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Marketing and Regulatory Programs

Agricultural Marketing Service

Specialty Crops Program

Specialty Crops Inspection Division

AIM Inspection Series

Sampling Manual

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Sampling Manual
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INTRODUCTION

This document is designed to give guidance to Specialty Crops Inspection Division (SCI) personnel of the United States Department of Agriculture (USDA), to promote uniformity in the preparation for, and performance of, sampling of processed fruits and vegetables. Sampling procedures are a fundamental part of Division services. If needed, contact your immediate supervisor for any situation not addressed in this manual.

Compliance with the Agricultural Marketing Service (AMS) guidelines does not excuse failure to comply with the Food, Drug, and Cosmetic Act or any other applicable Federal or State laws or regulations. SCI Division of the Specialty Crops Programs (SC), AMS is responsible for grading/inspecting, audits and standardization programs of fresh and/or processed fruits and vegetables and related products. The legal authority for grading, auditing and standardization activities are the Agricultural Marketing Acts of 1936 and 1946, as amended.

Applicants may obtain inspections of any fresh and/or processed fruit and vegetable and related products for which they have a financial interest. The inspection service is voluntary and self-supporting, and is offered on a fee-for-service basis.

GUIDE FOR ELECTRONIC USAGE

The AIM system of instructional manuals is available electronically in Adobe Acrobat Portable Document Format (PDF) at the following intranet address: https://ems-team.usda.gov/sites/AMS/AMS-SCI/AIM/SitePages/Home.aspx.

When accessed electronically, AIM materials have hyperlinks and hypertext (visible as underlined blue text) available to the PDF user. Clicking on a hyperlink takes the reader to a web site with information relating to the subject. Hypertext links the reader to a different page within the current manual, or a different manual, with information relating to the subject. For example, the hypertext in the Table of Contents allows a reader to go directly to the section of interest in the manual by clicking on the section title.

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GENERAL

Proper sampling techniques and procedures are vital to our grading service. It is the basis for all subsequent inspection results. The accuracy of our inspection depends on obtaining representative samples.

It is extremely important that inspectors familiarize themselves with and accurately follow the instructions in this manual. If an inspector is unsure of any instruction, a supervisor should be consulted for clarification to reduce or eliminate the possibility of an additional sampling trip and the associated expenses and inconvenience to the applicant and the Department.

APPLICATION FOR INSPECTION

Recording Information

The necessary information for inspection of a lot must be recorded on the "Application for Inspection and Certificate of Sampling", Form SC-356 which may be found on the AMS web site at the following address: https://www.ams.usda.gov/resources/sc356 or the application for inspection generated by the automated billing system. Such information is given by an applicant to an inspection office by phone, fax, letter, e-mail, or in person.

A. Information Needed for an Application for Inspection.

1. Initials of person taking the application, the date and the hour the application was taken,

2. Name, address and E-mail address of applicant or

3. Name and address of receiver or buyer,

4. Name of party requesting the inspection if other than the applicant,

5. Contract or order number if applicable,

6. Date available for sampling/insp.,

7. Where and to whom the certificate and fee bill are to be mailed,

8. Method of Distribution requested,

9. Type and name of product,

10. Location of product where sampling is to take place and contact information for that location,

11. Type of packing and packaging,

12. Case Marks,

13. Information on previous inspections of the same lot or portions of the lot (if applicable) including certificate numbers and area office where certified.

14. Quality requirements of the receiver, if applicable.

15. Additional Requirements, check as apply,

16. Check box to indicate, Certificate of Date of Pack,

17. Check box to indicate, "Officially Sampled" stamp on cases,

18. Check box to indicate, Condition of Container Examination,

19. Check box to indicate, Checkloading Required,

20. Check box to indicate, USDA Contracts

21. Check box to indicate, requesting party should also complete the name and title of requestor and signature of requestor blocks on the Certificate of Sampling (reverse side) of the Application for Inspection.

22. **Applies to Section 8e Import Product Inspection only.**

    The following additional information should be entered in this section: importer of record, date of arrival, port of entry, name of vessel and voyage number, customs entry number, bill of lading number, broker's reference number, FCE number, port of export, Harmonized Tariff Code for the commodity being imported, container number, and the country of origin of the product.

23. **Applies to Export Certification only.**

    The following additional information should be entered in this section: port of export, port of entry, vessel name, voyage number, date of freezing, freezing temperature, and storage temperature of the product.

24. Lot number, size, description, number and type of containers in each case, container code marks, and number of containers in the sample. If the primary containers are not coded, contact your supervisor before sampling,

25. Additional samples needed (if applicable)

26. Remarks

27. Official sampler signature, address and date signed. (Should be dated for each day sampling is performed if more than one day is covered by the application.)

28. Breakdown of hours spent performing each task and date task was performed.

B. Some of the information on the SC-356 is completed prior to the sampling. Some portions are filled out during or upon completion of sampling.

Automated Billing System

If the automated billing system is used, the information gathered at the time of the request is entered into the system, and an application for inspection is generated by the program.

Form SC-356

If the automated billing system is not used, record the information on form SC-356, Application for Inspection and Certificate of Sampling. It is important to remember that the information entered onto this form becomes part of our inspection record of the lot(s). If information is entered by hand, it must be neat and legible. Keep in mind that it may be necessary for someone other than yourself to review this document (or a fax, scan or photocopy of it) sometime in the future.

Inspection requests may not include all the necessary information for sampling and inspection of a lot, especially requests initiated by letter, e-mail, or fax. In these cases, the sampler must complete the application at the time of sampling.

ADDITIONAL INFORMATION

For imported products that must be sampled and inspected to meet 8(e) requirements, additional information is required, including the importer, port, vessel, country of origin, entry number, container number, date of entry, and harmonized code. If available, also obtain bill of lading number, consignee number, and broker reference number. This information needs to be recorded on the "Application for 8e Import Product Inspection." This form and additional information regarding the inspection of imported products can be found in the AIM Inspection Series, 8e Marketing Order Manual. This form will be retained with the form SC-356 and considered part of the inspection records.

CERTIFICATE OF SAMPLING FORM SC- 356 (REVERSE)

A separate sampling certificate should be prepared for each lot of merchandise, except that multiple lots of the same product (same type, style, and container size) in the same warehouse may be included on a single sampling certificate. Samplers should bear in mind that the inspector who grades the samples must rely in part on the information contained on the sampling certificate to prepare the Certificate of Quality and Condition. Handwritten entries must be legible to others.

When there is insufficient space on the form for recording all the information, such as numerous codes or lengthy case markings, additional information can be recorded on a plain sheet of paper, provided it is identified as part of the sampling documentation for the lot. Include information such as the applicant, sampler, date, type of product, type of cases, case markings, number, size

and kind of containers on the extra page(s). Note that an additional page has been attached to the sampling certificate. This will help ensure that all pages can be matched to their proper lots for documentation.

Form SC-356 (Reverse) includes:

A. Contract Number, and Purchase Order Number,

B. Name and mailing address of Applicant. Should be the same as the applicant information on the Application for Inspection,

C. Name and Location of Warehouse. Should be the same as the Location of Product information on the Application for Inspection,

D. Type of Product. See that the product offered for inspection is the same as that indicated on the Application for Inspection, e.g., product, type, style, applicant or packer's grade and container size,

E. Size and Kind of Containers. Record as 24/No.2 ½ cans, 48/14 ounce bottles, 6/No.10 cans, etc.,

F. Type of Cases. If cased, record the type of case, i.e., corrugated fiber cases, half case, tray pack, etc. Note if sealed or unsealed. If some are cased and some are uncased, record counts of each,

G. Number per case,

H. Case Markings. Copy exactly if contract requirements call for certain information to appear on the cases, or if subsamples are drawn from cases of bulk products. If sticker tape label is used on the bulk containers from which subsamples are drawn, attach one of the labels to the Certificate of Sampling. If contract requirements specify size of letters written on cases, measure to determine compliance, and record on sampling certificate,

I. Lot Number,

J. Number of samples. Record the number of sample units drawn,

K. Code Marks. Record all the codes in the lot. If individual containers are not coded, describe how the sample unit(s) representing each case are identified. Note code marks that are observed during sampling or are listed on the warehouse records, but are not included among the samples. If the container code marks differ from the shipping case code marks, indicate this on the sampling certificate,

L. Case Count. Record the number of cases, drums, bins, etc., as applicable in each lot. Verify packer's or applicant's count with an accurate count of your own,

M. Location in Warehouse. If known, record the specific warehouse identification information and a detailed description of the location of the lot within the warehouse, utilizing the particular warehouse's terminology for such identification. (i.e., "J" warehouse, row M17.)

N. Remarks,

O. Date,

P. Official Sampler. This space will contain the printed (or typed) name of the official sampler and signed by the sampler,

Q. Address. This space will contain the printed (or typed) name of the field office location.

R. **Applies to "Unofficial Sample(s) Submitted by Applicant" only.**

The requesting party should also complete the name and title of requestor and signature of requestor blocks.

Note: The Certificate of Sampling is to be used for recording information pertaining only to the sampling of product for inspection and observations made at that time. This form will not be used for documenting testing or inspection results (i.e. analytical test results, product grade, etc.)

Time and Expense.

Record all time spent in providing the inspection service requested including time spent preparing for the sampling job (i.e., preliminary paperwork, preparing "Officially Drawn" stamp, etc.), and time spent completing paperwork. If there is standby time incurred because of a delay in lot availability, the time will be recorded as standby time, and the reason for it noted. These costs are entered at the bottom section of the Application for Inspection for accurate reporting by the inspection office.

Distribution.

Normally the sampling certificate is prepared in handwriting and seldom are extra copies made or needed. If the samples are mailed to the field office, the sampling certificate is generally placed in an envelope and enclosed in the shipping case. If desired, the original may be mailed under separate cover to the inspection office, and a copy included in the shipping case.

RESPONSIBILITY FOR SAMPLES

Inspectors and licensed samplers are responsible for handling all officially drawn samples (which include samples for evaluation, review samples, and analytical test samples) in a manner that will prevent both damage to the samples, and the opportunity for substitution or other forms of tampering.

Handling

A. Canned Items

Exercise care in the selection and transportation of samples to avoid damaging them. Rough handling of canned goods may dent containers, resulting in low vacuum readings. For some products, certain quality factors may be affected, such as drained weight, character, or defects. For example, broken units occurring in canned asparagus due to rough handling. Be sure to protect canned samples from freezing.

B. Frozen Items

When sampling and transporting frozen products, maintain the solid or individually quick frozen (IQF) state of the sample units. Depending on the time and temperature involved, this may be accomplished in several ways, such as:

- Use of single or multiple fiber cases.
- Use of commercial insulating bags or cartons.
- Use of ice packs or dry ice.
- Covering with heavy coats or blankets.

Security and Shipping

The samples should remain under the control of the sampler at all times until delivered to the field office, or turned over to the shipping carrier. Samples must not be left in an unattended vehicle unless all doors and the trunk are locked. Pick-up trucks without caps should only be used to transport samples if the assignment allows the sampler to maintain control of the samples to prevent theft, substitution, or tampering.

If it is necessary to leave the samples temporarily unattended because of other duties, SCI requires that tamper-proof tape be applied to all officially drawn samples that are no longer in the possession of the inspector/sampler. The use of tamper-proof tape is applicable to unpackaged primary containers and to the sealed shipping cases containing the samples. Apply the tamper-proof tape to the side or lid of the primary container(s), or to the upper and lower closures of the shipping case.

Note: If the tamper-proof tape will not adhere directly to the surface of primary containers of frozen or refrigerated products, application directly to the shipping case is acceptable.

If samples are shipped to a field office or laboratory, be certain that containers are properly packaged and marked to prevent substitution. Enclose properly completed paperwork (e.g., Certificate of Sampling, Laboratory Sample Submittal sheet, etc.), and notify receiving office of time and place of arrival. Prior to packaging samples for shipment, prepare as indicated below:

Using tamper-proof security tape:

- Apply a four to six digit identification number (consecutively numbered) with the sender's initials to the tamper proof strip.

- Include this same identification number and initials in the grader's or sampler's name block of the accompanying document(s).

- Position a tamper-proof strip across the upper and lower closures of the shipping case after first securing them with regular tape. The tamper-proof strips are extremely fragile and should not be used to secure closure of shipping cases.

