GRAIN INSPECTION HANDBOOK

BOOK II, CHAPTER 6

MIXED GRAIN

CHAPTER 6

MIXED GRAIN

Tables

6.1 GENERAL INFORMATION

a. All quantities referenced in this chapter are approximate unless otherwise specified.

b. Use an approved divider to obtain subportions of a sample for analysis unless otherwise specified.

c. If an approved mechanical shaker is unavailable, inspectors may handsieve the sample. When handsieving, hold the sieve level in both hands with elbows close to the sides. In a steady motion, move the sieve from left to right approximately 10 inches and then return from right to left. Repeat this motion 30 times.

d. Official inspection personnel shall document inspection information during sampling and grading. See book IV, chapter 2.

The inspection process provides various factor information used to determine grade and to provide further information on the condition or quality of mixed grain. Each section of this chapter provides details on recording factor information. If requested by the applicant for inspection, additional information may be provided (e.g., an exact count on stones in addition to the percentage by weight, a percentage for a specific type of damage, etc.).

6.2 GRADES AND GRADE REQUIREMENTS

The standards for mixed grain provide two grades for mixtures of grain. These are U.S. Mixed Grain and U.S. Sample Grade Mixed Grain. Special grades are provided to emphasize special qualities or conditions affecting the value and are added to and made a part of the grade designation. Special grades do not affect the mixed grain or sample grade designation.

TABLE NO. 1 - GRADES AND GRADE REQUIREMENTS - MIXED GRAIN

Grade	Maximum Limits of -		
	Moisture	Damaged kernels total (percent)	Heat-Damaged kernels (percent)
U.S. Mixed Grain	16.0	15.0	3.0

U.S. Sample Grade:

U.S. Sample Grade is mixed grain that:

(a) Does not meet the requirements for the grade U.S. Mixed Grain; or

(b) Contains 8 or more stones which have an aggregate weight in excess of 0.2 percent of the sample weight, 2 or more pieces of glass, 3 or more crotalaria seeds (Crotalaria spp.), 2 or more castor beans (Ricinus communis L.), 8 or more cockleburs (Xanthium spp.) or similar seeds singly or in combination, 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 10 or more pieces of rodent pellets, bird droppings, or an equivalent quantity of other animal filth in 1-1/8 to 1-1/4quarts of grain; or

(c) Has a musty, sour, or commercially objectionable foreign odor (except for smut or garlic); or

(d) Is heating or otherwise of distinctly low quality.

6.3 GRADE DESIGNATIONS

Use the following guidelines when assigning grades.

a. On the grade line.

(1) The letters "U.S.",

(2) The words "Mixed Grain" or "Sample Grade Mixed Grain", and

(3) The name of each applicable special grade in alphabetical order.

When applicable, insert the "or better" grade designation between the phrase "Sample Grade" and the phrase "Mixed Grain."

b. In the "Remarks" section.

(1) The name and approximate percentage of each kind of grain which constitutes 10.0 percent or more of the mixture in their order of predominance.

(2) When applicable, the words "Other grains" followed by the combined percentage of those kinds of grains, each of which is present in a quantity less than 10.0 percent are shown next.

(3) When applicable, the words "Foreign material and fines" together with the percentage are shown last.

6.4 SPECIAL GRADES

Special grades draw attention to unusual conditions in grain and are made part of the grade designation. The definitions and examples of the designations for special grades in mixed grain are:

a. Blighted Mixed Grain. Mixed grain in which barley predominates and that contains more than 4.0 percent of fungus-damaged and/or mold-damaged barley kernels.

Example: U.S. Mixed Grain, Blighted
In "Remarks" section: Barley 48%, Oats 40%,
Other grains 12%

b. Ergoty Mixed Grain.

(1) Mixed grain in which rye or wheat predominates and that contains more than 0.30 percent ergot, or

(2) Any other mixed grain that contains more than 0.10 percent ergot.

Example: U.S. Mixed Grain, Ergoty
In "Remarks" section: Corn 54%, Other grains
46%, Foreign material and fines 7%

c. Garlicky Mixed Grain.

(1) Mixed grain in which wheat, rye, or triticale predominates and that contains 2 or more green garlic bulblets, or an equivalent quantity of dry or partly dry bulblets in 1,000 grams of mixed grain.

(2) Any other mixed grain that contains 4 or more green garlic bulblets, or an equivalent quantity of dry or partly dry bulblets in 500 grams of mixed grain.

