POULTRY PRODUCT SAMPLING AND VERIFICATION PROCEDURES

Purpose

This instruction defines sampling procedures, sampling plans, and record keeping.

Procedures

I. Sampling Procedures

A. Sample Frequency

The grader shall select a sample of carcasses, parts, or further processed product within a random time interval. For an 8-hour day, a minimum of eight samples will be selected; for a 9-hour day, nine samples, etc. The time interval between samples may vary from 10 minutes to 1½ hours of operation. The time each sample is selected and the interval between sample times during the day should vary daily. However, smaller sampling intervals increase the chances of isolating segments of lower quality within a production day. Unless otherwise specified, the sampling intervals for all products shall not exceed 1½ hours.

B. Sample Selection

For multiple-line operations, samples may be: (a) selected on an individual line basis, or (b) in equal proportions from each line or production area. If method (a) is used, the production from each line will be sampled individually without considering the other lines, provided product identification from each line is possible. If method (b) is used, all production of a particular item graded during a given time period must be included when grade retention is required.

Graders should use caution to prevent adjustments when collecting samples. Whenever possible, grading should be performed on ice- or bulk-pack product after packing and on consumer-packaged product just prior to bagging or overwrapping. If checks are made prior to final packaging, such grading may not be performed on a moving line. Product shall be removed from the line prior to performing the examination. In cases where removal of 30 consecutive carcasses may affect production efficiencies, the grader, with the supervisor's concurrence, shall establish procedures to minimize any such disruptions.

If possible, product should be sampled prior to overwrapping or bagging in order to reduce destructive sampling. When sampling cannot be accomplished in an unbiased manner, destructive sampling must be used. For verification purposes, some product should be checked each day after overwrapping or bagging and before freezing to observe styling, weepage, etc. When requested by management and when time permits, check some under grade carcasses and parts each day (at least 30 carcasses or parts per sample) to determine whether there are Grade A carcasses or parts in the under grade pack and record the results on the worksheet. Review the undergrades with authorized graders or the packing room supervisor as requested by management.

When no product is graded during a shift for a given period, the grader must record this fact on the applicable reporting form. Interruptions in grading during the day are not cause to start over on the cumulative-sum (Cu-Sum) procedures. However, Cu-Sum sampling procedures shall start over whenever the production shift changes.

C. Sample Results

1. Adjustments

When the sampling results indicate adjustments are needed, the grader is required to discuss the problem with the designated person and request necessary adjustments to eliminate or reduce defective factors. The grader should provide management reasonable time to initiate corrections to the gradeline and/or process before grading the next sample. NOTE: if adjustments are not initiated immediately or the sample contained significant under grades, the grader should take additional samples to prevent under grade product from being officially identified as complying with applicable standards.

2. Retention

When official grading results indicate that there are excessive under grades requiring product retention, all production from the time the noncompliance sample was completed to the last acceptable sample shall be retained. Acceptable procedures, approved by the respective grading supervisor, must be established for identifying product produced between each sampling interval. The affected product must be reworked to remove the undergrades and regraded to determine compliance with the applicable grade standards. Guidelines for "reworking" are listed in QAD 538. Under certain conditions, management may request that the retained product be resampled on a stationary lot basis. Guidelines for stationary lot resampling are listed in QAD 538.

D. Sampling – Return from Absence

When a grader has been absent and returns to the official grading station, it is necessary to sample the product that was graded during the period of absence. A full-size sample shall be used in accordance with the stationary lot grading procedures. Graders shall indicate the time away from the official station. Show where the sample was selected; that is the cooler, etc. Graders may not be absent from their duty station when the product would be in a frozen or semi-frozen state, or otherwise not capable of being graded in a normal manner.

II. Cumulative-Sum Sampling Plans

A. General

The cumulative-sum (Cu-Sum) based online sampling method is used in determining compliance with applicable grade standards and specification requirements relating to product quality. Cu-Sum procedures provide a tool for assessing when process control

parameters need adjusting so product will comply with applicable standards or when such standards or specific tolerances are exceeded. This sampling method uses a carryover system that responds readily to variability in product quality during production.

