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Pea & Lentil Inspection Handbook

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Program Handbook

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Foreword

The Pea and Lentil Inspection Handbook sets forth the policies and procedures for sampling, inspecting, and certifying whole dry peas, split peas, and lentils in accordance with the regulations under the Agricultural Marketing Act (AMA) of 1946, as amended. These regulations establish the basic guidelines for inspecting peas and lentils and authorize the issuance of such additional guidelines as may be necessary for the interpretation and application of the United States Standards for Whole Dry Peas, Split Peas, and Lentils.

The information contained in this handbook is applicable to official pea and lentil inspection services performed by the Federal Grain Inspection Service (FGIS), a program under the Agricultural Marketing Service (AMS), an agency or department of the Federal Government which has an interagency agreement, a State Agency or other entity which has an agreement with FGIS to conduct commodity inspection services under the AMA. Persons interested in obtaining official services may call or write any FGIS field office or cooperator.

Trade names are used solely to provide specific information. The mention of trade names does not constitute a guarantee or warranty of the product by the U.S. Department of Agriculture or an endorsement by the Department over other products not mentioned.

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1.1 INTRODUCTION

The inspection of whole dry peas, split peas, and lentils is a service provided under the United States Agricultural Marketing Act (AMA) of 1946. Service is provided, by either a Federal Grain Inspection Service (FGIS) field office, or a designated cooperator upon request and depending upon the location and type of inspection requested, an agency or department of the Federal Government which has an interagency agreement, a State Agency or other entity which has an agreement with the FGIS to conduct commodity inspection services under the AMA.

1.2 DEFINITIONS

Appeal Inspection. An applicant requested FGIS review inspection of original inspection service.

Board Appeal Inspection. An applicant requested FGIS Board of Appeals and Review (BAR) review inspection of an original or appeal inspection service results for grade or grading factors.

Carrier. A truck, trailer, truck/trailer combination, railcar, barge, ship, or other container used to transport bulk, sacked, or packaged peas and lentils.

Certification. The process of issuing an official certificate that indicates the quality of a lot or sample of peas or lentils or the results of some other official service.

Checkcounting. The process of determining the total number of filled outer containers in a lot in order to determine that the number of containers shown by the applicant is correct and certifying the results.

Checkloading. The process of performing a stowage examination on a carrier, computing the number of filled containers loaded aboard, observing the condition of the containers being loaded aboard, sealing the carrier if practicable, and certifying the results.

Checkweighing. The process of weighing a selected number of containers from a lot, determining the estimated total gross, tare, and net weight, or the estimated average gross or net weight per filled container, and certifying the results.

Composite Sample. A single sample composed of small portions (component samples) taken throughout a lot.

Condition Inspection. The process of determining whether an identifiable lot is water damaged, fire damaged, or has rodent or bird contamination, insect infestation, or any other deteriorating condition, and certifying the results.

Cooperator. An agency or department of the Federal Government, State Agency, or other entity which has an agreement with the Service to conduct commodity inspection services under the Agricultural Marketing Act of 1946, as amended.

File Sample. The extra, unworked portion of approximately 1,400 grams or more cut from the representative sample that may be used in conjunction with the work sample when needed.

Lot. Any identified amount of peas or lentils offered by an applicant for inspection.

Lot (Quality) Inspection. The process of obtaining a representative sample(s) of an identifiable lot, examining or testing the sample(s), examining relevant records of the lot, and certifying the results.

Not Standardized Commodity. A lot/sample offered for inspection that does not meet the definition for beans, peas, or lentils (e.g., lupins).

Observation of Loading. The process of determining that an identified lot has been moved from a warehouse or carrier and loaded into another warehouse or carrier and certifying the results.

Official Personnel. Any authorized Department employee or person licensed by FGIS to perform all or specified functions under the Act.

Official Sample. A representative sample drawn by official personnel licensed or authorized by FGIS.

Original Inspection. An initial inspection of a lot or sample.

Reinspection. Not available for Peas or Lentils.

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

Representative Sample (as a whole). A sample of approximately 2,500-3,000 grams drawn from a lot by official inspection personnel using approved procedures and sampling devices.

Retest Inspection. A review inspection, using the same laboratory procedures, of an original inspection for a nongrade factor(s); e.g., aflatoxin, or other chemical tests.

Review Inspection. All follow-up grade inspections available: appeal or board appeal.

Sampling. The process of drawing a representative sample from a lot of peas/lentils.

Stowage Examination. The process of visually determining if an identified carrier or container is clean, dry, free of live infestation, rodents, toxic substances, and foreign odor; suitable to store or carry peas or lentils; and certifying the results.

Submitted Sample Inspection. The process of grading or testing a sample (other than an official sample) submitted by an applicant and certifying the results.

Work Sample (as a whole). A representative portion of peas or lentils; approximately 1,000 – 1,050 grams, used to make determinations required for a particular class.

1.3 ABBREVIATIONS

The following abbreviations may be shown on work records:

BDL	Blight-Damaged Lentils
BLCH	Bleached
CHP	Chalky Peas
CLEN	Contrasting Lentils
COFO	Commercially Objectionable Foreign Odor
COLR	Color
CR	Cracked Seedcoats
CSP	Contrasting Split Peas
CW	Check Weighing
DDFM	Total Dockage, Defects & FM
DEF	Defects
DFFM	Total Defects and FM
DHT	Damaged-by-Heat
DIRT	Dirt and Grime
DKG	Dockage
DLQ	Distinctly Low Quality
DMG	Damage
DML	Damaged Lentils
DW	Dead Weevils
FMT	Foreign Material Total
FSUB	Unknown Foreign Substance
GLAS	Broken Glass
GRNL	Green Lentils
GSP	Green Split Peas
HP	Handpicked
HTL	Heat-Damaged Lentils
HTDP	Heat-Damaged Peas
HTG	Heating
IADM	Inconspicuous Admixture
KG	Kilogram(s)
LB	Pound(s)
L	Lentils
LGANX	Large Animal Excreta
LW	Live Weevils
M	Moisture
MF	Metal Fragments
MOLD	Mold Damage
MUST	Musty
NSC	Not Standardized Commodity
O16R	Remaining on 16/64 round-hole sieve
OBF	Observation of Fumigation
OBL	Observation of Loading
OCL	Other Classes
ODI	Other Dead Insects
ODOR	Odor
OLI	Other Live Insects
OMD	Other Material in Dockage
PHD	Pinhole Damage
S9O	Passing thru 9/64x3/4 oblong-hole sieve
S10O	Passing thru 10/64x3/4 oblong-hole sieve
S11O	Passing thru 11/64x3/4 oblong-hole sieve
S12O	Passing thru 12/64x3/4 oblong-hole sieve
S16R	Passing thru 16/64 round-hole sieve
SCR	Screenings
SDKG	Splits in Dockage
SG	Sample Grade
SGDP	Smooth Green Dry Peas
SHRV	Shriveled Peas
SKNL	Skinned Lentils
SLD	Small Lentils in Dockage
SPD	Small Peas in Dockage
SOUR	Sour
SPL	Splits
STON	Stones
STOW	Stowage Examination
SVSZ	Sieve Size
SYDP	Smooth Yellow Dry Peas
TDKG	Total Dockage
TW	Test Weight
U.S.	United States
WC	White Caps
WLEN	Wrinkled Lentils
WP	Whole Peas
WDK	Weevil-Damaged
X	Mixed
YSP	Yellow Split Peas

1.4 WORK RECORDS

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

Note: For split pea submitted sample inspections, results may be recorded on FGIS-994, "Commodity Certificate - Submitted Sample Inspection," or similar form.

1.5 PRELIMINARY EXAMINATIONS

The sampler must: (1) observe the uniformity of the peas as to class, quality and condition; (2) make preliminary determinations for "Heating, Infestation, and Odor," (3) draw the representative sample; and (4) report relevant information to the inspector.

The inspector must review the sampler's remarks/information. If the inspector suspects the sample is not representative, the inspector should consult the sampler and, if necessary, dismiss the inspection or arrange to obtain another sample.

1.6 LABORATORY SCALES

Weigh samples and portions of samples using the proper class of FGIS-approved laboratory scales and record the results to the correct division size. For more information, refer to the Equipment Handbook.

1.7 ROUNDING

When certifying official results, use this procedure for rounding unless otherwise specified. A hand-held calculator or computer may be used to calculate results.

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 6.35 as 6.4 and 0.45 as 0.5). 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).

Record factor results to the specified percent stated in each section.

1.8 FILE SAMPLE RETENTION

a. General. To accomplish the mission of the agency, FGIS has established the policy of maintaining an effective record management program. Part of the official record system is the maintenance of file samples retained for reference or review purposes. For detailed procedures, refer to Directive 9170.13, "Uniform File Sample Retention System."

b. Use of File Sample. Official personnel must establish and maintain a file sample retention system in accordance with the regulations and applicable instructions. File samples may be used for:

(1) Monitoring purposes by official personnel.

(2) Supplementary completion of the original grade (e.g., infestation or odor).

(3) Review by interested persons.

(4) Appeals or Board appeals.

(5) Answering trade complaints.

(6) Training.

c. Sample Retention. Official personnel may, at their discretion, keep file samples for a period longer than required. The minimum retention periods (calendar days) are shown in Table 1.1.

TABLE 1.1 – FILE SAMPLE RETENTION

CARRIER	MINIMUM DAYS
Domestic	10
Export	60
Commodity Procurement	30
Submitted Samples	3

Note: When an agency file sample is either used to complete an appeal inspection or selected for monitoring, the monitoring office must maintain the sample for the applicable retention period.

d. Sample Size. File samples must be of sufficient size to accommodate subsequent examinations or analysis. Samples retained for grade should be approximately 1,400 grams or more. File samples larger than 1,400 grams may be retained if deemed necessary to provide subsequent inspection service.

e. Retention of Worked File Samples. File samples for graded commodities are maintained by the Official Service Provider (OSP) or FGIS field office that performed the original inspection. If a file sample retained by the OSP is used for an appeal or supervision inspection, the field office which performed the appeal or supervision inspection has the responsibility for retaining the file sample for the applicable time period.

f. File System. Official personnel must maintain a sample filing system that permits efficient retrieval of file samples and ensures adherence to required retention periods. Further, file samples must be protected against theft, manipulation, substitution, and unauthorized use.

Use large polyethylene bags, semi-rigid plastic containers, or metal containers to retain file samples. Use metal or semi-rigid plastic containers when samples contain an off odor.

g. Disposal Procedures. Official personnel must keep complete and accurate disposition records. After file samples have served their intended purpose, dispose of the sample in accordance with criteria outlined in Table 1.1 and applicable instructions as follows:

(1) Upon the applicant's request, return the file samples to the applicant.

(2) If the applicant does not request the return of the sample, it may be sold, donated, or destroyed.

(3) Samples containing noxious weed seeds or other material which might be harmful to human or animal life must not be sold, donated, or used for human food or animal feed. If the sample contains toxic substances (i.e., treated seed), dispose of the sample in accordance with applicable Federal, State, and local laws.

1.9 ORIGINAL INSPECTION SERVICES

a. Any interested person may request an original inspection.

b. Requests may be made verbally, in writing, or electronically, using FGIS-907, "Application for Inspection and Weighing Services." Cooperators must use a similar form.

(1) Verbal requests must be confirmed, in writing. All written requests must be made in English and include the following:

(a) The identification, quantity, and location of the peas or lentils.

(b) The type of service(s) requested.

(c) The names and mailing addresses of interested persons.

(d) Any other relevant information that official personnel require.

(2) Copies of request forms may be obtained from any cooperator or FGIS field office. If all required documentation is not available when the request is made, it must be provided as soon as it is available. At their discretion, official personnel may withhold inspection service pending receipt of the required documentation.

c. Requests for services, other than submitted sample inspections, must be made with the cooperator or FGIS field office responsible for the area in which the service will be provided.

d. Requests for submitted sample inspections may be made with any cooperator or FGIS field office that provides original pea and lentil inspection services.

e. Requests for services to be performed during loading, unloading, handling, or processing must be submitted far enough in advance so official personnel can be present.

Note: Only Appeal and Board Appeal Inspections are available after an original inspection for Peas and Lentils, there is no reinspection. The applicant, however, may request to bypass an Appeal inspection and go directly to a Board Appeal.

For more information, refer to Directive 9170.15, "Review Inspections of Grains and Commodities."

1.10 APPEAL INSPECTION SERVICES

a. Any interested person may request an appeal inspection. When more than one interested person requests an appeal inspection, the first interested person to make the appeal request is the applicant of record.

b. Requests may be made verbally or in writing.

(1) Verbal requests must be confirmed, in writing. All written requests must be made in English and include the following:

(a) The identification, quantity, and location of the peas or lentils.

(b) The type of service(s) requested.

(c) Names and mailing addresses/email addresses of interested persons.

(d) Any other relevant information that official personnel require.

(2) Requests for appeal inspection services on quality (grade) factors must be filed with the FGIS field office responsible for the area in which the original inspection was performed or with the BAR.

(3) Requests for appeal inspection services must be made before the peas or lentils have left the place where the inspection being appealed was performed and no later than the close of business on the second business day following the date of the inspection being appealed. However, the AMS FGIS Administrator may extend the time requirement, as deemed necessary.

(4) Copies of request forms may be obtained from any cooperator or FGIS field office. If all required documentation is not available when the request is made, it must be provided as soon as it is available. At their discretion, official personnel may withhold inspection service pending receipt of the required documentation.

c. Only an FGIS inspector can perform an appeal inspection.

d. Official personnel must not perform, participate in performing, or issue a certificate if they participated in a previous inspection or certification of the lot unless there is only one authorized person available at the time and place of the requested appeal inspection.

e. Only one appeal inspection may be obtained from any original inspection service.

f. The scope of an appeal inspection must be limited to the scope of the original inspection. If the request specifies a different scope, the request will be dismissed.

g. An applicant for service may request an appeal or Board appeal inspection of a specific factor(s) or official grade and factors. Appeal and Board appeal inspection for grade may include a review of any pertinent factor(s), as deemed necessary by official personnel.

h. The applicant may request that an appeal inspection be based on the file sample or a new sample. However, an appeal inspection must be based on a new sample only if the lot can positively be identified by official personnel as the lot that was previously inspected and the entire lot is available and accessible for sampling and inspection.

i. An appeal inspection is limited to a review of the sampling procedures and an analysis of the file sample when, as a result of the original inspection, the peas or lentils are found to be contaminated with filth or to contain a deleterious substance, including insect webbing or filth. If it is determined that the sampling procedures were improper, a new sample will be obtained if the lot can be positively identified as the lot which was previously inspected and the entire lot is available and accessible for sampling and inspection.

j. An appeal inspection certificate supersedes the original inspection certificate. The superseded certificate will be considered null and void as of the date of the appeal inspection certificate.

k. An appeal inspection certificate must be issued before the close of business on the business day following the date the appeal inspection is completed.

(1) Each appeal inspection certificate must clearly show the word "Appeal" and the following statement: "This certificate supersedes Certificate No._____, dated_____."

(2) When the results for more than one kind of service are reported on the original certificate and not all the services are appealed, use the following statement: "(Type of service) results based on appeal inspection; all other results are those of the original inspection service."

(3) When the results of an appeal inspection are based on a file sample, the certificate must show the following statement: “Results based on file sample.”

(4) The following statement must be shown on the appeal certificate: "The superseded certificate has not been surrendered and is no longer valid for commerce."

l. A request for an appeal inspection must be dismissed when:

(1) The scope is different from the scope of the original inspection.

(2) The condition of the peas/lentils have undergone a material change.

(3) The request specifies a file sample and a representative file sample is not available.

(4) The applicant requests that a new sample be obtained and a new sample cannot be obtained.

(5) The reasons for the appeal inspection are frivolous.

m. Official personnel must notify the applicant of the proposed dismissal of service. The applicant must then be afforded reasonable time to take corrective action or to demonstrate there is no basis for the dismissal. If the corrective action has not been adequate, the applicant must be notified of the decision to dismiss the request for service and the results of service must not be released.

n. An applicant may withdraw a request for appeal inspection any time before official personnel release results, either verbally or in writing. Verbal requests must be confirmed, in writing. All written requests must be made in English.

Note: Applicants who withdraw a request for service may be billed for all expenses incurred prior to withdrawal.

For more information, refer to Directive 9170.15, "Review Inspections of Grains and Commodities."

1.11 BOARD APPEAL INSPECTION SERVICES

a. Any interested person who is dissatisfied with the original or appeal inspection results may appeal to the BAR. However, if the initial appeal inspection is performed by the BAR, no further appeal may be made.

b. The Board appeal inspection must only be performed for physically determined quality (grade) factors and must be limited to an analysis of the file sample.

(1) When a request for a Board appeal inspection is filed, the file sample(s) and all other pertinent information must be immediately submitted to the BAR.

(2) The FGIS field office must act as a liaison between the BAR and the applicant.

(3) The Board appeal certificate must supersede any certificate previously issued and will be the final appeal inspection service.

(4) Each Board appeal inspection certificate must clearly show the words "Board Appeal" and the following statement:

"This certificate supersedes Certificate No.____, dated_____."

(5) When the results for more than one kind of service are reported on the original or appeal certificate, use the following statement: "Grade results based on Board Appeal inspection. All other results are those of the (original inspection and/or appeal inspection) service."

(6) When the results of a Board appeal inspection are based on a file sample, the certificate must show the following statement: "Results based on file sample."

(7) The following statement must be shown on the Board appeal certificate: "The superseded certificate has not been surrendered and is no longer valid for commerce."

1.12 NEW ORIGINAL INSPECTIONS

a. When the identity of the lot has been lost and/or circumstances prevent an appeal or a Board appeal inspection, an applicant may request a new original inspection on any previously inspected lot. However, a new original inspection may not be performed on an identifiable pea or lentil lot, which, as a result of a previous inspection, was found to be contaminated with filth or to contain a deleterious substance.

Note: Identity is not lost if the identity of the peas or lentils, carrier, or container is not lost. A new original inspection cannot be performed on the same identified lot of peas or lentils, carrier, or container in the same assigned area of responsibility within 5 business days after the last official inspection.

b. A certificate issued as a result of a new original inspection is, in fact, a "New Original" inspection certificate. It must be based on a new sample and must not be restricted to the scope of any previous inspection. Subsequently, the applicant for a new original inspection may request any or all of the inspection services provided for by the regulations.

c. A new original inspection certificate must not supersede any previously issued certificate.

1.13 REGISTERED TYPE SAMPLE INSPECTIONS

Applicants may request that the quality of peas or lentils in a lot be compared with the quality of an identified pea or lentil type sample that has been registered with an FGIS field office or cooperator.

a. When a registered type sample inspection is requested, the applicant must:

(1) Submit a clearly identified pea or lentil sample for an inspection for quality or other criteria.

(a) The sample must not be less than 1,000 grams.

(b) Official personnel may require a larger sample if portions are to be sent to other offices or if the applicant requests that the sample be divided into several portions for submission to prospective buyers or brokers.

(2) Supply the necessary containers and labels for samples to be sent to prospective buyers or brokers.

(3) Specify, in writing, all pertinent information including the following:

(a) Identification of the type sample, i.e., Idaho Pride Lentils-77.

(b) Grade and factor information or any other criteria information that is desired.

b. Official personnel must:

(1) Perform a grade or factor-only quality inspection as specified by the applicant and approved by the FGIS field office or Federal-State manager.

(2) Issue a submitted sample inspection certificate.

(3) Register the type sample in the field office or office of the cooperator.

(4) Retain a representative portion of the type sample, under refrigeration, for comparison with the sample(s) obtained from identified lot(s).

(a) Because of limited refrigerated storage and file space and the possibility of quality factor change due to prolonged storage, type samples will not be retained for more than one year from the submitted sample inspection certificate issuance date.

(b) Notify the applicant of record at least 30 days prior to the expiration date of the type sample.

(c) Destroy the type sample on the expiration date.

(5) When requested by the applicant, send a copy of the submitted sample inspection certificate and a sample of the peas or lentils to the BAR, other FGIS field offices, or cooperator offices that have been requested to compare the quality of an identified lot of peas or lentils against the type sample.

(6) If the applicant requests that one or more representative portions be divided-out from the type sample for submission to prospective buyers or brokers, securely seal each representative portion in a plastic bag that has a label affixed. Show the following information on the label:

(a) The statement: "This representative portion of (peas or lentils) was taken from type sample (sample identification) and was inspected, registered, and sealed by the (USDA, FGIS or name of cooperator)."

(b) Office of inspection (city and state).

(c) Applicant (name, city, and state).

(d) Registration date (date).

(e) Expiration date (date).

(f) Submitted sample inspection certificate issued (identification).

(g) Name and signature of FGIS field office inspector or cooperator.

(7) Issue a lot inspection certificate when the quality of an identified lot of peas or lentils is compared against the type sample. State that the quality of the peas or lentils in the lot was either "equal to or better than" or "not equal to" the type sample.

Example: "(Type of peas or lentils or grade and kind of peas or lentils). ("Quality equal to or better than" or "Quality not equal to") (name of registered type sample)."

1.14 ORIGIN INSPECTIONS

a. Applicants may request origin inspection certificates that show that their peas/lentils are a product of the soil and industry of the United States.

b. When an origin inspection is requested, official personnel must:

(1) Request all relevant records from the applicant which may indicate the origin of the peas or lentils.

(2) Obtain a representative sample.

(3) Analyze the sample to verify that the peas or lentils compare favorably with types of peas or lentils known to be grown in the United States. The size, shape, and other characteristics should be considered in making this determination.

c. If, after reviewing the relevant records and analyzing the peas or lentils, there is no indication that the peas or lentils are not a product of the soil and industry of the United States, show the following statement on the certificate:

"The (peas/lentils) described herein and relevant records indicating the origin of these (peas/lentils) have been examined and found to be a product of the soil and industry of the United States."

d. When records are not available or if the records are not sufficient to substantiate that the peas or lentils are a product of the soil and industry of the United States, but the representative sample appears to be of a type common to the United States, the following statement may be shown on a letterhead:

"Applicant states that these (peas/lentils) are a product of the soil and industry of the United States."

1.15 COMBINED-LOT INSPECTIONS

a. Any interested person may request a combined-lot inspection to be performed on single lots of peas or lentils during loading, unloading, or at rest; after officially inspecting and certifying peas or lentils as two or more single lots.

b. Requests for service must be in writing and include the following:

(1) The estimated quantity of peas or lentils that are to be certified as one lot.

(2) The contract grade, if applicable.

(3) The identity of the warehouse where the lot is stored, or the identity of each carrier into which the peas/lentils are being loaded or from which the peas/lentils are being unloaded.

(4) Any other relevant information that official personnel require.

Note: For recertification of single lots as a combined-lot, the request for service must be filed no later than two business days after the latest inspection date of the single lots.

c. Peas or lentils that have been officially inspected and certified as two or more single lots may be recertified as a combined-lot if:

(1) The peas or lentils in each single lot were sampled in a reasonably continuous operation.

(2) The original inspection certificates issued for the single lots have been voided by official personnel.

(3) Representative file samples of the single lots are available.

(4) The peas or lentils in the single lots are of one grade and quality.

(5) Official personnel who performed the inspection service for the single lots and those who recertify the peas or lentils as a combined-lot, determine that the samples used as a basis for the inspection of the peas and lentils in the single lots were representative at the time of sampling and have not changed in quality or condition.

(6) The quality or condition of the peas or lentils meet uniformity requirements (Section 2.11, “Examination of Sample Portions”) established by this handbook.

d. Official factor and official criteria information shown on a certificate for peas or lentils in a combined-lot must be based on the weighted or mathematical averages of the analysis of the sublots in the lot.

e. If peas or lentils in a combined-lot are offered for official inspection as they are being loaded aboard a carrier and the peas or lentils, or a portion of the peas or lentils, in a lot are found to be infested, the applicant must be notified and must be given the option of:

(1) Removing the infested peas or lentils from the lot; or

(2) Receiving a grade certificate with a sample grade designation indicating that the entire lot is infested.

f. Samples obtained from peas or lentils officially inspected as a combined-lot must be examined for uniformity of quality (Section 2.11, "Examination of Sample Portions"). If the peas or lentils in the samples are found to be uniform in quality and the peas or lentils are loaded aboard or are unloaded from the carriers in a reasonably continuous operation (i.e., at least one lot or sublot must be loaded or unloaded during any 88-hour period), the peas or lentils in the combined-lot must be officially inspected and certified as one lot. The requirements of this paragraph with respect to reasonably continuous loading or unloading do not apply to peas or lentils which are at rest in carriers or in a warehouse when the peas or lentils are offered for inspection.

g. When peas or lentils are officially inspected as a combined-lot are found to be not uniform in quality or if the peas or lentils are not loaded or unloaded in a reasonably continuous operation, the peas or lentils in each portion, and any peas or lentils which are loaded or unloaded at different times, must be officially sampled, inspected, graded, and certified as single lots.

h. Each official certificate for a combined-lot inspection service must show in the identification field:

(1) The identification for the "combined-lot" or (if multiple ID's), the ID "See Remarks-(carrier ID from original inspection with most recent service date)" with the identification of each carrier in the combined-lot in the "Remarks" section of the certificate.

(2) Any seal information for the carriers must be shown in the "Remarks" section of the certificate.

i. If a request for a combined-lot inspection service is filed after the peas or lentils have been officially inspected and certified as single lots, the combined-lot inspection certificate must show:

(1) The date of inspection of the peas or lentils in the combined-lot (if the single lots were inspected on different dates, the latest of the dates must be shown).

(2) A serial number, other than the serial numbers of the official inspection certificates that are to be superseded.

(3) The location of the peas or lentils, if at rest, or the name of the facility from which or into which the peas or lentils in the combined-lot were loaded or unloaded.

(4) A statement showing the approximate quantity of peas or lentils in the combined-lot.

(5) A completed statement showing the identification of any superseded certificates, “This certificate supersedes Certificate No ____, dated ____.”

(6) The statement, "The superseded certificate has not been surrendered and is no longer valid for commerce," shown in the “Remarks” section of the certificate.

j. After a combined-lot inspection certificate has been issued, there must be no further combining and no dividing of the certificate.

k. Combined-lot inspection certificates must not be issued:

(1) For any official inspection service other than as described in this handbook; or

(2) Which shows a quantity of peas or lentils in excess of the quantity in the single lots.

1.16 OTHERWISE GRADE INSPECTIONS

a. Any interested person may request information as to what the quality of peas or lentils in a lot/sample would "otherwise grade" if the results of one or more factors were not considered.

b. When requested, official personnel must:

(1) Determine and show the actual grade of the lot/sample in the space provided for the grade designation.

(2) Show the grade determining factors and results of analysis in the factor information space.

Note: Quality Except for Statements cannot be applied for odor or deleterious qualities (any substance considered an actionable defect by the Food and Drug Administration). Directive 9060.2, “Implementation of the FGIS-FDA Memorandum of Understanding.”

(3) Show the following statement in the “Remarks” section of the certificate:

"(Desired grade and kind) except for (factor(s) that prevent the lot/sample from being assigned the desired grade)."

Example: An application is received to inspect a dry pea lot which is supposed to be U.S. No. 1 Smooth Green Dry Peas. The inspection results show that the peas grade U.S. Sample Grade because of 15.0 percent bleached peas. The dry peas, except for the factor, bleached peas; are U.S. No. 1.

Grade Designation - U.S. Sample Grade Smooth Green Dry Peas.

Remarks Statement - "U.S. No. 1 Smooth Green Dry Peas except for bleached peas."

1.17 FACTOR ONLY INSPECTIONS

a. Any interested person may request a factor only inspection to be performed on any lot/sample of peas or lentils.

b. Requests for service must specify the factor(s) or other criteria for which analysis is required. "Other criteria" includes, but is not limited to: test weight, and specifications prescribed by Federal agencies, trade associations, and contracts.

c. When requested, official personnel must:

(1) Determine the factor results according to the procedures in this handbook or as approved in specific cases by FGIS Deputy Administrator.

(2) Show the factor results on the inspection certificate according to the procedures in the Certification Handbook.

(3) Show the class of the peas or lentils on the grade line of the certificate, i.e., "Smooth Green Dry Peas."

1.18 WITHHOLDING AND WITHDRAWAL OF AMA INSPECTION SERVICES

Section 868.24 of the regulations under the AMA, provides for the conditional withholding of inspection service for correctable causes, which can be found in section 868.21, such as (1) failure to pay bills for inspection services, (2) unsanitary plant conditions, or (3) plant conditions which would subject the inspector to unusual hazard or discomfort.

a. Inspectors at the plant must report any such conditions to the field office or cooperator as soon as possible.

(1) The final decision to withhold service must be made by the field office manager or the cooperator manager.

(2) The field office manager or the cooperator manager may conditionally withhold service upon notification to the applicant.

b. Section 868.25 of the regulations provides for the denial or withdrawal of service due to (1) a willful violation of the AMA, regulations, or directives; or (2) intimidation, threat, assault, or other improper action that interferes with or obstructs official personnel in the performance of their duties.