- The Division uses "Zipr-Weld" - "Stock number 88895" - 7 inch strips of red tamper proof tape labeled "USDA SCID OFFICIAL SAMPLES NO._____" Supplies may be obtained through the Lynn Peavey Company at (800) 255-6499, extension 6642.

- "Zipr-Weld" tamper-proof strips must be stored and maintained in a secure manner, similar to other accountable materials such as the "Officially Sampled" stamp and "Certificates of Quality and Condition". When distributing the tamper-proof tape, the area field office will prepare a "Memorandum Receipt" and the receiver will maintain a ledger to account for this material.

For the control of official samples, and the sending and receiving of lab results and other sensitive materials at plant locations, use the following guidelines:

- All official samples sent to AMS laboratories, field offices, regional offices, or the National office will be sent using Government mail or Government parcel service account numbers only.

- All official samples sent to AMS laboratories, field offices, regional offices, or the National office will be under the control of the official inspector until they are turned over to the carrier.

- Use of company fax machines will continue until electronic mail is available in all plant locations. If electronic mail is not available, the inspector will be notified by the sender to stand by the fax machine for receipt of any sensitive documentation (i.e., lab results, certificates) that may be sent. Alternatively the documentation may be mailed to "Addressee Only."

PREPARATION FOR SAMPLING

Before leaving on a sampling job, the sampler should check the information on the SC-356, carefully noting any detail that might require special consideration in getting the job done.

It is important for the sampler to arrive at the time scheduled with the warehouse. If a delay is anticipated, give a courtesy call to the applicant indicating the time of arrival.

The Officer-in-Charge should brief the sampler on any abnormal conditions likely to be encountered and any unusual precautions that should be taken in handling the assignment.

As needed, make arrangements for assistance in breaking down stacks and drawing the sample units. This may include the services of a lift-truck driver as well as labor to further break down the pallets and open cases. Usually the applicant will cooperate in order to expedite the sampling job. Ask for assistance in a tactful, diplomatic manner. It is essential that all containers in a lot have equal chance/opportunity for selection as samples; assistance from the applicant may be essential when a lot has pallets stacked upon other pallets.

Assemble equipment and materials needed for the job(s). Be sure these supplies are complete and in good order. Materials should include protective garments (i.e., hair net, beard net, lab coat, etc.). Try to anticipate any additional requests that may be presented while on the job.

Assure that all sampling tools that will come into contact with any product, such as chisels and scoops, are properly cleaned and sanitized prior to use. Follow current Division instructions on cleaning and sanitizing sampling tools. These are found in the AIM Inspection Series, Sanitation Manual, Sanitizing Food Contact Surfaces section.

Samplers must become familiar with the tables specifying minimum sample rates for quality and condition inspections. They must know prior to sampling which sampling plan to use and at what rate samples will be drawn. When in doubt, consult your supervisor on the appropriate sampling plan to use for a particular product or lot.

There may be times when the applicant requests inspection of additional lots while the sampler is on site at the warehouse. It is a good idea to keep a copy of sampling tables and other frequently used information on hand when out in the field.

SAFETY CONSIDERATIONS

- General - Observe plant or warehouse safety rules, including smoking restrictions and current Good Manufacturing Practices (GMPs).

- Assistants - If you use assistants, caution them to be careful to avoid accident or injury. Plant personnel who assist you in drawing samples may only do so under your supervision.

- Jumping - Never jump from stack to stack. Watch out for overhead beams and trusses.

- Walking on Cases - If there is a need to walk on cased merchandise, beware of stepping on partially filled cases and cases at the edge of a stack.

Note: Should it be necessary to be lifted to the top of the stack, never ride the bare truck forks. Use a cage or structure with solid platform and railings. Use extreme caution, and be alert for sudden movements of the lift truck and shifting of the stack.

- Lifting - use proper lifting techniques when lifting heavy containers to avoid strains, especially back strains or ruptures.

- Slips/Falls - Watch for spills or other slippery areas to avoid a fall.

- Lift Trucks - Most warehouses use lift trucks (also known as tow motors or forklifts) to receive stock and transfer merchandise. Lift trucks can be a serious hazard to the sampler. They are dangerous while being used to break down stacks. Individual cases and even entire pallets of merchandise have been known to accidentally fall from stacks in the process. The inspector should stand clear of tall stacks and wait until the driver sets the load down before taking samples. If gas powered lift trucks are used, be aware of the danger of concentrated exhaust fumes in enclosed areas.

  Lift trucks should never be used to transport individuals from one location to another. Workers have been seriously injured while riding on them due to collisions with building structures, merchandise or other vehicles.

- Cold Storage and Railroad Cars - When sampling in dry or cold storage warehouses, processing plants, or railroad cars, always wear suitable outerwear. If possible, enlist the services of a warehouse or plant employee to accompany you and assist with sampling. Be sure a responsible official is notified of your location. This is especially important in the case of cold storage warehouses. A sensible precaution would be to hang a sign on the door of the storage room or railroad car stating that an inspector is inside. At the conclusion of sampling, contact the responsible individual so he/she knows the job has been completed.

SAMPLING RATE

Tables

The sampling rate is contained in the Regulations, 7 CFR 52.38, which may be found at the following internet address: http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR. The rate is based on the number of individual primary containers in the specified lot. The sampling tables in Inspection Aid #42 are the same as those in the Regulations, except the lot sizes are converted to standard case amounts rather than shown as individual containers.

The Tables I, II, and III in Inspection Aid #42 are numbered to coincide with those in the Regulations.

A. To obtain the sample size:

1. Refer to the proper table for the product to be inspected;

2. In that table, find the category where the appropriate primary container size is located;

3. In that category locate the desired lot size; and

4. From that point, find the sample size listed on the horizontal line, under "No. of Samples."

The sample size indicated for any specified lot size is the minimum number to be drawn for that particular plan. There are times when the sampler should draw more than the minimum number of units.

B. Exceed the indicated sample size when:

1. There are a many codes present. Try to obtain representation from as many codes as is practical and reasonable.

2. Variation in quality or other factors, such as vacuums, Brix, or drained weights, is suspected.

3. Additional samples may be needed for analytical determinations (chemical, microbiological, etc.).

4. When division instruction dictate the need for extra samples, such as review samples for 8e marketing orders.

C. **Example:** To sample a lot of Canned Tomato Juice consisting of 6,000 cases 12/46 fluid ounce cans:

1. The product is canned and fluid. The appropriate table for reference in Inspection Aid #42 is Table III for comminuted, fluid or homogenous product.

2. Look under the Group 2 category, since the primary container size is 46 fluid ounces (over 1 pound to 60 ounces). Consider all juice on a fluid ounce basis rather than net weight, since the net weight will vary considerably with the kind of juice.

3. Locate the sub-category column "12 per case".

4. Proceed down the "12 per case" column until reaching the lot size range of "3,251 - 7,000" covering the lot size of 6,000 cases.

5. Move to the far left under the "No. of Samples" column for the lot sample size, which is 21 sample units. (Note - 13 samples is for on-line sampling).

When it is necessary to draw more sample units than the specified minimum rate, draw the sample size in the selected plan for a lot that is in the next larger category. In the example above (6,000 cases, 12/46 ounce cans of tomato juice), 21 samples units is the specified minimum. If it is necessary to exceed this sample size, the number of units to be drawn should be 29.

The following excerpt is from 7 CFR §52.38:

REGULATIONS GOVERNING INSPECTION AND CERTIFICATION

§52.38 Sampling plans and procedures for determining lot compliance.

(a) Except as otherwise provided for in this section in connection with in-plant inspection and unless otherwise approved by the Administrator, samples shall be selected from each lot in the exact number of sample units indicated for the lot size in the applicable sampling plans. The lot size is to correspond to a sample size with a maximum of 29 sample units: Provided, that at the discretion of the inspection service, the number of sample units selected may be increased to the exact number of sample units indicated for any one of the larger sample sizes provided for in the appropriate plans.

The sample size may be increased beyond 29 sample units in accordance with the following sampling plan:

Sample Size:	38	48	60
Acceptance Number:	5	6	7

(b) Under the sampling plans with respect to any specified requirement:

(1) If the number of deviants (as defined in connection with the specific requirement) in the sample does not exceed the acceptance number prescribed for the sample size, the lot meets the requirement;

(2) If the number of deviants (as defined in connection with the specific requirement) in the sample exceeds the acceptance number prescribed for the sample size, the lot fails the requirement.

(c) If in the conduct of on-line in-plant inspection of a product covered by a grade standard which does not contain sampling plans, the sample is examined before the lot size is known and the number of sample units exceeds the prescribed sample size for such lot, but does not equal any of the prescribed larger sample sizes, the lot may be deemed to meet or fail a specific requirement in accordance with the following procedure:

(1) If the number of deviants (as defined in connection with the specific requirement) in the nonprescribed sample does not exceed the acceptance number of the next smaller sample size, the lot meets the requirement.

(2) If the number of deviants (as defined in connection with the specific requirement) in the nonprescribed sample equals the acceptance number prescribed for the next larger sample size, additional sample units shall be selected to increase the sample to the next larger prescribed sample size;

(3) If the number of deviants (as defined in connection with the specific requirement) in the nonprescribed sample exceeds the acceptance number prescribed for the next larger sample size, the lot fails the requirement.

(d) In the conduct of on-line in-plant inspection, sampling may be performed on a time interval basis. The sampling frequency shall be specified in an applicable grade standard or other procedural instruction approved by the Administrator.

(e) In the event that the lot compliance determination provisions of a standard or specification are based on the number of specified deviations instead of deviants the procedures set forth in this section may be applied by substituting the word "deviation" for the word "deviant" wherever it appears.

(f) Sampling plans referred to in this section are those contained in Tables I, II, III, IV, and V and (g)(1) and (9)(2) of this section which follow or any other plans which are applicable. For processed products not included in these tables, the minimum sample size shall be the exact number of sample units prescribed in the table, container group, and lot size that, as determined by the inspector, most closely resembles the product, type, container, size and amount of product to be sampled. The maximum sample size in Tables I, II, III, IV, V, (9)(1), (g)(2) and processed products not included in these tables is 29 sample units.

(g) Sampling plan for Dried Figs and Dried Fruits other than Dates and Figs.

(1) **Sampling plan for Dried Figs.**
For each 10,000 pounds (or fraction of 10,000 pounds) of product - 6 sample units of approximately 35 figs each accumulated into one composite (at least 200 figs). Each composite will be examined separately, and all must meet the requirement for the U.S. Grade.

(2) **Sampling plan for Dried Fruits other than Dates and Figs.**
For each 15,000 pounds (or fraction of 15,000 pounds) of product - 6 sample units of approximately 16 ounces each accumulated into one composite (at least 100 ounces). Each composite will be examined separately and all must meet the requirements for the U.S. Grade.

SAMPLING PLANS AND ACCEPTANCE LEVELS
Table 1
Canned or Similarly Processed Fruits, Vegetables, and Products
Containing Units of Such Size and Character as to be Readily Separable

CONTAINER SIZE GROUP	LOT SIZE (NUMBER OF CONTAINERS [1]				
Group 1 ANY TYPE CONTAINER OF A VOLUME NOT EXCEEDING THAT OF A NO. 303 SIZE CAN.	3,000 OR LESS	3,001 TO 12,000	12,001 TO 39,000	39,001 TO 84,000	84,001 TO 145,000
Group 2 ANY TYPE OF CONTAINER OF A VOLUME EXCEEDING THAT OF A NO. 303 SIZE CAN BUT NOT EXCEEDING THAT OF A NO. 3 CYLINDER SIZE CAN.	1,500 OR LESS	1,501 TO 6,000	6,001 TO 19,500	19,501 TO 42,000	42,001 TO 72,500
Group 3 ANY TYPE OF CONTAINER OF A VOLUME EXCEEDING THAT OF A NO. 3 CYLINDER SIZE CAN, BUT NOT EXCEEDING THAT OF A NO. 12 SIZE CAN.	750 OR LESS	751 TO 3,000	3,001 TO 9,750	9,751 TO 21,000	21,001 TO 36,250
Group 4 ANY TYPE OF CONTAINER OF A VOLUME EXCEEDING THAT OF A NO. 12 SIZE CAN.	CONVERT TO EQUIVALENT NUMBER OF 6 POUND NET WEIGHT CONTAINERS AND USE GROUP 3				
LOT INSPECTION SAMPLE SIZE (NO. OF SAMPLE UNITS) [2]	3	6	13	21	29
ACCEPTANCE NUMBER	0	1	2	3	4
ON-LINE IN-PLANT INSPECTION SAMPLE SIZE (NO. OF SAMPLE UNITS) [2]	3	6	6	13	21
ACCEPTANCE NUMBER	0	1	1	2	3

[1] Under on-line in-plant inspection, a 5% overrun in number of containers may be permitted by the inspector before going to the next larger sample size.