Each Cu-Sum sample plan is based on a defect target level to assess overall product quality and process control. The initial startup tolerance is tightened on the first sample to assure the average number of defects does not exceed the target level for the production period. This tightened tolerance is used at the beginning of each shift or anytime a new product is graded. When the sample results meet the tightened or individual sample tolerance (carryover plus actual defects), the product the applicable sample represents may be shipped immediately. If the first sample has more defects than allowed requiring product retention, the startup tolerance is applicable to the second sample. When production stops and then later resumes on the same shift, sampling continues with the next sample number and carryover tolerance from the previous sample without reverting to the initial tightened tolerance.

The worksheets are designed to show when the defects exceed the target level for the applicable sample plan (shaded box). When this occurs, the defects exceeding the target level are carried over to the next sample to determine the maximum allowable tolerance. As the carryover increases, the tolerance tightens and product quality must improve to avoid retention. A carryover system provides online process control by preventing acceptance of product represented by several consecutive samples that exceed average tolerance requirements. Additionally, this mechanism gives advanced notice of changes in overall process control relative to product quality. When the target level is exceeded, the sampling frequency should be increased (as time permits) to provide a more accurate assessment of product quality and process control. Once the number of defects and/or carryover is equal to or less than the maximum for the target level, the normal sampling frequency may resume.

Record each carcass, part, piece or component as one defective unit regardless of the amount of defects found on each piece. As an example: a breast lobe may have a tendon, discolorations and bone less than 0.40 inches. The defect would be recorded as bone.

B. Sample Plan Level 1 (SPL1) – Whole Carcasses and Parts

Level 1 sampling is based on a target level of three defects or 10 percent. The tightened, startup tolerance for SPL1 (two defects) is preprinted in the sample forms with diagonal lines through the spaces. The sample size consists of 30 units of product. Form LP-232L1 will be used for recording the results of each sample (**Exhibit 1**). The Level 1 sample grid on the following page shows the startup tolerance of two defects. This form will be used for all poultry carcasses and parts unless Sample Plan Level 2 has been authorized as part of a specification.

Using a target level of three, no individual sample may contain more than five defects including carryover. Whenever a sample of 30 contains 6 or more defects (individually or carryover plus defects), the product must be retained. The example below shows that the samples and total under grades are acceptable. (This principle applies to all products.)

LP-232 L1 – Whole Carcasses and Parts

SAMPLE NO:	1	2	3	4	5	6	7	8	9				TYPES OF DEFECTS	TOTAL
TIME:	7:30	8:15	8:50	9:35	10:15	10:45	11:40	12:45					F ||||	4
ITEM:													E |||	3
Whole Carcass Chickens													DB	
													BB ||	2
	✓				✓								MP |	1
	✓	✓			✓	✓							D ||||	4
	✓	✓	✓	✓	✓	✓	✓						B |||	3
GRADE: A	⁄	x	✓	✓	✓	x	✓	✓					RTC |	1
DATE: 03/16/98	⁄	x	x	✓	✓	x	x	✓					O |||	3

C. Sample Plan Level 2 (SPL2) – Further Processed Products, Turkey Roasts and Reduced Sampling

1. Further Processed Products and Reduced Sampling

Level 2 is designated for further processed products and reduced sampling. The tightened, startup tolerance for SPL2 (two defects) is marked with diagonal lines through the spaces. Level 2 sampling is based on a target level of two defects. When examining further processed products or grading on a reduced sampling basis, the sample size shall consist of 10 units of product. Record each defect on the worksheet individually unless otherwise stated in applicable commodity instructions. The following provisions apply when using SPL2 for reduced sampling:

Slow lines - A slow line is one where production flow does not provide enough product so that a sample of 30 whole carcasses or parts or 10 further processed items can be selected within 5 minutes.

Switching line speed - For lines where production flow shifts from normal to slow, per supervisors' approval, switching from SPL 1 to SPL 2 is acceptable, and may be done until the end of the shift. Bring forward carryover from SPL1 to SPL2. The tightened start-up tolerance will only be used at the beginning of the shift. Any change must be recorded in the remarks section.

U.S. Grade B and C - If a plant is grading a significant volume of Grade B or Grade C product, the supervisor, at his/her discretion may require that Sample Plan 1 or Sample Plan 2 be used accordingly.

