United States Department of Agriculture
Grain Inspection, Packers and Stockyards Administration
Federal Grain Inspection Service

Directive 9180.80 7-06-09

PROCEDURES FOR GRADING FEED PEAS

1. PURPOSE

This directive provides procedures for grading feed peas and contains the Feed Pea Standards. Both the procedures and the standards will be incorporated into the Pea and Lentil Handbook when the handbook is updated. Until that time, this directive serves as the official procedures and standards for feed peas.

2. REPLACEMENT HIGHLIGHT

This directive supersedes Directive 9180.80, dated 1/15/07. This directive is revised to reflect minor editorial changes.

3. BACKGROUND

In 2003, the U. S. Dry Pea and Lentil Council (USDPLC) requested, on behalf of the pea industry, that the Grain Inspection, Packers and Stockyards Administration (GIPSA) establish standards for feed peas. Since then GIPSA has worked extensively with the USDPLC and others in the pea industry to establish procedures and standards for grading feed peas. The procedures and standards were implemented according to the publication of the Feed Pea Standards in the ***Federal Register***.

4. GENERAL INFORMATION AND SAMPLING

The same general information, sampling procedures, and certification requirements outlined in the Pea and Lentil Handbook, Chapters 1, 2, and 8, apply to feed peas.

5. DEFINITIONS

a. Class. Feed Peas.

b. Distinctly low quality. Dry peas of obvious inferior quality because they are stained by an unknown foreign substance; or because they otherwise contain a known toxic substance(s) or an unknown foreign substance(s); or because they are in an unusual state or condition, and which cannot be graded by use of other grading factors provided in the standards.

c. Feed Peas. Dry peas intended for feed purposes.

d. Heat damaged peas. Whole and pieces of dry peas that have been materially discolored as a result of heating.

e. Inert material. Inert material is all non-vegetative material such as stones, and hard and soft earth pellets remaining in the sieved sample.

f. Moisture. Water content in feed peas as determined by a Federal Grain Inspection Service (FGIS) approved device in accordance with FGIS instructions.

g. Non-pea material. All material that passes through a 5/64 triangular sieve and all material other than peas, excluding seed coats, but including inert material, remaining in the sieved sample.

h. 5/64 triangular-hole sieve. A metal sieve 0.032 inch thick with equilateral triangular perforations with inscribed circles of 0.0781 (5/64) inch in diameter.

6. GRADES AND GRADE REQUIREMENTS

The grades and grade requirements for feed peas are shown in the United States Standards for Feed Peas and in table 1.

TABLE 1 – GRADES AND GRADE REQUIREMENTS
FEED PEAS

Grading Factors	Grade U.S. No. 1
	Maximum percent:
Inert material.....	1.0
Heat-damaged peas.....	1.0
U.S. Sample grade are feed peas which: (a) do not meet the requirements for the grade U.S. No. 1; or (b) contain more than 15.0 percent moisture; or (c) contain 0.02 percent or more animal excreta; or (d) contain metal fragments; or broken glass; or (e) have a musty, sour, or commercially objectionable odor; or (f) are heating or of distinctly low quality.	

7. WORK RECORD

Record the results of all tests and findings clearly and accurately on a laboratory ticket or similar form. These results will be used as the source of the information reported on the inspection certificate. FGIS personnel must use either form FGIS-981, "Pea and Lentil Laboratory Ticket" or form FGIS-982, "Pea and Lentil Sample Ticket." Cooperators must use a similar form.

8. REPRESENTATIVE PORTION

A specified quantity of peas divided out from the representative sample by means of an FGIS approved device.

9. WORK SAMPLE

A representative portion of peas (approximate size - 1,000 grams) that is used to make all determinations.

10. FILE SAMPLE

A representative portion of peas (approximate size - 1,000 grams) that may be used in conjunction with the work sample, when needed. File samples may also be used for monitoring and appeal inspection purposes.

Retain file samples in appropriate containers for the required retention period. After the required period has ended, the file samples must be disposed of in accordance with established procedures. See FGIS Directive 9170.13, "Uniform File Sample Retention System," for additional information.

