

LOT SINGLE SAMPLING PLAN (ATTRIBUTES)
Sampling Plan and Acceptance Criteria

The table below shows the applicable sample size and acceptance number, depending on the 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 (No. of Sample Units)	3	6	13	21	29
Acceptance Number	0	1	2	3	4
ON-LINE IN-PLANT INSPECTION: Sample Size (No. of Sample Units)	3	6	6	13	21
Acceptance Number	0	1	1	2	3

Lot Single Sampling Plan (Attributes)

Use the lot single sampling plan (attributes) when the purpose is to:

1. Accept or reject a lot stored in a public warehouse, freezer storage, plant warehouse, truck or rail car, or other similar storage;
2. Accept or reject the entire production from a basic grading period as one lot. Sample units may be drawn from either the production line or the warehouse;
3. Perform an appeal inspection (attributes only); or
4. Grade an unofficial sample.

Note: You may not use the lot plan to accept or reject portions of a lot (e.g., codes, pallets, etc.), unless you sample each portion and treat it as a lot.

A. How to draw the sample

1. Follow the general procedures and instructions as outlined in this manual and Inspection Aid No. 42 (maximum lot size is limited). Draw the number of sample units as indicated by these procedures, except as outlined below.
2. The minimum sample size is the entire contents of 6 containers. The maximum sample size is the entire contents of 29 containers. The sample sizes are as follows:

CONTAINER SIZE	MINIMUM SAMPLE SIZE
	NO. OF SAMPLE UNITS
INSTITUTIONAL (e.g., No. 10, gallon, 2-½ lb., etc.)	Entire contents
	3, 6, 13, 21, or 29 <u>1/</u>
CONSUMER (e.g., No. 300, No. 303, 2-½, 10 oz, 20 oz, etc.)	Entire contents
	6, 13, 21, or 29 <u>1/</u>
BULK (e.g., tote bins, 30 lb. case, etc.)	Subsamples
	6, 13, 21, or 29 <u>1/</u>

1/ The minimum sample size that can be inspected is 36 units of product.

B. How to evaluate a sample

1. Non-quality factors. Make all non-quality factor determinations that are required for the product on a container-by-container basis.

Example 1: Tally sheet showing only non-quality factors

Container Code	ABC	→	KLM	→	NOP	RST
Net Weight (Grams)	455	454	452	456	455	454
Vacuum	3	4	3	3	4	4
Drained Weight (grams)	297	283	289	269	297	286
Sirup (degrees Brix)	20	20	21	21	19	20
Designation	Heavy	→				→
Style	Halves	→				→
Count	7	6	6	7	5	7

2. Quality factors.

- a. Prerequisite quality factors. Evaluate and record each prerequisite quality factor applicable for the product. Make these decisions on a container-by-container basis. Record the prerequisite grades as either grade A, grade B, grade C, or Substandard.

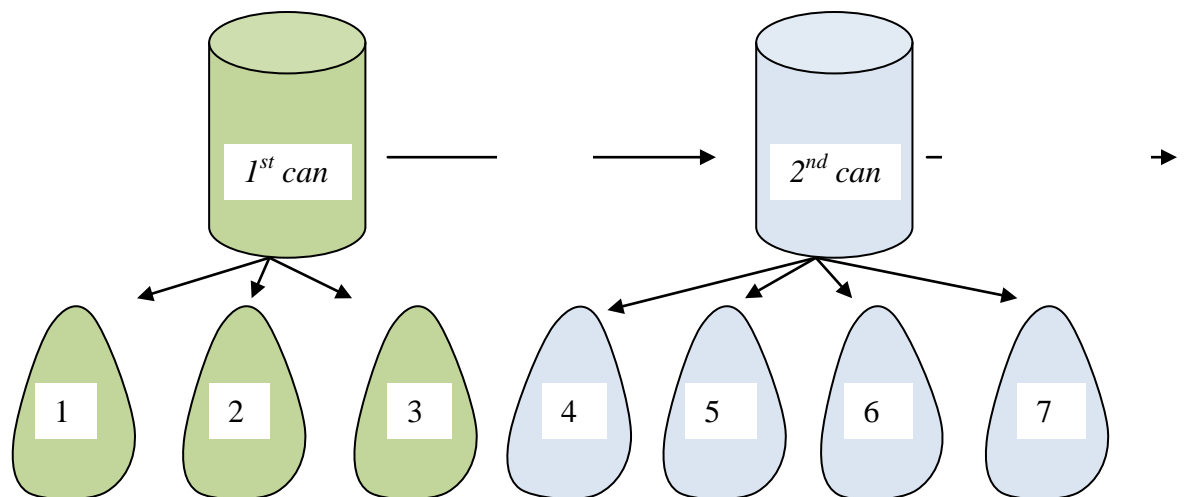
Example 2: Tally sheet showing only prerequisites

P R E	Brightness	A	A	A	A	A	B
	Flavor and Odor	A	A	A	A	A	A
	Peel	A	A	B	A	A	A
	Uniformity of Size	A	A	A	A	A	A

- b. Classified defects. After the non-quality factors and prerequisite quality factors have been evaluated and recorded, the individual containers lose their identity for the purpose of classifying defects. Use the entire contents of all of the containers in the sample.

- (1) Starting with the first container, arrange all of the product in a straight line (or lines). Go to the second container and add those units of product to the end of the line where the first container stopped. Do the same for all additional containers in the sample, until all of the units of product are arranged in order.

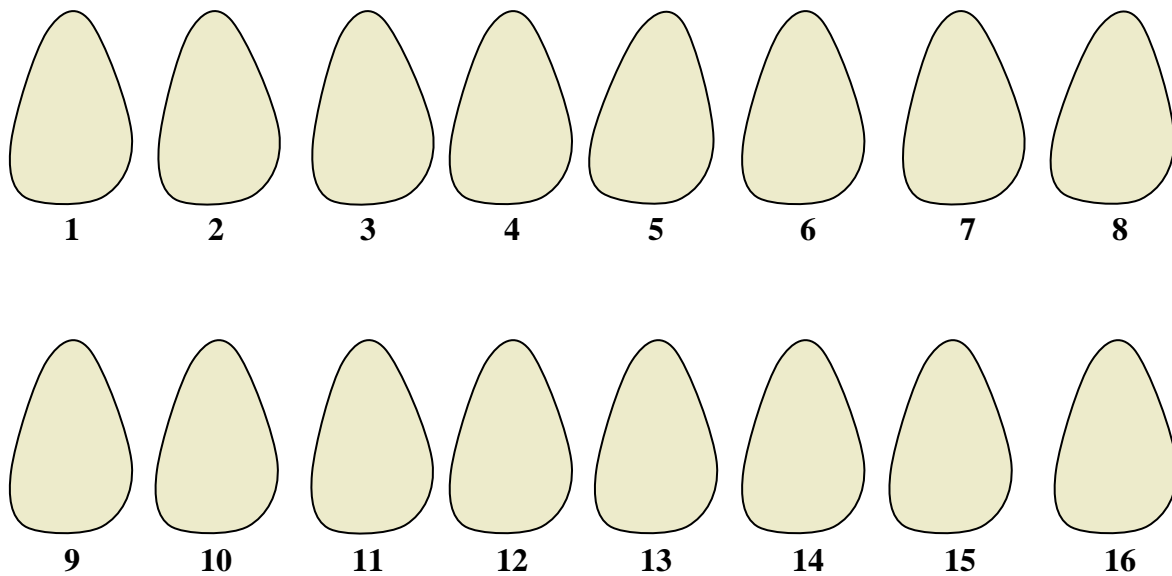
Example 3: Arranging the sample



Include all associated material
(EVM, pits, vines, chaff, etc.)

- (2) Count the total number of units of product in the sample. Follow the appropriate U.S. standard to determine whether broken units are to be reassembled; and whether associated material is to be included in the count.

Example 4: Showing the total sample of pear halves



This illustration shows a total count of 16 units.

- (3) Adjust the total number of units of product in the sample to correspond with the sampling plan.

Example 5: Adjusting the sample to the sampling plan.

TABLE XV
LOT SINGLE SAMPLING PLANS
STANDARD SAMPLE UNIT SIZE = 6

<i>NUMBER OF SAMPLE UNITS</i>				
	6	13	21	29
ACCEPTANCE NUMBERS				
Quality Levels Expressed as Defects per Hundred Units or Percent Defective				
AQL				
1.0	1	2	3	4
1.5	1	3	4	5
2.5	3	4	6	8

Standard Sample Unit Size (**6**) times *Number of Sample Units* (**6**) = **36** units of product to examine. Arrange the total number of sample units as shown in Example 4 above, and evaluate the first **36** units of product in the sample.

- (4) Follow the U.S. standards or other specifications to classify the defects in the sample.