Other - SPL2 may be applied in other grading circumstances or situations that warrant the use of reduced sampling when reviewed and approved by the National Poultry Supervisor.

For slow lines, sampling intervals shall vary between 1 to 2 hours of operation.

LP-232 L2 – Further Processed Products

SAMPLE NO:	1	2	3	4	5	6	7	8	9				TYPES OF DEFECTS	TOTAL
													VA	
TIME:	7:45	8:30	9:15	10:15	11:00	11:50	12:45	1:20					BC, B, D | |	2
													C, T, L | | | |	4
ITEM: Nuggets and Patties													BN	
White Meat	✓						✓	✓					PS, W, L	
GRADE: NA		X			✓	✓	✓	X	X				F, S	
DATE: 03/16/98		X	X		✓	X	X	X	X				O |	1

2. Turkey Roasts

For Grade A turkey roasts, graders shall use the criteria in Part 70.230 of the standards, the current commodity specification, and the applicable commodity instructions for determining compliance. When checking finished product, each sample shall consist of three roasts. Each roast shall be examined for external quality factors, skin coverage, fabrication percentages, length, diameter, and weight range. Weight range checks will apply only to commodity specifications or when listed as part of the contract. Regarding feathers, the criteria for Grade A parts outlined in this section shall apply. The LP-232L2 worksheet will be used to record the results of each sample. The startup tolerance and upper limit (indicating retention) used for further processed products will be the same for turkey roasts. However, the acceptance criteria will be tighter to correspond with the smaller sample size. Therefore, a defective roast shall be recorded on the worksheet by entering two checkmarks. This method of data entry will provide the correct acceptance criteria for roasts. A roast shall be considered defective regardless of the number of individual defects encountered. When the upper limit is exceeded, retention is necessary.

LP-232 L2 - Turkey Roasts

SAMPLE NO:	1	2	3	4	5	6	7	8	9				TYPES OF DEFECTS	TOTAL
													VA	
TIME:	7:45	8:30	9:15	10:15	11:00	11:50	12:45	1:20					BC, B, D	
													C, T, L	
ITEM: Turkey Roast													BN	
				✓									PS, W, L |	1
GRADE: A			✓	✓	X		✓						F, S | |	2
DATE: 03/16/98		X	✓	X	X	X	✓	X					O	

III. Guidelines for Inplant Cooler Grading

Since most product is sampled and grade identified using online sampling procedures, graders are usually not required to make verification gradings of fresh graded product from the cooler. Unless destructive sampling is required, supervisory personnel should sample product that was produced under the grader's supervision

IV. Sampling by Weight

A. Online Sampling

For products sampled by weight (i.e., 2 or 5-pound sample) online, the individual number of defects shall not exceed a maximum tolerance of 3 provided no carryover or tightened tolerance limits. For uniformity purposes, a retention shall be recorded by entering the defect. Using a target level of two, no individual sample may contain more than three defects including carryover. For example, if four tendons were found in a sample of diced chicken, the product would be retained for exceeding the individual tolerance (3 defects). The "Type of Defect" section on the worksheet will continue to be used for recording defects.

B. Lot Sampling

For products sampled by weight on a lot basis (origin or destination), the defect tolerance will be determined by using the following formula:

No. Sample Units (SU)	X	No. Defect Categories (DC)	=	Sample Factor (SF)
Sample Factor	X	10 % (Target Level)	=	Defect Tolerance

As shown above, the formula is based on the number of defects (including bone), number of sample units, and a target level of 10 percent. Since the defect categories differ in number and kind for each type of product, the formula is designed to account for these variables and provide an appropriate defect tolerance. Consequently, the total number of defect categories allowed would change with the potential number of defect categories that can occur. This formula will work for any product sampled by weight regardless of the number of categories associated with processing. The following example demonstrates the formula to determine the defect tolerance for 400 cases of diced chicken at destination:

Number of defect categories = 6 Number of sample units = 14 (2 per case)

Formula	14 SU	X	6 DC	=	SF 84
	SF 84	X	10 %	=	9 (8.4) Defects Allowed

When the final calculation results in a decimal number, the decimal value will always be rounded up to the next whole number. This method of rounding provides the appropriate level of integrity to correspond with the online sampling criteria. The tables below are being

provided with the pre-calculated tolerance for size-reduced meat > 0.50 inch and trim (5 categories) and size-reduced meat ≤ 0.50 inch (2 categories).