(1) Denial or withdrawal of service requires that the applicant be accorded due process and must, therefore be conducted by FGIS headquarters in accordance with the Rules of Practice Governing Formal Adjudicatory Proceedings Instituted by the Secretary of Agriculture under Various Statutes (7 CFR Part 1, Subpart H).

(2) When circumstances warrant denial or withdrawal of service, the field office manager or cooperator manager must report the circumstances in accordance with Directive 9070.6, "Reporting Violations of the U.S. Grain Standards Act, and The Agricultural Marketing Act of 1946."

Note: If a situation, such as assault, occurs that threatens the safety of official personnel and is a violation of the AMA, the field office managers and cooperator managers may withhold service on the grounds that official personnel are subject to hazardous conditions. Such situations should be reported in accordance with Directive 9070.6, "Reporting Violations of the U.S. Grain Standards Act & the Agricultural Marketing Act of 1946."

c. Withholding Notice.

(1) When deemed necessary by the field office manager and cooperator mangers, notify the applicant why service may be withheld and afford the applicant time to correct the problem or demonstrate why service should not be withheld.

(2) If a resolution is not reached, the field office manager or cooperator manger must notify the applicant, in writing, of the decision to withhold service.

(3) Use the following statements to notify the applicant that services are being withheld. The wording of these statements may be modified provided the meaning is not altered and the statement is approved by the field office manager.

(a) Unsanitary or Hazardous Conditions.

"Pursuant to the 7 CFR Part 868 regulations under the AMA, effective immediately, all services performed by this (cooperator or field office, Service) at your (plant, mill, etc.) are being conditionally withheld because of (unsanitary, hazardous plant conditions). A written description of the (unsanitary, hazardous condition(s)) will follow. Notify the FGIS field office at (field office location) when you have eliminated or corrected the specified (unsanitary, hazardous condition(s)). If it is determined upon examination of your (plant, mill, etc.) that these conditions have been eliminated or corrected, inspection services will be restored immediately or as soon thereafter as a sampler or inspector can be made available. If you have any questions concerning this action, contact the (field office location) Field Office. Copies of the Part 868 regulations are being mailed to you today."

(b) Nonpayment of Bills.

"Pursuant to the 7 CFR Part 868 regulations under the Agricultural Marketing Act of 1946, effective immediately, all services performed by this (field office, cooperator, Service) for your account are being conditionally withheld because of nonpayment of bills for services. Upon payment of these delinquent bills, services will be restored immediately, or as soon thereafter as a sampler or inspector can be made available. If you have any questions concerning this action, contact the (field office location) Field Office. Copies of the Part 868 regulations are being mailed to you today."

d. Reinstatement of Service Notice.

(1) If the conditions causing withholding of service are corrected, service must be reinstated. The field office manager or cooperator manager must notify the applicant, in writing, of the decision to reinstate service.

(2) Use the following statements to notify the applicant that service will be reinstated. The wording of these statements may be modified provided the meaning is not altered and the statement is approved by the field office manager.

(a) Unsanitary or Hazardous Conditions.

"On (date of withholding), the USDA, AMS, Federal Grain Inspection Service, conditionally withheld services from your (plant, mill, etc.) because of (unsanitary, hazardous) conditions. Upon reexamination of your (plant, mill, etc.) on (date), the specified conditions were found to be (corrected or eliminated). You are hereby informed that services are restored effective (immediately or give date)."

(b) Nonpayment of Bills.

"On (date of withholding notice), the USDA, AMS, Federal Grain Inspection Service, conditionally withheld services from your (plant, mill, etc.) because of nonpayment of bills for services. These delinquent bills have now been paid and you are hereby informed that services are restored effective (immediately or give date).

FGIS-907 "APPLICATION FOR INSPECTION AND WEIGHING SERVICES"

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE FEDERAL GRAIN INSPECTION SERVICE **APPLICATION FOR INSPECTION AND WEIGHING SERVICES**	**FORM APPROVED OMB NO. 0580-0013**. According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Pursuant to Section 7 and 7a of the United States Grain Standards Act as amended (7 U.S.C. 79 and 79a) and the regulations thereunder (7 CFR 800 et. seq.) and/or Section 203(h) of the Agricultural Marketing Act of 1946, as amended (7 U.S.C. 1622) and the regulations and standards thereunder (7 CFR Parts 57 and 868), we apply for services described below

1. Type of Services (check all that apply)			2. Where are the services to be performed (check one)
◯ Original Inspection	◯ Reinspection	◯ Appeal Inspection	◯ United States
◯ Official Weighing	◯ Review of Weighing	◯ Board Appeal Inspection	◯ Canada
◯ Supervision of Weighing	◯ Retest		

3. Kind of Official Inspection Service Requested (check all that apply)			
◯ Official Sample Lot	◯ Submitted Sample	◯ Checkweigh	◯ Official Commercial
◯ Sampling	◯ Official Weighing	◯ Checkload	◯ Other Criteria (list in remarks)
◯ Stowage Examination	◯ Grade and Factor	◯ Checkcount	
◯ Condition	◯ Factors Only	◯ Supervision of Weighing	

4. Type of Grain/Commodity	5. Location of Grain/Commodity	6. Contract Number (if applicable)
7. Carrier or Other Identification	8. Quantity (specify in pounds, bushels, etc.)	9. Contract Grade (Factor or Specifications)
10. Number and Kind of Containers	11. Container Markings	12. Appeal Request ◯ File Sample ◯ New Sample

13. Name, Address and Telephone Number of Applicant (Firm Name)	14. Name and Address of Interested Party (agent, consignee)

13a. Applicant FGIS Account Number:

15. Remarks

In submitting this application, we expressly agree that the fees and charges for the inspection and weighing services shall be assessable to and payable by us in accordance with the fees and charges described in the regulations (7 CFR 800 et. seq.) under the United States Grain Standards Act and/or described in the regulations (7 CFR 868) under the Agricultural Marketing Act of 1946. I declare that the foregoing statements are true to the best of my knowledge, information and belief.

16. Date (mm/dd/yy)	17. Name of Firm	18. Signature of Person Making Application

Warning: Attempts to influence any official personnel with respect to the performance of his/her duties under the U.S. Grain Standards Act may upon conviction thereof, be subject to imprisonment for not more than 5 years and/or a fine of not more than $20,000. 18 U.S.C. 1001 provides for a fine of not more than $10,000 or imprisonment for not more than 5 years, or both, for false or fraudulent statements made to an agency of the United States. The offering of any gratuity, as described in 7 CFR 800.187, will be deemed an attempt to influence official inspection personnel.

For Use by FGIS

19. Application Received By	20. Date (mm/dd/yy)	21. Field Office	22. Fees
23. Certificate No. or Nos.	24. Remarks		

FORM FGIS-907 (01/18) This form also replaces FORM FGIS-908 and 955, which are obsolete.

25. Car Initials and Number or other Identification	26. Quantity (Cargos) or Marked Capacity Per Carlot or Part Carlot	27. Kind of Grain and Reason For Appeal [1] or Review	28. Requested Sample Basis (Check)		29. Date [2] of Original Service	30. Check if Original Certificate For The Service is Attached	31. Remarks
			Official File	New			
			○	○		○	
			○	○		○	
			○	○		○	
			○	○		○	
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[1] List factor(s) and/or other criteria in question. For requests filed in advance, show the scope of the inspection in question.

[2] Show only date of inspection being appealed or weighing service being reviewed.

The conduct of all services and the licensing of (inspecting/grading/sampling) personnel under the regulations governing such services shall be accomplished without discrimination as to race, color, religion, sex, national origin, age or handicap.

FORM FGIS-907 Reverse

Instructions for Completing FGIS 907, "Application for Inspection and Weighing Services."

a. Action by Applicant. Complete items 1 through 18. Return the original to the appropriate FGIS field office and retain a copy for your records.

1. Check the box for the services needed. More than one box may be checked if a combination of services is requested.

2. Check the appropriate box to indicate whether the service is to be performed in the United States or Canada.

3. Check the box indicating the kind and scope of service being requested. For checkweigh, checkload, checkcount services use the remarks section for the specific service requested. Also, for condition of container examinations use the remarks section for this specific service.

4. Enter the type of grain or commodity for the service being requested.

5. Enter the location of the grain or commodity for the service being requested.

6. Enter the contract number if applicable.

7. Enter the carrier or identification for the service being requested.

8. Enter the quantity in pounds, bushels, etc., for the grain or commodity to be inspected.

9. For inspections during loading, enter the contract grade along with any special grade or other contract requirements. This information is not applicable to carriers that are to be inspected at rest.

10. Enter the number and kind of containers.

11. Enter the container marking, use the words: "Standard", "Commercial", or "Special" for the type of markings. For "Special", enter the complete container markings in the remarks section. If there are no markings enter "None". For rice, enter "Bulk".

12. Check the box indicating the type of sample required.

13. Enter the name and address of the applicants, i.e., the party that will be billed for the service.

13a. Enter the applicant's FGIS Account Number.

14. If applicable, enter the name and address of the agent or person of interest if any.

15. Enter additional information if necessary.

16. Enter the date the application was prepared.

17. Enter the name of the firm that is requesting the service.

18. Enter the name and signature of the person completing the application.

b. Action by field office. Review FGIS 907. If incomplete, either return the form to the applicant for completion or insert and initial the missing information. Complete items 19 through 24:

19. Enter the name of the person who received the application.

20. Enter the date the application was received.

21. Enter the name of the field office where the application was filed.

22. Viewable on customers' MyFGIS account at fgisonline.ams.usda.gov.

23. Enter the inspection certificate(s) numbers including the lettered prefix.

24. Enter any additional pertinent information.

c. Action by Applicant. For appeal, Board appeal or review services complete items 25 through 31.

25. Use the lot, carrier, or other identification shown on the certificate for the service in question. Identify a barge by name, number and any letterhead prefixes and suffixes; a railcar by its initials and number; a truck or trailer by license number and name or abbreviation of State (include time of sampling when necessary); and a vessel its name preceded by its means of propulsion (M/T, M/V, or S/S).

26. Enter the quantity in terms of bushels, pounds, weight loaded or unloaded, or to be loaded or unloaded for cargos. For a lot of sacked grain, also enter the type, number, and weight of sacks, i.e., 6000, 100-lb cotton sacks. For a truckload or trailer load, show truckload, trailer load, part-truckload or part-trailer load as the case may be. For a railcar, enter the marked capacity of the carrier or "over 130 000 lb." or under 130 000 lb." as the case may be.

27. Enter the grain and reason for the appeal, Board appeal, or review, e.g., the grade determining factors or other criteria. For requests filed in advance, show the kind of grain and contract grade.

28. Enter the sample basis desired for the appeal inspection. All Board appeal inspections will be performed on the basis of the file sample.

29. Enter the date of the original service. For applications filed in advance of loading, enter the expected date and time of loading if possible.

30. Indicate whether the original certificate for the inspection being appealed is attached. If the certificate is not attached, explain in item 31.

31. Enter any additional pertinent information.

CHAPTER 2:
SAMPLING

CONTENTS

TABLES

FIGURES

2.1 SAFETY

The requirements referenced in this section are mandatory for FGIS employees. All others are strongly encouraged to follow these guidelines:

a. General. Comply with all FGIS safety requirements and the AMS Safety Handbook, as well as all pertinent Occupational Safety and Health Administration (OSHA) requirements (e.g., 29 CFR 1910-1918). For more information, refer to the Grain Inspection Handbook 1, Sampling.

(1) Obey all posted warning signs and wear appropriate protective equipment when conditions warrant (e.g., hard hats and dust masks).

(2) When necessary and practical, carry a communication device (i.e., two-way radio for communication).

(3) Before sampling railcars, check to see if a fall protection assessment is required, in accordance with Directive 9170.14, "FGIS Rolling Stock Fall Protection." FGIS employees must complete Fall Hazard Awareness Training in accordance with the directive. The requirements of this directive apply to FGIS employees only. Official Agencies may adopt this policy or use it as a guideline to establish their own policy to comply with local and national safety requirements.

b. Life Vests. Wear U.S. Coast Guard approved Type I, II, III, or V PFD life vests when aboard barges, launch boats, or other vessels (midstream and dockside). Before putting on the life vest, inspect it for any potential defects and to ensure proper fit.

Note: Life vests must be international orange in color, contain retro-reflective panels, and must not be of an inflatable type. If used at night, the vest must be equipped with a light and a whistle.

c. Clothing.

(1) Wear hard hats that meet the American National Standards Institutes (ANSI) Z89.1 or Z89.2 criteria.

(2) Wear shoes or boots that have nonslip soles and definite heels for good footing on ladders.

(3) Wear clothes that are reasonably close fitting to reduce the possibility of becoming snagged on ladders or other structural elements.

(4) Wear gloves when climbing ladders and opening or closing hatches and doors.

Note: FGIS personnel must follow the clothing requirements found in Directive 4735.2, "Uniform and Identity Apparel and Dress Code Policy."

d. Gangways and Ladders. Check the gangway before boarding or disembarking barges and other vessels. Do not use defective gangways. Exercise extreme care when using ladders that are permanently affixed to the carrier wall. Do not hand carry sampling equipment, radios, or other equipment while climbing ladders.

e. Chemical Treatments. Remain alert to your physical condition, especially when drawing samples inside carriers. Pea and Lentils are sometimes treated with chemicals, usually for the purpose of controlling insect infestation. Contact with toxic fumes or sprays from these chemicals can cause serious injury or death. The following symptoms can be indicative of a dangerous atmosphere:

(1) Shortness of breath.

(2) Light-headedness.

(3) Drowsiness.

(4) Headache.

When these symptoms are experienced, leave the area immediately and seek medical attention.

f. Transportation.

(1) Travel to and from barges at midstream and other vessels at anchor via U.S. Coast Guard-approved launch, tugboat, licensed water taxi; or by Federal Aviation Administration-approved helicopter or air taxi.

(2) Do not jump on or off a barge or other vessel. You must be able to step easily from the launch to the vessel (or vessel to launch) without stretching or straining over water; expect slippery or obstructed deck condition when boarding a vessel.

g. Dock Areas.

(1) While walking on a dock or wharf, be alert for loose or rotting boards that may not support your weight.

(2) Learn the locations of life rings, emergency ladders, and telephones.

(3) Stay clear of cables whether slack or under tension.

h. Boats, Barges, and Ships.

(1) FGIS employees must not board any launch boat service to board any ships, barges, or floating rigs unless a licensed boat captain and deckhand are present on board the launch vessel. Before boarding, ensure that the deckhand is nearby and ready to provide aid in an emergency.

(2) If the launch boat is not staffed with at least one captain and one deckhand, inform the driver that you are unable to board for safety reasons and contact your supervisor for further assistance. Upon boarding the launch boat, familiarize yourself with the location of any lifesaving devices and request instruction from the captain or deckhand as to the proper use of such equipment.

(3) Do not probe sample barges at night unless the barge is docked and sufficient artificial light is provided. Use caution when walking on decks and barge tops since they are uneven, slippery when wet, and have protruding cleats and latches. Do not remain on barges while they are being moved and be aware of nearby barges, docks, or vessels which could collide with the barge you are working on. Do not permit hatches to be opened or closed while you are inside the barge.

i. Trucks.

(1) Do not walk through a break in a string of trucks separated by only a few feet.

(2) Be alert to such hazards as moving trucks, cables, debris, metal strapping, or broken ladders.

(3) Avoid breathing diesel exhaust fumes.

j. Railcars.

(1) Before entering a rail yard, notify your immediate supervisor, the yardmaster, or switch-crew foreman, and any other essential persons of your presence. Do not sample railcars in a rail yard alone unless you are being monitored by someone who is in a position to render aid if needed (i.e., one of the two persons that must be present may be an elevator employee). Inquire about possible switching activities, cars carrying hazardous cargo, and any other unusual activity.

(2) Require that all activity cease on the track where you are working. Require the track to be locked out, or derails installed at both ends of the string of cars, or other appropriate, locally approved precautions (e.g., using blue flags with radio communication between you and the switch engine driver, using one or more additional employees as a safety observer to warn off approaching railcars, or using blue flags and a lockout switch on an elevator hold-track where no railcar or switch engine movement takes place during the performance of official functions).

(3) Do not probe sample railcars at night unless adequate artificial light is provided. Do not walk on the rails; walk parallel to the set of tracks and never between the two rails. Ensure that no power lines are close enough to present a hazard (minimum safe distance - 25 feet vertically and horizontally).

(4) Check for placarded railcars. If a car is or is not placarded and a fumigant odor is detected, withhold the inspection (do not enter the car or sample the commodity) and notify your supervisor immediately.

(5) Never crawl under railcars. Avoid climbing through railcars and over couplings and never walk through a break in a string of railcars separated by only a few feet (minimum safe distance - 20 feet). Be alert to such hazards as moving railcars, cables, debris along tracks, metal strapping, or broken ladders hanging from railcars.

(6) Be alert to seasonal conditions, such as icy walking surfaces in the winter, and rodents, snakes, scorpions, wasps, and hornets in the warmer months.

(7) Exercise caution when opening or closing car hatches or doors. If a hatch or door is stuck, request assistance from the applicant. Use a cutting tool or pry bar to break seals; do not use your hands.

(8) Do not ride on an engine or car being moved or switched. If a car starts to move while you are inside, assume a sitting or kneeling position on top of or in the car to avoid losing your balance, and hold on. Do not attempt to descend a ladder or jump to the ground until the car has stopped and you can do so safely. Report all incidents of car movement to the yardmaster or your supervisor. (Supervisors should also report such movement to either OSHA or the Federal Railroad Administration).

(9) Notify the yardmaster (or foreman) when you leave the work area and report all “bad order cars” (e.g., missing ladder rungs or broken doors) to the car owner, the railroad, or the applicant for inspection.

k. Warehouses. Watch out for forklifts and tow motors. Also, be alert for sacks slipping (falling) from improperly stacked pallets and overhead conveyor belts.

2.2 REPRESENTATIVE SAMPLE

Obtaining a representative sample from a lot of peas or lentils is an essential part of the inspection process. If the sample is not representative, the inspector's final determination will not reflect the true quality of the lot. For a sample to be considered representative, it must be:

a. Obtained by official personnel in accordance with official procedures.

b. Obtained using FGIS approved equipment as per FGIS Equipment Handbook.

c. Of the prescribed size (approximately 2,500-3,000 grams).

d. Handled securely, protected from manipulation, substitution, and careless handling.

Note: Frequently, a sample drawn from one lot or portion of a lot is combined with another sample(s) to form a component, sublot, or combined-lot sample. Prior to combining such samples, the sampler must ensure that the samples are proportional, i.e., samples of like size represent like amounts of peas or lentils.

2.3 DETAILED WORK RECORD (SAMPLE TICKET)

The accurate recording of the lot's identity and its condition at the time of sampling is essential to the correct certification of the lot's quality. Samplers must record all unusual conditions and other pertinent information on the sample ticket. If the condition is not reported on the sample ticket, the lot could be inadvertently misgraded. For more information, refer to Grain Inspection Handbook I, Sampling.

Sample tickets must contain the following information:

a. Sampler's signature or initials.

b. Date the sample was obtained.

c. Location of the lot of peas or lentils at the time of sampling (i.e., Union Pacific Yard). If the city and/or state in which the sampling took place is not obvious, this must also be shown).

d. Full identification of the lot.

e. When applicable, information related to the condition of the carrier's storage area (e.g., truck, hopper car, container, or barge).

f. Type of movement (e.g., in, out, local, or export).

g. When applicable, the number and prefix of seals broken and applied.

h. Method of sampling.

i. When applicable, any information related to the condition of the carrier's stowage area.

j. Other pertinent information that may affect the grading or certification of the lot, such as the notation "Top ___ feet sampled. Bottom not sampled."

Note: Qualifying statements such as, "Bottom not sampled," are not allowed on export certificates. Therefore, the trier must reach the bottom of the export carrier.

The original or copy of the sample ticket must be retained for a minimum of 5 years.

2.4 CARRIER OR CONTAINER AND LOT IDENTIFICATION

a. Carrier, container, lot, and seal identification must be shown on lot inspection certificates when the inspection is performed.

(1) During the movement of the peas or lentils to or from a carrier or container and official personnel observed such movement and performed a stowage examination of the carrier or container prior to movement, or

(2) While the peas or lentils are at rest in a carrier or container.

b. Take care to ensure that the proper identification information is recorded.

c. For lot inspections, official personnel must obtain identification information personally. Do not transcribe the information from the application or other documents supplied by the applicant or others. Obtain identifying information as follows:

(1) Oceangoing vessel identification must be taken from the vessel hull or obtained from the vessel master or representative.

(2) Barge identification must be taken from the hull, not from removable tops.

(3) Railcar identification must be taken from the side of the car, not from the ends.

Note: In certain instances, it may be necessary to separately certify the peas or lentils in one or more compartments of a hopper car because of different class, quality, or condition. In such instances, the first bay or compartment at the car's brake end must be identified as "B-1," and the remaining compartments or bays being numbered consecutively towards the car's non-brake end. A statement identifying the compartment must be shown after the car initials and number, and must be followed by the seal identification applied to the compartment, if applicable.

(4) Truck (without trailer(s)) identification may be taken from a state license plate or other truck identification. In the case of a truck which cannot be sealed, the truck identification need not be shown. If a truck cannot be sealed and if requested by the applicant, the truck may be identified by other identification, such as load number, scale ticket number, or other information which will facilitate the identification of individual trucks.

(5) Truck trailer identification may be taken from a state license plate on the trailer or other trailer identification. In the case of a trailer which cannot be sealed, the trailer identification need not be shown. If a trailer cannot be sealed and if requested by the applicant, the trailer may be identified by other identification, such as load number, scale ticket number, or other information which will facilitate the identification of individual trailers.

(6) Container (ocean containers, containerized unit loads, or piggy-back loads) identification must be taken from the front of the container. The identification number consists of four letters followed by five or six numbers. The last letter or number after the number which is separated by a dash, blank space, or surrounded by a box may be disregarded.

Example: SEAU12345-9 is printed on the container, the identification would be SEAU12345 unless the applicant requested that the "-9" be shown.

(7) Storage bin identification may be taken from information shown on the bin or from other reliable sources.

(8) Warehouse lot identification must be taken from the schematic layout of the warehouse or from other reliable sources, i.e., warehouse receipt number.

2.5 LOT ACCESSIBILITY

a. To obtain a representative sample, the entire lot must be completely and safely accessible.

Note: Labor and equipment necessary for making a lot accessible must be furnished by the applicant.

(1) When hazardous conditions exist, which could endanger the health of the sampler, consider the lot inaccessible and dismiss the service request. Dismissal of service must be performed in accordance with Section 868.23, "Dismissal of Request for Inspection Service." Hazardous conditions include, but are not limited to:

(a) The presence of unsafe levels of insecticide, fumigant, or other chemical odors.

(b) Uncontrolled rail yard switching.

(c) Ice on top of barges, railcars, and other carriers.

(d) Broken or unsecured ladders.

(e) Low hanging electrical wires.

(f) Improperly stacked pallets/danger of sack slippage (falling sacks).

(2) If a lot is not completely accessible for sampling, dismiss the request for service or, at the applicant's request, sample that portions that is accessible and issue a "partial inspection" certificate.

(3) When a "partial inspection" is requested, make notations on the sample ticket indicating the total number of containers in the lot, the number of containers that were accessible for sampling and state "Partial Inspection" on the sample ticket.

Example: If there are 1,263 containers in a lot, but only 400 containers are accessible, the sampler's ticket should read: "Sample represents 400 containers only; balance of containers inaccessible for sampling; total containers in lot 1,263."

b. For the purpose of sampling sacked peas or lentils stored in a warehouse or similar facility, the lot is considered accessible when a minimum of one side of each pallet in the lot is accessible for sampling.

(1) The applicant or warehouse manager need not have every sack in the lot exposed and accessible for sampling unless requested to do so by the sampler. Unless the plant is currently under a Quality Improvement Program (QIP) in which every side of the pallet/slip sheet must be accessible.

(2) It is the sampler's prerogative to request any or all sacks in the lot to be made accessible for sampling should there be any reason to suspect that the lot is not uniform in quality.

(3) The following are some examples of when the sampler should suspect that a lot may not be uniform:

(a) Weathered, dirty, wet, or sour smelling sacks mixed in a lot of clean sacks. These sacks may contain peas or lentils of lower quality.

(b) Sacks with different markings. This could indicate the mixing of sacks from another lot which had different quality requirements.

(c) Sacks that appear to have trier penetration marks. These sacks may have been previously sampled, graded, and found to be of lower quality.

2.6 SAMPLE HANDLING AND SECURITY

a. A representative sample must never be out of the control and/or observation of the sampler. Special care must be taken to protect samples from manipulation, substitution, and improper handling. There are many ways in which a sample may lose its representativeness. For example, a sample is no longer considered representative if it is:

(1) Spilled, no matter how little is lost or how much could be recovered.

(2) Stored in an improper manner or in an area not under the control of official personnel.

When samples are not analyzed on the same day they are obtained, store them in a cool, dry place to prevent any change in condition.

(3) Transported by means which do not ensure the integrity of the sample.

Note: Official samples may be shipped via U.S. mail or commercial parcel service, provided that the samples are delivered directly to official personnel and all other necessary security precautions are taken. Such precautions may include enclosing the sample bag in a mail bag secured by a seal, if warranted.

b. Lockboxes or other security containers may be provided by the applicant at plants where official services are performed on a continuing basis. The lockboxes must be:

(1) Of sufficient size to contain samples, sampling supplies and equipment, and checkweighing scales. It is not intended that items, such as dividers and probes, be stored in the lockbox.

(2) Placed in the immediate work area. Lockboxes must not be placed in the basement or other remote locations. If it is impossible or impractical to locate the lockboxes in the immediate sampling area, a portable, lockable container, such as a locked metal pail, should be used.

(3) Equipped with a hasp for a padlock. Padlocks must be provided by official personnel and, under no circumstances, will keys to the padlocks be issued to or made accessible to unauthorized persons.

2.7 PLANT SANITATION EXAMINATION[1]

a. Official personnel must examine or survey pea and lentil plants for insanitary conditions when:

(1) Required by Federal law or purchase contract.

(2) Required by FGIS Program Directive.

(3) Requested by the applicant for official services.

(4) Deemed necessary by official personnel.

b. Insanitary conditions include those conditions that, in the opinion of official personnel, would render the peas or lentils unfit for human consumption but which may not be adequately reflected by the grade assigned to the peas or lentils. Insanitary conditions include, but not limited to, the presence of:

(1) Vermin or insects.

(2) Toxic substances.

(3) Decayed animal or vegetable matter.

[1] The premises, buildings, structures, and equipment (including but not limited to, machines, utensils, vehicles, and fixtures located in or about the premises) used or employed in the preparation, processing, packaging, holding, transporting, and storage of peas or lentils. Establishments engaged only in the harvesting, storage, or distribution of peas or lentils prior to the peas or lentils being cleaned or otherwise processed for human consumption are not considered as "plants" for the purpose of this directive.

(4) Other filth.

(5) Harmful substances, such as broken glass and metal shavings.

c. If the plant is approved as a result of the survey, official inspection services may begin or continue at a time agreed upon by plant management and official personnel.

d. If the plant is not approved as a result of the survey, official inspection services must be conditionally withheld pursuant to the procedures in Section 868.24, "Conditional Withholding of Service," the Sanitation and Food Defense Handbook, and Directive 9100.3, "Withholding and Withdrawal of AMA Inspection Services."

2.8 EXAMINATION OF FILLED CONTAINERS

a. Official personnel must examine filled containers to determine whether the peas and lentils being offered for inspection may have been contaminated or may become contaminated as a result of the condition of the container.

b. Filled container examinations include checking the containers, such as burlap, jute, cotton, kraft (paper), polyethylene, polypropylene bags; cases; or bales to determine whether they are free from dirt, stains, tears, live or dead insects, insect webbing, and insect refuse.

c. If adverse conditions are found, note the conditions, kind of containers, and container markings on the sample ticket and in the "Remarks" section of the certificate.

2.9 CONTAINER MARKINGS INFORMATION

Most packaged peas and lentils have identifying marks on the containers. These marks are required to be shown on the inspection certificate if the marks indicate a different quality of peas or lentils than what is actually in the container. All other times, the markings may be shown upon request of the applicant. Show such markings on certificates as follows:

a. Uniform Markings.

(1) When container markings are uniform for an identified pea or lentil lot, then all markings may be shown on the certificate.

(2) However, much of the markings shown on the containers is information which identifies the container manufacturer or some container specification and does not serve any useful purpose in regard to identifying marks. Such information, unless requested by the applicant, need not be shown as identifying marks on the certificate.

(3) Markings are usually shown in lines one above the other substantially as follows:

U.S. NO. 1 SMOOTH GREEN DRY PEAS

PRODUCT OF U.S.A.

KB, INC.