[2] When a standard sample unit size is not specified in the U.S. grade standards, the sample units for the various container size groups are as follows: Groups 1, 2, and 3 -- 1 container and its entire contents. Group 4 approximately 2 pounds of product. When determined by the inspector that a 2-pound sample unit is inadequate, a larger sample unit may be substituted.

Table II

Frozen or Similarly Processed Fruits, Vegetables, and Products Containing Units of Such Size and Character as to be Readily Separable

CONTAINER SIZE GROUP	LOT SIZE (NUMBER OF CONTAINERS)[3]				
Group 1 ANY TYPE OF CONTAINER SIZE 1 POUND OR LESS.	2,400 OR LESS	2,401 TO 9,600	9,601 TO 31,200	31,201 TO 67,200	67,201 TO 116,000
Group 2 ANY TYPE OF CONTAINER OVER 1 POUND BUT NOT OVER 2-1/2 POUNDS NET WEIGHT.	1,200 OR LESS	1,201 TO 4,800	4,801 TO 15,600	15,601 TO 33,600	33,601 TO 58,000
Group 3 ANY TYPE OF CONTAINER OVER 2-1/2 POUNDS.	CONVERT TO EQUIVALENT NUMBER OF 2-1/2 POUND CONTAINERS AND USE GROUP 2				
LOT INSPECTION SAMPLE SIZE (NO. OF SAMPLE UNITS)[4]	3	6	13	21	29
ACCEPTANCE NUMBER	0	1	2	3	4
ON-LINE, IN-PLANT INSPECTION SAMPLE SIZE (NO. OF SAMPLE UNITS)[4]	3	6	6	13	21
ACCEPTANCE NUMBER	0	1	1	2	3

[3] Under on-line in-plant inspection, a 5% overrun in number of containers may be permitted by the inspector before going to the next larger sample size.

[4] When a standard sample unit size is not specified in the U.S. grade standards, the sample units for the various container size groups are as follows: Groups 1 and 2 - 1 container and its entire contents. Group 3 containers up to 10 pounds - 1 container and its entire contents. Group 3 containers over 10 pounds -approximately three pounds of product. When determined by the inspector that a 3-pound sample unit is inadequate, a larger sample unit or 1 or more containers and their entire contents may be substituted for 1 or more sample units of 3 pounds.

Table III

Canned, Frozen, or Otherwise Processed Fruits, Vegetables Related Products of a Comminuted, Fluid or Homogeneous State

CONTAINER SIZE GROUP	LOT SIZE (NUMBER OF CONTAINERS) [5]				
Group 1 ANY TYPE OF CONTAINER OF 1 POUND OR LESS	4,500 OR LESS	4,501 TO 18,000	18,001 TO 58,500	58,501 TO 126,000	126,001 TO 217,000
Group 2 ANY TYPE OF CONTAINER EXCEEDING 1 POUND BUT NOT EXCEEDING 60 OUNCES.	3,000 OR LESS	3,001 TO 12,000	12,001 TO 39,000	39,001 TO 84,000	84,001 TO 145,000
Group 3 ANY TYPE OF CONTAINER EXCEEDING 60 OUNCES BUT NOT EXCEEDING 10 POUNDS.	1,500 OR LESS	1,501 TO 6,000	6,001 TO 19,500	19,501 TO 42,000	42,001 TO 72,500
Group 4 ANY TYPE OF CONTAINER EXCEEDING 10 POUNDS.	CONVERT TO EQUIVALENT NUMBER OF 6 POUND CONTAINERS AND USE GROUP 3				
LOT INSPECTION SAMPLE SIZE (NO. OF SAMPLE UNITS) [6]	3	6	13	21	29
ACCEPTANCE NUMBER	0	1	2	3	4
ON-LINE, IN-PLANT INSPECTION SAMPLE SIZE (NO. OF SAMPLE UNITS) [6]	3	6	6	13	21
ACCEPTANCE NUMBER	0	1	1	2	3

[5] Under on-line in-plant inspection, a 5% overrun in number of containers may be permitted by the inspector before going to the next larger sample size.

[6] When a standard sample unit size is not specified in the U.S. grade standards, the sample units for the various container size groups are as follows: Groups 1, 2, and 3 -- 1 container and its entire contents. A smaller sample unit may be substituted in group 3 at the inspector's discretion. Group 4 -- approximately 16 ounces of product. When determined by the inspector that a 16-ounce sample unit is inadequate, a larger sample unit may be substituted.

Table IV

Dehydrated (Low-Moisture) Fruits and Vegetables

CONTAINER SIZE GROUP	LOT SIZE (NUMBER OF CONTAINERS) [7]				
Group 1 ANY TYPE OF CONTAINER OF 1 POUND OR LESS.	1,800 OR LESS	1,801 TO 7,200	7,201 TO 23,400	23,401 TO 50,400	50,401 TO 87,000
Group 2 ANY TYPE OF CONTAINER OVER 1 POUND BUT NOT OVER 6 POUNDS NET WEIGHT.	600 OR LESS	601 TO 2,400	2,401 TO 7,800	7,801 TO 16,800	16,801 TO 29,000
Group 3 ANY TYPE OF CONTAINER OVER 6 POUNDS.	CONVERT TO EQUIVALENT NUMBER OF 5 POUND CONTAINERS AND USE GROUP 2				
LOT INSPECTION SAMPLE SIZE (NO. OF SAMPLE UNITS) [8]	3	6	13	21	29
ACCEPTANCE NUMBER	0	1	2	3	4
ON-LINE IN-PLANT INSPECTION SAMPLE SIZE (NO. OF SAMPLE UNITS) [8]	3	6	6	13	21
ACCEPTANCE NUMBER	0	1	1	2	3

[7] Under on-line in-plant inspection, a 5% overrun in number of containers may be permitted by the inspector before going to the next larger sample size.

[8] When a standard sample unit size is not specified in the U.S. grade standards, the sample units for the various container size groups are as follows: Group 1 -- 1 container and its entire contents. Group 2 and 3 -- 1 container and its entire contents or a smaller sample unit when determined by the inspector to be adequate.

Table V

Dates

CONTAINER SIZE GROUP	LOT SIZE (NUMBER OF CONTAINERS) [9]				
Group 1 ANY TYPE OF CONTAINER OF 1 POUND OR LESS NET WEIGHT.	2,400 OR LESS	2,401 TO 9,600	9,601 TO 31,200	31,201 TO 67,200	67,201 TO 116,000
Group 2 ANY TYPE OF CONTAINER OVER 1 POUND BUT NOT OVER 5 POUNDS NET WEIGHT.	800 OR LESS	801 TO 3,200	3,201 TO 10,400	10,401 TO 22,400	22,401 TO 38,667
Group 3 ANY TYPE OF CONTAINER OVER 5 POUNDS.	CONVERT TO EQUIVALENT NUMBER OF 5 POUND CONTAINERS AND USE GROUP 2				
LOT INSPECTION SAMPLE SIZE (NO. OF SAMPLE UNITS) [10]	3	6	13	21	29
ACCEPTANCE NUMBER	0	1	2	3	4
ON-LINE, IN-PLANT INSPECTION SAMPLE SIZE (NO. OF SAMPLE UNITS) [10]	3	6	6	13	21
ACCEPTANCE NUMBER	0	1	1	2	3

[9] Under on-line in-plant inspection, a 5% overrun in number of containers may be permitted by the inspector before going to the next larger sample size.

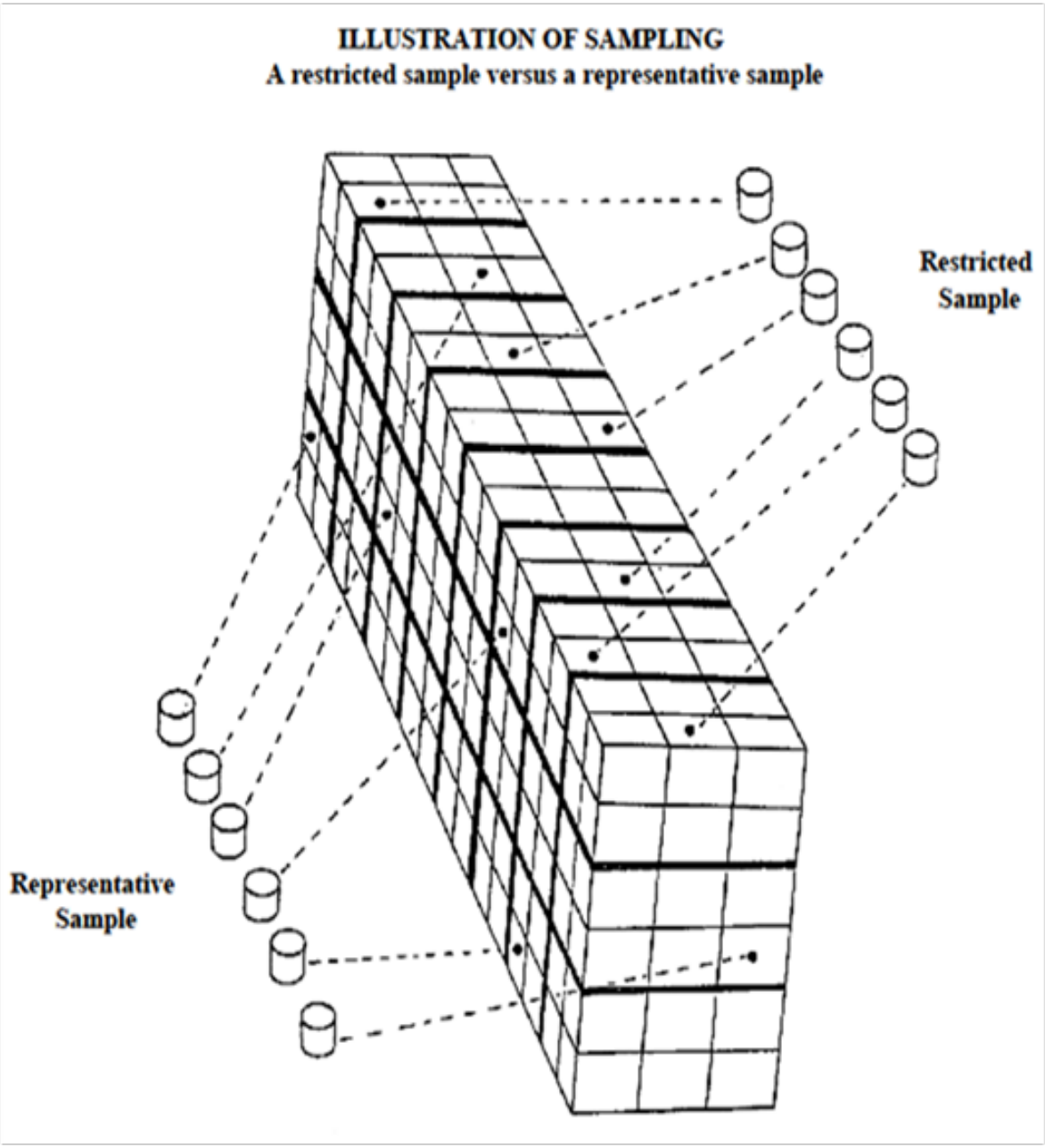
[10] Samples consist of 25-ounce sample units, each of which may be a composite of product from a sufficient number of individual containers from 1 case to make up the weight. When previous inspection results from a particular source so indicate, 1 composite sample of 25 ounces of product may be formed from the 3 sample units in the smallest sample size, and 2 composite samples of 25 ounces each may be formed from the 6 sample units in the next to smallest sample size. Sample units in larger sample sizes may not be further composites.

