



USDA Foreign Agricultural Service

GAIN Report

Global Agriculture Information Network

Template Version 2.09

Voluntary Report - Public distribution

Date: 11/12/2008

GAIN Report Number: CH8100

China, Peoples Republic of

FAIRS Subject Report

Grain and Oilseed Standards

2008

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Report Highlights:

On July 3, 2008, China notified the WTO of the National Standard GB 1353—2007 "National Standard for Corn" as TBT/N/CHN/403 and National Standard GB-1532-2006 "National Standard for Soybeans" as TBT/N/CHN/402. These standards specify the relevant terms and definitions, classifications, quality requirements, test methods, and requirements for labeling, packaging, transportation and storage of corn and soybeans. National Standard is GB/T 5494 Inspection of Grain and Oilseeds - Methods for Determination of Foreign Matter and Unsound Kernels is referenced in that standard and published here as a reference in reviewing TBT/N/CHN/402 and 403. This report is an UNOFFICIAL translation of GB/T 5494.

Includes PSD Changes: No
Includes Trade Matrix: No
Annual Report
Beijing [CH1]
[CH]

Executive Summary: On July 3, 2008, China notified the WTO of the National Standard GB 1353—2007 "National Standard for Corn" (Replacing GB 1353-1999) as TBT/N/CHN/403. This standard specifies the relevant terms and definitions, classifications, quality requirements, test methods, and requirements for labeling, packaging, transportation and storage of corn. This standard also applies to testing, evaluation and identification of the quality of corn. The date for submission of final comments to the WTO is September 3, 2008. The proposed date of adoption is 90 days after circulation by the WTO Secretariat (October 3, 2008) and the proposed date of entry into force is 6 months after adoption (January 3, 2009). This is notified as GAIN Report CH8069.

On July 3, 2008, China notified the WTO of the National Standard GB-1532-2006 "National Standard for Soybeans" (Replacing GB 1352-1986) as TBT/N/CHN/402. This standard specifies the relevant terms and definitions, classifications, quality requirements, test methods, and requirements for labeling, packaging, transportation and storage of soybeans. This standard also applies to testing, evaluation and identification of the quality of commercial soybeans. The date for submission of final comments to the WTO is September 3, 2008. The proposed date of adoption is 90 days after circulation by the WTO Secretariat (October 3, 2008) and the proposed date of entry into force is 6 months after adoption (January 3, 2009). This is notified as GAIN Report CH8066.

One of the measures that is referenced in the proposed National Standard is GB/T 5494 Inspection of Grain and Oilseeds - Methods for Determination of Foreign Matter and Unsound Kernels. This standard has not been notified to the WTO. This National Standard, along with other standards published in GAIN Reports CH8097-CH8105, is being published so that GB 1353—2007 "National Standard for Corn" TBT/N/CHN/403 and GB-1532-2006 "National Standard for Soybeans" TBT/N/CHN/402 can be reviewed with this additional pertinent information.

Thanks go to the United States Soybean Export Council – International Marketing and the U.S. Grains Council for their support in translating this measure.

BEGIN TRANSLATION

National Standard of the People's Republic of China

GB 5494-85

Inspection of Grain and Oilseeds - Methods for Determination of Foreign Matter and Unsound Kernels

Issued on Nov. 2, 1985

Implemented on July 1, 1986

This standard is applicable to the inspection of the foreign matter and unsound kernels of commodity grain and oilseeds.

1 Inspection of Foreign Matter

1.1 Instruments and Apparatus

- 1.1.1 Balance: Sensitivity 0.01g, 0.1g;
- 1.1.2 Grain jig;
- 1.1.3 Electric sizer;
- 1.1.4 Sampling splitter and sampling split plate;
- 1.1.5 Analytical pan, forceps etc.
- 1.2 Test Sample

Test sample for inspection of the foreign matter is mainly divided into two types, the bulk sample and the laboratory sample, of which the bulk sample is used to inspect the foreign matter composed of big pieces in bulk sample, including the bulk foreign matters and the undersize product of the absolute jig layer while the laboratory sample is used to inspect the side-by-side foreign matter of approximately the same size with grain kernels of few test samples that are collected from the foreign matters in bulk samples that have been inspected. For the dosage of the test sample inspected for the foreign matter, please refer to the table below:

Specified Table of Test Sample Dosage for Inspection of the Foreign Matter

Description of Grain and Oilseeds	Weight of Bulk Sample(g)	Weight of Laboratory Sample(g)
Small-sized kernels: millet, sesame, rapeseeds etc	500	10
Medium-sized kernels: paddy rice, wheat, sorghum, small bean, cottonseeds etc	500	50
Large-sized kernels: soybean, corn, pea, sunflower seeds, small-sized horsebean etc.	500	100
Extra-sized kernels: peanut in shell, peanut kernel, castor seeds, tung seeds, tea seeds, shinyleaf yellowhorn, large-sized horsebean etc	1000	200
Others: sweet potato slices, barnyard millet with hull in rice and paddy kernel inspection	500~1000	...