11. PERCENTAGES

Basis of Determination. Percentages are determined on the basis of weight and are rounded as follows:

a. When the figure to be rounded is followed by a figure greater than or equal to 5, round to the next higher figure; e.g., report 6.36 as 6.4, 0.35 as 0.4, and 2.45 as 2.5.

b. When the figure to be rounded is followed by a figure less than 5, retain the figure; e.g., report 8.34 as 8.3 and 1.22 as 1.2.

12. PRELIMINARY EXAMINATION

The sampler must observe the uniformity of the peas as to class, quality, and condition; make the determination for "Heating;" draw the representative sample; and report relevant information to the inspector.

The inspector must review the sampler's remarks/information. If the inspector has questions or doubts the representativeness of the sample, the inspector must contact the sampler and obtain the needed information or make arrangements to obtain another sample.

13. BASIS OF DETERMINATION

All factor determinations will be made upon the basis of the sample as a whole except for heat-damaged peas. The determination for heat-damaged peas is based on a 250 gram portion after the removal of non-pea material.

14. PROCEDURES

Follow a systematic factor examination procedure. The order of procedure may vary depending on the specific inspection service request (i.e., combined thresher-run/feed pea inspection request). However, a general order of procedure for feed peas is as follows:

a. Use an approved divider to process the representative sample into three representative portions: a work sample, file sample, and moisture portion.

b. Examine the work sample for the presence of sample grade criteria and distinctly low quality.

c. Remove the coarse non-pea material (e.g., sticks, pods, mud lumps/dirt, and other matter larger than peas) from the work sample. Sieves may be used as an aid in the separation process. If pods contain peas, remove the peas and return to sample.

d. Calculate the percentage of coarse non-pea material.

e. Separate out the coarse inert material from the coarse non-pea material and calculate the percentage of coarse inert material.

f. Divide out a 250-gram portion from the sample after the removal of “coarse” non-pea material. Using a 5/64-triangular sieve, remove any fine material by sieving the 250-gram portion on the mechanical shaker or by hand. When using the mechanical shaker, set the timer setting to “20” or use an equivalent number of strokes when using the hand sieving method. The material passing through the sieve functions as fine non-pea material.

g. Calculate the percentage of fine non-pea material.

h. Separate any pea material from the non-pea material remaining on top of the 5/64 sieve. Seed coats are considered as pea material.

i. Separate any inert material present in the non-pea material which remains on top of the 5/64 sieve and calculate the percentage of inert material.

j. Combine all inert material fractions to determine “total” inert material.

k. Combine all non-pea material fractions, including any inert material, to determine “total” non-pea material.

l. Determine the percentage of heat-damaged peas.

15. DISTINCTLY LOW QUALITY

Dry peas that are obviously of inferior quality because they are stained by an unknown foreign substance; or because they otherwise contain a known toxic substance(s) or an unknown foreign substance(s); or because they are in an unusual state or condition, and that cannot be graded by use of other grading factors provided in the standards.

Peas that are obviously affected by unusual conditions that adversely affect the quality of the peas, such as animal excreta or other filth, unknown foreign substance, or treatment with a fungicide, are considered "distinctly low quality."

Basis of Determination. Determine distinctly low quality on the basis of the sample as a whole.

Certification. When applicable, record the statement "Distinctly low quality on account of (cause or reason)" on the work record and the certificate, and grade the feed peas “U.S. Sample grade.”

16. HEATING

Feed peas that develop a high temperature from excessive respiration are considered heating. Advanced stages of heating feed peas will usually have a sour or musty odor. Care should be taken not to confuse feed peas that are heating with feed peas that are 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. When applicable, record the term "Heating" on the work record and the certificate, and grade the feed peas "U.S. Sample grade."

17. MOISTURE

Moisture is the water content in feed peas determined using the DICKEY-john GAC2100 instrument utilizing the calibrations of the predominate type of pea (see FGIS Directive 9180.61).

