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TRANSFORMING AMERICA'S HARVEST ™

U.S. Grain Quality, Standards and Grading Systems

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Export Sorghum Conference
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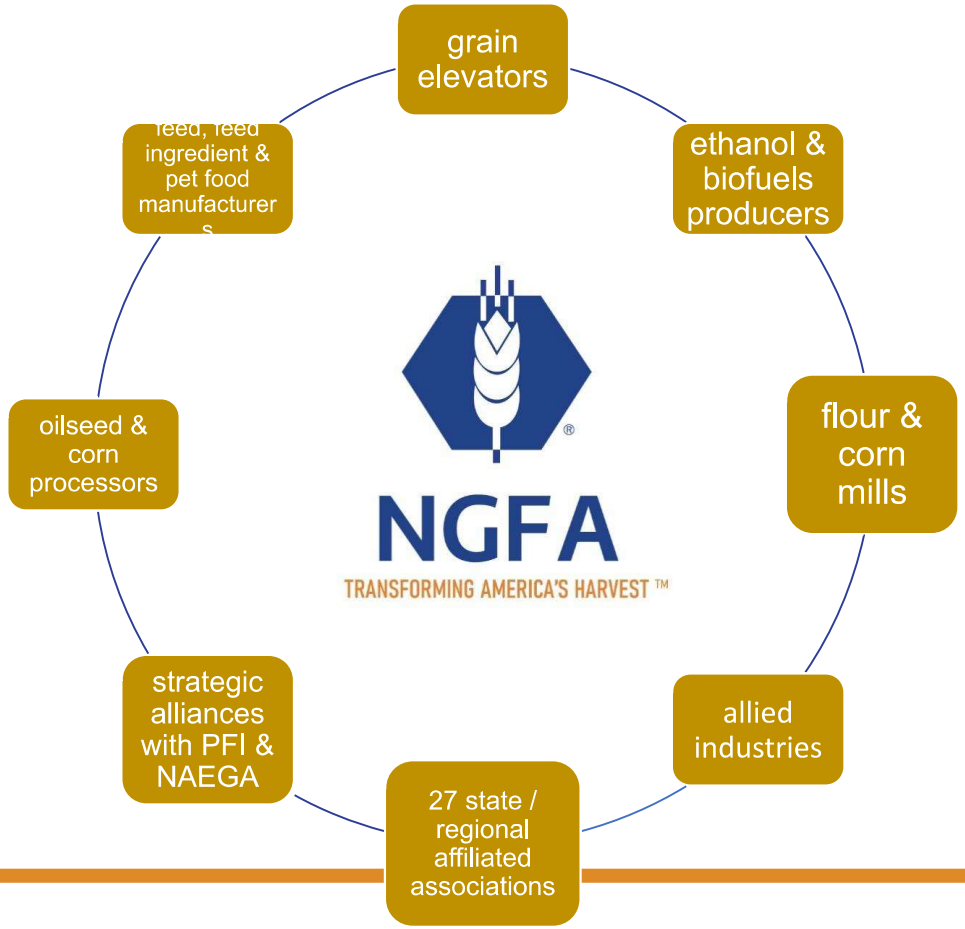
NGFA Membership Today

The Association was founded in 1896 to …

- Standardize grain inspection and grading
- Develop trade rules and procedures for resolving trade disputes
- Create a united front to improve rail service
- Elevate professional reputation of the industry

700+ member companies
More than 8,000 facilities
Handling U.S. grains and oilseeds



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History of NGFA

- **By 1871, 73 different grain inspection systems were being used in the United States, each with its own grades and grading rules. This led to chaotic market conditions. Traders buying grain under the standards in one area could not depend on the grain being designated an equivalent grade in any other area**.

- Around the turn of the century, the Grain Dealers National Association (now known as NGFA) and several other trade groups vigorously campaigned for the adoption of voluntary, national grade standards.

U.S. Grain Standards Act

- In response, Congress authorized the Secretary of Agriculture to organize the Division of Grain Standardization to establish uniform grades.
- Finally, in 1916, the 64th Congress passed the United States Grain Standards Act (Act) “to provide for the establishment of Official United States Standards for Grain, to promote the uniform application thereof by official inspection personnel with the objectives that grain may be marketed in an orderly and timely manner and that trading in grain may be facilitated."

