



United States Department of Agriculture

# Balancing a Regulatory and Direct Service Network

The background of the slide features a collage of four images: a worker on a bridge, a close-up of wheat, a man reviewing documents, and a grain elevator. These images are partially obscured by a large red rounded rectangle containing the speaker's name and title.

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Inspection Instrumentation  
Branch Chief  
Federal Grain Inspection Service

# Agricultural Marketing Service

Creating Opportunities for American Farmers and Businesses

## Regulatory



The screenshot shows the USDA Agricultural Marketing Service website. The header includes the USDA logo, navigation links (About AMS, News & Announcements, Careers, For Employees, Contact Us), a search bar, and a secondary navigation menu (Market News, Rules & Regulations, Grades & Standards, Services, Resources, Selling Food to USDA). The main content area is titled 'US Grain Standards Act' and includes a list of regulations under the United States Grain Standards Act. A sidebar on the left lists 'Rules and Regulations' such as Organic, Organic Livestock and Poultry Practices, BE Disclosure & Labeling, Marketing Orders, Perishable Agricultural Commodities Act (PACA), Research & Promotion Programs, Mandatory Market Reporting, Country of Origin Labeling (COOL), and Packers and Stockyards Act. Social media links and a 'Stay connected' section are also visible.

**USDA** United States Department of Agriculture  
Agricultural Marketing Service

Market News Rules & Regulations Grades & Standards Services Resources Selling Food to USDA

Home > Rules & Regulations

Stay connected: [Social Media Icons]

### Rules and Regulations

- Organic
- Organic Livestock and Poultry Practices
- BE Disclosure & Labeling
- Marketing Orders
- Perishable Agricultural Commodities Act (PACA)
- Research & Promotion Programs
- Mandatory Market Reporting
- Country of Origin Labeling (COOL)
- Packers and Stockyards Act

### US Grain Standards Act

United States Grain Standards Act (As Amended)

**Regulations under the United States Grain Standards Act**

- Part 800 - General regulations
- Part 801 - Official performance requirements for grain inspection equipment
- Part 802 - Official performance and procedural requirements for grain weighing equipment and related grain handling systems
- Part 810 - Official United States standards for grain

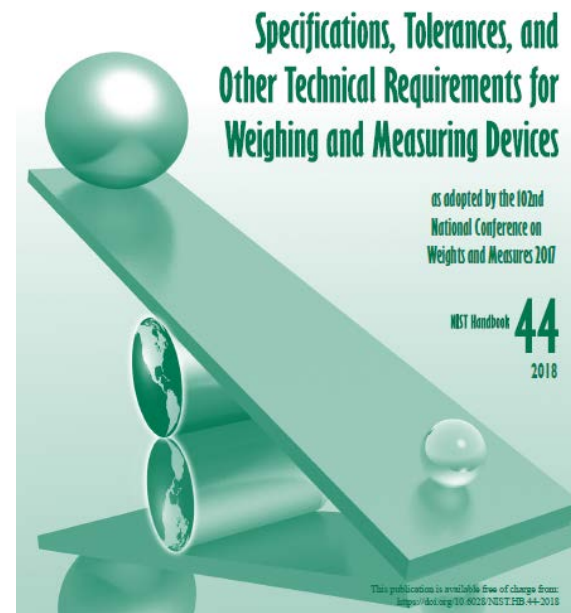
Watch a short video about PACA

Learn about our specialty crop inspection services

<https://www.ams.usda.gov/rules-regulations/us-grain-standards-act>



NIST  
National Institute of  
Standards and Technology  
U.S. Department of Commerce



[www.nist.gov/pml/wmd/pubs/hb44.cfm](http://www.nist.gov/pml/wmd/pubs/hb44.cfm)

# Grain Inspection in the United States

- Federally regulated
  - Exports mandatory inspection under Grain Standards Act
  - Domestic inspections voluntary
  - All current NIR analyses voluntary
  - Federal, State, and Private Companies
- State regulated
  - Domestic transactions
  - States may regulate domestic transactions outside FGIS oversight