Example 6: Table showing classification of defects

CLASSIFICATION OF DEFECTS

Quality Factor	Defects	Classification			
		Minor	Major	Severe	Critical
Harmless Extraneous Vegetable Material	Tender (each piece)			X	
	Coarse (each piece)				X
Tough Fiber	Nonwoody (each 5 g)		X		
	Woody (each 5 g)			X	
Blemished	Slightly (each 5 g)	X			
	Materially (each 5 g)		X		
	Seriously (each 5 g)			X	

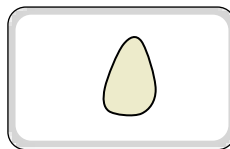
or

" _____ Foods, Inc., Specification for _____

Defects shall be classified as specified in the applicable U.S. Standards for Grades of _____, except: Harmless Extraneous Material - All HEM shall be classified as critical defects."

- (5) To classify the defects, start with the worst defects first. This will help avoid reclassifying related defects, if any. Put all of the critical defects from the entire sample in a separate grading tray. Refer to this as the critical tray.

Example 7: Showing only critical defects



The U.S. standards may mention the reassembly of specific defects. In this situation, only the reassembled unit of product is counted as 1 defect. See each individual U.S. Standard, or grading manual, to determine if this provision is applicable for the defect in question.

- (6) Record the count of critical defects on the defect tally sheet in the appropriate boxes.

Example 8: Showing tally of critical defects

Container Code	ABC	→	KLM	→	NOP	RST			
Net Weight (grams)	455	454	(452)	456	455	454			
Vacuum	3	4	3	3	4	4			
Drained Weight (grams)	297	283	289	(269)	297	286			
Sirup (degrees Brix)	20	20	21	21	19	20			
Designation	Heavy →								
Style	Halves →								
Count	7	6	6	7	6	7			

P R E	Brightness	A	A	A	A	A	(B)			
	Flavor and Odor	A	A	A	A	A	A			
	Peel	A	A	(B)	A	A	A			
	Uniformity of Size	A	A	A	A	A	A			

		S	T	L							
C R I T	HEM									1	
	Total Critical										1

- (7) Follow the sample procedure as outlined in example 7, except classify the severe defects. Include any unrelated defects in the critical tray that may also be severe defects. Record the count of severe defects in the appropriate boxes.

Example 9: Showing tally of severe defects

Container Code	ABC	→	KLM	→	NOP	RST				
Net Weight (grams)	455	454	452	456	455	454				
Vacuum	3	4	3	3	4	4				
Drained Weight (grams)	297	283	289	269	273	286				
Sirup (degrees Brix)	20	20	21	21	19	20				
Designation	Heavy						→			
Style	Halves						→			
Count	7	6	6	7	6	7				

P R E	Brightness	A	A	A	A	A	B			
	Flavor and Odor	A	A	A	A	A	A			
	Peel	A	A	B	A	A	A			
	Uniformity of Size	A	A	A	A	A	A			

		S	T	L						
C R I T	HEM								1	
	Total Critical									1

S E V E R E	HEM								1	
	Woody Fiber								1	
	Total severe									2

- 8) Follow the same procedure as outlined in example 7, except classify the major defects. Include in the count of major defects, any unrelated defects in the critical or severe trays that may also be major defects. Record the count of major defects in the appropriate boxes.

Example 10: Showing tally of major defects

Container Code	ABC	→	KLM	→	NOP	RST			
Net Weight (grams)	455	454	452	456	455	454			
Vacuum	3	4	3	3	4	4			
Drained Weight (grams)	297	283	289	269	297	286			
Sirup (degrees Brix)	20	20	21	21	19	20			
Designation	Heavy →								
Style	Halves →								
Count	7	6	6	7	6	7			

P R E	Brightness	A	A	A	A	A	B		
	Flavor and Odor	A	A	A	A	A	A		
	Peel	A	A	B	A	A	A		
	Uniformity of Size	A	A	A	A	A	A		

		S	T	L						
C R I T	HEM									1
	Total Critical									1

S E V E R E	HEM									1
	Woody Fiber									1
	Total severe									2

M A J O R	Beemished									2
	Norwoody Fiber									1
	Total Major									3

- 9) Follow the same procedure outlined in example 7, except classify the minor defects. Include in the count of minor defects, any unrelated defects in the critical, severe, or major trays that are also minor defects. Record the count of minor defects in the appropriate boxes.

Example 11: Showing tally of minor defects

P R E	Brightness	A	A	A	A	A	(B)				
	Flavor and Odor	A	A	A	A	A	A				
	Peel	A	A	(B)	A	A	A				
	Uniformity of Size	A	A	A	A	A	A				
		S	T	L							
C R I T	HEM									1	
	Total Critical										1
S E V E R E	HEM									1	
	Woody Fiber									1	
	Total severe										2
M A J O R	Blemished									2	
	Norwoody Fiber									1	
	Total Major										3
M I N O R	Damaged									2	
	Blemished									2	
	Total Minor										4

- 10) Total all of the defects found in the sample. Include in the count of total defects, all critical, severe, major, and minor defects. Record the count of total defects in the appropriate boxes.

Example 12: Showing tally of total all classes of defects

P R E	Brightness	A	A	A	A	A	(B)				
	Flavor and Odor	A	A	A	A	A	A				
	Peel	A	A	(B)	A	A	A				
	Uniformity of Size	A	A	A	A	A	A				
		S	T	L							
C R I T	HEM									1	
	Total Critical										1
S E V E R E	HEM									1	
	Woody Fiber									1	
	Total severe										2
M A J O R	Blemished									2	
	Norwoody Fiber									1	
	Total Major										3
M I N O R	Damaged									2	
	Blemished									2	
	Total Minor										4
Total All Classes										10	10

↑ ↑
Double Check

- c. Other defects, if any. Some U.S. standards or special procedures may have defects not classified as minor, major, severe, or critical. However follow the general procedures in this manual to tally the number of nonconforming units of product found in the sample.

B. Classified quality factors. The defects in the sample shall not exceed the acceptance numbers for "total all classes," "major," "severe," and "critical" classifications.

1. Refer to the appropriate product standards (or other specifications) to obtain the published AQLs for each grade level.

Example 17: Showing AQLs for each grade level

	GRADE A				GRADE B				GRADE C			
	Total ^{1/}	Maj	Sev	Crit	Total ^{1/}	Maj	Sev	Crit	Total ^{1/}	Maj	Sev	Crit
AQL ^{2/}	12.5	4.0	1.5	1.0	20.0	6.5	4.0	1.5	25.0	10.0	6.5	2.5

^{1/} Total = Minor + Major + Severe + Critical

^{2/} AQL expressed as defects per 100 units

or

“_____ Foods, Inc., Product specification for Frozen (or canned)
 _____, Second Label:

	Total ^{1/}	Maj	Sev	Crit
AQL ^{2/}	12.5	4.0	1.5	1.0

^{1/} Total = Minor + Major + Severe + Critical

^{2/} AQL expressed as defects per 100 units

- Match the AQLs in the U.S. standards (or other specifications) with the lot single sampling plan being used.

Example 18: Showing lot single sampling plan

TABLE XV
 LOT SINGLE SAMPLING PLANS
 STANDARD SAMPLE UNIT SIZE = **6**

NUMBER OF SAMPLE UNITS					
		6	13	21	29
ACCEPTANCE NUMBERS					
Quality Levels Expressed as Defects per Hundred Units or Percent Defective					
AQL					
Crit	→ 1.0	→ 1	2	3	4
Sev	→ 1.5	→ 1	3	4	5
	2.5	3	4	6	8
Maj	→ 4.0	→ 4	6	9	11
	5.0	4	7	11	14
QUALITY LEVELS EXPRESSED AS DEFECTS PER HUNDRED UNITS ONLY					
Total	→ 12.5	→ 8	15	22	29

Standard Sample Unit Size (**6**) times Number of Sample Units (**6**) = **36** units of product examined.

3. Compare the acceptance numbers from the lot single sampling plan being used to the number of defects that you've found in the sample.