1.3 Screening

1.3.1 Screening with electric sizer: fix the jig layer properly as stipulated in the quality standard (put the big hole jig above, the small hole jig below and cover the jig bottom), weigh and put test sample as stipulated into the jig, cover the jig then put it on the electric sizer and power on, the jig screens towards right and left respectively for 1 minute (110~120 rpm) automatically, then stand for few minutes, put the oversize product and the undersize product into the analytical pan respectively. The kernels which are blocked inside of jig pore are oversize product.

1.3.2 Manual screening: fix the jig layer properly according to the method above, put the test sample in and cover the jig cover. Put the jig on plate glass or smooth table top, screen by hand at a speed of 110~120 rpm for one minute both clockwise and counterclockwise. The range of screening can be controlled in an area of 8~10cm wider than the diameter of the jig. The operation after the screening is the same as the method above.

1.4 Inspection of foreign matter in bulk sample

1.4.1 Operation method: Weigh and take test sample (W) from the average sample as stipulated in 1.2, screen the test sample twice according to the screening method (the extra-sized grain and oilseeds should be screened 4 times), then pick out and weigh the oversize foreign matter and undersize product (W_1). (The oversize foreign matters wheat should be picked out from the 4.5mm jig).

1.4.2 Calculation of results

The content of foreign matter in bulk sample should be calculated as formula (1):

$$\text{Foreign matter in bulk sample (\%)} = \frac{W_1}{W} \times 100 \quad (1)$$

Where: W_1 - weight of foreign matter in bulk sample, g;

W - weight of bulk sample, g.

The allowable deviation between dual test results should not exceed 0.3%. Figure out their average value and take the first digit after the decimal point as the inspection result.

1.5 Inspection of foreign matter in laboratory sample

1.5.1 Operation method: Measure and take test sample (W_2) from the sample which has been inspected for the foreign matter in bulk sample as stipulated in 1.2, put them into the analytical pan, pick out the foreign matter as stipulated in the quality standard, then weigh them up (W_3).

1.5.2 Calculation of results

The content of foreign matter in laboratory sample should be calculated as formula (2):

$$\text{Foreign matter in laboratory sample (\%)} = (100 - M) \times \frac{W_3}{W_2} \dots\dots\dots (2)$$

Where: W_3 - Weight of foreign matter in laboratory sample, g;

W_2 - Weight of laboratory sample, g;

M - Percentage of foreign matter in bulk sample, %.

The allowable deviation between dual test results should not exceed 0.3%. Figure out their average value and take the first digit after the decimal point as the inspection result.

1.6 Inspection of the mineral

1.6.1 Operation method: For those stipulated with mineral index in the quality standard, take the mineral picked from the foreign matter in laboratory sample(except rice) , then weigh them up (W_4)

1.6.2 Calculation of results

The content of mineral should be calculated as formula (3):

$$\text{Mineral (\%)} = (100-M) \times \frac{W_4}{W_2} \dots\dots\dots (3)$$

Where: W_4 - Weight of mineral, g;

W_2 -Weight of laboratory sample, g;

M - Percentage of foreign matter in bulk sample, %.

The allowable deviation between dual test results should not exceed 0.1%. Figure out their mean value and take the second digit after the decimal point as the inspection result.

1.7 Calculation of the total content of foreign matter

The total content of foreign matter content in common grain and oilseeds should be calculated as formula (4):

$$\text{The total content of foreign matter (\%)} = M+N\dots\dots\dots (4)$$

Where: M - Percentage of foreign matter in bulk sample, %;

N - Percentage of foreign matter in laboratory sample, %.

Take the first digit after the decimal point as the inspection result.

1.8 Inspection of foreign matter in rice

1.8.1 Inspection of bran powder

1.8.1.1 Operation method: Weigh and take test sample about 200g (W) from average sample, put them twice into a round hole jig with a diameter of 1.0mm, screen them by the screening method in 1.3, pour the test sample out and pat the jig to make the bran powder falls into jig bottom. After screening of the whole test samples, brush the bran powder that retains on the jig layer, weigh all the bran powder together (W_1).