REPRESENTATIVE SAMPLES

The accuracy of an inspection depends upon how well the samples represent the lot. The importance of obtaining representative samples becomes apparent when considering the relationship of sampling error and the reliability of a sample to reflect the quality of a lot. Examination of the contents of every container in a lot would be the ideal way for ascertaining the quality of any lot. Of course, this is not feasible, as it would in effect destroy the lot. Therefore we must limit sampling to a comparatively small number of samples, which when drawn at random will usually reflect a reliable estimate of the quality of the lot.

Sampling rates for a quality and condition inspection are part of a statistical sampling plan designed specifically for the inspection of processed products. The tables for minimum sampling rates are based on a statistically normal distribution of defective units within a lot, and are to be used as a uniform sampling procedure throughout the Division. Samples must be drawn from all portions of the lot and must include as many codes as practical. See the Representative Sample in the illustration shown on the following page.

Accuracy of results depends more on the randomness of the samples than upon the number of sample units examined. Deviations from normal distribution of defective units in the lot might be indicated from knowledge of the nature of the product, history of the packer's merchandise as established by previous examinations or unusual conditions prevalent at the time of sampling. The sampler must exercise judgment in deciding whether to pull the minimum sample number, or use the sample size for a larger lot.



Lot Accessibility

Lots must be accessible for representative sampling. Time can often be saved by notifying the applicant before sampling, and arranging to have the cases made accessible.

In the case of loaded railway cars or trucks, the sampler should arrange with the applicant to have the merchandise at least partially unloaded from the container to permit proper sampling of all parts of the load.

Ideally, lots are broken down and arranged at floor level so that the sampler can get to each pallet. The sampling process can involve cutting samples out of cases, and is not necessarily a satisfactory substitute for breaking the lot down. Inspectors may, at their discretion, sample in

this manner if representative samples can be drawn. This is acceptable as long as containers are not damaged in the process.

If the applicant or warehouse does not wish to have the cases cut, the lot must be set down by individual pallet and arranged at floor level. This is also necessary if an official Condition of Container inspection is to be performed, or if cases are to be officially stamped. For stamping, there must also be adequate room between pallets to walk around on all four sides of each pallet. See the AIM Inspection Series Condition of Food Container and General Procedures Manuals for further information on condition of container inspection and case stamping.

If representative samples cannot be obtained, delay the sampling until the lot is made accessible for proper sampling. Tactfully explain the situation to the applicant. Seek the applicant's assistance in having the lot broken down and made accessible for proper sampling.

Restricted Sampling

If the lot is not accessible for proper sampling and the applicant or warehouse declines to make it accessible, at the request of the applicant the sampler may draw restricted samples from the accessible portion. This practice should not be encouraged. Be sure the applicant understands that the Certificate of Quality and Condition will be restricted to only that portion of the lot represented by the samples. Consult your supervisor if restricted sampling is requested by the applicant or warehouse. See Restricted Sample illustration on the previous page.

Inspection of Products under Seizure by Regulatory Agencies

When products are under seizure by FDA and the products were previously inspected and certified by SCI, clearance must be given by FDA to permit the sampling and inspection of the seized products. The applicant will contact FDA for procedures, and obtain permission for SCI to sample the seized products.

This SCI policy also applies to products under seizure by state, county, and city regulatory agencies. The applicant must contact the proper jurisdictional agency to obtain legal permission for SCI to sample seized products.

SCI may decline inspection and certification “when it appears that to perform the inspection service would not be to the best interests of the Government” as specified in the Regulations, 7 CFR 52.10, which may be found at the following internet address: http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR. Where it is known or suspected that a product is under seizure, quarantine, or surveillance by any regulatory agency, do not sample or inspect the product without contacting your regional office for guidance.

DRAWING SAMPLES

Equipment and Materials

Samplers should make sure that they have the proper equipment for the sampling job, and that it is in good condition. If sampling in a cold storage room, proper clothing is essential.

Inspectors should review the Application for Inspection and Certificate of Sampling to assure that they have all the equipment needed for the particular sampling assignment.

A. For General Sampling:

1. Application for Inspection.
2. Certificate of Sampling Forms.
3. Official sampling tables.
4. Clipboard for papers.
5. Tools for opening cases, tape on cases, and cutting pallet wrapping, such as a wooden paddle, a putty knife, and/or a retractable blade.
6. Pencil and/or pen.
7. Dark-colored marker that will mark on waxed cartons, metal cans or glass; chalk for marking non-waxed cartons (as needed).
8. "Officially Sampled" stamp, sets of dates, ink and inkpad, clean rags or towels.
9. Flashlight.
10. Tamper proof seals (as needed).

B. For Sampling Frozen Foods

1. Appropriate containers for use in collecting sub-samples from bulk containers. Coolers and cold packs (as applicable).
2. Tags or note pads for identifying sub-samples from bulk containers.
3. Large chisel (cleaned and sanitized) to remove samples from solid-frozen bulk size containers (as applicable).
4. Large hammer (cleaned and sanitized), about 3 lb. weight. A heavier hammer will not mushroom the end of the chisel as readily as a small hammer.

5. Clean power-driven chisel with tip (cleaned and sanitized) in lieu of Items 3 and 4.

6. Cleaned and sanitized power-driven core sampler. (This is specialized equipment and used only in certain instances).

7. Cleaned and sanitized scoop to remove loose frozen foods from bulk containers.

8. Strap cutters (lineman's plier's work well for cutting straps).

9. Flashlight.

10. Thermometer. (No glass)

11. Cold weather clothing, such as caps, gloves, and heavy coats or overalls.

12. Lifter for removing friction-type can lids.

13. Sanitizing solution.

C. For Sampling Liquid Items Such as Honey, Fruit Concentrates or Olive Oil

1. Appropriate clean and sanitized containers and lids to hold sub-samples.

2. Clean and sanitized honey "thief."

3. Clean and sanitized plastic tube or trier long enough to reach to the bottom of barrels for sampling products such as olive oil.

4. Bung wrench for metal barrels.

D. For Sampling Dried and Dehydrated Products

1. Moisture-proof bags.

2. Appropriate containers with moisture-proof seals.

3. Cleaned and sanitized scoop.

Sampling Procedure

A. Initial Contact

1. Immediately upon arrival at the sampling location, identify yourself to the appropriate plant or warehouse official. After a brief introduction, review the Application for Inspection and Certificate of Sampling with the applicant or warehouse official to verify the lot sizes and locations.

2. Arrange for sampling assistance, if needed. This assistance may be helpful in many ways:

   - To stage pallets so as to be readily accessible,
   - To break down pallets or otherwise remove or extract cases or containers marked or pointed out by the sampler;
   - To open or cut the sealed cases from which samples will be drawn;
   - To remove and replace cans in cases while making condition inspections;
   - To refill cases from which samples have been taken;
   - To identify and assemble the sample units; and
   - To help prepare the samples for shipment, if necessary.

3. Obtain a list of all the codes in the lot and the quantities per code where possible. SCI encourages use of adequate code marks and it is our responsibility to exercise care in observing, selecting, recording, and reporting all identification marks and symbols that will facilitate the identification of the lot. If necessary when numerous codes are present, increase the sample size to include as many as practical. Make a note on the Certificate of Sampling if the codes present in the lot are so numerous as to make it impractical to draw samples from each code. List all additional codes in the lot which were not sampled.

B. Identification of a Lot

1. It is essential that all lots be properly identified so that:

   - Certificates may be identified with the proper lots of merchandise;
   - Interested parties may readily find the lot reported on the certificate;
   - Checkloading or case stamping of merchandise may be properly handled by another inspector;
   - The applicant or shipper may ship the correct lot of merchandise; and
   - Positive identification may be made in case of an Appeal Inspection.

2. Means of identification must be sufficient to specify:

   - Commodity, type, and style;

- Number, size and type of containers;
- Code or other identification marks;
- Label and case markings; and
- Location - Warehouse name, number, and address; the location of the lot in the warehouse may be identified by any or all of the following:
    - Bay or room number;
    - Aisle number or letter;
    - Stack or row number (most warehouses have row numbers painted on the floor, on tags hanging from the ceiling or on overhead beams);
    - Directional - as so many rows, stacks, tiers, bins, blocks, piles or bays in a given direction from any identifiable, permanent object such as a door, wall, window, specific office or label room; or, as being on cooling floor of processing plant or in holding room of warehouse or cold storage plant.

3. It is essential that all lots be properly identified, and that the means of identification for each lot offered for inspection is unique so that:

    - The lot can be identified in its entirety;
    - No portion of the lot being offered can be mistaken as being part of another lot; and
    - No portion of another lot can be mistaken as being part of the lot being offered.

    It is the applicant's responsibility to uniquely identify the lot. In most cases, the code mark(s) on the primary container serves this function. This is adequate if the entire production of the code is being offered for inspection. However, if an applicant offers only a portion of a production code for inspection (such as 1008 cases for a specific order out of a code of several thousand), there must be some way to identify the particular portion sampled from the rest of the production of the same code. Lot location is not sufficient for this purpose since the lot can be moved. If all primary containers or sealed secondary containers can be stamped, one solution is to identify the lot sampled by stamping the cases with the "Officially Sampled" stamp.

If an applicant offers a lot for inspection that cannot be uniquely identified, contact your immediate supervisor before continuing.

C. Condition of Containers

If required as part of an inspection, the sampler is responsible for checking the condition of containers (primary containers, labels, wraps and cases) in which the product is packed. Under normal sampling this determination is made at the same time as the selection of samples for grade determination. Detailed instructions on checking for condition of containers are outlined in the AIM Inspection Series, Condition of Food Container Manual. If a formal condition of container inspection is not required, the inspector should note any general observations of concern about lot condition on the certificate of sampling.

D. Selecting and Identifying Samples

1. Scan the lot for:

- Verification of warehouse count;
- Identification marks, and
- Any indication of poor condition, such as blown cans, obnoxious odors and watermarked or damaged cases. If the lot is obviously "out of condition," consult with your supervisor immediately.

2. Establish Sampling Pattern

- Locate the Samples

  Samples must be drawn from all locations within the lot. The desired sample unit locations (pallets, cases, or containers) may be marked with chalk or other suitable markers if you have an assistant, so that they may remove them from the lot for sampling.

  No two quality samples should be selected from the same pallet if there are as many of pallets as there are required sample units. This does not apply to tote bins. Several sample units from a tote bin may be composited as one sample unit.

  The sampler must select their own samples. Sometimes in an effort to be helpful, the applicant or warehouse personnel may set aside samples, leave cases unglued, or in other ways make it easy for the sampler to select certain samples. Do not take these samples. Tactfully explain that USDA samplers must select their own samples.

- Sampling by Codes

  Use simple random sampling if the cases and containers are un-coded, all of one code, or if the approximate number of cases per code is not known.

  Use proportional random sampling if the approximate number of cases per code is known. The number of sample units to select from each code should be in proportion to the ratio of the number of cases per code in relation to total number of cases in the lot.

  When numerous codes are evident, sample as many codes as is practical. Sometimes codes are so numerous that it is prohibitive to sample each code. List all additional codes in the lot as identified by the applicant, or observed during sampling but were not sampled.

3. Draw the Samples

- In selecting entire containers as sample units, no special problems should be encountered once all portions of the lot are made accessible.

  Generally, for containers of 10 pounds or less, take the entire container as a sample unit. For larger size containers such as 30-pound cases, five-gallon cans, and barrels, a representative sub-sample is drawn. Refer to the Regulations for the specified size of sub-sample applicable to each product. All sampling will be conducted in a manner that complies with FDA's Good Manufacturing Practices (GMPs). The current GMPs are located in the Regulations, 21 CFR 110, which may be found at the following: http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR. Supervisors are responsible for verifying that samplers and inspectors are following the GMPs.

- For the larger size containers, it is good practice to substitute an occasional entire container in lieu of a sub-sample. If the sample size is 13 units, for example, the sampler may select 10 sub-samples and 3 entire containers. The entire containers may be examined for characteristics not apparent in the sub-samples, such as grit, pebbles, and other heavy materials that settle to the bottom of the container, and lighter materials that may float to the top, for example, caps and stems in frozen strawberries.