U.S. Grain Standards Act

- Twelve Grains Covered Under USGSA
  - Barley
  - Canola
  - Corn
  - Flaxseed
  - Oats
  - Rye
  - Sorghum
  - Soybean
  - Sunflowers Seed
  - Triticale
  - Wheat
  - Mixed Grain

U.S. Standards for Sorghum

United States Department of Agriculture
Agricultural Marketing Service
Federal Grain Inspection Service

U.S. Standards

June 2008

Subpart I -- United States Standards for Sorghum

Contents

Distribution: FGIS, OSP, Industry

Originating Office: FMD PPMAB

Sorghum Grades and Grade Requirements

§ 810.1404 - Grades and grade requirements for sorghum.

Grading factors	Grades U.S. Nos. [1]			
	1	2	3	4
Minimum pound limits of				
Test weight per bushel:	57.0	55.0	53.0	51.0
Maximum percent limits of				
Damaged kernels:				
Heat (part of total)	0.2	0.5	1.0	3.0
Total	2.0	5.0	10.0	15.0
Broken kernels and foreign material:				
Foreign material (part of total)	1.0	2.0	3.0	4.0
Total	3.0	6.0	8.0	10.0
Maximum count limits of				
Other material:				
Animal filth	9	9	9	9
Castor beans	1	1	1	1
Crotalaria seeds	2	2	2	2
Glass	1	1	1	1
Stones [2]	7	7	7	7
Unknown foreign substance	3	3	3	3
Cockleburs	7	7	7	7
Total [3]	10	10	10	10

U.S. Sample grade is sorghum that:
(a) Does not meet the requirements for U.S. Nos. 1, 2, 3, or 4; or
(b) Has a musty, sour or commercially objectionable foreign odor (except smut odor); or
(c) Is badly weathered, heating or distinctly low quality.

[1] Sorghum which is distinctly discolored shall not grade higher than U.S. No. 3.
[2] Aggregate weight of stones must also exceed 0.2 percent of the sample weight.
[3] Includes any combination of animal filth, castor beans, crotalaria seeds, glass, stones, unknown foreign substances or cockleburs.

Special Grades and Special Grade Requirements

§ 810.1405 Special grades and special grade requirements.

Smutty sorghum. Sorghum that has kernels covered with smut spores to give a smutty appearance in mass, or that contains 20 or more smut balls in 100 grams of sorghum.

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Official Inspection System

- Grains and oilseeds exported by vessel must be officially weighed and inspected – by Federal (or delegated) personnel.

- Domestically marketed grain and oilseeds may be, but are not required to be, officially inspected.

  - Third party service providers
  - Under the 'supervision' of FGIS
  - Using methods, equipment, instrumentation approved by FGIS

Official Inspection Services - Consistency

- Licensed – All inspectors providing Official inspection are licensed by FGIS
- Fee for service – Fees approved by FGIS
- Equipment and Instruments – Approved for equivalency
- Monitoring
- Review - Reinspections, Appeals and Board Appeals

U.S. Grain Exports and Supply Chain

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Global Grain and Oilseed Marketing

- Pressure has never been greater on agriculture to provide for global food security, food defense and energy security while maintaining high quality, safe products throughout the value chain.

- The role of international trade in agri-bulks is expanding and increasingly complex. From a long-term perspective, continued growth in global demand for grains and oilseeds will evolve due to:
  - Population growth and urbanization
  - Permanent renewable energy requirements

Global Grain and Oilseed Marketing

- The grain industry's challenge = move commodities from areas of surplus to areas of deficit, provide for regulatory compliance, safety and efficiency.
  - Movement is bulk and comingled;
  - 3-24 months contract to delivery lead time;
  - Characterized by high volumes, low cost;
  - Impossible to keep varieties totally separate in system. Commingling may occur in each link of chain; and
  - Adventitious materials, e.g. co-mingling may occur in all shipments of all commodities.

