics Board (ASB) - Security

- Window shades are secured and phones are disconnected
- The computer system is disconnected from computers outside of lock-up
Agricultural Statistics Board

- The ASB is comprised of commodity experts who set regional and national yield and production or livestock estimates.
Agricultural Statistics Board

- The Secretary of Agriculture or his designee attends the briefing and signs the report
Agricultural Statistics Board

- Reports are printed inside the lock-up area
- Reporters are allowed inside lock-up to prepare their news articles for release
Agricultural Statistics Board

- The Crop Reports are released at 8:30 am ET on specified dates.
- Hogs and Pigs, Cattle, and COF reports are released at 3:00 pm ET.
How Reliable are the NASS numbers?

- NASS reports include reliability information
- Also include information on
  - Survey and estimation procedures
  - Revision policy

### Reliability of January 1 Cattle Estimates

Based on data for the past ten years

<table>
<thead>
<tr>
<th>Item</th>
<th>Root mean square error (percent)</th>
<th>90 percent confidence level (percent)</th>
<th>Difference between first and latest estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average (1,000 head)</td>
<td>Smallest (1,000 head)</td>
<td>Largest (1,000 head)</td>
</tr>
<tr>
<td>All cattle</td>
<td>0.5</td>
<td>0.9</td>
<td>338</td>
</tr>
<tr>
<td>All cows</td>
<td>0.6</td>
<td>1.1</td>
<td>167</td>
</tr>
<tr>
<td>Calf crop</td>
<td>1.0</td>
<td>1.8</td>
<td>272</td>
</tr>
</tbody>
</table>
How Reliable are the NASS numbers?

All Hogs and Pigs Board vs Trade Expectations

U.S. Corn Planted Acres Change from June to Final

USDA - NASS August Forecast to Final Yield, Iowa, Corn 2002 - 2011

USDA - NASS November Forecast to Final Yield, Iowa, Corn 2001 - 2010

U.S. Average Change = 0.6%
Iowa Average Change = 0.6%
Smallest Change = 24,000 Acres or < .1%
Largest Change = 1.3 Million Acres or 1.5%
In Conclusion……..

- Information makes for efficient markets
- NASS mission is to provide information
- NASS estimates/forecasts based on survey data - only possible with the cooperation of farmers
- Confidentiality and Security – taken seriously
- NASS statistics are available to all
- Everyone gets the same results at the same time
- NASS data used extensively throughout industry
NASS Contact Information

- www.nass.usda.gov
- Nick Schauer
  Nick.Schauer@nass.usda.gov
- NASS Iowa Field Office
  (515) 284-4340
  (800) 772-0825
  nass-ia@nass.usda.gov
- Customer Service:
  (800) 727-9540