



United States  
Department of  
Agriculture

Marketing and  
Regulatory  
Programs

Grain Inspection,  
Packers and Stockyards  
Administration

# Grain Inspection Advisory Committee Meeting Presentations

October 19-20, 2016  
Albers Mill Building  
Portland, Oregon

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Slide 1: Title

# FGIS Field Management Division

  
**FIELD MANAGEMENT INITIATIVES**  
**SAMANTHA SIMON**  
DIRECTOR  
**ANTHONY GOODEMAN**  
DEPUTY DIRECTOR  
**GRAIN INSPECTION ADVISORY COMMITTEE**  
OCTOBER 19, 2016

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Slide 2: Field Management Initiatives

## Field Management Initiatives

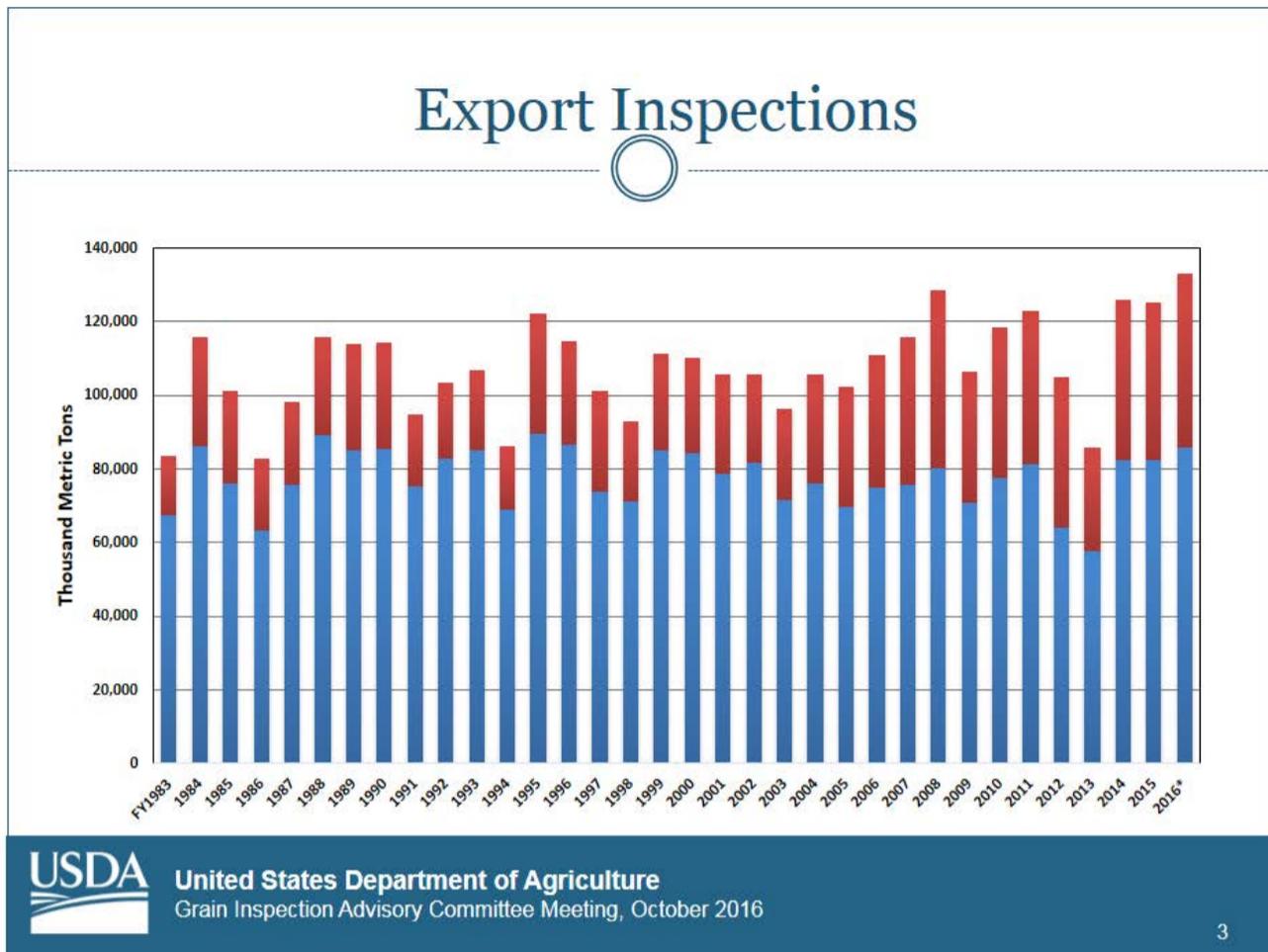


- **Export Inspections and Market Analysis**
- **Federal Register Activity**
  - Reauthorization Act Final Rule
  - Standards Under Review
  - Request for Information Publications
- **Looking Ahead - 2017 Initiatives**
  - Facilitate Marketing
  - Service in Texas
  - Signature Process Improvement
  - Licensing Program
  - Staffing Initiatives

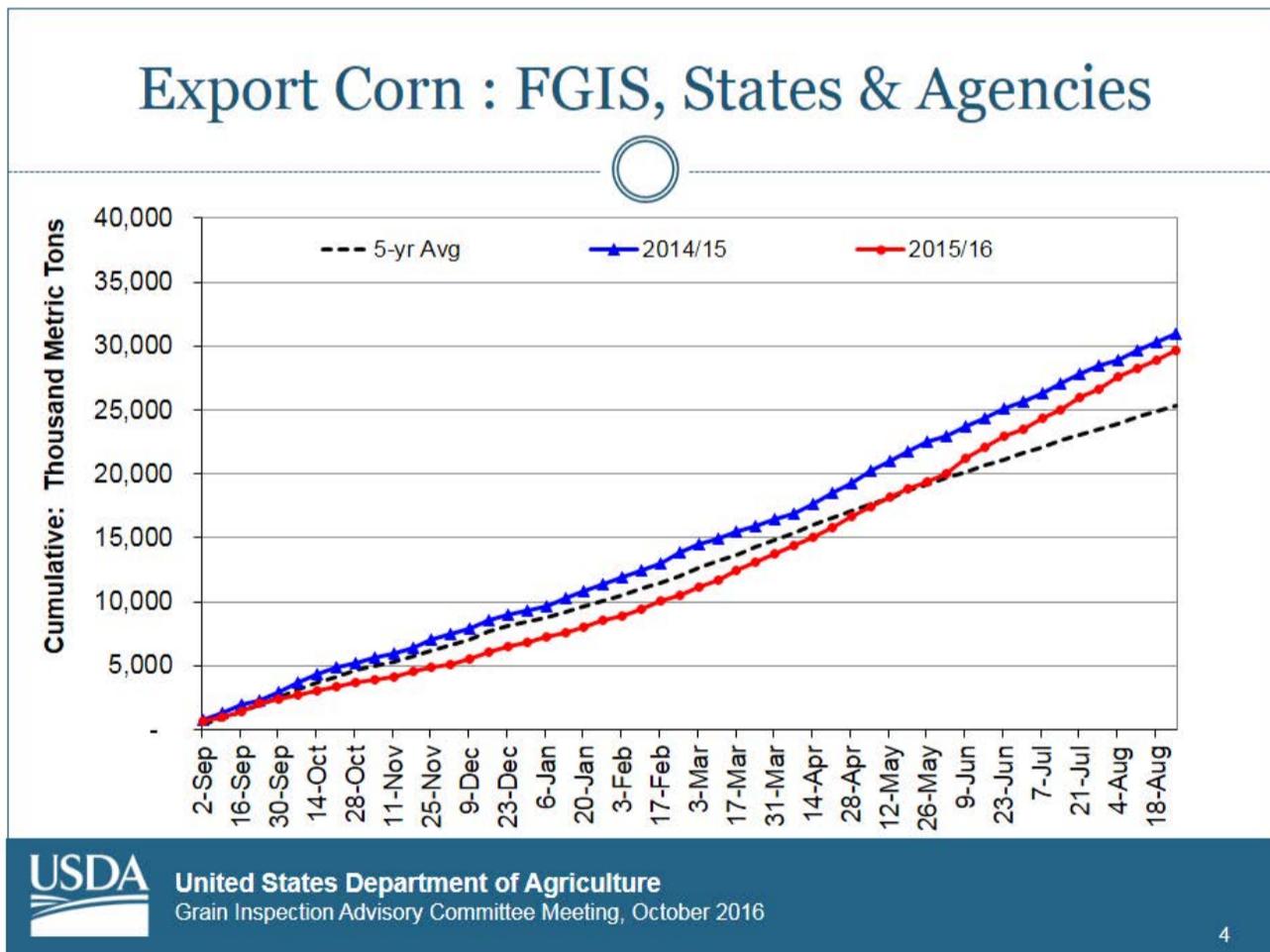
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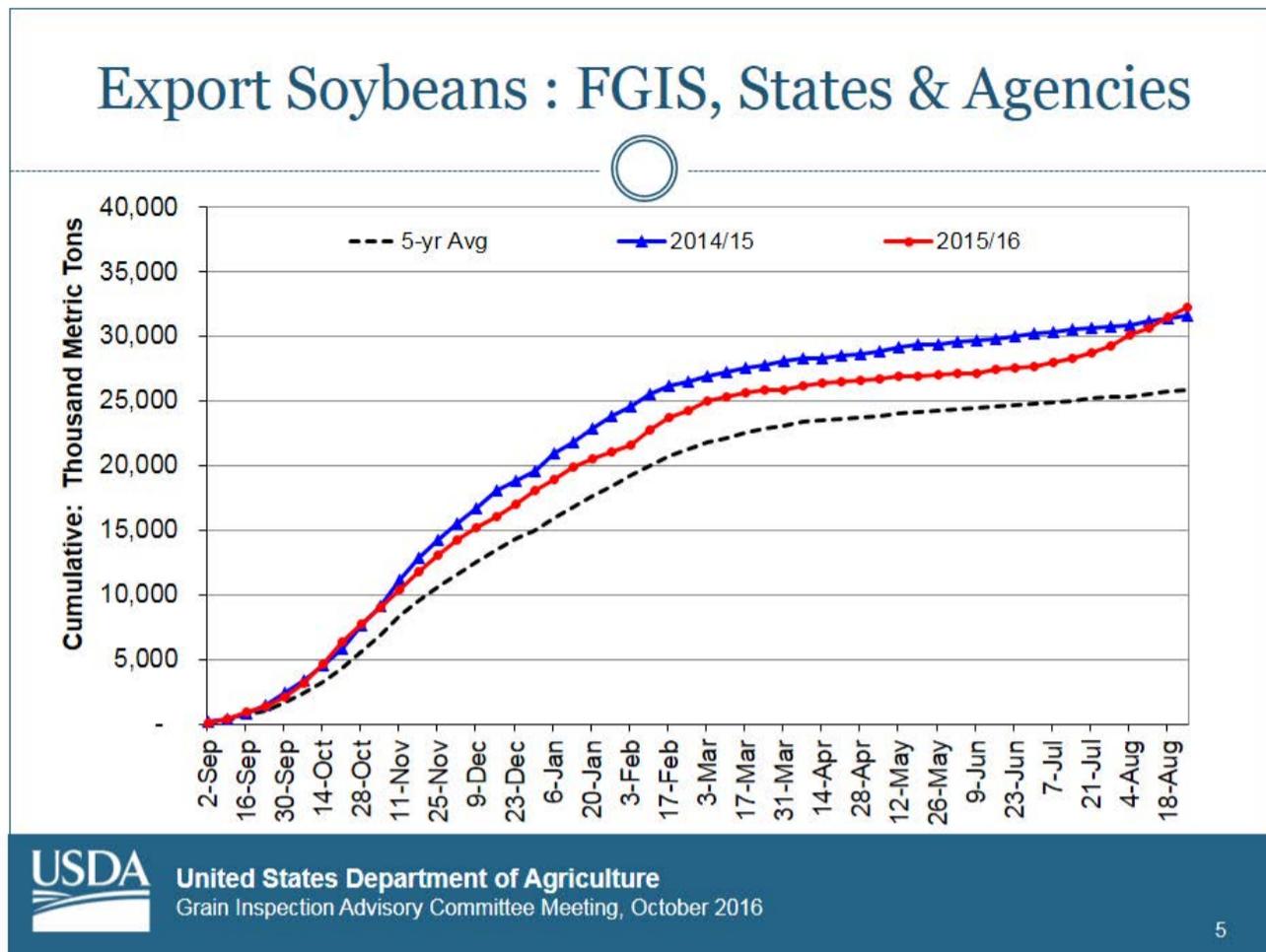
### Slide 3: Export Inspections



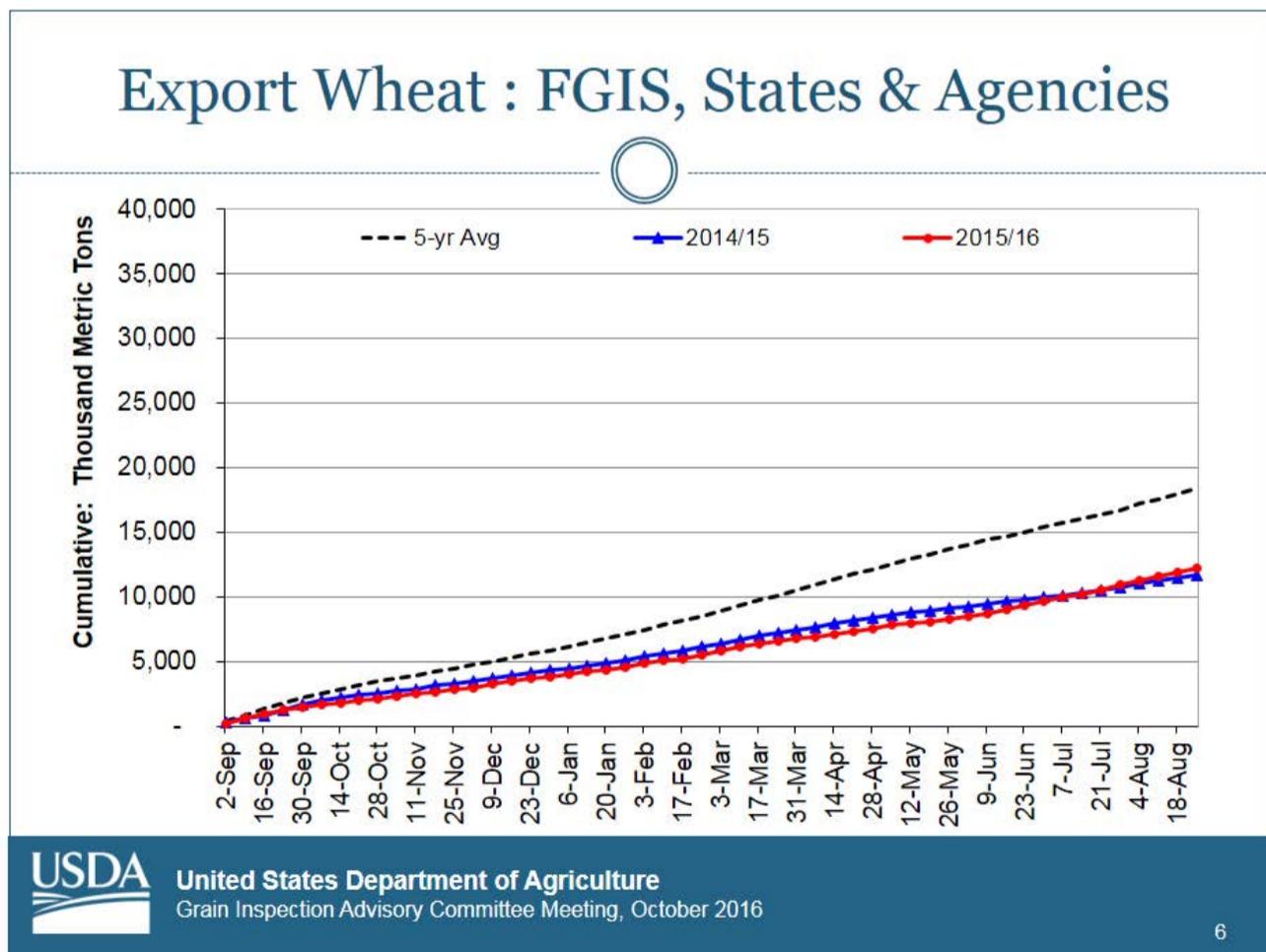
### Slide 4: Export Corn : FGIS, States & Agencies



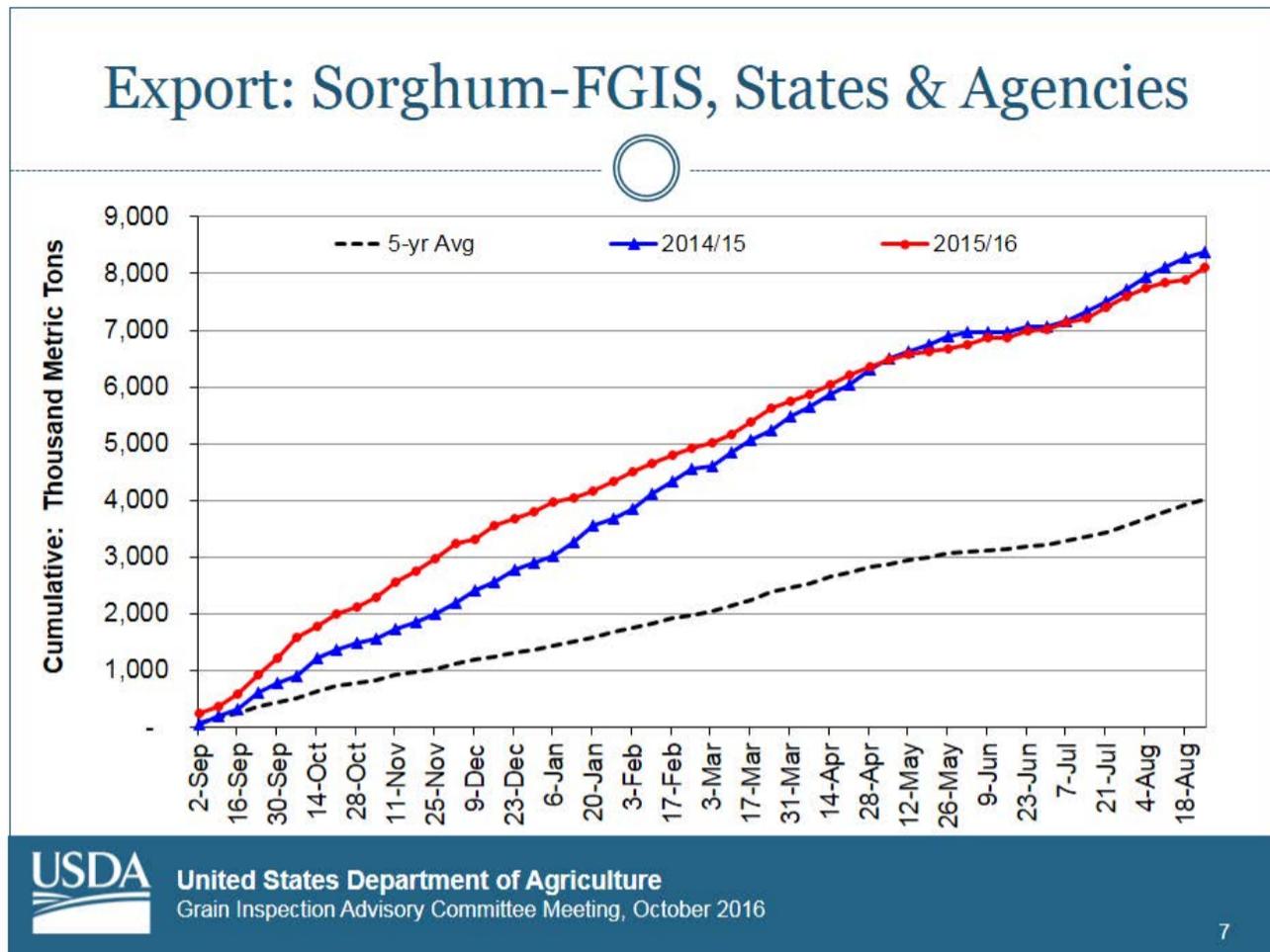
Slide 5: Export Soybeans : FGIS, States & Agencies



Slide 6: Export Wheat : FGIS, States & Agencies



## Slide 7: Export: Sorghum-FGIS, States & Agencies



## Slide 8: Reauthorization Rule

### Reauthorization Rule

- Proposed Rule Published January 2016
- GIPSA proposed changes to:
  - Inbound barge weighing
  - Waivers
  - Fees
  - Geographic boundaries
  - Designation and license term
  - Exceptions
  - Delegations
  - Notification
  - Consultations

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## Reauthorization Rule

- Comment period ended April 25, 2016.
- GIPSA received 8 comments:
  - AAGIWA, NAEGA/NGFA, Nat'l Farmers Union, elevator operator, 2 stakeholders (unknown affiliation), group of grain and feed associations.
- GIPSA made several changes to the Proposed Rule based on the comment review.
- Final Rule published on July 29, 2016.



## Final Rule

- Definition of Emergency:
  - *Proposed Rule: Emergency.* A situation that is outside the control of the Service or a delegated State that prevents prompt issuance of certificates in accordance with 800.160(c).
    - ✦ Tied to certificate; may not be appropriate if service is never provided.
  - *Final Rule: Emergency.* A situation that is outside the control of the applicant that prevents official inspection or weighing services within 24 hours of the scheduled service time.



## Final Rule

- **Waivers**
  - 2 categories:
    - ✦ Emergency
    - ✦ Other circumstances that do not impair the objectives of the Act
  - Act removed some discretionary authority for emergency waivers.
  - Changes to Act do not add a new category of waivers.
    - ✦ Waiver language in Regs remains as proposed.



## Final Rule

- **Fees**
  - 3-6 month operating reserve
    - ✦ Proposed: trigger above 6 months; below 3 months
    - ✦ Final Rule: trigger above/below 4.5 months
  - Annual Adjustments
    - ✦ Proposed: 2% adjustment for every \$1M, 5% cap on changes
    - ✦ Final Rule: no change
  - Supervision of Official Agencies
    - ✦ 530 account currently exceeds 3-6 month operating reserve
    - ✦ Fee suspended in July



## Final Rule

- **Geographic Boundary Exceptions**
  - Notification of agreements
  
- **Delegations**
  - Review process start date
    - ✦ Wisconsin reviewed in 2016 – first delegated state review
  - Funding source for reviews



## Slide 14: Requests for Information

### Requests for Information

FGIS published six “Requests for Information” in the Federal Register for these commodities:

Triticale	0
Oats	1
Rye	0
Mixed Grain	1
Flaxseed	0
Sunflower	3
Rice	28
DDG & Services	8

Barley final rule is under internal development and review.



## Slide 15: Requests for Information

### Requests for Information

- Services currently offered or needed to facilitate the marketing of grain and related products
- Grains, oilseeds, rice, pulses, related products
- Follow-up to 2007 ANPR: Co-products of Ethanol Production (a.k.a. DDG's)
- 90-day comment period
- Comment period closed in April 2016
  - 8 Comments



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## Slide 16: Looking Ahead

### Looking Ahead

- Proposed Fiscal Year 2017 FMD Initiatives
  - Continue to Provide Environment that Facilitates Marketing
  - Revise Training Program for Inspectors and Technicians
  - Succession Planning & Knowledge Management
  - Focus on Instructions – Implementation of Signature Process Improvement
  - Updates to Licensing Program
  - Cleanup and Refresh of Regulations
  - Technician Performance Monitoring Program
  - MOU with Canadian Grain Commission



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## South Texas Rail and Truck Inspections

- April 2016 - FGIS opened new office in Weslaco, TX
- Meeting with Progreso Bridge owners to discuss potential for on-site truck inspection
- Service Agreement with Plainview Grain Inspection to provide service in North Texas



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## Slide 18: GIPSA's Signature Process Improvement

### GIPSA's Signature Process Improvement

- **Strategic Objective:** Improve the process for communicating/updating current program policy and guidance for Official inspection programs to stakeholders so timely and accurate information is available.
- **Performance Goals:** Reduce clearance time; improve accountability; reduce staff resources devoted to the process; increase stakeholder satisfaction.



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## Signature Process Improvement

- Reduced time to develop, review, clarify and audit inspection policy and procedure by 35%.
- Reduced number of steps in process by 55%.
- Reduced number of outdated documents on FGIS' public website by 35%.
- FGIS expects to achieve 23,504 hours in savings, or 10 FTE, due to new process.
- Reducing hours allows resources redirection to other vital tasks:
  - Customer service
  - Oversight of grain inspection operations.