  Some frozen fruits may be removed in solid form from large containers by steaming the container exterior lightly with a steam hose and sliding out the contents. The contents are then available for overall on-the-spot examination and for sub-sampling. Wherever possible, these sub-samples should be taken in the form of a longitudinal section of the frozen block to

represent all levels within the container. In some products such as frozen cherries, it may be feasible to set the large containers out to thaw. When thawed sufficiently to handle, the contents can be well mixed before drawing a representative sub-sample.

When drawing sub-samples, the inspector should be alert for adverse conditions such as surface oxidation, dehydration, or other discolorations, and note its depth or extent on the Certificate of Sampling. When drawing sub-samples of loose frozen items like frozen peas or IQF berries, the sampler should survey the entire contents of containers for conditions which may not be evident in the sub-samples. Any such conditions should be described on the Certificate of Sampling.

- When drawing samples, and subsequently handling them, avoid damaging the containers or their contents. Some products such as canned or frozen asparagus, canned tomatoes, and canned berries are especially prone to damage. Asparagus heads are easily shattered and drained weights of canned tomatoes and canned berries may be adversely affected unless special care is taken during sampling and transporting samples.

  Any canned product which is severely dented will yield an improper vacuum reading. Do not take samples of product in dented cans, and take care to avoid dents due to mishandling after sampling. If selected as part of the Condition of Food Container inspection, dented cans should be included in the COC, and scored appropriately.

- When sub-samples are taken, the sampler may use any suitable clean and sanitized container that will protect the sample until it is ready to be graded. Sub-samples of frozen foods or of dried foods may be placed in zip lock or other plastic bags, cartons or cans. Solid products from frozen bulk containers should be chipped out in large pieces so that character will not be affected. Sub-samples from bulk containers of dehydrated products (including low moisture fruits, honey or other similar hygroscopic products) should be put in tightly sealed, clean containers such as glass jars with gaskets and screw type lids. When shipping hygroscopic products, further protect them from contamination by enclosing the tightly sealed containers in sealed plastic bags.

4. Small Size Items

Sometimes products such as mustard, catsup, relish, honey, syrup, jam, and jelly may be packed in individual serving sizes with a net weight of 1/5 ounce to 1 ½ ounces. When sampling items packed in small individual serving containers, extra samples must be pulled to aggregate into samples large enough to grade in accordance with U.S Standards.

The sample size (number of sample units) will be in accordance with the table below. A sample unit will consist of a composite of a minimum of 16.0 ounces of product. When a 16.0 ounce sample unit is determined to be inadequate, a larger sample unit will be substituted.

- Sample Unit Determination

  Example – For Containers Less Than 7/16 Ounce Size

  Randomly draw 25 individual serving containers each from two separate cases of the same code for a total of 50 containers. Composite the 50 containers and use as one sample unit for quality determinations.

  Example – For Containers 7/16 Ounce Size and Above

  Randomly draw 20 individual serving containers each from two separate cases of the same code for a total of 40 containers. Composite the 40 containers and use as one sample unit for quality evaluation.

  The table below shows the applicable sample size and acceptance number, based on lot size.

CONTAINER SIZE	LOT SIZE (NUMBER OF CASES)				
Less than $^{7}/_{16}$ ounce	3,000 or Less	3,001 to 12,000	12,001 to 39,000	39,001 to 84,000	84,001 to 145,000
$^{7}/_{16}$ ounce and above	1,500 or Less	1,501 to 6,000	6,001 to 19,500	19,501 to 42,000	42,001 to 72,500
LOT INSPECTION: Sample Size (# Sample Units)	3	6	13	21	29
Acceptance Number	0	1	2	3	4
ON-LINE IN-PLANT INSPECTION: Sample Size (# Sample Units)	3	6	6	13	21
Acceptance Number	0	1	1	2	3

5. Standard Unit Size Grading

Some products require a standard sample unit size for quality determination in accordance with U.S. Standard for Grades.

- Quality Factors

  Each sample graded for such products must meet the standard sample unit size. For small containers, this may require drawing extra samples for

each sample unit; for example, 12 samples for a lot size calling for six sample units. The number of containers required for each sample unit depends on the container size, number of units per container, and number of units required to meet the sample unit size.

A group of containers used for each sample unit is called a subgroup. For each sample unit needed, draw this subgroup from a single case or one specific area from a pallet. Identify containers in each subgroup with the same number.

- Scoring Guides for Standard Sample Units

Broken, crushed or similarly damaged portions of units of product are reassembled and included in the count as whole units appropriate for the style.

Detached pieces in the style of halved fruit, and extraneous material in all product styles associated with the sample unit are part of the standard sample unit size, but are not included in the count or weight. Refer to the grade standards and/or grading manual for the product for specific guidance, if applicable.

"Associated" means from the same container when the container is one of several used to compose the sample unit, and all of the product in it is included in this composite. When 50 percent or more of the contents of the last container is included in the composite, all of the pieces and extraneous material in the container are also considered associated with the portion taken as the sample. If less than 50 percent by count of the last container's contents is used in the composite, none of the pieces and extraneous material are taken. In the case of large containers, if all of a standard sample unit is composed of only a portion of one container, the "associated" material is that material in the representative portion of product taken from the container.

Refer to applicable U.S. Standard or Inspectors' Instruction prior to sampling to determine the minimum product needed for grading the commodity. Examples of products requiring some form of standard sample unit size for inspection include but are not limited to:

CANNED	FROZEN
Applesauce	Asparagus
Apricots	Beans, Green
Cherries, RTP	Broccoli
Leafy Greens	Cherries, RTP
Plums	Corn, Cob
Green Beans	Cranberries

Okra
Peas (Black-Eye and Field)
Potatoes, Frozen French Fries

6. Analytical Testing Requirements

The following sampling rates and acceptance criteria are for analytical testing when no other instructions are available. Many items are procured using a Commercial Item Description (CID) or other specification detailing product requirements. These documents may contain requirements based on analytical testing. However, they may not contain sampling rates or acceptance criteria for determining compliance.

When SCI is sampling the product using a CID as the specification, the sample size and acceptance plan in the Regulations and this manual will be used, even if different from the CID. However, contractual documents may take precedence over these instructions.

If the sampling plan and acceptance number shown in this manual is either excessive or inadequate, bring this to the attention of the National office through the regional office. If needed, an alternative sampling and acceptance plan may be developed.

- Sampling and acceptance

  The lot size will be expressed as the number of primary containers in the lot. The sample unit will include enough product to conduct the analytical test. For bulk pack items, each sample unit will be a representative sub-sample of the bulk container with sufficient product to conduct the analytical test. For non-bulk pack items, each sample unit will be one primary container, or enough primary containers which, when combined, yield enough to conduct the analytical test.

  Examples: The sample size is three, and quantity needed for testing is 5 ounces. For product packed in bulk containers such as drums, a total of 3 sub-samples would be taken, each containing at least 5 ounces of product. If the same product is packed in #10 cans, 3/#10 cans would be selected as the sample. If the same product were packed in 1-ounce pouches, 3 groups of 5 pouches each (a total of 15 pouches) would be selected as the sample. In all cases, each sample unit will contain enough product to conduct the analytical test.

  Note: To determine the amount of product needed to conduct the test, it may be necessary to contact the laboratory that will be performing the test.

  When possible, the sample for analytical testing should be a sub-sample taken from the product used for the salient characteristics examination.

Otherwise, a separate set of samples will be drawn for analytical testing. In either case, a parallel set of samples will be drawn as stand-by samples to use if there is some reason to suspect the validity of inspection results. An example of this might be the lab discovering that a chemical used in the analysis has deteriorated or was not properly prepared.

Otherwise, any retesting requested will be considered an appeal inspection and will be done in accordance with the Regulations, 7 CFR 52.23 (which may be found at the following: http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR). If the product is being retested under an appeal inspection, use the next larger sample size as defined in this manual.

Example: If the original lot required a sample size of 2 sample units for analytical testing, the appeal inspection would be based on 3 sample units. See chart below. When testing is complete, all unused stand-by samples will be returned to the lot.

Unless otherwise specified, results will be reported to the smallest unit indicated by the requirements.

Example: If the requirements stated a value of 0.05%, the analytical results would be reported to the nearest 0.01%.

The sample size for analytical testing will be determined using the chart below. The entire sample size will be tested for analytical requirements. The lot will be rejected if one or more sample units fails to meet the analytical requirements.

Sample size for salient characteristics.	Sample size for analytical requirements.
3	1
6	2
13	3
21	4
29	5
38	6

7. Compositing Samples for Chemical Analysis

Several products graded by SCI inspectors require chemical analysis. Often the sample used for this analysis is a "composite sample" derived from the number of primary containers indicated by the inspection level. Specifications usually indicate the size of the composite sample required for analysis. Because this composite must be representative of the lot inspected, and improper handling can adversely affect its composition, samples must be handled carefully. Procedures for preparing and submitting composite samples are as follows:

- Compositing Non-Comminuted Products, Semi-liquid and Paste-like Products (Peanut Butter, Mustard, Mayonnaise, etc.).

  When making your composite:

  - Decide what size subsample will be taken from each primary container.
    - When standby and/or duplicate samples are needed, increase subsample size accordingly.
    - All subsamples should be equal.
  - Choose a primary container. Mix sample well and remove subsample.
  - Repeat procedure until a subsample has been taken from each primary container and composite sample is complete.
  - Thoroughly mix composite sample. Subdivide into required samples and seal in airtight containers to prevent loss of moisture and contamination by foreign material.

- Compositing Liquids

  Liquid samples can be homogeneous or contain particulate matter that may settle out, as with Worcestershire sauce. When making your composite:

  - Decide what size aliquot will be taken from each primary container.
    - When standby and/or duplicate samples are needed, increase aliquot size accordingly.

- All aliquots should be equal.

- Choose a primary container. Mix sample thoroughly and transfer the predetermined size aliquot to the container to be used for composite. If product contains particulate matter, be sure to take the aliquot before settling occurs.

- Repeat procedure until a subsample has been taken from each primary container and composite sample is complete.

- Seal container and mix the composite sample by inversion.

- Subdivide the composite into samples for laboratory analysis, standby, and duplicate as needed.

- All samples should be sealed in containers to prevent leakage and evaporation.

- Compositing Dried and Dehydrated Products, Gelatin, Bouillon, Dehydrated Potatoes, etc.

  These processed products may present special problems when compositing. The product may be homogeneous or stratified, with separation and settling occurring due to differences in particle size or density. Often the sample is hygroscopic and will pick up moisture from the atmosphere very rapidly. Sometimes further sample preparation is required, such as grinding or blending. Because one or all of these special conditions may exist, when making your composite:

  - Decide if further preparation of sample is needed and what size aliquot will be used to make composite.

    - All sample preparation should be done as quickly as possible using clean, dry equipment so the sample will not pick up moisture or become contaminated with foreign material.

    - All aliquots should be equal in size and taken after required sample preparation.

    - If standby and/or duplicate samples are needed, aliquot size should be increased accordingly.

  - After selecting a primary container, mix thoroughly and prepare the sample as needed. Place aliquot in an airtight container.

- Repeat procedure until a subsample has been taken from each primary container.

- Thoroughly mix composite sample. Subdivide into required samples, and seal in airtight containers to prevent samples from picking up moisture.

- Laboratory Sample Submittal

  After composite samples have been made, they should be sent without delay to the appropriate laboratory. All samples should be accompanied by Form SC 637, "Laboratory Sample Submittal Sheet" (which may be found on the AMS Forms Catalog at the following intranet address: http://agnis/AMSFormsCatalog/Forms/AllItems.aspx), except for the Operational Rations Program, which uses Department of Defense form DD 1222 to submit laboratory samples.

8. Handling of Samples for Chemical Analysis

Improper handling of samples before and during analysis can affect testing results and can result in failure of product to meet required specifications. The following procedures will minimize unwanted changes in the sample and help maintain the original composition of the product.

- Store Samples in Airtight Containers

  Many products such as gelatin dessert powder, instant coffee, and tea readily pick up moisture from the atmosphere. Others such as purees may lose moisture. To avoid such changes, samples should be stored in airtight containers with minimal headspace. The closed container also prevents accidental contamination by foreign material.