Example: U.S. Mixed Grain, Garlicky
In "Remarks" section: Corn 52%, Soybeans 48%
Foreign material and fines 16%

d. Infested Mixed Grain. Mixed grain that is infested with live weevils or other live insects injurious to stored grain.

Example: U.S. Mixed Grain, Infested
In "Remarks" section: Wheat 71%, Rye 29%,
Foreign material and fines 1%

e. Smutty Mixed Grain.

(1) Mixed grain in which rye, triticale, or wheat predominates and that contains 15 or more average size smut balls, or an equivalent quantity of smut spores in 250 grams of mixed grain, or

(2) Any other mixed grain that has the kernels covered with smut spores to give a smutty appearance in mass or that contains more than 0.2 percent smut balls.

Example: U.S. Mixed Grain, Smutty
In "Remarks" section: Wheat 46%, Barley 44%,
Other grains 10%

f. Treated Mixed Grain. Mixed grain that has been scoured, limed, washed, sulfured, or treated in such a manner that its true quality is not reflected by the grade designation U.S. Mixed Grain or U.S. Sample Grade Mixed Grain.

Example: U.S. Sample Grade Mixed Grain, Treated (Limed)
In "Remarks" section: Wheat 48%, Oats 42%,
Other grains 10%

6.5 OPTIONAL GRADE DESIGNATION

The Official U.S. Standards for Grain provide for an optional grade designation, commonly referred to as "or better." Upon the request of an applicant, mixed grain may be certified as U.S. Sample Grade "or better."

Example: U.S. Sample Grade or better Mixed Grain
In "Remarks" section: Corn 81%, Other grains
19%, Foreign material and fines 1%

6.6 BASIS OF DETERMINATION

Distinctly Low Quality. The determination of distinctly low quality is made on the basis of the lot as a whole at the time of sampling when a condition exists that may or may not appear in the representative sample and/or the sample as a whole.

Certain Quality Determinations. Each determination of rodent pellets, bird droppings, other animal filth, broken glass, castor beans, cockleburs, crotalaria seeds, dockage, garlic, live insect infestation, large stones, moisture, temperature, an unknown foreign substance(s), and a commonly recognized harmful or toxic substance(s) is made on the basis of the sample as a whole. When a condition exists that may not appear in the representative sample, the determination may be made on the basis of the lot as a whole at the time of sampling according to procedures prescribed in FGIS instructions.

All Other Determinations. Each determination of damaged and heat-damaged kernels, and the percentage of each kind of grain in the mixture is made on the basis of the sample after removal of foreign material and fines. Other determinations not specifically provided for under the General Provisions are made on the basis of the grain as a whole, except the determination of odor is made on either the basis of the grain as a whole or the grain when free from foreign material and fines.

6.7 DEFINITION OF MIXED GRAIN

Mixed grain is defined as:

Any mixture of grains for which standards have been established under the United States Grain Standards Act, provided that such mixture does not come within the requirements of any of the standards for such grains; and that such mixture consists of 50 percent or more of whole kernels of grain and/or whole and broken soybeans which will not pass through a 5/64 triangular-hole sieve and/or whole flaxseed that passes through such a sieve after sieving according to procedures prescribed in FGIS instructions.

Whole kernels are kernels with three-fourths or more of the kernel present. Other grains for which standards have been established are barley, canola, corn, flaxseed, oats, rye, sorghum, soybeans, sunflower seed, triticale, and wheat.

Basis of Determination. Determine mixed grain on a representative portion of the original sample. When corn predominates in the mixture, analyze a portion of 250 grams. When soybeans or sunflower seed predominate in the mixture, analyze a portion of 125 grams. For all other mixtures, analyze a portion of 50 grams.

Determine if the representative portion contains:

a. A mixture of grains for which standards have been established.

b. Less than 50 percent of material, except flaxseed, that passes through a 5/64 triangular-hole sieve.

Consider grain not meeting requirements "a" or "b" not standardized grain. No further analysis is necessary on a sample designated as not standardized grain unless a specific factor test is requested.

6.8 HEATING

Mixed grain developing a high temperature from excessive respiration is considered heating. Heating mixed grain, in its final stages, will usually have a sour or musty odor. Care should be taken not to confuse mixed grain that is heating with mixed grain that is warm and moist because of storage in bins, railcars, or other containers during hot weather.

Basis of Determination. Determine heating on evidence obtained at the time of sampling or on the basis of the sample as a whole.

Certification. Grade heating mixed grain U.S. Sample Grade and record the word "Heating" in the "Remarks" section of the certificate.