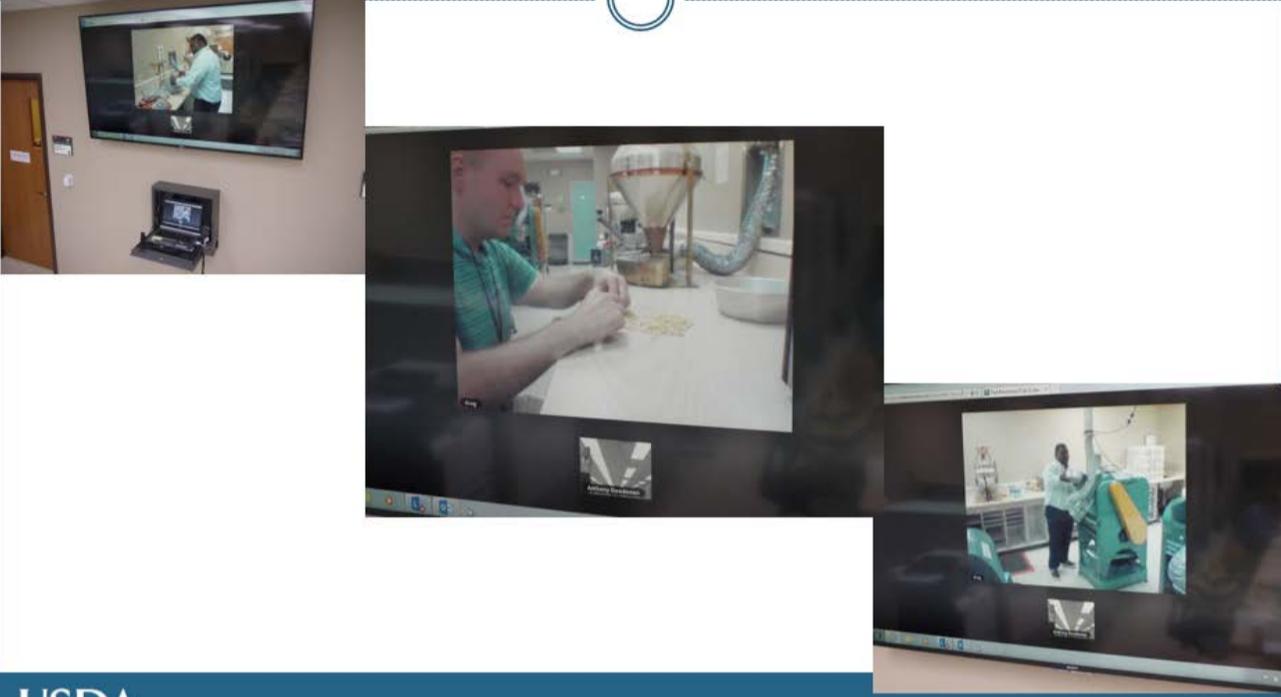
## Licensing Program

- Revising “Passing Score” Requirements
  - All providers performing official services held to the same standard of proficiency.
  - Effective November 1, 2016, Licensed Inspectors (LI) and FGIS Agricultural Commodity Graders (ACG) will be required to score a minimum test score of 80% on written and practical exams.
- Grandfathered In
  - Official personnel already licensed or authorized will not be required to retake examinations.
  - Licensed or authorized personnel approved to grade limited grains and/or commodities but who will take additional examinations after the effective date will be required to achieve a minimum passing score of 80%.



## Slide 21: Video Proctoring of Licensing Exams

### Video Proctoring of Licensing Exams



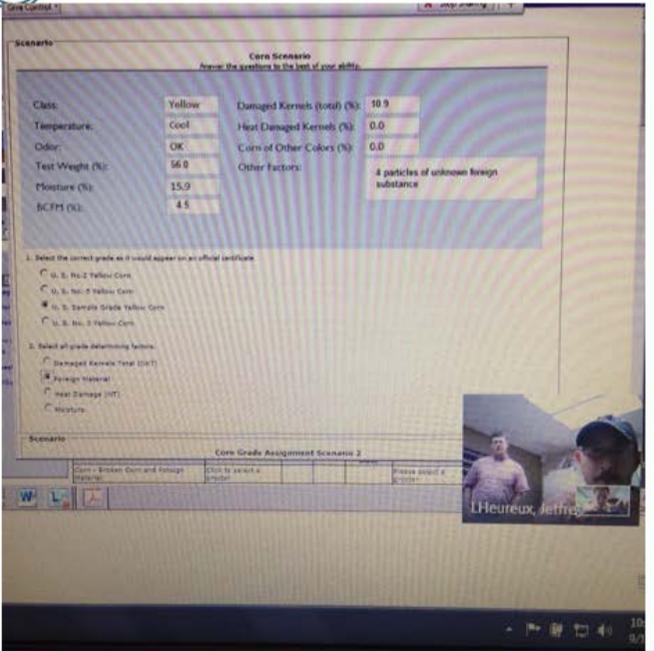
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## Slide 22: Video Proctoring of Licensing Exams

### Video Proctoring of Licensing Exams

- 13 video pilots performed in FY 16
- Reduced travel & labor costs for FGIS and OSPs
- Analyzing performance to demonstrate equivalence



Class:	Yellow	Damaged Kernels (total) (%)	10.9
Temperature:	Cool	Heat Damaged Kernels (%)	0.0
Odor:	OK	Corn of Other Colors (%)	0.0
Test Weight (lb):	56.0	Other Factors:	4 particles of unknown foreign substance
Moisture (%):	15.0		
BCFI (%)	4.5		

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## Staffing Initiatives - Building Beyond Program

- 2-year hiring and training program for new ACGs to replace retiring graders and supervisors
- Each trainee has a mentor and is given developmental assignments at different locations.
- The program covers the following areas:
  - GSA, AMA, and Regulations
  - Stowage Examinations
  - Sampling
  - Grading various commodities
  - Weighing
  - Fumigation



## Staffing Initiatives - Building Beyond Program

- Job announcements are placed on USAJobs.gov and go out to over 100 colleges and universities:
  - 1890 Schools
  - American Indian Schools
  - Spanish Language Schools
  - Major Agricultural Universities



## Staffing Initiatives - Building Beyond Program

- The third class, selected in 2015, had four trainees selected under the PATHWAYS program.
- Mobility clause – new in FGIS
- Four trainees were transferred to a second duty station after 6 months of intensive training at their initial duty station.



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## Staffing Initiatives - Building Beyond Program

- The fourth class started January 2016.
- 9 trainees; 5 stationed at Toledo and 4 at DIOO in KC.
- 6 months of intense inspection training before being reassigned.
- 6 recent grads being placed in November 2016.
- Using lessons learned for next class.



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# GIPSA Financial Update

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**GRAIN INSPECTION ADVISORY COMMITTEE**

**DENISE RUGGLES**  
**FGIS EXECUTIVE PROGRAM ANALYST**  
**OCTOBER 19, 2016**

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## Topic Points

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- Program Financial Data
  - Status of Funds Period 11 (August) actuals
  - End of Year estimates obligation & revenue, UF CAP
- FY17 CR and User Fee CAP
- FY17 Target dates for financial data

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Slide 3: User Fee programs

## GIPSA User Fee Programs

### U.S. Grain Standards Act

- Inspection and Weighing Program (520)
- Supervision of Official Agencies Program (530)

### Agricultural Marketing Act

- Rice Inspection Program (570)
- Commodity Inspection Program (580)

Funds available until expended; balances carry forward.

GIPSA has a User Fee obligation (cost) CAP on spending, which is subject to sequestration laws. The temporary sequestration amount FY2016 \$3.063M.



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Slide 4: inspection and Weighing Program

## Inspection and Weighing Program

FY	Revenue	Obligations	Earnings/(Loss)	Operating Reserve <sup>1/</sup>
2007	\$31,408,894	\$30,526,565	\$882,329	\$3,638,142
2008	\$35,996,736	\$33,447,549	\$2,549,187	\$6,330,532
2009	\$31,192,780	\$33,263,593	(\$2,070,813)	\$4,673,916
2010	\$36,887,797	\$35,474,405	\$1,413,392	\$6,527,766
2011	\$37,652,241	\$36,557,052	\$1,095,189	\$7,993,300
2012	\$28,160,218	\$34,285,325	(\$6,125,108)	\$1,868,192
2013	\$29,841,211	\$33,265,438	(\$3,424,227)	(\$1,191,390)
2014	\$43,480,554	\$37,469,677	\$6,010,878	\$5,923,708
2015	\$44,959,118	\$38,088,040	\$6,871,078	\$12,895,837
2016 - 11 mo. <sup>2/</sup>	\$40,783,267	\$35,799,915	\$4,983,352	\$17,879,189

<sup>1/</sup> Includes prior year adjustments after Annual Reporting is finalized in October of each year.

<sup>2/</sup> Revenues and Costs for Status of Fund Period 11.



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## Slide 5: Supervision of Official Agencies Program

### Supervision of Official Agencies Program

FY	Revenue	Obligations	Earnings/(Loss)	Operating Reserve <sup>1/</sup>
2007	\$2,307,230	\$1,793,710	\$513,520	\$1,962,599
2008	\$2,466,429	\$1,867,118	\$599,311	\$2,580,862
2009	\$2,154,751	\$1,951,680	\$203,071	\$2,790,572
2010	\$2,448,826	\$1,947,928	\$500,898	\$3,427,010
2011	\$2,429,075	\$1,829,112	\$599,963	\$4,074,659
2012	\$2,082,600	\$1,271,124	\$811,476	\$4,886,136
2013	\$1,981,272	\$1,125,409	\$855,863	\$6,236,178
2014	\$2,316,588	\$1,215,430	\$1,101,158	\$7,030,566
2015	\$2,332,014	\$1,360,991	\$971,023	\$8,255,103
2016 - 11 mo. <sup>2/</sup>	\$1,905,178	\$1,327,733	\$577,445	\$8,832,548

<sup>1/</sup> Includes prior year adjustments after Annual Reporting is finalized in October of each year

<sup>2/</sup> Revenues and Costs for Status of Fund Period 11.



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## Slide 6: Rice Inspection Program

### Rice Inspection Program

FY	Revenue	Obligations	Earnings/(Loss)	Operating Reserve <sup>1/</sup>
2007	\$3,436,071	\$4,082,211	(\$646,140)	(\$621,721)
2008	\$4,957,409	\$4,002,587	\$954,822	\$518,858
2009	\$4,176,635	\$3,758,190	\$418,445	\$1,007,973
2010	\$5,835,841	\$4,275,487	\$1,560,354	\$2,654,231
2011	\$5,415,123	\$4,422,896	\$992,227	\$3,612,885
2012	\$5,306,073	\$4,616,119	\$689,564	\$4,302,839
2013	\$6,101,929	\$4,709,291	\$1,392,638	\$5,887,968
2014	\$5,162,801	\$4,500,694	\$662,107	\$6,648,057
2015	\$6,931,436	\$5,129,309	\$1,802,127	\$8,450,184
2016 - 11 mo. <sup>2/</sup>	\$5,159,809	\$4,715,187	\$444,622	\$8,894,806

<sup>1/</sup> Includes prior year adjustments after Annual Reporting is finalized in October of each year

<sup>2/</sup> Revenues and Costs for Status of Fund Period 11.



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## Slide 7: Commodities Inspection Program

### Commodities Inspection Program

FY	Revenue	Obligations	Earnings/(Loss)	Operating Reserve <sup>1/</sup>
2007	\$1,951,882	\$2,399,453	(\$447,571)	\$1,824,185
2008	\$2,281,910	\$2,485,943	\$204,033	\$1,713,529
2009	\$2,409,025	\$2,755,096	(\$346,071)	\$1,475,496
2010	\$3,922,383	\$3,554,855	\$367,528	\$1,974,067
2011	\$2,703,674	\$2,810,566	(\$106,892)	\$2,006,530
2012	\$2,299,463	\$2,942,925	(\$643,462)	\$1,363,068
2013	\$2,468,450	\$2,938,789	(\$470,339)	\$1,551,486
2014	\$2,789,335	\$2,917,111	(\$127,775)	\$1,155,459
2015	\$2,981,485	\$3,129,262	(\$147,777)	\$1,007,682
2016 - 11 mo. <sup>2/</sup>	\$2,860,457	\$3,048,892	(\$188,435)	\$819,247

<sup>1/</sup> Includes prior year adjustments after Annual Reporting is finalized in October of each year

<sup>2/</sup> Revenues and Costs for Status of Fund Period 11.



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## Slide 8: Grain Regulatory Program

### GIPSA Grain Regulatory Program (Appropriated) (Dollars in Millions)

#### Annual Appropriated Funding for:

- GSA Compliance Activities
- Methods Development Activities
- Standardization Activities

Funds available one year; “use or lose” balances.

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Discretionary Appropriations	\$17.61	\$17.61	\$17.97	\$18.27	\$17.79	\$16.48	\$16.47	\$17.91	\$19.08	\$20.00*



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**Slide 9: User Fee Account**

FY16 User Fee Account Estimates

FMMI - Year End Estimated 10/13/16	Estimated Revenue	Estimated Obligations	Estimated Net
I&W - 520	\$ 46,161,113	\$ 38,339,704	\$ 7,821,408
OA Supv - 530	\$ 1,905,178	\$ 1,385,807	\$ 519,371
Rice - 570	\$ 5,805,757	\$ 5,206,456	\$ 599,301
Commodity - 580	\$ 3,450,346	\$ 3,473,902	\$ (23,556)
<i>Total</i>	\$ 57,322,394	\$ 48,405,869	\$ 8,916,525

User Fee CAP \$51,936,589, estimated to be \$3.5M under CAP



**Slide 10: CR and User Fee Cap**

FY17 CR and User Fee CAP

- FY17 CR thru 12/09/2016
- FY17 User Fee CAP \$55M, Sequestration \$3.014M
- FY17 Appropriated Funding CR \$3.576M



## Slide 11: FY17 Target Dates

### FY17 Target dates

- 520 Export 5 year rolling average tonnage – Target 10/17/2016
- FY16 Financial Data posted to website – Target 11/15/2016
- 520 Fee Analysis review with draft FR – Target 11/21/2016
- 580 Fee Analysis review with draft FR – Target 03/06/2016
- 530 Fee Analysis review with draft FR – Target 03/27/2017



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## Slide 12: Questions

# Questions?



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# FGISonline

**Karen Guagliardo**  
FGIS Executive Systems Manager,  
Office of the Deputy Administrator

 **USDA**  
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**Slide 2: Services Workflow Management Project**

## Services Workflow Management Project

- Automation of:
  - Service Requests
  - Billing/Charges
  - Certification

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**Slide 3: Services Workflow Management Project**

## Services Workflow Management Project



**FY 2016:**

Diagrammed Process flows

Designed the Architecture

Planned the Infrastructure

Created 90+ screen shots for the project



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**Slide 4: Services Workflow Management Project**

## Services Workflow Management Project



**FY 2017:**

Develop the Service Request module

Implement the Architecture and

Infrastructure



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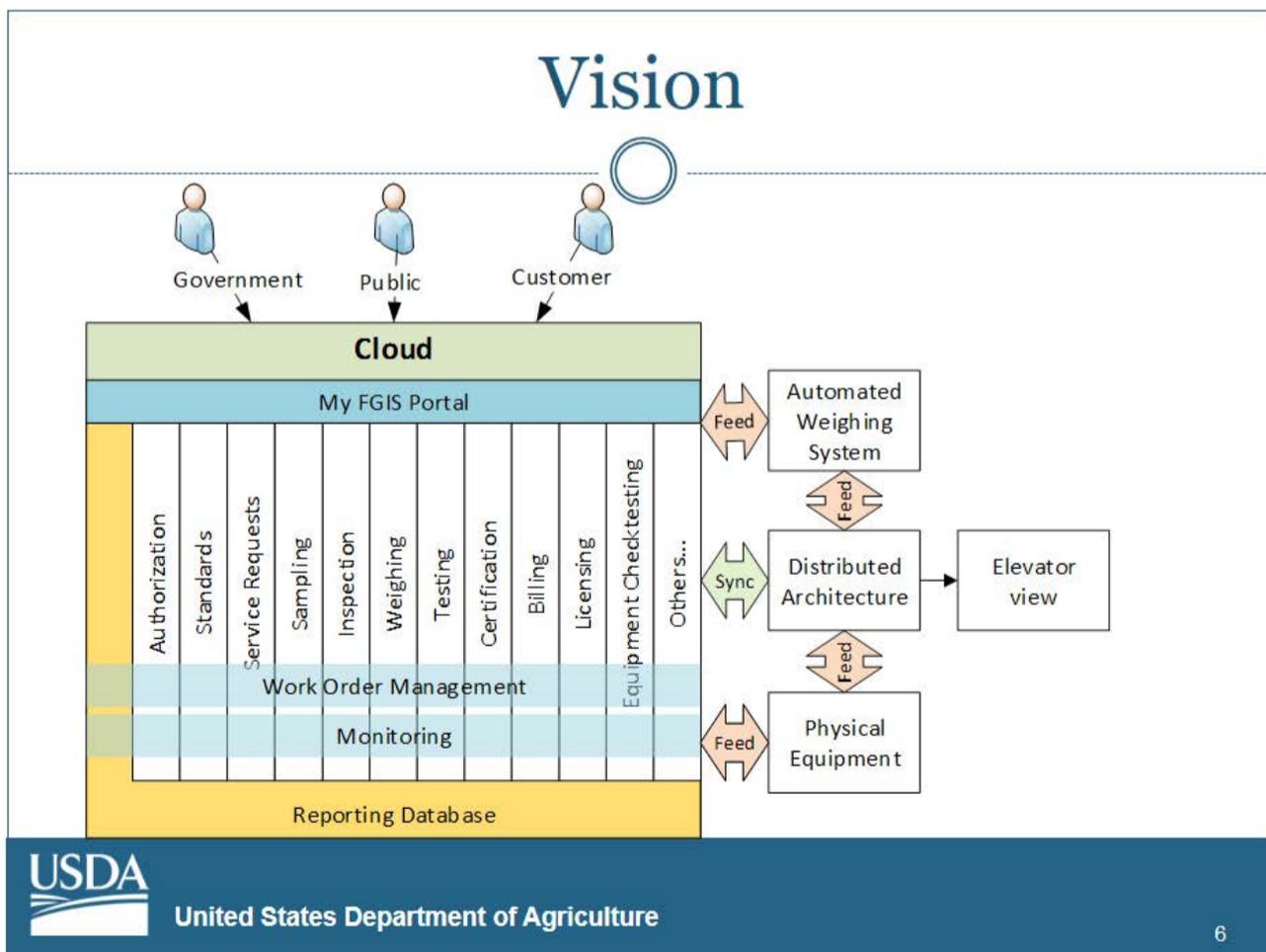
# Services Workflow Management Project

Future:  
Develop the Automated Billing  
Enhance Certification to allow for preview  
Tie in the Lab Data Automation



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## Slide 6: Vision



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## Benefits



- Improve Mission Performance
- Increase Customer & Employee Satisfaction
- Enhance Information Available to Customers
- Increase Amount of Quality Assurance Data Available
- Improve Quality Assurance
- Improve FGIS Service Delivery Efficiency



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Slide 1: Title

**International Activities**

**GRAIN INSPECTION ADVISORY COMMITTEE**

**BYRON E. REILLY**  
**DIRECTOR**  
**DEPARTMENTAL INITIATIVES AND**  
**INTERNATIONAL AFFAIRS**  
**OCTOBER 19, 2016**

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Slide 2: DIIA Activities and Initiatives

**DIIA Activities & Initiatives**

- Asia Pilot Project – Brian Adam
- Cuba Team Visit
- International Trade Issues
- International Sampling Methods
- International Grain Standards
- Foreign Complaints

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### Slide 3: Southeast Asia

## International Grain Market Specialist in S.E. Asia

- Deployed September
  - Brian Adam - 4 weeks
  - Ronald Bundy – 2 weeks
    - ✦ Worked with USWA and FAS
  - Malaysia, Thailand, Singapore, Philippines, Japan
  - Received very positive feedback
  - Requests for more wheat grading seminars



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### Slide 4: Kuala Lumpur, Malaysia

## Kuala Lumpur, Malaysia

- Met with FAS staff and was briefed on U.S. grain exports to Malaysia
- Base of operations for Southeast Asia outreach
- Unable to meet with mills due to holidays



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## Slide 5: Bangkok Thailand

# Bangkok, Thailand

## FAS/USWA

- Thai Feed Mill Association
- King Milling Co.
- United Flour Mill Public Co.
- Laemthong Corporation



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## Slide 6: Singapore

# Singapore

## Matt Weimar, USWA

- Prima Limited
- Wilmar Trading Co.



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Slide 7: Manila Philippines

# Manila, Philippines



Joe Sowers, USW

- Morning Star Milling Corporation
- Philippine Foremost Milling Corporation
- Ascott hotel seminar



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Slide 8: Morning Star Milling Corporation

# Morning Star Milling Corporation



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Slide 9: Morning Star Mills

# Morning Star Mills



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Slide 10: Philippine Foremost Milling Corporation

# Philippine Foremost Milling Corporation



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## Ascott Bonifacio Seminar

- Introduction to FGIS, Board of Appeals and Review, and FGIS internal quality controls
- Mandatory FGIS services and optional services
- Wheat inspection procedures
- Inspection loading plans: Average, CuSum, and Absolute limits
- FGIS documents: Certificates, Letterhead statements, Load order, and Loading log



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## Slide 12: Tokyo, Japan

### Tokyo, Japan

#### FAS/USWA/USGC

- Round table meeting with feed grain industry at the US Embassy
  - Japan Feed Trade Association
  - Zen-Noh
  - Japan Feed Manufacturers Association
- Meeting with OMIC
- Japan Grain Inspection Association (Kokken)
- Showa Sangyo Plant Tour



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Slide 13: Showa Sangyo Plant Tour

## Showa Sangyo Plant Tour



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Slide 14: Kashima Port Showa Docks

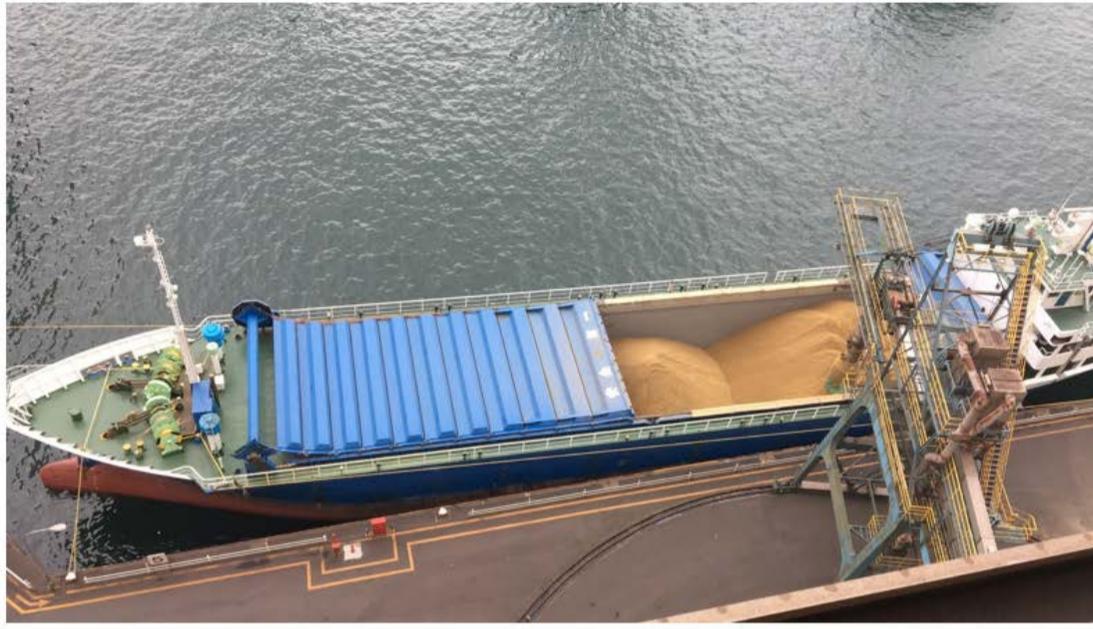
## Kashima Port, Showa Docks



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## Loadouts



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## Slide 16: Benefits of Outreach

### Benefits of Outreach



- Educate importers on FGIS' export quality control processes
- Harmonize visual inspection standards across Southeast Asia
- Promote FGIS policy, procedures, and methodology
- Update importers on changes to FGIS policy and R&D projects
- Build trust and confidence in the quality of U.S. grain exports



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## Cuba Team Visit TSD

- Visit to TSD required FAS and State Dept. clearance
- Kansas Wheat Commission sponsored
- K-State International Grains Program
- Cuban Minister-Counselor Economics and Trade
  - Three people from 2 wheat mills
  - Good information exchange
    - ✦ Impressed with FGIS quality control/impartial analysis
  - Need to buy on credit terms
    - ✦ Prefer U.S. corn, wheat, soybeans, sorghum, rice