Legal for Trade

# Federal Grain Inspection Service



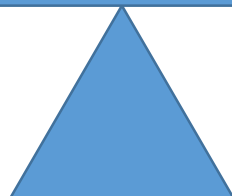
- Role
  - Direct service
  - Regulatory
- Partnership
  - State Departments of Agriculture and Private Companies
  - National Institute of Standards and Technology
  - National Conference on Weights and Measures

# FGIS

- Establish and maintain standards
- Establish methods and procedures
- Approve instruments and calibrations
- National Type Evaluation Program
- Issue Certificate
- Provide uniform standardization
- Appeal Process

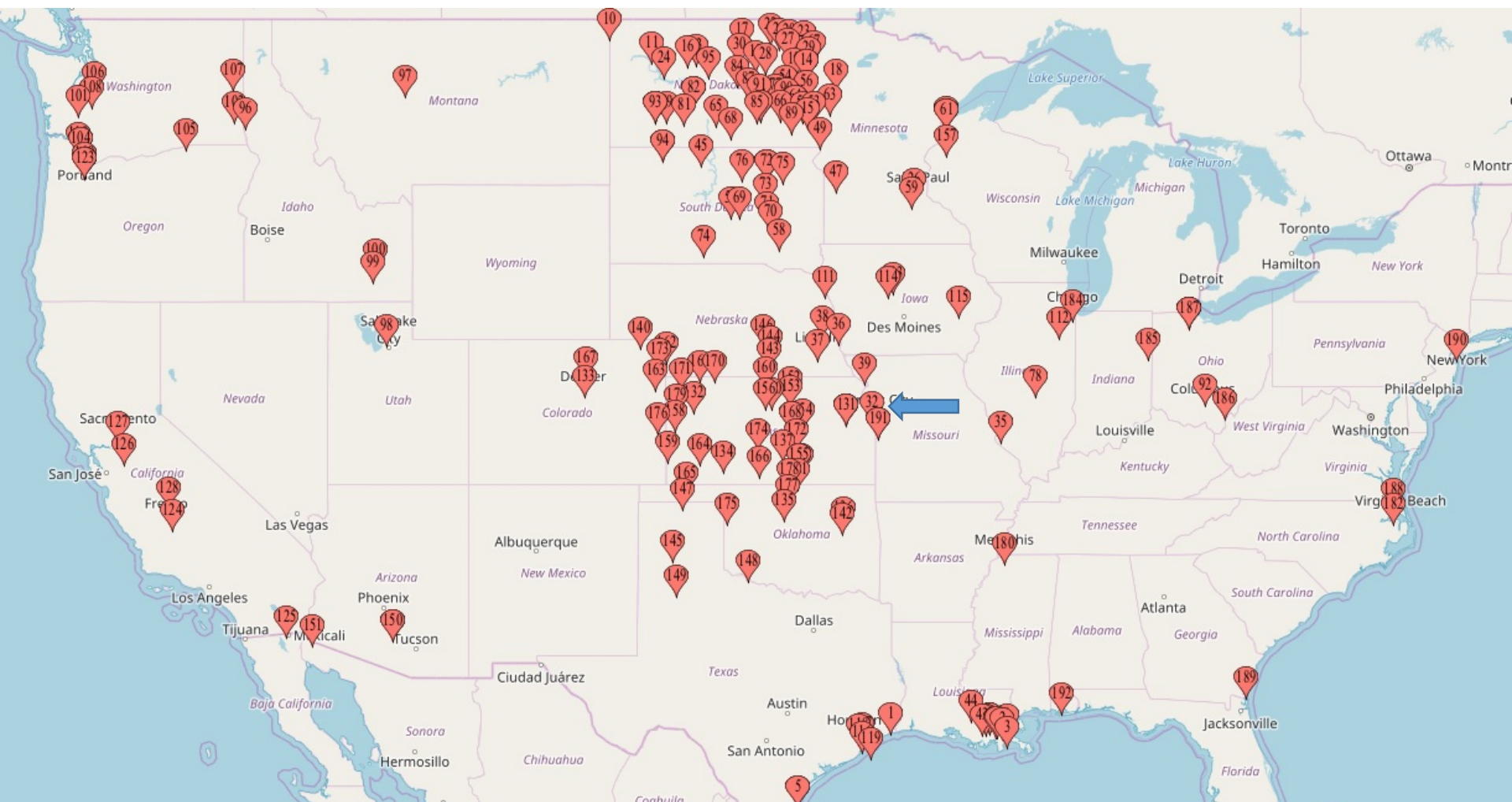
Regulatory

Direct Service





# FGIS Service Points



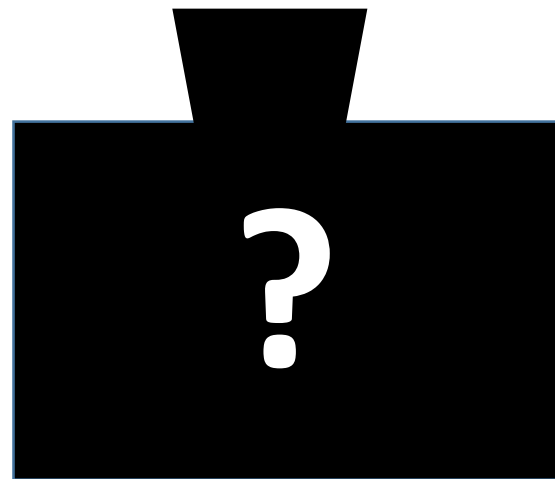
# Challenges

- Adapting to changes
- Managing customer expectations
- Maintaining integrity of results



# Solutions - Instrumentation

- Fit for purpose requirements
- Performance Specifications and Tolerances
- Preventing Fraud