Basis of Determination. Determine moisture on a representative portion of approximately 300-grams.

The procedures for performing a moisture determination using the DICKEY-john Grain Analysis Computer (GAC) 2100 moisture meter are described in the Grain Inspection Handbook, Chapter 1, Section 1.10.

Certification. Record the percent of moisture on the work record to the nearest tenth percent. If the moisture percentage exceeds 15.0 percent, record the result on the grade certificate, and grade the feed peas as U.S. Sample grade.

18. ODOR

Odors in feed peas are classified as: musty, sour, or commercially objectionable foreign odors.

Basis of Determination. Determine odor on the basis of the representative sample as a whole.

a. **Musty**. A musty odor is any odor that is earthy, moldy, or ground-like. Do not confuse a burlap bag odor with a musty odor.

b. **Sour**. A sour odor is any odor that is rancid, sharp, or acrid.

c. **Commercially Objectionable Foreign Odor**. A commercially objectionable odor is any odor that is not normal to dry peas and that, because of its presence, renders the dry peas unfit for normal commercial usage; e.g., animal hides, fertilizer, oil products, skunk, smoke, fire-burnt, and decaying animal and vegetable matter odors.

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

1. Original Inspections. Allow the work portion to aerate in an open container for a period not to exceed 4 hours.

2. Appeal and Board Appeal Inspections. Allow unworked file samples and new samples to aerate in an open container for a period not to exceed 4 hours. The 4-hour aeration requirement does not apply when the original work portion was aerated and retained as the final file.

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

Certification. When peas are determined to be musty, sour, or have a commercially objectionable odor, record the type of odor on the work record and the certificate, and grade the feed peas "U.S. Sample grade."

19. HEAT-DAMAGED PEAS

Whole and pieces of dry peas which have been materially discolored as a result of heating.

Basis of Determination. Determine heat-damaged peas on a representative portion of approximately 250 grams after the removal of non-pea material.

Certification. Record the percent of heat-damaged peas on the work record and the certificate to the nearest tenth percent.

20. NON-PEA MATERIAL

All material that passes through a 5/64 triangular sieve and all material other than peas, excluding seed coats, but including inert material, remaining in the sieved sample.

Note: Include insects as non-pea material.

Basis of Determination. The determination of non-pea material is a two step process. Coarse non-pea material is determined on the basis of the 1,000 gram work portion. All other non-pea material is determined on the basis of a 250 gram portion after the removal of coarse non-pea material.

Certification. Record the percent of non-pea material on the work record and the certificate to the nearest tenth percent.

21. INERT MATERIAL

Inert material is all non-vegetative material such as stones, and hard and soft earth pellets remaining in the sieved sample.

Basis of Determination. The determination of inert material is a two step process. Large (coarse) inert material is determined on the basis of the 1,000 gram work portion. Inert material approximating the size of peas is determined on the basis of a 250 gram portion after the removal of "fine" non-pea material.

Certification. Record the percent of inert material on the work record and the certificate to the nearest tenth percent.

22. BROKEN GLASS

Basis of Determination. Determine broken glass on the basis of the lot as a whole and/or the representative sample as a whole.

The presence of <u>any</u> broken glass (regardless of the size or amount) in the lot as a whole, work sample, or sample as a whole, is sufficient evidence of broken glass.

Certification. Record the number of pieces of broken glass on the work record and the certificate. Samples containing broken glass are graded as "U.S. Sample grade".

23. METAL FRAGMENTS

Basis of Determination. Determine metal fragments, such as metal filings or metal shavings, on the basis of the lot as a whole and/or the representative sample as a whole.

Sufficient evidence of metal fragments is:

a. Two or more metal fragments in the lot as a whole or the work sample; or

b. One metal fragment in the work sample and one or more in the file sample.

Certification. Record the number of pieces of metal fragments on the work record and the certificate. Samples containing sufficient evidence of metal fragments are graded as "U.S. Sample grade".

24. ANIMAL EXCRETA

Basis of Determination. Determine animal excreta on the basis of the lot as a whole and/or the representative sample as a whole.