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## Slide 18: International Trade Issues

### International Trade Issues

- Egypt zero limit on ergot lifted
- China's import/export grain law
  - Producers, handlers, storage, export facilities must register
  - Submitted FGIS' list of registered export facilities
  - Proposed travel to China



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## International Sampling Methods

- **IMPORTERS**
- **Egypt**
  - Grain other than wheat, Min. of Ag. Use probe
  - Wheat, sampled by Min. of Trade – not standardized
- **China**
  - Probe, small hand scoop, D/T at 2 ports
- **Mexico**
  - Probe, belt sampling, D/T
- **Korea**
  - Probe, sling cup
- **Japan**
  - Probe, D/T
- **Belgium**
  - belt sampling (stopped) remove a 1-meter section of grain

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## International Sampling Methods

### EXPORTERS

- **Argentina**
  - Compartmented pneumatic probe for trucks;
  - Cone-shape device on pole for belt sampling for ships every 500 MT
    - Yields non-representative samples
- **Brazil**
  - Vacuum probes for trucks;
  - Cylinder/can on pole for belt sampling for ships; 4 samples/500 MT
- **Canada**
  - D/T samplers
- **France**
  - 1 quart scoops of truck dumps and probed
  - D/T at exports

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## Slide 21: International Grain Standards

# International Grain Standards

- Exporting Countries
  - **Argentina**
    - × Standards reviewed annually based on crop quality
      - Change from old crop to new crop standards
      - Traders advised to review frequently
    - × Corn
      - FM & Broken separate factors
        - Combined- higher than U.S. BCFM levels
    - × Wheat
      - FM & DKT almost double limit from U.S. for top 3 grades
      - Limits on smut damage
    - × Soybeans
      - Only #1 grade
      - 3% FM vs. 1% for U.S. #1
      - Splits same as U.S.
  - **Brazil**
    - × Soybeans
      - Cleaned at 1<sup>st</sup> delivery point
      - Less FM than U.S.
      - Higher oil content
      - Lower protein than U.S.
  - **Australia**
    - × Wheat - standards change based on annual crop quality
      - Varietal controls
      - Producers clean wheat
      - Spec % moisture, protein, ash, FN, flour extraction rates
      - Damage type by count per ½ liter (ie. Frost max 6 kernels; HT max 1 kernel)
      - Allow weed seeds – amounts and type vary among standards and classes



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## Slide 22: International Grain Standards

# International Grain Standards

- Exporting Countries
  - **Canada**
    - × Grain cleaned at export terminals
    - × Strict varietal controls
    - × Annual standard quality samples
  - **France**
    - × Wheat FM% off farm is <0.5%
    - × Fumigated at delivery point
    - × Wheat binned by variety/baking characteristics on farm and delivery points (eg. 100,000 MT facility has 120 small silos)
  - **Ukraine**
    - × Use Russian GOST standards
    - × Wheat standards (milling)
      - Moisture –max 14.5%
      - Toxic weed seeds – 0.05% by weight
      - Mycotoxin maximum limits
      - DHV – HRS & HRW 40%, HVAC 40%, HWW 60%
      - for 5 grades (sprout, protein, wet gluten)
      - Spec for top 3 grades
        - Impurities (5%, 8%, 8%)
        - Smut (5%, 5%, 8%)



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## International Grain Standards

- Importing Countries

- China

- ✦ Imports inspected using U.S. standards but:

- Max 1% FM for all grains, not enforced

- Weed seeds – zero tolerance on quarantine seeds, not enforced

- Mexico

- ✦ Standards mirror U.S., but not inspection methods



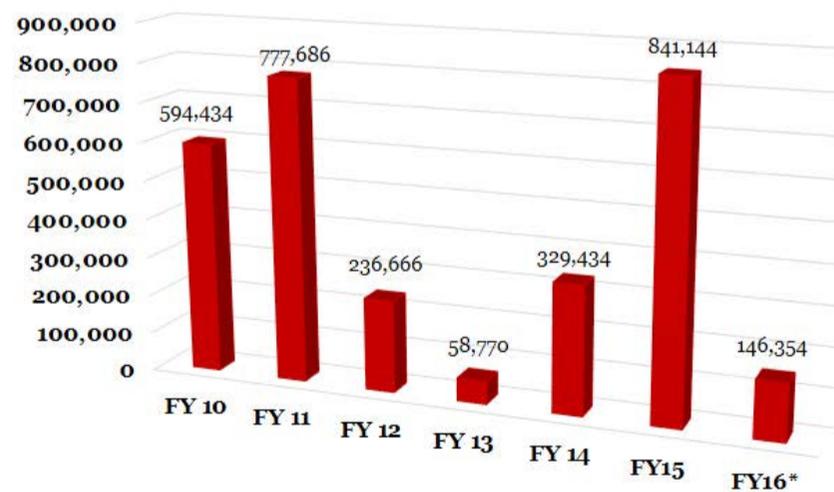
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## Slide 24: Importer Complaints

### Importer Complaints

Metric Tons



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Slide 1: Title

**NIRT Equivalency Project**

---

**GRAIN INSPECTION ADVISORY  
COMMITTEE MEETING  
OCTOBER 19, 2016**

**DR. CHARLES HURBURGH  
IOWA STATE UNIVERSITY**

 **United States Department of Agriculture**  
Grain Inspection Advisory Committee Meeting, October 2015

Slide 2: Project 1 – GIAC Resolution

**GIAC Resolution**

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**June 2013 Resolution –**  
“The Advisory Committee recommends that GIPSA initiate research to determine the feasibility of extending the theory of “equivalency” to multiple-constituent instruments in order to utilize standardized technology while maintaining accuracy and consistency in measurement of wheat protein.”

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### Slide 3: Challenges to Approving Multiple NIR Models

## Challenges to Approving Multiple Official NIR Models

- Customers demand highly accurate and consistent official NIR measurements
- NIR calibrations are more costly and complex than UGMA calibrations to develop and maintain
- Equalizing differences across NIR models to reduce sample-by-sample variation may be difficult
- Replacing current official NIR units with new technology is potentially expensive



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### Slide 4: Cooperative Agreement Phase 1

## NIR Equivalency Study – Cooperative Agreement Phase 1

- Initiated in 2014 with Dr. Charles Hurburgh – Iowa State University

#### Objectives:

- Evaluate accuracy & precision among NTEP approved instruments
- Utilize multiple instruments from 3 manufacturers
- Investigate calibration and standardization options to maximize accuracy and minimize differences
- Compare results to current NIR technology



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## Slide 5: NIR Equivalency Study

### NIR Equivalency Study

- Limit to National Type Evaluation Program models and calibrations.



Perten IM9500



Bruins  
OmegAnalyzerG



FOSS Infratec 1241

There were 5 copies of each instrument in the study.  
250 wheat samples, run 3x each in all instruments.



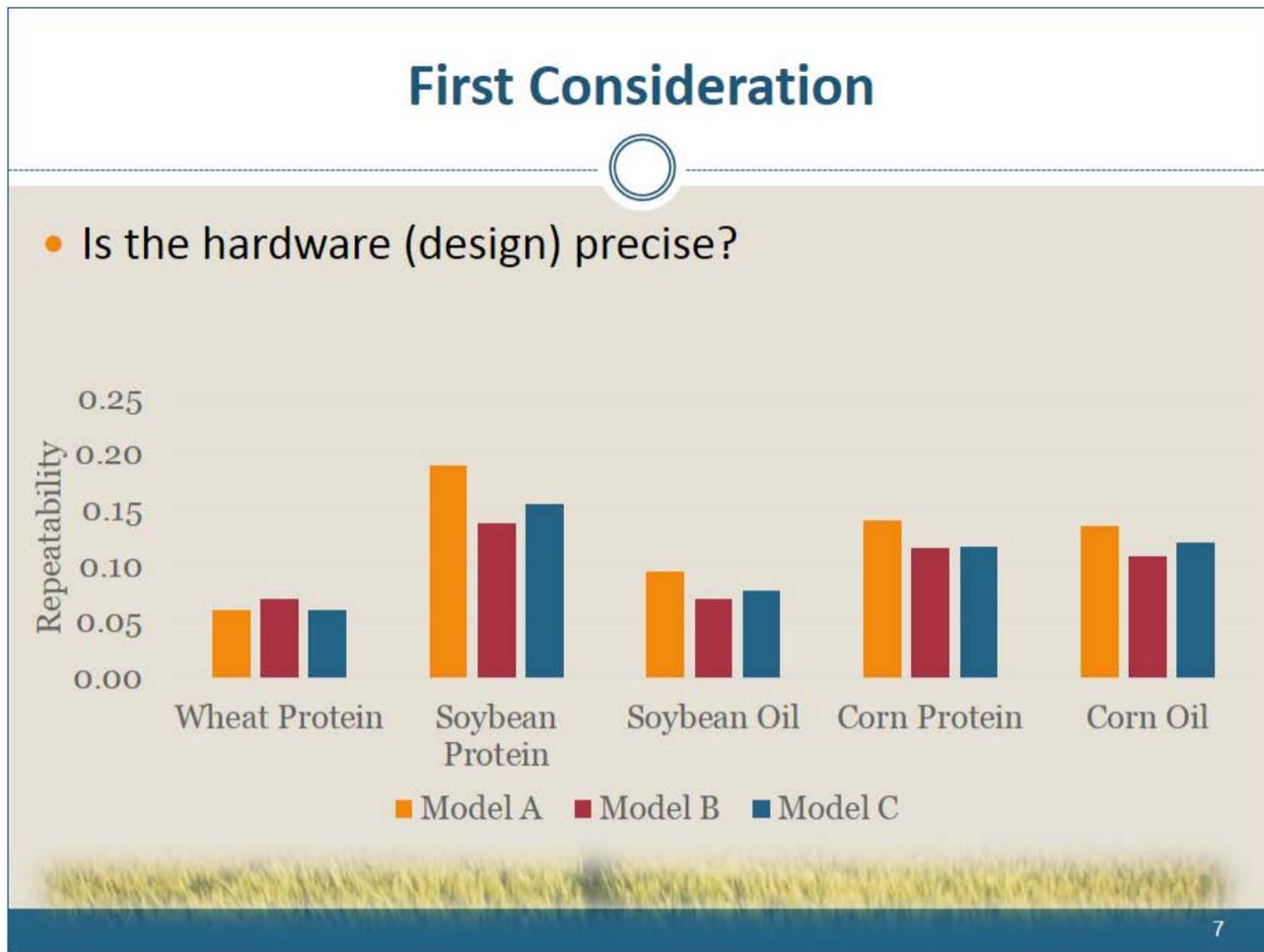
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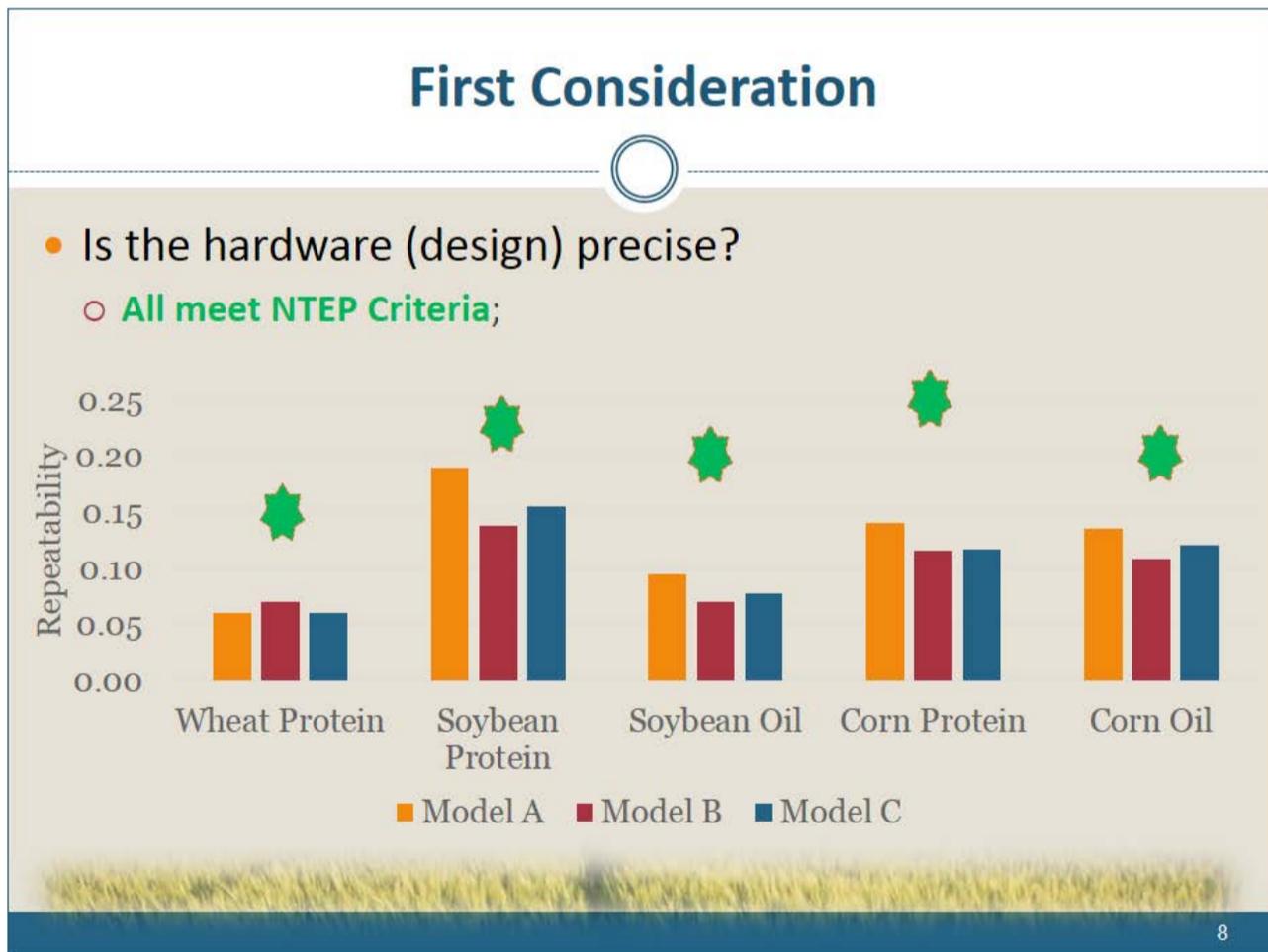
## Slide 6: Lab



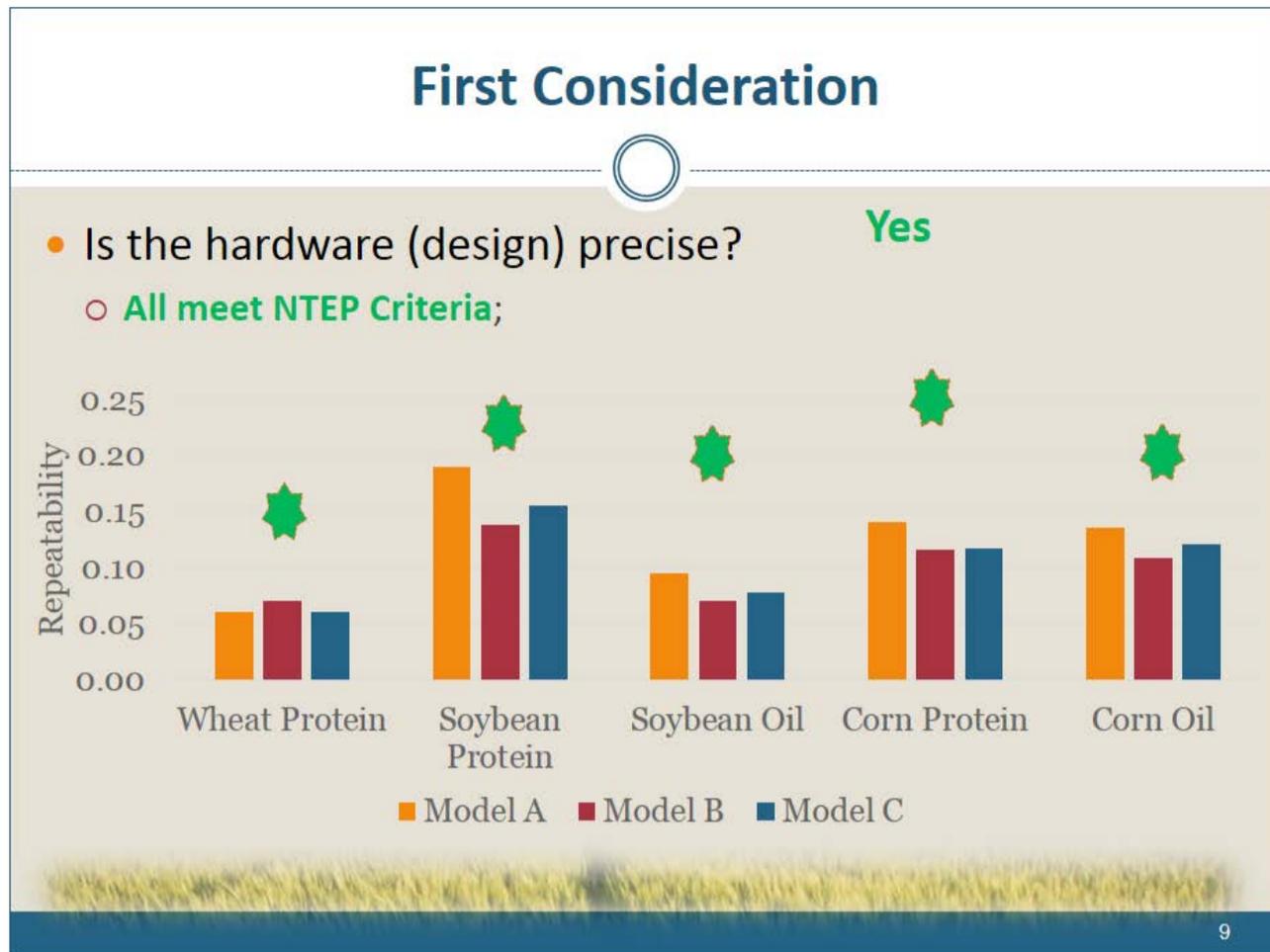
Slide 7: First Consideration



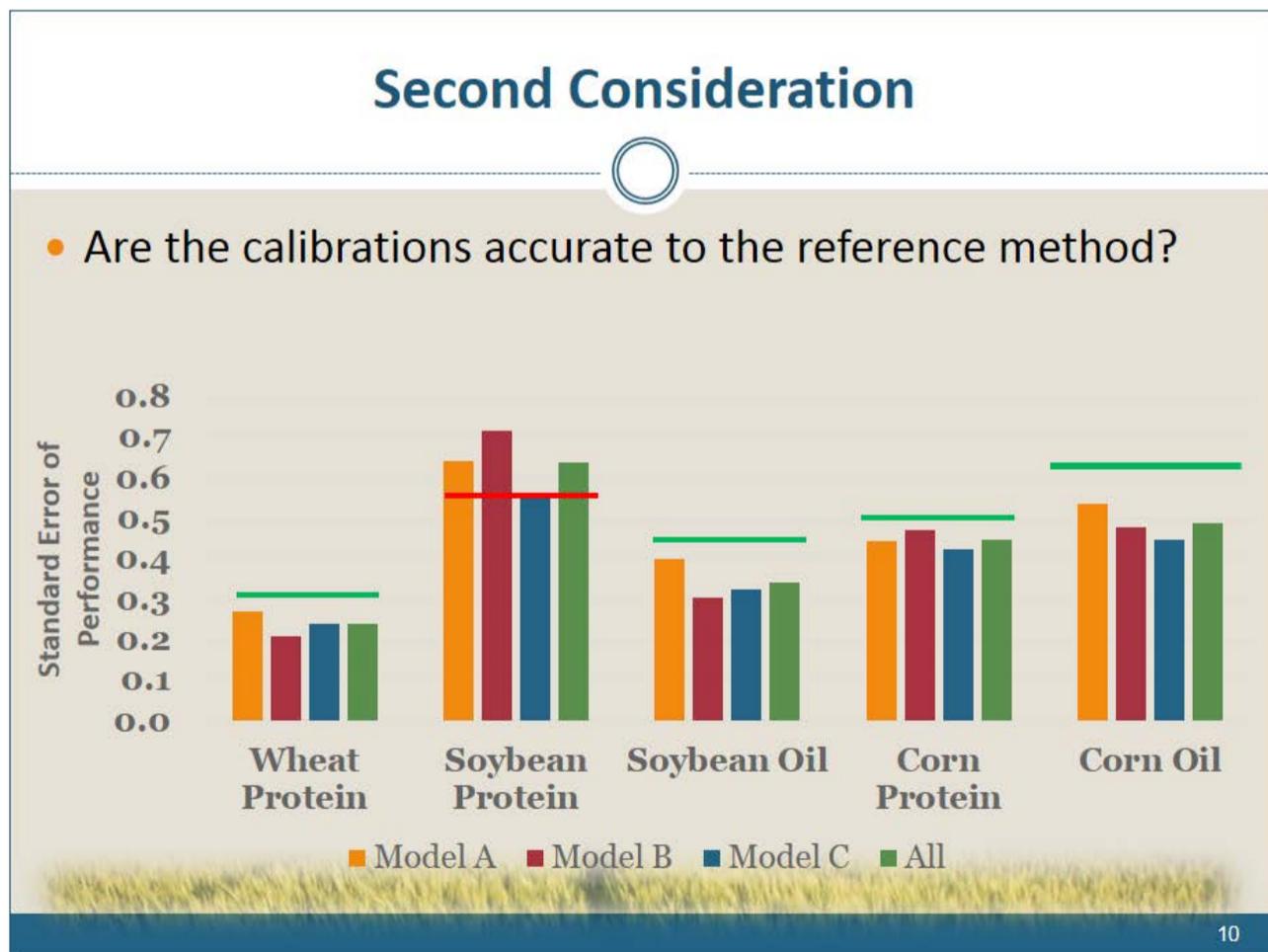
Slide 8: First Consideration



Slide 9: First Consideration



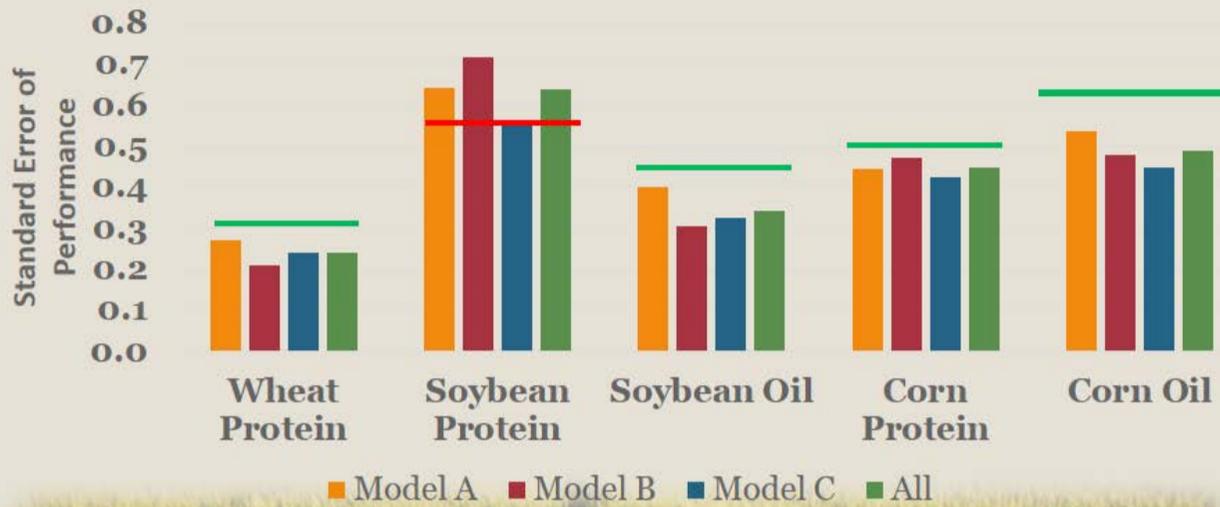
Slide 10: Project 2 – Second Consideration



## Slide 11: Second Consideration

### Second Consideration

- Are the calibrations accurate to the reference method?
  - **Close: All could be improved by including newer varieties**

