



Agricultural Marketing Service

Federal Grain Inspection Service

Official Rice Grading

USA Rice Outlook Conference

December 10, 2024



Purpose of FGIS

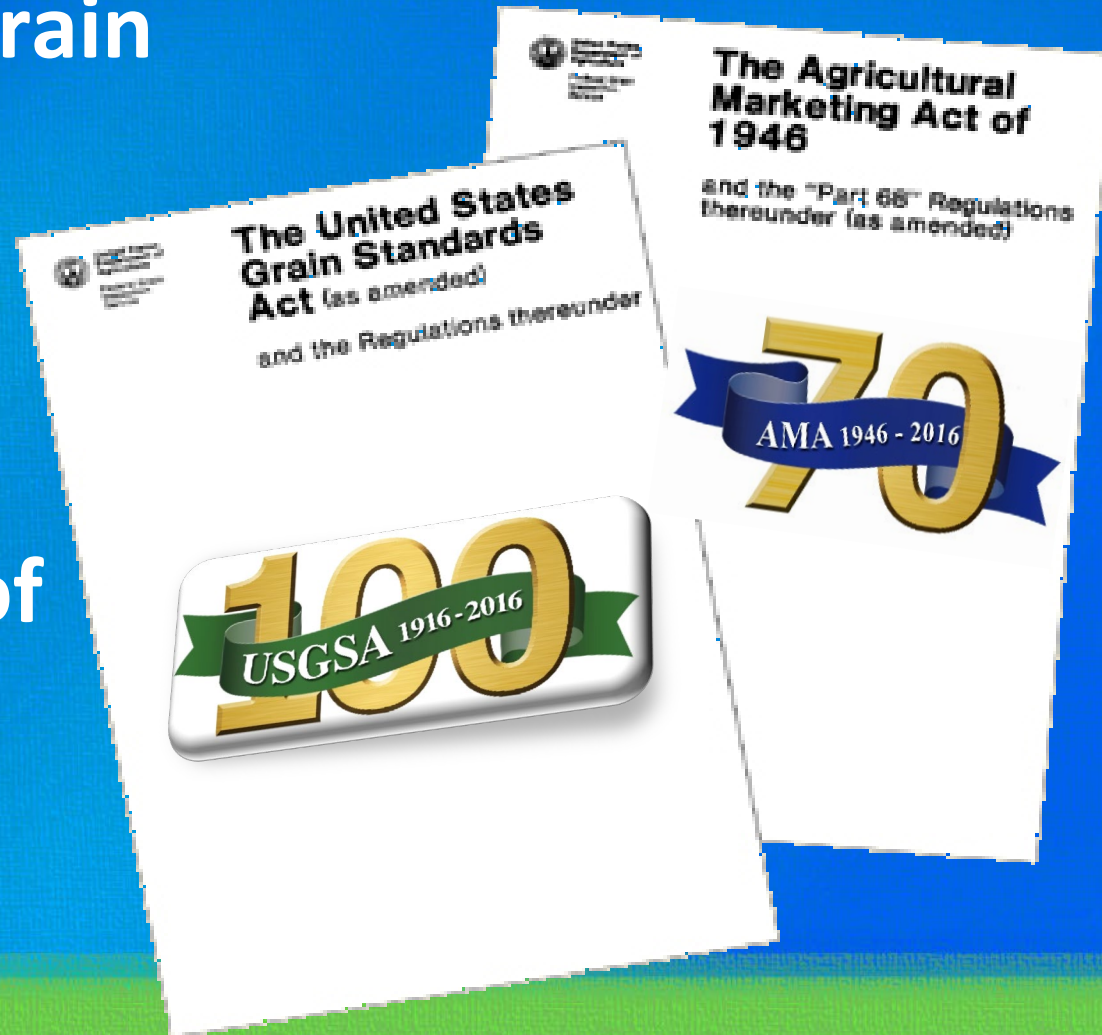
- Facilitate the marketing of Grain and Rice
- Maintain official U.S. standards for Grain, Rice, oilseeds, and pulses
- Manage the National Inspection System
 - Requires FGIS inspect and weigh all grain exports
 - Permissive inspections for rice and other commodities
- Establish methods and procedures and approve equipment

FGIS Does Not:

- **Market grain or rice**
- **Set prices or discounts**
- **Mandate quality**
- **Approve or dictate varieties to be grown**
- **Arbitrate disputes**

Governing Statutes

- United States Grain Standards Act (USGSA)
- Agricultural Marketing Act of 1946 (AMA)



AMA Commodities

Standards:

- Rough Rice
- Brown Rice
- Milled Rice
- Peas and Beans
- Lentils

No Standards:

