USDA-GIPSA
Federal Grain Inspection Service
Rough Rice Inspection

By
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Sacramento, CA
Governing Statutes

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

• Performed only upon request
• Not required by law
• Fees charged for service
• Most FGIS inspections of rice are required by contracts or agreements
Official Services

Cal Agri Inspection Co. is currently designated by FGIS to provide inspections in California. May, 2005 took over from State of CA. California Dept. Food & Agriculture
U.S. Rice Standards

• 1st established in 1918 for milled rice, and recommended for use in 1923
• 1927 established for rough rice
• 1942 established for brown rice
• Many changes over the years, with last change in 2002 for “hard milled”.
• All changes go through a “Federal Register” process.
U.S. Standards for Rice

- Rough or paddy rice
- Brown rice for processing
- Milled rice
Rough Rice Classes

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

- Objectionable seeds
- Non-objectionable seeds
- Total seeds and heat damage
- Heat-damaged kernels
- Red rice and damaged kernels
- Chalky kernels
- Other types of rice
- Color
- Sample grade factors: Odor, Moisture over 14.0%, DLQ
# Rough Rice Standard

<table>
<thead>
<tr>
<th>Grade</th>
<th>SEEDS AND HEAT-DAMAGED KERNELS</th>
<th>CHALKY KERNELS</th>
<th>COLOR REQUIREMENTS</th>
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<tbody>
<tr>
<td></td>
<td>MAXIMUM LIMITS OF</td>
<td>TOTAL</td>
<td>COLOR REQUIREMENTS</td>
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<tr>
<td></td>
<td></td>
<td>(SINGLY OR</td>
<td>(MINIMUM)</td>
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<td>COMBINED)</td>
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<td>HEAT-DAMAGED:</td>
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<td>COMBINED)</td>
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<td></td>
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<td>RED RICE</td>
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<td>IN</td>
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<td>MEDIUM</td>
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<td>OTHER TYPES</td>
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<tr>
<td>Number in</td>
<td>Number in</td>
<td>Number in</td>
<td>Shall be white or</td>
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<tr>
<td>500 grams</td>
<td>500 grams</td>
<td>500 grams</td>
<td>creamy.</td>
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**U.S. Sample grade:** 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 any commercially objectionable foreign odor; or (e) is otherwise of distinctly low quality.
Inspector grading requires approved picking surface and adequate lighting
The divider is always used to determine portion size for inspection. Boerner for small portion and Cargo for large.
Interpretive Line Prints
also referred to as Visual Reference Images
used to aid inspectors for subjective factors
Objectionable Seeds by count: 500 grams

- Alligator Heads
- Morning Glory
- Turtle Back
- Sudan Grass
- Water Parsley
- Lowsena (sickle pod)
- Curley Indigo
- Millet
- Kings Head (ragweed)
- Velvet Leaf
- Tall Indigo
- Pennycress
- Jimson Weed
- Johnson Grass
- Spearhead
Non-Objectionable Seeds count: 500 grams

- Whole or broken seeds of *Echinochloa crusgalli*

*Commonly known as Barnyard Grass, Water Grass, Japanese Millet*
Heat Damage: count 500 gr.

- Whole or broken kernels with the intensity of discoloration equal to or greater than shown

*Interpretive Line Slide R-2.0*
Heat Damage
Damaged by Heat: \( \% \) 25grams

- Any part of whole or broken kernels of rice which are distinctly discolored
- Any parboiled kernel in non-parboiled rice is damage.
Damage by Heat or “Stain”
Damaged Kernels: % 25 grams

- Whole or broken kernels damaged by insects, water, or other means
Water Stain and peck Damage
Total Broken Kernels (TBK)
Whole Kernels (WK)

Broken Kernels - rice kernels which are less than three-fourths of a whole kernel.

WK defined as more than $\frac{3}{4}$ of kernel
TBK defined as a broken kernel less than $\frac{3}{4}$ of a whole kernel
Milling Yield

Rough Rice appraisal

Milling yield is an estimate of the total pounds and percent of whole kernels (head rice) obtained when milling rough rice to a well milled degree.

• Total rice is the amount of rice (whole and broken kernels) obtained after milling.

• Whole kernels or head rice is the percent of whole kernels in the total rice.

milling yield: WK/TR (shown on certificate in whole %).
Harvest samples for appraisal
Sample Check-In

Each sample is logged into computer by applicant and assigned a GCI #
Breakdown to 1000 grams
Moisture on Dickey John meter
File maintained for any sample over 2000 grams
Cal Agri Rough Rice file room: over 5000 moisture proof containers
Dockage by Carter Dockage machine: material other than rice certification to “tenth” %
Sheller: paddy rice to brown rice stage
Yamamoto replaced Grain-man/McGill for 2011 crop
4 separate mills used for official services

Rough Rice (Paddy) Milling Room
McGill # 3 rice miller to determine Total Rice (TR)

7lbs milling wt for Medium
10 lbs short
2 lbs long

30 second milling and brushing cycles
Total Rice (TR) is total amount of milled rice from the McGill #3, and weighed to gram weight. 
example here: 709.5 grams = 710 grams or 71.0 TR
Foss Grain Check 312

Objective and consistent measuring instrument to determine broken (tbk) and whole kernels (wk) of milled rice
Whole kernels (WK) determined on 4th split (approx 40 grams) from the total rice the machine gives percentage of actual whole kernels.
Inspection pan ticket or work record includes all the factors results from inspection

Example:
Total rice = 724 grams or 72.4
Grain check result: 90.4
72.4 × 90.4 = 65.4 wk
Milling yield (round to whole%) = 65/72 wk/tr
Certificate

Official results are recorded

Can be used as prima facie evidence

US numerical grade
Rice harvesting in California
Rough rice shipment at the Port of Sacramento
Probe sampling of trucks for rough rice composite
Composite samples
samples kept individually from each shipping warehouse
Manual Sampling Devices
(Hand Sampling)

1. Ellis Cup
2. Pelican
3. Compartmented Probe (Trier)
Ellis cup belt sampling
Destination: Turkey
Slings in Warehouse for future shipments to Japan or Korea
Check loading
Sling bags
Port Sling Loading
Loading slings
Slings in the HOLD
Visit the GIPSA Website
www.gipsa.usda.gov
Thank You!