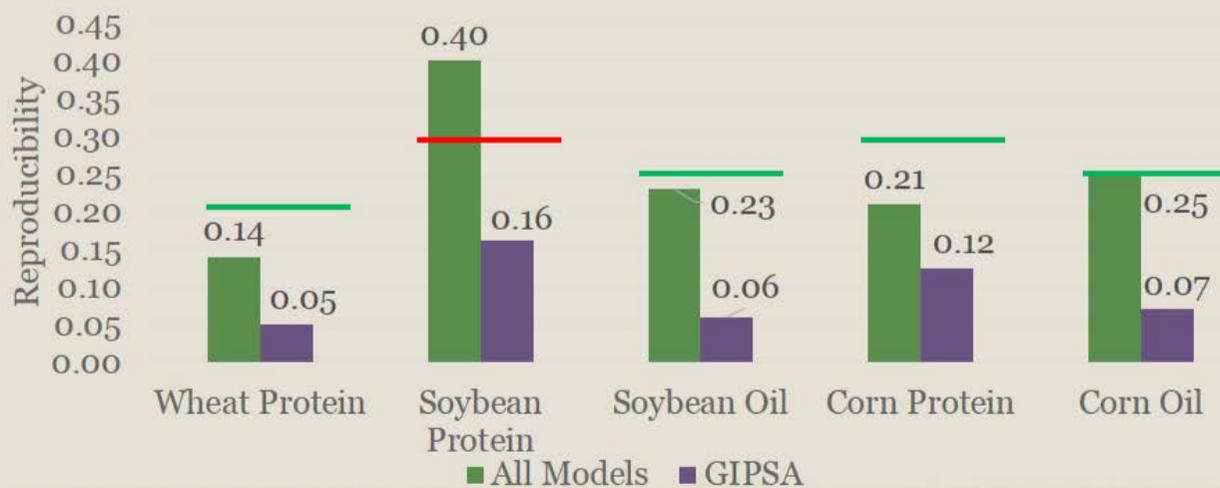


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## Slide 12: Third Consideration

### Third Consideration

- Is the agreement within and between models (equivalence) acceptable? **Yes by NTEP; No by GIPSA/ISU definition.**



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## Slide 13: Cooperative Agreement phase 2

### NIR Equivalency Study – Cooperative Agreement Phase 2

- Initiated in 2015 with Dr. Charles Hurburgh – Iowa State University

#### Objectives:

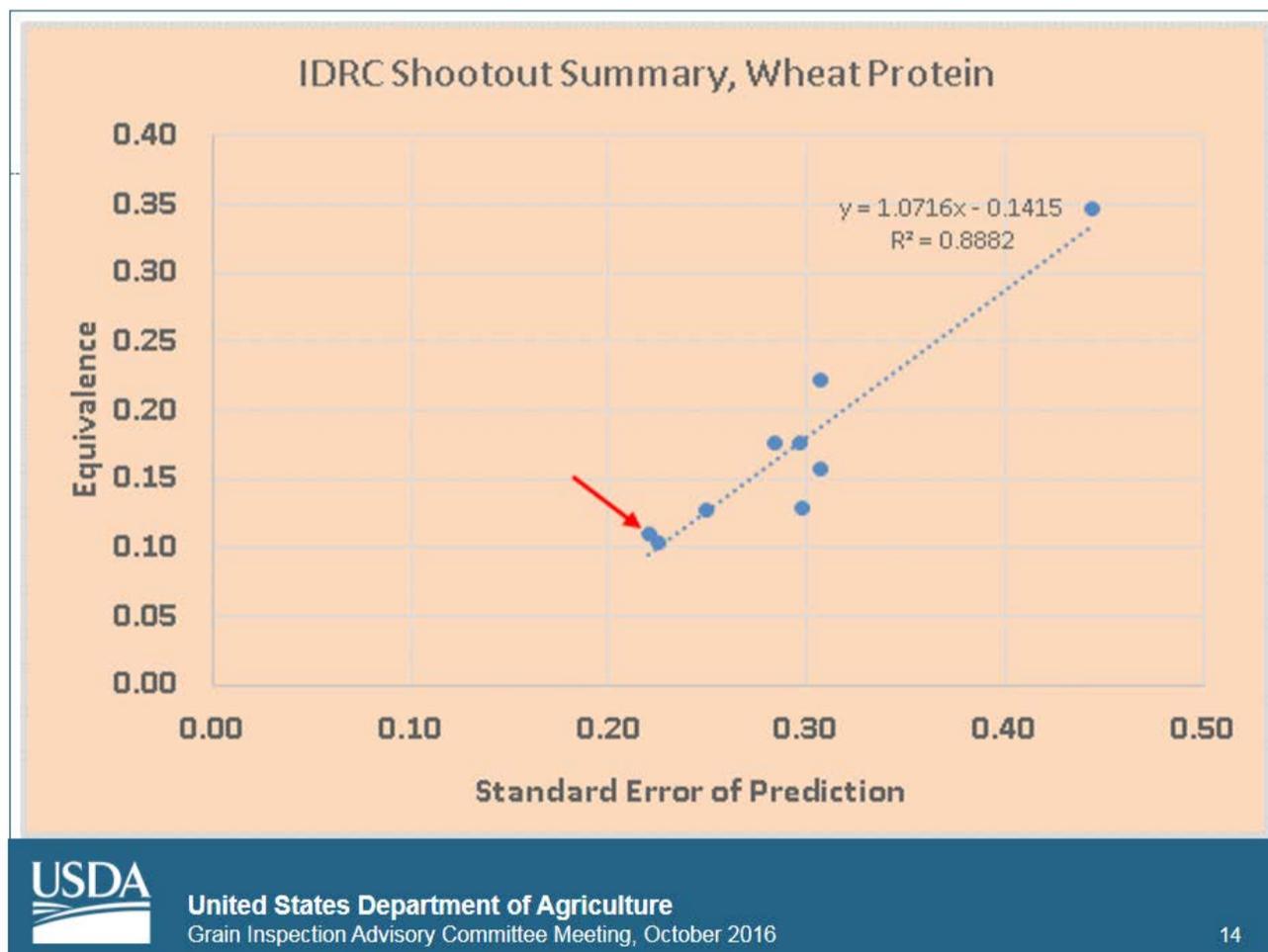
- Investigate calibration options for wheat protein to determine if the reproducibility can be reduced.
  - Iowa State University work
  - Manufacturer updated calibrations
  - International Diffuse Reflectance Conference (IDRC) competition using data set to improve agreement to reference method and reduce reproducibility



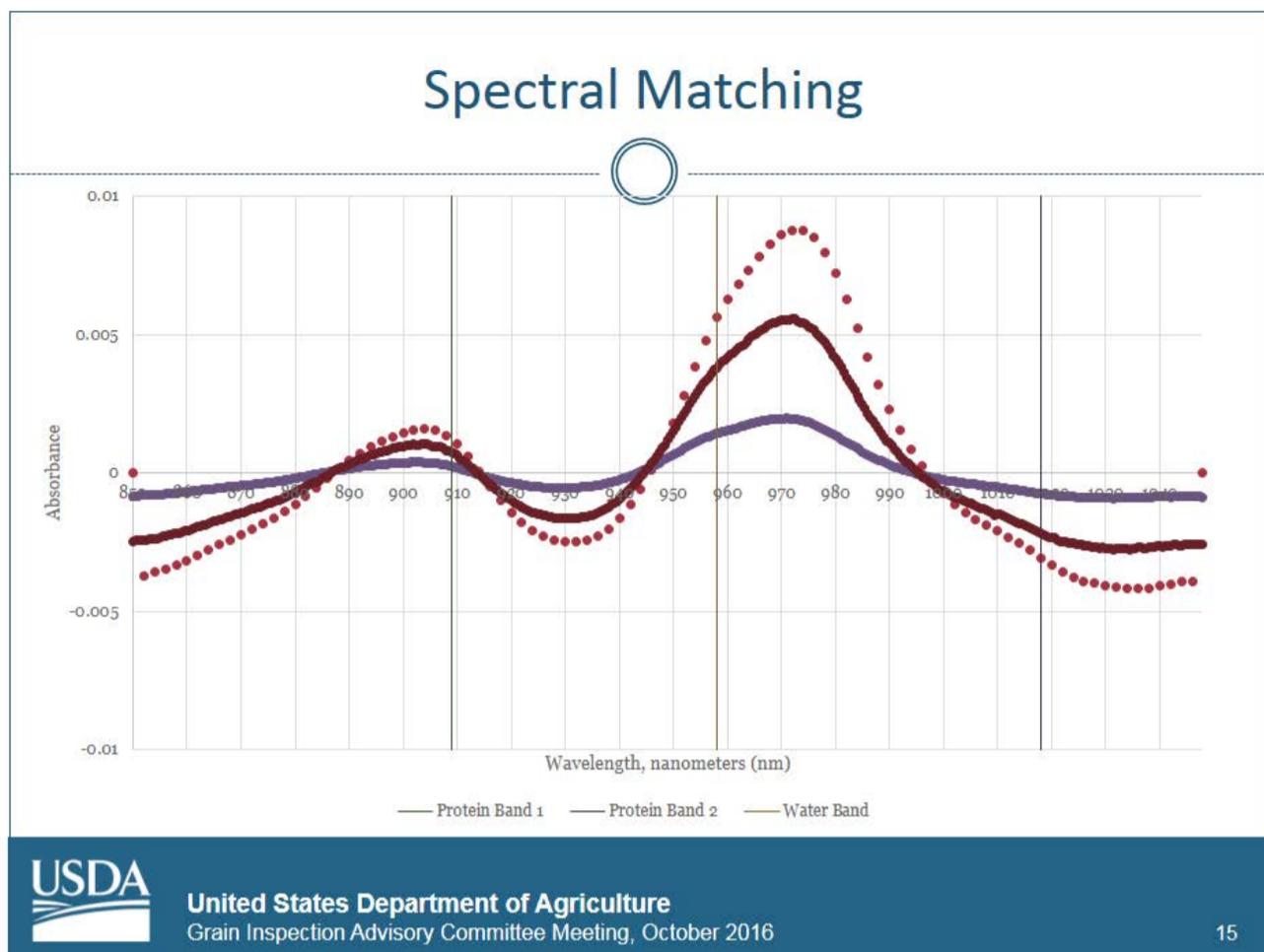
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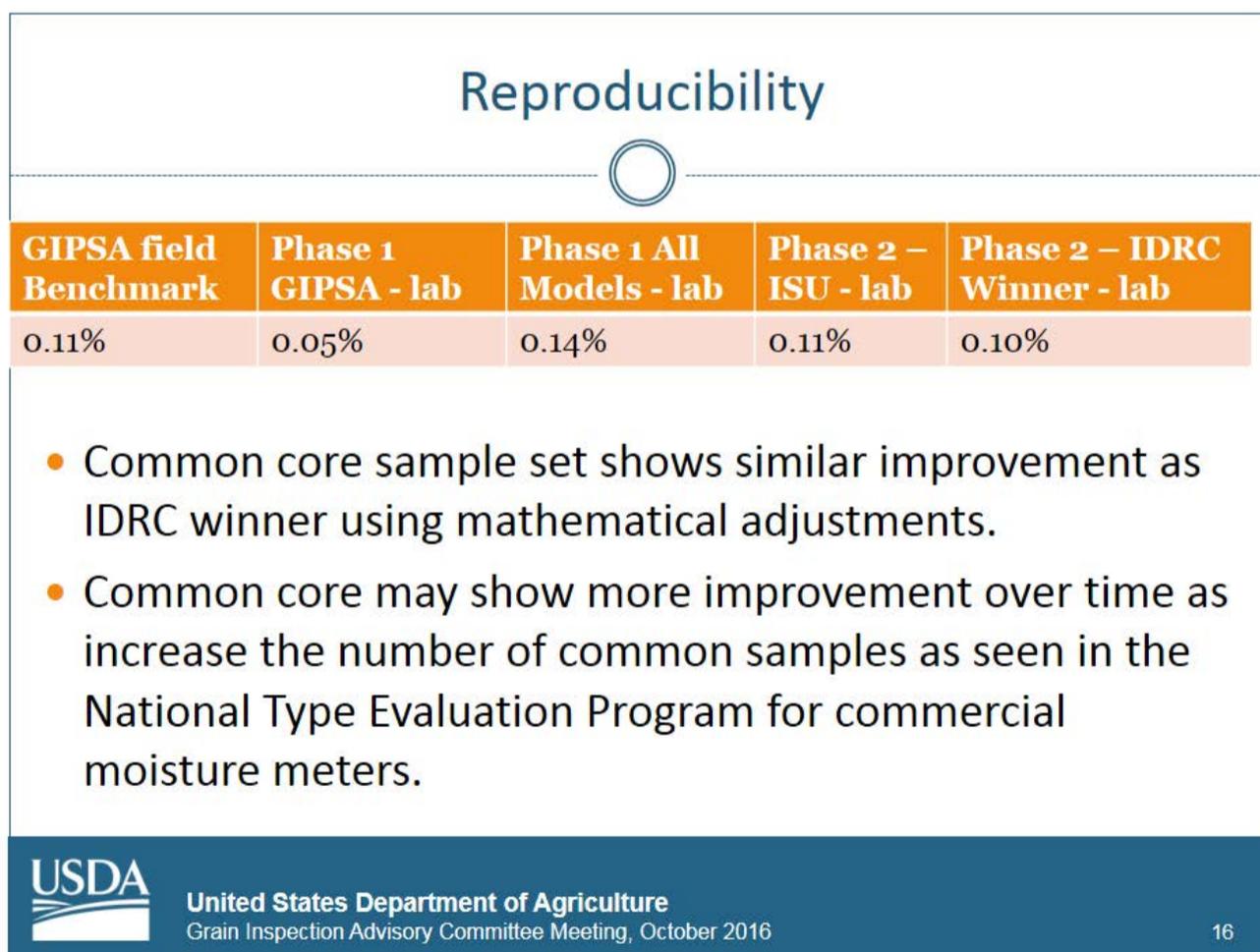
## Slide 14: IDRC Shootout Summary - Wheat Protein



## Slide 15: Spectral Matching



## Slide 16: Reproducibility



## Slide 17: Hard Red Spring Wheat

### Hard Red Spring Wheat

- Estimated range of results based a 14% protein sample with associated discounts and premiums – study results\* will most likely double in field application

	Minimum Protein	Discount/Premium	Maximum Protein	Discount/Premium
Phase 1*	13.9%	- \$0.06	14.1%	+ \$0.00
Phase 1*	13.7%	- \$0.12	14.3%	+ \$0.03
Phase 2*	13.8%	- \$0.06	14.2%	+ \$0.03
<i>Projected Phase 2 - field</i>	13.6%	- \$0.12	14.4%	+ \$0.06
Benchmark	13.8%	- \$0.06	14.2%	+ \$0.03



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## Slide 18: Summary

### Summary

- GIPSA reproducibility for all instruments in the official system resulted in an estimated range of 0.4% in protein
- Using a common core sample set in the calibration improved agreement between models in study from an estimated range of 0.6% to 0.4% in protein; however, 0.4% is still double that of GIPSA single model.
- Concern is study results will double when deployed in field to 1.2% and 0.8%.



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## Slide 19: Next Step

### NIR Equivalency - Next Step?

- What range in protein is acceptable?
  - Current performance is 0.4% estimated protein range
  - Statistics show that the majority (95%) of the samples will agree closer than 0.4% protein
- If answer can be larger, that amount needs to be defined.
- Conduct a limited field study to determine reproducibility in field environment.
- Collaborate with NIST to identify possible materials for unit specific wavelength accuracy corrections.



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## Slide 20: Questions?

### Questions?



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## GIPSA provides assistance to APHIS during GE Wheat Inadvertent Release

- USDA confirms the discovery of 22 GE wheat plants in Washington State
- GIPSA verified that plants are Roundup Ready™ resistant
- GIPSA confirmed that RR wheat is NOT the MON71800 trait
- GIPSA worked with Monsanto to optimize PCR detection methods to detect new trait
- GIPSA optimized and validated Monsanto's construct-specific detection method to detect the trait identified as MON71700
- **GIPSA's confirmation and validation of detection methods for RR wheat aids in restoring Asian wheat markets**

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### Slide 22: FGIS Quality Surveys

## FGIS Quality Surveys

- Export Cargo Survey Program
- United Soybean Export Council
- United Soybean Board/US Grains Council
- United Sorghum Producers/US Grains Council
- US Grains Council

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Slide 1: Title

# Annual Moisture Meter Calibration Review



**GRAIN INSPECTION ADVISORY COMMITTEE MEETING**  
**OCTOBER 19, 2016**

**MARY COFFEY ALONZO**  
**DIRECTOR, TECHNOLOGY AND SCIENCE DIVISION**

 **United States Department of Agriculture**  
Grain Inspection Advisory Committee Meeting, October 2015

Slide 2: Annual Moisture Performance Review

## Annual Moisture Performance Review



- May request the grain and moisture distribution from the new crop
- Annually request barley, corn, long grain rough rice, medium grain rough rice, oats, sorghum, soybeans, wheat, and sunflower seed (oil-type)
- Remaining grains and commodities requested on a set schedule

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### Slide 3: Sample Analysis and Data Review

## Sample Analysis and Data Review



- All samples tested on master UGMA System, master DICKEY-john GAC2500 UGMAs, master Perten AM5200as, and FGIS Air Oven reference moisture method
- Annually requested grains are also tested on NTEP approved moisture meters
- Alignment to FGIS Air Oven checked for all calibrations to determine if adjustments are required prior to harvest



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### Slide 4: Unified Grain Moisture Algorithm

## Unified Grain Moisture Algorithm (UGMA)



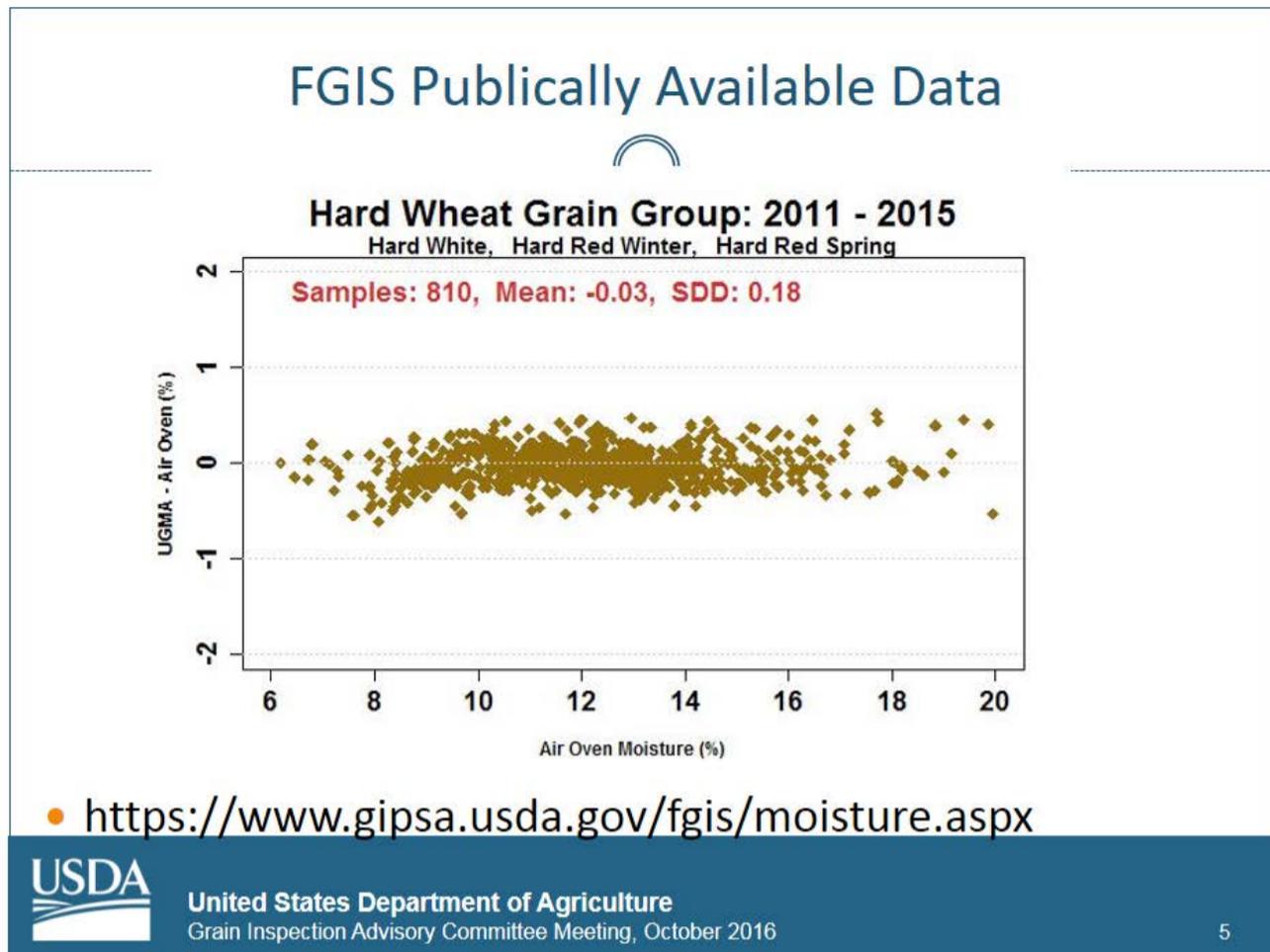
- UGMA Master System alignment to FGIS Air Oven
  - Polynomial based on 2007 – 2011 corn data
  - Grain Group specific parameters to fit the grain group onto the polynomial
  - Second Order Density Correction per Grain Group
  - Temperature Correction per Grain Group
- Loading Factors align approved models
  - To UGMA Master System
  - To FGIS Air Oven
  - To each other



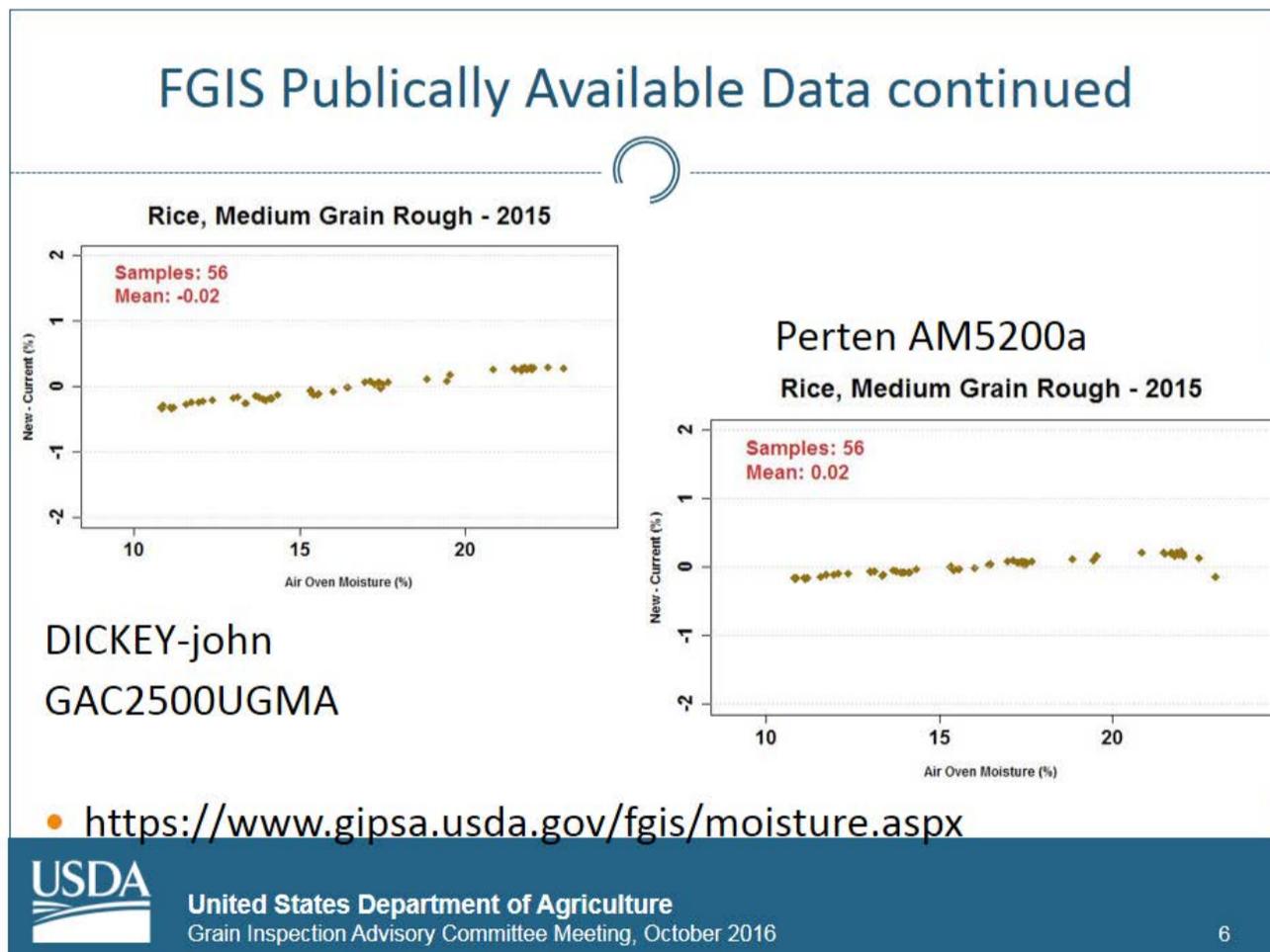
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## Slide 5: FGIS Publicly Available Data