Example 19: Showing defect tally and acceptance numbers

Container Size		24/303	B/B	E/L								
P R E	Brightness	A	A	A	A	A	A					
	Flavor and Odor	A	A	A	A	A	A					
	Peel	A	A	A	A	A	A					
	Uniformity of Size	A	A	A	A	A	A					
AQL		S	T	L							Acceptance No.	
1.0	C R I T	HEM									1	
		Total Critical										1
1.5	S E V E R E	Short Stem									1	
		Fibrous										
		Total Severe										1
4.0	M A J O R	Gouged									2	
		Blemished									1	
		Total Major										3
12.5	M I N O R	Damaged									1	
		Blemished									1	
		Total Minor										2
Total All Classes											7	7
Sample Unit Grade		A	A	A	A	A	A					
Final Grade												A

Example 20: Mold count record

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE FRUIT AND VEGETABLE PROGRAMS										MOLD COUNT RECORD			
FNO		PRODUCT				OFFICIAL USDA INSPECTOR							
		Orange Juice from Concentrate				Matthew King Matthew King							
ACCEPTANCE LEVEL													
< 10%													
Sample No. or Code		Record by Fields				Acc.	Rej.	Sample No. or Code		Record by Fields		Acc.	Rej.
CODE													
1		-	-	-	-								
		+	-	-	-								
		-	-	-	-								
		-	-	-	-								
		-	-	-	-								
		-	-	-	-								
		-	-	-	-								
2/50 = 4%		-	-	-	+								
		-	-	-	-								
7		-	-	-	-								
		-	-	-	-								
		-	-	-	-								
		-	-	-	-								
		-	-	-	-								
		-	-	-	-								
		-	-	-	-								
3/50 = 6%		+	-	-	-								
		-	-	-	-								
		-	-	-	-								
		-	-	-	+								

Acceptance No. is 4/50 fields

APPENDIX
A. Relationship of the container size to the appropriate sampling plan to use for inspection

Use the entire contents of all of the containers in the sample (except tote bins, 30 lb cans, etc.) to attain the largest sample possible. If small containers (such as 8 ounce cans, with fewer than 6 units in each can, or when a larger sample is desired) are being sampled, draw multiple containers. The total number of units of product that may be inspected for each sampling plan is as follows:

Example 21:

NUMBER OF SAMPLE UNITS					
Regulations		6	13	21	29
		Units of Product			
Table XV	(6)	36	78	126	174
Table XVI	(13)	78	169	273	377
Table XVII	(25)	150	325	525	725
Table XVIII	(50)	300	650	1050	1450
Table XIX	(100)	600	1300	2100	2900

Select the sampling plan based on the average number of units of product in each container (e.g., 6 peach halves, 50 broccoli spears or 100 green beans).

Example 22:

6 No. 303 Cans

1st = 6 Units

2nd = 7 "

3rd = 5 "

4th = 6 "

5th = 8 "

6th = ~~7~~4 " (7 units minus 3)

Use Table XV (6) of the "Regulations"

Sample size - 36 Units

Example 23:

13 No. 2-1/2 Cans

1 st	= 15 Units
2 nd	= 18 "
3 rd	= 12 "
4 th	= 13 "
5 th	= 14 "
6 th	= 15 "
7 th	= 13 "
8 th	= 12 "
9 th	= 15 "
10 th	= 14 "
11 th	= 13 "
12 th	= 12 "
13 th	= 14 3 " (14 units minus 11)

Use Table XVI (13) of the "Regulations"

Sample size - 169 Units

Example 24:

6/20-ounce Cartons

1 st	= 48 Units
2 nd	= 55 "
3 rd	= 50 "
4 th	= 52 "
5 th	= 49 "
6 th	= 50 "
7 th	= 47 "
8 th	= 48 "
9 th	= 50 "
10 th	= 51 "
11 th	= 52 "
12 th	= 50 "
13 th	= 50 48 " (50 units minus 2)

Use Table XVIII (50) of the "Regulations"

Sample size - 650 Units

Example 25:

1 st	= 96 Units
2 nd	= 100 "
3 rd	= 110 "
4 th	= 98 "
5 th	= 105 "
6 th	= 102 "
7 th	= 98 "
8 th	= 101 "
9 th	= 105 "
10 th	= 100 "
11 th	= 99 "
12 th	= 100 "
13 th	= 110 "
14 th	= 102 "
15 th	= 103 "
16 th	= 106 "
17 th	= 104 "
18 th	= 98 "
20 th	= 99 "
21 st	= 102 64 " (102 units minus 38)

Use Table XIX (100) of the "Regulations"

Sample size - 2100 Units

B. Associated material (harmless extraneous vegetable material, pits, seeds, chaff, broken, pieces, etc.)

The U.S. standards specify when associated material is to be included (or reassembled and included) in the standard sample unit size. Associated material is usually to be included in the standard sample unit size if 50 percent or more of the contents of the last container in the sample unit is used for inspection. Under lot inspection, all of the contents of the containers in the sample are used for inspection, except possibly the last container. The 50 percent or more rule in the standards still applies under the lot plan; however, it would apply only to the last container in the sample.

Example 26: (Refer to Example 22, shown previously in this section.)

All of the associated material in each can would be included in the sample.

Example 27: (Refer to Example 23, shown previously in this section.)

All of the associated material in the first 12 cans would be included in the sample. None of the associated material in the 13th can would be included, as less than 50 percent of can 13 was included in the sample.

Example 28: (Refer to Example 24, shown previously in this section.)

All of the associated material in each carton would be included in the sample.

Example 29: (Refer to Example 25, shown previously in this section.)

All of the associated material in each can would be included in the sample.

C. Inspection of No. 10 cans, gallons (glass), or similar containers

Although 6 sample units is the minimum sample size for the lot single sampling plan (attributes), it is permissible to draw only 3 containers from small lots of large containers, when 3 is the sample size indicated by Inspection Aid No. 42.

Use all of the units of product possible and apply them to the acceptance numbers that would work best for the total number of units of product in the sample.

Note: 36 units of product ($6 \times 6 = 36$) is the least number that could be inspected. If 3 cans fall short of 36 units of product, draw additional cans.

Example 30:

3 No. 10 Cans

1 st	= 36 Units	Use Table XVI (13) of the "Regulations"
2 nd	= 35 "	
3 rd	= 30 7 " (30 minus 23)	

78 Units

Eliminate the last 23 units in the last can and use 78 units ($13 \times 6 = 78$) for inspection.

Example 31:

3 No. 10 Cans

1 st	= 60 Units	Use Table XVII (25) of the "Regulations"
2 nd	= 55 "	
3 rd	= 48 35 " (48 minus 13)	

150 Units

Eliminate the last 13 units in the last can and use 150 units ($25 \times 6 = 150$) for inspection.

Example 32:

3 No. 10 Cans

1st = 96 Units

2nd = 100 "

3rd = 102 "

Use Table XVIII (50) of the "Regulations"

298 Units

The 2 units short of 300 (50x6=300) is within insignificant plus or minus variation.

D. Standard sample unit size or number of defects by weight, rather than by count

1. Standard sample unit size. Some U.S. standards specify the standard sample unit size by weight, (e.g., 250 g). In these situations, follow the same procedure outlined in this manual, except convert to weight.

Example 33: (Each 5 g equals 1 defect)

6/10-ounce Cartons

1st = 284 g

2nd = 285 "

3rd = 284 "

4th = 285 "

5th = 286 "

6th = 202 " (285 minus 83 g)

Use Table XVII (25) of the "Regulations"

1625 g

$$\frac{1625}{5} = 325$$

Example 34: (Each 5 g equals 1 defect)

6 No. 10 Cans

1st = 1985 g (drained wt)

2nd = 2000 "

3rd = 1993 "

4th = 1996 "

5th = 1990 "

6th = 536 " (1988 minus 1452 g)

Use Table XIX (100) of the "Regulations"

10500 g

$$\frac{10500}{5} = 2100$$

- Number of defects. Some U.S. standards specify that 1 defect equals "x" amount. In these situations, follow the same procedure outlined in this manual, except convert to weight.

Example 35: Each 5 g equals 1 defect

S E V E R E	Blemished (Seriously)					
	Fiber (Woody)					13
	HEM (Class 1)					
	TOTAL SEVERE					
	CUSUM	Grade A	0.4	0.8	1.6	
		Grade B	1	1	2	

M A J O R	Blemished (Materially)					
	Fiber (Non-woody)					26
	HEM (Class 1)					
	TOTAL MAJOR					
	CUSUM	Grade A	1.5	1.5	3	
		Grade B	1	3	3	

Woody fiber = $\frac{62}{5}$ g

Non-woody fiber = $\frac{128}{5}$ g

E. Lot segregation

Under the lot single sampling plan, it is not possible to segregate portions of a failed lot. If the applicant wishes to identify possible portions (codes or sub-codes) that are much worse than the average quality level of the lot, those portions must be sampled as a separate lot.

However, it is possible to make notes on the defect tally sheet which would indicate that specific codes in the sample were much worse than others. This information would be useful to an applicant who wished to rework a failed lot. Unless the

offending codes are much worse than the average quality level of the lot, the apparent poorer quality of some containers could be accredited to sampling variation. Sampling variation could also cause a strictly "borderline" lot to fail one time and pass the next.

F. Adjusting the defect tally

In some situations, it is necessary to adjust specific defects on the tally prior to determining acceptance for lower grades. If a sample fails grade A, remove those defects that are offending to grade A only, and determine acceptance for grade B. If a sample fails grade B, remove those defects that are offending to grade B only, and determine acceptance for grade C.