6.9 ODOR

Basis of Determination. Determine odor on evidence obtained at the time of sampling or on the sample either before or after the removal of foreign material and fines.

TABLE NO. 2

ODOR CLASSIFICATION EXAMPLES		
Sour	Musty	Commercially Objectionable Foreign Odors
Boot	Ground	Animal hides
Fermenting	Insect	Decaying animal and vegetable matter
Insect (acrid)	Moldy	Fertilizer
Pigpen		Fumigant
		Insecticide
		Oil products
		Skunk
		Smoke
		Strong weed

Commercially Objectionable Foreign Odors. Commercially objectionable foreign odors are odors, except smut and garlic odors, foreign to grain that render it unfit for normal commercial usage.

Fumigant or insecticide odors are considered as commercially objectionable foreign odors if they linger and do not dissipate. When a sample of mixed grain contains a fumigant or insecticide odor that prevents a determination as to whether any other odor(s) exists, apply the following guidelines:

a. Original Inspections. Allow the work portion to aerate in an open container for 4 hours, or less, if the odor dissipates in less time.

b. Reinspections, Appeal, and Board Appeal Inspections. Allow unworked file samples and new samples to aerate in an open container for 4 hours, or less, if the odor dissipates in less time. The 4-hour aeration requirement does not apply when the original work portion was aerated and retained as the final file.

Consider the sample as having a commercially objectionable foreign odor if the fumigant or insecticide odor persists based on the above criteria.

Final Determinations. The inspector(s) is responsible for making the final determination for all odors. A consensus of experienced inspectors is used, whenever possible, on samples containing marginal odors. The consensus approach is not required if no odor or a distinct odor is detected.

Certification. Grade mixed grain containing a "distinct" musty, sour, or commercially objectionable foreign odor as U.S. Sample Grade. Record the words "Musty," "Sour," or "Commercially Objectionable Foreign Odor" in the "Remarks" section of the certificate.

6.10 MOISTURE

Water content in grain as determined by an approved device according to procedures prescribed in FGIS instructions.

Basis of Determination. Determine moisture before the removal of foreign material and fines on a representative portion of the original sample.

The procedures for performing a moisture determination using the DICKEY-john Grain Analysis Computer GAC 2100 moisture meter are described in book II, chapter 1, section 1.10.

To determine the appropriate sample portion size and GAC 2100 instrument setting for determining moisture content, refer to the moisture testing requirements for the grain that predominates in the mixture.

Certification. Record the percent of moisture on the certificate to the nearest tenth percent. Mixed grain containing more than 16.0 percent moisture is graded U.S. Sample Grade.

6.11 TEST WEIGHT

The weight per Winchester bushel (2,150.42 cubic inches) as determined using an approved device according to procedures prescribed in FGIS instructions.

Basis of Determination. Determine test weight before the removal of foreign material and fines on a portion of sufficient quantity to overflow the kettle.

The procedures for performing the test weight determination and available services are described in book II, chapter 1, section 1.11.

Certification. Record test weight results on the work record as displayed on the electronic scale or in whole and half pounds. Disregard fractions of a half pound. Record the test weight on the certificate in whole and half pounds. If requested, convert the pounds per bushel (lbs./bu) result to kilograms per hectoliter (kg/hl). For mixtures where wheat (other than Durum) is the predominant grain, use the following formula: (lbs./bu x 1.292) + 1.419 = kg/hl. For mixtures where wheat is the predominant grain and Durum is the predominant wheat class use the following formula: (lbs./bu x 1.292) + 0.630= kg/hl. For mixtures where other grains are predominant use the following formula: lbs./bu x 1.287 = kg/hl. Record the kg/hl result in the "Remarks" section in whole and tenths.

6.12 DISTINCTLY LOW QUALITY

Consider mixed grain distinctly low quality when it is of inferior quality and the existing grade factors or guidelines do not properly reflect the inferior condition.

Basis of Determination. Use all available information to determine whether the mixed grain is of distinctly low quality. This includes a general examination of the mixed grain during sampling and an analysis of the obtained sample(s).

Large Debris. Mixed grain containing two or more stones, pieces of glass, pieces of concrete, or other pieces of wreckage or debris which are visible but too large to enter the sampling device is considered distinctly low quality.

Other Unusual Conditions. Mixed grain that is obviously affected by other unusual conditions which adversely affect the quality of the mixed grain and cannot be properly graded by use of the grading factors specified or defined in the standards is considered distinctly low quality.

