



United States  
Department of  
Agriculture

Agricultural  
Marketing  
Service

Fruit and  
Vegetable  
Division

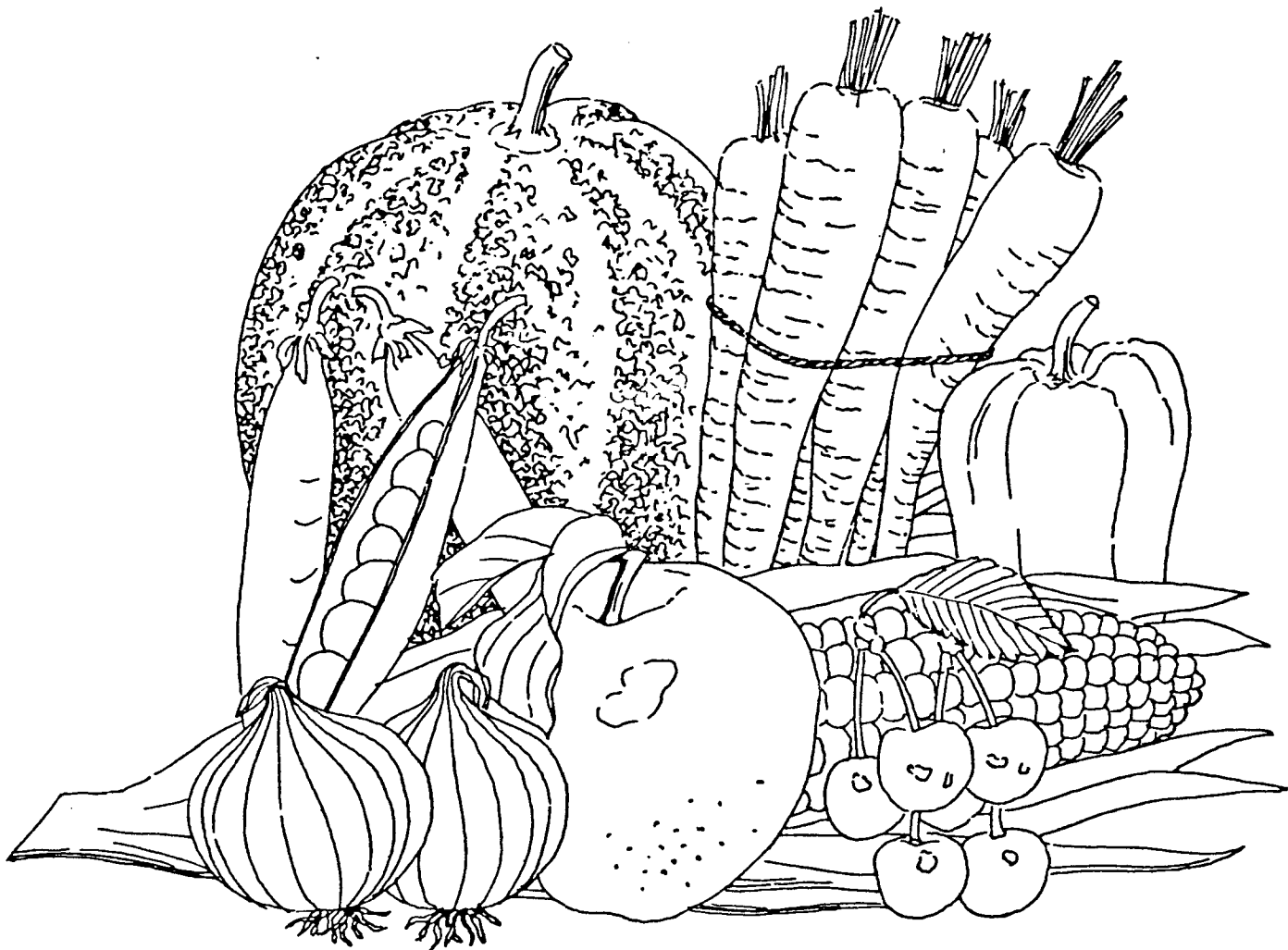
Fresh Products  
Branch

Washington, D.C.