Example 36: Defects that would need adjusting

TABLE _____

CLASSIFICATION OF DEFECTS

Quality Factor	Defect	Classification			
		Minor	Major	Severe	Critical
Individual Unit Color	Reasonably well developed (Grade A only)	X			
	Poorly developed (in Grades A and B)		X		

Example 37: Sample failed grade A, adjusted for grade B

Container Size		9 oz carton with printed overwrap										
P R E	Brightness	A	A	A	A	A	A					
	Flavor and Odor	A	A	A	A	A	A					
	Peel	A	A	A	A	A	A					
	Uniformity of Size	A	A	A	A	A	A					
AQL		S	T	L						Acceptance No.		
1.0	C R I T	EVM							2		A	B
		Total Critical								2	↓	↓
1.5	S E V E R E	Fiber							2			
		Unstemmed							2			
		Total severe								4	5	10
4.0	M A J O R	Blemished							7			
		Developed (fairly)							7			
		Total Major								14	14	21
12.5	M I N O R	Blemished							12			
		Developed (Reasonably)							12			
		Total Minor								12 24		
12.5	Total All Classes								32 44	39	63	
Sample Unit Grade		A	A	A	A	A	A					
Final Grade									B			

Also notice in this example that it would not be necessary to adjust the defect tally to accept the sample. All classifications of defects are less than the acceptance numbers for Grade B. However, the tally was adjusted to illustrate the procedure.

G. Special procedure for unofficial samples

Branch "Regulations" provide for inspection of samples submitted by the applicant. These samples are unofficial and do not represent any lot. If the applicable standards (or specifications) for the product are by AQL, use the following procedure:

1. Single containers with fewer units of product than 1 standard sample unit size (1 sample unit) cannot be inspected.

Example 38: (1 standard sample unit)

"Whole style -- 100 units"
"Sliced lengthwise style - 250 g"

2. Multiple containers with less than 1 standard sample unit size of the same code, type, and size are combined to make 1 standard sample unit size. Ignore any excess units of product.
3. Each sample unit stands on its own.
4. Grade the sample as outlined in this manual under "How to evaluate a sample," pages 2 thru 11, except: the number of units of product are adjusted to equal 1 standard sample unit size.
5. The acceptance number for the unofficial sample is the tolerance ("T") value for each applicable AQL. Ignore the "S," "L," and "Pa" values. The unofficial sample must also comply with the prerequisite quality factors for the assigned grade; and other defects, if any.

Example 39: The acceptance number is the "T" value

TABLE IX

STANDARD SAMPLE UNIT SIZE = 100

AQL	S	T ^{1/}	L	Pa=50%	Pa=10%
5.0	1	6	4	7.4	10.7

1/ If the tolerance ("T") is less than 1 (e.g., T=0.1, T=0.8), there are no defects allowed in that sample unit for that AQL.

Example 40: Tally of 4 unofficial samples

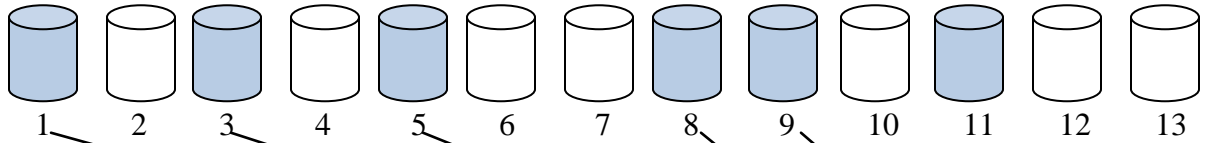
Container Code		C49	E14	M02	R25	
P R E	Brightness	A	A	<u>B</u>	A	
	Flavor and Odor	A	A	A	A	
	Grit or Silt	A	A	A	A	
		S	T	X		
C R I T I C A L	HEM			1		
	Total Critical	0	<u>1</u>	0	0	
	CUSUM	A	0.3	0.1	0.9	
		B	0	1	1	
C		1	2	2		
S E V E R E	Fiber					
	Blemished	1	1		1	
	Total Severe	1	1	0	1	
	CUSUM	A	0.5	1.5	2.0	
		B	1	3	3	
C		1	5	3		
M A J O R	Blemished	1	1	1	1	
	Developed (poorly)	1	1	1	1	
	Total Major	2	2	2	2	
	CUSUM	A	1	3	3	
B		1	5	3		
C		1	8	4		
M I N O R	Blemished	1	1	2	5	
	Devel. (reasonably)	1	1	2	5	
	Total Minor	2	2	4	10 5	
	CUSUM	A	1	8	4	5 8
B		2	14	7		
C		3	22	9		
Sample Unit Grade		A	B	B	B	
Final Grade					A	

H. Determining non-quality factors and prerequisite factors when multi-containers are drawn to equal "one sample unit."

It may be necessary to open more containers than the "number of sample units" to reach the required sample size (number of units of product). This situation could be encountered during inspection of small containers (e.g., 8-ounce, No. 300 or No. 303) or when assembling a "standard sample unit size" for unofficial samples. It is intended that only the "sample unit size" be inspected and recorded on the defect tally for non-quality factors and prerequisite factors, except, when it is obvious that some containers deviate excessively from the sample as a whole. You may do the following:

1. Predetermine at random the number of containers in the sample to inspect and record for non-quality and prerequisite factors that would be equal to the "sample unit size."
2. Make the determination and record the non-quality and prerequisite factors.
3. If upon examination of the other containers it's apparent that some containers deviate from the sample as a whole, you may reconsider the examination (e.g., one of the containers not in the predetermined number to check for non-quality factors is obviously "slack filled.")
4. Follow Branch guidelines and other instructions which cover the deviation in question if you reconsider the examination.

Example 41: 8-ounce cans -- sample unit size = 6

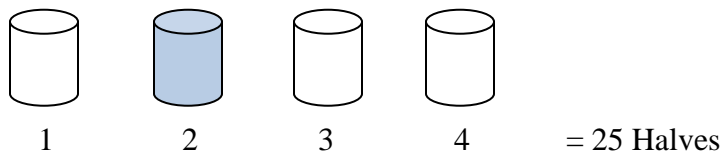


Container Code	AB	DE	GH	MN	RS	VW
Net Weight (grams)	455	454	452	456	455	454
Vacuum	3	4	3	3	4	4
Drained Weight (grams)	297	283	289	269	297	286
Sirup (degrees Brix)	20	20	21	21	19	20
Designation	Heavy →					
Style	Halves →					
Count	7	6	6	7	6	7

P R E	Brightness	A	A	A	A	A	B
	Flavor and Odor	A	A	A	A	A	A
	Uniformity of Size	A	A	A	A	A	A
	Character	A	A	A	A	A	A

		S	T	L					
C R I T	HEM								
	Total Critical								

Example 42: 4 No. 2-1/2 Cans -- unofficial samples



Container Code	AB		
Net Weight (grams)	458		
Vacuum	10		
Drained Weight (grams)	298		
Sirup (degrees Brix)	20		
Designation	Heavy		
Style	Halves		
Count	7		