Projected 2025/26 Grain and Oilseed Exports MMT

Commodity	U.S. Exports	Rest of World Exports
Corn	73.0	127.9
Soybeans	46.4	141.0
Wheat	23.8	189.7

Impact of U.S. Grain Exports on US Economy

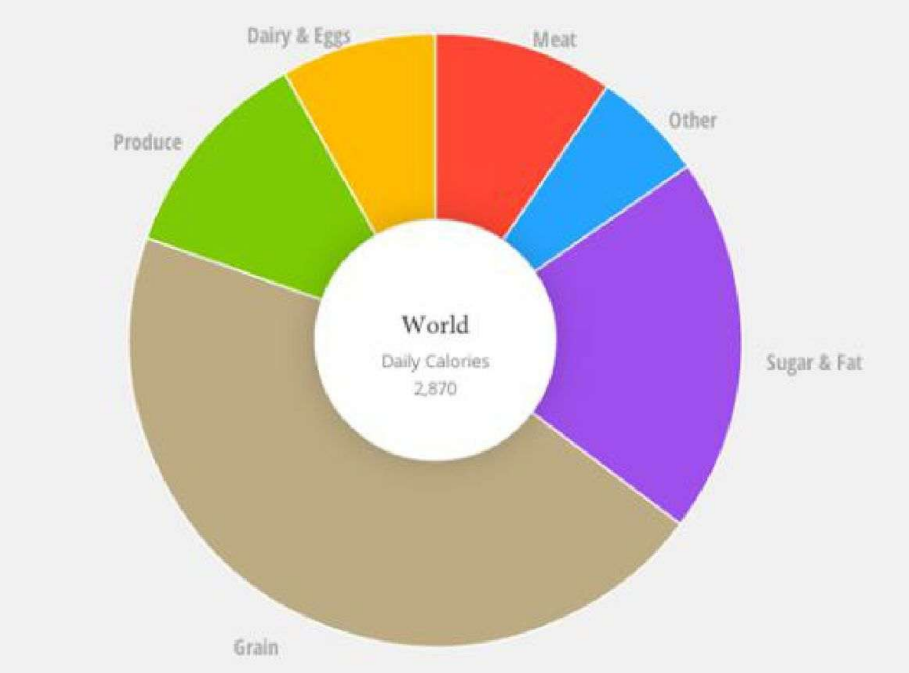
- For every 1 job directly supported by grain exports, an additional 3.2 jobs are supported throughout the U.S. economy. For every $1 of grain exports, the economic “ripple effects” add $1.84 to the economy.

- The positive impacts of grain exports extend well beyond the agricultural industry. Some of the industries receiving the greatest economic benefit and contribution from grain exports are the wholesale trade, real estate, oil and natural gas production, and banking and financial industries.

Source: 2020 U.S. Grains Council Grain Export Map

Why Has Demand Been So Strong?

Grain's Importance to World Food Supply



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Why is Grain Quality So Important?

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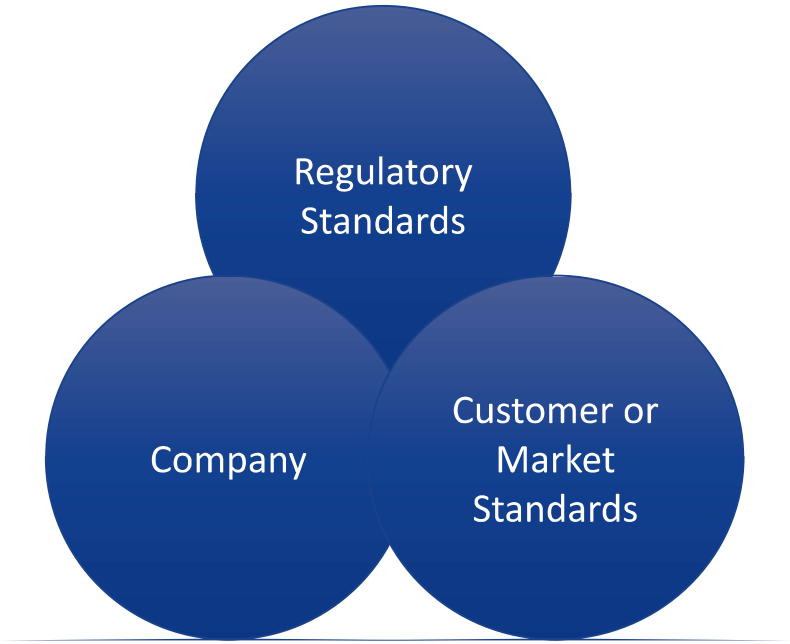
Quality – Food Safety - Productivity