December 1970

# PEARS FOR PROCESSING

## INSPECTION INSTRUCTIONS





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UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
FRUIT AND VEGETABLE DIVISION  
FRESH PRODUCTS BRANCH

INSPECTION INSTRUCTIONS  
FOR  
PEARS FOR PROCESSING 1/

GENERAL

The inspector will be guided by the instructions in this handbook, the (1)  
latest U. S. Standards for Grades of Pears for Processing, and by any  
additional instructions which may be given him either orally or in  
writing by his Supervisor. These instructions cover inspection of  
pears for processing which are intended for domestic or export shipment  
as well as inspection of orchard run lots received at processing plants  
or inspection stations. When in doubt on any matter that is not fully  
covered, the inspector should get in touch with his Supervisor. If it  
is necessary to take immediate action, he must use his best judgement,  
and advise the Supervisor of the action that was taken so that correc-  
tions can be made if the proper procedure was not followed.

THE STANDARDS FOR INSPECTION

(2)

All inspections of pears for processing will be based on the United  
States Standards for Grades of Pears for Processing or on comparable  
state or marketing order standards. An agreement may be reached

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1/ These instructions do not establish a new or revised substantive  
rule. (United States Standards for Grades of Pears for Processing,  
CFR §§51.1345-51.1359).

REPRINTED SEPTEMBER 1988 TO INCLUDE  
BRANCH NOTICES AND INSPECTION  
INSTRUCTION MEMOS.

between the Federal Supervisor and the applicant as to modification of these standards, or the use of others, which may be included in the contract between the processor and the grower. The inspector is to accept instructions as to such modifications only from the Supervisor and not from the applicant.

- (3) When an Inspection Circular or Instruction has been issued to apply to a state or marketing order standard for pears for processing, its instructions should be followed for pears inspected on that standard or state regulation.
- (4) When terms used in contracts or other specifications are not defined, the definitions in the U. S. Standards and in this handbook shall be used.

#### FACILITIES AND EQUIPMENT

- (5) The applicant should be required to make adequate space with good light available to the inspector. Artificial light should be equivalent to daylight. Proper protection from sun and weather for outdoor inspection stations should be required of the applicant. The grading station should be at a convenient distance from the location from which the sample is to be acquired.
- (6) A platform scale "officially sealed" for the current year for weighing the sample must be furnished by the applicant. An accurate dial type

or other type scale must be available for weighing defects and under-size or size classifications.

Curved cannery pear peeling knives set for exactly 1/8 inch thickness (7)  
must be furnished each inspector. Check peel thickness frequently by doubling the peel, skin side out, and measure the thickness with a Stanley 3 inch or other accurate caliper.

Sizing rings or sizing plates with proper size openings shall be (8)  
provided the inspector by the inspection service. Clamps or brackets on these for fastening to side boards facilitate their use.

The inspection service shall furnish official work note sheets, (9)  
certificates and other reporting forms to the inspector.

#### SAMPLING BINS

Most pears are harvested into bins holding about 1000 pounds each. (10)  
When there is any appreciable volume of these to be inspected, the applicant should be requested to furnish a mechanical sampler and a fork lift, with operator, to move the bins to be sampled. Mechanical samplers can be of the belt type, the Blackwelder type, or a sampling head attached to a fork lift.

When a mechanical sampler is not available the inspector should dig (11)  
to the bottom of bins being sampled. A rubberized "ring" about

14 inches in length and diameter can be used to keep the pears from rolling down, or the bin can be tilted to about a 30<sup>0</sup> angle to facilitate securing samples from the full depth of the bin.

- (12) When it is not possible to draw a representative sample from top to bottom of the bins, the certificate or inspection report must be restricted to that portion of the bins from which the sample was taken, for example: "Inspection restricted to upper 18 inches of pears in bins".
- (13) The inspector must always select his own sample or designate, for the fork lift operator, the sample bin to be selected. If, for any reason, this is not possible the inspection report or certificate must be marked "SUBMITTED SAMPLE".