7 Halves

P R E	Brightness	A		
	Flavor and Odor	A		
	Uniformity of Size	A		
	Character	A		

~~S~~ T ~~L~~

C R I T	HEM				1		
	Total Critical				1		

25 Halves

I. Mixed quality inspection lots

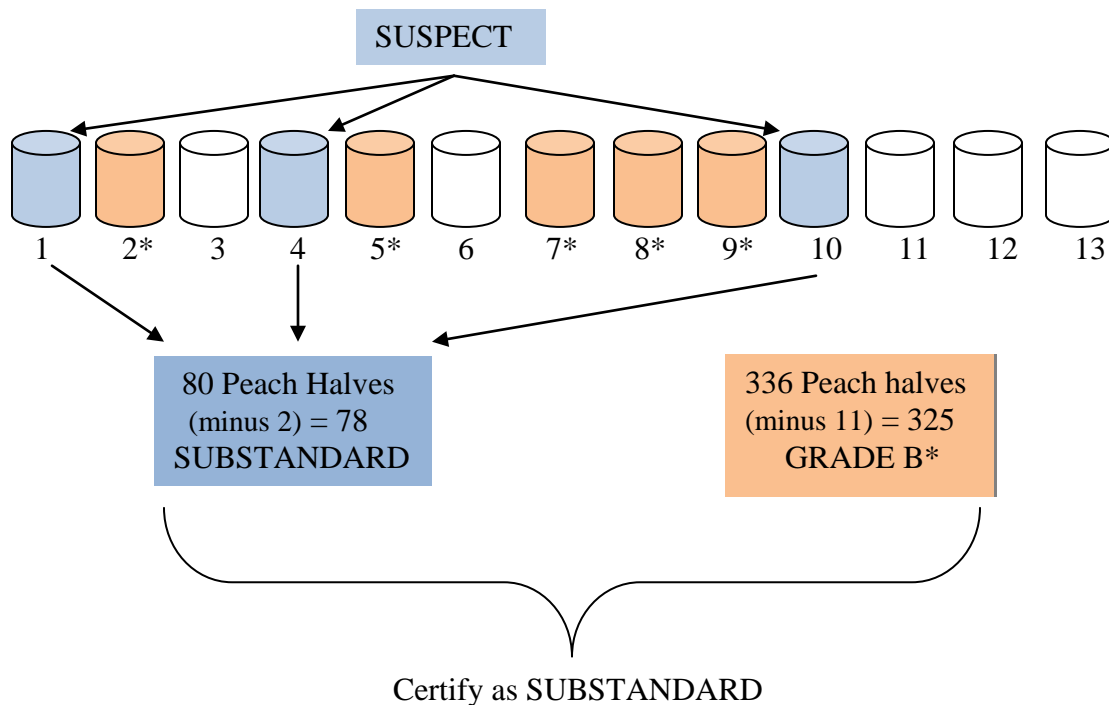
Occasionally, an inspection lot may be encountered with individual sample units in the sample which seem to be of lower quality than the sample as a whole. These "suspect" sample units may or may not be attributed to sample variation. The most obvious question to be answered is: Has lower quality production been intentionally or unintentionally mixed in to the inspection lot? Even though a lot has been intentionally mixed, we may not find a container of lower quality product when we draw the sample -- our acceptance sampling rate is very low. Thus, lower quality product could get by undetected.

If you do encounter an inspection lot which is obviously mixed quality, do the following:

1. Assemble the largest number of units of product possible from the "suspect" containers, regardless of code. You must have at least 36 units of product. 1/
2. Perform a regular lot attributes inspection of the "suspect" product.
3. Compare the number of defects (or defectives) that you've found in the "suspect" sample to the acceptance number for each AQL and grade level in the standards.
4. Assemble the largest number of units of product possible from the remainder of the sample, regardless of code (the containers that aren't "suspect").
5. Compare the number of defects (or defectives) that you've found in the sample to the acceptance number for each AQL and grade level in the standards.
1/ This procedure may be impossible with small cans such as No. 300, No. 303 and No. 2-1/2 -- less than 36 units. However, if the lot is accessible for sampling, a re-sampling could be made to get at least 36 units of the "suspect" product.
6. Compare the results (the grade assigned) of the "suspect" units of product to the results (the grade assigned) of the "non-suspect" sample. If the grade of the "suspect" sample is more than one grade below the grade of the "non-suspect" sample, the sample may be certified to the lowest grade. If the applicant requests certification of the "non-suspect" portion of the sample, resample the lot in accordance with the Regulations, 7 CFR 52.52.2, "Lot" (a).

These procedures for handling "suspect" containers must be used with discretion. Don't be overly critical. Allowance must be made for sample variability; thus, only containers much worse than the other containers in the sample should be considered for this procedure.

Example 43: Mixed quality lot



J. Probability of Acceptance (Pa)

The probability of acceptance (Pa) values for the lot single sampling plan (attributes) aren't published in the "Regulations" they're given in this manual -- Tables I-V, and are shown below. The Pa changes each time you change the number of units of product that you examine. The larger the samples, the better the protection against acceptance of poorer quality, up to a point of diminishing return. Weigh protection against acceptance of poorer quality to decide if the sample size that you choose is adequate. The risks are largest with the plan for the standard sample unit size of 6. Also, 1.0 is the smallest AQL given under the 6 plan.

Table I
Standard Sample Unit Size = 6
Number of Sample Units

	6		13		21		29	
AQL	Pa=50%	Pa=10%	Pa=50%	Pa=10%	Pa=50%	Pa=10%	Pa=50%	Pa=10%
Expressed as Defects per Hundred Units or Percent Defective								
1.0	4.7	10.8	3.4	6.8	2.9	5.3	2.6	4.6
1.5	4.7	10.8	4.7	8.6	3.7	6.3	3.3	5.3
2.5	10.2	18.6	6.0	10.2	5.3	8.4	5.0	7.5
4.0	13.0	22.2	8.6	13.5	7.7	11.3	6.7	9.5
5.0	13.0	22.2	9.8	15.1	9.3	13.2	8.4	11.6
6.5	15.8	25.8	12.4	18.2	10.8	15.0	10.2	13.6
8.5	18.5	29.3	15.0	21.3	13.2	17.8	12.5	16.2
10.0	21.3	32.7	16.2	22.8	15.6	20.6	14.2	18.2
Expressed as Defects per Hundred Units Only								
12.5	24.1	36.1	20.1	27.3	18.0	23.3	17.1	21.4
15.0	26.9	39.5	22.7	30.3	21.2	26.9	20.5	25.2
20.0	35.2	49.4	29.1	37.6	26.7	33.1	25.7	30.9
25.0	40.7	55.9	35.5	44.8	33.1	40.1	31.4	37.2
33.0	51.9	68.8	44.4	54.8	41.8	49.6	40.6	47.1
40.0	60.2	78.3	52.1	63.3	49.7	58.2	48.1	55.1
50.0	71.3	90.9	63.7	76.0	60.8	70.2	58.9	66.4
65.0	88.0	109.5	80.3	94.1	77.5	88.0	75.6	84.0
85.0	113.0	137.2	103.4	118.9	98.8	110.2	96.8	106.4
100.0	129.6	155.5	118.8	146.2	114.7	126.9	112.9	123.3
150.0	185.2	215.8	173.7	192.9	168.7	183.5	165.8	178.3
250.0	293.1	329.6	280.1	304.4	273.4	292.3	269.8	285.8
Expressed as Percent Defective Only								
12.5	23.9	33.6	20.0	26.2	17.9	22.6	17.0	20.9
15.0	26.6	36.6	22.6	28.9	20.3	25.1	19.9	23.9
20.0	32.1	42.4	27.7	34.4	26.7	31.9	25.1	29.4
25.0	37.6	48.1	34.0	41.1	31.4	36.8	30.8	35.4
33.0	45.9	56.4	41.7	48.9	40.1	45.7	38.8	43.6
40.0	54.1	64.4	49.4	56.6	47.2	52.9	46.3	51.1
50.0	65.1	74.7	59.6	66.5	57.5	63.1	56.6	61.4

Table II
Standard Sample Unit Size = 13
Number of Sample Units

	6		13		21		29	
AQL	Pa=50%	Pa=10%	Pa=50%	Pa=10%	Pa=50%	Pa=10%	Pa=50%	Pa=10%
Expressed as Defects per Hundred Units or Percent Defective								
0.65	2.2	5.0	2.2	4.0	1.7	2.9	1.5	2.5
1.0	3.4	6.8	2.8	4.7	2.4	3.9	2.0	3.1
1.5	4.7	8.6	3.4	5.5	3.2	4.8	2.8	4.1
2.5	6.0	10.2	5.1	7.7	4.3	6.1	4.2	5.6
4.0	8.6	13.5	6.9	9.8	6.1	8.2	6.0	7.8
5.0	9.8	15.1	8.1	11.2	7.6	9.9	7.1	9.0
6.5	12.4	18.2	10.5	14.0	9.4	12.0	8.9	11.0
8.5	15.0	21.3	12.8	16.7	11.6	14.4	11.1	13.4
10.0	16.2	22.8	14.6	18.7	13.4	16.5	12.9	15.4
Expressed as Defects per Hundred Units Only								
12.5	20.1	27.3	17.6	22.0	16.4	19.7	15.6	18.3
15.0	22.7	30.3	20.5	25.3	18.9	22.5	18.5	21.5
20.0	29.1	37.6	25.8	31.2	24.8	28.8	24.0	27.4
25.0	35.5	44.8	31.8	37.6	30.3	34.7	29.3	32.9
33.0	44.4	54.8	40.6	47.2	39.0	43.9	38.1	42.1
40.0	52.1	63.3	48.3	55.5	46.3	51.6	45.5	49.9
50.0	63.7	76.0	59.0	66.9	57.3	63.2	56.1	61.0
65.0	80.3	94.1	75.4	84.0	73.1	79.7	72.0	77.6
85.0	103.4	118.9	96.7	106.4	94.3	101.9	93.0	99.3
100.0	118.8	146.2	112.7	123.2	110.1	118.2	108.6	115.5
Expressed as Percent Defective Only								
12.5	20.0	26.2	16.9	20.8	16.0	18.9	15.5	18.0
15.0	22.6	28.9	19.9	24.0	18.9	22.1	18.2	20.8
20.0	27.7	34.4	25.2	29.6	24.0	27.4	23.5	26.4
25.0	34.0	41.1	30.5	35.2	29.5	33.1	28.8	31.8
33.0	41.7	48.9	39.4	44.2	37.9	41.7	37.0	40.2
40.0	49.4	56.6	46.5	51.4	45.2	49.1	44.2	47.4
50.0	59.6	66.5	56.5	61.3	55.1	59.0	54.2	57.5