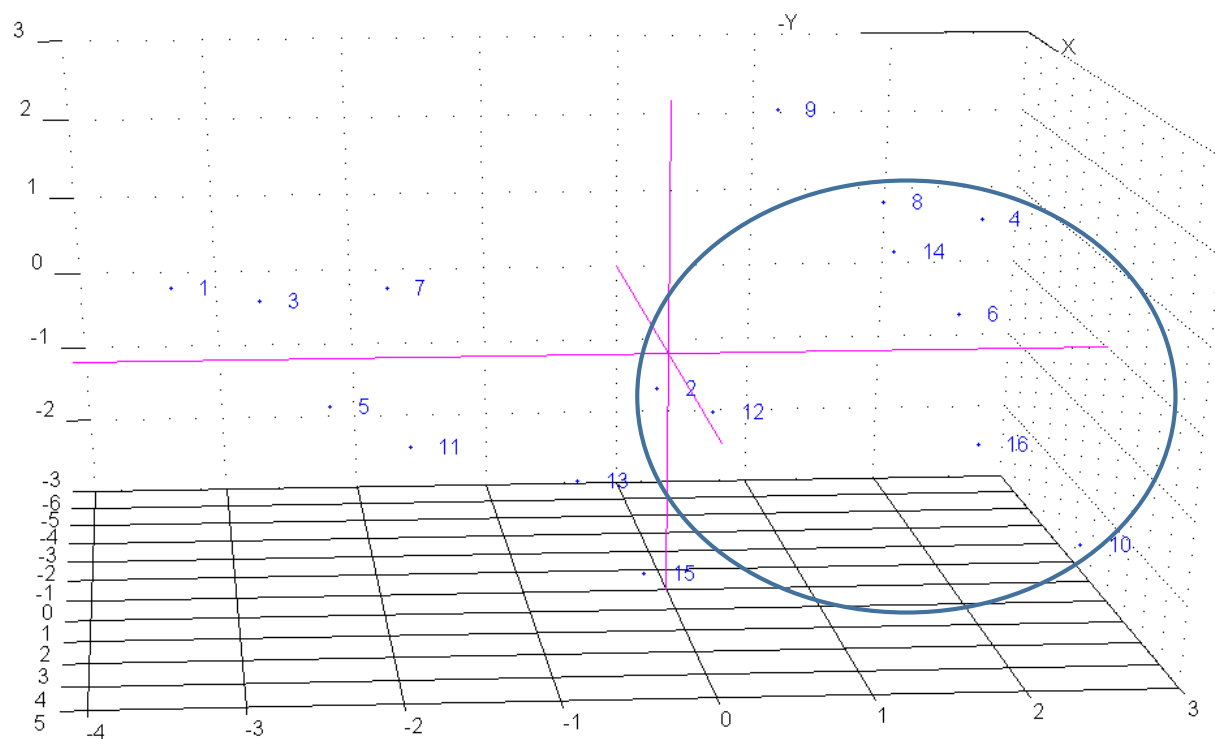


# Samples



# Crop Effects

Scores

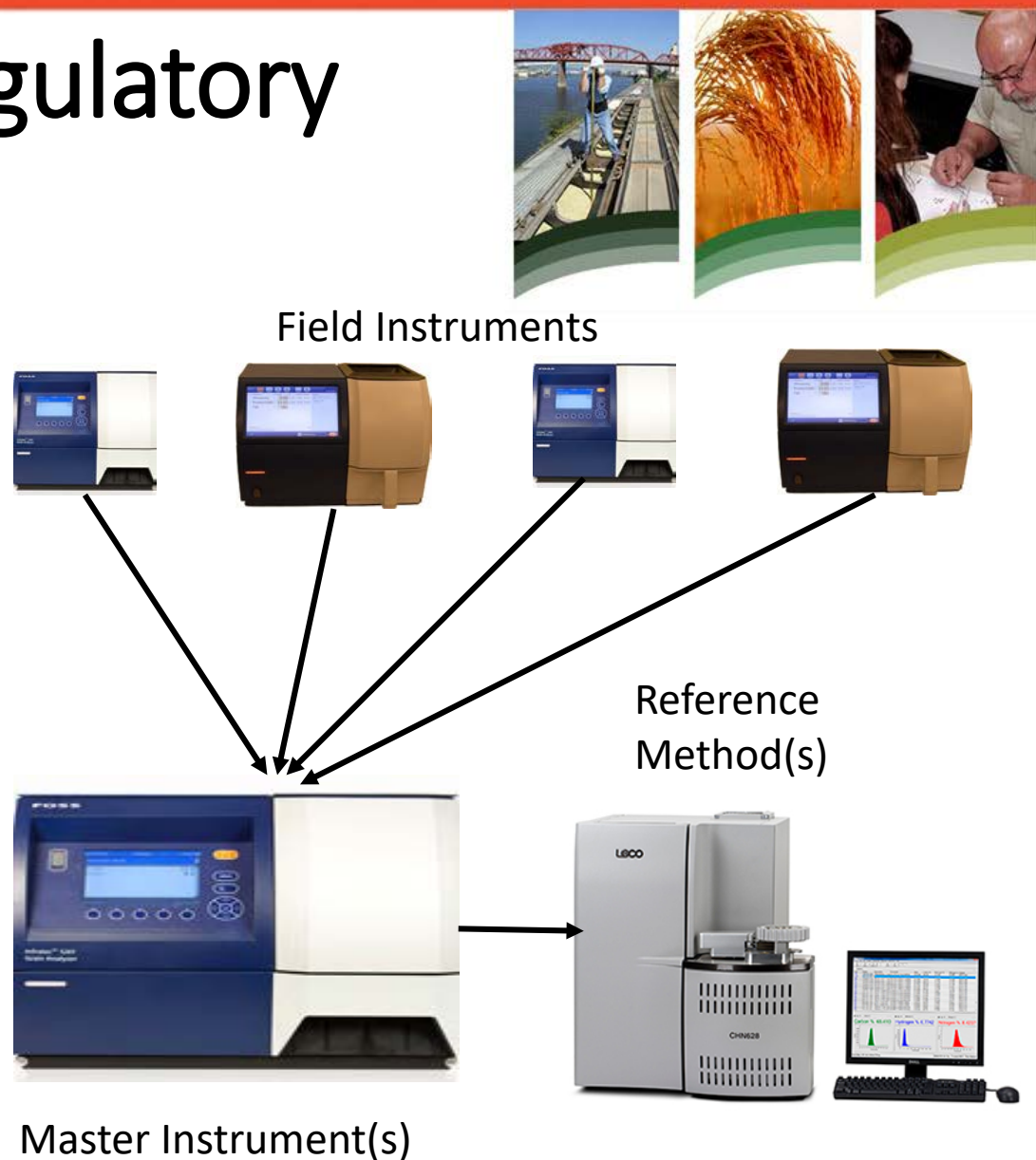


# Solutions - Chemometrics

- Calibration, Test, and Validation sample sets
  - PCA with Mahalanobis distance
- Transferability
  - Instrument variation
  - Temperature ranges
  - Standardization
- Calibration Development
  - Wavelengths
  - Spectral pretreatments
  - Chemometric method