(14)

NUMBER OF SAMPLES

Boxes or field lugs: Two containers out of the first hundred or less should be selected as a sample. One additional lug should be selected as a sample from each hundred or less lugs in the lot. For example: 401 to 500 lugs, select 6 samples at random from through-out the load.



Bin Sampling Schedule

(15)

2 to 6 bins	draw 2 samples of 50 lbs each
7 to 12 bins	" 3 " " "
13 to 20 bins	" 4 " " "
21 to 30 bins	" 5 " " "
31 or more bins	" 6 " " "

The above sampling ratios were determined by official statistical sampling technicians. They should be used in all instances.

Other Sampling Methods: Sampling in the process of bin filling in packing rooms, sampling off conveyer belts, etc. should be at the same ratio as the above. Samples should be random and representative of the entire lot. Consult with a supervisor when in doubt.

(16)

MAKING THE INSPECTION

(17)

After the samples have been selected, the pears should be segregated into U. S. No.1's (First Grade), U. S. No.2's (if provided in the contract or sale) and Culls. They should also be segregated into the various size groups called for (if any) in the contract. When grading of the sample for a lot has been completed, each segregation should be weighed and percentage determined and entered on the inspection report or certificate.

DEFINITION OF TERMS

(18)

"Mature" means that the pear has reached the stage of maturity which will insure the proper completion of the ripening process. Satisfactory maturity for a crop is usually determined by the processor's field man before a grower is permitted to start his harvest.

Pressure tests indicating maturity of Bartlett pears range between 20 and 23 pounds depending on the area of production. A soluble solids test is also used as a guide to maturity by some field men.

(19)

"Handpicked" means that the pears do not show evidence of having been on the ground such as dirt, discolored bruises, advanced ripening, a shriveled rubbery condition or brown and shriveled stems.

(20)

"Firm" means that the pear is fairly solid and yields very slightly to moderate pressure and is not wilted, shriveled, rubbery or flabby. The processor may specify a minimum acceptable pressure test. This may be 13, 14, 15, or 16 pounds, depending on the contract.

(21)

A pressure testing procedure for minimum maturity of Bartlett pears has been developed by the C&MS Statistical Staff, and consists of the following steps:

1. Select 15 pears at random, sight unseen, which are free from defects, from the same bins that are selected for grading the sample. Select them as the pears are being dumped for grading

the sample. The pears selected must be in proportion with the bins sampled, for example: from 5 bins sampled, select 3 pears for testing out of each bin; for a 2 sample lot, select 7 pears out of one bin and 8 from the other. Always select 15 pears regardless of the size of the lot.

2. Make one slice or peel on the best side of each selected pear and make only one punch with the pressure tester.
3. From these tests, **an average or median can be determined.**

"Well formed" means that the pear has the shape characteristic of the (22) variety so that after paring, cutting in halves, and coring, each half of the pear shall be well formed. Bartlett pears shall have at least a fairly well developed neck.

"Fairly well formed" does not appear in the U. S. Standards for Pears (23) for Processing but is used in some of the state standards, chiefly California. It is defined as a pear that may be abnormal in shape but not to an extent which will materially detract from the usefulness of the fruit for canning purposes. Short shaped pears and pears with corrugated calyx ends, among other types of pears, shall be considered fairly well formed. No pear shall be considered fairly well formed which does not lend itself to the ordinary process of mechanical preparation for canning. Apple-shaped pears or pears with badly

crooked necks or off-centered stems shall not be considered fairly well formed.

- (24) "Seriously deformed" means that the pear is so badly misshapen as to cause a loss during usual commercial preparation for canning of over 20%, by weight, of the pear in excess of that which would occur if the pear were well formed. Round pears and apple shaped pears shall not be considered seriously deformed.
- (25) "Not very badly misshapen" as used in California Second Grade means that the pear has one good half that is at least fairly well formed.
- (26) Pears that fail to meet the above requirement should be reported as very badly misshapen.
- (27) "Damage" means any injury or defect which materially affects the processing quality of the fruit. After paring, halving, and coring, each half of the pear shall be well formed or the pear is considered damaged. Pears showing surface blemishes shall be considered damaged when the injury is not completely removed by a peeling one eighth (1/8) inch in depth. In addition:
- (a) Limbrubs may have only slight discoloration after the 1/8 inch peel is made. The hard core cannot be torn out to a greater depth than 1/8 inch.