## Slide 6: FGIS Publicly Available Data



Slide 1: Title

# Deoxynivalenol and Falling Number Inspection Programs

GRAIN INSPECTION ADVISORY COMMITTEE MEETING  
OCTOBER 18, 2016

TECHNOLOGY AND SCIENCE DIVISION

 United States Department of Agriculture

Slide 2: DON Inspection Monitoring Program

## Deoxynivalenol (DON) Inspection Monitoring Program

- October 20, 2014 – Present
  - Wheat and barley only
  - 1 sample per 100 tested each week
- Technology and Science Division
  - Sieve test
  - DON reference method
  - z-score used for evaluation of results
  - Weekly reports issued
  - 1<sup>st</sup> Annual review (April 21, 2015 – April 21, 2016)

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### Slide 3: Results from April 2015 to April 2016

## DON Inspection Monitoring Program Results

April 21, 2015 – April 21, 2016

- 160,000 official DON inspections – wheat and barley
- Statistical analysis for quantitative results
  - 799 monitor samples
  - 37 specified service points (SSPs)
  - 9 test kits
  - z-score = number of standard deviations from reference
    - ✦ necessary because uncertainty changes with concentration
    - ✦ 95% results expected to be within 2 standard deviations ( $|z| \leq 2$ )
    - ✦ 99.7% results expected to be within 3 standard deviations ( $|z| \leq 3$ )



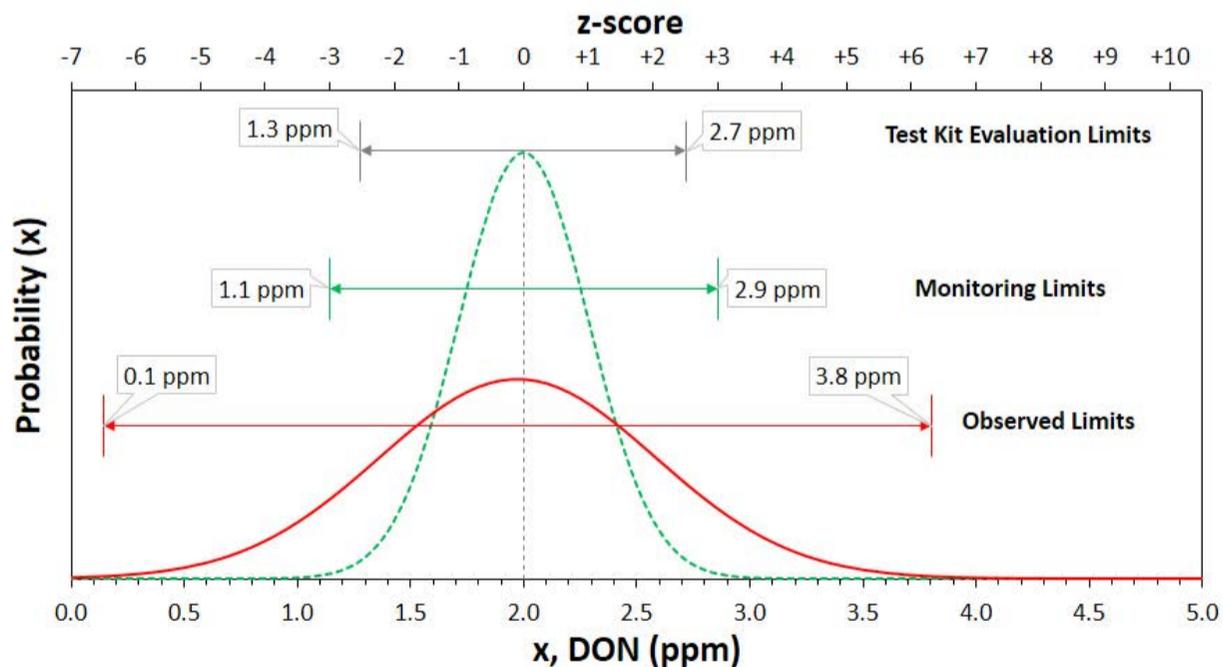
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### Slide 4: Z-Score and DON Concentration

## DON Inspection Monitoring

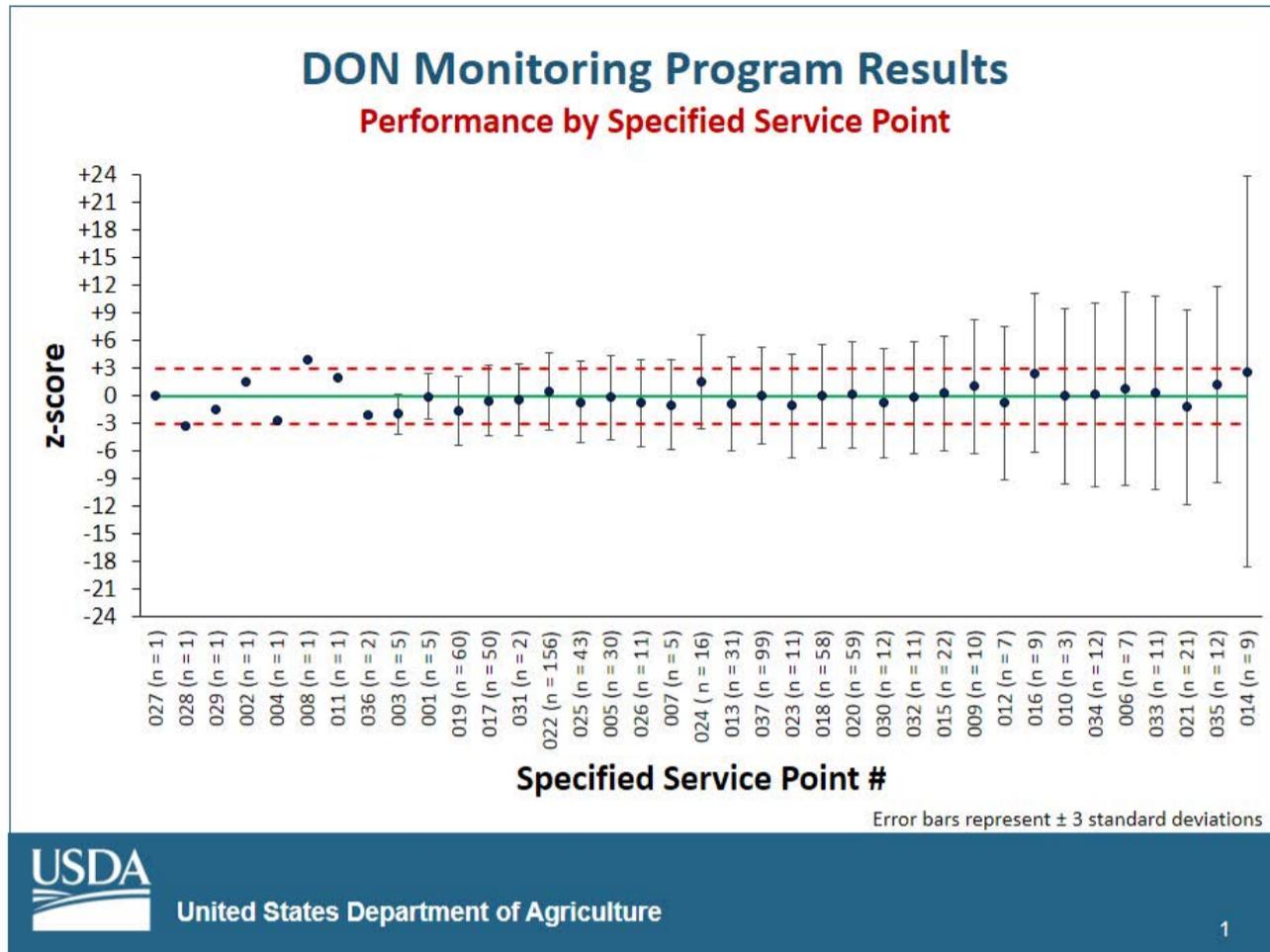
Z-score and DON concentration



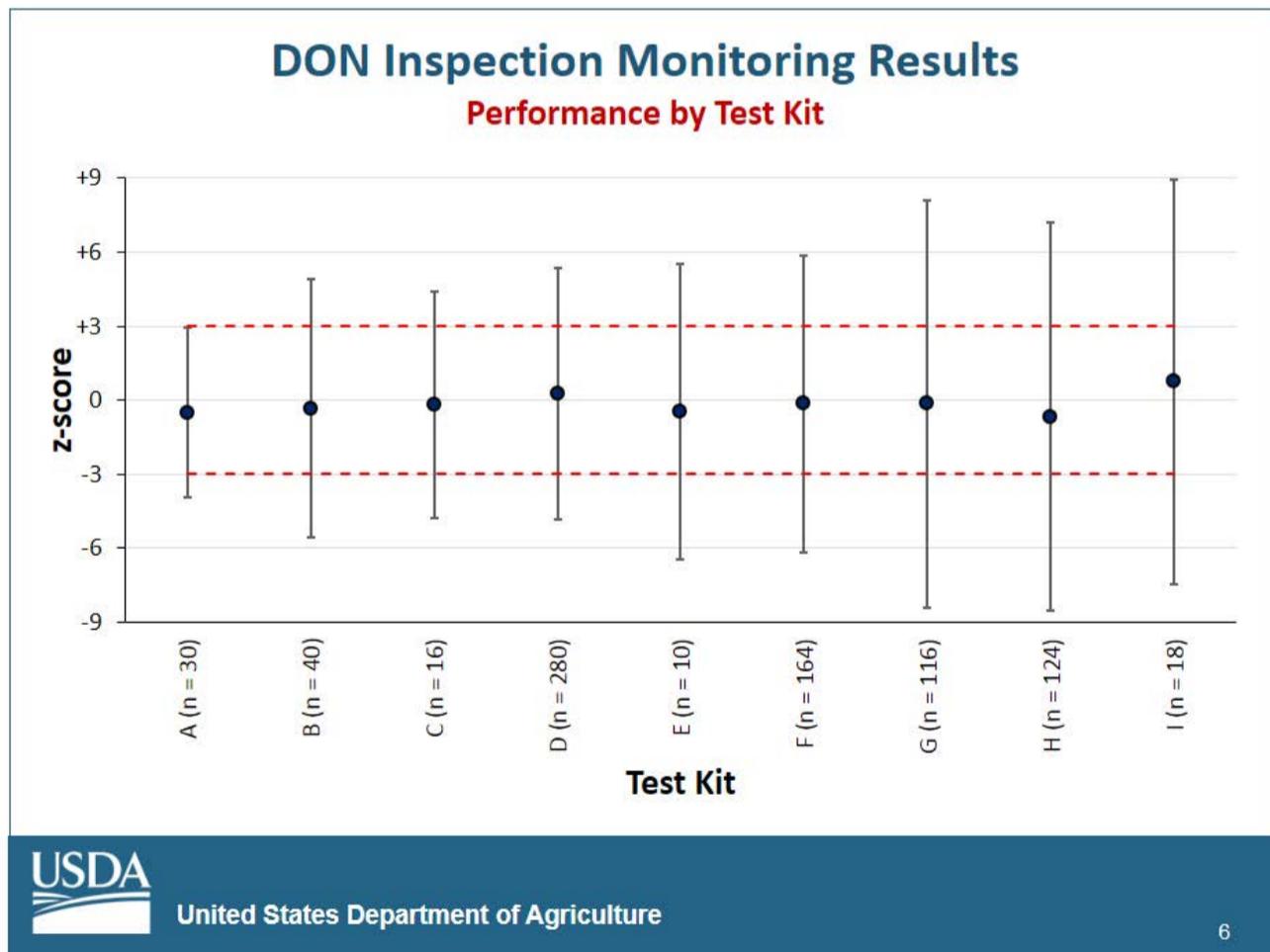
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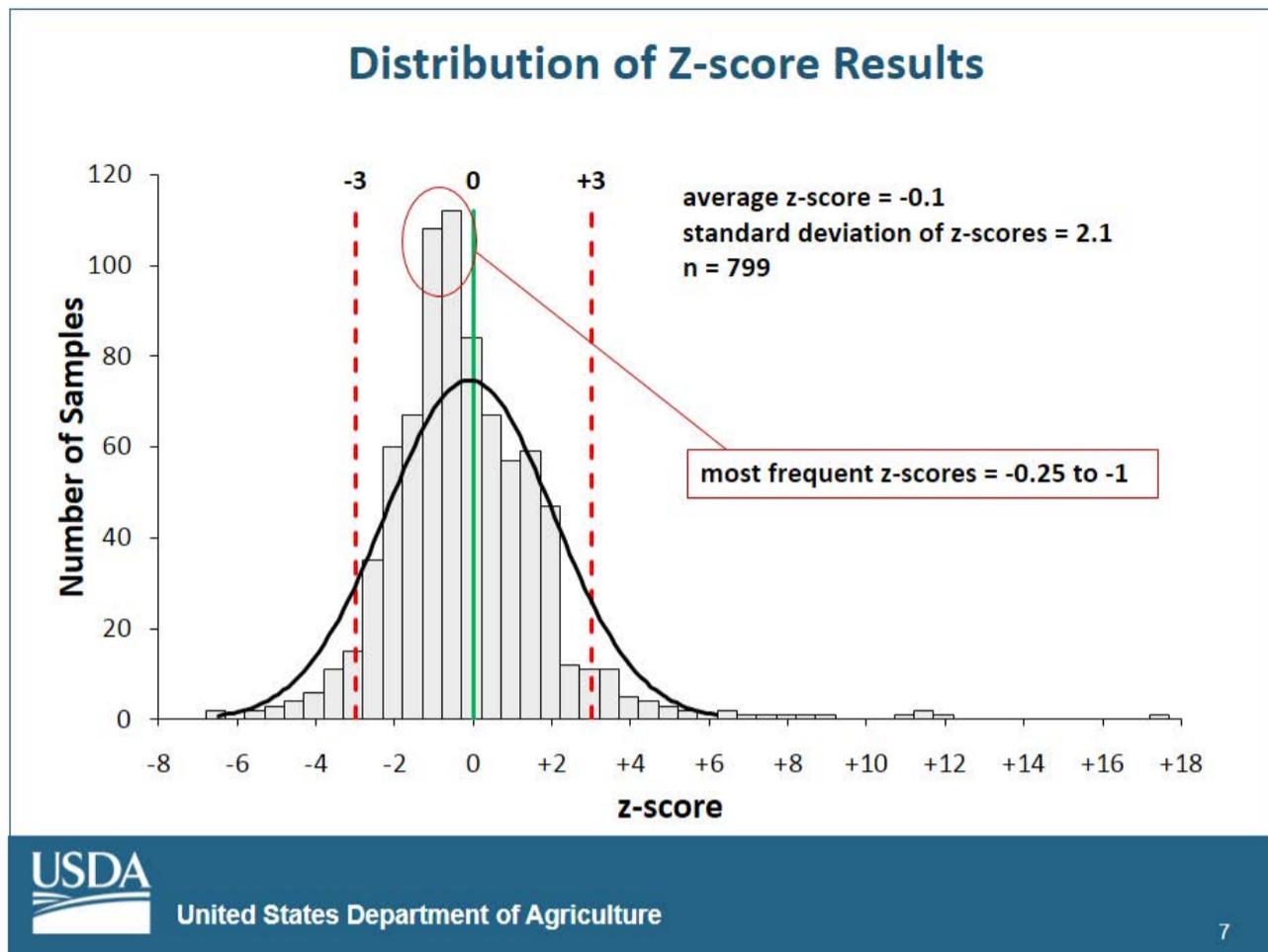
Slide 5: performance by Specified Service Point



Slide 6: performance by Test Kit



## Slide 7: Distribution of Z-Score Results



## Slide 8: Effect of Grind Fineness

### Effect of Grind Fineness

- Four test kits with extraction < 3 minutes
- Effect of grind fineness
  - Increase in concentration with increasing sample fineness
- Test kit instructions revised last week of June 2016
  - 60% - 89% passing No. 20 sieve requires 3 min extraction
  - > 90% passing No. 20 sieve required for extractions < 3 minutes
- Collecting data to assess impact

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## Conclusions and Recommendations

### Conclusions

- Slight underestimation (i.e., biased low)
- Variation more than desired

### Recommendations

- Engage manufacturers
- Training
- Consider increasing test kit performance requirements
- Distribute reference samples (Check Sample Program)
- Implement statistical process control at each SSP



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## Slide 10: Falling Number Determinations

## Falling Number Determination

- Internationally-recognized method
- Sprout damage by alpha-amylase activity
- Viscosity of water/wheat slurry
- Directive 9180.38 Determination of Falling Number in Wheat
  - Based on AACC International Method
  - Requires Perten FN instruments and FN 3100 mill
- > 35,000 Official Falling Number inspections/year



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Slide 11: Falling Number Quality Assurance Program

## Falling Number Quality Assurance Program

- Directive 9180.84 (April 2014)
- Check Sample Program
  - Biannual (Nov/May) distribution of sample sets
  - Agreement among SSPs and to FGIS (TSD)
- Monitoring Program
  - 1 sample per instrument per week
  - Whole kernel samples
  - Ground and tested by (TSD)
  - Weekly reports issued to SSP management
  - Annual summary report

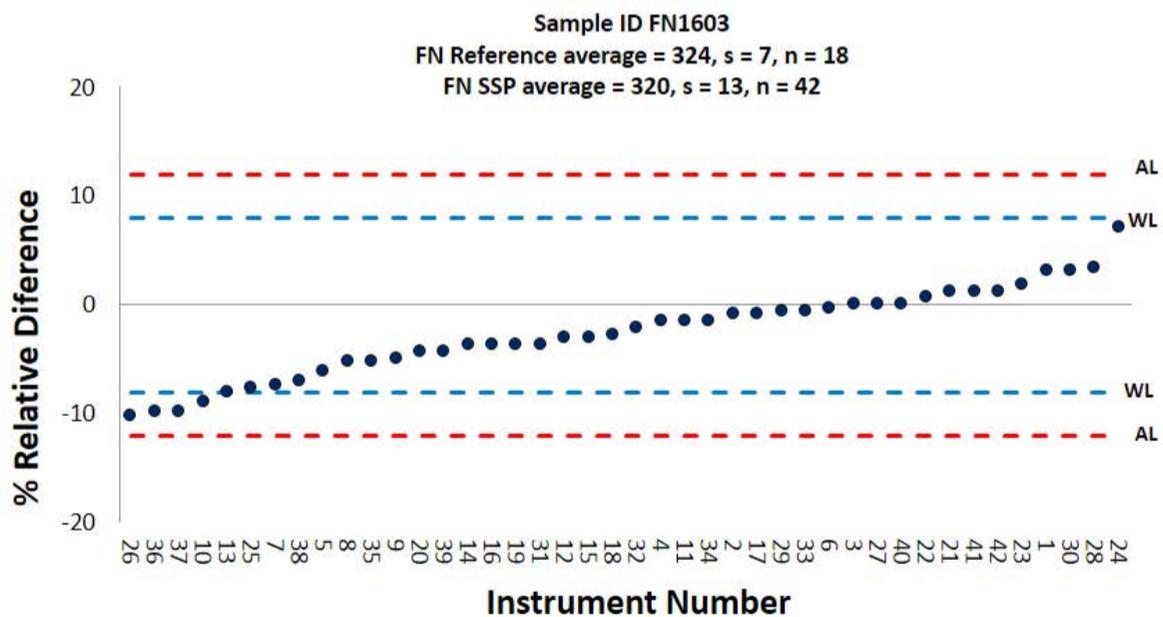


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Slide 12: Falling Number Check Sample Program

## Falling Number Check Sample Program Results



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## Slide 13: Falling Number Inspection Monitoring

### Falling Number Inspection Monitoring

#### Evaluation of Data



- Relative difference (RD) used for evaluation

$$RD = \frac{(x - x_{TSD})}{x_{TSD}} \cdot 100\%$$

$x$  = field inspection result

$x_{TSD}$  = TSD result (reference)

- Control limits based on 10% Standard deviation (s) of RD
- 95% of results expected within Warning Limits at  $\pm 20\%$
- 99.7% of expected results within Action Limits at  $\pm 30\%$



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## Slide 14: Falling Number Inspection Monitoring

### Falling Number Inspection Monitoring



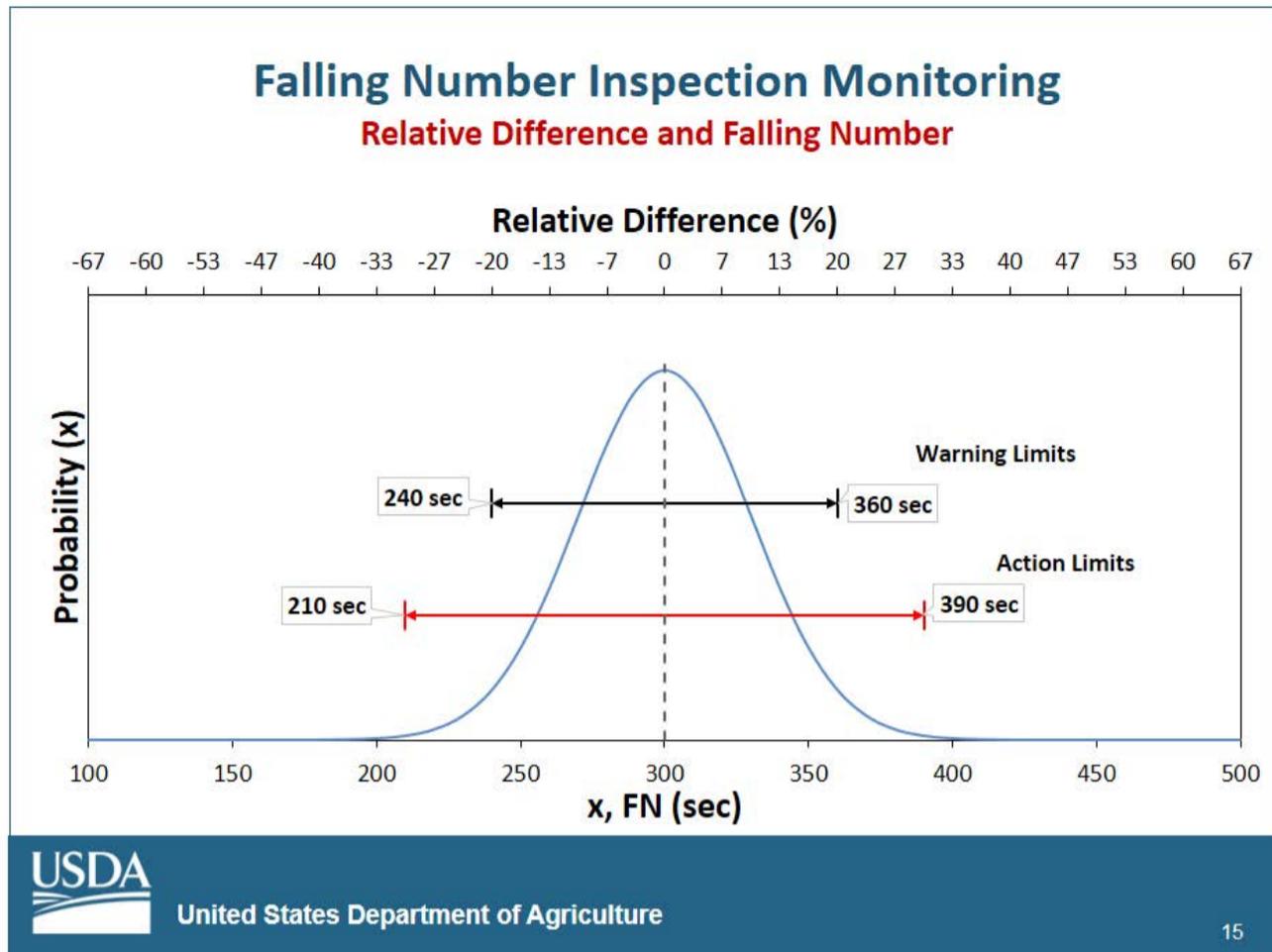
- Monitoring Period May 2015-April 2016
- 40 instruments
- 10 Official Agencies
- 4 FGIS Field Offices
- 1,018 samples