MOSCOW, ID

(4) Space permitting, such markings may be shown on the certificate as shown above but are usually shown with the word "over" in lower case letters between lines, or with slash marks indicating the end of each line of markings, as follows:

U.S. NO. 1 SMOOTH GREEN DRY PEAS over PRODUCT OF U.S.A. over KB, INC. over MOSCOW, ID

Or

U.S. NO. 1 SMOOTH GREEN DRY PEAS/PRODUCT OF U.S.A./KB, INC./ MOSCOW, ID

b. Non-uniform Markings.

(1) On some occasions, an identified pea or lentil lot will have varied markings shown on the containers. Such markings are usually the result of the use of "leftover" containers accumulated and used by a shipper at the end of a shipping season.

(2) When such marks are found and the applicant does not request that such marks be shown, the statement "No Common Marks" may be shown in the “Remarks” section of the certificate.

(3) If the applicant requests that such varied markings be shown, the applicant has the responsibility of separating the containers by the various markings so that the number of containers of each marking can be determined or the applicant can furnish the count.

(4) If the applicant furnished the count, the count will be shown in the quantity portion of the certificate and the statement “Vendor’s Count” will be shown in detail in the “Remarks” section of the certificate.

Example: Quantity and Container:

Vendor’s weight: 156,000 pound net estimated
Vendor’s count: 1560/100 pound polypropylene bags

c. Non-uniform Markings - With Uniform Sublot Markings.

(1) There are occasions when several sublots, with uniform markings within each sublot but varying markings from each other, will be accumulated in warehouses and designated as one overall lot.

(2) In such instances, a record will be kept of the number of sacks of each set of uniform markings contained within the overall lot; and such information may be shown in the "Remarks" section of the certificate.

Example: An identified warehouse lot consisting of ten separate cars (1,200 100-pound sacks each) was unloaded on a warehouse floor. Six of the carlots have one set of uniform markings and four of the carlots have another set of uniform markings. The certificate (in regard to markings) would be issued substantially as follows:

7,200 sacks marked: LENTILS/Product of U.S.A./Jones Co./Spokane, WA/(Reverse) LARENCO MARQUES

4,800 sacks marked: LENTILS/Product of U.S.A./Smith Inc./Moscow, ID/(Reverse) LARENCO MARQUES

d. Tag Markings. When containers are tagged with identifying markings, the tag information may be shown in the "Remarks" section of the certificate substantially as follows:

Tag Markings: EXPORT/PEAS/SOUTH AFRICA

e. Contract Specification Markings. An applicant may request that the markings be checked only for compliance with contract specifications. In such cases, show one of the following statements in the "Remarks" section of the certificate:

"Bag markings as specified by (contract number, agency, or other pertinent information)."

Or

"Bag markings not as specified by (contract number, agency, or other pertinent information) because (reason, e.g., code number omitted or letter size incorrect)."

f. Registered Trademark Markings.

(1) Many pea and lentil companies, exporters, and shippers have registered trademarks (brand names) for commodities packaged by or for them. Such markings may contain artwork, such as an eagle, crossed rifles, a plantation home, and many other markings, which frequently are not necessary, practicable, or requested by the applicant.

(2) When such instances occur and all of the brand name information is not needed or requested by the applicant, the brand name may only be shown in parenthesis followed, if necessary, by any export marks shown on the reverse of the sack substantially as follows:

(Eagle Brand) (Reverse) XYC/PEAS/SOUTH AFRICA

2.10 EXAMINATION OF CARRIERS (STOWAGE EXAMS)

a. When peas or lentils are to be sampled during loading, examine the carrier prior to loading (and when appropriate, the containers or sacks) for conditions that could adversely affect the quality of the peas or lentils. (Directive 9180.48, "Stowage Examinations"). Adverse conditions include, but are not limited to, the presence of:

(1) Live weevils or other injurious insects.

(2) Odors of previously transported cargoes.

(3) Water.

(4) Out-of-condition peas, lentils, or other commodities.

(5) Decaying animal or vegetable matter.

(6) Protruding objects which may damage the containers.

(7) Holes in the carrier's roof, sides, or floor.

(8) Rust scale, dirt, chemicals, and unknown substances.

b. Record the results of the examination on a sample ticket, inspection log, general service or stowage examination worksheet, or other work record.

c. If no adverse conditions are found, sampling/loading may begin or continue at a time agreed upon by the plant management and official personnel.

d. If adverse conditions are found, official inspection service must be conditionally withheld pursuant to the procedures in Section 868.24, "Conditional Withholding of Service."

Note: When peas or lentils are sampled after loading, examine the accessible portions of the carrier and note any adverse conditions on the sample ticket and in the "Remarks" section of the certificate.

2.11 EXAMINATION OF SAMPLE PORTIONS

Compare each sample portion taken from a lot with other sample portions drawn from the same lot for uniformity of type/class, quality and condition.

a. If all sample portions are uniform, composite the portions together.

b. If any sample portion is considered to be of distinctly different type/class, quality, or condition from the remainder of the sample portions, draw separate samples from the portion of the lot that contains the distinctly different peas or lentils, the remainder of the lot, and the entire lot. Keep the samples in separate containers and note on the respective sample tickets the estimated quantity of the lot represented by each sample.

2.12 SAMPLING CONTAINERS IN WAREHOUSES

a. Randomly select an appropriate number of containers from the lot.

(1) Determine the number of containers in the lot.

(2) Determine the minimum number of containers from which samples need to be drawn (Table 2.1).

TABLE 2.1 – SAMPLING RATE

Containers[1] in lot	Sample Size	Containers in Lot	Sample Size	Containers in Lot	Sample Size
100 or less	10				
101 - 121	11	1,601 - 1,681	41	4,901 - 5,041	71
122 - 144	12	1,682 - 1,764	42	5,042 - 5,184	72
145 - 169	13	1,765 - 1,849	43	5,185 - 5,329	73
170 - 196	14	1,850 - 1,936	44	5,330 - 5,476	74
197 - 225	15	1,937 - 2,025	45	5,477 - 5,625	75
226 - 256	16	2,026 - 2,116	46	5,626 - 5,776	76
257 - 289	17	2,117 - 2,209	47	5,777 - 5,929	77
290 - 324	18	2,210 - 2,304	48	5,930 - 6,084	78
325 - 361	19	2,305 - 2,401	49	6,085 - 6,241	79
362 - 400	20	2,402 - 2,500	50	6,242 - 6,400	80
401 - 441	21	2,501 - 2,601	51	6,401 - 6,561	81
442 - 484	22	2,602 - 2,704	52	6,562 - 6,724	82
485 - 529	23	2,705 - 2,809	53	6,725 - 6,889	83
530 - 576	24	2,810 - 2,916	54	6,890 - 7,056	84
577 - 625	25	2,917 - 3,025	55	7,057 - 7,225	85
626 - 676	26	3,026 - 3,136	56	7,226 - 7,396	86
677 - 729	27	3,137 - 3,249	57	7,397 - 7,569	87
730 - 784	28	3,250 - 3,364	58	7,570 - 7,744	88
785 - 841	29	3,365 - 3,481	59	7,745 - 7,921	89
842 - 900	30	3,482 - 3,600	60	7,922 - 8,100	90
901 - 961	31	3,601 - 3,721	61	8,101 - 8,281	91
962 - 1,024	32	3,722 - 3,844	62	8,282 - 8,464	92
1,025 - 1,089	33	3,845 - 3,969	63	8,465 - 8,649	93
1,090 - 1,156	34	3,970 - 4,096	64	8,650 - 8,836	94
1,157 - 1,225	35	4,097 - 4,225	65	8,837 - 9,025	95
1,226 - 1,296	36	4,226 - 4,356	66	9,026 - 9,216	96
1,297 - 1,369	37	4,357 - 4,489	67	9,217 - 9,409	97
1,370 - 1,444	38	4,490 - 4,624	68	9,410 - 9,604	98
1,445 - 1,521	39	4,625 - 4,761	69	9,605 - 9,801	99
1,522 - 1,600	40	4,762 - 4,900	70	9,802 -10,000	100

Note: For lots packed in primary and secondary containers, the number of secondary (outer) containers in the lot must be used to determine the number of containers to be sampled.

[1] If the lot contains more than 10,000 containers, divide the lot into 2 or more (approximately) equal-sized sublots of 10,000 containers or less. Sample each sublot separately.

b. Draw a sample from each selected container using an approved pea and lentil sack trier (List of Approved Equipment - Equipment Handbook) of sufficient length to reach the center of the container, a compartmented trier of sufficient length to reach the bottom of the container, or a ladle.

(3) When sampling peas or lentils in *large-sized containers* (22.25 kilograms/50 pounds or more), use a pea and lentil sack trier or a compartmented trier.

(4) For sampling peas and lentils in *medium-sized containers* (4.5 to 22.24 kilograms/10 to 49.9 pounds), use a pea and lentil sack trier.

(5) For sampling peas and lentils in *small-sized containers* (less than 4.5 kilograms/10 pounds), use a ladle or take the entire contents of selected individual containers for the sample.

c. Draw a sample with a sack trier as follows:

(6) Insert the trier into the sack.

(7) Give the inserted trier two or three short in-and-out motions to allow a free flow of product through the trier into a sample container.

(8) Examine the sample for uniformity (type/class, quality, and condition). If uniform, combine the sample with other samples of equal quality from the same lot.

Note: Close all trier holes made during sampling.

d. Draw a sample with a compartmented trier as follows:

(9) Stand the container on end and insert the trier into the top of the container.

(10) Move the trier diagonally through the container until the end of the trier touches the bottom corner opposite the top corner from which it was inserted.

(11) Open the trier with the slots facing upward.

(12) While the slots are open, give the trier two or three short up-and-down motions so that the compartments in the trier can be filled.

(13) Close the trier gently to avoid damaging the peas or lentils, withdraw the trier, and place its contents full length on a sampling cloth.

(14) Examine the sample for uniformity (type/class, quality and condition). If uniform, combine the sample with other peas and lentils of equal quality from the same lot, sublot, or component.

e. After samples have been taken from a lot offered for inspection, the applicant is responsible for closing all open containers from which samples have been drawn and replacing containers taken as samples. If the applicant does not replace the containers that were removed or properly seal the containers, which were left open, note on the sample ticket the number of whole/sealed containers remaining after sampling.

f. When sampling containers during movement (online), draw a sample from one of the first five containers that are packed, a sample from one of the last five containers, and the remaining samples at proportionate intervals during the packing of the lot.

2.13 SAMPLING CONTAINERS OF PEAS AND LENTILS IN CARRIERS

a. When an applicant requests the inspection of a lot of peas or lentils in containers that are already loaded into a railcar, truck, or other carrier, the containers are considered accessible for inspection when "wells" are dug at the location and depth indicated by the sampler.

Note: Labor and equipment for digging the necessary "wells" must be furnished by the applicant.

b. Select the containers for sampling as follows:

(1) Mentally divide the carrier into areas (A1, A2, D, B1, and B2) and sections (three sections for all but D: two sections for D). (Figure 2.1)

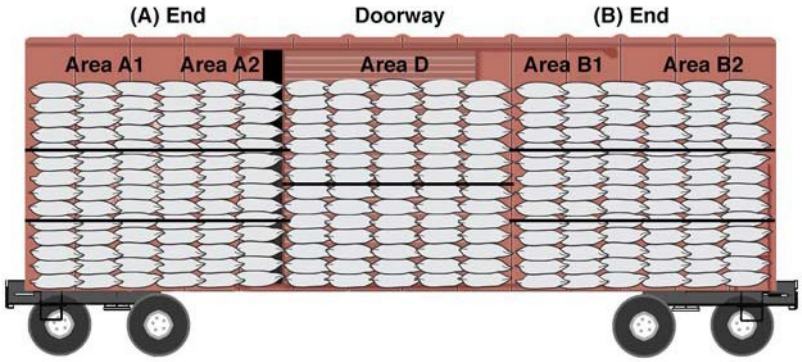

FIGURE 2.1 – SIDE VIEW - AREAS AND SECTIONS OF A BOXCAR

(2) Randomly select six bags from each of the areas identified as A1, A2, B1, and B2. Select ten bags from area D. If the car is not loaded uniformly (i.e., area D is loaded six bags high, while areas A and B are loaded twelve bags high), select more bags from the areas containing more bags and less from those containing less, but always select at least 34 bags, total.

(3) Determine the locations where the wells must be dug so that the proper number of bags may be sampled from each section. (Whenever possible, limit the number of wells that must be dug to three, but dig the wells as deep as possible.) (Figure 2.2)

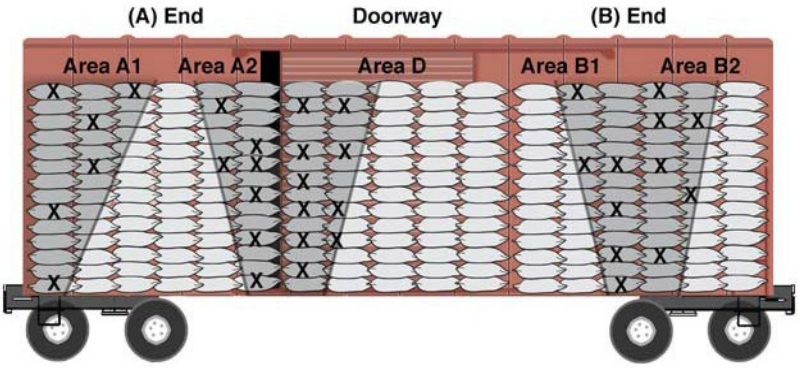

FIGURE 2.2 – SIDE VIEW OF A BOXCAR WITH THREE WELLS, SELECTED BAGS INDICATED BY X MARKS

(4) Randomly select the sacks to be sampled from the sacks removed when making a well and from the exposed bags forming the well sides. (Use of random number cards/tables is optional).

(5) Draw the sample portions. It is very important that approximately the same amount of sample be taken from each sack.

2.14 SAMPLING BULK PEAS AND LENTILS AT REST

a. Use an approved double-tubed compartmented trier/probe (List of Approved Equipment - Equipment Handbook) of sufficient length to reach the bottom of the carrier.

TABLE 2.2 – PROBES AND CARRIER TYPES

Carrier	Length of Trier/Probe	Compartments
Barge	12-foot	20
Hopper Car	10 or 12-foot	20
Box Car	6-foot	12
Truck	5 or 6-foot	11 or 12
Hopper Truck	6, 8, or 10-foot	12, 16, or 20
Other Containers/Carriers – use a double-tube compartmented trier that will reach the bottom of the container.		

b. Sample bulk peas and lentils at rest in a carrier as follows:

(1) Visually examine the lot at rest in the carrier. Record any unusual conditions on the sample ticket.

(2) Spread your canvas and make sure that it and the trier are clean and dry.

(3) For each type of carrier, there is an established sampling pattern (pages 2-21 to 2-23). Probe the peas and lentils in the areas identified by the sampling pattern for the particular carrier.

Note: At the discretion of the official agency or field office manager, nonlicensed personnel may assist official personnel in obtaining samples, provided that: (1) all nonlicensed personnel are under the direct, physical supervision of official personnel at all times; (2) the ratio of official personnel to nonlicensed personnel is reasonable and practical; and (3) official personnel determine the general condition of the grain and whether additional samples are needed due to quality differences.

(4) Insert the trier at a 10-degree angle from the vertical, with the slots facing upward and completely closed.

(5) If the peas or lentils contain fine debris (e.g., dockage or fine foreign material) it is permissible to insert the trier with the slots facing downward to avoid “freezing” the probe. After the trier is inserted, turn the slots upward before opening. After the trier is fully inserted (*with the slots facing upward*), open the slots and move the trier up and down quickly in two, short motions.

(6) Close the slots very gently (until resistance is felt) so as not to damage the peas or lentils, grasp the trier by the outer tube, and withdraw it from the lot. Do not pull the trier by the handle.

(7) Empty the trier on the canvas and compare the peas or lentils from each depth of the trier for uniformity of type/class, quality, and condition. Also compare the sample portion to others drawn from the same lot. If all sample portions are uniform, they must be composited and placed in a sample bag along with a completed sample ticket.

Note: If the trier/probe does not reach the bottom of the carrier, show the following on the work record:

“Top (depth reached) feet sampled, Bottom Not Sampled (BNS)”.

c. The following figures indicate the standard sampling patterns. Each lot must be probed in as many additional locations as are necessary to assure that the sample is the required size and representative of the lot.

(1) Additional probes must be drawn in a balanced manner. For example, one compartment of a hopper car must not be probed twice unless the other compartments are also probed twice, regardless of the amount of peas or lentils in any one compartment or the amount of additional sample needed.

(2) The sampling patterns in this section must be used by all official inspection personnel when sampling peas and lentils at rest. Insert the probe at the points marked (X), with the tip of the probe pointed toward the direction of the arrowhead. When two arrow heads are shown, the tip of the probe may be pointed in either direction.

(3) Sampling Pattern for Barges. Draw one probe sample from each opening in the direction of the arrowhead. Insert the probe in the center of the opening, approximately 7 feet from the side edge.

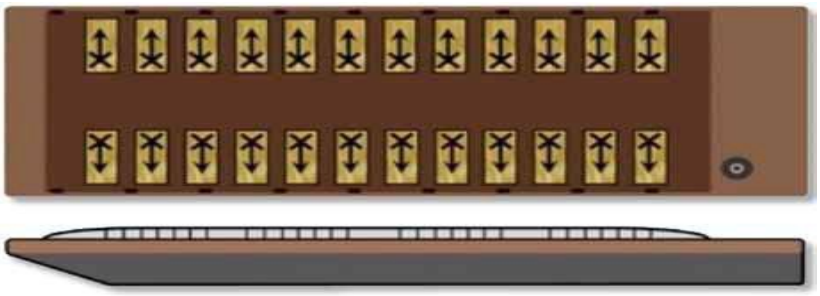

FIGURE 2.3 – FIBERGLASS HATCH TOP BARGE

(4) Sampling Pattern for Hopper Cars. Insert probe in the direction of the arrow at an approximately 10-degree angle, the probe may be inserted either in the center of each hopper or slightly off center in order to miss the cross beam.

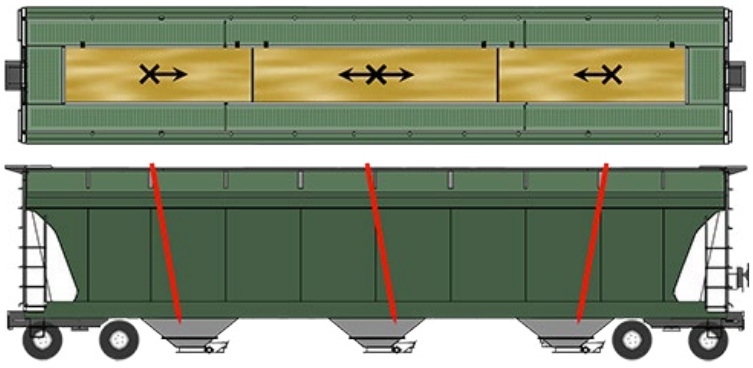

FIGURE 2.4 – 3-COMPARTMENT, TROUGH OR DOOR TYPE HOPPER CAR

(5) Sampling Pattern for Box Cars. Insert the probe at an approximately 10-degree angle in the direction of the arrows shown in the diagram. The probe pattern shown may also be used in reverse of the one shown.

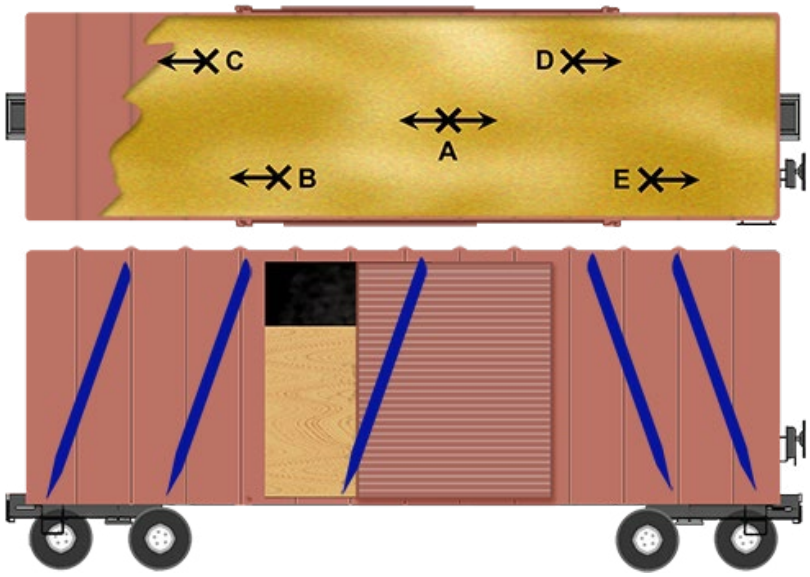

FIGURE 2.5 – BOXCAR

(6) Sampling Patterns for Trucks. Insert the probe at an approximately 10-degree angle in the direction of the arrows shown in the diagram. The probe pattern shown may also be used in reverse of the one shown.

(a) Flat-Bottom Trucks or Trailers Containing Peas or Lentils More than 4 Feet Deep or Eight Filled Probe Compartments.

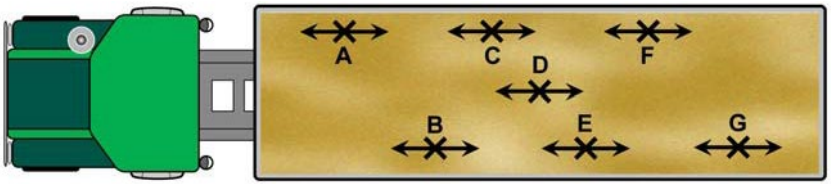

FIGURE 2.6 – FLAT-BOTTOM TRUCK OR TRAILER

(b) Flat-Bottom Trucks or Trailers Containing Peas or Lentils Less than 4 Feet Deep or Fewer than Eight Filled Probe Compartments.

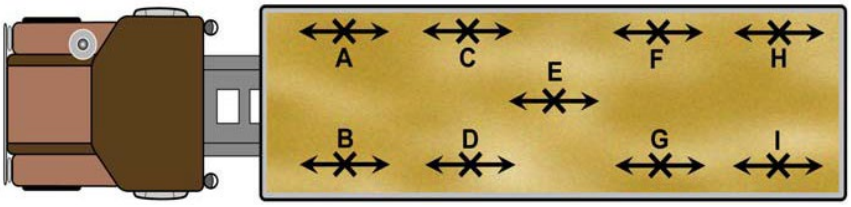

FIGURE 2.7 – FLAT-BOTTOM TRUCK AND TRAILER

(7) Sampling Pattern for Hopper-Bottom Containers, Trucks, and Trailers. Insert the probe at an approximately 10-degree angle in the direction of the arrows shown in the diagram.

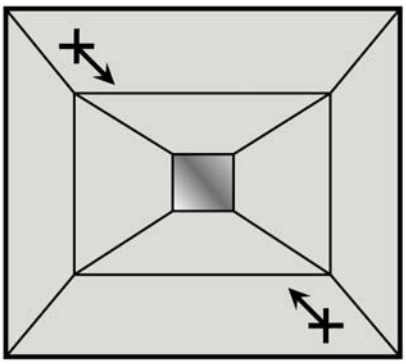

FIGURE 2.8 – ALUMINUM HOPPER-BOTTOM CONTAINER

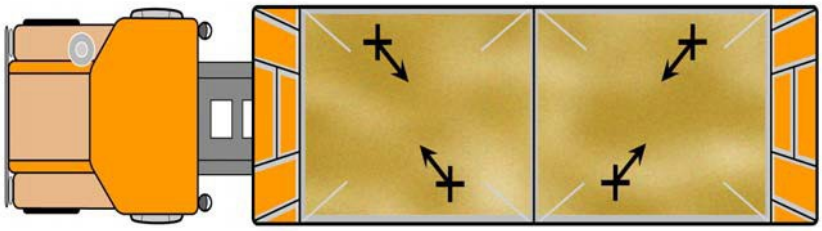

FIGURE 2.9 – HOPPER-BOTTOM TRUCK AND TRAILER

d. Sample bulk peas or lentils in tote bags (i.e., large flexible or rigid containers holding 500 - 3000 pounds of peas/lentils).

(1) For lots of 1 to 4 tote bags, draw a total of no less than five probe samples from the entire lot. Always draw the same number of probe samples from each bag.

(2) For lots of 5 to 9 tote bags, draw at least one probe sample from each bag. Always draw the same number of probe samples from each bag.

(3) For lots of 10 to 40 tote bags, draw no less than ten probe samples from the entire lot. Randomly select the bags to be probed, draw no more than one probe sample from each selected bag.

(4) For lots of 41 or more tote bags, draw one probe sample from at least 25 percent of the bags in the lot or ten probe samples from the entire lot, whichever is greater. Randomly select the bags to be probed, draw no more than one probe sample from each selected bag.

2.15 SAMPLING BULK PEAS AND LENTILS DURING MOVEMENT

a. Diverter-Type Mechanical Sampler. FGIS tested and approved diverter-type mechanical samplers (D/T) may be used to sample bulk peas and lentils during movement. For testing and approval information, refer to the Mechanical Sampling Systems Handbook.

(1) Prior to using a D/T, ensure that the system is clean and free from peas/lentils or debris from a previous shipment.

(2) For sampling peas or lentils as they are being placed in sacks or similar containers, set the D/T counter switch so that the pelican will traverse the stream at least once every 25 containers.

(3) For sampling peas or lentils being loaded into bulk carriers, set the timer in accordance with prescribed procedures in the FGIS Mechanical Sampling Systems Handbook.

b. Pelican Sampler. FGIS-approved pelican samplers may be used to sample peas and lentils in a falling stream.

(1) To draw a sample using the pelican, first grasp the pelican's handle firmly. Then, swing the pelican completely through the stream in one continuous motion. This is known as taking a "cut."

(2) The following is the minimum number of "cuts" required:

Hopper Car	-	2 cuts per compartment
Boxcar	-	4 cuts per carrier
Hopper Truck	-	2 cuts per compartment
Truck	-	2 cuts per carrier
Barge/Ship	-	1 cut per 13,500 kilograms (30,000 lbs.)

Caution: Sampling a free-falling stream of peas or lentils with a pelican sampler can be dangerous. Ensure yourself of firm, nonskid footing. Retrieving lines may be attached to the handle of the pelican and the carrier. Do not tie retrieving lines to a person.

c. Ellis Cup. FGIS approved Ellis cup samplers may be used for sampling peas and lentils moving on a conveyor belt.

FIGURE 2.10 – ELLIS CUP

(1) Draw a sample using the Ellis cup as follows:

(a) Hold the Ellis cup firmly and upright, with the sides of the cup parallel to the sides of the conveyor belt, and with the open end of the cup facing the oncoming flow.

(b) Push the curved portion of the cup straight down in the center of the stream to the full depth of the peas or lentils. After filling, withdraw the cup and empty it.

(c) Then, immediately draw two more portions from the stream: one to the left of center and one to the right of center. This is known as taking a "set" of samples.

Note: When drawing samples with an Ellis cup from peas or lentils in a narrow stream or on a slow moving conveyor belt, all portions may be taken from the center of the stream and portions may be drawn in a delayed manner, as necessary.

(2) The following is the minimum number of "sets" required:

Hopper Car	-	1 set per compartment
Boxcar	-	2 sets per carrier
Hopper Truck	-	1 set per compartment
Truck	-	1 set per carrier
Barge/Ship	-	1 set per 13,500 kilograms (30,000 lbs.)

Caution: Ensure that you have good footing to avoid falling onto the belt and that a U-shaped protective guardrail is installed not less than 2 ½ feet above each belt and secured to the floor.

CHAPTER 3:
THRESHER-RUN PEAS

CONTENTS

TABLES

3.1 GENERAL ORDER OF PROCEDURES

The breakdown and inspection for Thresher-Run Peas are listed below in the following chapter according to its general order. The order of procedure may slightly vary depending on the quality of the peas and the tests requested. More information is available on the Agricultural Marketing Service Website (AMS), in the U.S. Standards for Whole Dry Peas, and the Board of Appeals and Review (BAR) Questions and Answers.

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 side. In a steady motion, move the sieve from left to right approximately 10 inches and then return from right to left. Repeat this motion 20 times.

3.2 DEFINITIONS

Thresher-Run Dry Peas. Dry peas from which the dockage has not been removed.

Whole Dry Peas. Threshed seeds of the garden type pea plant (Pisum sativum L. and Pisum sativum var. arvense (L.) Poir.), which after the removal of dockage, contain 50.0 percent or more of whole peas and not more than 10.0 percent of foreign material.

Split Peas. The halves or smaller pieces of dry peas, and dry peas in which the halves are loosely held together.

Dockage-Free Dry Peas. Dry peas from which the dockage has been removed.

If a sample does not meet the definition of Whole Dry Peas, examine it further to determine if it is:

a. Another commodity or grain for which standards have been established; or

b. Not Standardized Commodity (NSC). No further analysis is necessary on a sample designated as NSC unless a specific factor test is requested.