Table III

Standard Sample unit Size = 25

Number of Sample units

AQL	6		13		21		29	
	Pa=50%	Pa=10%	Pa=50%	Pa=10%	Pa=50%	Pa=10%	Pa=50%	Pa=10%
Expressed as Defects per Hundred Units or Percent Defective								
0.40	1.8	3.5	1.1	2.1	1.1	1.8	0.9	1.5
0.65	2.4	4.5	1.7	2.9	1.5	2.2	1.2	1.8
1.0	3.1	5.3	2.1	3.2	1.8	2.7	1.7	2.5
1.5	3.8	6.2	3.0	4.4	2.6	3.6	2.3	3.1
2.5	5.1	7.8	4.2	5.8	3.7	4.9	3.5	4.5
4.0	7.1	10.3	6.1	8.0	5.7	7.1	5.3	6.5
5.0	8.4	11.9	7.3	9.4	6.8	8.4	6.4	7.7
6.5	10.4	14.2	9.1	11.4	8.5	10.2	8.1	9.5
8.5	13.1	17.3	11.3	13.8	10.8	12.7	10.3	11.9
10.0	14.4	18.8	13.1	15.9	12.3	14.4	12.0	13.7
Expressed as Defects per Hundred Units Only								
12.5	17.8	22.6	15.9	18.9	15.2	17.5	14.7	16.5
15.0	20.4	25.5	18.7	21.9	17.8	20.3	17.4	19.4
20.0	26.4	32.2	24.2	27.9	23.3	26.0	22.8	25.1
25.0	32.4	38.8	29.7	33.8	28.7	31.7	28.1	30.6
33.0	41.1	48.2	38.3	42.7	37.2	40.7	36.6	39.5
40.0	49.1	56.8	46.0	50.8	44.7	48.4	43.9	47.1
50.0	59.8	68.2	56.5	61.8	55.1	59.3	54.4	57.9
65.0	76.3	85.5	72.5	78.5	71.0	75.7	70.0	74.0
Expressed as Percent Defective Only								
12.5	17.1	21.2	15.6	18.3	15.0	17.0	14.6	16.2
15.0	20.4	24.8	18.3	21.2	17.6	19.8	17.3	19.1
20.0	25.7	30.4	23.9	27.0	23.0	25.3	22.6	24.5
25.0	31.0	36.0	29.1	32.4	28.3	30.8	27.7	29.8
33.0	39.7	44.9	37.4	40.8	36.5	39.2	35.9	38.2
40.0	47.0	52.2	44.8	48.3	43.5	46.3	43.1	45.5
50.0	57.0	62.1	54.6	58.2	53.6	56.4	53.2	55.5

Table IV
Standard Sample Unit Size = 50
Number of Sample Units

	6		13		21		29	
AQL	Pa=50%	Pa=10%	Pa=50%	Pa=10%	Pa=50%	Pa=10%	Pa=50%	Pa=10%
Expressed as Defects per Hundred Units or Percent Defective								
0.15	0.6	1.3	0.6	1.0	0.4	0.8	0.4	0.6
0.25	0.9	1.8	0.7	1.2	0.5	0.9	0.5	0.8
0.40	1.2	2.2	0.9	1.4	0.8	1.2	0.7	1.1
0.65	1.6	2.7	1.3	2.0	1.1	1.6	1.1	1.5
1.0	2.2	3.5	1.8	2.6	1.6	2.1	1.5	1.9
1.5	2.9	4.3	2.4	3.3	2.2	2.8	2.0	2.6
2.5	4.2	5.9	3.6	4.7	3.4	4.2	3.2	3.9
4.0	6.2	8.3	5.3	6.6	5.1	6.1	4.9	5.7
5.0	7.2	9.4	6.6	7.9	6.2	7.2	6.0	6.8
6.5	9.2	11.7	8.3	9.8	7.9	9.0	7.6	8.6
8.5	11.6	14.3	10.4	12.1	10.0	11.3	9.8	10.9
10.0	13.2	16.1	12.1	13.9	11.7	13.0	11.4	12.6
Expressed as Defects per Hundred Units Only								
12.5	16.2	19.4	14.9	16.9	14.3	15.8	14.0	15.3
15.0	18.9	22.3	17.6	19.7	17.0	18.6	16.7	18.1
20.0	24.6	28.4	23.0	25.4	22.3	24.2	22.0	23.5
25.0	29.9	34.1	28.2	30.9	27.6	29.6	27.2	29.0
33.0	38.5	43.1	36.8	39.9	36.0	38.3	35.5	37.5
40.0	46.2	51.2	44.2	47.6	43.3	45.9	42.8	45.0
50.0	56.8	62.4	54.7	58.4	53.7	56.6	53.1	55.5
Expressed as Percent Defective Only								
12.5	15.9	18.7	14.7	16.7	14.2	15.6	14.0	15.1
15.0	18.5	21.5	17.3	19.2	16.9	18.4	16.6	17.8
20.0	23.9	27.1	22.7	24.8	22.0	23.7	21.8	23.1
25.0	29.2	32.6	27.9	30.2	27.3	29.0	26.9	28.4
33.0	37.5	41.1	36.1	38.5	35.5	37.4	35.1	36.7
40.0	44.8	48.5	43.3	45.8	42.5	44.5	42.2	43.8
50.0	54.8	58.5	53.3	55.8	52.6	54.6	52.2	53.9

Table V
Standard Sample Unit Size = 100
Number of Sample Units

	6		13		21	
AQL	Pa=50%	Pa=10%	Pa=50%	Pa=10%	Pa=50%	Pa=10%
Expressed as Defects per Hundred Units or Percent Defective						
0.10	0.4	0.9	0.3	0.5	0.3	0.4
0.15	0.6	1.1	0.4	0.6	0.3	0.5
0.25	0.8	1.3	0.5	0.8	0.5	0.7
0.40	0.9	1.5	0.7	1.1	0.7	0.9
0.65	1.3	2.0	1.1	1.5	1.0	1.3
1.0	1.8	2.6	1.5	2.0	1.4	1.8
1.5	2.4	3.4	2.1	2.7	2.0	2.4
2.5	3.6	4.7	3.3	4.0	3.1	3.6
4.0	5.4	6.8	5.0	5.8	4.7	5.4
5.0	6.6	8.0	6.1	7.0	5.8	6.5
6.5	8.3	9.9	7.7	8.7	7.5	8.2
8.5	10.6	12.4	9.9	11.0	9.5	10.4
10.0	12.3	14.2	11.5	12.7	11.2	12.1
Expressed as Defects per Hundred Units Only						
12.5	14.9	17.1	14.1	15.5	13.8	14.8
15.0	17.6	19.8	16.8	18.3	16.4	17.5
20.0	23.1	25.6	22.1	23.8	21.6	22.9
25.0	28.4	31.2	27.3	29.2	26.8	28.3
33.0	36.9	40.1	35.7	37.8	35.1	36.7
40.0	44.4	47.9	43.0	45.3	42.3	44.1
50.0	54.9	58.8	53.3	55.9	52.5	54.6
Expressed as Percent Defective Only						
12.5	14.8	16.7	14.0	15.3	13.7	14.7
15.0	17.4	19.4	16.7	18.0	16.3	17.3
20.0	22.8	24.9	21.9	23.4	21.5	22.6
25.0	27.9	30.3	27.0	28.6	26.6	27.8
33.0	36.3	38.8	35.2	36.9	34.7	36.0
40.0	43.4	46.0	42.3	44.0	41.8	43.2
50.0	53.4	56.0	52.3	54.1	51.8	53.2