- Store Samples in a Cool, Dark Storage Area

  Both sunlight and artificial light may destroy or reduce the potency of products containing vitamins. Light may also adversely affect oil samples, hasten rancidity and alter analytical results. Frozen samples should be stored in a freezer. If samples require refrigeration to maintain wholesomeness, store in a refrigerator.

- Store Samples in Appropriate Size Containers

  Some products may undergo chemical decomposition when exposed to the oxygen in air. This is especially true of oil samples. They should completely fill the storage container. Generally, it is good laboratory

practice to store all samples in containers that leave as little head space as possible.

- Analyze Samples as Soon as Possible
  Most products undergo some change with time. To ensure results that are representative of the sample at the time of inspection, analyze as soon as possible.

9. Automatic Sampling Guidelines

Automatic samplers may be used to draw representative samples of juices and similar products of a comminuted, fluid, or homogeneous nature. The main objective of the process is to obtain a composite sample that best represents the product. Product sampled by approved automatic samplers must state "Sampled by Approved Automatic Sampler" on score sheets.

When using automatic samplers, verify the conditions below.

- The sampling device is maintained in sanitary condition.
- It samples product from the production line.
- It is installed at a location where no further changes to product will occur. It should be adjacent either to the loading or off-loading location.
- The sampling container is fitted with a lock or a USDA seal to assure sample integrity.
- The sample size approximates a one-quart composite, with a minimum of twenty-four fluid ounces.
  - Set the sampling device to take a minimum of 13 sample units per composite sample when sampling for a truck tanker. A full truck tanker will hold approximately 5,000 gallons.
  - Set the sampling device to take a minimum of 60 sample units per hour when product is moved to a tank farm. This will be done for every composite sample.

If the automatic sampler fails to operate properly, manually draw samples of the product using the on-line sampling rate in this manual. Manually drawn samples will not be added to a composite sample from an automatic sampler; they will stand on their own as official samples.

10. Mark the Samples

Mark the lot number or other identification on each sample unit as it is drawn. When several lots are being sampled at one time, it may be convenient to use a code number or letter to identify the samples, such as "A" for Lot No. 24725 and "B" for Lot No. 26835. If it is desirable to identify individual sample units in each sample, they may be marked: "A-1", "A-2", "B-1", "B-2", etc. If an alternative identification marking system is used, a key to the system must be shown on the certificate of sampling.

Storage Conditions

Note any unsatisfactory storage conditions that might adversely affect the keeping quality or marketability of the product. Describe such conditions under the “Remarks” heading of the Sampling Certificates. The following conditions are not all-inclusive and represent examples of what might be considered undesirable:

A. General

- Smoke, fumes or foul odors (particular harmful to dried fruits and frozen foods);
- Excessive dust;
- Evidence of rodents or other pests;
- Presence of insects around bulk or unsealed containers; and
- Condition of rail cars or of truck:
  - Cleanliness;
  - Vent covers open or closed;
  - Nails or spikes protruding from floors and sides.

B. Canned Products

- Stacks too high, causing distorting of cases and containers;
- Storage facilities do not offer sufficient weather protection, (leaking roofs) evidenced by sweating of cans, watermarked or damp cases; and
- Product not protected from extreme storage temperatures, causing freezing of containers.

C. Frozen Products

- Stacks too high, causing compression of lower cases or buckling of containers;
- Temperature not low enough to maintain product in solid state;
- Fluctuating storage temperature; and
- Carloads or truckloads

  As a guide, product temperatures of frozen merchandise in refrigerated trucks and railroad cars should be taken:

  - Whenever there is a complaint about condition of the product, or the product does not appear to be completely frozen - for example, the product arrived in a partially thawed condition;
  - Whenever condition inspections are performed on railroad cars or trucks as they are being unloaded or immediately prior to unloading;
  - Whenever product temperatures are specifically requested by the applicant; and
  - Whenever product temperatures are a requirement of the contract or purchase order.

D. Housekeeping

Be as neat and orderly as possible while sampling. Containers such as Kraft bags and cases should be opened with reasonable care to avoid ruining the container or spilling the contents. Opened bags and other containers should be closed after sampling as a courtesy to the warehouse personnel and to protect the product from contamination.

Frozen foods and other perishables should be returned to storage immediately after being sampled outside of the freezer or cold storage rooms.

After the job is finished, the sampler should make sure that either the sampling site is left in its original condition or that there is an agreement with the warehouse regarding housekeeping after sampling. Spilled food materials resulting from "chipping" subsamples from bulk containers should be cleaned up. Inspectors should make every effort to ensure that the warehouse or product custodian is aware of all sampling activity and is prepared to take the necessary steps to refill and reseal cases, etc. as desired by the applicant. The storage area should be left in reasonable condition so that the next sampler to that warehouse will be welcomed.

Note: GMPs are to be used at all times, particularly when drawing sub-samples from bulk containers. The sampler must follow the GMPs to prevent contamination of the product by the sampling process. This includes both the product in the sample, and the product remaining in the lot. In following the GMPs, the sampler will wear attire appropriate for the job (i.e., hair net, beard net, lab coat, gloves, etc.) and assure that all sampling tools that will come into contact with any product are properly cleaned and sanitized prior to use. The cleanliness and sanitation of the sampling tools will be maintained throughout the sampling process. When sampling is complete, all sampling tools used will be properly cleaned and sanitized prior to storage.

WITHDRAWAL OR DISCONTINUING ACTION ON AN INSPECTION REQUEST

The Regulations, 7 CFR 52.11, (which may be found at the following internet address: https://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR) state that the applicant may withdraw application for inspection service "at any time before the inspection is performed."

Division sampling services may be discontinued at the following points:

- Anytime before the sampler leaves the office to handle the assignment;
- Upon arrival at the plant or warehouse;
- After scanning the lot and determining the merchandise is obviously out of condition or otherwise unsatisfactory (i.e., wet cases, thawed product, leakers, etc.);
- Upon drawing samples for condition of container and having the lot fail acceptance criteria; and
- Anytime between sampling and transporting samples to an inspection office or plant laboratory.

The option to discontinue service rests with the applicant. Even though the lot may fail to meet acceptance standards for Condition of Container or other pertinent requirements, the applicant may still want the inspection completed in order to know the quality and grade of the product.

However, the applicant will be billed for the time and expenses incurred in performing any phase of the sampling assignment up to the point of discontinuing further work. When unsatisfactory conditions are encountered during sampling that make it apparent that the lot will fail for some reason, the sampler should make every effort to contact the applicant and ascertain his/her wishes before incurring further expenses. Whenever sampling is terminated at the request of the applicant after time and expenses have been incurred, advise the applicant of the costs they are obligated to pay, and document this in the remarks section of the Certificate of Sampling.

SUMMARY OF LOT SAMPLING PROCEDURES

A. Review the Application for Inspection and Certificate of Sampling for necessary information, such as name of the applicant, location of the lot, indicated time for sampling, type of product, and probable storage conditions which would indicate the equipment and materials needed.

B. Assemble equipment and materials needed for the job or jobs. Be sure they are complete and in good order. Ensure that all sampling tools are properly cleaned and sanitized. Materials should include protective garments (i.e., hair net, beard net, lab coat) if needed. Try to prepare for any additional requests that may be made while on the job.

C. If you anticipate needing additional sampling help, or if you are running late, notify the appropriate plant or warehouse official. Let them know what you need, and when you expect to arrive.

D. Contact the appropriate official on arrival at the sampling point. Verify the information about the lot or lots to be sampled, the location, cases per code, etc.

E. Consult the sampling plan and determine the sample size.

F. Scan the lot for verification of the warehouse case count and for any obvious indication of defective containers.

G. Decide on a sampling pattern that will yield a representative sample.

H. Select the sample units, verify the exact case count, and determine condition of container as needed.

I. Note the storage conditions.

J. Record all necessary information on the Certificate of Sampling.

K. Take appropriate steps to ensure sample integrity.

L. Handle samples with care when sampling, transporting, or shipping the sample units to the inspection office to preserve the original condition of the product.

ON-LINE SAMPLING

Source of samples

To verify compliance with the U.S. Grade requirements of the product, sample units may be entirely line grade sample units or finished product, or any combination of both. If finished product samples are drawn solely to verify line grading, they will not be used in this acceptance criteria unless line check sample units do not meet the required rate. Verification sample units

will be drawn to evaluate products which could be affected by processing and freezing conditions.

Line grade sample units may be drawn from a common source or from individual lines, depending on the circumstances and plant procedures. In order to represent product from one of multiple lines packing the same item, samples must be drawn from the individual line whenever the quality of the end product is influenced (prior to sampling) by line personnel or mechanical devices that do not affect product on other lines.

Common Source Sampling/Homogenous Products

Common source sampling can only be applied to products produced under in-plant inspection. This type of sampling requires the inspector to be familiar with plant operating procedures and have knowledge of the raw product quality level.

Common source sample units are of the same product identity, and are drawn at the head or origin of multiple lines beyond which no further quality changes occur. Common source may also be considered as a large volume (thousands of gallons) of homogeneous product that has a consistent quality level, and is stored in a single bulk container.

Production lines may be for different container sizes. Sample units may be drawn from the common source, individual lines, or filled containers depending on circumstances, plant procedures, and inspector's discretion.

When the presence of line personnel or the use of a mechanical device influences the quality of product on one of the multiple lines, then the line(s) affected must be sampled individually beyond the point of any influence to confirm sampling impartiality.

Example 1: A 5,000 gallon tank of frozen concentrated orange juice has lines running to 6 oz., 12 oz., 16 oz., and 32 oz. containers. The 12 oz. line is running high pulp, and the filler operator is adding the pulp at the filler bowl.

1. Multiple lines must be sampled individually for fill weights.

2. The 6 oz., 16 oz., and 32 oz. lines may be sampled as a common source. The 12 oz. line no longer represents the common source because of added pulp, and is sampled separately.

Example 2: A 5,000 gallon tank of frozen concentrated orange juice has lines running to 16 oz and 32 oz. containers at the same time.

1. Multiple lines must be sampled individually for fill weights.

2. Samples for grade may be drawn at the origin or at any one of the multiple lines.

3. With the applicant's concurrence, a common source master score sheet may be used to record product label(s), container size(s), and grading and analytical results for the basic inspection period. A separate weight sheet must be completed for each production line.

Example 3: Concentrated orange juice for manufacturing is drawn from 3 different tanks from within a tank farm and thoroughly blended together in one 15,000 gallon tank. Three tankers are filled from the 15,000 gallons of blended concentrated orange juice for manufacturing.

Common source sampling may be applied when loading all three tankers from the 15,000 gallon tank. If requested by the applicant, each individual tanker should be sampled.

Example 4: An applicant designates a 40,000 gallon tank located in a tank farm to be used for product that is of a consistent quality level. The in-plant inspector's inspection records show that the product graded and pumped into this tank contained a consistent quality level. Product in this tank will be used to fill 10 separate 80 drum batches.

Common source sampling may be applied by drawing sample units from the line feeding barrel filling operation. If requested by the applicant, each individual batch may be sampled.

Documentation for common source sampling

All score sheets that represent product sampled from a common source will have the words "COMMON SOURCE" written adjacent to the name of the commodity. In the REMARKS section of the score sheet, show all the production lines that represent the sample units shown on the common source fill weight or net contents/weight work sheet, and indicate common source sampling (see example on the following page).

Do not include any product sample units on the common source score sheet if the quality of the end product is influenced prior to sampling by line personnel or by a mechanical device. Product quality from this line may be different, and should be sampled and grading results recorded on a separate score sheet.

Upper Left Corner of Scoresheet

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE **SCORE SHEET FOR:** (Check Applicable Product) ☐ CANNED ORANGE JUICE ☐ PASTUERIZED ORANGE JUICE ☐ ORANGE JUICE CONCENTRATE **COMMON SOURCE**	CONTRACT NO. / PURCHASE ORDER NO. CERTIFICATE NO.

Remarks Section of Scoresheet

REMARKS	OFFICIAL INSPECTOR.
Represents Production Lines 1, 2, 3, B, and C. (Common Source Sampling)	DATE

Grading and analytical results from a common source packaged in different container sizes will be recorded on the common source score sheet. This procedure will apply to sample units drawn from a line having label, brand and/or code changes, provided the product continues to be supplied from the common source.