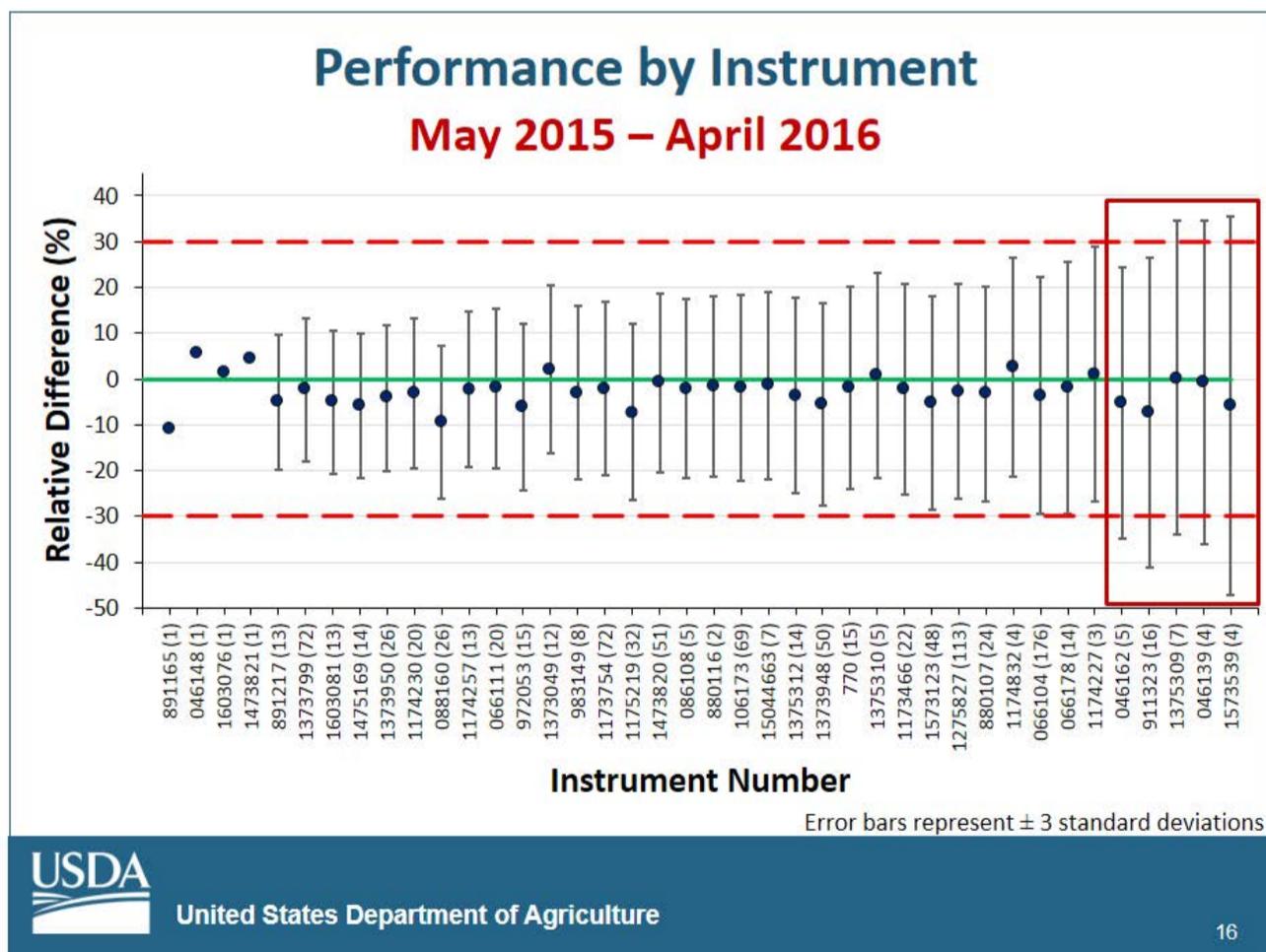
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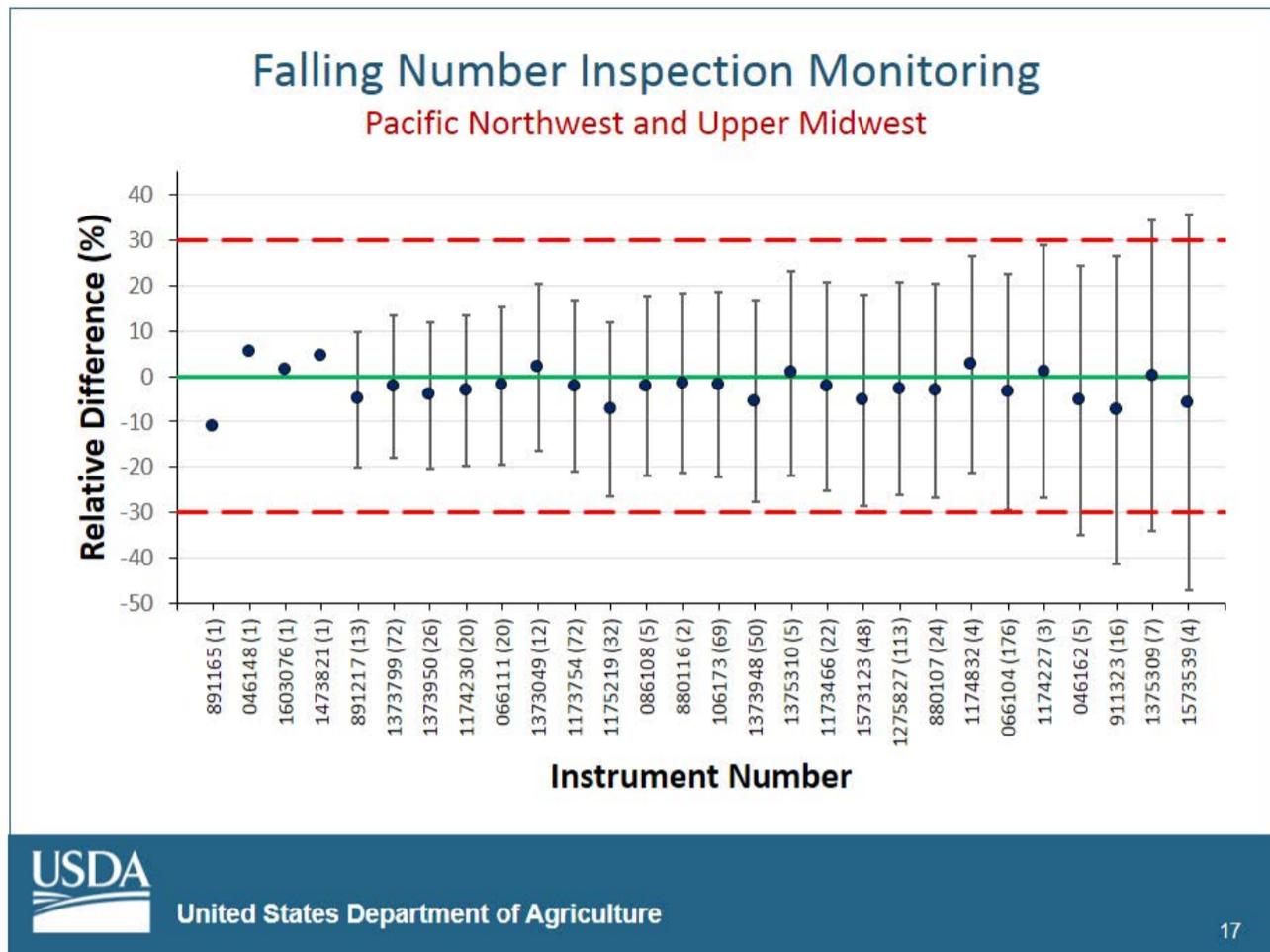
Slide 15: Relative Difference and Falling Number



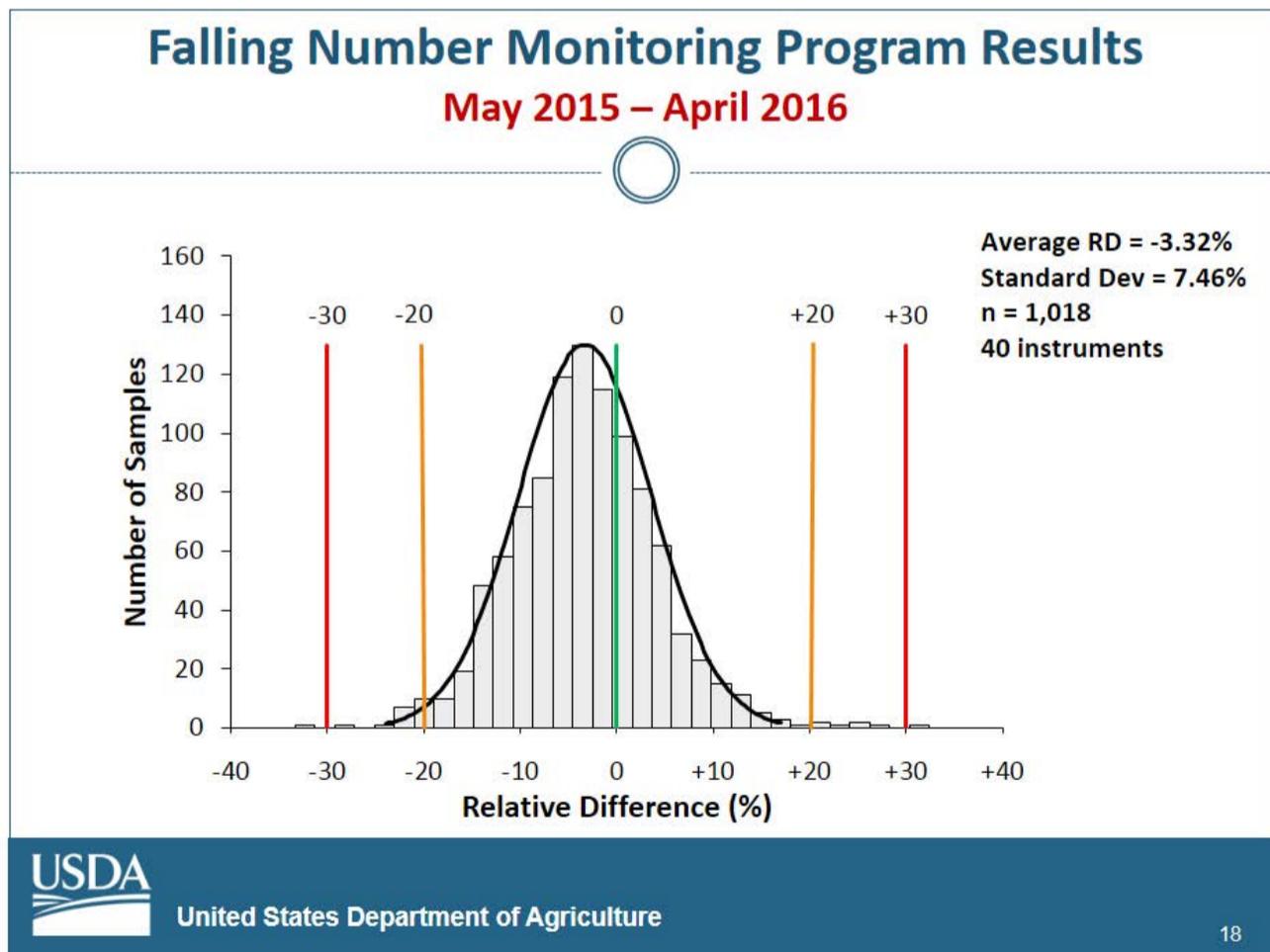
Slide 16: Performance by Instrument May 2015 - April 2016



Slide 17: Pacific Northwest and Upper Midwest



Slide 18: Falling Number Monitoring Program Results May 2015 - April 2016



## Falling Number Inspection Monitoring Annual Review

- 5 instruments outside action limits
- Average RD = -3.32% (s = 7.46%, n = 1018)
- Sources of bias
  - ✕ Reference analyst differences
  - ✕ Differences in instruments and/or altitude conditions

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## Conclusions and Recommendations

- **Conclusions**
  - Relative standard deviation among SSPs is less than 8%
  - Bias is due to instrument and/or altitude
  - Action limits exceeded by only 5 of 40 instruments
- **Recommendations**
  - Revise method instructions for specificity
  - Create training video
  - Continue to work with ARS on refining elevation correction
  - Further review of work completed on other methods

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## Other Tests for Sprout Damage

- **Chemical tests**
  - No strip tests available
  - $\alpha$ -Amylase assay kit (Megazyme)
    - ✦ ~1 hour
  - Phadebas  $\alpha$ -Amylase Test
    - ✦ ~1 hour
- **Physical Test**
  - Rapid Visco Analyzer (RVA)
    - ✦ Canada evaluated and did not adopt
- **NIR Spectroscopy**
  - Non-destructive
  - Rapid
  - Further review of publications needed to assess capability



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## Slide 22: Questions?

# Thank You



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Slide 1: Title

**UGMA Moisture Meter Test  
Weight Determinations**

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**GRAIN INSPECTION ADVISORY  
COMMITTEE MEETING  
OCTOBER 19, 2016**

**MARY COFFEY ALONZO  
DIRECTOR, TECHNOLOGY AND SCIENCE  
DIVISION**

 **United States Department of Agriculture**  
Grain Inspection Advisory Committee Meeting, October 2015

Slide 2: UGMA Test Weight Resolution 1

**UGMA TW Resolution #1**

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July 2014 Resolution –

“Whereas the Test Weight module/apparatus that is integrated in the current official moisture meters is capable of testing for the test weight of grain; the Advisory Committee recommends that GIPSA complete and report its research regarding the feasibility of changing the official method for determination of test weight from the kettle method to the test weight apparatus integrated in the official moisture meters.”

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### Slide 3: November 2014 Summary

## November 2014 Summary

- Different Basis of Determination on some grains for moisture and test weight
- Quart Kettle and moisture meter TW not “technically equivalent” due to differences in shape and packing characteristics
- Meters adjusted to agree on average to quart kettle per National Type Evaluation Program criteria
- Concluded need to improve adjustment factors to optimize alignment to quart kettle and between models if approved for official determinations



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### Slide 4: UGMA Test Weight Resolution 2

## UGMA TW Resolution #2

November 2014 Resolution –

“The Advisory Committee recommends that FGIS continue to investigate the feasibility of using UGMA-compatible moisture meters for determining test weight for Official inspection.”



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Grain Inspection Advisory Committee Meeting, October 2016

Slide 5: 2013 + 2015 Data Comparisons

## 2013 – 2015 Data Comparisons

Grain	Moisture Interval	Device	Repeatability
Corn (N = 148)	12 – 18%	Quart Kettle	0.22
		Model A	0.24
		Model B	0.25
Hard Red Winter Wheat (N = 121)	10 – 16%	Quart Kettle	0.08
		Model A	0.09
		Model B	0.10
Sorghum (N = 55)	10 – 16%	Quart Kettle	0.11
		Model A	0.10
		Model B	0.13



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Slide 6: 2013 - 2015 Reproducibility Comparisons

## 2013 – 2015 Reproducibility Comparisons

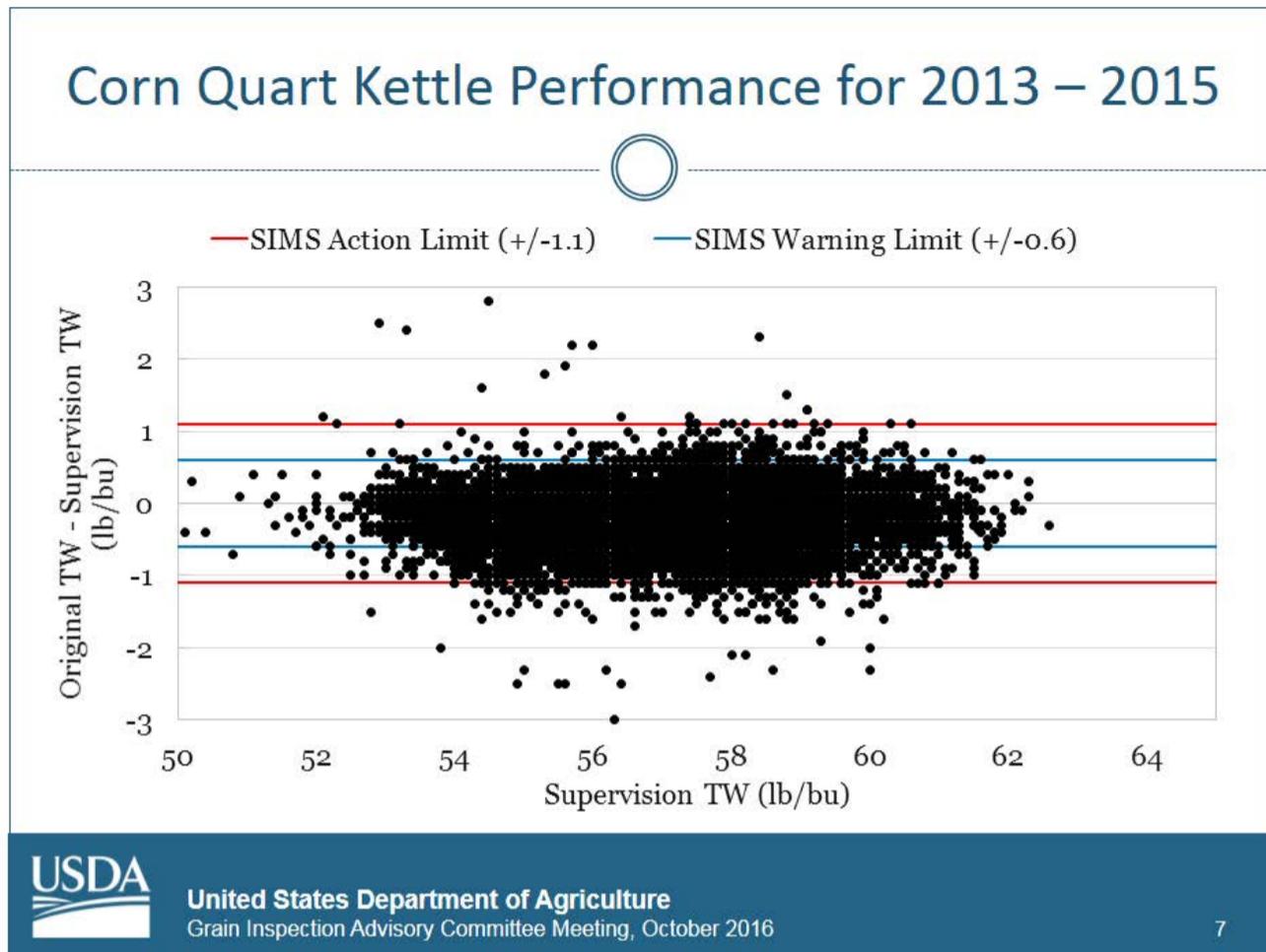
Grain	Moisture Interval	Comparison	Bias	Reproducibility
Corn	12 – 18%	Kettle vs Kettle (N = 10,619)	-0.24	0.48
		Model A vs Kettle	-0.10	0.36
		Model B vs Kettle	+0.27	0.32
		Model A vs Model B	-0.37	0.28



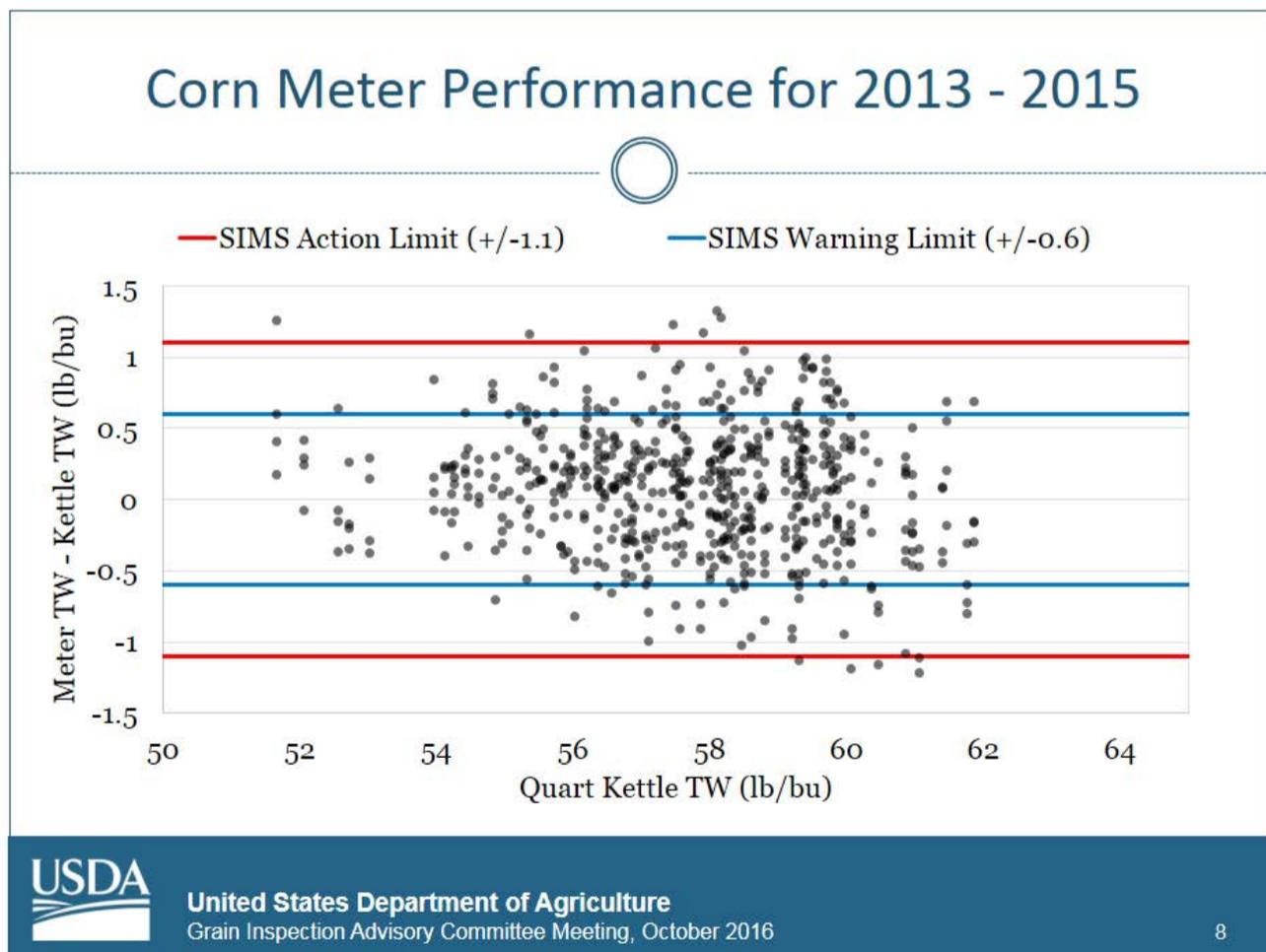
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Slide 7: Corn Quart Kettle Performance for 2013 - 2015



Slide 8: Corn Meter Performance for 2013 - 2015



## Slide 9: UGMA TW Summary

### UGMA TW Summary



- Clean grain test weights are more reproducible than samples with the dockage left in.
- On clean grain, data presented indicates meters provide as good as or better performance as current system.
- Conduct a limited pilot test using clean grain for the test weight determination.



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## Slide 10: Questions?

### Questions?



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Slide 1: Title

**Condensation Study**

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**GRAIN INSPECTION ADVISORY  
COMMITTEE MEETING  
OCTOBER 19, 2016**

**Mary Coffey Alonzo  
Director, Technology and Science Division**

 **United States Department of Agriculture**  
Grain Inspection Advisory Committee Meeting, October 2016

Slide 2: prior Work on Condensation

**Prior Work on Condensation**

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- Studies performed in 1997, 1998, 2014, & 2015
- Focused on quantifying the effects of condensation on moisture and test weight based on laboratory testing and field testing of a sample delivery system in New Orleans, LA. Testing performed on Corn, Soybeans, and SRW.
- Average change in moisture: 0.03% to 0.4%
- Average change in test weight: -2.09 lb/bu to -0.41 lb/bu

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### Slide 3: Conclusions From Prior Work

## Conclusions from Prior Work

- Condensation is possible in the sample delivery system if the conditions are right. Actual effects, however, depend on many factors. Some include:
  - Design of the sample delivery system. Larger effects occur on samples with higher exposure to humid air.
  - Sample temperature
  - Dew point temperature (based on ambient temperature and relative humidity)
- Mitigation is possible to an extent but does not remove all effects.