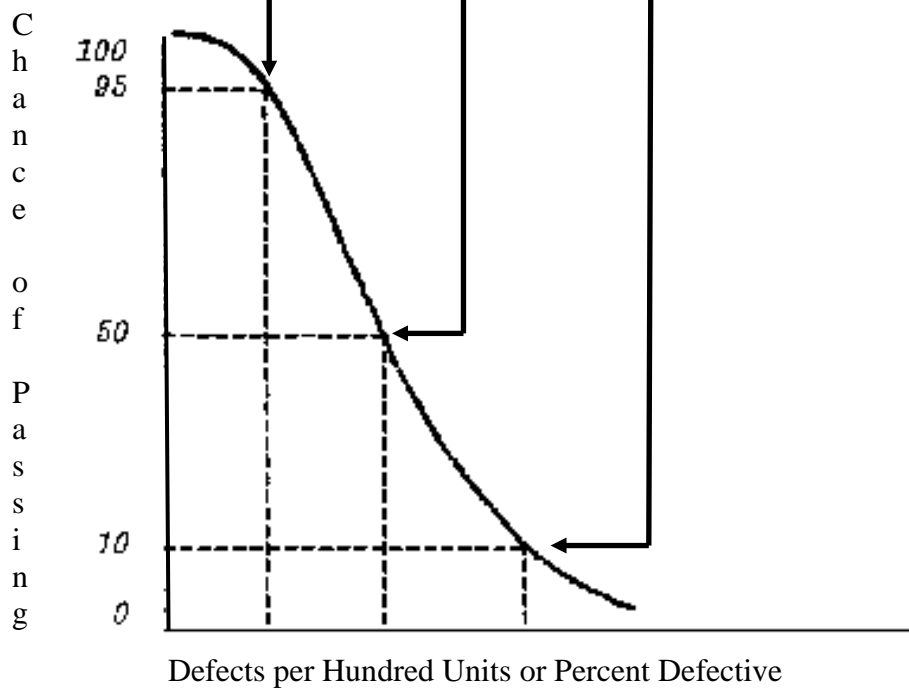
Example 44: Relationship of Pa to the OC Curve

Table I
Standard Sample Unit Size = 6

AQL	6		13	
	Pa = 50%	Pa = 10%	Pa = 50%	Pa = 10%
1.0	4.7	10.8	3.4	6.8
2.5	10.2	18.6	6.0	10.2
8.5	18.5	29.3	15.0	21.3

Table V
Standard Sample Size = 100

AQL	6		13	
	Pa = 50%	Pa = 10%	Pa = 50%	Pa = 10%
1.0	1.8	2.6	1.5	2.0
2.5	3.6	4.7	3.3	4.0
8.5	10.6	12.4	9.9	11.0



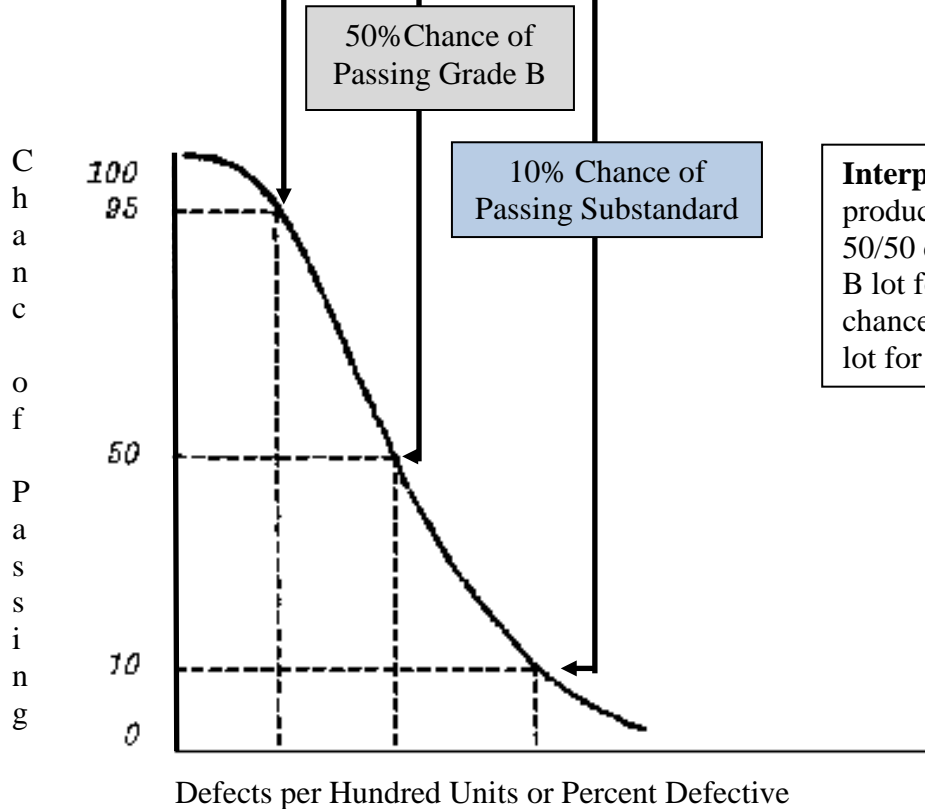
The probability of acceptance (Pa) values take on a new meaning if they are compared to the AQL's in the U.S. standards. However, all defects found in the sample must be equally offending against each grade level. Do not use the reasoning of example 45 shown below if any of the defects are adjusted See Adjusting The Defect Tally on pages 24 and 25.

Example 45: Relationship of Pa to specific AQL's

AQL	GRADE A			GRADE B				GRADE C				
	Total ^{1/2}	Maj	Sev	Crit	Total ^{1/2}	Maj	Sev	Crit	Total ^{1/2}	Maj	Sev	Crit
	12.5	4.0	1.5	1.0	20.0	6.5	4.0	1.5	25.0	10.0	6.5	2.5

Table II
Standard Sample Size = 13

AQL	6		13		21		
	Pa = 50%	Pa = 10%	Pa = 50%	Pa = 10%	Pa = 50%	Pa = 10%	
	12.5	20.1	27.3	17.6	22.0	16.4	19.7



Interpretation: Using 78 units of product, 13 X 6 = 78, there is a 50/50 chance of passing a grade B lot for Grade A and a 10 % chance of passing a Substandard lot for grade A.

K. How to verify a sample (lot inspection)

It is possible to evaluate a small sample to indicate the reliability of the original evaluation of a large sample; or, to indicate if there has been a change in quality since the original evaluation; or, to audit another grader. The advantage of this procedure is to reduce the time required for re-grading, as a small sample could be graded faster than a large sample. Then, if the small sample indicates the original evaluation is unreliable, other methods could be used to re-evaluate the quality of the lot (such as re-grading at the full sample size).

To verify a lot that has been previously graded under the lot single sampling plan (attributes) the procedure is as follows:

1. Obtain the smallest sample possible that would be suitable for the kind of product (e.g., draw a larger sample for green beans than for peach halves) and the anticipated grade level (e.g., draw a larger sample for a borderline lot than one that is well within grade).
2. Use the "Pa" values to assist in determining the sample size and reliability (e.g., an AQL of 5.0 has a Pa = 10% value of 22.2 for 36 units of product [$6 \times 6 = 36$]; but the Pa = 10% value for 169 units of product [$13 \times 13 = 169$] is 11.2 at the 5.0 AQL).
3. Grade the sample that you've selected.
4. Compare the results of the re-grade to the results of the original grade.
5. Accept the original grade if it is verified by the re-grade.
6. Resample at a larger sample size if you're not satisfied with the first re-grade.

Optional Lot Inspection Procedures Using U.S. Standards for Grades (Attributes only)**Outline**

- A. Determine sampling rate.
- B. Draw sample.
- C. Evaluate individual containers for:
 - 1. Non Quality factors
 - 2. Subjective Prerequisite factors
- D. Determine the amount of product to be evaluated for:
 - 1. Objective Prerequisite factors
 - 2. Classified factors
- E. Evaluate the sample for:
 - 1. Objective Prerequisite factors
 - 2. Classified factors
- F. Obtain applicable AQL's from the U.S. Standard.
- G. Determine Acceptance Numbers from the Regulations or attached Table I.
- H. Determine the grade for each classification.
- I. Determine the final grade for the lot.

Procedures - Lot Inspection by Attributes

Step 1. Determine the sampling rate from CFR 52, §52.38c of Regulations Governing Inspection and Certification of Processed Fruits and Vegetables and Related Products.

Step 2. Draw the number of containers required to meet the prescribed sampling rate.

Note: Be sure you have drawn enough containers to produce at least 36 units of product. Units may be by count or by weight. See applicable style in the U.S. Standard for the product that is being inspected.

Step 3. Begin the inspection by performing the examination of non-quality (net weight vacuum, etc.) factors and subjective prerequisites (usually similar varietal characteristics, flavor and odor, and brightness or appearance) on a number of containers at least equal to the sampling rate.

Step 4. Determine the amount of product to be used. Add all of the units of product together (units of count or weight). Simply count all of the units (halves, slices, etc.) where count is the criteria but units of weight must be calculated as follows:

$$\frac{(W_d) (28.3495)}{U_g} = \text{units}_t$$

Where:

W_d = Total of all the drained weights of the sample in ounces.

U_g = Weight of an individual unit expressed in grams.

28.3495 = Number of grams in one ounce.

Units_t = Total number of Units in sample

The following example is for six No. 10 cans of Diced Peaches which have the following drained weights:

73.5 oz.