3.3 FACTORS AND FACTOR DESIGNATIONS

Thresher-run dry peas shall be inspected for factors only, without reference to grade.

Thresher-run dry peas may be inspected for: class; defective peas and foreign material; dockage; color description; and moisture.

The factor designation for all classes of thresher-run peas may include the name of the class; percentage of dockage and type of sieve used in making the determination; the percentage of weevil-damaged peas, heat-damaged peas, damaged peas, other classes, bleached peas, split peas, shriveled peas, peas with cracked seed coats, foreign material, and the computed total percentage thereof; the color description; and the percentage of moisture.

Note: Upon applicant request, thresher-run peas may be graded, after the removal of dockage, to determine what the peas would have graded after processing (dockage removed). The percent of dockage will be determined with the use of FGIS approved sieve(s) and will be recorded on the work record and "Results" section of the certificate to the nearest tenth percent. The grade will be in the form of a statement (below) placed in the "Remarks" section of the certificate.

"After the removal of dockage, this thresher-run lot would have graded U.S. No. (grade) (Smooth Green/ Smooth Yellow) Dry Peas under the U.S. Standards for dockage-free peas

"After the removal of dockage, this thresher-run lot would have graded U.S. No. (grade) (Smooth Green/ Smooth Yellow) Dry Peas under the U.S. Standards for dockage-free peas except for (e.g. foreign material or bleached peas)." Insert only the factors that would have a bearing on the grade.

Quality Except for Statements cannot be applied for odor or deleterious qualities (any substance considered an actionable defect by the Food and Drug Administration). Directive 9060.2, "Implementation of the FGIS-FDA Memorandum of Understanding."

3.4 BASIS OF DETERMINATION

All factor determinations shall be made upon the basis of the dry peas after the removal of dockage with the following exceptions:

Dockage in thresher-run dry peas shall be determined upon the basis of the peas as sampled.

Color shall be determined after the removal of dockage, defective peas, and foreign material.

Defects in peas shall be scored in accordance with the order shown in 402(d) and once an individual pea is scored in a defective category, it shall not be scored for any other defect. Percentages for all categories of defects shall be calculated on the basis of the total weight of the sample analyzed for defective peas.

Note: When peas that are offered for inspection as one lot are found to contain more than 10,000 containers or 1,000,000 pounds (bulk) of peas, the lot must be sampled on the basis of two or more (approximately) equal-sized sublots of 10,000 containers or 1,000,000 pounds or less. Inspect each sublot separately.

When peas that are offered for inspection as one lot are subsequently found to contain portions that are distinctly different in class, quality, or condition, the peas in each portion must be inspected separately.

Seed peas are not considered standardized peas and may, upon request, be inspected according to applicant specifications.

3.5 BROKEN GLASS

Basis of Determination. Determine broken glass (GLAS) on the basis of the lot as a whole and/or the representative sample before the removal of dockage as a whole.

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

Certification. When applicable, show the term "Broken glass", including count, on the work record and “Results” section of the certificate.

3.6 METAL FRAGMENTS

Basis of Determination. Determine metal fragments (MF), such as metal filings or metal shavings on the basis of the lot as a whole and/or the representative sample before the removal of dockage as a whole.

Sufficient evidence of metal fragments must be:

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. When applicable, show the term "Metal fragments", including count, on the work record and “Results” section of the certificate.

3.7 HEATING

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

Peas developing a high temperature from excessive respiration are considered heating. Heating peas, in its final stages, usually give off a sour or musty odor. Do not confuse peas that are heating with peas that are warm due to storage in bins, cars, or other containers during hot weather.

Certification. When applicable, show the term "Heating" on the work record and “Results” section of the certificate.

3.8 ODOR

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

a. Off-odors (i.e., musty, sour, and commercially objectionable foreign odors) are usually detected at the time of sampling.

   (1) If there is any question as to the odor when the sample is being taken, put part of the sample into an airtight container to preserve its condition for further examination in the laboratory.

   (2) Return the portion to the sample before other tests are made.

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

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

d. A **commercially objectionable foreign** odor (COFO) 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, decaying animal, strong weed, and vegetable matter odors.

Note: A sample with a light drier (cooked) odor is not considered an objectionable odor unless it creates a strong odor which resembles a moldy or basement odor, then the sample should be made “Musty” or the drier odor creates a smoke odor, that sample should be made “COFO”.

Fumigant or insecticide odors are considered commercially foreign 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 foreign 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 foreign odor, record the type of odor on the work record and "Results" section of the certificate.

3.9 TEST WEIGHT

Note: This factor is not provided for under the United States Standards for Whole Dry Peas but may be determined upon request.

Basis of Determination. Determine test weight (TW) before the removal of dockage on a representative portion of sufficient size to overflow the kettle.

The procedures for performing the test weight determination are described in Grain Inspection Handbook, Book II.

Certification. Record test weight results on the work record and "Results" section of the certificate to the nearest tenth of a pound.

3.10 DOCKAGE

Definition. *Small, underdeveloped dry peas, pieces of dry peas, and all matter other than dry peas which can be removed readily by the use of an approved device in accordance with procedures prescribed in the Pea and Lentil Handbook and the Equipment Handbook.*

Basis of Determination. Determine dockage (DKG) on a representative portion of approximately 1,000 grams.

Remove the dockage from the peas by sieving the representative portion with the appropriate size sieve. For Mixed dry peas, use the sieve prescribed for the class of peas that predominates the mixture.

Note: If official personnel determine that the prescribed sieve removes too many small, fully developed peas (not screenings), the Field Office/Federal-State manager may allow the use of a slightly smaller sieve. Furthermore, if they determine that the prescribed sieve allows too many underdeveloped peas to remain with the "clean" peas, they may elect to use a slightly larger sieve. If the peas are offered for inspection as "seed peas," the applicant for inspection may specify the sieve size to be used.

TABLE 3.1 – PRESCRIBED DOCKAGE SIEVES

Classes	Sieves
Mottled Dry Peas	9/64" x 3/4" (oblong or slotted)
Smooth Green Dry Peas	11/64" x 3/4" (oblong or slotted)
Smooth Yellow Dry Peas	11/64" x 3/4" (oblong or slotted)
Wrinkled Dry Peas	11/64" x 3/4" (oblong or slotted)
Miscellaneous Dry Peas	Use appropriate size sieve

a. Nest the appropriate sieve on top of a bottom pan.

b. Place the sieve in a mechanical grain shaker so that the slotted perforations are parallel to the motion of the shaker and set the timer to 20.

c. Put one-third of the representative portion in the center of the sieve and actuate the shaker.

d. Return the material remaining in the perforations of the sieve to the portion that remains on top of the sieve.

e. Consider all material that passed through the sieve as dockage. Pick out large material, such as stems and pods with/without peas inside, from the peas remaining on top of the sieve and add it to the dockage. Do not remove the peas from the pods.

Note: Mud lumps, or stones that are too large to pass through the sieve used in making the dockage determination should be handpicked from the peas and added to the dockage. Mud lumps or stones that are approximately the size and shape of peas should be considered foreign material.

Kernels of corn that remain on top of hand sieves, when determining dockage, function as foreign material; corn passing through the sieve is considered dockage.

f. Remove the dockage from the remainder of the representative portion in the same manner.

Certification. Record the percent of dockage, sieve size used in the determination, on the work record and “Results” section of the certificate to the nearest tenth percent.

Upon applicant request, determine a DKG breakdown by (handpicking a representative portion of the dockage separation) or estimating the percent of small peas (SPD), split peas (SDKG), and other material (OMD) that comprise the DKG. The percent of grain in the “other material in dockage” may also be estimated or determined.

a. Dockage breakdown is **estimated** using hand sieves.

Note: Handpicking the material through or over sieves is not required when the breakdown is estimated.

b. Record the percent of small peas, split peas, and other material on the work record and “Results” section of the certificate to the nearest tenth percent and show the statement “Estimated using hand sieves.

c. When requested, record the percent of grain in the "other material in dockage" on the work record and “Results” section of the certificate to the nearest whole percent, and show the following statement on the certificate.

"Other material in dockage includes (percent) of grain."

Upon applicant request, reclaim any readily identifiable and separable pea material present in the dockage.

a. After mechanically removing and recording the percent of dockage present in the thresher-run pea sample, reclaim any small peas, split peas, and recognizable pea pieces that passed through the prescribed dockage sieve.

Note: A smaller sized sieve may be used as an aid in the reclaiming process to minimize any handpicking that may be necessary.

b. Determine other material and foreign material according to applicable procedures, subtract the sum from 100, and round to the nearest whole percent. Record the results to the nearest whole percent on the work record and “Results” section of the certificate.

Upon request, when providing information for the Farm Service Agency, Loan Deficiency Program, show the following special statement in the “Remarks” section of the certificate.

“Sample contains (percent) of whole, broken, or pieces of peas.”

3.11 MOISTURE

Definition. *Water content in whole peas as determined by an approved device according to procedures prescribed in FGIS instructions.*

Basis of Determination. Determine moisture on a representative portion of approximately 650 grams, after the removal of dockage.

The procedures for performing a moisture determination using a FGIS approved moisture instrument utilizing the calibrations of the predominate type of pea are described in the Moisture Handbook and the Directive 9180.61, "Official Moisture Calibration for Unified Grain Moisture Algorithm (UGMA) Compatible Meter."

Note: To determine moisture on Marrowfat Peas use the same selection on the moisture machine for Smooth Dry Peas.

Certification. Record the percent of moisture on the work record and "Results" section of the certificate to the nearest tenth.

3.12 DISTINCTLY LOW QUALITY

Definition. *Whole dry peas which 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 which cannot be graded by use of the other grading factors provided in the standards.*

Basis of Determination. Determine distinctly low quality (DLQ) on the basis of the dockage-free sample as a whole.

a. Flood Damaged Peas. Peas materially affected by flooding are considered DLQ. In addition, official personnel must report official identifiable lots that are DLQ to the district Food and Drug Administration (FDA) office as "actionable" in accordance with FGIS-PN-19-04, "Inspection of Flood Damaged Grain."

   The determination of DLQ is based on the appearance and condition of the lot or sample as a whole. Evaluate peas affected by flooding on a portion of approximately 400 grams with the use of the ILP – All Grains/Graded Commodities - Inspection of Flood Damaged Grain. If a sample does not meet the requirements for DLQ, but the peas are materially damaged (stained) by flooding, consider the peas as damaged and count toward the total percent of damage in the sample.

b. Large Animal Excreta (LGANX). Peas containing one or more large animal excreta (e.g., deer or elk pellet) are considered DLQ.

c. Large Debris. Peas containing two or more stones, pieces of glass, pieces of concrete, or other pieces of wreckage or debris which are visible to the sampler and too large to enter the sampling device are considered DLQ.

d. Other Unusual Conditions. Peas that are obviously affected by unusual conditions which adversely affect the quality of the peas, such as 1 or more **unknown foreign substance, or treatment with a fungicide**, must be considered to be DLQ.

Certification. When applicable, show the factor "DLQ" and the reason(s) why on the work record and "Results" section of the certificate.

For more information, refer to Directive 9060.2, "Implementation of the FGIS-FDA Memorandum of Understanding."

3.13 ANIMAL FILTH

Basis of Determination. Determine animal filth (ANFL) on the basis of the lot as a whole and/or the representative sample after to removal of dockage as a whole.

Sufficient evidence of animal filth must be:

a. Two or more rodent or bird pellets in the lot as a whole or the work sample; or

b. One rodent or bird pellet in the work sample and one or more in the file sample; or

c. One or more deer or elk pellet(s) in the lot as a whole or the work sample.

Note: Deer or Elk pellet(s) are considered a DLQ factor and are determined after the removal of dockage.

Certification. When applicable, show the term "Animal Filth", including count, on the work record and "Results" section of the certificate.

3.14 DEFECTIVE PEAS

Definition. *The categories of defective peas shall be weevil-damaged peas, heat-damaged peas, damaged peas, other classes, bleached peas, split peas, shriveled peas and peas with cracked seedcoats.*

The percentage of defective peas and foreign material must be combined and shown on the certificate as Total Defects and Foreign Material.

Basis of Determination. Determine defective peas on a representative portion of approximately 250 grams of dockage-free peas.

Score defects in the following order: Weevil-damaged, heat-damaged, damaged, other classes, bleached peas, split peas, shriveled peas and peas with cracked seedcoats.

Once an individual pea is scored, do not score it for any other defect but retain it as part of the sample for purposes of determining the percentage of other defects in the sample.

Certification. Record the percent of each type of defect on the work record and "Results" section of the certificate to the nearest tenth percent.

Add the percent of total defective peas to the percent of foreign material and record the sum as "total defects and foreign material" on the work record and "Results" section of the certificate to the nearest tenth percent.

Note: For the classes of Smooth Seeded peas (but not Seed Peas), only the percentage of peas with cracked seedcoats in excess of 3.0 percent will be included in the factor "Total Defects and Foreign Material." (Example: In a sample containing 3.2 percent of peas with cracked seedcoats, only 0.2 percent would be included in the Total Defects and Foreign Material.) For Seed Peas and Wrinkled peas, include all peas with cracked seedcoats with Total Defects and Foreign Material.

3.15 WEEVIL-DAMAGED PEAS

Definition. *Whole and pieces of dry peas which are distinctly damaged by the pea weevil or other insects.*

Basis of Determination. Determine weevil-damaged (WDK) peas on a representative portion of approximately 250 grams of dockage-free peas.

a. Weevil-eaten damage. Peas which have been eaten by weevils to the extent that the peas are light in weight and can be removed readily from the sound peas in the processing plant by either a gravity machine or brine solution. (VRI – Peas - 1.6 Weevil Damage)

b. Pinhole damage.

(1) Peas which have been stung by the pea weevil or other insect, and the damage extends into the cotyledon. Peas that have been "marked" by insects, but where the sting does not penetrate the cotyledon, are not considered weevil-damaged peas.

(2) Peas containing dead larvae in which the cavities are small (i.e., about dull pencil lead size). (VRI – Peas - 1.6 Weevil Damage)

Note: Any pea that contains or has contained a weevil or larvae of the pea weevil is considered weevil-damaged.

Dead insects, when found in the cavity of a pea, cause the pea to be considered weevil-damaged.

(3) Upon request, show the percent of pinhole damage on the work record and “Results” section of the certificate. Many processors need this information because pinhole damaged peas cannot be removed in the normal cleaning operation.

Weevil-damaged peas are usually bleached in appearance and show a discoloration window which indicates the presence of larvae within the pea. There are two methods of determining weevil-damage.

a. Visual Examination.

(1) Examine each pea for evidence of weevil stings or boring.

(2) If a pea has been stung, cut the pea to determine the extent of the penetration or whether it contains a live insect.

b. Brine Solution Test.

Note: Complete all other factor examinations before soaking the peas in a brine solution.

This method is not satisfactory for wrinkled peas as the wrinkles form pockets which may cause many sound peas to float along with the weevil-damaged peas.

(1) Place a wire basket (a tube 6 inches wide by 7 inches deep with an eight-mesh-per-inch screen) in a stone jar. Fill the stone jar about half full of water. Then add calcium chloride until a specific gravity of 1.225 is reached.

(2) Pour the representative portion into the screen and stir so that all air pockets are eliminated.

(3) Use a tea strainer-type ladle to lift out the peas which float on top of the solution. Peas that float are normally weevil-damaged, but this should be confirmed by visual examination.

(4) Skim off the peas that float and thoroughly rinse them under running water.

(5) Partially dry the "floaters" on blotter trays. Then place the peas in heater trays (wire screens having **1/8-inch** openings), set the trays in a heater/dryer until all the surface moisture has disappeared, and then visually examine to confirm weevil-damage.

Certification. Record the percent of weevil-damaged peas (total of those found by visual examination and by brine solution test) on the work record and “Results” section of the certificate to the nearest tenth percent.

3.16 HEAT-DAMAGED PEAS

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

Basis of Determination. Determine heat-damaged peas (HTDP) on a representative portion of approximately 250 grams of dockage-free peas. (VRI – Peas/S. Peas – 1.2 Heat Damage)

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

3.17 DAMAGED PEAS

Definition. *Whole and pieces of dry peas which are distinctly: (1) Damaged by frost, weather, disease, heat (other than materially discolored as a result of heating), or other causes; and (2) soiled or stained by dirt (not applicable for the class Wrinkled Dry peas).*

Damaged peas shall not include weevil-damaged peas or heat-damaged peas.

Basis of Determination. Determine damaged (DMG) peas on a representative portion of approximately 250 grams of dockage-free peas.

TYPES OF PEA DAMAGE.

Bacterium/Fungal Stain. Peas and pieces of peas that are stained by bacterium and/or fungal species to the minimum intensity shown at the center of the pea and in which the discoloration covers 50 percent or more of the pea's surface are considered damage. These conditions can affect seed development and color, with severely infected seeds appearing much smaller than normal and having purple to pink discolored seed coats. (VRI – Peas - 5.3 Bacterium/Fungal Stain)

Badly Shriveled Peas. Peas that are shriveled and discolored to a deep brown or reddish cast.

Chalky Peas. Peas that have a white spot on the surface of the cotyledon caused by unusual weather conditions, some harvesting practices, and/or Lygus bug stings. Chalky peas are considered damaged peas, not weevil-damaged peas. (VRI – Peas/S. Peas - 1.0 Damage (Chalky))

Damaged-by-Heat. Peas that have been damaged by heat to the extent that the cotyledon has been discolored equal to or greater than that shown on VRI – Peas/S. Peas - 1.3 Damaged-By-Heat.

Dirt and Grime Damaged Peas. Dirt and grime damaged peas include peas and pieces of peas with dirt or grime (including nightshade juice bag markings/ink stains) adhering to the seed coat equal to or greater than shown on VRI – Peas - 1.1 Damage (A. Dirt, B. Grime).

Note: Dirt and grime damage does not apply to the class Wrinkled Dry peas or Smooth Seeded peas grown for seed purposes.

Frost Damaged Peas. Peas and pieces of peas which have been damaged by frost to the extent that the cotyledon has been discolored with an area of coverage and intensity equal to or greater than shown on VRI – Peas - 1.8 Frost Damage. Frost damage is indicated by the appearance of the whole pea; but the actual determination for damage must be made on the basis of the opened pea.

Mold/Mildew Damaged Peas. Peas and pieces of peas which contain mold/mildew equal to or greater than that shown on VRI – Peas - 1.4 Mold/Mildew Damage. Mold/Mildew may appear on or around the hilum, the surface, and/or the cotyledon. A pea that contains any mold/mildew on the cotyledon must be considered damaged.

Sprout Damaged Peas. Peas and pieces of peas which are sprouted or when it is apparent that sprouting has occurred (i.e., sprouting is noticeable in representative work sample) but, through handling, the sprout has broken off and is no longer protruding through the seed coat. (VRI – Peas - 1.5 Sprout Damage)

Weather Damage. Peas and pieces of peas in which the surface area is discolored to the minimum intensity and coverage shown are considered damage. (VRI – Peas - 5.4 Weather Damage)

Worm-Eaten or Worm-Cut Peas. Peas and pieces of peas which have been chewed by insect larvae; not to be confused with weevil-bored peas containing insect webbing or filth. Any chewed pea is considered damaged.

Note: Insect webbing or filth only applies to split peas.

Certification. Record the percent of damaged peas on the work record and "Results" section of the certificate to the nearest tenth percent.

3.18 OTHER CLASSES

Definition. *Whole and pieces of dry peas which are of a contrasting color or which differ materially in shape, or other characteristics from the predominating class; and in the case of Miscellaneous Dry peas, which differ from the predominating type.*

Basis of Determination. Determine other classes (OCL) on a representative portion of approximately 250 grams of dockage-free peas.

Mixed peas rarely appear on the market. Slight mixtures sometimes occur affecting the quality or grade of peas. This is especially true of peas of widely different types.

a. Examples of mixtures of other classes are:

   (1) Smooth Green Dry Peas mixed with Smooth Yellow Dry Peas or vice versa.

   (2) Marrowfats mixed with either Smooth Green or Yellow Dry Peas, or vice versa.

b. Wrinkled varieties found in smooth varieties always function as other classes even though the cotyledon and seedcoat may be the same color as the smooth peas. Conversely, smooth peas function as other classes when found in the wrinkled varieties.

Certification. Record the percent of other classes on the work record and "Results" section of the certificate to the nearest tenth percent.

3.19 BLEACHED PEAS

Definition. *Whole and pieces of dry peas of green-colored varieties which are bleached distinctly yellow in color or peas of yellow-colored varieties which are bleached distinctly green in color.*

Note: The grade limits for the factor Bleached peas must not apply to Wrinkled, Mottled and/or Miscellaneous Dry peas, except for Marrowfat-type dry peas.

Bleached peas are applicable as a grading factor in Mixed Peas.

Basis of Determination. Determine bleached (BLCH) peas on a representative portion of approximately 250 grams of dockage-free peas.

Bleached peas are usually caused by adverse weather conditions prior to and during harvest, or by storage.

Bleached peas in Green peas are those peas which are white or light creamy yellow in color as contrasted with the natural color of Green peas. (VRI – Peas/S. Peas - 2.0 Bleached (Green Peas))

Bleached peas in Yellow peas are often those peas that have green blotches or those that are almost entirely green with tinges of yellow coloring. (VRI – Peas/S. Peas - 2.1 Bleached (Yellow Peas))

Bleached peas must be distinctly bleached with at least one eighth of the surface distinctly yellow or green in color, as the case may be, in contrast to the good natural color which is characteristic of the class being graded.

Note: To facilitate the determination of this factor, the seedcoat may be broken or removed to enable a better examination of the cotyledon.

Certification. Record the percent of bleached peas on the work record and "Results" section of the certificate to the nearest tenth percent.

3.20 SPLIT PEAS

Definition. *The halves or smaller pieces of dry peas and dry peas in which the halves are loosely held together.*

Basis of Determination. Determine split (SPL) peas on a representative portion of approximately 250 grams of dockage-free peas.

Certification. Record the percent of split peas on the work record and "Results" section of the certificate to the nearest tenth percent.

3.21 SHRIVELED PEAS

Definition. *Dry peas which are distinctly shriveled in contrast to the natural shape and appearance of normally developed peas.*

Basis of Determination. Determine shriveled peas (SHRV) on a representative portion of approximately 250 grams of dockage-free peas.

Shriveled (smooth-type) peas are usually discolored, misshapen, deeply dimpled, and/or withered in appearance. (VRI – Peas - 5.0 Shriveled (Smooth))

Care should be taken not to confuse "normal" wrinkled peas for shriveled peas. Wrinkled peas are considered shriveled if they are either slightly shriveled and distinctly discolored (caramelized), or slightly discolored with severe dimpling in the seedcoat. (VRI – Peas - 5.2 Shriveled (Wrinkled))

Certification. Record the percent of shriveled peas on the work record and "Results" section of the certificate to the nearest tenth percent.

3.22 PEAS WITH CRACKED SEEDCOATS

Definition. *Dry peas having readily discernible cracked seedcoats or peas which have all or a part of the seedcoat removed, and broken peas which are more than one-half of a whole pea.*

Note: For the classes of Smooth Seeded peas (but not "Seed Peas"), only the percentage of peas with cracked seedcoats in excess of 3.0 percent must be included in the factor "Total Defects and Foreign Material." (Example: In a sample containing 3.2 percent of peas with cracked seedcoats, only 0.2 percent would be included in the Total Defects and Foreign Material.) For "Seed Peas" and Wrinkled Peas, include all peas with cracked seedcoats with Total Defects and Foreign Material.

Basis of Determination. Determine peas with cracked seedcoats (CR) on a representative portion of approximately 250 grams of dockage-free peas.

Note: When the brining method is used to determine weevil-damaged peas, do not use the brined portion to determine peas with cracked seedcoats.

Peas with growth stress cracks which are usually tight and next to the hilum function as cracked seedcoats.

Do not consider the peas to be "peas with cracked seedcoats" if the cracked seedcoats can only be detected by rubbing or squeezing the peas between your fingers. (VRI – Peas - 3.0 Cracked Seed Coats)

Certification. Record the percent of peas with cracked seedcoats on the work record and “Results” section of the certificate to the nearest tenth percent.

3.23 CLASS

Peas are divided into the following classes:

Smooth Green Dry Peas. Dry peas which have smooth seed coats and green cotyledons and contain not more than 1.5 percent of other classes.

Smooth Yellow Dry Peas. Dry peas which have smooth seed coats and yellow cotyledons and contain not more than 1.5 percent of other classes.

Wrinkled Dry Peas. Dry peas which have wrinkled seed coats and contain not more than 1.5 percent of other classes.

Mottled Dry Peas. Dry peas of the Austrian winter pea type and other peas which have colored or distinctively mottled seed coats which contain not more than 1.5 percent of other classes.

Miscellaneous Dry Peas. *Dry peas that do not meet the criteria for any other class of dry peas and contain not more than 1.5 percent of other classes. (The grade limits for the factor Bleached peas shall not apply to Miscellaneous Dry peas, except for Marrowfat-type dry peas).*

Mixed Dry Peas. *Any mixture that does not meet the requirements for the classes Smooth Green, Smooth Yellow, Wrinkled, or Mottled Dry peas; or any mixture of different types of Miscellaneous Dry peas.*

Note: Thresher-run peas offered as "seed peas" must be certified as Not-Standardized Commodity. Do not identify "seed peas" by a class designation; instead show Not-Standardized Commodity on the certificate grade line and in the "Remarks" section record either "Peas" or "Seed Peas".

Basis of Determination. Class is usually determined by a cursory examination of the work sample as a whole. When a detailed examination is necessary, make this determination on a representative portion of approximately 250 grams of dockage-free peas.

Miscellaneous dry peas are not classified in the standards but may be designated according to the commonly accepted commercial name for the pea (i.e., Marrowfat peas).

Certification. If the peas contain more than 1.5 percent of "other classes," grade the peas "Mixed Dry Peas," and record the percent of each class of peas to the nearest tenth percent on the work record and "Results" section of the certificate.

3.24 FOREIGN MATERIAL

Definition. *All matter other than dry peas, including detached seedcoats, which cannot be readily removed in the determination of dockage.*

Basis of Determination. Determine foreign material (FM) on a representative portion of approximately 250 grams of dockage-free peas.

Note: Mud lumps or stones that are too large to pass through the sieve used in making the dockage determination should be handpicked from the peas and added to the dockage. Mud lumps or stones that are approximately the size and shape of peas should be considered FM.

Kernels of corn that remain on top of hand sieves when determining dockage function as FM and corn passing through the sieve is DKG.

Certification. Record the percent of foreign material on the work record and "Results" section of the certificate to the nearest tenth percent.

3.25 TOTAL DOCKAGE, DEFECTS, AND FOREIGN MATERIAL

The percentage of total dockage, total defects, and foreign material shall be computed on the basis of the sample as a whole and be shown on the certificate as Total Dockage, Defects and Foreign Material.

Calculate the percent of total dockage, defects and foreign material (DDFM) as follows:

Example: Total Dockage, Defects, and Foreign Material Calculation

Original sample weight	1,001 grams
Weight of dockage	120.25 grams
Weight of handpicked portion	250 grams
Weight of defective peas and foreign material	12.53 grams

a. **(Weight of dockage ÷ original sample weight) x 100 = percent of dockage.**
(120.25g ÷ 1,001g) x 100 = 12.01% dockage.

b. **(100 percent - percent of dockage) ÷ 100 = change of base factor.**
(100% - 12.0%) ÷ 100 = 0.88 change of base factor.

c. **(Weight of defective peas and foreign material ÷ weight of handpicked portion) x 100 = percent of defective peas and foreign material.**
(12.53g ÷ 250g) x 100 = 5.01% defective peas and foreign material.

d. **Percent of defective peas and foreign material x change of base factor = percent of defective peas and foreign material (adjusted).**
5.01 x 0.88 = 4.40% defective peas and foreign material (adjusted).

e. **Percent of dockage + percent of defective peas and foreign material (adjusted) = percent of total dockage, defects, and foreign material.**
12.01% + 4.40% = 16.41% total dockage, defects, and foreign material (rounded to 16.4%).

Certification. Record the percent of "total dockage, defects, and foreign material" on the work record and “Results” section of the certificate to the nearest tenth percent.

3.26 COLOR

Good Color Peas. Dry peas that in mass are practically free from discoloration and have the natural color and appearance characteristics of the predominating class. (ILP – Smooth Yellow Dry Peas (Good Color))

Fair Color Yellow Peas. Dry yellow peas that in mass are lightly to moderately discolored as a result of storage or any other cause to the extent they cannot be considered of good color. (ILP – Smooth Yellow Dry Peas (Fair Color))

Poor Color Peas. Dry peas that in mass are distinctly off-color from the characteristic color of the predominating class as a result of age or any other cause.

Basis of Determination. Determine color (COLR) on a representative portion of approximately 250 grams after the removal of dockage, defective peas and foreign material.