Certification. Record the percentage of animal excreta on the work record and the certificate. Samples containing 0.02 percent or more of animal excreta are graded as "U.S. Sample grade".

25. COMBINATION THRESHER RUN/FEED PEA INSPECTION REQUEST

Applicants may, as part of an original "thresher-run" pea inspection service, request to have a feed pea quality inspection performed concurrently. Applicants must inform official inspection personnel of the particular feed pea factor(s) that they want analyzed. If such a request is received, it is possible to perform both inspections using the same work sample. Perform the thresher-run inspection first in accordance with the procedures outlined in the Pea and Lentil Handbook, Chapter 3. Then, in order to assess the feed pea quality criteria and efficiently separate the pea from the non-pea material, the sample must be further processed using one of the following methods:

a. Hand Sieving Method.

(1) Using an approved shaker or hand sieve, sieve (20 strokes) the thresher–run dockage with a 5/64" triangular sieve. For samples containing high amounts of dockage, stacking a 12/64" round-hole sieve on top of the 5/64" will aid in separating small peas, splits/chips, and weed seeds; thus reducing the time required for hand adjustment.

(2) All material passing through the sieve, including any fine pea or inert material, is considered non-pea material.

(3) Remove any small peas, split peas, or pea parts (e.g., seed coats) remaining on top of the sieve(s) and return them to the cleaned sample. Also separate any peas that may be present in pods, returning them to the cleaned sample as well.

(4) Separate any inert material which may be present from the non-pea material remaining on top of the sieve.

(5) Review the thresher-run "foreign material" portion and hand adjust it to remove any detached seed coats that may be included and return to the cleaned portion. At the same time, separate any inert material present and combine with the "coarser" inert materials found above.

(6) Review all pea and non-pea material fractions and examine them for the presence of animal excreta, glass, and metal fragments.

(7) Reevaluate the percent heat damage, when appropriate, to include any heat damage peas present in the thresher-run dockage.

b. Dockage Machine (recommended for high dockage samples):

(1) Set up the Carter Dockage Tester as follows to assist in the separation of pea/non-pea material from thresher-run dockage:

(a) Set air control to 9 (highest setting) and feed control to 8.

(b) Use no riddle.

(c) Insert a No. 3 (12/64 round-hole) sieve in the top sieve carriage.

(d) Insert a No. 6 (5/64 triangular) sieve in the middle sieve carriage;

(e) Use no sieve in the bottom sieve carriage.

(2) Material removed by the air and passing through the No. 6 sieve is considered non-pea material, except for seed coats. Seed coats are considered pea material and must be removed from the air component when present.

(3) Hand adjust the material passing over the No. 3 and 6 sieves to remove any small peas, splits, seed coats, or peas from any pods that may be present in the dockage.

(4) Examine the non-pea material which passed over the No. 3 and 6 sieves for inert material and separate from the other "non-pea" material.

(5) Review the "foreign material" portion and hand adjust it to remove any detached seed coats that may be included. At the same time, separate any inert material present and combine with other inert materials found above.

(6) Review all pea and non-pea material fractions and examine them for the presence of animal excreta, glass, and metal fragments.

(7) Reevaluate the percent heat damage, when appropriate, to include any heat damage peas present in the thresher-run dockage.

Certification. Record the requested feed pea factor result(s) in the "Remarks" section of the certificate. Use the following statement in the "Remarks" section to list the feed pea factor(s). "The sample contained (insert percentage) of (insert factor) when graded according to feed pea standards".

For example: an applicant requests an analysis for non-pea material, according to the feed pea standards, in addition to the thresher-run results on the certificate. The certificate issued for the sample/lot would list the thresher-run results then the statement "The sample contained 2.9 percent of non-pea material when graded according to feed pea standards".

Fees. Additional factor analysis fees are applicable for feed pea factors analyzed on thresher-run samples.

26. QUESTIONS

Direct any questions regarding this procedure to the local field office or to the Policies and Procedures Branch at 202-720-0224.

/s/ John Giler

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