In addition to the common source score sheet, a separate fill weight or net contents/weight work sheet must be completed. Each time a fill weight determination is performed, the inspector will record on the work sheet the net contents/weight for each line filled from the common source. Other information, such as product temperature and container vacuum may also be included on the work sheet. The work sheet should contain the following information:

- The time the sample unit(s) was drawn;
- Average fill weight or net contents/weight; and
- All code marks that represent the basic production period.

A work sheet will be completed for each separate container size being produced from each common source. The work sheet(s) will be attached to the score sheet(s) as supporting documentation.

Alternate documentation requested by applicant

When the applicant requests separate score sheets for one or more production lines, use the procedure that follows:

A. Number the score sheets 1 of 3, 2 of 3 etc., to be inclusive of all product produced from a common source for a production period;

B. Indicate by number or symbol on each of these score sheets the identification of the common source. This could be a tank number or other source; and

C. Show the words "COMMON SOURCE" on each score sheet.

All inspection and grading documentation must be complete and the records show that the product was a part of common source sampling. This is necessary for a portion of the common source production to be certified as a lot. An occasional score sheet may show only one sample

unit from one brand. All related inspection documentation must be a part of the certification documentation, showing the certified portion was a part of the common source sampling.

Example 5: The plant is running 4 lines from a common source, and the label is changed to "Good Food" on the 6 oz. line. The plant requests a separate score sheet for this 50 case run. The score sheet shows only one sample unit representing this label.

The page information shown in the upper right hand corner of this separate score sheet, for example, sheet 2 of 4 sheets, would reflect that this document (separate score sheet) is an inclusive page for this grading period. The score sheet must be identified with the words "COMMON SOURCE" shown next to the name of the commodity to indicate the document is part of a common source sampling.

SHEET 2 OF 4 SHEETS

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCORE SHEET FOR: (Check Applicable Product) ☐ CANNED ORANGE JUICE ☐ PASTUERIZED ORANGE JUICE ☐ ORANGE JUICE CONCENTRATE **COMMON SOURCE**	CONT. NO. / PO NO.	NAME AND ADDRESS OF APPLICANT
	CERT. NO. / NO. CASES	

The actual number of score sheets generated for the basic grading period depends on the quantity requested by the applicant.

On-line Sampling Plans

The following types of sampling plans are used by SCI in plants for on-line inspection. Score sheets must indicate the type of sampling plan used.

A. Single Sampling Plans

1. Normal Single Sampling Plans;

2. Tightened Single Sampling Plans; and

3. Increased Single Sampling Plans.

B. Double Sampling Plans

C. Time Sampling

1. Non-homogeneous products; and

2. Homogeneous product and other product produced consistently within grade.

Usually Normal Single Sampling and Time Sampling Plans are used to determine acceptance of inspection lots. Double Sampling Plans may be used for certain items where reduced sampling is considered desirable, such as re-pack. Tightened and Increased Sampling Plans are used to determine acceptance of certification lots that are pre-designated portions of inspection lots, or to determine acceptance of any portion of a failing inspection lot.

The decision to use Double Sampling Plans for an item must be made prior to the start of production in a basic grading period. Switching sampling plans after a sampling has started for the shift is not permitted.

Sampling rates

A. Single or Double Sampling Plans

Any production or portions of production, of an item that is acceptable by this criteria must be represented by at least the same number of sample units as required by the sampling plans in the Regulation.

B. Time Sampling Plan

1. Quality Factors (Scored) - Sample units are selected on a random time basis so that each sample unit has an equal chance of being selected. The sampling rate for each item can be determined based on knowledge of previous production volume for particular products in a particular plant. If the amount of production of an item per basic inspection period indicates that the “Regulations” for on-line sampling requires:

    - Three (3) sample units, classify as - “low volume”.
    - Six (6) through twenty-one (21) sample units, classify as - “medium volume”.
    - Twenty-nine (29) or more sample units, classify as - “high volume”.
    - If sampling high-speed lines like orange juice (single strength or concentrate) going into bulk storage, classify as - “extreme high volume”.

2. The Sampling Frequency for:

    - Low Volume — 1 sample unit every 60 minutes or 90 minutes (Inspector Option)
    - Medium Volume — 1 sample unit every 45 minutes
    - High Volume — 1 sample unit per 30 minutes

- Extreme High Volume 1 sample unit per 15 minutes or less

3. Time Sampling Frequency for Non-Homogeneous Product.

   - Select the appropriate sampling frequency using instructions B.1 and B.2 above.

   - Once the frequency is established, for an item, no change in frequency is necessary unless production for three shifts (three-day shifts or three night shifts) in a row indicates a change from one volume group to another.

4. Time Sampling for Homogeneous Products and Other Products Produced Consistently Within Grade.

   - Examine sample units on each item at the high volume rate at the start of the processing season.

   - When thirteen consecutive sample units have been examined with no deviants, shift sampling of that item to the medium volume rate.

   - Return to the high volume rate at any time a deviant or worse than a deviant is found.

   - Following a change in requirements to a more restrictive specification while on the medium volume rate, take a sample immediately. Take two more sample units at the high rate. If none of the three are deviants (failing to meet the more restrictive specifications is considered a deviant), switch to the rate used for the immediately previous production.

   - Following a change in requirements to less restrictive specification, remain on the rate currently being used until a change is called for under b or c above.

   - On start-up at the beginning of a shift, or following a downtime or mechanical breakdown, take one sample unit immediately. If not a deviant, continue the reduced rate if one was in use prior to the downtime.

   - Take one sample immediately after start-up following an extended downtime of 24 hours or more. Take two additional samples at the high volume rate, and if no deviants are found, return to the reduced rate if one was in use prior to the extended downtime.

Acceptance Criteria
ON-LINE SAMPLING PLANS

Normal Single Sampling Plans	**n**	**3**	**6**			**13**			**21**			**29**			**38**			**48**		
	c	**0**	**1**			**2**			**3**			**4**			**5**			**6**		
Tightened Single Sampling Plans	**n**	**-**	**6**			**13**			**21**			**29**			**38**			**48**		
	c	**-**	**0**			**1**			**2**			**3**			**4**			**5**		
Increased Single Sampling plans	**n**	**6**	**13**			**21**			**29**			**38**			**48**			**60**		
	c	**1**	**2**			**3**			**4**			**5**			**6**			**7**		
Double Sampling Plans				**c**	**r**		**c**	**r**		**c**	**r**		**c**	**r**		**c**	**r**		**c**	**r**		**c**	**r**
	n_1		**4**	**0**	**2**	**7**	**0**	**3**	**10**	**0**	**4**	**12**	**0**	**4**	**14**	**0**	**4**	**16**	**0**	**4**
	n_t		**7**	**1**	**2**	**14**	**2**	**3**	**22**	**3**	**4**	**30**	**4**	**5**	**45**	**6**	**7**	**55**	**7**	**8**

Once acceptance sampling for an item has been initiated in a basic inspection period, switching from Single to Double Sample Plans, and vice versa, is not permitted.

(n) = number of sample units. When the number of sample units representing a lot or a portion of a lot being considered for acceptance is between two indicated sample sizes, use (c) for the lower (n).

(c) = the number of deviants permitted for the associated (n).

(n_1)= the number of sample units required in the first step of the Double Sampling Plan.

(n_t) = the total number of sample units required (including n_1) in the Double Sampling Plan when the deviants in n_1 exceed 0 but are less than (r).

(r) = the number of deviants that requires rejection of samples of associated size in (n1) or (nt).

A. Single Sampling Plan

1. An inspection lot is acceptable as meeting an intended grade under Normal Single Sampling Plans if:

   - (n) at least meets the minimum required for the applicable lot size range in the "Regulations;"
   - Deviants do not exceed (c) for the applicable Normal Single Sampling Plan in the On-Line Sampling Plans table shown below and the lot does not contain any "worse than a deviant"; and
   - There are no runs (three or more consecutive samples are deviants).

2. A portion of a failing inspection lot is acceptable as a certification lot under the Single Sampling Plan if:

   - It is consecutive production;
   - No deviant in the sub-code forms a run with other deviants within the inspection lot;
   - The portion is separately identified by sub-code from any unacceptable portion; and
   - The certification lot meets applicable tightened or increased sampling plans criteria for applicable lot size.

B. Double Sampling Plan

1. An inspection lot is acceptable under the Double Sampling Plan if:

   - (n_1) at least meets the minimum required in the On-Line Sampling Plans table shown below for the Double Plan corresponding to the Single Plan required for the applicable lot size range in the "Regulations," and
   - There are no deviants.

   If the number of deviants in the first step (n_1) exceeds 0 but does not equal or exceed (r), the lot may be rejected without drawing more sample units to reach the total sample size (n_t), provided the packer agrees that incomplete inspection is acceptable and the certification is possible only at the grade of the deviant (or worse than deviant). Certification at the expected higher grade is possible only if:

   - The additional sample units to reach (n_t) are examined, and

- The number of deviants does not equal or exceed (r) corresponding to (n_t) for the applicable Double Plan.

2. A portion of a failing inspection lot is acceptable as a certification lot under the Double Sampling Plan if:

   a. It is consecutive production;

   b. The portion is separately identified by sub-code from any unacceptable production;

   c. (n) at least meets minimum required for the applicable lot size range in the "Regulations;" and

   d. Deviants do not exceed (c) for the Tightened Single Sampling Plan in the On-Line Sampling Plans table shown below.

   or

   In lieu of c and d,

   e. (n) at least meets the minimum required for the next higher than applicable lot size range in the Regulations, and

   f. Deviants do not exceed (c) for the applicable Increased Single Sampling Plan in the On-Line Sampling Plans table.

C. Time Sampling Plan

1. Homogeneous and Non-Homogeneous Products. At the end of each basic grading period, the items will be evaluated regardless of the number of sample units examined based on the following.

   a. An inspection lot is acceptable as meeting an intended grade under the Time Sampling Plan if:

      - Deviants do not exceed the number permitted in the Time Sampling Deviant Rate table (shown on the following page) for the number of sample units examined, and there are no "worse than a deviant" sample units; and

      - There are no runs (three or more consecutive sample units that are deviants).

   b. A portion of a failing inspection lot is acceptable as a certification lot under the Time Sampling Plan if:

- It is consecutive production;
- The portion is separately identified by sub-code from any unacceptable production;
- (n) at least meets the minimum required for the applicable lot size range in the Regulations;
- Deviants do not exceed (c) for the Tightened Single Sampling Plan in the On-Line Sampling Plans table.
- No deviant in a sub-code forms a run with other deviants in the inspection lot; and
    - If the portion to be certified follows a failure of run criteria, is sampled at the next higher time frequency rate, and
    - If the portion to be certified precedes a failure of run criteria, it meets the deviant rate for Tightened Single Sampling Plan in the On-Line Sampling Plans table.
- Production associated with a failure caused by worse than a deviant meets the criteria in the AIM Inspection Series, General Procedures Manual, "Worse than a Deviant."

TIME SAMPLING DEVIANT RATES

Number of Sample Units	Number of Allowable Deviants
3 minimum	0
4-8	1
9-15	2
16-24	3
25-33	4
34-43	5
44-53	6
54-65	7

2. Time Sampling – Non-Quality Factors

Non-quality factors may be sampled on a time frequency basis. The acceptance, rejection or segregation procedures may be contained in other instructional material. Note that it may be necessary to sample at a higher frequency. Either the time sampling plan rate or the normal single sampling plan rate must be used - no other sampling plan is authorized.

Non-quality factors which may be sampled on a time frequency basis are limited to some degree by the present sampling plans and acceptance/ rejection criteria contained in other Division instruction material (U.S. Standards, Grading Manuals, the AIM Instructional Series, and A Memoranda).

The following list contains non-quality factors that could be time-sampled, with consideration given to sampling rates specified in other instructions for specific factors.

RE-SAMPLING/LOT SEGREGATION PROCEDURES

There are circumstances that make it necessary to perform additional sampling after the product has been inspected. If an identifiable portion of a lot fails in some factor(s), and the applicant is willing to segregate this portion, the remaining portion of the lot may then be treated as a separate lot after a physical separation is made. In such cases, the sampler would have to make a return trip to verify that the offending portion had been physically separated, and possibly draw additional sample units from the remaining portion of the lot to meet the sample size required by the change in lot size. In this instance, the additional sample units should be drawn from locations within the lot that were not previously sampled. If physical separation is not made, the lot including the offending portion is treated as a single lot, and would be certified as the lowest grade of the offending portion.