Available interpretive line prints (ILP) serve as the basis for this general appearance assessment.

a. Peas must be considered as "poor color" if they are not of a good natural color or are stained to an extent that seriously affect the appearance of the lot.

b. Peas that are discolored by dust or a slight amount of dirt, which can be removed by processing methods, must not be considered as "poor color."

Certification. When thresher-run peas are determined to be other than "good color," record this information on the work record and “Results” section of the certificate.

CHAPTER 4:
DOCKAGE-FREE PEAS

CONTENTS

TABLES

4.1 GENERAL ORDER OF PROCEDURES

The breakdown and inspection for Dockage-Free Peas are listed below in the following chapter according to its general order. The order of procedure may slightly vary depending on the quality of the peas and the tests requested. More information is available on the Agricultural Marketing Service Website (AMS), in the U.S. Standards for Whole Dry Peas, and the Board of Appeals and Review (BAR) Questions and Answers.

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 side. In a steady motion, move the sieve from left to right approximately 10 inches and then return from right to left. Repeat this motion 20 times.

4.2 DEFINITIONS

Dockage-Free Dry Peas. Dry peas from which the dockage has been removed.

Whole Dry Peas. Threshed seeds of the garden type pea plant (Pisum sativum L. and Pisum sativum var. arvense (L.) Poir.), which after the removal of dockage, contain 50.0 percent or more of whole peas and not more than 10.0 percent of foreign material.

Split Peas. The halves or smaller pieces of dry peas and dry peas in which the halves are loosely held together.

Thresher-Run Dry Peas. Dry peas from which the dockage has not been removed.

If a sample does not meet the definition of Whole Dry Peas, examine it further to determine if it is:

a. Another commodity or grain for which standards have been established; or

b. Not Standardized Commodity (NSC). No further analysis is necessary on a sample designated as NSC unless a specific factor test is requested.

4.3 GRADES AND GRADE REQUIREMENTS

Peas are divided into six classes: Smooth Green Dry Peas, Smooth Yellow Dry Peas, Wrinkled Dry Peas, Mottled Dry Peas, Miscellaneous Dry Peas, and Mixed Dry Peas. Each class is divided into three numerical grades and U.S. Sample Grade (Table 4.1). 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. They do not affect the numerical or sample grade designation.

TABLE 4.1 – GRADES AND GRADE REQUIREMENTS FOR DOCKAGE-FREE PEAS

Grading Factors	Maximum percent limits of: Grades U.S. Nos.[1]		
	1	2	3
Defective Peas			
Weevil-Damaged Peas	**0.3**	**0.8**	**1.5**
Heat-Damaged Peas	**0.2**	**0.5**	**1.0**
Damaged Peas[2]	**1.0**	**1.5**	**2.0**
Other Classes[3]	**0.3**	**0.8**	**1.5**
Bleached Peas[4]	**1.5**	**3.0**	**5.0**
Split Peas	**0.5**	**1.0**	**1.5**
Shriveled Peas	**2.0**	**4.0**	**8.0**
Peas with Cracked Seedcoats	**5.0**	**7.0**	**9.0**
Foreign Material	**0.1**	**0.2**	**0.5**
Minimum Requirements for Color	**Good**	**Good**	**Poor**
Smooth Yellow Dry Peas	**Good**	**Fair**	**Poor**

U.S. Sample Grade must be dockage-free peas which:

a. Do not meet the requirements for the grades U.S. Nos. 1, 2, or 3; or

b. Contain metal fragments, broken glass, or commercially objectionable odor; or

c. Contain more than 15.0 percent moisture; or

d. Are materially weathered, heating, or distinctly low quality; or

e. Are infested with live weevils or other live insects.[5]

[1] Uniformity of Size Requirements – Dry peas of any of the numerical grades must be of such size that not more than 3.0 percent must pass through the appropriate oblong-hole sieve as follows:

Mottled peas .....9/64" x 3/4"
Special grade – Small peas..... 10/64" x 3/4"
All other peas .....11/64" x 3/4" oblong or slotted

[2] Damaged peas do not include weevil-damaged or heat-damaged peas.

[3] These limits do not apply to the class Mixed Dry peas.

[4] These limits do not apply to Mottled, Wrinkled and/or Miscellaneous Dry peas, except for Marrowfat-type Dry peas.

[5] As applied to dockage-free whole dry peas, the meaning of the term infested as set forth in the Pea and Lentil Inspection Handbook.

4.4 SPECIAL GRADES

Special grades draw attention to unusual conditions in the peas and are made part of the grade designation. The special grades and special grade requirements of all classes of Whole Dry peas are shown in the United States Standards for Whole Dry Peas. Details for determining special grades are included in referenced sections. Definition and examples of the designations for special grades in peas are:

a. Large. Peas of the classes Smooth Green Dry Peas or Smooth Yellow Dry Peas of which not more than 3.0 percent of the peas will readily pass through the 16/64-inch round-hole sieve. (Section 4.13)

Example: U.S. No. 2 Large Smooth Green Dry Peas

b. Small. Peas of the classes Smooth Green Dry Peas or Smooth Yellow Dry Peas of which not more than 3.0 percent of the peas will remain on the 16/64-inch round-hole sieve and not more than 3.0 percent will readily pass through the 10/64 x 3/4-inch slotted-hole sieve. (Section 4.13)

Example: U.S. Sample Grade Small Smooth Yellow Dry Peas

4.5 BASIS OF DETERMINATION

All factor determinations shall be made upon the basis of the dry peas after the removal of dockage with the following exceptions:

Dockage in thresher-run dry peas shall be determined upon the basis of the peas as sampled.

Color shall be determined after the removal of dockage, defective peas, and foreign material.

Defects in peas shall be scored in accordance with the order shown in 402(d) and once an individual pea is scored in a defective category, it shall not be scored for any other defect. Percentages for all categories of defects shall be calculated on the basis of the total weight of the sample analyzed for defective peas.

Note: When peas that are offered for inspection as one lot are found to contain more than 10,000 containers or 1,000,000 pounds (bulk) of peas, the lot must be sampled on the basis of two or more (approximately) equal sized sublots of 10,000 containers or 1,000,000 pounds or less. Inspect each sublot separately.

When peas that are offered for inspection as one lot are subsequently found to contain portions that are distinctly different in class, quality, or condition, the peas in each portion must be inspected separately.

4.6 DISTINCTLY LOW QUALITY

Definition. *Whole dry peas which 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 which cannot be graded by use of the other grading factors provided in the standards.*

Basis of Determination. Determine distinctly low quality (DLQ) on the basis of the lot as a whole or the representative sample as a whole.

a. Flood Damaged Peas. Peas materially affected by flooding are considered DLQ and certified as "U.S. Sample Grade". In addition, official personnel must report official identifiable lots that are DLQ to the district Food and Drug Administration (FDA) office as "actionable" in accordance with FGIS-PN-19-04, "Inspection of Flood Damaged Grain."

   The determination of DLQ is based on the appearance and condition of the lot or sample as a whole. Evaluate peas affected by flooding on a portion of approximately 400 grams with the use of the ILP – All Grains/Graded Commodities - Inspection of Flood Damaged Grain. If a sample does not meet the requirements for DLQ, but the peas are materially damaged (stained) by flooding, consider the peas as damaged and count toward the total percent of damage in the sample.

b. Large Animal Excreta (LGANX). Peas containing one or more large animal excreta (e.g., deer or elk pellet) are considered DLQ.

c. Large Debris. Peas containing two or more stones, pieces of glass, pieces of concrete, or other pieces of wreckage or debris which are visible to the sampler and too large to enter the sampling device are considered DLQ.

d. Other Unusual Conditions. Peas that are obviously affected by unusual conditions which adversely affect the quality of the peas, such as 1 or more **unknown foreign substance, or treatment with a fungicide**, must be considered to be DLQ.

Certification. When applicable, show the factor "DLQ" and the reason(s) why on the work record and "Results" section of the certificate, and grade the peas "U.S. Sample Grade."

For more information, refer to Directive 9060.2, "Implementation of the FGIS-FDA Memorandum of Understanding."

4.7 U.S. SAMPLE GRADE CRITERIA

Basis of Determination. Determine U.S. Sample Grade criteria on the lot as a whole and/or the representative sample as a whole. Table 4.2 shows the criteria and corresponding tolerance limits, and the appropriate basis of determination.

TABLE 4.2 – U.S. SAMPLE GRADE CRITERIA

Criteria	Number/Weight[1]	
	Sample Basis	Lot[2]
Any numerical grading factor	Excess of limits for U.S. No. 3	N/A
Moisture	more than 15.0%	N/A
Animal filth	2 or more	2 or more
Deer or Elk Pellets[3]	1 or more	1 or more
Broken Glass (any size)	Presence	Presence
Live Insects	2 or more	2 or more
Insect Excreta	2 or more	N/A
Metal Fragments	2 or more	2 or more
Odor	Presence	Presence
Unknown Foreign Substance	1 or more	1 or more
Heating	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] Distinctly Low Quality (DLQ)

Certification. Grade dockage-free peas "U.S. Sample Grade" when one or more of the limits in Table 4.2 are observed. Record the reason(s) why on the work record and "Results" section of the certificate. Record count factors to the nearest whole number.

Note: Insect webbing or filth only applies to split peas.

4.8 HEATING

Basis of Determination. Determine heating (HTG) on the basis of the lot as a whole.

Peas developing a high temperature from excessive respiration are considered heating. Heating peas, in its final stages, usually give off a sour or musty odor. Do not confuse peas that are heating with peas that are warm due to storage in bins, cars, or other containers during hot weather.

Certification. When applicable, show the term "Heating" on the work record and “Results” section of the certificate, and grade the peas “U.S. Sample Grade.”

4.9 ODOR

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

a. Off odors (i.e., musty, sour and commercially objectionable foreign odors) are usually detected at the time of sampling.

   (1) If there is any question as to the odor when the sample is being taken, put part of the sample into an airtight container to preserve its condition for further examination in the laboratory.

   (2) Return the portion to the sample before other tests are made.

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

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

d. A **commercially objectionable foreign** odor (COFO) 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, decaying animal, strong weed, and vegetable matter odors.

Note: A sample with a light drier (cooked) odor is not considered an objectionable odor unless it creates a strong odor which resembles a moldy or basement odor, then the sample should be made “Musty” or the drier odor creates a smoke odor, that sample should be made “COFO”.

Fumigant or insecticide odors are considered commercially objectionable foreign 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 foreign 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 foreign odor, record the type of odor on the work record and "Results" section of the certificate, and grade the peas "U.S. Sample Grade."

4.10 TEST WEIGHT

Note: This factor is not provided for under the United States Standards for Whole Dry Peas but may be determined upon request.

Basis of Determination. Determine test weight (TW) before the removal of dockage on a representative portion of sufficient size to overflow the kettle.

The procedures for performing the test weight determination are described in Grain Inspection Handbook, Book II.

Certification. Record the test weight results on the work record and "Results" section of the certificate to the nearest tenth of a pound.

4.11 MOISTURE

Definition. *Water content in whole peas as determined by an approved device according to procedures prescribed in FGIS instructions.*

Basis of Determination. Determine moisture on a representative portion of approximately 650 grams.

The procedures for performing a moisture determination using a FGIS approved moisture instrument utilizing the calibrations of the predominate type of pea are described in the Moisture Handbook and the Directive 9180.61, "Official Moisture Calibration for Unified Grain Moisture Algorithm (UGMA) Compatible Meter."

Note: To determine moisture on Marrowfat Peas use the same selection of the moisture machine for Smooth Dry Peas.

Certification. Record the percent of moisture on the work record and "Results" section of the certificate to the nearest tenth percent. If the moisture results exceed 15.0 percent, grade the peas "U.S. Sample Grade."

4.12 INSECT INFESTATION

Note: Live weevils (LW) include pea weevils, coffee bean weevils, broad nosed grain weevils, rice weevils, granary weevils, maize weevils and lesser grain borers. Other live insects (OLI) include beetles, moths, meal worms and other insects injurious to stored peas. Insect larvae are considered the same as adult insects. Dead insects do not apply.

To further define OLI, refer to the Stored Grain Insect Reference. Images of insects may also be viewed on the AMS website.

Basis of Determination. Determine infestation on the basis of the work sample as a whole, a representative portion of approximately 250 grams, and the lot as a whole. For insect tolerances, refer to Table 4.3.

TABLE 4.3 – INSECT INFESTATION

Samples meeting or exceeding any one of these tolerances are infested: ***2 LW, or 1 LW + 1 OLI or 2 OLI***	
1,000-gram representative sample[1] (+ file sample if needed)	**Lot as a Whole (Stationary)**
Submitted Samples Probed Lots D/T Sampled Land Carriers	Probed Lots (at time of sampling)
[1] Examine work portion and file sample if necessary. Do not examine file sample if work portion is insect free. Key: LW = Live Weevil, OLI = Other Live Insects injurious to stored grain	

Note: The presence of pea weevils in a warehouse should not be considered an indication of infestation unless pea weevils are also found inside bags or containers of peas.

Certification. When applicable, show the number of live insects on the work record and "Results" section of the certificate, and grade the peas "U.S. Sample Grade."

4.13 SIZE REQUIREMENTS

Dry peas of any of the numerical grades must be of such size that not more than 3.0 percent must pass through the appropriate oblong-hole sieve.

Large. Peas of the classes Smooth Green Dry peas or Smooth Yellow Dry peas of which not more than 3.0 percent of the peas will readily pass through the 16/64-inch round-hole sieve.

Small. Peas of the classes Smooth Green Dry peas or Smooth Yellow Dry peas of which not more than 3.0 percent of the peas will remain on the 16/64-inch round-hole sieve and not more than 3.0 percent will readily pass through the 10/64-inch x 3/4-inch slotted-hole sieve.

Basis of Determination. Determine uniformity of size and/or the special grades "Large" and "Small" on a representative portion of approximately 250 grams before the removal of defects.

a. Size peas for determining uniformity, by sieving the representative portion with the appropriate size sieve (Table 4.4). For Mixed Dry peas and Miscellaneous Dry peas, use the sieve prescribed for the class of peas that predominates the mixture.

TABLE 4.4 – PRESCRIBED UNIFORMITY SIEVES

Classes	Sieves
Mottled Peas	9/64" x 3/4"
Special Grade "Small" Peas	10/64" x 3/4"
All Other Peas	11/64" x 3/4" (oblong or slotted)

b. Size smooth peas for determining special grade "Large" or "Small" by sieving the representative portion with the appropriate size sieve (Table 4.5).

TABLE 4.5 – PRESCRIBED SIZING SIEVES

Special Grade	Sieves
Large Smooth Dry Peas	16/64" round-hole
Small Smooth Dry Peas	16/64" round-hole and 10/64" x 3/4"

Size the peas as follows:

a. Nest the appropriate size sieve(s) on top of a bottom pan.

b. Place the sieve in a mechanical shaker so that the slotted perforations are parallel to the motion of the shaker and set the timer to 20.

c. Put the representative portion in the center of the sieve and actuate the shaker.

d. Return the peas remaining in the perforations of the sieve to the portion that remains on top of the sieve.

e. Determine the percent of peas that pass through the sieve(s).

Certification. Record the percent of peas that pass through the sieve(s) and the size of sieve(s) used in the determination on the work record.

a. When determining uniformity of size, if more than 3.0 percent of the peas pass through the sieve, record the percent that passed through on the “Results” section of the certificate to the nearest tenth percent and grade the peas "U.S. Sample Grade."

b. When determining special grade "Large" or "Small:"

(1) If not more than 3.0 percent of the peas pass through a 16/64-inch round-hole sieve, show the special grade "Large" on the work record and on the grade line of the certificate and record the percent of peas that pass through the sieve on the work record and “Results” section of the certificate.

(2) If not more than 3.0 percent of the peas remain on top of a 16/64-inch round-hole sieve and not more than 3.0 percent pass through a 10/64 x 3/4-inch round-hole sieve, show the special grade "Small" on the work record and on the grade line of the certificate and record the percent of peas that pass through the sieve on the work record and “Results” section of the certificate.

Smooth Peas, meeting the special grade criteria for “Small”, may have portions sizes for Defective Peas, Class, Foreign Material, and Color reduced to approximately 125 grams.

Note: Upon request, the percent of peas that will pass through a 9/64 x 3/4-inch, 10/64 x 3/4-inch, and/or 11/64 x 3/4-inch (oblong or slotted) sieve may also be shown in the “Results” section of the certificate.

4.14 DEFECTIVE PEAS

Definition. *The categories of defective peas shall be weevil-damaged peas, heat-damaged peas, damaged peas, other classes, bleached peas, split peas, shriveled peas and peas with cracked seedcoats.*

Basis of Determination. Determine defective peas on a representative portion of approximately 250 grams.

Score defects in the following order: Weevil-damaged, heat-damaged, damaged, other classes, bleached peas, split peas, shriveled peas and peas with cracked seedcoats.

Once an individual pea is scored, do not score it for any other defect but retain it as part of the sample for purposes of determining the percentage of total defects in the sample.

Certification. Record the percent of each type of defect on the work record and "Results" section of the certificate to the nearest tenth percent.

4.15 WEEVIL-DAMAGED PEAS

Definition. *Whole and pieces of dry peas which are distinctly damaged by the pea weevil or other insects.*

Basis of Determination. Determine weevil-damaged (WDK) peas on a representative portion of approximately 250 grams.

a. Weevil-eaten damage. Peas which have been eaten by weevils to the extent that the peas are light in weight and can be removed readily from the sound peas in the processing plant by either a gravity machine or brine solution. (VRI – Peas - 1.6 Weevil Damage)

b. Pinhole damage.

(1) Peas which have been stung by the pea weevil or other insect, and the damage extends into the cotyledon. Peas that have been "marked" by insects but where the sting does not penetrate the cotyledon are not considered weevil-damaged peas.

(2) Peas containing dead larvae in which the cavities are small (i.e., about dull pencil lead size). (VRI – Peas - 1.6 Weevil Damage)

Note: Any pea that contains or has contained a weevil or larvae of the pea weevil is considered weevil-damaged.

Dead insects, when found in the cavity of a pea, cause the pea to be considered weevil-damage.

(3) Upon request, show the percent of pinhole damage on the work record and “Results” section of the certificate. Many processors need this information because pinhole damaged peas cannot be removed in the normal cleaning operation.

Weevil-damaged peas are usually bleached in appearance and show a discolored window which indicates the presence of larvae within the pea. There are two methods of determining weevil-damage.

a. Visual Examination.

(1) Examine each pea for evidence of weevil stings or boring.

(2) If a pea has been stung, cut the pea to determine the extent of the penetration and whether it contains a live insect.

b. Brine Solution Test.

Note: Complete all other factor examinations before soaking the peas in a brine solution.

This method is not satisfactory for wrinkled peas as the wrinkles form pockets which may cause many sound peas to float along with the weevil-damaged peas.

(1) Place a wire basket (a tube 6 inches wide by 7 inches deep with an eight-mesh-per-inch screen) in a stone jar. Fill the stone jar about half full with water. Then add calcium chloride until a specific gravity of 1.225 is reached.

(2) Pour the representative portion into the screen and stir so that all air pockets are eliminated.

(3) Use a tea strainer-type ladle to lift out the peas which float on top of the solution. Peas that float are normally weevil-damaged, but this should be confirmed by visual examination.

(4) Skim off the peas that float and thoroughly rinse them under running water.

(5) Partially dry the "floaters" on blotter trays. Then place the peas in heater trays (wire screens having **1/8-inch** openings), set the trays in a heater/dryer until all the surface moisture has disappeared, and visually examine for weevil-damage.

Certification. Record the percent of weevil-damaged peas (total of those found by visual examination and by brine solution test) on the work record and “Results” section of the certificate to the nearest tenth percent.

4.16 HEAT-DAMAGED PEAS

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

Basis of Determination. Determine heat-damaged peas (HTDP) on a representative portion of approximately 250 grams of dockage-free peas. (VRI – Peas/S. Peas - 1.2 Heat Damage)

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

4.17 DAMAGED PEAS

Definition. *Whole and pieces of dry peas which are distinctly: (1) damaged by frost, weather, disease, heat (other than materially discolored as a result of heating), or other causes; and (2) soiled or stained by dirt (not applicable for the class Wrinkled Dry peas).*

Damaged peas shall not include weevil-damaged peas or heat-damaged peas.

Basis of Determination. Determine damaged (DMG) peas on a representative portion of approximately 250 grams.

TYPES OF PEA DAMAGE.

Bacterium/Fungal Stain. Peas and pieces of peas that are stained by bacterium and/or fungal species to the minimum intensity shown at the center of the pea and in which the discoloration covers 50 percent or more of the pea's surface are considered damage. These conditions can affect seed development and color, with severely infected seeds appearing much smaller than normal and having purple to pink discolored seedcoats. (VRI – Peas - 5.3 Bacterium/Fungal Stain)

Badly Shriveled Peas. Peas that are shriveled and discolored to a deep brown or reddish cast.

Chalky Peas. Peas that have a white spot on the surface of the cotyledon caused by unusual weather conditions, some harvesting practices, and/or Lygus bug stings. Chalky peas are considered damaged peas, not weevil-damaged peas. (VRI – Peas/S. Peas - 1.0 Damage (Chalky))

Damaged-by-Heat. Peas that have been damaged by heat to the extent that the cotyledon has been discolored equal to or greater than that shown on VRI – Peas/S. Peas - 1.3 Damage-By-Heat.

Dirt and Grime Damaged Peas. Dirt and grime damaged peas include peas and pieces of peas with dirt or grime (including nightshade juice/bag markings/ink stains) adhering to the seedcoat equal to or greater than shown on VRI – Peas - 1.1 Damage (A. Dirt, B. Grime).

Note: Dirt and grime damage does not apply to the class Wrinkled Dry peas or Smooth Seeded peas grown for seed purposes.

Frost Damaged Peas. Peas and pieces of peas which have been damaged by frost to the extent that the cotyledon has been discolored with an area of coverage and intensity equal to or greater than shown on VRI – Peas - 1.8 Frost Damage. Frost damage is indicated by the appearance of the whole pea, but the actual determination for damage must be made on the basis of the opened pea.

Mold/Mildew Damaged Peas. Peas and pieces of peas which contain mold/mildew equal to or greater than that shown on VRI – Peas - 1.4 Mold/Mildew Damage. Mold/Mildew may appear on or around the hilum, the surface, and/or the cotyledon. A pea that contains any mold/mildew on the cotyledon must be considered damaged.

Sprout Damaged Peas. Peas and pieces of peas which are sprouted or when it is apparent that sprouting has occurred (i.e., sprouting is noticeable in representative work sample) but, through handling, the sprout has broken off and is no longer protruding through the seed coat. (VRI – Peas - 1.5 Sprout Damage)

Weather Damage. Peas and pieces of peas in which the surface area is discolored to the minimum intensity and coverage shown are considered damage. (VRI – Peas - 5.4 Weather Damage)

Worm-Eaten or Worm-Cut Peas. Peas and pieces of peas which have been chewed by insect larvae; not to be confused with weevil-bored peas containing insect webbing or filth. Any chewed pea is considered damaged.

Note: Insect webbing or filth only applies to split peas.

Certification. Record the percent of damaged peas on the work record and "Results" section of the certificate to the nearest tenth percent.

4.18 OTHER CLASSES

Definition. *Whole and pieces of dry peas which are of a contrasting color or which differ materially in shape, or other characteristics from the predominating class; and in the case of Miscellaneous Dry peas, which differ from the predominating type.*

Basis of Determination. Determine other classes (OCL) on a representative portion of approximately 250 grams of dockage-free peas.

Mixed peas rarely appear on the market. Slight mixtures sometimes occur affecting the quality or grade of peas. This is especially true of peas of widely different types.

a. Examples of mixtures of other classes are:

(1) Smooth Green Dry Peas mixed with Smooth Yellow Dry Peas or vice versa.

(2) Marrowfats mixed with either Smooth Green or Yellow Dry Peas or vice versa.

b. Wrinkled varieties found in smooth varieties always function as other classes even though the cotyledon and seedcoat may be the same color as the smooth peas. Conversely, smooth peas function as other classes when found in the wrinkled varieties.

Certification. Record the percent of other classes on the work record and "Results" section of the certificate to the nearest tenth percent.

4.19 BLEACHED PEAS

Definition. *Whole and pieces of dry peas of green-colored varieties which are bleached distinctly yellow in color or peas of yellow-colored varieties which are bleached distinctly green in color.*

Note: The grade limits for the factor Bleached peas must not apply to Wrinkled, Mottled and Miscellaneous Dry peas, except for Marrowfat-type dry peas.

Bleached peas are applicable as a grading factor in Mixed Peas.

Basis of Determination. Determine bleached (BLCH) peas on a representative portion of approximately 250 grams.

Bleached peas are usually caused by adverse weather conditions prior to and during harvest, or by storage.

Bleached peas in Green peas are those peas which are white or light creamy yellow in color as contrasted with the natural color of Green peas. (VRI – Peas/S. Peas - 2.0 Bleached (Green Peas))

Bleached peas in Yellow peas are often those peas that have green blotches or those that are almost entirely green with tinges of yellow coloring. (VRI – Peas/S. Peas - 2.1 Bleached (Yellow Peas))

Bleached peas must be distinctly bleached with at least one eighth of the surface distinctly yellow or green in color, as the case may be, in contrast to the good natural color which is characteristic of the class being graded.

Note: To facilitate the determination of this factor, the seedcoat may be partially removed to enable better examination of the cotyledon.

Certification. Record the percent of bleached peas on the work record and "Results" section of the certificate to the nearest tenth percent.

4.20 SPLIT PEAS

Definition. *The halves or smaller pieces of dry peas and dry peas in which the halves are loosely held together.*

Basis of Determination. Determine split (SPL) peas on a representative portion of approximately 250 grams.

Small broken pieces of peas function as splits.

Certification. Record the percent of split peas on the work record and "Results" section of the certificate to the nearest tenth percent.

4.21 SHRIVELED PEAS

Definition. *Dry peas which are distinctly shriveled in contrast to the natural shape and appearance of normally developed peas.*

Basis of Determination. Determine shriveled peas (SHRV) on a representative portion of approximately 250 grams.

Shriveled (smooth-type) peas are usually discolored, misshapen, deeply dimpled, and/or withered in appearance. (VRI – Peas - 5.0 Shriveled (Smooth))

Care should be taken not to confuse "normal" wrinkled peas for shriveled peas. Wrinkled peas are considered shriveled if they are slightly shriveled and distinctly discolored (caramelized), or slightly discolored with severe dimpling in the seedcoat. (VRI – Peas - 5.2 Shriveled (Wrinkled))

Certification. Record the percent of shriveled peas on the work record and "Results" section of the certificate to the nearest tenth percent.

4.22 PEAS WITH CRACKED SEEDCOATS

Definition. *Dry peas having readily discernible cracked seedcoats or peas which have all or a part of the seedcoat removed, and broken peas which are more than one-half of a whole pea.*

Basis of Determination. Determine peas with cracked seedcoats (CR) on a representative portion of approximately 250 grams.

Note: When the brining method is used to determine weevil-damaged peas, do not use the brined portion to determine peas with cracked seedcoats.

Peas with growth stress cracks which are usually tight and next to the hilum function as cracked seedcoats.

Do not consider peas to be "peas with cracked seedcoats," if the cracked seedcoats can only be detected by rubbing or squeezing the peas between your fingers. (VRI – Peas - 3.0 Cracked Seed Coats)

Certification. Record the percent of peas with cracked seedcoats on the work record and "Results" section of the certificate to the nearest tenth percent.

4.23 CLASS

Peas are divided into the following classes:

Smooth Green Dry Peas. Dry peas which have smooth seedcoats and green cotyledons and contain not more than 1.5 percent of other classes.

Smooth Yellow Dry Peas. Dry peas which have smooth seedcoats and yellow cotyledons and contain not more than 1.5 percent of other classes.

Wrinkled Dry Peas. Dry peas which have wrinkled seedcoats and contain not more than 1.5 percent of other classes.

Mottled Dry Peas. Dry peas of the Austrian winter pea type and other peas which have colored or distinctively mottled seed coats which contain not more than 1.5 percent of other classes.

Miscellaneous Dry Peas. Dry peas that do not meet the criteria for any other class of dry peas and contain not more than 1.5 percent of other classes. (The grade limits for the factor Bleached peas shall not apply to Miscellaneous Dry peas, except for Marrowfat- type dry peas.)

Mixed Dry Peas. Any mixture that does not meet the requirements for the classes Smooth Green, Smooth Yellow, Wrinkled, Mottled, or Miscellaneous Dry Peas; or any mixture of different types of Miscellaneous Dry Peas.

Basis of Determination. Class is usually determined by a cursory examination of the work sample as a whole. When a detailed examination is necessary, make this determination on a representative portion of approximately 250 grams.

Miscellaneous dry peas are not classified in the standards but may be designated according to the commonly accepted commercial name for the pea (i.e., Marrowfat peas).