- Flour
- Corn Meal
- Rice Bran
- Soybean Meal
- Vegetable Oil

Inspection Services Under AMA

- Fees charged for service
- Performed only upon request
- Any interested party may request an Official Inspection
- Most FGIS inspections of rice are required by the purchase contract

Rice Inspection Offices and Duty Points



Quality Assurance Specialist (QAS)



Board of Appeals and Review (BAR)



Representative Sampling



- Obtained in a random manner
- Approved Sampling Device
- Properly identified
- Retained in its original condition
- Of sufficient size to permit the required tests and retention of a file sample

Approved Sampling Devices



Inspecting Rice



U.S. Standards for Rice

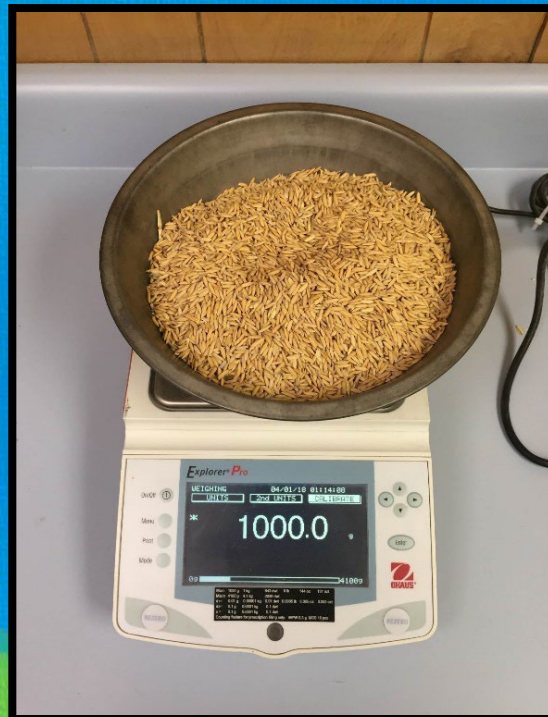
- **Rough Rice**
- **Brown Rice for Processing**
- **Milled Rice**
 - **Second Heads**
 - **Screenings**
 - **Brewers**

Classes of Rough Rice

- Long Grain Rough Rice
- Medium Grain Rough Rice
- Short Grain Rough Rice
- Mixed Rough Rice

Processing Rough Rice

- The official processing of Rough Rice begins with an official or submitted sample. (>3,000 grams)
- The sample is reduced to 1,000 grams for the milling process using an approved divider and scale.



Processing Rough Rice (Cont.)

- An additional portion of approximately 600 grams is used to determine the Moisture using an approved UGMA moisture meter.



Processing Rough Rice (Cont.)

- The 1,000 gram portion is Docked, Shelled, and Milled



Milling Yield

An estimate of the quantity of whole kernels and total milled rice (whole and broken kernels combined) that are produced in the milling of rough rice to a well-milled degree.

Determining Milling Yield

- Rice from the mill is placed in a metal can and allowed to cool to room temperature
- After the rice has cooled, it is weighed to determine Total Rice.

EXAMPLE: The sample of rough rice weighs 1,000 grams before the removal of dockage, shelling, and milling. After the removal of dockage, shelling, and milling, the sample weighs 679 grams.

679 grams divided by 1,000 grams = 67.9 percent

67.9 percent = 68 percent total milled rice

Determining Milling Yield (Cont.)

- Then a portion of at least 40 grams is divided from the Total Rice
- Whole kernels are separated from broken in that 40-gram portion to determine percent of Whole Kernels
- Multiply percent of whole kernels by percent of total rice

EXAMPLE: The 40-gram portion of well-milled rough rice contains 84.9 percent of whole kernels. The percent of total milled rice is 67.9 percent before rounding.

34.51 grams divided by 40.61 grams = 84.9 percent

84.9 percent X 67.9 percent = 57.6 percent = 58 percent whole kernels

Milling Yield Example

- The Total Rice for this lot was 67.9%
- The percent of Whole Kernels was 57.6%
- So the Milling Yield for this lot will be rounded to whole numbers and stated on the official certificate as:

58% - 68%

Rough Rice Grading Factors

- Heat Damaged & Objectionable Seeds
- Red Rice and Damaged Kernels
- Chalky Kernels
- Other Types
- Color

Seeds

Determine the number (count) of non-objectionable seeds and objectionable seeds in a 500 gram portion

RICE NON-OBJECTIONABLE SEEDS



Whole or broken seeds of *Echinochloa crusagalli* (commonly referred to as Barnyard Grass, Watergrass, and Japanese Millet).

RICE OBJECTIONABLE SEEDS



Whole or broken seeds of plants other than rice and *Echinochloa crusagalli* (commonly known as Barnyard Grass, Watergrass, and Japanese Millet).

NOTE: Not inclusive of all seeds.