Segregation - Variable Standards

At the option of the applicant, lots that fail an intended grade may be segregated and recertified under certain conditions. Inspection segregation, sampling, and acceptance procedures for variable type standard inspection are as follows.

A. Segregation procedures

A portion or portions of a lot that are separately identifiable may be segregated at the request of the applicant under the following conditions:

- The original lot that was sampled and graded must be certified as to grade, prior to segregation of portion of lot.

- The segregated portions must be separately and permanently identifiable, and physically separated from the rest of the original lot. The remaining portion of the original lot must be accessible for subsequent sampling.

B. Sampling rates and acceptance criteria

The remaining portion of the inspection lot must be represented by at least the number of sample units required by the lot single sampling plan in the Regulations. At the option of the applicant, the following sampling procedures may apply:

- Draw the full single sampling rate for the lot size and perform a new inspection. Disregard original inspection results.

  Acceptance criteria - meets acceptance criteria in Regulations.

- Draw additional sample units to meet the single sampling plan for the lot size. Original inspection data will be used.

Acceptance criteria - meets acceptance criteria for the tightened single sampling plan in the following table.

Lot Segregation Sampling Plan

Normal Single Sampling Plans	**Sample Units**	3	**6**	**13**	**21**	**29**
	Acceptance Number	0	1	2	3	4
Tightened Single Sampling Plans	**Sample Units**	**Not Applicable**	**6**	**13**	**21**	**29**
	Acceptance Number	Not Applicable	0	1	2	3

For on-line inspection, a separately identifiable portion of production may be given a higher grade only when found acceptable under the tightened or increased inspection procedures applicable to the sampling plan used.

C. Failing portion of original inspection lot

At the request of the applicant, the failing portion that was segregated may be certified separately if the criteria for the single sampling plan is met. Additional sample units may be drawn as needed to meet applicable rates.

D. Lower quality codes in inspection lot

The Regulations, 7 CFR 52.13 (b) (6), which may be found at the following internet address: http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR state: “When it is determined that a portion of a lot bearing a particular identification mark is of lower quality or deficient in other factors, the grade or compliance of the lot will be no higher than that of the portion bearing the particular identification mark."

In other words, if a lot contains a portion considered to be of a lower quality, the lot as a whole cannot be graded above this lower quality level. This applies even if the quality deviant rate is acceptable for the lot (1 in 6, 2 in 13, etc.).

1. Acceptance Criteria

A portion of a lot is deemed to be of a lower quality if the number of deviants for any identifiable portion (i.e. individual code) is equal to or exceeds the rejection number in the chart below.

Sample Units from identifiable portion of lot	Acceptance #	Rejection #
1 to 4	1	2
5 to 8	2	3
9 to 14	3	4

2. Certification and Segregation Procedures

Inspection lots that fail these requirements will be certified as follows:

18 sample units U.S. Grade A
3 sample units (code XYZ) U.S. Grade B
Lot as a Whole: U.S. Grade B "account code XYZ Lower Quality Portion"
Average Score: 91 points

In this example, the identifiable portion - three sample units of U.S. Grade B quality in code XYZ - limits the grade of the entire lot to U.S. Grade B.

E. Fees

The number of additional sample units drawn may not agree with the sample size in the Regulations and the AIM Inspection Series General Procedures Manual, Fees - Lot Inspection Grading Service. If this is the case, charge the number of hours for the sample size closest to the number of additional samples inspected.

Segregation - Attribute Type Standards

If an Attribute Standard product lot fails during production, the entire production fails unless the offending portion can be segregated. When a lot is segregated, all values for sample units applicable to the failing, segregated portion are taken off the tally sheet or control chart, the remaining portion put together, and all cumulative totals recalculated for the remaining portion only. The acceptance criteria is again applied to remaining portions. The offending portion is recalculated and assigned the appropriate grade. These portions may be re-inspected only under appeal inspection, or only after the product has been reworked in an effort to eliminate causes from the offending portion. More detail on segregation procedures for attribute type standard inspections is contained in the Lot Single Sampling Plan for Attributes.

AFTER INSPECTION - DISPOSITION OF SAMPLES

Under no circumstance will any Division employee be permitted to remove any product for personal use from any processing plant, grading office, inspection point, or from any other site where official grading is performed. This includes product from containers that have been opened or from unopened containers. Failure to comply with these procedures may result in disciplinary action.

The Regulations Governing Inspection and Certification of Processed Fruits and Vegetables and Related Products, 7 CFR 52.12, which may be found at the following internet address: http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR state "Any sample of a processed product that has been used for inspection may be returned to the applicant, at his request and expense; otherwise it shall be destroyed or disposed of to a charitable institution."

The area field office supervisor will make sure that all product is returned to the applicant or disposed of in accordance with SCI policy. A product disposition log will be established for all grading sites when product samples are either returned to the applicant or donated to a charitable organization. Product disposition records will be maintained for a period of three years.

The product disposition log may consist of an entry made on a page in a spiral notebook or on a sheet of paper placed in a 3-hole binder. The log will indicate the name of the grading site and must include the following:

- Date product returned/donated;
- Product (example: canned green beans),
- Quantity (example: 6 cases - various size containers);
- Name of organization receiving samples; and
- Signature of individual accepting the samples.

Contact your supervisor if there are any questions regarding the procedure for recording the disposition of samples or the method used to dispose of samples.

Emerson Good Samaritan Food Donation Act

The Emerson Act is Public Law 104 – 210. By giving the Act the full force and effect of law, it serves to encourage the donation of food and grocery products to nonprofit organizations for distribution to the needy. The full text of the Emerson Good Samaritan Food Donation Act may be found at the following: http://www.gpo.gov/fdsys/pkg/PLAW-104publ210/html/PLAW-104publ210.htm.

DEFINITIONS

Additional Sample Units - When time sampling, a sample unit taken at a time other than prescribed sampling, at the discretion of the inspector and in addition to, not in lieu of, a prescribed sample unit.

Basic Inspection Period - A period of consecutive production equivalent to one working production shift with a maximum of 24 hours of consecutive production. This period begins when the day, swing, or night shift personnel first handle the item and ends when the shift personnel complete their duties for the day. Samples identified with production originating during this period will arrive at some inspection points (e.g., filling machine, packaging) at a later time.

Normally, when 50 cases or less of an item are packed in a period, shift, or several days during a processing season, they may be considered a sub-code to the basic inspection period, provided the quality is known to remain reasonably uniform.

Bay - A portion of a warehouse without retaining sides, which has readily identifiable limits, such as posts or marks.

Bin - A portion of a warehouse with retaining sides, usually used for the storage of uncased merchandise, or a palletized container used for bulk storage of frozen or dried foods.

Block - Two or more adjacent rows or stacks.

Common Source - A location at the head or origin of multiple lines beyond which no further quality changes will occur. Sample units drawn at the origin or at any one of the multiple lines will represent all lines.

Deviant - A sample unit failing quality requirements designated for the item packed, but not failing the next lower grade nor falling more than four points below the minimum total score designated for the item if based on a variable grade standard.

Inspection Lot - All of an item in a basic inspection period; provided that, an inspection lot may be restricted to a portion of the basic inspection period (certification lot) if such portions meet the requirements for segregation.

Item - (For purpose of on-line sampling) - All production of a single type and style and packed for a particular quality level in a single container size. (See “Common Source.”)

Production may be declared a new item with respect to finished product quality only when there is a change in raw product quality or quality control efforts that are real and substantial. Periods of production of one item are considered continuous production of the item even though interrupted by production of other items or by shutdowns.

Lateral Sample - Multiple sample units (3, 6, or 13) drawn at the same time from one point in the production for immediate and rapid evaluation of any one or all quality factors. Lateral

samples are for information purposes only. They cannot be used to either accept or reject portions of production nor may they be used to “replace” a deviant or lower quality sample unit.

Layer - A subdivision of any group of cases or containers one unit high and extending horizontally throughout the group. The lowest layer is the first layer with successive layers numbered from bottom to top.

Line Grade Sample Unit - Product drawn from the processing line at a point beyond which no further quality changes will occur.

Lot - For the purposes of sampling - a quantity of containers, cased or uncased, of the same size and type containing a processed product of the same type or style, stored in the same (or adjacent) warehouses and available for sampling at the same time. "Adjacent warehouses" as mentioned in the Regulations under definition of a "lot" may generally be considered as warehouses within easy walking distance of each other, as for example across the street.

A group of containers considered as one lot may be subdivided into two or more smaller lots at the option of the applicant or the sampler if they can be separately identified by location, code or other means. Any code that is physically separated from the remaining codes, any pallet, tier, stack, or block may be considered a separate lot apart from the original lot.

The Regulations state that containers in a portion of a lot bearing an identification mark different from the other containers in the lot may be deemed a separate lot. The intent of this statement is to permit containers that might be of a lower grade or otherwise deficient in quality to be segregated and certified as a separate lot, thereby permitting the applicant to use the remaining portion of the lot which is of acceptable quality. This of course would not be known until after the samples had been examined for grade. When this situation exists and the applicant wishes separate certification according to quality levels, such identifiable portions must be physically separated in the warehouse so there will be no question in identifying each portion with the related inspection certificates.

Officially Drawn Sample - Sample drawn by a Specialty Crops Inspection Division Inspector or licensed sampler.

Pallet - A flat bed usually constructed of wood or plastic on which merchandise is stacked and transported by mechanized or hand forklift equipment.

Restricted Sample - A sample that has been drawn from a lot in which every portion is not accessible for sampling.

Row or Stack - Two or more adjacent tiers.

Run - Three or more consecutive sample units that are deviants.

Sample - Any number of sample units used for inspection of a lot.

Sample Unit - The entire contents of a container, a portion of the contents of a container, a composite mixture of a product, or any other unit of container or commodity used for inspection.

Shift Code - A code on the primary container that identifies an item produced during a production shift.

Stacked Bright - Metal containers that are stacked uncased generally, without labels. They are often stacked "pyramid" style, may have paper or wood separators between layers, may be stacked solid, or may be stacked on pallets.

Sub-code (Period Code) - A code or mark on a primary container that distinguishes a portion of an item in a basic inspection period from any other portion. Lithographed or printed over-wrap labels may be used in lieu of sub-codes to separately identify a portion of production.

Tier - A group of containers or cases built vertically and regularly arranged, usually with the containers or cases in one layer alternating with and binding those in the layer below. If palletized merchandise, a tier is a group that is one pallet wide, one pallet in depth and any number of pallets in height. Refer to any particular tier in a stack by number. The tier at the rear of the stack is always "Tier No. 1" and all other tiers are numbered in sequence from it forward.

Unofficially Drawn Sample - A sample that has been selected by any person other than an inspector or licensed sampler, or any other person not authorized by the administrator.

Verification Sample Unit - Finished product sample unit that has been fully processed and handled in the same manner and under the same conditions as the lot.

Warehouse - A building or room used solely or principally for storage of materials or merchandise. Some warehouse supervisors consider each room in a building as a "warehouse" while others consider the entire building as one warehouse regardless of the number of rooms. In referencing the warehouse, follow the practice of the warehouse supervisor.

Worse Than a Deviant – A sample unit failing quality requirements designated for the next lower grade for the item packed or a sample unit falling more than four points below the minimum total score designated for the item.

REFERENCE LINKS **Version Date (Printed for distribution)**

☐ **7 CFR 52. 10, 52.11, 52.12, 52.13, 52.23** (circle as applicable): _____
http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR.

☐ **21 CFR 110**: _____
http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR.

☐ **Application for Inspection and Certificate of Sampling, Form SC-356:** _____
http://agnis/AMSFormsCatalog/Forms/AllItems.aspx.

☐ **Laboratory Sample Submittal Sheet, Form SC-637:** _____
http://agnis/AMSFormsCatalog/Forms/AllItems.aspx.

☐ **Emerson Good Samaritan Food Donation Act**: _____
http://www.gpo.gov/fdsys/pkg/PLAW-104publ210/html/PLAW-104publ210.htm.

Checked Materials have been printed from the links in this manual and included for reference.