Certification. If the peas contain more than 1.5 percent of "other classes," grade the peas "Mixed Dry Peas," and record the percent of each class of peas to the nearest tenth percent on the work record and “Results” section of the certificate.

4.24 FOREIGN MATERIAL

Definition. *All matter other than dry peas and including detached seedcoats.*

Basis of Determination. Determine foreign material (FM) on a representative portion of approximately 250 grams.

Small pieces of seedcoats and dead insects both function as FM.

Certification. Record the percent of foreign material on the work record and “Results” section of the certificate to the nearest tenth percent.

4.25 COLOR

Good Color Peas. Dry peas that in mass are practically free from discoloration and have the natural color and appearance characteristics of the predominating class. (ILP – Smooth Yellow Dry Peas (Good Color))

Fair Color Yellow Peas. Dry yellow peas that in mass are lightly to moderately discolored as a result of storage or any other cause to the extent they cannot be considered of good color. (ILP – Smooth Yellow Dry Peas (Fair Color))

Poor Color Peas. Dry peas that in mass are distinctly off-color from the characteristic color of the predominating class as a result of age or any other cause.

Basis of Determination. Determine color (COLR) on a representative portion of approximately 250 grams after the removal of defective peas and foreign material.

Available interpretive line prints (ILP) serve as the basis for this general appearance assessment.

a. Peas must be considered as "poor color" if they are not of a good natural color or are stained to an extent that seriously affect the appearance of the lot.

b. Peas that are discolored by dust or a slight amount of dirt, which can be removed by processing methods, must not be considered as "poor color."

Certification. When dockage-free peas are determined to be other than "good color," record this information on the work record and “Results” section of the certificate.

Yellow Peas that are "fair" in color must grade no higher than U.S. No. 2. Peas that are “poor” in color must grade no higher than U.S. No.3.

CHAPTER 5:
SPLIT PEAS

CONTENTS

TABLES

5.1 GENERAL ORDER OF PROCEDURES

The breakdown and inspection for Split Peas are listed below in the following chapter according to its general order. The order of procedure may slightly vary depending on the quality of the peas and the tests requested. More information is available on the Agricultural Marketing Service Website (AMS), in the U.S. Standards for Split Peas, and the Board of Appeals and Review (BAR) Questions and Answers.

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 side. In a steady motion, move the sieve from left to right approximately 10 inches and then return from right to left. Repeat this motion 20 times.

5.2 DEFINITIONS

Split Peas. Threshed seeds of the garden type pea plant (Pisum sativum L. and *Pisum sativum var. arvense (L.) Poir.), which have 50.0 percent or more of the peas split into halves or smaller pieces and contain not more than 10.0 percent of foreign material.*

Note: Two halves of a pea that are misaligned but stuck together must be considered split peas.

If a sample does not meet the definition of Split Peas, examine it further to determine if it is:

a. Another commodity or grain for which standards have been established; or

b. Not Standardized Commodity (NSC). No further analysis is necessary on a sample designated as NSC unless a specific factor test is requested.

5.3 GRADES AND GRADE REQUIREMENTS

Split Peas are divided into three classes: Green Split Peas, Yellow Split Peas, and Miscellaneous Split Peas. Each class is divided into three U.S. numerical grades and U.S. Sample Grade (Table 5.1). 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. They do not affect the numerical or sample grade designation.

TABLE 5.1 – GRADES AND GRADE REQUIREMENTS FOR SPLIT PEAS

Grading Factors	Maximum percent limits of: Grades U.S. Nos.		
	1	2	3
Split Peas Passing Through -			
10/64-inch Round-Hole Sieve	3.0	15.0	25.0
8/64-inch Round-Hole Sieve	0.5	3.0	5.0
6/64-inch Round-Hole Sieve	0.1	0.2	0.3
Defective Peas			
Weevil-Damaged Split Peas	0.5	1.0	1.5
Heat-Damaged Split Peas	0.2	0.5	1.0
Damaged Split Peas[1]	1.0	1.5	2.0
Contrasting Split Peas			
In Green & Yellow Split Peas Only	0.3	0.8	1.5
In Miscellaneous Split Peas Only	0.5	1.0	2.0
Whole Peas	0.5	1.0	2.0
White Caps			
In Green & Yellow Split Peas Only	1.0	2.0	3.0
In Miscellaneous Split Peas Only	1.5	3.0	5.0
Bleached Peas in Green & Yellow Split Peas Only	1.5	3.0	5.0
Foreign Material	0.1	0.2	0.5
Minimum Requirements for Color	Good	Fair	Poor

U.S. Sample Grade must be split peas which:

a. Do not meet the requirements for the grades U.S. Nos. 1, 2, or 3; or

b. Contain more than 15.0 percent moisture; live weevils, other live insects, insect webbing or filth, animal filth, metal fragments, broken glass, or commercially objectionable odor; or

c. Are materially weathered, heating, or are of distinctly low quality.

[1] Damaged split peas do not include weevil-damaged or heat-damaged split peas.

5.4 SPECIAL GRADES

Special grades draw attention to unusual conditions in the peas and are made part of the grade designation. The special grade and special grade requirements of all classes of split peas are shown in the United States Standards for Split Peas. Details for determining special grades are included in Section 5.14.

The special grade "Split Pea Chips" must be applied in accordance with the following requirements. The split peas must readily pass through a 12/64-inch round-hole sieve. Additional size requirements for the respective numerical grades must be as follows:

U.S. No. 1 — Not more than 3.0 percent must readily pass through a 6/64-inch round-hole sieve.

U.S. No. 2 — Not more than 6.0 percent must readily pass through a 6/64-inch round-hole sieve.

U.S. No. 3 — Not more than 10.0 percent must readily pass through a 6/64-inch round-hole sieve.

5.5 BASIS OF DETERMINATION

All factor determinations shall be made upon the basis of the split peas as sampled.

Defects in split peas shall be scored in accordance with the order shown in 501 *(e) and once an individual pea is scored in a defective category, it shall not be scored for any other defect but it shall remain as a part of the sample for purposes of determining percentages of other defects in the sample.*

Note: When split peas that are offered for inspection as one lot are found to contain more than 10,000 containers or 1,000,000 pounds (bulk) of split peas, the lot must be sampled on the basis of two or more (approximately) equal-sized sublots of 10,000 containers or 1,000,000 pounds or less. Inspect each sublot separately.

When split peas that are offered for inspection as one lot are subsequently found to contain portions that are distinctly different in class, quality, or condition, the split peas in each portion must be inspected separately.

5.6 COLOR

Good Color Split Peas. Split peas that in mass are practically free from discoloration and have the natural color and appearance characteristics of the predominating class.

Fair Color Split Peas. Split peas that in mass are off-color from the characteristic color of the predominating class as a result of age or any other cause.

Poor Color Split Peas. Split peas that in mass are distinctly off-color from the characteristic color of the predominating class as a result of age or any other cause.

Basis of Determination. Determine color (COLR) on the representative sample as a whole before the removal of defects and foreign material.

Certification. Record the color as "good," "fair" or "poor" on the work record and “Results” section of the certificate.

5.7 DISTINCTLY LOW QUALITY

Definition. *Split peas which 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 which cannot be graded by use of the other grading factors provided in the standards.*

Basis of Determination. Determine distinctly low quality (DLQ) on the basis of the lot as a whole or the representative sample as a whole.

a. Flood Damaged Split Peas. Split Peas materially affected by flooding are considered DLQ and certified as “U.S. Sample Grade”. In addition, official personnel must report official identifiable lots that are DLQ to the district Food and Drug Administration (FDA) office as “actionable” in accordance with FGIS-PN-19-04, “Inspection of Flood Damaged Grain.”

   The determination of DLQ is based on the appearance and condition of the lot or sample as a whole. Evaluate split peas affected by flooding on a portion of approximately 400 grams with the use of the ILP – All Grains/Graded Commodities - Inspection of Flood Damaged Grain. If a sample does not meet the requirements for DLQ, but the split peas are materially damaged (stained) by flooding, consider the split peas as damaged and count toward the total percent of damage in the sample.

b. Large Animal Excreta (LGANX). Split Peas containing one or more large animal excreta (e.g., deer or elk pellet) are considered DLQ.

c. Large Debris. Split Peas containing two or more stones, pieces of glass, pieces of concrete, or other pieces of wreckage or debris which are visible to the sampler and too large to enter the sampling device are considered DLQ.

d. Other Unusual Conditions. Split peas that are obviously affected by unusual conditions which adversely affect the quality of the peas, such as 1 or more **unknown foreign substance, or treatment with a fungicide**, must be considered to be DLQ.

Certification. When applicable, show the factor "DLQ" and the reason(s) why on the work record and "Results" section of the certificate, and grade the split peas "U.S. Sample Grade."

For more information, refer to Directive 9060.2, "Implementation of the FGIS-FDA Memorandum of Understanding."

5.8 U.S. SAMPLE GRADE CRITERIA

Basis of Determination. Determine U.S. Sample Grade criteria on the lot as a whole and/or the representative sample as a whole. Table 5.2 shows the criteria and corresponding tolerance limits, and the appropriate basis of determination.

TABLE 5.2 – U.S. SAMPLE GRADE CRITERIA

Criteria	Number/Weight[1]	
	Sample Basis	Lot[2]
Any numerical grading factor	Excess of limits for U.S. No. 3	N/A
Moisture	more than 15.0%	N/A
Animal filth	2 or more	2 or more
Deer or Elk Pellets[3]	1 or more	1 or more
Broken Glass (any size)	Presence	Presence
Live Insects	2 or more	2 or more
Insect Excreta	2 or more	N/A
Metal Fragments	2 or more	2 or more
Odor	Presence	Presence
Insect Webbing or Filth	2 or more	2 or more
Unknown Foreign Substance[3]	1 or more	1 or more
Heating	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] Distinctly Low Quality (DLQ).

Certification. Grade split peas “U.S. Sample Grade” when one or more of the limits in Table 5.2 are observed. Record the reason(s) why on the work record and “Results” section of the certificate. Record count factors to the nearest whole number.

5.9 HEATING

Basis of Determination. Determine heating (HTG) on the basis of the lot as a whole.

Split Peas developing a high temperature from excessive respiration are considered heating. Heating peas, in its final stages, usually give off a sour or musty odor. Do not confuse split peas that are heating with split peas that are warm due to storage in bins, cars, or other containers during hot weather.

Certification. When applicable, show the term "Heating" on the work record and “Results” section of the certificate, and grade the split peas “U.S. Sample Grade.”

5.10 ODOR

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

a. Off odors (i.e., musty, sour and commercially objectionable foreign odors) are usually detected at the time of sampling.

   (1) If there is any question as to the odor when the sample is being taken, put part of the sample into an airtight container to preserve its condition for further examination in the laboratory.

   (2) Return the portion to the sample before other tests are made.

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

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

d. A **commercially objectionable foreign** odor (COFO) is any odor that is not normal to split 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, decaying animal, strong weed, and vegetable matter odors.

Note: A sample with a light drier (cooked) odor is not considered an objectionable odor unless it creates a strong odor which resembles a moldy or basement odor, then the sample should be made “Musty” or the drier odor creates a smoke odor, that sample should be made “COFO”.

Fumigant or insecticide odors are considered commercially objectionable foreign odors if they linger and do not dissipate. When a sample of split 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 foreign odor if the fumigant or insecticide odor persists based on the above criteria.

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

5.11 TEST WEIGHT

Note: This factor is not provided for under the United States Standards for Split Peas but may be determined upon applicant request.

Basis of Determination. Determine test weight (TW) on a representative portion of sufficient size to overflow the kettle.

The procedures for performing the test weight determination are described in Grain Inspection Handbook, Book II.

Certification. Record the test weight results on the work record and "Results" section of the certificate to the nearest tenth of a pound.

5.12 MOISTURE

Definition. *Water content in split peas as determined by an approved device according to procedures prescribed in FGIS instructions.*

Basis of Determination. Determine moisture on a representative portion of approximately 650-grams.

The procedures for performing a moisture determination using a FGIS approved moisture instrument utilizing the calibrations of the predominate type of pea are described in the Moisture Handbook and the Directive 9180.61, "Official Moisture Calibration for Unified Grain Moisture Algorithm (UGMA) Compatible Meter."

Certification. Record the percent of moisture on the work record and "Results" section of the certificate to the nearest tenth percent. If the moisture results exceed 15.0 percent, grade the peas "U.S. Sample Grade."

5.13 INSECT INFESTATION

Note: Live weevils (LW) include pea weevils, coffee bean weevils, broad nosed grain weevils, rice weevils, granary weevils, maize weevils and lesser grain borers. Other live insects (OLI) include beetles, moths, meal worms and other insects injurious to stored peas. Insect larvae are considered the same as adult insects.

To further define OLI refer to the Stored Grain Insect Reference. Images of insects may also be viewed on the AMS website.

Basis of Determination. Determine infestation on the basis of the work sample as a whole, a representative portion of approximately 250 grams, and the lot as a whole. For insect tolerances, refer to Table 5.3.

TABLE 5.3 – INSECT INFESTATION

Samples meeting or exceeding any one of these tolerances are infested: ***2 LW, or 1 LW + 1 OLI or 2 OLI***	
1,000-gram representative sample[1] (+ file sample if needed)	**Lot as a Whole (Stationary)**
Submitted Samples Probed Lots D/T Sampled Land Carriers	Probed Lots (at time of sampling)
[1] Examine work portion and file sample if necessary. Do not examine file sample if work portion is insect free. Key: LW = Live Weevil, OLI = Other Live Insects injurious to stored grain	

Note: The presence of two or more split peas containing insect webbing or filth (refuse, excreta, dead insects, or larvae) in the representative sample as a whole is considered sufficient evidence of insect infestation. But, the presence of pea weevils in a warehouse should not be considered an indication of infestation unless live or dead pea weevils are found inside bags or containers of peas.

Certification. When applicable, show "U.S. Sample Grade on account of (live insects or insect webbing or filth)" on the work record and "Results" section of the certificate and grade the split peas "U.S. Sample Grade."

5.14 SIZE REQUIREMENTS

The U.S. Standards for Split Peas contain grade limits for the percent of split peas that may pass through 10/64-inch, 8/64-inch, and 6/64-inch round-hole sieves.

Split Pea Chips. The split peas shall readily pass through a 12/64-inch round-hole sieve. Additional size requirements of the respective numerical grades shall be as follows:

U.S. No. 1 *Not more than 3.0 percent shall readily pass through a 6/64-inch round-hole sieve.*

U.S. No. 2 *Not more than 6.0 percent shall readily pass through a 6/64-inch round-hole sieve.*

U.S. No. 3 *Not more than 10.0 percent shall readily pass through a 6/64-inch round-hole sieve.*

Basis of Determination. Determine uniformity of size and/or the special grade "Chips" on a representative portion of approximately 250 grams before the removal of defects.

Size split peas as follows:

a. Nest the appropriate size sieves on top of a bottom pan.

b. Place the sieves in a mechanical grain shaker and set the timer to 20.

c. Put the representative portion in the center of the sieve and actuate the shaker.

d. Return the peas remaining in the perforations of the sieve to the portion that remains on top of the sieve.

e. Determine the percent of peas that pass through each of the sieves.

Certification. When determining uniformity of size, record the percent of peas that pass through the sieves and the size of sieves used in the determination on the work record and “Results” section of the certificate to the nearest tenth percent.

When determining the special grade "Chips," if all of the peas pass through a 12/64-inch round-hole sieve, show the special grade "Chips" on the work record and on the grade line of the certificate; and also record the percent of peas that pass through the 6/64-inch round-hole sieve on the work record and “Results” section of the certificate to the nearest tenth percent.

5.15 DEFECTIVE SPLIT PEAS

Definition. *The categories of defective split peas shall be weevil-damaged split peas, heat-damaged split peas, damaged split peas, contrasting split peas, whole peas, white caps and bleached split peas.*

Basis of Determination. Determine defective peas on a representative portion of approximately 250 grams.

Score defects in the following order: Weevil-damaged, heat-damaged, damaged, contrasting split peas, whole peas (score weevil-damaged, heat-damaged, or damaged whole peas as "weevil-damaged," "heat-damaged," or "damaged," not as "whole peas"), white caps and bleached split peas.

Once an individual split pea is scored, do not score it for any other defects but retain it as part of the sample for purposes of determining the percentage of other defects in the sample.

Certification. Record the percent of each type of defect on the work record and “Results” section of the certificate to the nearest tenth percent.

5.16 WEEVIL-DAMAGED SPLIT PEAS

Definition. *Split peas which are distinctly damaged by the pea weevil or other insects.*

Note: Score weevil-damaged whole peas as "weevil-damaged,” not as "whole peas." Do not include weevil-damaged in the total percent of damage split peas.

Basis of Determination. Determine weevil-damaged (WDK) split peas on a representative portion of approximately 250 grams.

Usually, weevil-damaged split peas may be determined by visually examining the flat side of the cotyledon.

a. The cavity left by the weevil larvae in the whole pea results in a cup-like indentation on the split pea. When this is found, consider the split peas to be weevil-damaged.

b. Often, the pea weevil larvae dies before penetrating the center of the whole pea, leaving a black or discolored sting mark on the convex side of the cotyledon. When this sting mark is definite and shows distinct evidence of larvae penetration, consider the split pea to be weevil-damaged. (VRI – S. Peas - 1.61 Weevil Damage (Cavity))

Certification. Record the percent of weevil-damaged split peas on the work record and “Results” section of the certificate to the nearest tenth percent.

5.17 HEAT-DAMAGED SPLIT PEAS

Definition. *Split peas which have been materially discolored and damaged by heat.*

Note: Score heat-damaged whole peas as "heat-damaged," not as "whole peas." Do not include heat-damaged in the total percent of damage split peas.

Basis of Determination. Determine heat-damaged peas (HTDP) on a representative portion of approximately 250 grams. (VRI – Peas/S. Peas - 1.2 Heat Damage)

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

5.18 DAMAGED SPLIT PEAS

Definition. *Split peas which are distinctly damaged by frost, weather, disease, heat (other than to a material extent), or other causes (except weevil or material heat damage), or are distinctly soiled or stained by nightshade, dirt, or toxic material.*

Note: Score damaged whole peas as "damaged," not as "whole peas."

Basis of Determination. Determine damaged (DMG) split peas on a representative portion of approximately 250 grams.

TYPES OF SPLIT PEA DAMAGE.

Chalky Split Peas. Split peas that have a white spot on the surface of the cotyledon caused by unusual weather conditions, some harvesting practices, and/or Lygus bug stings. Chalky split peas are considered damaged split peas, not weevil-damaged split peas. (VRI – Peas/S. Peas - 1.0 Damage (Chalky))

Damaged-by-Heat Split Peas. Split peas and pieces of split peas that have been damaged by heat to the extent that the cotyledon has been discolored equal to or greater than that shown on VRI – Peas/S. Peas - 1.3 Damage by Heat.

Frost Damaged Split Peas. Split peas and pieces of split peas which have been damaged by frost to the extent that the cotyledon has been discolored. (VRI – Peas - 1.8 Frost Damage)

Mold Damaged Split Peas. Split peas and pieces of split peas which contain mold equal to or greater than that shown on VRI – Peas - 1.4 Mold Damage. Mold may appear on or around the hilum, the surface, and/or the cotyledon. A pea that contains any mold on the cotyledon must be considered damaged. Mold occurs in many colors.

Stained Damaged Split Peas. Split peas and pieces of split peas which are discolored or stained, especially on the flat side. Split peas and pieces of split peas with stains, dirt and/or grime adhering to the cotyledon equal to or greater than shown on VRI – S. Peas - 4.0 Stained (Green) and VRI – S. Peas - 4.1 Stained (Yellow).

Certification. Record the percent of damaged peas on the work record and "Results" section of the certificate to the nearest tenth percent.

5.19 CONTRASTING SPLIT PEAS

Definition. *Split peas which are of a color contrasting with the predominating class of split peas. Bleached split peas of the predominating class shall not be considered as contrasting split peas.*

Basis of Determination. Determine contrasting split peas (CSP) on a representative portion of approximately 250 grams.

a. Green Split peas created from the class Smooth Green Dry peas.

(1) The color of the cotyledon runs from pale green to dark green.

(2) Contrasting split peas in Green Split peas must be split peas which have a solid orange-yellow or creamy-yellow color.

Note: Split Marrowfats function as Green Split peas, however if a contract stipulates that split peas be processed from whole Smooth Green Dry Peas the marrowfat limit must not exceed 1.5 percent. If this occurs, the split peas will be considered to have been processed from Mixed Dry Peas, not Smooth Green Dry Peas. A qualifying statement is to be included in the "Remarks" section of the certificate explaining the reason for the nonconformance.

b. Yellow Split peas created from the class Smooth Yellow Dry peas.

(1) They have a brilliant orange-yellow color.

(2) Contrasting split peas in Yellow Split peas must be split peas which have a solid green color associated with the color of the cotyledons of the Smooth Green Dry peas, or as in the case of Mottled peas, a smaller yellow cotyledon having pieces of black or grayish green colored seedcoat clinging to it.

Note: Yellow Split peas often contain split peas which have green blotches on the Yellow Split peas or they may be almost entirely green with tinges of yellow coloring. These are considered as Bleached Yellow Split peas (if they meet the line for bleach) and should not be considered as contrasting split peas in Yellow Split peas.

c. Miscellaneous Split peas are made from the class Mottled Dry peas.

(1) Miscellaneous Split peas are considerably smaller than Yellow Split peas and have a creamier colored cotyledon. Often, they have pieces of a brownish-black or grayish-green colored seedcoat clinging to the cotyledon.

(2) Contrasting split peas in Miscellaneous Split peas must be split peas which have a solid green color associated with the color of the cotyledons of the Smooth Green Dry peas, or as in the case of Yellow Split peas, a large yellow cotyledon.

Certification. Record the percent of contrasting split peas on the work record and "Results" section of the certificate to the nearest tenth percent.

5.20 WHOLE PEAS

Definition. *Dry peas which are not split.*

Note: Score defective whole peas as "whole peas," unless they are weevil-damaged, heat-damaged, or damaged. In this case, score weevil-damaged, heat-damaged, or damaged whole peas as "weevil-damaged split peas," "heat-damaged split peas," or "damaged split peas."

Do not include weevil-damaged and/or heat-damaged split peas in the total percent of damage split peas.

Basis of Determination. Determine whole peas (WP) on a representative portion of approximately 250 grams.

A "whole pea" is any pea which is 60 percent or more of a whole pea. Un-split peas with the seed coat removed must be considered "whole peas." (VRI – S. Peas - 4.2 Whole Dry Pea)

Certification. Record the percent of whole peas on the work record and "Results" section of the certificate to the nearest tenth percent.

5.21 WHITE CAPS

Definition. *Split peas with seedcoats attached.*

Basis of Determination. Determine white caps (WC) on a representative portion of approximately 250 grams.

During the process of splitting whole dry peas, the seedcoat is removed. For various reasons, part of the seedcoat sometimes adheres very tightly to the cotyledon causing "white caps." White caps are readily distinguishable as they show up well in any class of split peas.

Seedcoats come in a number of colors, e.g., white, tan, green, brown, black, or purple. Consider non-contrasting split peas (since contrasting is removed before white caps) with seedcoats attached to be white caps regardless of the color of the seed coat. A split pea with mottled seedcoat attached is considered a contrasting split pea in both Green Split Peas and Yellow Split Peas.

Pieces of seedcoat attached to the flat side of the split pea are still considered WC.

Small pieces of seedcoat attached to the eye of the split pea are not considered WC.

Certification. Record the percent of white caps on the work record and "Results" section of the certificate to the nearest tenth percent.

5.22 BLEACHED SPLIT PEAS

Definition. *Split peas of green-colored varieties which are bleached distinctly yellow in color or split peas of yellow-colored varieties which are bleached distinctly green in color.*

Note: Bleached Split peas is not a grading factor in Miscellaneous Split peas.

Basis of Determination. Determine bleached (BLCH) split peas on a representative portion of approximately 250 grams.

Bleached split peas are usually cause by adverse weather conditions prior to and during harvest, or by storage.

Bleached Split peas in Green Split peas are those split peas which are white or light creamy-yellow in color as contrasted with the natural color of Green Split peas. (VRI – Peas/S. Peas - 2.0 Bleached (Green Peas))

Bleached Split peas in Yellow Split peas are often those split peas that have green blotches or those that are almost entirely green with tinges of yellow coloring. (VRI – Peas/S. Peas - 2.1 Bleached (Yellow Peas))

Bleached Split peas must be distinctly bleached with at least one-eighth of the surface distinctly yellow or green in color, as the case may be, in contrast to the good natural color which is characteristic of the class being graded.

Certification. Record the percent of bleached split peas on the work record and "Results" section of the certificate to the nearest tenth percent.

5.23 FOREIGN MATERIAL

Definition. *All matter which will pass readily through a 2 ½ /64 round-hole sieve and all matter other than split peas which remains on the sieve. (Foreign material shall include detached seedcoats and pieces of detached seedcoats.)*

Basis of Determination. Determine foreign material (FM) on a representative portion of approximately 250 grams.

a. Nest a 2 ½ /64-inch round-hole sieve on top of a bottom pan.

b. Place the sieve in a mechanical grain sizer and set the timer to 20.

c. Put the representative portion in the center of the sieve and actuate the sizer.

d. Return the peas remaining in the perforations of the sieve to the portion that remains on top of the sieve.

e. Remove any material, other than split peas, remaining in the portion on top of the sieve, including detached seedcoats. Place this material with the portion that passed through the sieve and consider the entire portion as FM.

Certification. Record the percent of foreign material on the work record and "Results" section of the certificate to the nearest tenth percent.

5.24 CLASS

Split peas are divided into the following classes:

Green Split Peas. Split peas from smooth green dry pea varieties.

Yellow Split Peas. Split peas from smooth yellow dry pea varieties.

Miscellaneous Split Peas. Split peas from classes of whole peas other than smooth green or smooth yellow dry pea varieties.

Note: There is no class of "Mixed Split Peas."

Basis of Determination. Class is usually determined by a cursory examination of the work sample as a whole. When a detailed examination is necessary, make this determination on a representative portion of approximately 250 grams.

Certification. When Green or Yellow Split Peas contain in excess of the 1.5 percent of "contrasting split peas," and when Miscellaneous Split Peas contain in excess of 2.0 percent of "contrasting split peas," grade the split peas "U.S. Sample Grade."

CHAPTER 6:
THRESHER-RUN LENTILS

CONTENTS

TABLES

6.1 GENERAL ORDER OF PROCEDURES

The breakdown and inspection for Thresher-Run Lentils are listed below in the following chapter according to its general order. The order of procedure may slightly vary depending on the quality of the lentils and the tests requested. More information is available on the Agricultural Marketing Service Website (AMS), in the U.S. Standards for Lentils, and the Board of Appeals and Review (BAR) Questions and Answers.

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 side. In a steady motion, move the sieve from left to right approximately 10 inches and then return from right to left. Repeat this motion 20 times.

6.2 DEFINITIONS

Thresher-Run Lentils. Lentils from which the dockage has not been removed.

Lentils. Threshed seeds of the lentil plant (Lens culinaris Moench) which after removal of the dockage contains 50.0 percent or more of whole lentils and not more than 10.0 percent foreign material.

If a sample does not meet the definition of Lentils, examine it further to determine if it is:

a. Another commodity or grain for which standards have been established; or

b. Not Standardized Commodity (NSC). No further analysis is necessary on a sample designated as NSC unless a specific factor test is requested.

6.3 FACTORS AND FACTOR DESIGNATIONS

Thresher-run lentils shall be inspected without reference to grade.

Thresher-run lentils may be inspected for the following factors: dockage, weevil-damaged lentils, heat-damaged lentils, damaged lentils, skinned lentils, wrinkled lentils, split lentils, contrasting lentils, foreign material, inconspicuous admixture, color description, and moisture.

The factor designation for the class thresher-run lentils may include the percentage of dockage and type of sieve used in making the determination; the percentage of weevil-damaged lentils, heat-damaged lentils, damaged lentils, skinned lentils, wrinkled lentils, split lentils, contrasting lentils, foreign material, inconspicuous admixture, and the computed total percentage thereof; the color description and the percentage of moisture.

Note: Upon applicant request, thresher-run lentils may be graded, after the removal of dockage, to determine what the lentils would have graded after processing (dockage removed). The percent of dockage will be determined with the use of FGIS approved sieve(s) and will be recorded on the work record and "Results" section of the certificate to the nearest tenth percent. The grade will be in the form of a statement (below) placed in the "Remarks" section of the certificate.

"After the removal of dockage, this thresher-run lot would have graded U.S. No. (grade) Lentils under the U.S. Standards for dockage-free lentils except for (e.g. foreign material or skinned lentils)." Insert only the factors that would have a bearing on the grade.

"After the removal of dockage, this thresher-run lot would have graded U.S. No. (grade) Lentils under the U.S. standards for dockage-free lentils.