Non-Objectionable seeds

Objectionable Seeds

Heat Damaged Rice

Determine the quantity (count) of Heat Damaged kernels in the 500 gram portion

RICE HEAT DAMAGE



A



B

Whole and broken kernels of rice which have been discolored to the minimum color intensity and coverage shown are considered heat damaged.

A. Minimum color intensity.

B. Minimum area of coverage around germ area (collar and tip). The same surface area coverage requirement also applies to other parts of the rice kernel.

Red Rice and Damaged Kernels

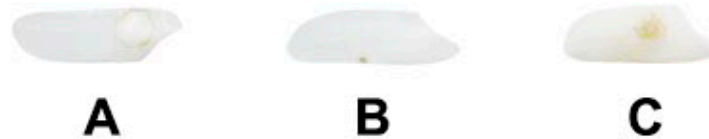
Red Rice

Whole or large broken kernels of rice on which there is an appreciable amount of red bran.



Red Rice and Damaged Kernels

Water, Stain, and Peck Damage



Whole or broken kernels damaged by insects or other means.

A. If the color intensity is equal to or greater than shown, the kernel is distinctly damaged.

B. If the damaged area is equal to or greater than the area shown, the color intensity will determine distinctly damaged.

C. Shows a stain spot.

Damage By Heat (Stain)

- Determine the percentage in 25 gram portion

RICE DAMAGE BY HEAT (STAIN)



Whole or broken kernels of rice that are distinctly discolored to the minimum color intensity illustrated. There is no minimum coverage requirement.

NOTE: Any parboiled rice kernels in non-parboiled rice is damage.

Chalk

RICE CHALKY KERNELS



Whole or broken kernels of rice which, in cross-section, contain an opaque white or “chalk-like” area that encompasses one-half or more of the exposed portion.

A. Whole kernel (suspect)

B. Cross-section (confirmed)

NOTE: Kernel (B) provides an example of what constitutes a chalky kernel and is not intended to represent any visual standard.

Other Types

Long Grain, Medium Grain, Short Grain



Whole kernels of Long Grain Rice in medium or short grain rice, medium grain rice in long or short grain, short grain rice in long grain or medium grain rice, and large broken kernels of long grain rice and medium or short grain rice and large broken kernels of medium or short grain rice in long grain rice.

Rough Rice

Grades and Grade Requirements for Rough Rice

| Grade | Maximum Number in 500 grams-- | | | Maximum limit (percent) | | | | Color ¹ Minimum Requirement |
|-----------|---|---|----------------------|--|-------------------------------|--------------------------|--------------------------|---|
| | Seeds and Heat damaged Kernels Total (Singly or Combined) | Heat-damaged Kernels and Objectionable Seeds (Singly or Combined) | Heat damaged Kernels | Red Rice and Damaged Kernels (Singly or Combined) ⁴ | Chalky Kernels ^{1 2} | | Other Types ³ | |
| | | | | | In Long Grain | In Medium or Short Grain | | |
| U.S.No. 1 | 4 | 3 | 1 | 0.5 | 1.0 | 2.0 | 1.0 | White or Creamy |
| U.S.No. 2 | 7 | 5 | 2 | 1.5 | 2.0 | 4.0 | 2.0 | Slightly Gray |
| U.S.No. 3 | 10 | 8 | 5 | 2.5 | 4.0 | 6.0 | 3.0 | Light Gray |
| U.S.No. 4 | 27 | 22 | 15 | 4.0 | 6.0 | 8.0 | 5.0 | Gray or Slightly Rosy |
| U.S.No. 5 | 37 | 32 | 25 | 6.0 | 10.0 | 10.0 | 10.0 | Dark Gray or Rosy |
| U.S.No. 6 | 75 | 75 | 75 | 15.0 | 15.0 | 15.0 | 10.0 | Dark Gray or Rosy |

U.S. Sample grade shall be rough rice which:

- (a) does not meet the requirements for any of the grades from U.S. No. 1 to U.S. No. 6, inclusive;
- (b) contains more than 14.0 percent of moisture;
- (c) is musty or sour, or heating;
- (d) has a commercially objectionable foreign odor; or
- (e) is otherwise of distinctly low quality.

¹ For the special grade Parboiled rough rice, see Section 868.212(b).

² For the special grade Glutinous rough rice, see Section 868.212(d).

³ These limits do not apply to the class Mixed Rough Rice.

⁴ Rice in grade U.S. No. 6 shall contain not more than 6.0 percent of damaged kernels.

Official FGIS Inspection Certificates

- Only issued by FGIS or Inspection Agencies designated by FGIS
- Issued under authority of Agricultural Marketing Act of 1946 and the U.S. Grain Standards Act
- Receivable by all courts of the United States as *prima facie* evidence

THANK YOU!



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www.ams.usda.gov/grades-standards/rice-pulses