# Solutions – Regulatory Approach

- Sampling
- Approved instrument(s) and calibration models
- Procedures
- Quality Control and Assurance
- Traceability



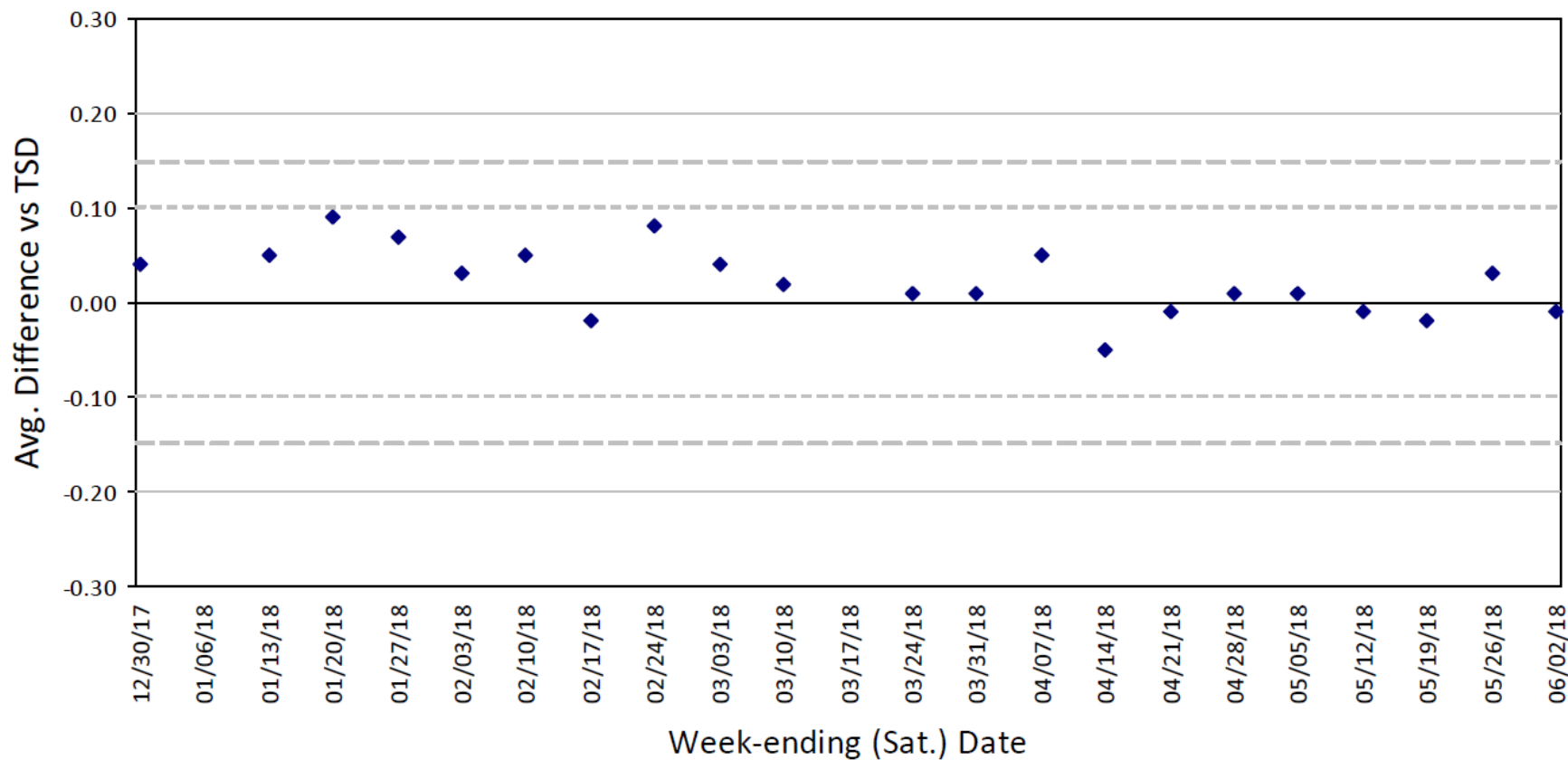


# Procedures

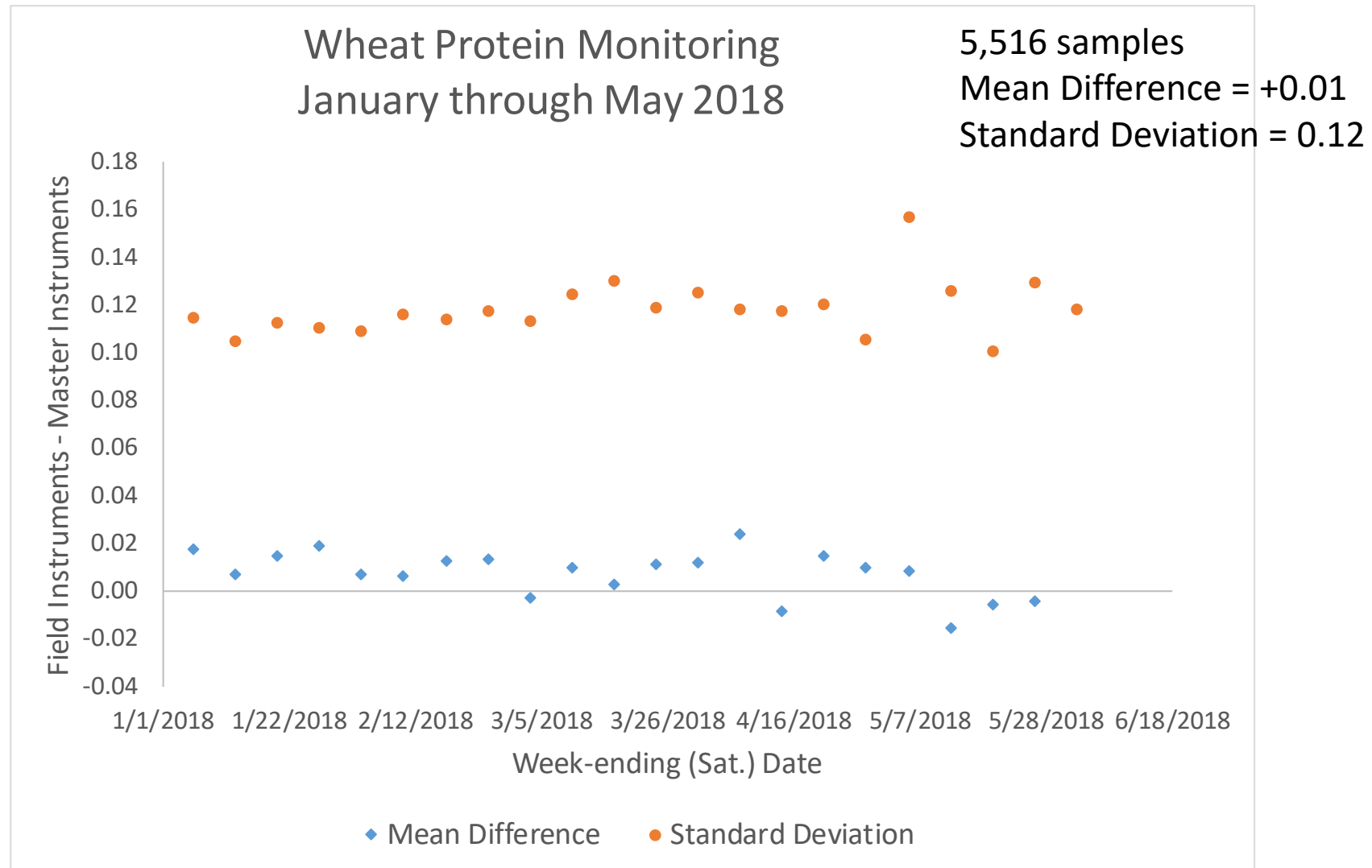
- Analyze on clean samples
- Field level standardization – Bias Adjustments
  - Standard Reference Samples per grain type
  - Goal  $\pm 0.05\%$  protein for wheat
  - Results maintained in national database
- Direct Monitoring
  - Select 5 samples per week per grain type
  - Control Charts