Sample Number	Size-Reduced Meat and Trim > ½ inch	Size-Reduced Meat < ½ inch
1	1	1
2	1	1
3	2	1
4	2	1
5	3	1
6	3	2
7	4	2
8	4	2
9	5	2
10	5	2
11	6	3
12	6	3
13	7	3
14	7	3
15	8	3
16	8	4
17	9	4
18	9	4
19	10	4
20	10	4

If sample sizes exceed 20 units or new product tolerances are needed, the formula may be used to calculate the applicable tolerance with supervisory concurrence.

V. Documentation and Record Keeping

A. General

Sample results shall be placed on Form LP-232L1 or L2 as applicable and posted at the end of each sampling period instead of preparing from accumulated notes. While both forms are designed to determine grading accuracy and to record the reasons for undergrade product, LP-232L2 is also designed for use when checking further processing, reprocessing, or specification attributes for commodity purchase programs, approved commercial specifications, etc. Additionally, the online method of sampling for packaging and packing defects has been incorporated on this form.

B. Recording Sample Results

Exhibit 1 has been provided to assist graders in completing specific sections of the form. Although the same form may be used for multiple day's production, a separate form shall be used for each production shift. The following guidelines shall be used to complete each section of the worksheets:

1. Form LP 232-L1 and L2 (front) – **Exhibit 1**

   Section 1 - Graders shall complete this section as shown in the Exhibit.

   Section 2 - List the item being graded or checked, the product's grade, and date of grading. The "Item" box is used to describe further processed items or to further identify graded items.

   Section 3 - Identify each defect on the worksheet with a check mark. Upon entering the results of each sample, the number of defects exceeding the target line (shaded box) must be carried over to the next column. Each carryover shall be identified with an "X." The tightened tolerance on the first sample has been preprinted since it remains unchanged.

   When the number of defects and carryover exceed the upper limit (SPL1 = 5, SPL2 = 3) the product must be retained. On the applicable LP-232, identify the sampling periods that require retention by circling the appropriate sample number with a contrasting colored pen or marker.

   When product is retained for excessive under grades, the carryover will be from the last acceptable sample preceding the product retention. The sample number used on the next sample will always be the next consecutive number.

   During periods of nonofficial grading, the grader shall record the letters "NG" for "No Grading" in the sample column for each sampling interval that official grading is interrupted. Once official grading resumes, the carryover for the next sample shall be based on the last acceptable sample recorded. Additionally, when there are **no defects or carryover** encountered for a sampling interval, place a "0" in the sample column.

   Section 4 - This section is provided to record the amount and type of defects. This information will assist both graders and plant management in assessing online process controls. A check or hash mark shall be placed in the column for each defect found. Following each shift or production period, the defects shall be added for each category and recorded in the "TOTAL" column. Defect categories are described in the upper right corner of each worksheet.

   Section 5 - List the amount of product retained and disposition. Also, document when plant management is advised concerning product quality, retentions, etc., and other pertinent information.

2. Form LP-232L2 Reverse – **Exhibit 2**

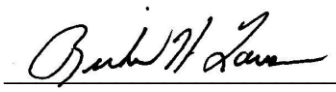
Section 6 - Each defect shall be checked separately according to the requirements listed in the applicable specification. The sample results will indicate whether the sample was either satisfactory (✓ or S) or unsatisfactory (X or U) as applicable.

Section 7 - This section is provided for sample results when completing the online packaging and packing examination. See QAD 617 for specific instructions.

Section 8 - When applicable, the 72-hour freezer verification results, production, production time, and parts count shall be recorded.

Section 9 - List the amount of product retained and disposition. Also, document when plant management is advised concerning product quality, retentions, etc. This section may be used to document additional results required for certain specifications and comments to support grading activities.

If a plant processes more than one class or part of poultry the same day, grade and record sample results on a separate worksheet for each class. Show under grade checks on a separate LP-232. The entire form should be utilized. Grading results for more than 1 day may be recorded on one worksheet. When recording under grades for information purposes, it's not necessary to use carryover.



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