Quality Except for Statements cannot be applied for odor or deleterious qualities (any substance considered an actionable defect by the Food and Drug Administration). Directive 9060.2, "Implementation of the FGIS-FDA Memorandum of Understanding."

6.4 BASIS OF DETERMINATION

All factor determinations shall be made upon the basis of the lentils after the removal of dockage with the following exceptions:

Dockage shall be determined upon the basis of the thresher-run lentils as sampled.

Color shall be determined after the removal of dockage, defective lentils, and foreign material.

Defects in lentils shall be scored in accordance with the order shown in section 601(c); and once an individual lentil is scored in a defective category it shall not be scored for any other defect but it shall remain as a part of the sample for purposes of determining the percentages of other defects in the sample.

Note: When lentils that are offered for inspection as one lot are found to contain more than 10,000 containers or 1,000,000 pounds (bulk) of lentils, the lot must be sampled on the basis of two or more (approximately) equal-sized sublots of 10,000 containers or 1,000,000 pounds or less. Inspect each sublot separately.

When lentils that are offered for inspection as one lot are subsequently found to contain portions that are distinctly different in class, quality, or condition, the lentils in each portion must be inspected separately.

6.5 BROKEN GLASS

Basis of Determination. Determine broken glass (GLAS) on the basis of the lot as a whole and/or the representative sample before the removal of dockage as a whole.

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

Certification. When applicable, show the term "Broken glass", including count, on the work record and “Results” section of the certificate.

6.6 METAL FRAGMENTS

Basis of Determination. Determine metal fragments (MF), such as metal filings or metal shavings, on the basis of the lot as a whole and/or the representative sample before the removal of dockage as a whole.

Sufficient evidence of metal fragments must be:

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. When applicable, show the term "Metal fragments", including count, on the work record and “Results” section of the certificate.

6.7 HEATING

Basis of Determination. Determine heating (HTG) on the basis of the lot as a whole.

Lentils developing a high temperature from excessive respiration are considered heating. Heating lentils, in its final stages, usually give off a sour or musty odor. Do not confuse lentils that are heating with lentils that are warm due to storage in bins, cars, or other containers during hot weather.

Certification. When applicable, show the term "Heating" on the work record and “Results” section of the certificate.

6.8 ODOR

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

a. Off-odors (i.e., musty, sour, and commercially objectionable foreign odors) are usually detected at the time of sampling.

(1) If there is any question as to the odor when the sample is being taken, put part of the sample into an airtight container to preserve its condition for further examination in the laboratory.

(2) Return the portion to the sample before other tests are made.

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

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

d. A **commercially objectionable foreign** odor (COFO) is any odor that is not normal to lentils and that, because of its presence, renders the lentils unfit for normal commercial usage; e.g., animal hides, fertilizer, oil products, skunk, smoke, fire-burnt, decaying animal, strong weed, and vegetable matter odors.

Note: A sample with a light drier (cooked) odor is not considered an objectionable odor unless it creates a strong odor which resembles a moldy or basement odor, then the sample should be made "Musty" or the drier odor creates a smoke odor, that sample should be made "COFO".

Fumigant or insecticide odors are considered commercially objectionable foreign odors if they linger and do not dissipate. When a sample of lentils 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 foreign odor if the fumigant or insecticide odor persists based on the above criteria.

Certification. When lentils are determined to be musty, sour, or have a commercially foreign objectionable odor, record the type of odor on the work record and "Results" section of the certificate.

6.9 TEST WEIGHT

Note: This factor is not provided for under the United States Standards for Lentils but may be determined upon request.

Basis of Determination. Determine test weight (TW) before the removal of dockage on a representative portion of sufficient size to overflow the kettle.

The procedures for performing the test weight determination are described in Grain Inspection Handbook, Book II.

Certification. Record test weight results on the work record and "Results" section of the certificate to the nearest tenth of a pound.

6.10 DOCKAGE

Definition. *Small underdeveloped lentils, pieces of lentils, and all matter other than lentils which can be readily removed by use of sieves and cleaning devices as set forth in the Pea and Lentil handbook.*

Basis of Determination. Determine dockage (DKG) on a representative portion of approximately 1,000 grams.

TABLE 6.1 – PRESCRIBED DOCKAGE SIEVES

Types	Sieves
Regular Lentils	12/64 - Inch Round-Hole
Small Lentils	9/64 - Inch Round-Hole

Remove dockage from lentils as follows:

a. Set the air control to 9 (or depending on Carter dockage machine model, a position at which maximum airflow is achieved) and the feed control to 6.

b. Insert the No. 6 riddle in the riddle carriage.

c. Insert the appropriate sieve in the top sieve carriage.

d. There is no sieve for the middle or bottom sieve carriages.

e. Start the Carter Dockage Tester and pour sample into feed hopper.

f. Return any lentils that pass over the riddle to the "cleaned" lentils.

Note: In some cases, it may be necessary to run the sample through the dockage tester two times. But samples should never be run through the dockage tester more than two times.

g. Consider all material that pass through the sieve and the material that pass over the riddle, except for lentils, as dockage (pods with lentils inside function as dockage when they pass over the riddle. However, pods with lentils inside that pass through the riddle are considered approximately size and shape of lentils and should be considered foreign material).

h. Material removed by the air functions as dockage.

Note: If official personnel determine that the prescribed sieve removes too many small, fully developed lentils (not screenings), the Field Office/Federal-State manager may allow the use of a slightly smaller sieve. Furthermore, if they determine that the prescribed sieve allows too many underdeveloped lentils to remain with the "clean" lentils, they may elect to use a slightly larger sieve.

If the 12/64-inch round-hole sieve is used and the sample contains small-seeded types, re-sieve the material in the bottom pan with the 9/64-inch round-hole sieve to reclaim all marketable lentils.

Certification. Record the percent of dockage, with the sieve size used in the determination, on the work record and “Results” section of the certificate to the nearest tenth percent.

Upon applicant request, determine a DKG breakdown by (handpicking a representative portion of the dockage separation) or estimating the percent of small lentils (SLD), split lentils (SDKG), and other material (OMD) that comprise the DKG.

a. Dockage breakdown is **estimated** using hand sieves.

Note: Handpicking the material through or over sieves is not required when the breakdown is estimated.

b. Record the percent of small lentils, split lentils, and other material on the work record and “Results” section of the certificate to the nearest tenth percent and show the statement "Estimated using hand sieves".

6.11 MOISTURE

Definition. *Water content in lentils as determined by an FGIS approved device in accordance with procedures prescribed in the Pea and Lentil Handbook and Moisture Handbook.*

Basis of Determination. Determine moisture on a representative portion of approximately 650-grams, after the removal of dockage.

The procedures for performing a moisture determination using a FGIS approved moisture instrument utilizing the proper calibrations are described in the Moisture Handbook and the Directive 9180.61, “Official Moisture Calibration for Unified Grain Moisture Algorithm (UGMA) Compatible Meter.”

Certification. Record the percent of moisture on the work record and "Results" section of the certificate to the nearest tenth percent.

6.12 DISTINCTLY LOW QUALITY

Definition. *Whole lentils which are obviously of inferior quality because they are stained by an unknown foreign substance, or 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 the other grading factors provided in the standards.*

Basis of Determination. Determine distinctly low quality (DLQ) on the basis of the dockage-free sample as a whole.

a. Flood Damaged Lentils. Lentils materially affected by flooding are considered DLQ. In addition, official personnel must report official identifiable lots that are DLQ to the district Food and Drug Administration (FDA) office as "actionable" in accordance with FGIS-PN-19-04, "Inspection of Flood Damaged Grain."

   The determination of DLQ is based on the appearance and condition of the lot or sample as a whole. Evaluate lentils affected by flooding on a portion of approximately 400 grams with the use of the ILP – All Grains/Graded Commodities - Inspection of Flood Damaged Grain. If a sample does not meet the requirements for DLQ, but the lentils are materially damaged (stained) by flooding, consider the lentils as damaged and count toward the total percent of damage in the sample.

b. Large Animal Excreta (LGANX). Lentils containing one or more large animal excreta (e.g., deer or elk pellet) are considered DLQ.

c. Large Debris. Lentils containing two or more stones, pieces of glass, pieces of concrete, or other pieces of wreckage or debris which are visible to the sampler and too large to enter the sampling device are considered DLQ.

d. Other Unusual Conditions. Lentils that are obviously affected by unusual conditions which adversely affect the quality of the lentils, such as 1 or more **unknown foreign substance, or treatment with a fungicide**, must be considered to be DLQ.

Note: Dead Insects do not apply to DLQ but are only considered FM, after the removal of dockage, in Thresher-Run Lentils. For more information, refer to BAR Q+A Lentils Chapter on what are considered two or more dead insects in Lentils.

Certification. When applicable, show the factor "DLQ" and the reason(s) why on the work record and "Results" section of the certificate.

For more information, refer to Directive 9060.2, "Implementation of the FGIS-FDA Memorandum of Understanding."

6.13 ANIMAL FILTH

Basis of Determination. Determine animal filth (ANFL) on the basis of the lot as a whole and/or the representative sample after the removal of dockage as a whole.

Sufficient evidence of animal filth must be.

a. Two or more rodent or bird pellets in the lot as a whole or the work sample; or

b. One rodent or bird pellet in the work sample and one or more in the file sample; or

c. One or more deer or elk pellet(s) in the lot as a whole or the work sample.

Note: Deer or Elk pellet(s) are considered a DLQ factor and are determined after the removal of dockage.

Certification. When applicable, show the term "Animal Filth", including count, on the work record and “Results” section of the certificate.

6.14 DEFECTIVE LENTILS

Definition. *The categories of defective lentils shall be weevil-damaged lentils, heat-damaged lentils, damaged lentils, and split lentils.*

The percentage of defective lentils and foreign material must be combined and shown on the certificate as Total Defects and Foreign Material.

Basis of Determination. Determine defective lentils on a representative dockage-free portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Score defects in the following order: weevil-damaged, heat-damaged, damaged, and split lentils.

Once an individual lentil is scored, do not score it for any other defect but retain it as part of the sample for purposes of determining the percentage of other defects in the sample.

Certification. Record the percent of each type of defect on the work record and “Results” section of the certificate to the nearest tenth percent.

Add the percentages of each type of defect and record the total percent of defective lentils on the work record and “Results” section of the certificate to the nearest tenth percent.

Add the percent of total defective lentils to the percent of foreign material and record the sum as "total defects and foreign material" on the work record and “Results” section of the certificate to the nearest tenth percent.

6.15 WEEVIL-DAMAGED LENTILS

Definition. *Whole and pieces of lentils which are distinctly damaged by weevils or other insects.*

Basis of Determination. Determine weevil-damaged (WDK) lentils on a representative dockage-free portion of approximately 60 grams for small seeded lentils and125 grams for large seeded lentils.

Consider as weevil-damaged:

a. Lentils that contain or had contained a weevil, larva, or any other insect.

b. Lentils containing small “pinhole” entrance holes or larger circular exit holes as shown on VRI – LEN - 1.0 Insect-Stung Damage.

Note: Lentils that have been "marked" by insects, but where the sting does not penetrate the cotyledon or are insect chewed are not considered as weevil-damaged lentils.

Certification. Record the percent of weevil-damaged lentils on the work record and “Results” section of the certificate to the nearest tenth percent.

6.16 HEAT-DAMAGED LENTILS

Definition. *Whole and pieces of lentils which have been materially discolored as a result of heating.*

Basis of Determination. Determine heat-damaged lentils (HTL) on a representative dockage-free portion of approximately 60 grams for small seeded lentils and125 grams for large seeded lentils.

Lentils which have been materially damaged to an extent that the cotyledon has been discolored equal to or greater than that shown on VRI – LEN - 1.3 Heat Damage.

Certification. Record the percent of heat-damaged lentils on the work record and “Results” section of the certificate to the nearest tenth percent.

6.17 DAMAGED LENTILS

Definition. *Whole and pieces of lentils which are distinctly damaged by frost, weather, disease, heat (other than to a material extent), immature, or other causes, except weevil or material heat damage, or are distinctly soiled or stained by nightshade, dirt or toxic material.*

Note: Damaged lentils must not include weevil-damaged, heat-damaged or "Sunburned” lentils commonly referred to as rust colored lentils due to the oxidation process.

Basis of Determination. Determine damaged lentils (DML) on a representative dockage-free portion of approximately 60 grams for small seeded lentils and125 grams for large seeded lentils.

TYPES OF LENTIL DAMAGE.

Blight (Ascochyta) Damage. Lentils infected by blight damage have brown blotches on the surface. A severely infected lentil is purplish brown, shriveled and small, and may have a white fungal growth on the surface. Lentils, which contain any amount of mold on the cotyledon, must be considered damaged. (VRI – LEN-1.1 Blight (Ascochyta) Damage)

Damaged-by-Heat Lentils. Lentils which have been damaged by heat to the extent that the cotyledon has been discolored equal to or greater than that shown on VRI – LEN - 1.4 Damaged-By-Heat.

Dirt/Grime Damaged Lentils. Lentils with dirt and grime (including nightshade juice/bag markings/ink stains) adhering to the seed coat or cotyledon equal to or greater than that shown on VRI – LEN - 1.8 Dirt/Grime.

Frost Damaged Lentils. Lentils that have been damaged by frost to the extent that the cotyledon or seed coat has been discolored equal to or greater than that shown on VRI – LEN - 1.2 Frost Damage. Frost damaged lentils are usually characterized by a waxy textured cotyledon that may be yellow, green, or another color. Frost damaged lentils should not be confused with immature lentils or lentils that have naturally green-colored cotyledons.

Immature Lentils. Lentils that do not have a traditional lens-shaped profile due to immaturity. Immature lentils are characterized as having a thin, wrinkled, and misshapen appearance. All three conditions must be present for an inspector to consider a lentil an immature lentil. Lentils may also be discolored.

Insect-Stung Damage. Lentils that have been stung or have white "chalky" spots usually caused by Lygus bugs or similar insects. (VRI – LEN - 1.0 Insect-Stung Damage)

Mold Damaged Lentils. Lentils which contain surface mold equal to or greater than that shown on VRI – LEN - 1.5 Mold Damage. Lentils, which contain any amount of mold on the cotyledon, must be considered to be damaged.

Sprout Damaged Lentils. Lentils which are sprouted or when it is apparent that sprouting has occurred (i.e., sprouting is noticeable in representative work sample) but, through handling, the sprout has broken off and is no longer protruding through the seed coat. (VRI – LEN - 1.6 Sprout Damage)

Worm-Eaten or Worm-Cut Lentils. Lentils which have been chewed by insect larvae. Not to be confused with weevil-bored lentils containing insect webbing or filth. Any chewed lentil is considered damaged.

Note: Insect webbing or filth only applies to split peas.

Certification. Record the percent of damaged lentils on the work record and “Results” section of the certificate to the nearest tenth percent.

6.18 SPLIT LENTILS

Definition. *Pieces of lentils which are less than three-fourths of a lentil, and lentils in which the cotyledons are loosely held together.*

Basis of Determination. Determine split (SPL) lentils on a representative dockage-free portion of approximately 60 grams for small seeded lentils and125 grams for large seeded lentils.

Certification. Record the percent of split lentils on the work record and "Results" section of the certificate to the nearest tenth percent.

6.19 FOREIGN MATERIAL

Definition. *All matter other than lentils, and including detached seedcoats, which cannot be readily removed in the proper determination of dockage.*

Stones. *Concreted earthy or mineral matter, and other substances of similar hardness that do not readily disintegrate in water.*

Basis of Determination. Determine foreign material (FM) on a representative dockage-free portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Note: **Rogue lentils are not considered as foreign material.**

Certification. Record the percent of foreign material on the work record and "Results" section of the certificate to the nearest tenth percent.

6.20 TOTAL DOCKAGE, DEFECTS AND FOREIGN MATERIAL

The percentage of total dockage, defective lentils and foreign material must be computed on the basis of the sample as a whole and be shown on the certificate as Total Dockage, Defects, and Foreign Material.

Calculate the percent of total dockage, defects, and foreign material (DDFM) as follows:

Example: Total Dockage, Defects, and Foreign Material Calculation

Original sample weight	1,001 grams
Weight of dockage	120.25 grams
Weight of handpicked portion	125 grams
Weight of defective peas and foreign material	12.53 grams

a. **(Weight of dockage ÷ original sample weight) x 100 = percent of dockage.**
(120.25g ÷ 1,001g) x 100 = 12.01% dockage.

b. **(100 percent - percent of dockage) ÷ 100 = change of base factor.**
(100% - 12.0%) ÷ 100 = 0.88 change of base factor.

c. **(Weight of defective lentils and foreign material ÷ weight of handpicked portion) x 100 = percent of defective lentils and foreign material.**
(12.53g ÷ 125g) x 100 = 10.02% defective lentils and foreign material.

d. **Percent of defective lentils and foreign material x change of base factor = percent of defective lentils and foreign material (adjusted).**
10.02 x 0.88 = 8.81% defective lentils and foreign material (adjusted).

e. **Percent of dockage + percent of defective lentils and foreign material (adjusted) = percent of total dockage, defects, and foreign material.**
12.01% + 8.81% = 20.82% total dockage, defects, and foreign material (rounded to 20.8%).

Certification. Record the percent of "total dockage, defects, and foreign material" on the work record and “Results” section of the certificate to the nearest tenth percent.

6.21 SKINNED LENTILS

Definition. *Lentils from which three-fourths or more of the seed coat has been removed.*

Basis of Determination. Determine skinned lentils (SKNL) on a representative dockage-free portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Skinned lentils are scraped or skinned to an extent equal to or greater than that shown on VRI – LEN - 1.7 Skinned.

Skinned lentils may also function as "damaged lentils," "split lentils," or "contrasting lentils" when appropriate.

Certification. Record the percent of skinned lentils on the work record and "Results" section of the certificate to the nearest tenth percent.

Note: Decorticated Lentils (i.e., seed coat removed) are a processed commodity. They may be inspected for the same quality factors (e.g., damaged kernels or skinned lentils), as applied to unprocessed lentils, however, certify as "Decorticated Lentils" with no grade applied.

6.22 WRINKLED LENTILS

Definition. *Sound lentils that are substantially wrinkled on at least 50 percent of one side.*

Basis of Determination. Determine wrinkled lentils (WLEN) on a representative dockage-free portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Wrinkled lentils are sound lentils that are wrinkled to the extent equal to or greater than that shown on VRI – LEN - 2.0 Wrinkled.

Wrinkled lentils may also function as "contrasting lentils" when appropriate.

Certification. Record the percent of wrinkled lentils on the work record and "Results" section of the certificate to the nearest tenth percent.

6.23 CONTRASTING LENTILS

Definition. *Lentils that differ substantially in size or color from the predominating lentil type.*

Basis of Determination. Determine contrasting lentils (CLEN) on a representative dockage-free portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Sieves may be used as an aid when determining contrasting classes in lentils, however, the mechanical separation must be reviewed to recover lentils that may have fallen through and do not meet the definition of contrasting lentils.

For sizing purposes only, lentils that are substantially different in size are to be considered.

Color, as used in this definition, is limited to the lentil's natural seed coat color and excludes the mottling that may be present on some seedcoats and discolorations that may be associated with aging or handling/storage practices.

Contrasting lentils may also function as “damaged lentils,” “split lentils,” “skinned lentils,” or “wrinkled lentils” when appropriate.

Certification. Record the percent of contrasting lentils on the work record and “Results” section of the certificate to the nearest tenth percent.

6.24 INCONSPICUOUS ADMIXTURE

Definition. *Any seed which is difficult to distinguish from a lentil; including, but not limited to, Vicia sativa.*

Basis of Determination. Determine inconspicuous admixture (IADM) on a representative dockage-free portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Note: Rogue lentils are considered as inconspicuous admixture.

Certification. Record the percent of inconspicuous admixture on the work record and “Results” section of the certificate to the nearest tenth percent.

6.25 COLOR

Good Color Lentils. Lentils are practically free from discoloration and have the uniform natural color and appearance characteristics of the predominating lentil type.

Fair Color Lentils. Lentils that are lightly to moderately discolored from storage or other causes to the extent they cannot be considered of good color.

Poor Color Lentils. Lentils that are severely discolored from storage or other causes to the extent they cannot be considered of fair color.

Basis of Determination. Determine color (COLR) on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils after the removal of dockage, defective lentils, and foreign material.

Available interpretive line prints (ILP) serve as the basis for this general appearance assessment.

Note: When determining color, ignore obvious contrasting lentils (CLEN) if the overall color of the predominating and contrasting lentils is of a good natural color.

a. Evaluate bleached lentil samples using either the Pardina or Regular lentil ILP for color and compare the amount of bleached out lentils to the amount of oxidized lentils. The intensity must contrast to the normal lentil color.

ILP – Uniform Good Color (Regular Lentils)

ILP – Uniform Fair Color (Regular Lentils)

ILP – Uniform Good Color (Pardina Lentils)

ILP – Uniform Fair Color (Pardina Lentils)

b. Using the ILP for non-uniform lentils, determine the amount of discolored lentils required in a sample to affect color. The intensity of the discolored lentils may be lighter if the lentils contrast with the remainder of the sample.

ILP – Non-Uniform Good Color (Regular Lentils)

ILP – Non-Uniform Fair Color (Regular Lentils)

ILP – Non-Uniform Good Color (Pardina Lentils)

ILP – Non-Uniform Fair Color (Pardina Lentils)

Note: One of the most common causes of discoloration of lentils is excessive heat, so-called "sunburned lentils" which are characterized by dark brown or reddish casts. Long storage may also produce discoloration and prevent the lentils from being considered of good color.

Lentils that are discolored by dust or a slight amount of dirt, which can be removed by processing methods, must be considered as "good color."

Certification. When thresher-run lentils are determined to be other than "good color," record this information on the work record and “Results” section of the certificate.

CHAPTER 7:
DOCKAGE-FREE LENTILS

CONTENTS

TABLES

7.1 GENERAL ORDER OF PROCEDURES

The breakdown and inspection for Dockage-Free Lentils are listed below in the following chapter according to its general order. The order of procedure may slightly vary depending on the quality of the lentils and the tests requested. More information is available on the Agricultural Marketing Service Website (AMS), in the U.S. Standards for Lentils, and the Board of Appeals and Review (BAR) Questions and Answers.

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 side. In a steady motion, move the sieve from left to right approximately 10 inches and then return from right to left. Repeat this motion 20 times.

7.2 DEFINITIONS

Dockage-Free Lentils. Lentils from which the dockage has been removed.

Lentils. Threshed seeds of the lentil plant (Lens culinaris Moench), which after removal of the dockage, contain 50.0 percent or more of whole lentils and not more than 10.0 percent foreign material.

If a sample does not meet the definition of Lentils, examine it further to determine if it is:

a. Another commodity or grain for which standards have been established; or

b. Not Standardized Commodity (NSC). No further analysis is necessary on a sample designated as NSC unless a specific factor test is requested.

7.3 GRADES AND GRADE REQUIREMENTS

There are no classes for Lentils. Lentils are divided into three numerical grades and U.S. Sample Grade (Table 7.1). 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. They do not affect the numerical or sample grade designation.

TABLE 7.1 – GRADES AND GRADE REQUIREMENTS FOR DOCKAGE-FREE LENTILS

Grading Factors	Maximum percent limits of: Grades U.S. Nos.		
	1	2	3
Defective Lentils			
Total[1]	**2.0**	**3.5**	**5.0**
Weevil-Damaged Lentils	**0.3**	**0.8**	**0.8**
Heat-Damaged Lentils	**0.2**	**0.5**	**1.0**
Foreign Material			
Total[2]	**0.2**	**0.5**	**0.5**
Stones	**0.1**	**0.2**	**0.2**
Skinned Lentils	**4.0**	**7.0**	**10.0**
Wrinkled Lentils[3]	**5.0**	**10.0**	**>10.0**
Contrasting Lentils[4]	**2.0**	**4.0**	**>4.0**
Inconspicuous Admixture	**0.5**	**0.8**	**1.0**
Minimum Requirements for Color	**Good**	**Fair**	**Poor**

U.S. Sample Grade must be lentils which:

a. Do not meet the requirements for the grades U.S. Nos. 1, 2, or 3; or

b. Contain more than 14.0 percent moisture, live weevils, or other live insects, IWOF, animal filth, metal fragments, broken glass, or a commercially objectionable odor; or

c. Are materially weathered, heating, or distinctly low quality.

[1] Defective lentils total is weevil-damaged, heat-damaged, damaged, and split lentils combined.

[2] Foreign material total includes stones.

[3] Lentils with more than 10.0 percent wrinkled lentils must grade no higher than U.S. No. 3.

[4] Lentils with more than 4.0 percent contrasting lentils must grade no higher than a U.S. No. 3.

7.4 SPECIAL GRADES

Special grades draw attention to unusual conditions in the lentils and are made part of the grade designation. The special grade and special grade requirements of the class Lentils are shown in the United States Standards for Lentils. Details for determining special grades are included in referenced sections. Definition and examples of the designations for special grades in lentils are:

a. Large Lentils. Lentils of which not more than 3.0 percent will readily pass through a 15/64-inch round-hole sieve. (Section 7.14)

Example: U.S. No. 1 Large Lentils

b. Small Lentils. Lentils of which 95 percent or more will readily pass through a 15/64-inch round-hole sieve, not less than 80 percent will readily pass through a 12/64-inch round-hole sieve, and not more than 3.0 percent will readily pass through a 9/64-inch round-hole sieve. (Section 7.14)

Example: U.S. No. 3 Small Lentils

c. Green Lentils. Clear seeded (green) lentils possessing a natural, uniformly green color. (Section 7.12)

Example: U.S. No. 1 Green Lentils

7.5 BASIS OF DETERMINATION

All factor determinations shall be made upon the basis of the lentils after the removal of dockage, with the following exceptions:

Dockage shall be determined upon the basis of the thresher-run lentils as sampled.

Color shall be determined after removal of dockage, defective lentils, and foreign material.

Defects in lentils shall be scored in accordance with the order shown in 601(c); and once an individual lentil is scored in a defective category it shall not be scored for any other defect but it shall remain as part of the sample for purposes of determining the percentages of other defects in the sample.

Note: When lentils that are offered for inspection as one lot are found to contain more than 10,000 containers or 1,000,000 pounds (bulk) of lentils, the lot must be sampled on the basis of two or more (approximately) equal-sized sublots of 10,000 containers or 1,000,000 pounds or less. Inspect each sublot separately.

When lentils that are offered for inspection as one lot are subsequently found to contain portions that are distinctly different in quality, or condition, the lentils in each portion must be inspected separately.

7.6 DISTINCTLY LOW QUALITY

Definition. *Whole lentils which 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 which cannot be graded by use of the other grading factors provided in the standards.*

Basis of Determination. Determine distinctly low quality (DLQ) on the basis of the lot as a whole or the representative sample as a whole.

a. Flood Damaged Lentils. Lentils materially affected by flooding are considered DLQ and certified as "U.S. Sample Grade". In addition, official personnel must report official identifiable lots that are DLQ to the district Food and Drug Administration (FDA) office as "actionable" in accordance with FGIS-PN-19-04, "Inspection of Flood Damaged Grain."

   The determination of DLQ is based on the appearance and condition of the lot or sample as a whole. Evaluate lentils affected by flooding on a portion of approximately 400 grams with the use of the ILP – All Grains/Graded Commodities - Inspection of Flood Damaged Grain. If a sample does not meet the requirements for DLQ, but the lentils are materially damaged (stained) by flooding, consider the lentils as damaged and count toward the total percent of damage in the sample.

b. Large Animal Excreta (LGANX). Lentils containing one or more large animal excreta (e.g., deer or elk pellet) are considered DLQ.

c. Large Debris. Lentils containing two or more stones, pieces of glass, pieces of concrete, or other pieces of wreckage or debris which are visible to the sampler and too large to enter the sampling device are considered DLQ.

d. Other Unusual Conditions. Lentils that are obviously affected by unusual conditions which adversely affect the quality of the lentils, such as 1 or more **unknown foreign substance, or treatment with a fungicide**, must be considered to be DLQ.

Note: Consider Lentils Sample Grade/DLQ if 2 or more dead insects are found in the sample.

Certification. When applicable, show the factor "DLQ" and the reason(s) why on the work record and "Results" section of the certificate, and grade the lentils "U.S. Sample Grade."

For more information, refer to Directive 9060.2, "Implementation of the FGIS-FDA Memorandum of Understanding."

7.7 U.S. SAMPLE GRADE CRITERIA

Basis of Determination. Determine U.S. Sample Grade criteria on the lot as a whole and/or the representative sample as a whole. Table 7.2 shows the criteria and corresponding tolerance limits, and the appropriate basis of determination.