1.8.1.2 Calculation of results

The bran powder content should be calculated as formula (5):

$$\text{Bran powder (\%)} = \frac{W_1}{W} \times 100 \dots\dots\dots$$

Where: W_1 - Weight of bran powder, g;

W - Weight of test sample, g.

The allowable deviation between dual test results should not exceed 0.04%. Figure out their average value and take the second digit after the decimal point as the inspection result.

1.8.2 Inspection of mineral

1.8.2.1 Operation method: pick out the mineral from the test sample in which the bran powder has been inspected and weigh them up (W_2).

1.8.2.2 Calculation of results

The mineral content should be calculated as formula (6):

$$\text{Mineral (\%)} = \frac{W_2}{W} \times 100 \dots\dots\dots (6)$$

Where: W_2 - Weight of mineral, g;

W - Weight of test sample, g.

The allowable deviation between dual test results should not exceed 0.005%. Figure out their average value and take the second digit after the decimal point as the inspection result.

1.8.3 Inspection of other foreign matter

1.8.3.1 Operation method: pick out the paddy kernel, barnyard millet and other foreign matter from the test sample in which the bran powder and mineral have been inspected, weigh them up together (W_3).

1.8.3.2 Calculation of results

The other foreign matter content should be calculated as formula (7):

$$\text{Other foreign matter (\%)} = \frac{W_3}{W} \times 100 \dots\dots\dots (7)$$

Where: W_3 - Weight of paddy kernel, barnyard millet and other foreign matter, g;

W - Weight of test sample, g.

The allowable deviation between dual test results should not exceed 0.04%. Figure out their average value and take the second digit after the decimal point as the inspection result.

1.8.4 Inspection of barnyard millet with hull and paddy kernel

Take 500g test sample from the average sample respectively, pick out the barnyard millet with hull and paddy kernel, and calculate their content respectively. The kernel number that has been picked out multiplied by 2 is the inspection result, expressed as Kernel/kg.

The allowable deviation between dual test results should not exceed 3 Kernels/kg for millet with hulls and 2 Kernels/kg for paddy rice kernels. Figure out their average values respectively and take it as the inspection result. The average value that is less than 1 kernel should be calculated as 1 kernel.

1.8.5 Calculation of total content of foreign matter in rice

The total content of foreign matter in rice should be calculated as formula (8):

$$\text{Total content of foreign matter in rice (\%)} = A+B+C \dots\dots\dots (8)$$

Where: A- Percentage of bran powder;

B- Percentage of mineral;

C- Percentage of other foreign matter.

Take the second digit after the decimal point as the calculation result.

2 Inspection of Unsound Kernels

2.1 Operation method: pick out the unsound kernels as stipulated in quality standard while inspecting the foreign matter in laboratory sample and weigh them up (W_1)

2.2 Calculation of results

The content of unsound kernels should be calculated as formula (9):

$$\text{Unsound kernels (\%)} = (100 - M) \times \frac{W_1}{W} \dots\dots\dots (9)$$

Where: W_1 - Weight of unsound kernels, g;

W - Weight of test sample, g;

M - Percentage of foreign matter in bulk sample, %.

The allowable deviation between dual test results should not exceed 1.0% for large-sized and extra-sized kernel grain; 0.5% for medium-sized and small-sized kernel grain. Figure out their average value and take the first digit after the decimal point as the inspection result.

3 Calculation of Pure Kernel Yield (Pure Rate) of Grain

3.1 Calculation of pure kernel yield (pure rate) of cleaned grain

Pure kernel yield (pure rate) of cleaned grain should be calculated as formula (10):

$$\text{Pure kernel yield (\%)} = \frac{W - W_1 \div 2}{W} \times 100 \dots\dots\dots (10)$$

Where: W_1 - Weight of unsound kernels, g;

W - Weight of test sample, g.

3.2 Calculation of pure kernel yield (purity rate) of rough grain

Pure kernel yield (purity rate) of rough grain should be calculated as formula (11)

$$\text{Pure kernel yield (\%)} = \frac{W - (W_2 + W_1 \div 2)}{W} \times 100 \dots\dots\dots (11)$$

Where: W_1 - Weight of unsound kernels, g;

W_2 - Weight of foreign matter, g;

W - Weight of test sample, g.

Take the first digit after the decimal point as the calculation result.

Additional Explanation:

This national standard was proposed by the Ministry of Commerce of PRC.

This standard was drafted by the Grain Storage and Transport Bureau, the Ministry of Commerce.

Major draftsmen of this standard are Gao Xiuwu, Yang Haoran, Wu Yanxia, and Lv Guifen.