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### Slide 4: October 2015 Resolution

## October 2015 Resolution

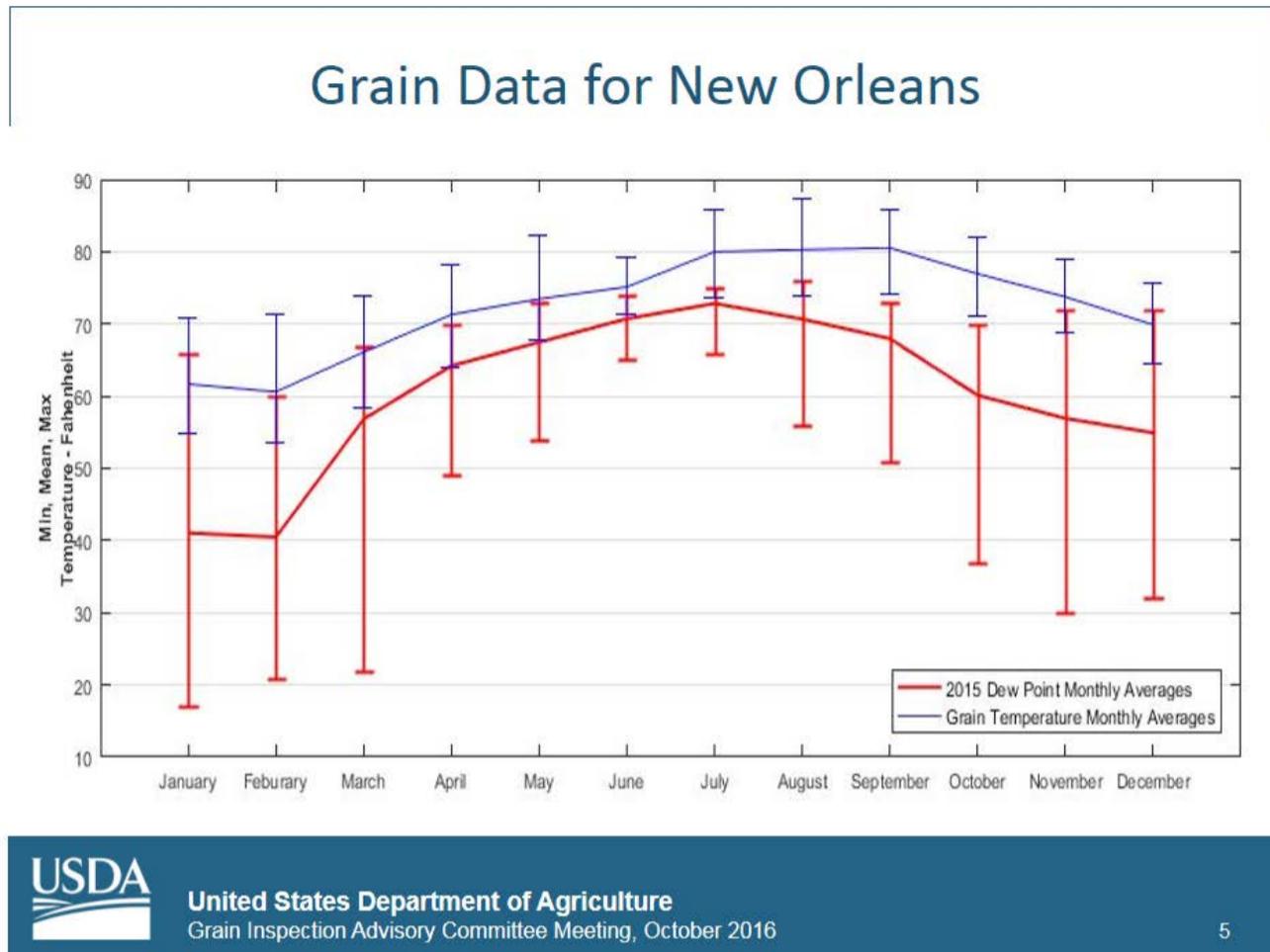
“The Advisory Committee encourages FGIS to obtain background information pertinent to understanding the possible degree of condensation that could form when cold grain is unloaded from barges or railcars and transferred to a FGIS inspection site at a humid location. The intent is to record grain temperature data as already provided by moisture meter determinations on sublots of grain. Grain temperatures from a random sampling of 100 sublots during each month of the year would provide an indication of the months of the year when moisture condensation is most likely to occur. Data could show that if seasonally cold grain is found, it might be prudent to allow the cold samples to have a few additional minutes to warm up before testing for moisture and test weight.”



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## Slide 5: Grain Data for New Orleans



## Slide 6: Condensation Summary

### Condensation Summary

- Many factors can contribute to the effects of condensation
- New Orleans grain and weather data show condensation could occur in all but September and October using the 2015 data

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Slide 1: Title

**Moisture Sample Inspection  
Management System (SIMS)**

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**GRAIN INSPECTION ADVISORY  
COMMITTEE MEETING  
OCTOBER 19, 2016**

**MARY COFFEY ALONZO  
DIRECTOR, TECHNOLOGY AND SCIENCE  
DIVISION**

 **United States Department of Agriculture**  
Grain Inspection Advisory Committee Meeting, October 2015

Slide 2: Quality Control Tolerances Resolution 1

**Quality Control Tolerances Resolution #1**

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July 2014 Resolution –

“The Advisory Committee recommends the GIPSA review and update all quality assurance tolerances utilized in the official system. Specifically, the Advisory Committee recommends that the first to be reviewed reflect the Unified Grain Moisture Algorithm (UGMA) technology for moisture measurement.”

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Grain Inspection Advisory Committee Meeting, October 2016

### Slide 3: Statistical Process Control

## Statistical Process Control

- Meter
  - Mechanical (operating within expectations)
  - Calibration (optimum agreement between meter and reference method)
  
- Non-technical
  - Human factor
  - Change in operating environment



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### Slide 4: Implementations of Pre-UGMA and UGMA

## Implementations of Pre-UGMA and UGMA

Grains	PreUGMA	UGMA
Corn, Soybeans, Sunflower Seeds, Sorghum	9/10/2010 – 9/9/2012	5/1/2013 – 9/28/2016 (9/10/2012 – 4/30/2013* excluded)
All the other grains	5/1/2011 – 4/30/2013	5/1/2013 – 9/28/2016

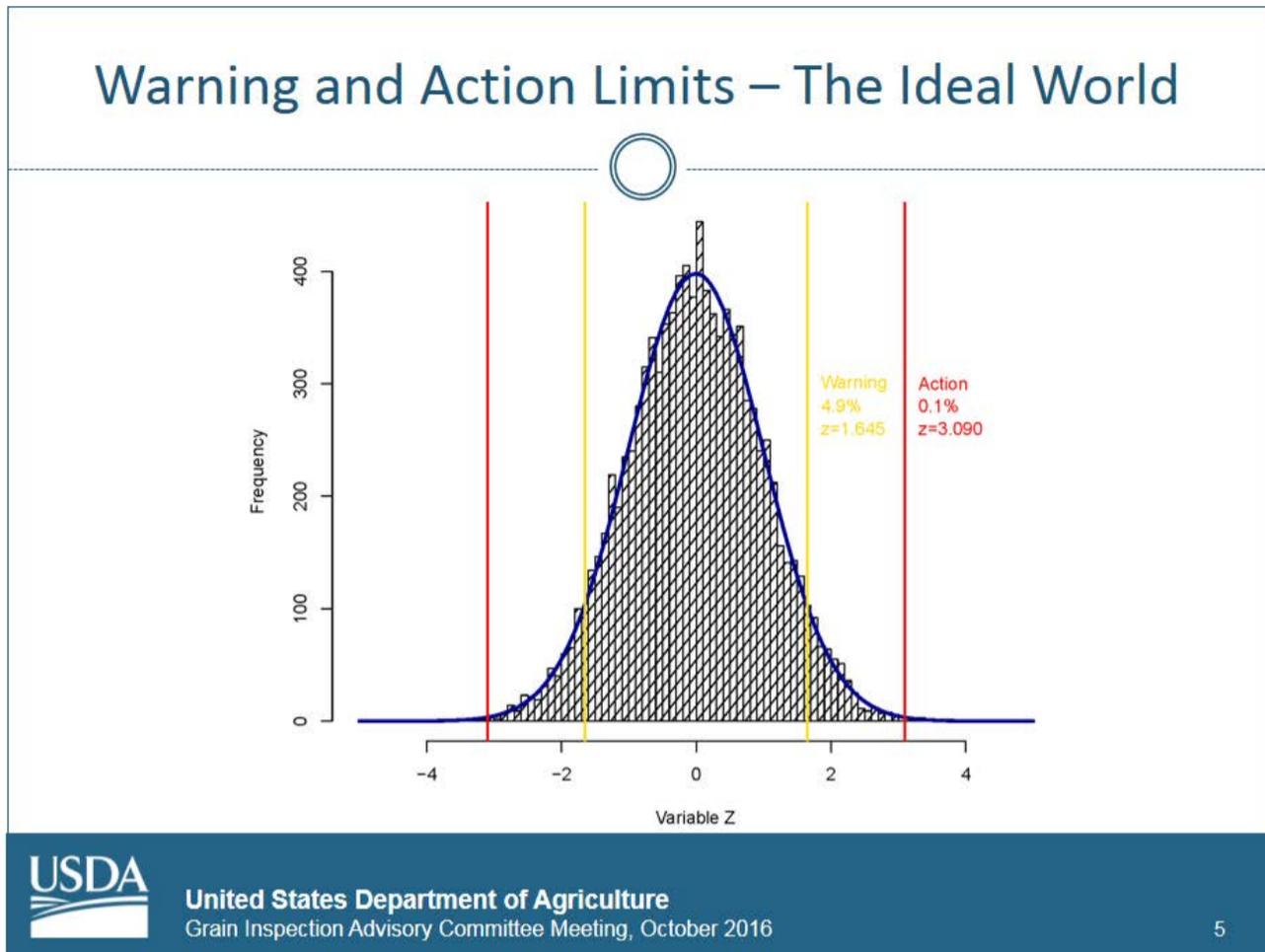
\* Initial phase of UGMA implementation



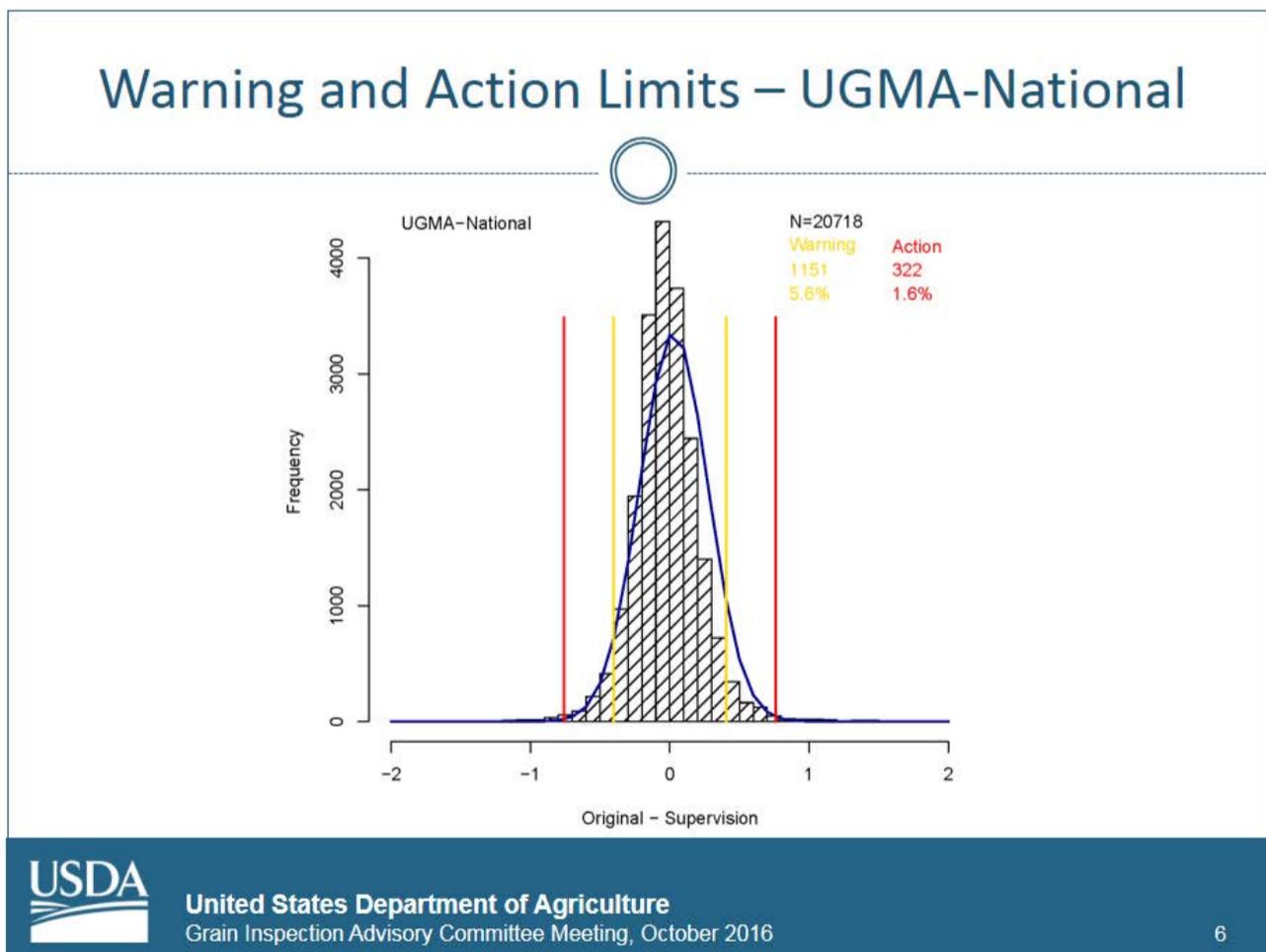
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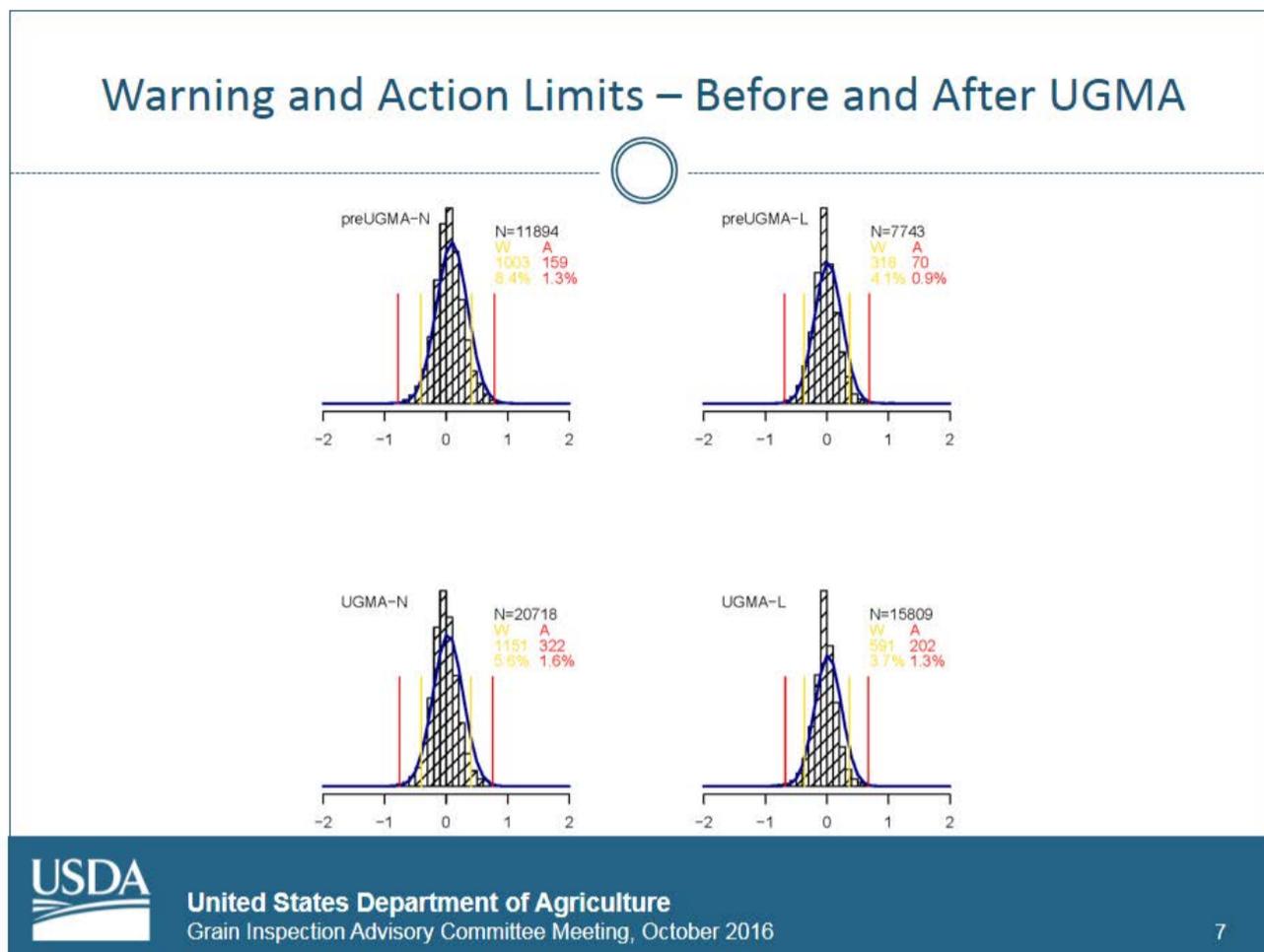
Slide 5: Warning and Action Limits - The Real World



Slide 6: Warning and Action Limits - UGMA National



## Slide 7: Warning and Action Limits - Before and After UGMA



## Slide 8: System Wide Performance Before and After UGMA

### System Wide Performance – Before and After UGMA

Methods	N	#Warning	W%	#Action	A%
Ideal			9.8		0.2
Pre-UGMA	11,894	1003	8.4	159	1.3
UGMA	20,718	1151	5.6	322	1.6

- Post UGMA, fewer results exceed warning limit, but more exceed action limit
- Better reproducibility post UGMA, but increase above action limit a concern
- Results consistent with earlier review of post UGMA system performance

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Slide 1: Title

**Quality Assurance &  
Compliance Division**



**Samantha J. Simon**  
**Grain Inspection Advisory Committee**  
**October 19-20, 2016**

 **United States Department of Agriculture**

Slide 2: Agenda

**Agenda**

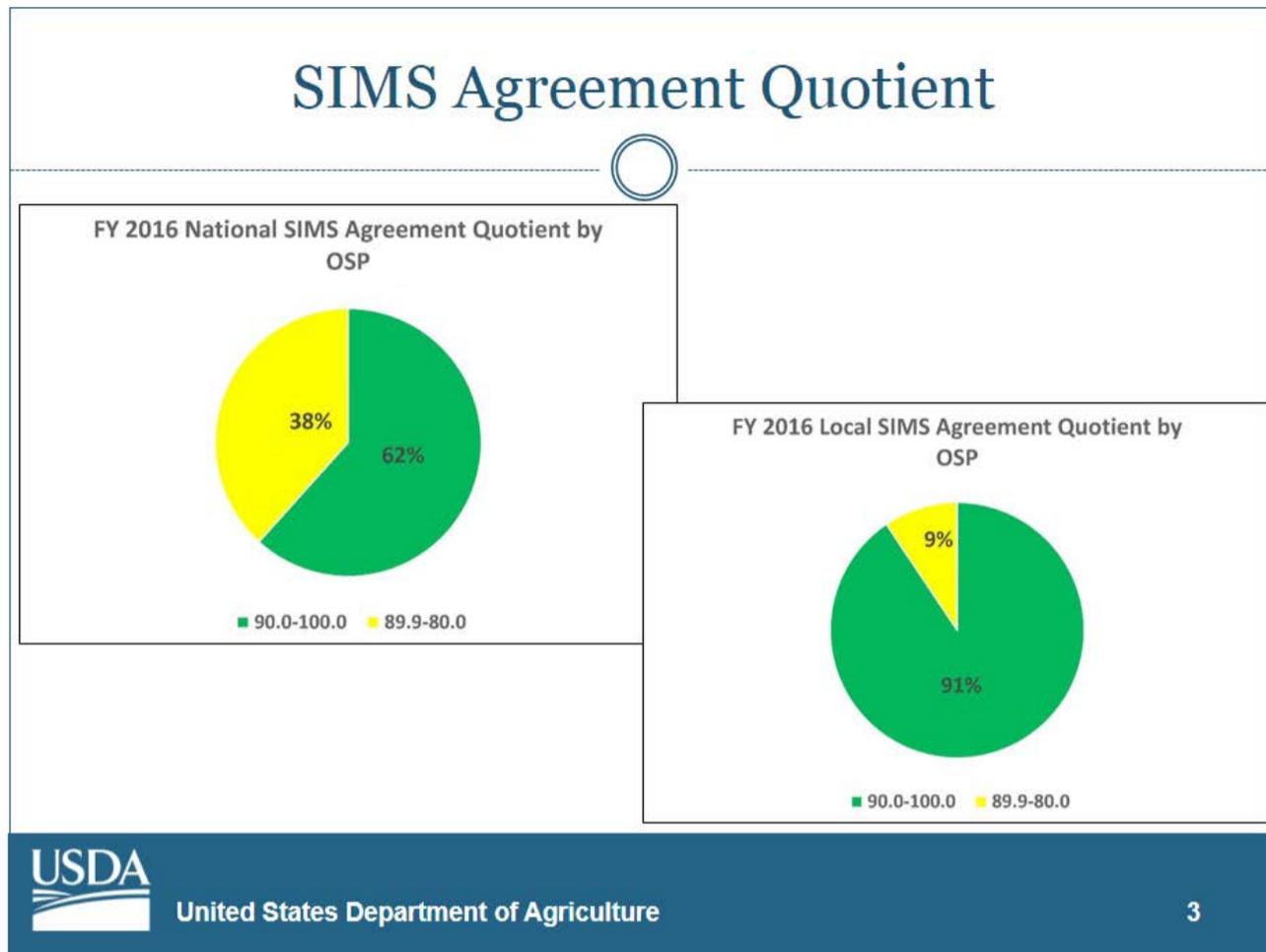


- SIMS & STEP Performance Report
- Quality Assurance Specialist Performance Report
- Inspection Accuracy Report
- Certificate Accuracy Report
- FY17 Initiatives