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Global Regulatory Landscape

- U.S.
- E.U.
- Canada
- Japan
- World Health Organization – CODEX
- China

Why is Grain Quality Important?

- American farmers, grain handlers and exporters, depend upon accurate, timely and cost-effective delivery of mandated impartial Official inspection services administered by the Federal Grain Inspection Service (FGIS) and its designated and delegated agencies.
- The grain industry believes that the integrity and credibility of the FGIS official inspection and weighing certificate brings important value to the market that should be preserved.

Official Grain Inspection System

Why is FGIS Important?

- Our foreign customers also depend upon accurate, timely and cost-effective delivery of mandated impartial Official inspection services administered by the FGIS and its designated and delegated agencies.

- Continuous, predictable and consistent service will enhance the competitive position of U.S. grains and oilseeds in world markets, and retain the integrity of U.S. inspection results.

Adequate Service is Critical

- The deficiency in the quality of service provided by the Official inspection agency can lead to an increase in fees for grain handling facilities that erodes the competitive position of U.S. grain and oilseed exports.

USGSA and FGIS

- Grades and standards are the backbone of trading U.S. grain in domestic and international markets.
- As market conditions change, we must renew our efforts to ensure that the grades and standards promote efficient and fair trade.
- FGIS must have a clear understanding of the economically important factors for today's milling and processing, and ensure that the grades and standards reflect these needs.

What FGIS Does and Does Not Do

- FGIS/US Government (USG) does not:
  - Market grain
  - Mandate quality
  - Set grain prices
  - Arbitrate disputes

- Different parts of the USG are concerned with grain quality, marketing, food safety and phytosanitary issues.
  - FGIS has relationship with FDA to report food safety concerns
  - FGIS has relationship with APHIS to report phytosanitary issues to streamline issuance of APHIS phytosanitary certificate