Mixed grain suspected of containing diatomaceous earth is considered distinctly low quality unless the applicant specifically requests an examination to verify the presence of diatomaceous earth. If the laboratory examination verifies that the mixed grain contains diatomaceous earth, then the mixed grain is not considered distinctly low quality due to diatomaceous earth. Refer to Program Directive 9180.49, Grading and Certification of Grain Containing Diatomaceous Earth and Silica Gel, for additional information regarding the testing of mixed grain for diatomaceous earth.

Certification. Grade distinctly low quality mixed grain as U.S. Sample Grade. Record the words "Distinctly Low Quality" and the reason(s) why in the "Remarks" section of the certificate.

6.13 U.S. SAMPLE GRADE CRITERIA

Basis of Determination. Determine U.S. Sample Grade criteria before the removal of foreign material and fines based on a work portion of 1,000 - 1,050 grams. Table No. 3 shows the criteria and corresponding Visual Reference Images, tolerance limits, and the appropriate basis of determination. Consider identifiable pieces of grain, processed grain products (e.g., soybean meal, sorghum grits, corn meal, bulgur, etc.), or feed pellets in grain as foreign material. Unidentifiable materials or material unrelated to grain shall function as "unknown foreign substance."

TABLE NO. 3

U.S. SAMPLE GRADE CRITERIA			
Criteria	*Visual Reference Image*	Number/Weight **1/** *Sample Basis*	Number/Weight **1/** Lot Basis **2/**
Any numerical grading factor		Excess of limit in Table No. 1	N/A
Animal filth	OF-1.0	10 or more	N/A
Castor Beans	OF-3.0	2 or more	N/A
Cockleburs	OF-6.0	8 or more	N/A
Crotalaria seeds	OF-8.0	3 or more	N/A
Glass		2 or more	N/A
Odor		Presence	N/A
Stones		8 or more and in excess of 0.2% by weight	N/A
Unknown foreign substances **3/**	OF-31.0	4 or more	N/A
Heating		Presence	Presence
Large Debris *		N/A	2 or more
Other unusual conditions *		Presence	Presence

1/ Record count factors to the nearest whole number.

2/ The entire sample of a submitted sample is considered as the lot.

3/ Consider feed pellets and processed grain products as foreign material, not unknown foreign substance.

* For Distinctly Low Quality, see section 6.12

Certification. Grade mixed grain U.S. Sample Grade when one or more of the limits in table 3 are observed. Record the reason(s) why in the "Remarks" section of the certificate. Record count factors to nearest whole number.

6.14 INFESTED MIXED GRAIN

Infested mixed grain is mixed grain that is infested with live weevils or other live insects injurious to stored grain.

The presence of any live weevil or other live insects injurious to stored grain indicates the probability of infestation and warns that the mixed grain must be carefully examined to determine if it is infested. In such cases, examine the work sample and the file sample before reaching a conclusion as to whether or not the mixed grain is infested. Do not examine the file sample if the work portion is insect free.

Live weevils include rice weevils, granary weevils, maize weevils, cowpea weevils, and lesser grain borers. Other live insects injurious to stored grain shall include grain beetles, grain moths, and larvae. (See Chapter 1, Section 1.2, Visual Grading Aids.)

Basis of Determination. Determine infestation on the lot as a whole or the sample as a whole. For insect tolerances, see table No. 4.

TABLE NO.4

INSECT INFESTATION		
Samples meeting or exceeding any one of these tolerances are infested: ***2 lw, or 1 lw + 5 oli, or 10 oli***		
1,000-gram representative sample **1/** (+ file sample if needed)	Lot as a Whole (Stationary)	Online Sample (In-Motion) **2/**
Submitted samples Probed lots D/T sampled land carriers	Probed lots (at time of sampling)	Railcars under the Cu-sum Subsamples for Sacked Grain lots Components for Bargelots **3/** Components for Shiplots **3/**

1/ Examine work portion and file sample if necessary. Do not examine file sample if work portion is insect free.

2/ Minimum sampling rate is 500 grams per 2,000 bushels.

3/ Minimum component size is 10,000 bushels.

Key: lw = live weevil, oli = other live insects injurious to stored grain

Certification. When applicable, record the word "Infested" on the certificate in accordance with Section 6.4, Special Grades.