# Quality Control - Instrument

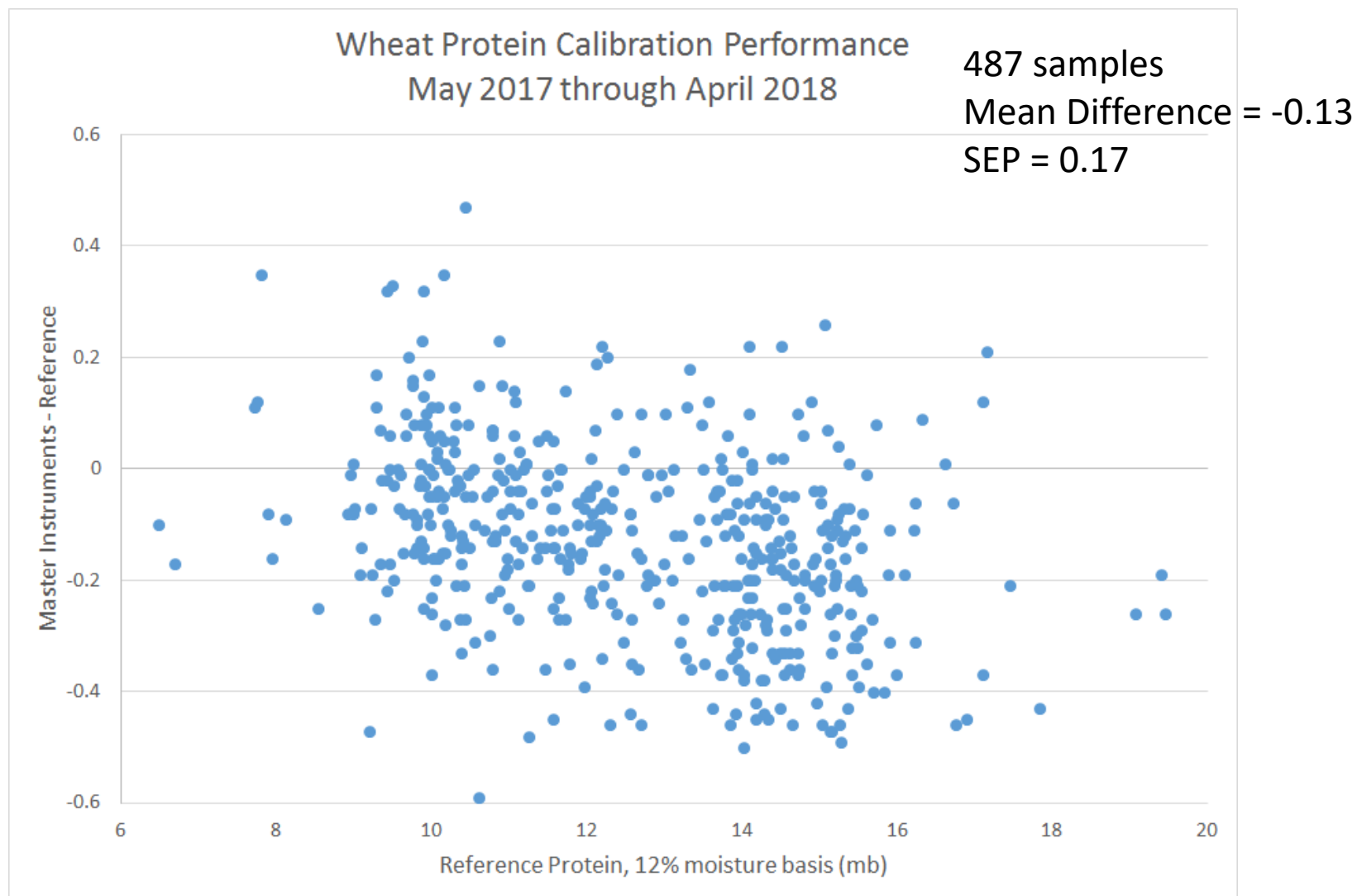
NIRT Wheat Protein Monitoring - Average Difference Control Chart  
Field Instrument 1



# Quality Assurance - system



# Quality Assurance - Calibration





# Summary

- Benefits to customers
- Ensure impartiality
- Maintain integrity of results



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## Questions?



This program is supported by the U.S. Department of Agriculture, Agricultural Marketing Service.