71.9

74.7

72.8

73.9

74.2

441.0 oz.

$$\frac{441.0 \times 28.3495}{8}$$

8

$$= 1562.77 \text{ units}$$

From the below table - adjusted to 8 g increments, the largest number of units *less than 1562.77 units is 1450*. This is the amount of product to be used for inspection. It would be 1450 units = 11,600 g = 409.2 oz. You may derive this 409.2 oz. of product two different acceptable ways.

<i>Number of Samples</i>					
	6	13	21	29	
	<i>Total Weight of Diced^{1/}</i>				
Standard Sample Unit Sizes	6	36 x 8 g = 288 g or 10.2 oz.	78 x 8 g = 624 g or 22 oz	126 x 8 g = 1008 g or 35.6 oz	174 x 8 g = 1392 g or 49.1 oz
	13	78 x 8 g = 624 g or 22 oz	169 x 8 g = 1352 g or 47.7 oz	273 x 8 g = 2184 g or 77 oz	377 x 8 g = 3016 g or 98.7 oz
	25	150 x 8 g = 1200 g or 42.3 oz	325 x 8 g = 2600 g or 91.7 oz	525 x 8 g = 4200 g or 148.2 oz	725 x 8 g = 5800 g or 204.6 oz
	50	300 x 8 g = 2400 g or 84.7 oz	650 x 8 g = 5200 g or 183.4 oz	1050 x 8 g = 8400 g or 296.3 oz	1450 x 8 g = 11600 g or 409.2 oz
	100	600 x 8 g = 4800 g or 169.3 oz	1300 x 8 g = 10400 g or 366.8 oz	2100 x 8 g = 16800 g or 592.6 oz	2900 x 8 g = 23200 g or 818.4 oz

^{1/} Sample size = 8 g increments = weight of diced peaches equivalent to the number of sample units = the standard sample unit size.

The two acceptable ways to arrive at the required amount of product :

1. Use all of the drained product in the first five cans (total the individual drained weights from each can) plus select the balance of the total amount required from the sixth can.
2. Select equal amounts from each can.
(This method requires evaluating the balance of each can for foreign material.)

Step 5. Evaluate the product as to the objective prerequisites (pit frags, loose seeds, decay, character, etc.) and the classified defects and record in the applicable section of the tally sheet.

There are several correct ways to handle the summation of the defects. The following options may be used:

1. Mass of the product together, remove the defects and record on the tally sheet;
or

2. Inspect the product from each individual container, mass the defects of each classification together and record on the tally sheet; or
3. Inspect the product from each individual container, record the defects on the tally sheet and then total the defects of each classification.

Step 6. Next, refer to the Acceptable Quality Level (AQL) Tables in the U.S. Standards applicable style of the product being evaluated. The AQL's will appear similar to the following example:

	GRADE A				GRADE B				GRADE C			
	Total ^{1/}	Maj	Sev	Crit	Total ^{1/}	Maj	Sev	Crit	Total ^{1/}	Maj	Sev	Crit
AQL ^{2/}	12.5	4.0	1.5	1.0	20.0	6.5	4.0	1.5	25.0	10.0	6.5	2.5

^{1/} Total = Minor + Major + Severe + Critical

^{2/} AQL expressed as defects per 100 units

Step 7. Acceptance numbers are found in applicable tables in the Regulations, 7 CFR 52, § 52.38C. The applicable lot inspection tables are XV; XVI; XVIII or XIX or use the Acceptance Numbers table at the end of the section.

To determine the correct table, select the one that has a "Standard Sample Unit Size" that corresponds to the "Standard Sample Unit Size Row" selected in STEP 4.

To determine the "Column" of Acceptance Numbers to use, pick the one that has the number of sample units that corresponds to the number of sample units "Column" selected in STEP 4.

Example:

The example used in STEP 4 selected **1450** units of product to be evaluated; thus, the 1450 unit box was found in the "50" standard sample unit size "Row" and in the "29" number of sample units "Column"; therefore, select Table XVIII (which is the one for "Standard sample unit size = 50") and select from the 29 number of sample units "Column", the acceptance numbers that correspond to the applicable AQL's found in the far left column.

<i>Number of Samples</i>				
	6	13	21	29
<i>Total Weight of Diced^{1/}</i>				
6	36 x 8 g = 288 g or 10.2 oz.	78 x 8 g = 624 g or 22 oz	126 x 8 g = 1008 g or 35.6 oz	174 x 8 g = 1392 g or 49.1 oz
13	78 x 8 g = 624 g or 22 oz	169 x 8 g = 1352 g or 47.7 oz	273 x 8 g = 2184 g or 77 oz	377 x 8 g = 3016 g or 98.7 oz
25	150 x 8 g = 1200 g or 42.3 oz	325 x 8 g = 2600 g or 91.7 oz	525 x 8 g = 4200 g or 148.2 oz	725 x 8 g = 5800 g or 204.6 oz
50	300 x 8 g = 2400 g or 84.7 oz	650 x 8 g = 5200 g or 183.4 oz	1050 x 8 g = 8400 g or 296.3 oz	1450 x 8 g = 11600 g or 409.2 oz
100	600 x 8 g = 4800 g or 169.3 oz	1300 x 8 g = 10400 g or 366.8 oz	2100 x 8 g = 16800 g or 592.6 oz	2900 x 8 g = 23200 g or 818.4 oz

Standard Sample Unit Sizes

^{1/} Sample size = 8 g increments = weight of diced peaches equivalent to the number of sample units = the standard sample unit size.

TABLE XVIII
LOT SINGLE SAMPLING PLANS

STANDARD SAMPLE UNIT SIZE = **50**

NUMBER OF SAMPLE UNITS				
	6	13	21	29
ACCEPTANCE NUMBERS				
QUALITY LEVELS EXPRESSED AS DEFECTS PER 100 UNITS OR PERCENT DEFECTIVE				
AQL				
0.15	1	3	4	5
0.25	2	4	5	7
0.40	3	5	8	10

Step 8. Compare the number of defects found in each classification with the acceptance number applicable for that classification. Determine the grade of each classification.

Step 9. Determine the grade of the lot from the lowest grade given to any prerequisite or classification of defects.

Special Situations

A. If the sample rate and the number of units per container are such that the minimum number of units of product required to evaluate a lot is not met, then extra containers must be drawn to meet this requirement.

Example:

A lot of 200 cases of 24/8 oz. peach halves are to be sampled. Using Table XI in the Regulations, 7 CFR 52, § 52.38c, the lot sample size would be 6, but 6 cans would not yield 36 halves (probably 18-24 halves). Therefore, draw 2 containers from each location sampled in the lot. Mark each container with the same identifications.

Evaluate the non-quality factors and subjective prerequisites on one container from each sampling and then use enough of the extra containers to make up the needed 36 units to complete the evaluation.

- B. If the lot consists of large institutional size containers (i.e. No. 10 metal cans, 2-3 pound cartons, gallons, etc.), then, 3 sample units may be drawn if Inspection Aid No. 42 specifies the 3 sample unit rate. The number of product units from the 3 containers must still be equal to or greater than 36.
- C. If the lot consists of containers of obvious non-uniformity, the judgment of quality must be exercised before proceeding with evaluation. If it is obvious that the applicant is attempting to "dilute" defects by mixing poor quality with good quality, follow the instructions on pages 31 and 32. If all of the containers in the sample have the same code, then the final lot grade should be that of the obviously low quality.



ACCEPTANCE NUMBERS
 (Continued from previous page)

Number of units 36 78 126 150 169 174 273 300 325 377 525 600 650 725 1050 1300 1450 2100 2900

AQL

QUALITY LEVELS EXPRESSED AS PERCENT DEFECTIVE ONLY

12.5	8	15	22	25	28	29	43	47	50	58	78	88	95	105	149	182	202	287	392
15.0	9	17	25	30	33	34	51	55	59	68	92	104	112	125	177	216	240	342	467
20.0	11	21	33	38	42	43	65	71	77	88	120	136	147	163	231	284	315	450	615
25.0	13	26	39	46	51	53	80	87	94	108	148	167	181	200	286	351	390	558	763
33.0	16	32	50	59	66	67	103	112	121	139	191	217	234	260	372	457	508	728	999
40.0	19	38	59	70	78	80	123	134	145	166	228	260	281	312	446	549	611	877	1203
50.0	23	46	72	85	95	98	150	164	177	204	281	320	346	385	552	680	756	1088	1494
65.0	28	57	70	107	120	123	190	209	225	260	359	409	443	492	708	873	972	1401	1927
70.0	29	61	96	114	128	132	204	223	241	279	385	438	474	528	759	937	1044	1505	2071
75.0	31	64	102	121	136	140	217	237	257	297	410	467	506	563	811	1001	1115	1608	2213
85.0	34	71	114	135	151	156	242	265	287	332	400	524	567	632	1912	1126	1255	1812	2497