6.15 GARLICKY MIXED GRAIN

a. *Mixed grain in which wheat, rye, or triticale predominates and that contains 2 or more green garlic bulblets or an equivalent quantity of dry or partly dry bulblets in 1,000 grams of mixed grain; or*

b. *Any other mixed grain that contains 4 or more green garlic bulblets, or an equivalent quantity of dry or partly dry bulblets, in 500 grams of mixed grain.*

Basis of Determination. Determine garlicky before the removal of foreign material and fines on a portion of 1,000 grams when wheat, rye, or triticale predominate in the mixture. For all other mixtures, determine garlicky on a portion of 500 grams of the original sample. (Reference: Visual Reference Image Nos. OF-13.0 and OF-13.1)

Characteristics of Bulblets.

a. Green garlic bulblets are bulblets which have retained all of their husks intact.

b. Dry or partially dry garlic bulblets are bulblets which have lost all or part of their husks. Consider bulblets with cracked husks as dry.

NOTE: Wild onion, sometimes referred to as "crow garlic", is considered as garlic.

Three dry or partly dry garlic bulblets are equal to one green bulblet.

Garlic bulblets apply in the determination of "Garlicky" but also function as foreign material.

Certification. Record the word "Garlicky" on the certificate in accordance with Section 6.4, Special Grades. Upon request, provide the number of garlic bulblets in whole and thirds.

6.16 TREATED MIXED GRAIN

Mixed grain that has been scoured, limed, washed, sulfured, or treated in such a manner that its true quality is not reflected by the grade designation U.S. Mixed Grain or U.S. Sample Grade Mixed Grain.

Basis of Determination. Determine treated on a portion of 1,000 - 1,050 grams.

Certification. Record the word "Treated" and the type of treatment on the certificate in accordance with Section 6.3, Grade Designations.

6.17 SMUTTY MIXED GRAIN

a. *Mixed grain in which rye, triticale, or wheat predominate, and that contains 15 or more average size smut balls, or an equivalent quantity of smut spores in 250 grams of mixed grain; or*

b. *Any other mixed grain that has the kernels covered with smut spores to give a smutty appearance in mass, or that contains more than 0.2 percent smut balls.*

Basis of Determination. Determine smutty before the removal of foreign material and fines on a portion of 250 grams.

When wheat, rye, or triticale predominate in the mixture, determine smutty in accordance with the instructions for the applicable grain.

When corn, flaxseed, or soybeans predominates in the mixture, and other grains are present, follow the instructions for the grain next in predominance. Smut balls apply in the determination of the special grade "Smutty" and also function as foreign material and fines.

Certification. Record the word "Smutty" on the certificate in accordance with Section 6.3, Grade Designations. Upon request, record the number or percentage of smut balls on the certificate. Record the percentage of smut balls to the nearest tenth percent and record the number of smut balls in whole numbers.

6.18 ERGOTY MIXED GRAIN

a. *Mixed grain in which rye or wheat predominate and that contains more than 0.30 percent ergot, or*

b. *Any other mixed grain that contains more than 0.10 percent ergot.*

Ergot is a fungus disease that causes kernels of grain to be replaced by dark-colored growths. (Reference: Visual Reference Image No. OF-12.0)

Basis of Determination. Determine ergoty before the removal of foreign material and fines on a portion of 250 grams. Ergot applies in the determination of the special grade "Ergoty" and also functions as foreign material and fines.

Certification. Record the word "Ergoty" on the certificate in accordance with Section 6.3, Grade Designations. Upon request, record the percentage to the nearest hundredth percent on the certificate.

6.19 BLIGHTED MIXED GRAIN

Mixed grain in which barley predominates and that contains more than 4.0 percent of fungus-damaged and/or mold-damaged barley kernels.

Basis of Determination. Determine blighted before the removal of foreign material and fines on a portion of 30 grams.

Blight Characteristics. Blighted kernels in mixed grain apply only to barley. Refer to book II, chapter 2, section 2.18, for the interpretation and Visual Reference Image No. B-1.0 for blighted barley.

Certification. Upon request, record the word "Blighted" and the percentage to the nearest tenth percent on the certificate in accordance with Section 6.3 Grade Designations.

6.20 PROCESSING THE WORK SAMPLE

At this point, determinations have been made for odor, test weight, moisture, sample grade factors, and the applicable special grades. Now a determination can be made for the percentage of grains in the mixture, foreign material and fines, damaged kernels, and heat-damaged kernels.

6.21 KINDS OF GRAIN, FOREIGN MATERIAL AND FINES, DAMAGED KERNELS, AND HEAT-DAMAGED KERNELS

Foreign Material and Fines. *All matter other than whole flaxseed that passes through a 5/64 triangular-hole sieve, and all matter other than grains for which standards have been established under the Act, that remains in the sieved sample*.