- **USG does not mandate quality or price for private transactions**

Domestic vs. Export Grading

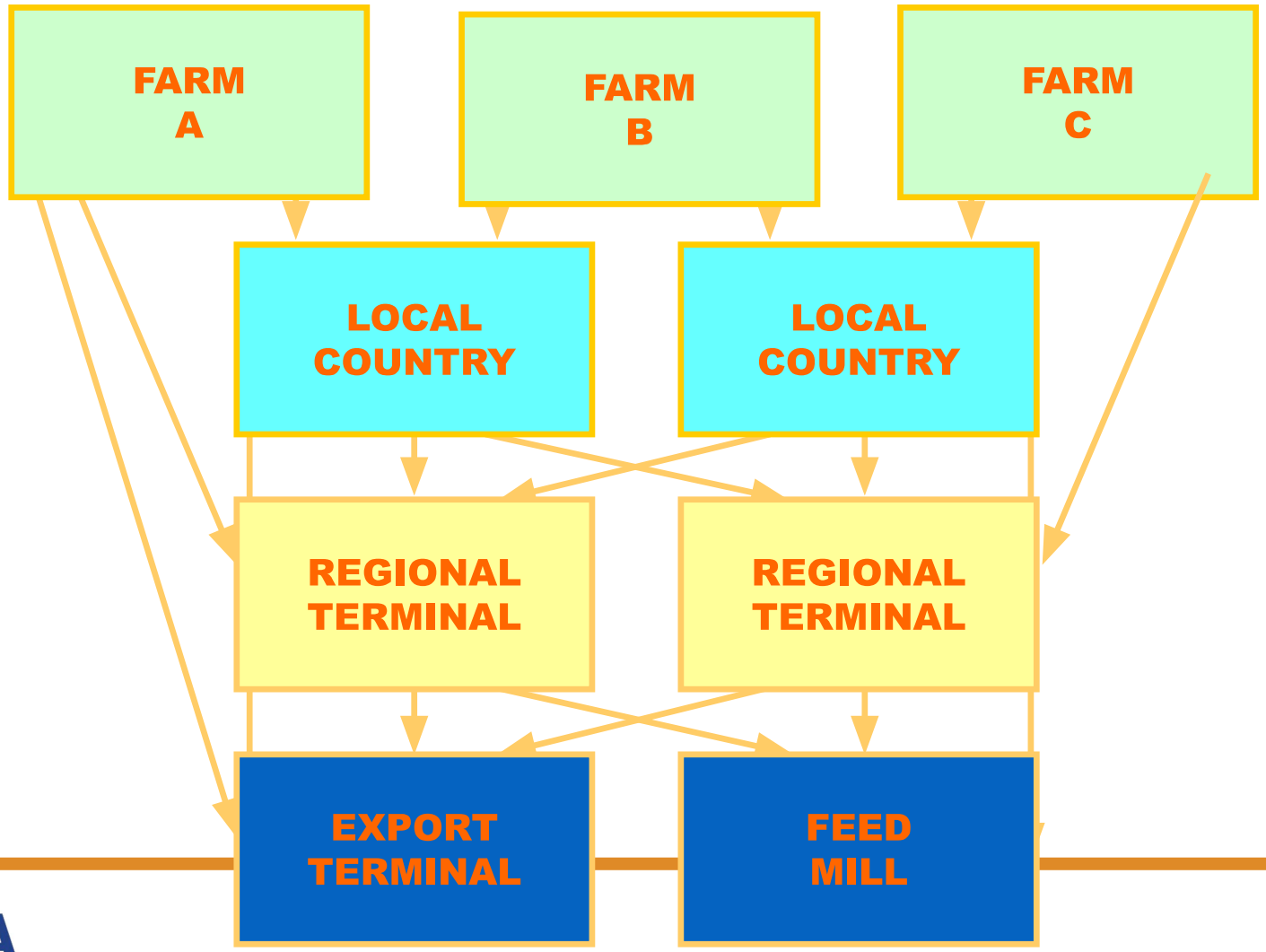
- Grain weighing and grading are generally optional for domestic shipments, and mandatory for grain exported from the US to another country
  - Why mandatory inspection of exports? What about imports?

- US has a surplus of grain; very low imports, grain exports a huge part of US agricultural economy.

- Most grain is inspected by someone during each transaction, whether it be the grain elevator employees, another third party inspection company, or an FGIS-authorized agency.
  - Inspection/use of the US Standards is optional on domestic shipments

Grain Quality and Testing

- In general, the grain industry we are seeing requests for more and more other factors/criteria like mycotoxins (aflatoxin, deoxynivalenol (DON, aka vomitoxin), fumonisin, zearalenone, ochratoxin), falling number in wheat, limits on specific types of damage (e.g., sprout damage), genetic testing for non-GMO shipments.
  - These are additional specs added to the contracts



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What the Heck Happens

- Different segments of the supply chain have different definitions of quality
- Quality is (or should be) checked / determined at each step of the supply chain
- What matters, to whom

Quality Concerns

- Bad harvests
  - Late
  - Wet
  - Field Damage
  - Low TW
  - BCFM
  - V-Word (vomitoxin)

Quality Concerns: Elevators

- Inconsistencies between graders
  - Domestic
  - International
- Quality deterioration during shipping
- Quality deterioration in elevator storage
- On-farm storage

Quality Concerns: End-Users

- Damage
- End use functionality
  - Reduced nutritional value
  - Reduced weight gain
  - Off-color end product
- Food safety concerns

Take Away Thoughts

- Quality effects your bottom line and your customers bottom line.
- Grain is a major part of the global food chain.
- Knowing your grain's quality is a competitive advantage over those who don't.
- Food safety – Regulatory compliance – Quality management & profitability are intertwined.
- *"If you don't measure it… you can't manage it."*

Thank You

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