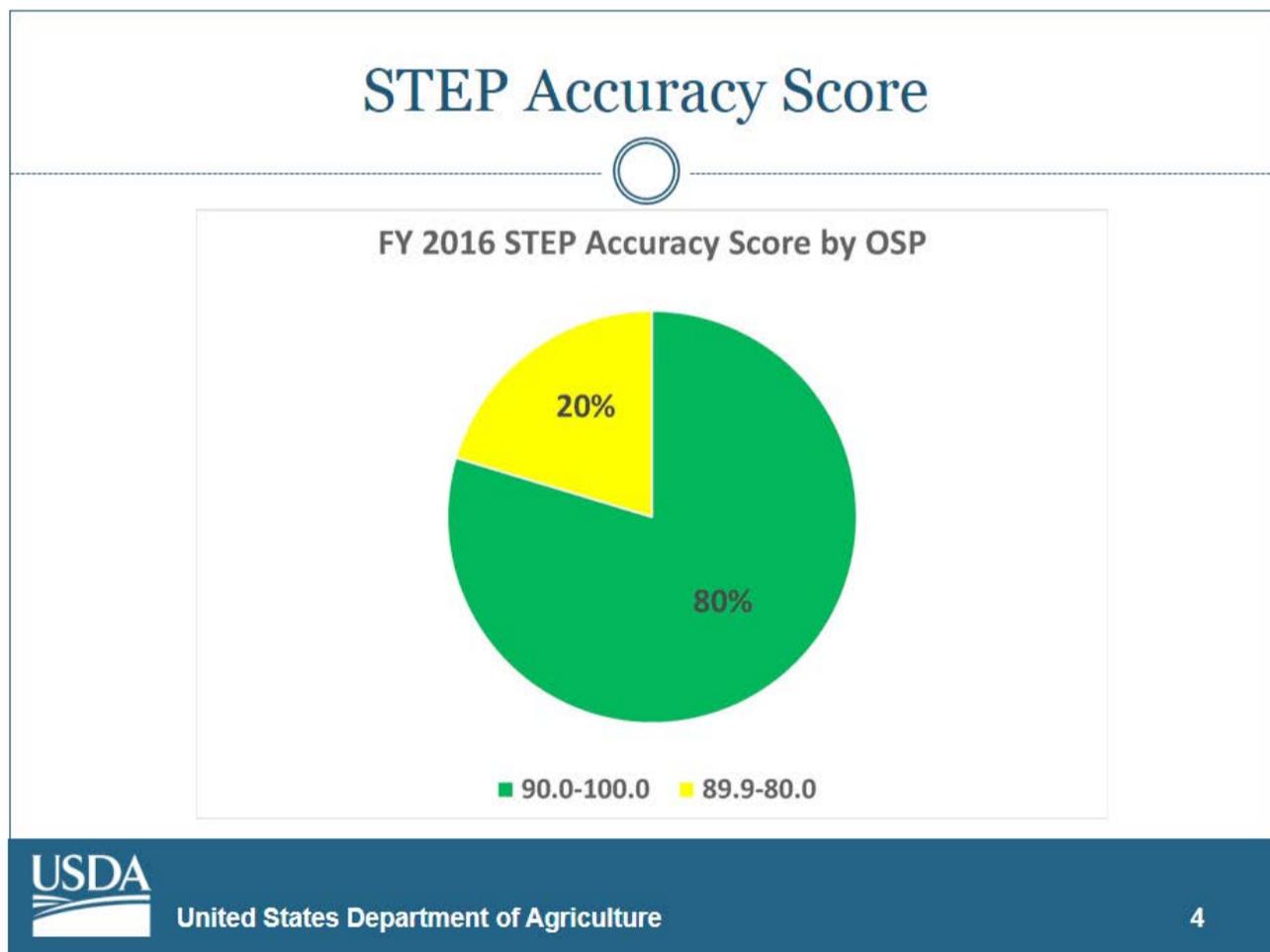
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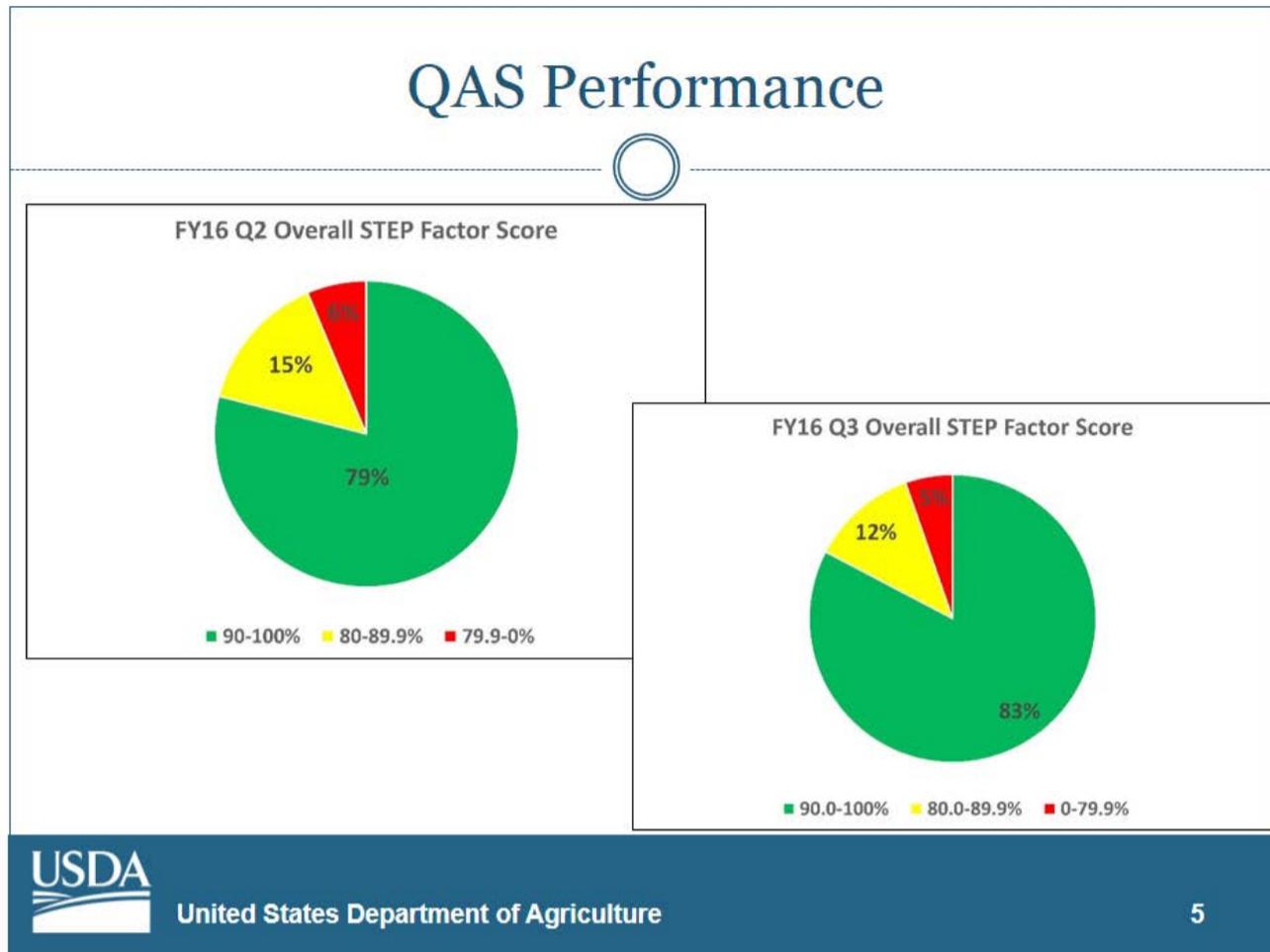
### Slide 3: SIMS Agreement Quotient



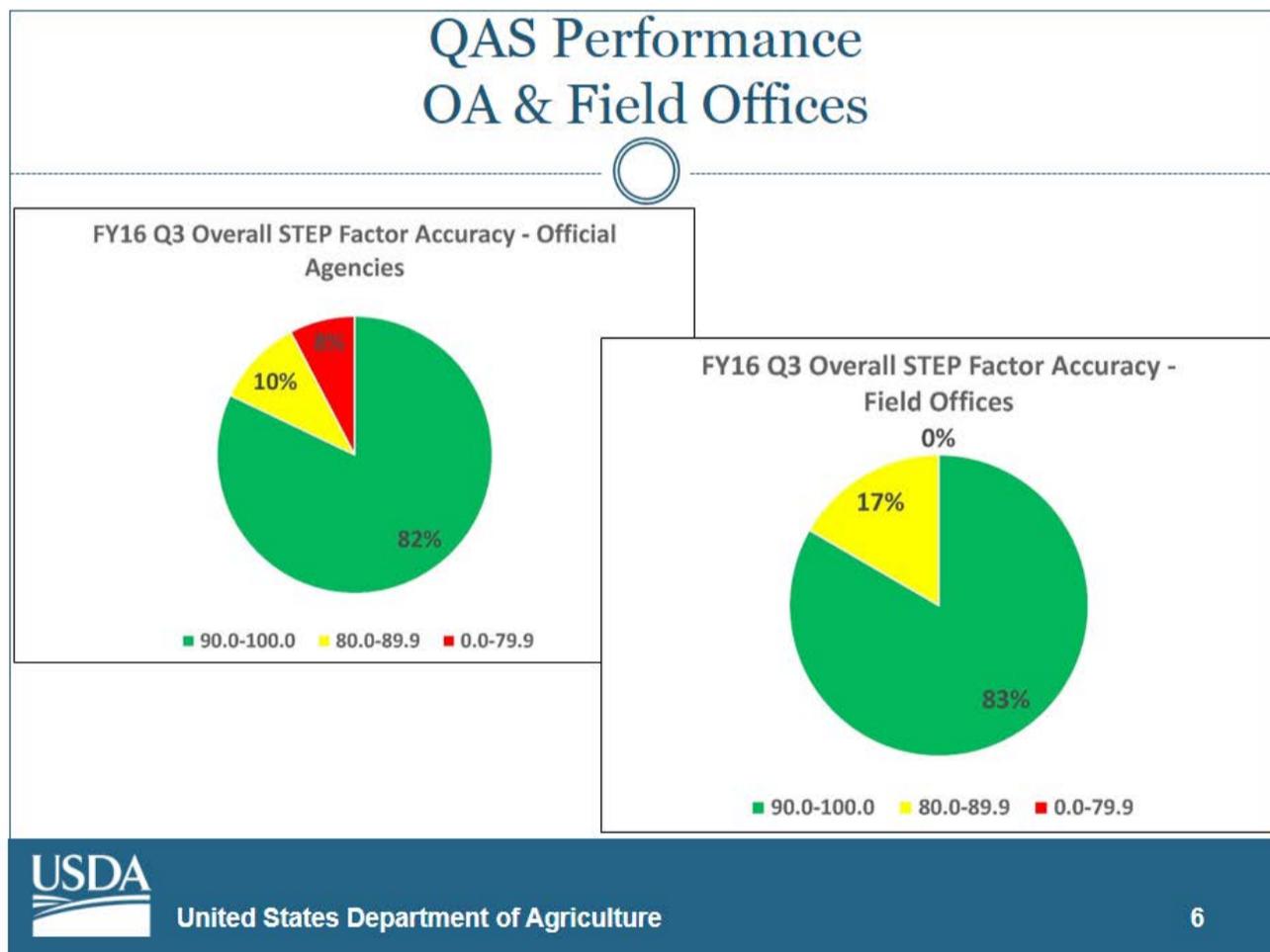
### Slide 4: STEP Accuracy Score



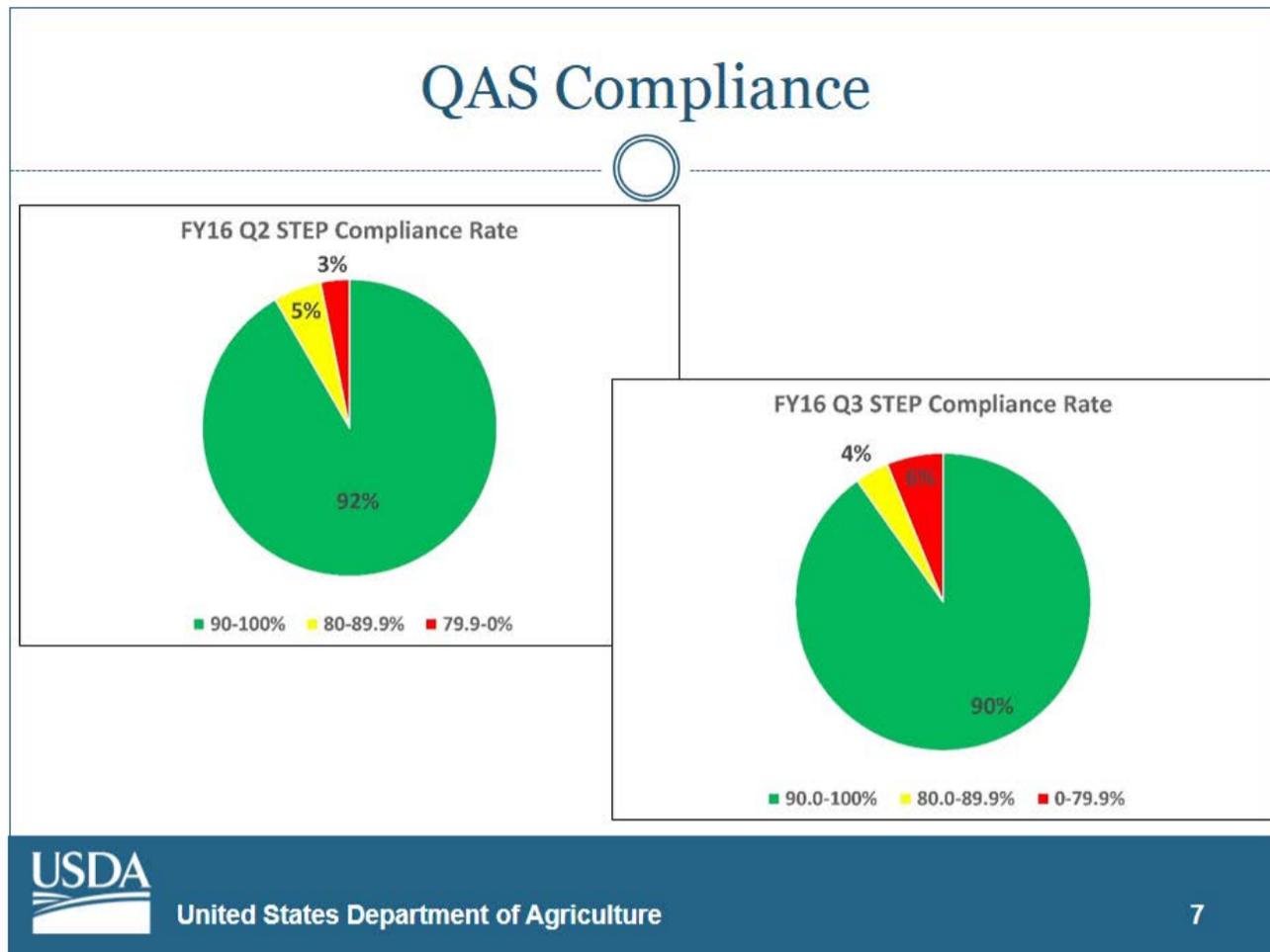
## Slide 5: QAS Performance



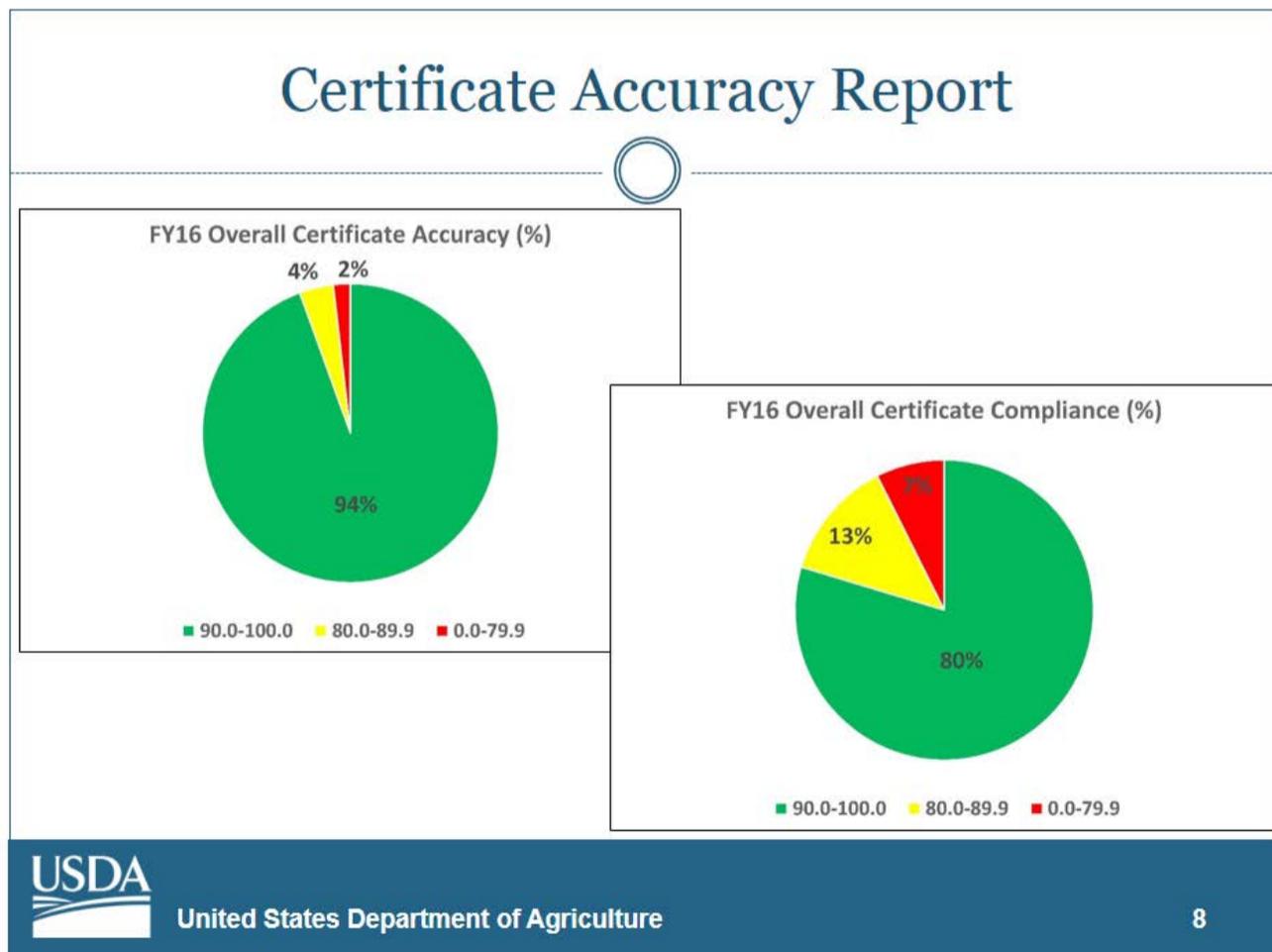
## Slide 6: QAS Performance OA and Field Offices



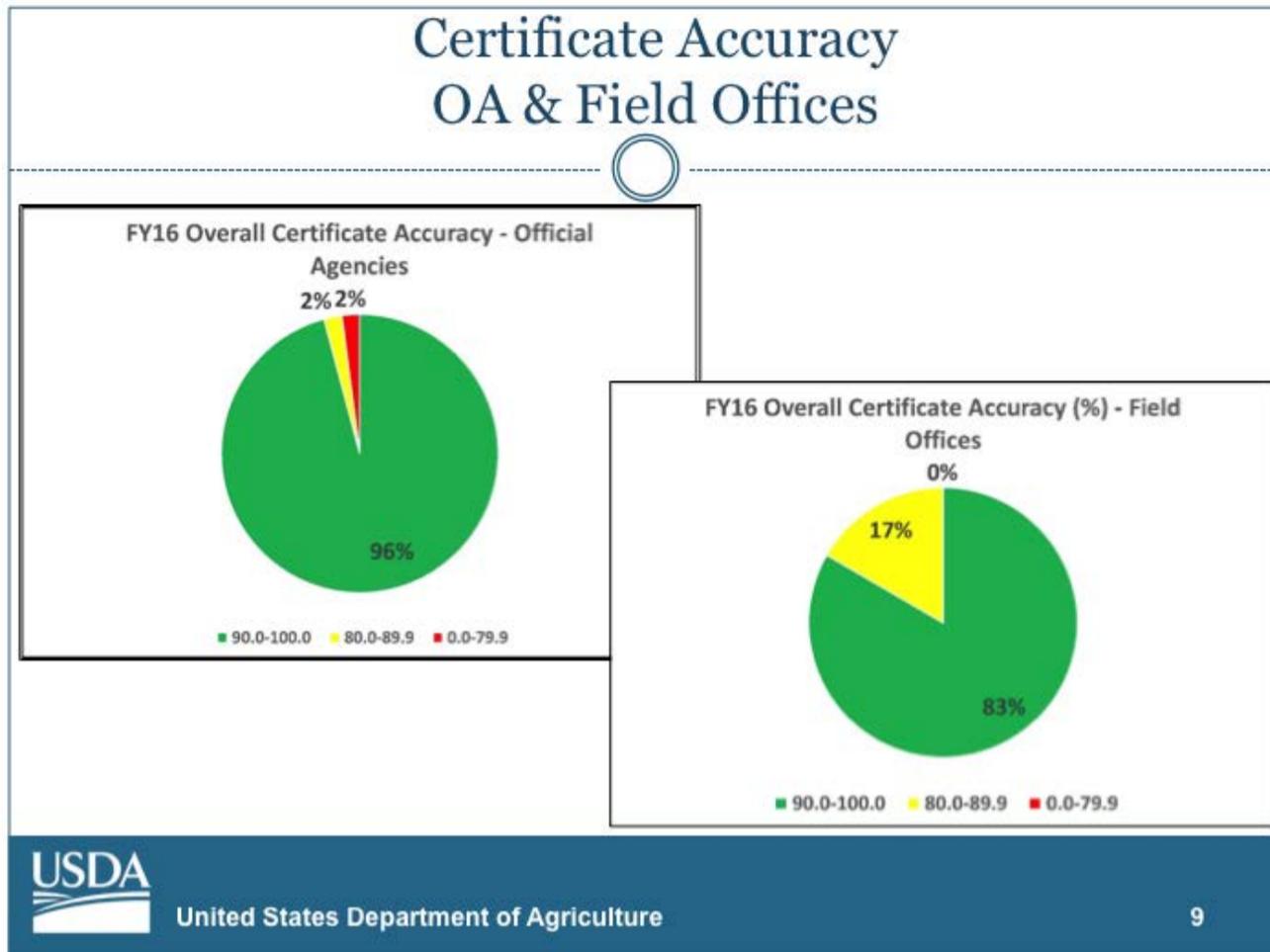
## Slide 7: QAS Compliance



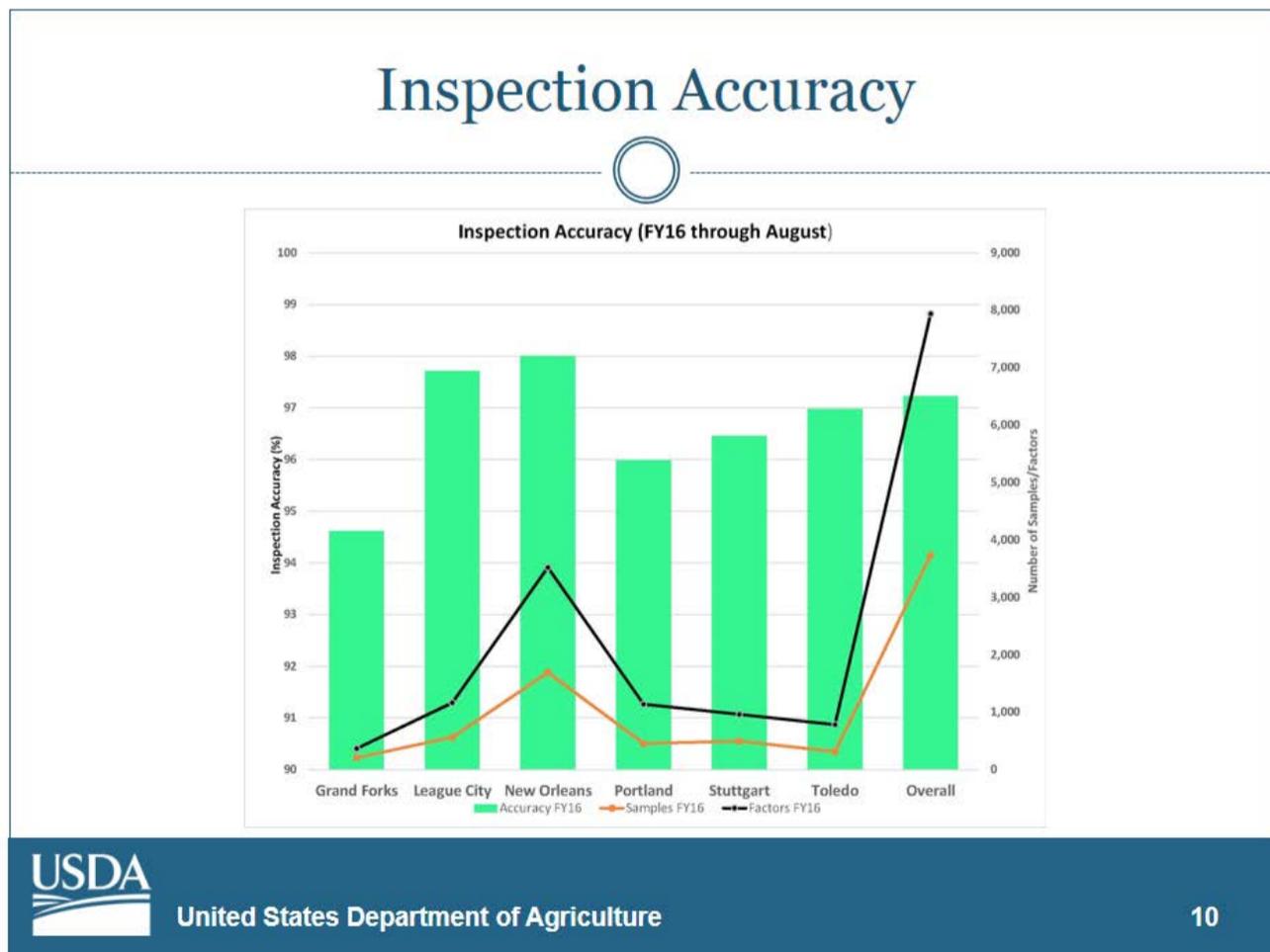
## Slide 8: Certificate Accuracy Report



Slide 9: Certificate Accuracy OA and Field Offices



Slide 10: Inspection Accuracy



## FY 17 Initiatives



- Issue revised Handbook and Directives
  - Quality Handbook
  - Exceptions Directive
  - Quality Management Program Directive
- Update requirements for Quality Management Program