Damaged Kernels. *Kernels and pieces of grain kernels for which standards have been established under the Act that are badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, insect-bored, mold-damaged, sprout-damaged, or otherwise materially damaged.*

Heat-damaged Kernels. *Kernels and pieces of grain kernels for which standards have been established under the Act that are materially discolored and damaged by heat.*

The interpretation for damaged kernels and heat-damaged kernels are consistent with the interpretations specified in the respective chapters of this handbook.

Basis of Determination. Determine the percentage of foreign material and fines on the basis of the sample as a whole. For mixtures where corn or soybeans predominate, determine the percentage of foreign material and fines on the basis of 250 or 125 grams, respectively. For all other mixtures, use a portion of 50 grams.

Damaged and heat-damaged kernels and the percentage of each kind of grain in the mixture is determined on the basis of the sample after the removal of foreign material and fines. Determine the percentage of damaged kernels and heat-damaged kernels on the basis of the established portion size for the predominating grain (e.g., corn 250 grams, wheat 15 grams).

The practical application of these determinations involves the following steps:

a. Sieve the appropriate portion. For mixtures where corn or soybeans predominate, sieve the analysis portion 10 times. For all other mixtures, sieve the portion 5 times. If the portion contains canola/rapeseed, stack the 5/64 triangular-hole sieve on top of the 0.035 x 15/32 slotted sieve and sieve. Suspect canola seeds must be tested for glucosinolate levels using the 00-Dip-Test.

b. Examine the material that passed through the 5/64 triangular-hole sieve and remove all flaxseed kernels. When using stacked sieves, examine the material passing through the 5/64 triangular-hole sieve and remaining on top of the 0.035 x 15/32 slotted sieve. The material remaining between the two sieves should be mainly canola/rapeseed/flaxseed. It must, however, be handpicked for other material.

c. Examine the material remaining on top of the 5/64 triangular-hole sieve or the 0.035 x 15/32 slotted sieve (if canola is present) and remove all material other than grain for which standards have been established and add it to the material that passed through the sieve. Consider unthreshed or unhulled kernels of grain for which standards have been established as foreign material and fines.

d. Obtain 7 grams of suspect canola seeds for glucosinolate testing using the 00-Dip-Test as described in section 3.21 of book II. Depending on the amount of canola/rapeseed/flaxseed present, multiple sievings may be necessary to obtain the necessary 7 grams. If, after multiple sievings, sufficient sample is not available for testing, consider the suspect seeds as foreign material.

   If the 00-Dip-Test indicates that the suspected canola is canola, calculate the percentage of canola. If the 00-Dip-Test indicates that the suspected canola is not canola, the material is considered foreign material and fines (refer to steps e and f).

e. Calculate the percentage of foreign material and fines. Foreign material and fines consist of the material, other than canola and flaxseed, that passed through the 5/64 triangular-hole sieve and all material other than grain that remained on top of the 5/64 triangular-hole sieve.

f. Determine the percentage of each grain comprising the mixture and the amount of damaged kernels. When computing these percentages, be sure to adjust the weight of the original portion to compensate for the removal of foreign material and fines.

Example

Weight of representative sample (wheat predominates)	58.00 grams
Weight of foreign material and fines	0.68 grams
Weight of wheat	40.55 grams
Weight of rye	16.77 grams
Weight of damaged kernels (includes heat-damaged kernels)	2.55 grams
Weight of heat-damaged kernels	1.40 grams
Percent of foreign material and fines (0.68 ÷ 58.00) x 100	1.17 percent
rounded to:	1.0 percent
Weight of portion used to calculate the percentage of grains and heat-damaged kernels (58.00 – 0.68, rounded to 1.0 for subtraction)	57.00 grams
Percentage of wheat (40.55 ÷ 57.00) x 100	71.14 percent
rounded to:	71.0 percent
Percentage of rye (16.77 ÷ 57.00) x 100	29.42 percent
rounded to:	29.0 percent
Percentage of heat-damaged kernels (1.40 ÷ 57.00) x 100	2.45 percent
rounded to:	2.5 percent
Weight of portion used to determine damaged kernels (wheat requires a portion of 15 grams)	16.20 grams
Percentage of damaged kernels (2.55 ÷ 16.20) x 100	15.74 percent
rounded to:	15.7 percent

Certification. Record the percentage of foreign material and fines and each kind of grain on the certificate to the nearest whole percent. Record damaged kernels and heat-damaged kernels on the certificate to the nearest tenth percent.