TABLE 7.2 – U.S. SAMPLE GRADE CRITERIA

Criteria	Number/Weight[1]	
	Sample Basis	Lot[2]
Any numerical grading factor	Excess of limits for U.S. No. 3	N/A
Moisture	More than 14.0%	N/A
Animal filth	2 or more	2 or more
Deer or Elk Pellets[3]	1 or more	1 or more
Broken Glass (any size)	Presence	Presence
Live Insects	2 or more	2 or more
Dead Insects[3]	2 or more	2 or more
Insect Excreta	2 or more	N/A
Metal Fragments	2 or more	2 or more
Odor	Presence	Presence
Unknown Foreign Substance[3]	1 or more	1 or more
Heating	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] Distinctly Low Quality (DLQ)

Certification. Grade dockage-free lentils "U.S. Sample Grade" when one or more of the limits in Table 7.2 are observed. Record the reason(s) why on the work record and "Results" section of the certificate. Record count factors to the nearest whole number.

Note: Insect webbing or filth only applies to split peas.

7.8 HEATING

Basis of Determination. Determine heating (HTG) on the basis of the lot as a whole.

Lentils developing a high temperature from excessive respiration are considered heating. Heating lentils, in its final stages, usually give off a sour or musty odor. Do not confuse lentils that are heating with lentils that are warm due to storage in bins, cars, or other containers during hot weather.

Certification. When applicable, show the term "Heating" on the work record and “Results” section of the certificate, and grade the lentils "U.S. Sample Grade."

7.9 ODOR

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

a. Off-odors (i.e., musty, sour, and commercially objectionable foreign odors) are usually detected at the time of sampling.

   (1) If there is any question as to the odor when the sample is being taken, put part of the sample into an airtight container to preserve its condition for further examination in the laboratory.

   (2) Return the portion to the sample before other tests are made.

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

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

d. A **commercially objectionable foreign** odor (COFO) is any odor that is not normal to lentils and that, because of its presence, renders the lentils unfit for normal commercial usage; e.g., animal hides, fertilizer, oil products, skunk, smoke, fire-burnt, decaying animal, strong weed, and vegetable matter odors.

Note: A sample with a light drier (cooked) odor is not considered an objectionable odor unless it creates a strong odor which resembles a moldy or basement odor, then the sample should be made “Musty” or the drier odor creates a smoke odor, that sample should be made “COFO”.

Fumigant or insecticide odors are considered commercially objectionable foreign odors if they linger and do not dissipate. When a sample of lentils 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 foreign odor if the fumigant or insecticide odor persists based on the above criteria.

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

7.10 TEST WEIGHT

Note: This factor is not provided for under the United States Standards for Lentils but may be determined upon applicant request.

Basis of Determination. Determine test weight (TW) on a representative portion of sufficient size to overflow the kettle.

The procedures for performing the test weight determination are described in Grain Inspection Handbook, Book II.

Certification. Record test weight results on the work record and "Results" section of the certificate to the nearest tenth of a pound.

7.11 MOISTURE

Definition. *Water content in lentils as determined by an approved device in accordance with procedures prescribed in the Pea and Lentils Handbook and Moisture Handbook.*

Basis of Determination. Determine moisture on a representative portion of approximately 650 grams.

The procedures for performing a moisture determination using a FGIS approved moisture instrument utilizing the proper calibrations are described in the Moisture Handbook and the Directive 9180.61, "Official Moisture Calibration for Unified Grain Moisture Algorithm (UGMA) Compatible Meter."

Certification. Record the percent of moisture on the work record and "Results" section of the certificate to the nearest tenth percent. If the moisture results exceed 14.0 percent, grade the lentils "U.S. Sample Grade."

7.12 GREEN LENTILS

Definition. *Clear seeded (green) lentils possessing a natural, uniformly green color.*

Basis of Determination. Determine green lentils (GRNL) based on the lot as a whole and/or the representative sample as a whole, after the removal of dockage but before the removal of defects with the use of the ILP – Green Lentils as a general appearance assessment.

Determine the percent of lentils with mottling on approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils before the removal of defects.

> Portion must contain less than 0.5 percent lentils with mottling and be free of any lentils of contrasting color.

Certification. When the dockage-free lentils possess a natural, uniformly green color with an overall color equal to or better than depicted on the interpretive line print (ILP), and are determined to be clear seeded (green) lentils with less than 0.5 percent mottling lentils, grade the lentils "Green" on the grade line of the certificate in accordance with Section 7.4, Special Grades. Record the color "Green" on the "Results" section of the certificate.

> **Example: U.S. No. 1 Green Lentils**

7.13 INSECT INFESTATION

Live Weevils (LW) include pea weevils, coffee bean weevils, broad nosed grain weevils, rice weevils, granary weevils, maize weevils and lesser grain borers. Other live insects (OLI) include beetles, moths, meal worms and other insects injurious to stored lentils. Insect larvae are considered the same as adult insects. Dead insects do not apply.

To further define OLI refer to the Stored Grain Insect Reference. Images of insects may also be viewed on the AMS website.

Basis of Determination. Determine infestation on the basis of the work sample as a whole, a representative portion of approximately 60 grams for small seeded lentils or 125 grams for large seeded lentils, and the lot as a whole. For insect tolerances, refer to Table 7.3.

TABLE 7.3 – INSECT INFESTATION

Samples meeting or exceeding any one of these tolerances are infested: ***2 LW, or 1 LW + 1 OLI or 2 OLI***	
1,000-gram representative sample[1] (+ file sample if needed)	**Lot as a Whole (Stationary)**
Submitted Samples Probed Lots D/T Sampled Land Carriers	Probed Lots (at time of sampling)
[1] Examine work portion and file sample if necessary. Do not examine file sample if work portion is insect free. Key: LW = Live Weevil, OLI = Other Live Insects injurious to stored grain	

Note: The presence of pea weevils in a warehouse should not be considered an indication of infestation unless pea weevils are also found inside bags or containers of lentils.

Certification. When applicable, show number of live insects on the work record and "Results" section of the certificate and grade the lentils "U.S. Sample Grade."

7.14 SIZE REQUIREMENTS

Large Lentils. Lentils of the class Lentils of which not more than 3.0 percent will readily pass through the 15/64 round-hole sieve.

Small Lentils. Lentils of the class Lentils of which 95 percent or more will readily pass through a 15/64 round-hole sieve, not less than 80 percent will readily pass through a 12/64 round-hole sieve, and not more than 3.0 percent will readily pass through the 9/64 round-hole sieve.

Basis of Determination. Determine the special grades "Large Lentils" and "Small Lentils" on a representative portion of approximately 125 grams before the removal of defects.

Size lentils by sieving the representative portion with the appropriate size sieve (Table 7.4).

TABLE 7.4 – PRESCRIBED SIZING SIEVES

Special Grade	Sieves
Large Lentils	15/64 - Inch Round-Hole
Small Lentils	15/64 - Inch Round-Hole 12/64 - Inch Round-Hole 9/64 - Inch Round-Hole

Size the lentils as follows:

a. Nest the appropriate size sieve(s) on top of a bottom pan.

b. Place the sieve(s) in a mechanical grain shaker and set the timer to 20.

c. Put the representative portion in the center of the sieve and actuate the shaker.

d. Return the lentils remaining in the perforations of the sieve to the portion that remains on top of the sieve.

e. Determine the percent of lentils that pass through the sieve(s).

Certification. Record the percent of lentils that pass through the sieve(s) and the size of sieve(s) used in the determination on the work record.

a. If not more than 3.0 percent of the lentils pass through a 15/64-inch round-hole sieve, show the special grade "Large Lentils" on the work record and on the grade line of the certificate and record the percent of peas that pass through the sieve on the work record and “Results” section of the certificate.

b. If 95 percent or more of the lentils pass through a 15/64-inch round-hole sieve, not less than 80 percent pass through a 12/64-inch round-hole sieve and not more than 3.0 percent pass through a 9/64-inch round-hole sieve, show the special grade "Small Lentils" on the work record and on the grade line of the certificate and record the percent of peas that pass through the sieve on the work record and “Results” section of the certificate.

7.15 DEFECTIVE LENTILS

Definition. *The categories of defective lentils shall be weevil-damaged lentils, heat-damaged lentils, damaged lentils, and split lentils.*

Basis of Determination. Determine defective lentils on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Score defects in the following order: weevil-damaged, heat-damaged, damaged and split lentils.

Once an individual lentil is scored, do not score it for any other defect but retain it as part of the sample for purposes of determining the percentage of other defects in the sample.

Certification. Record the percent of each type of defect on the work record and “Results” section of the certificate to the nearest tenth percent.

Add the percentages of each type of defect and record the total percent of defective lentils on the work record and “Results” section of the certificate to the nearest tenth percent.

7.16 WEEVIL-DAMAGED LENTILS

Definition. *Whole and pieces of lentils which are distinctly damaged by weevils or other insects.*

Basis of Determination. Determine weevil-damaged (WDK) lentils on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Consider as weevil-damaged:

a. Lentils that contain or had contained a weevil, larva, or any other insect; and

b. Lentils containing small “pinhole” entrance holes or larger circular exit holes as shown on VRI – LEN - 1.0 Insect-Stung Damage.

Note: Lentils that have been "marked" by insects but where the sting does not penetrate the cotyledon or are insect chewed are not considered as weevil-damaged lentils.

Certification. Record the percent of weevil-damaged lentils on the work record and “Results” section of the certificate to the nearest tenth percent.

7.17 HEAT-DAMAGED LENTILS

Definition. *Whole and pieces of lentils which have been materially discolored as a result of heating.*

Basis of Determination. Determine heat-damaged lentils (HTL) on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Lentils which have been materially damaged to an extent that the cotyledon has been discolored equal to or greater than that shown on VRI – LEN - 1.3 Heat Damage.

Certification. Record the percent of heat-damaged lentils on the work record and “Results” section of the certificate to the nearest tenth percent.

7.18 DAMAGED LENTILS

Definition. *Whole and pieces of lentils which are distinctly damaged by frost, weather, disease, heat (other than to a material extent), immature, or other causes, (except weevil or material heat damage) or are distinctly soiled or stained by nightshade, dirt, or toxic material.*

Note: Damaged lentils must not include weevil-damaged, heat-damaged or "Sunburned” lentils commonly referred to as rust colored lentils due to the oxidation process.

Basis of Determination. Determine damaged lentils (DML) on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

TYPES OF LENTIL DAMAGE.

Blight (Ascochyta) Damage. Lentils infected by blight damage have brown blotches on the surface. A severely infected lentil is purplish brown, shriveled and small, and may have a white fungal growth on the surface. Lentils, which contain any amount of mold on the cotyledon, must be considered damaged. (VRI – LEN - 1.1 Blight (Ascochyta) Damage).

Damaged-by-Heat Lentils. Lentils which have been damaged by heat to the extent that the cotyledon has been discolored equal to or greater than that shown on VRI – LEN - 1.4 Damaged-By-Heat.

Dirt/Grime Damaged Lentils. Lentils with dirt and grime (including nightshade juice/bag markings/ink stains) adhering to the seed coat or cotyledon equal to or greater than that shown on VRI – LEN - 1.8 Dirt/Grime.

Frost Damaged Lentils. Lentils that have been damaged by frost to the extent that the cotyledon or seedcoat has been discolored equal to or greater than that shown on VRI – LEN - 1.2 Frost Damage. Frost damaged lentils are usually characterized by a waxy textured cotyledon that may be yellow, green, or another color. Frost damaged lentils should not be confused with immature lentils or lentils that have naturally green-colored cotyledons.

Immature Lentils. Lentils that do not have a traditional lens-shaped profile due to immaturity. Immature lentils are characterized as having a thin, wrinkled, and misshapen appearance. All three conditions must be present for an inspector to consider a lentil an immature lentil. Lentils may also be discolored.

Insect-Stung Damage. Lentils that have been stung or have white "chalky" spots usually caused by Lygus bugs or similar insects. (VRI – LEN - 1.0 Insect-Stung Damage)

Mold Damaged Lentils. Lentils which contain surface mold equal to or greater than that shown on VRI – LEN - 1.5 Mold Damage. Lentils, which contain any amount of mold on the cotyledon, must be considered damaged.

Sprout Damaged Lentils. Lentils which are sprouted or when it is apparent that sprouting has occurred (i.e., sprouting is noticeable in representative work sample) but, through handling, the sprout has broken off and is no longer protruding through the seed coat. (VRI – LEN - 1.6 Sprout Damage)

Worm-Eaten or Worm-Cut Lentils. Lentils which have been chewed by insect larvae. Not to be confused with weevil-bored lentils containing insect webbing or filth. Any chewed lentil is considered damaged.

Note: Insect webbing or filth only applies to split peas.

Certification. Record the percent of damaged lentils on the work record and “Results” section of the certificate to the nearest tenth percent.

7.19 SPLIT LENTILS

Definition. *Pieces of lentils which are less than three-fourths of a lentil, and lentils in which the cotyledons are loosely held together.*

Basis of Determination. Determine split (SPL) lentils on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Small recognizable lentil pieces are considered a split not foreign material.

Certification. Record the percent of split lentils on the work record and "Results" section of the certificate to the nearest tenth percent.

7.20 FOREIGN MATERIAL

Definition. *All matter other than lentils, including detached seedcoats.*

Stones. *Concreted earthy or mineral matter, and other substances of similar hardness that do not readily disintegrate in water.*

Basis of Determination. Determine foreign material (FM) on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Note: Mud lumps, stones, or pods with lentils inside that are approximately the size and shape of lentils, should be considered as foreign material.

Rogue lentils are not considered as foreign material.

Certification. Record the percent of foreign material on the work record and "Results" section of the certificate to the nearest tenth percent.

7.21 SKINNED LENTILS

Definition. *Lentils from which three-fourths or more of the seed coat has been removed.*

Basis of Determination. Determine skinned lentils (SKNL) on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Skinned lentils are scraped or skinned to an extent equal to or greater than that shown on VRI – LEN - 1.7 Skinned.

Skinned lentils may also function as "damaged lentils," "split lentils," or "contrasting lentils" when appropriate.

Certification. Record the percent of skinned lentils on the work record and "Results" section of the certificate to the nearest tenth percent.

Note: Decorticated Lentils (i.e., seed coat removed) are a processed commodity. They may be inspected for the same quality factors (e.g., damaged kernels or skinned lentils), as applied to unprocessed lentils, however, certify as "Decorticated Lentils" with no grade applied.

7.22 WRINKLED LENTILS

Definition. *Sound lentils that are substantially wrinkled on at least 50 percent of one side.*

Basis of Determination. Determine wrinkled lentils (WLEN) on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Wrinkled lentils are sound lentils that are wrinkled to the extent equal to or greater than that shown on VRI – LEN - 2.0 Wrinkled.

Wrinkled lentils may also function as "contrasting lentils" when appropriate.

Certification. Record the percent of wrinkled lentils on the work record and "Results" section of the certificate to the nearest tenth percent.

7.23 CONTRASTING LENTILS

Definition. *Lentils that differ substantially in size or color from the predominating lentil type.*

Basis of Determination. Determine contrasting lentils (CLEN) on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Sieves may be used as an aid when determining contrasting classes in lentils, however, the mechanical separation must be reviewed to recover lentils that may have fallen through and do not meet the definition of contrasting lentils.

For sizing purposes only, lentils that are substantially different in size are to be considered.

Color, as used in this definition, is limited to the lentil's natural seedcoat color and excludes the mottling that may be present on some seedcoats and discolorations that may be associated with aging or handling/storage practices.

Contrasting lentils may also function as "damaged lentils," "split lentils," "skinned lentils," or "wrinkled lentils" when appropriate.

Certification. Record the percent of contrasting lentils on the work record and "Results" section of the certificate to the nearest tenth percent.

7.24 INCONSPICUOUS ADMIXTURE

Definition. *Any seed which is difficult to distinguish from a lentil; including, but not limited to, Vicia sativa.*

Basis of Determination. Determine inconspicuous admixture (IADM) on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils.

Note: Rogue lentils are considered as inconspicuous admixture.

Certification. Record the percent of inconspicuous admixture on the work record and "Results" section of the certificate to the nearest tenth percent.

7.25 COLOR

Good Color Lentils. Lentils that are practically free from discoloration and have the uniform natural color and appearance characteristics of the predominating lentil type.

Fair Color Lentils. Lentils that are lightly to moderately discolored from storage or other causes to the extent they cannot be considered of good color.

Poor Color Lentils. Lentils that are severely discolored from storage or other causes to the extent they cannot be considered of fair color.

Basis of Determination. Determine color (COLR) on a representative portion of approximately 60 grams for small seeded lentils and 125 grams for large seeded lentils after the removal of defective lentils, and foreign material.

Available interpretive line prints (ILP) serve as the basis for this general appearance assessment.

Note: When determining color, ignore obvious contrasting lentils (CLEN) if the overall color of the predominating and contrasting lentils is of a good natural color.

a. Evaluate bleached lentil samples using either the Pardina or Regular lentil ILP for color and compare the amount of bleached out lentils to the amount of oxidized lentils. The intensity must contrast to the normal lentil color.

ILP – Uniform Good Color (Regular Lentils)

ILP – Uniform Fair Color (Regular Lentils)

ILP – Uniform Good Color (Pardina Lentils)

ILP – Uniform Fair Color (Pardina Lentils)

b. Using the ILP for non-uniform lentils, determine the amount of discolored lentils required in a sample to affect color. The intensity of the discolored lentils may be lighter if the lentils contrast with the remainder of the sample.

ILP – Non-Uniform Good Color (Regular Lentils)

ILP – Non-Uniform Fair Color (Regular Lentils)

ILP – Non-Uniform Good Color (Pardina Lentils)

ILP – Non-Uniform Fair Color (Pardina Lentils)

Note: One of the most common causes of discoloration of lentils is excessive heat, so-called "sunburned lentils" which are characterized by dark brown or reddish casts. Long storage may also produce discoloration and prevent the lentils from being considered of good color.

Lentils that are discolored by dust or a slight amount of dirt, which can be removed by processing methods, must be considered as "good color."

Certification. When dockage-free lentils are determined to be other than "good color," record this information on the work record and “Results” section of the certificate. Lentils that are "fair" in color must grade no higher than U.S. No. 2. Lentils that are “poor” in color must grade no higher than U.S. No. 3.

CHAPTER 8:
FEED PEAS

CONTENTS

TABLES

8.1 GENERAL ORDER OF PROCEDURES

The breakdown and inspection for Feed Peas are listed below in the following chapter according to its general order. The order of procedure may slightly vary depending on the quality of the peas and the tests requested. More information is available on the Agricultural Marketing Service Website (AMS), in the U.S. Standards for Feed Peas, and the Board of Appeals and Review (BAR) Questions and Answers.

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 side. In a steady motion, move the sieve from left to right approximately 10 inches and then return from right to left. Repeat this motion 20 times.

8.2 DEFINITIONS

Feed Peas. Dry peas intended for animal feed.

8.3 GRADES AND GRADE REQUIREMENTS

There are no classes or special grades for Feed Peas. Feed Peas are divided into one numerical grade and U.S. Sample Grade (Table 8.1).

TABLE 8.1 – 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.	

8.4 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.

8.5 DISTINCTLY LOW QUALITY

Definition. *Dry peas of obviously inferior quality due to an unknown foreign substance staining the seedcoat; or the presence of a known toxic substance(s) or an unknown foreign substance(s); or an unusual state or condition not related by the other quality factors provided in the standards.*

Basis of Determination. Determine distinctly low quality (DLQ) on the basis of the lot as a whole or the representative sample as a whole.

a. Flood Damaged Feed Peas. Feed Peas materially affected by flooding are considered DLQ and certified as "U.S. Sample Grade". In addition, official personnel must report official identifiable lots that are DLQ to the district Food and Drug Administration (FDA) office as "actionable" in accordance with FGIS-PN-19-04, "Inspection of Flood Damaged Grain."

   The determination of DLQ is based on the appearance and condition of the lot or sample as a whole. Evaluate feed peas affected by flooding on a portion of approximately 400 grams with the use of the ILP – All Grains/Graded Commodities - Inspection of Flood Damaged Grain. If a sample does not meet the requirements for DLQ, but the feed peas are materially damaged (stained) by flooding, consider the feed peas as damaged and count toward the total percent of damage in the sample.

b. Large Animal Excreta (LGANX). Feed Peas containing one or more large animal excreta (e.g., deer or elk pellet) are considered DLQ.

c. Large Debris. Feed Peas containing two or more stones, pieces of glass, pieces of concrete, or other pieces of wreckage or debris which are visible to the sampler and too large to enter the sampling device are considered DLQ.

d. Other Unusual Conditions. Peas that are obviously affected by unusual conditions which adversely affect the quality of the peas, such as 1 or more **unknown foreign substance, or treatment with a fungicide**, must be considered to be DLQ.

Certification. When applicable, show the factor "DLQ" and the reason(s) why on the work record and "Results" section of the certificate, and grade the peas "U.S. Sample Grade."

For more information, refer to Directive 9060.2, "Implementation of the FGIS-FDA Memorandum of Understanding."

8.6 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 percent of animal excreta on the work record and “Results” section of the certificate. Samples containing 0.02 percent or more of animal excreta are graded as “U.S. Sample Grade.”

8.7 BROKEN GLASS

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

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

Certification. When applicable, show the term "Broken glass", including count, on the work record and “Results” section of the certificate, and grade the peas "U.S. Sample Grade."

8.8 METAL FRAGMENTS

Basis of Determination. Determine metal fragments (MF), 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 must be:

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. When applicable, show the term "Metal fragments", including count, on the work record and “Results” section of the certificate, and grade the peas "U.S. Sample Grade."

8.9 HEATING

Basis of Determination. Determine heating (HTG) on the basis of the lot as a whole.

Peas developing a high temperature from excessive respiration are considered heating. Heating peas, in its final stages, usually give off a sour or musty odor. Do not confuse peas that are heating with peas that are warm due to storage in bins, cars, or other containers during hot weather.

Certification. When applicable, show the term "Heating" on the work record and “Results” section of the certificate, and grade the peas “U.S. Sample Grade.”

8.10 ODOR

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

a. Off odors (i.e., musty, sour, and commercially objectionable foreign odors) are usually detected at the time of sampling.

(1) If there is any question as to the odor when the sample is being taken, put part of the sample into an airtight container to preserve its condition for further examination in the laboratory.

(2) Return the portion to the sample before other tests are made.

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

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

d. A **commercially objectionable foreign** odor (COFO) 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, decaying animal, strong weed, and vegetable matter odors.

Note: A sample with a light drier (cooked) odor is not considered an objectionable odor unless it creates a strong odor which resembles a moldy or basement odor, then the sample should be made "Musty" or the drier odor creates a smoke odor, that sample should be made "COFO".

Fumigant or insecticide odors are considered commercially objectionable foreign 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 foreign 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 foreign odor, record the type of odor on the work record and "Results" section of the certificate, and grade the peas "U.S. Sample Grade."

8.11 MOISTURE

Definition. *Water content as determined by an FGIS approved device in accordance with FGIS instructions.*

Basis of Determination. Determine moisture on a representative portion of approximately 650 grams.

The procedures for performing a moisture determination using a FGIS approved moisture instrument utilizing the calibrations of the predominate type of pea are described in the Moisture Handbook and the Directive 9180.61, "Official Moisture Calibration for Unified Grain Moisture Algorithm (UGMA) Compatible Meter."

Certification. Record the percent of moisture on the work record and "Results" section of the certificate to the nearest tenth percent. If the moisture results exceed 15.0 percent, grade the peas "U.S. Sample Grade."

8.12 NON-PEA MATERIAL

Definition. *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 sample after being sieved according to procedures prescribed in FGIS instructions.*

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 "Results" section of the certificate to the nearest tenth percent.

8.13 INERT MATERIAL

Definition. *Non-vegetative material such as stones and clumps of soil.*

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 "Results" section of the certificate to the nearest tenth percent.

8.14 HEAT-DAMAGED PEAS

Definition. *Whole and pieces of dry peas which have been materially discolored as a result of excessive respiration (also referring to as "heating").*

Basis of Determination. Determine heat-damaged peas (HTDP) on a representative portion of approximately 250 grams after the removal of non-pea material. (VRI – Peas/S. Peas - 1.2 Heat Damage)

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

8.15 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, Thresher-Run Peas Chapter.**

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. Mechanical Sieving Method.

(1) Using an approved shaker, sieve (20 strokes) the thresher-run dockage with a 5/64-triangular sieve. For samples containing high amounts of dockage, stacking a 12/64-inch 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 materials (e.g., seedcoats) 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 handpick it to remove any detached seedcoats 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) Re-evaluate 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 the air control to 9 (or depending on Carter dockage machine model, a position at which maximum airflow is achieved) and the feed control to 8.

(b) There is no riddle.

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

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

(e) There is 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 seedcoats. Seedcoats 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, seedcoats, 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 seedcoats 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) Re-evaluate 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) on the work record and "Results" section of the certificate below the "Thresher-run" inspection results. 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."

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."

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

CHAPTER 9:
REVISION HISTORY

CONTENTS

CHANGE NO: 6 OCTOBER 1, 2023

Clarified criteria for Dead Insects in Section 6.12, DLQ for Thresher-Run Lentils.

CHANGE NO: 5 JULY 1, 2021

The Pea and Lentil Inspection Handbook revisions incorporated policy and procedural changes and other changes including re-formatting and editorial updates. Further, each chapter was updated and re-formatted for uniformity.

For all substantive revisions, updated hyperlinks were embedded within the text to link directly to both internal and external content wherever possible.

The following FGIS Directives were incorporated and/or referenced in this update:

- Directive 4735.2, “Uniform and Identity Apparel and Dress Code Policy.”
- Directive 9060.2, “Implementation of the FGIS-FDA Memorandum of Understanding.”
- Directive 9100.3, “Withholding and Withdrawal of AMA Inspection Services.”
- Directive 9170.13, “Uniform File Sample Retention System.”
- Directive 9170.14, “FGIS Rolling Stock Fall Protections.”
- Directive 9170.15, “Review Inspections of Grains and Commodities.”
- Directive 9180.48, “Stowage Examinations.”
- Directive 9180.61, “Official Moisture Calibrations for Unified Grain Moisture Algorithm (UGMA) Compatible Meters.”

The following Program Notice was incorporated and/or referenced in this update:

- PN-19-04, “Inspection of Flood Damaged Grain.”

The following Policy Bulletins were incorporated and/or referenced in this update:

- Policy Bulletin, Reference #259, “Large Animal Excreta.”
- Policy Bulletin, Reference #271, “Launch Boat Safety.”
- Policy Bulletin, Reference #252, “Probe Sampling AMA Commodities.”
- Policy Bulletin, Reference #179, “Work Portion Size for Small Peas.”
- Policy Bulletin, Reference #276, “Lentil Inspection Revision.”

Additionally, the Certification chapter was removed to be implemented into its own handbook. Acronyms and organizational details were updated to reflect accurate administrative structure and associated program information (i.e., reference to the Grain Inspection Packers and Stockyards Administration (GIPSA) was replaced by the Federal Grain Inspection Service (FGIS)).

CHANGE NO: 4 JULY 15, 2014

This Issuance Change transmitted revisions to Chapter 3, Thresher-Run Peas and Chapter 4, Dockage-Free Peas of the Pea and Lentil Handbook (Reference: 79 FR 42755). It adds the term and definition for "fair color yellow peas" (sections 3.28 and 4.29). This revision also changes the minimum requirement for color for U.S. No. 2 from "Good" to "Fair"; and revises the attachment, "Grades and Grade Requirements for Dockage-free Peas, to reflect these changes.

Revises the Color section to incorporate General Appearance Interpretive Line Prints (ILP) and clarifying the procedure for color determination.

CHANGE NO: 3 APRIL 28, 2014

The Pea and Lentil Handbook was revised to include standard changes, directives, program notices, policy bulletins, Board of Appeal and Review (BAR) Questions and Answers and other changes, (edits, and enhancements) to the Pea and Lentil program. The changes reflect events that have evolved since the last handbook revision dated 8/1/98.

CHANGE NO: 2 DECEMBER 31, 2002

This Issuance Change transmitted revisions to Chapter 7, "Dockage-Free Lentils", of the Pea and Lentil Handbook (Reference: 67 FR 30354). It adds the term and definition for "immature lentils" to damaged lentils (section 7.20); adds the term and definition for "contrasting lentils" (section 7.23); changes the definitions for "good color lentils" and "fair color lentils", and adds the term and definition for "poor color lentils" (section 7.27). This revision also changes the minimum requirements for color for U.S. No. 3 from "Fair" to "Poor"; and revises the attachment, "Grades, and Grade Requirements for Dockage-free Lentils", to reflect these changes. It also corrects other miscellaneous typographical errors and formatting.

CHANGE NO. 1 OCTOBER 1, 2002

The split peas grading chart was revised to correct a mistake, the U.S. No. 1 grade limit for split bleach peas was erroneously shown as 0.5 percent, it should be 1.5 percent.

CHANGE NO. 0 AUGUST 1, 1998

HB-1, Inspection Handbook for Dry Peas, split Peas, and Lentils, was revised and renamed to update and simplify the sampling, inspection, and certification procedures for thresher-run and dockage-free peas, split peas, and lentils.