(b) Any discoloration beneath a scab spot must be completely removed by a peel 1/8 inch in depth.

"Worms and Worm Holes": These are defects of all grades and should be reported separately. To determine the presence of concealed worms, a 5 to 10 pound sub-sample should be cut from each 50 pound sample, and the percentage determined on the basis of the cut sub-samples. The percentage of pears with worms or worm holes visible without cutting should be determined on the basis of the 50 pound samples. (28)

"Hard end": Cut off 3 one-eighth inch slices from the calyx end of the pear. If any part of the third slice is dry, tough or woody the pear shall be considered damaged. (29)

"Black End": Score any amount against all grades. (30)

"Decay and Breakdown": Score against all grades. (31)

"Serious damage" means any injury or defect that cannot be removed during the usual commercial preparation for canning without a loss of over 20% of the pear, by weight, in excess of that which might have occurred if the pear had not been defective. Trimming should be done with a rounded or curved cut. Trimming should be confined to only one half of the pear so that one well formed half is left. Obviously if any appreciable amount of trimming were done on both halves neither half would be usable for other than pulping and thus would be a cull. (32)

TOLERANCES

(33) Tolerances do not apply when the request for inspection is to report the percentages of U. S. No. 1, U. S. No. 2, Culls and specified sizes. The percentages determined should be reported on a special federal-state products (or pears) for processing form. If one is not available, the results of the inspection may be reported on a FV-184 Shipping Point Certificate in tabular form. (See examples)

(34) When a lot must meet a specific grade, such as U. S. No. 1, the following tolerances apply:

1. For defects--10% by weight, including not more than 5% of pears with worms or worm holes and not more than 2% affected by decay.

2. Not more than 5% undersize or 10% oversize if size limitations are specified. There are no container tolerances for either size or grade defects.

(35) PEARS FOR PROCESSING TO CANADA AND OTHER EXPORT

Pears for processing exported in bins, bags, boxes or other containers must meet all of the requirements of the U. S. Export Apple and Pear Act. Pears exported in bulk (loose in a car or truck) are not regulated by the U. S. Export Act. The minimum processing grade permitted under this act is U. S. No. 1 for Processing.

Pears for processing going to Canada must move under an exemption which (36) may be granted to a Canadian receiver by the Canadian authorities for specific shipments. The authorities in Ottawa, Canada, forward the exemption information to officials in our Washington, D. C. office who pass it on to the shipping point involved.

FV-134

PRODUCT	BRAND OR STAMPING	MANT-EXISTING	TYPE AND SIZE CONTR.	SIZE		SOFTROT DECAY	GRADE
				RANGE	OTHER		
12	Bartlett Pears	40	Bins				Calf. First.
					Pressure Tests: low	14	Defects: 1% worms
					High	21	6% other
					Median	18	Total 7%
					Average:		

REMARKS Also meets requirements US No. 2 Processing (use only if state law requires it) See

PRICE \$

(37)

Joe Pallas  
INSPECTOR



FV-184

PRODUCT	BRAND OR STAMPING	MANI-FESTED	TYPE AND SIZE CONTR.	SIZE		SOFT ROT DECAY	GRADE
				RANGE	OTHER		
PEARS Bartlett	—	20	Bins	20,808 lbs.			13
			US No 1 Processing		80%		2 1/4 to 2 1/2 inches - 15%
			US No 2		10%		2 1/2 to 3 inches 80%
			Culls		10% including 5% worms		over 3 inches 5%

REMARKS:

FEE \$ 15.00

Joe Dokes  
INSPECTOR



CERTIFICATE EXAMPLES

Sample No. 1: Certificate was originated by the inspector.

WHITE SELLER-YELLOW BUYER OFF WHITE PEAR ZONE - GREEN SPJ - GOLDENROD BUYER - PINK WEIGHMASTER  
 Department of Agriculture STATE OF CALIFORNIA Bureau of Weights & Measures  
 Weighmaster's Certificate of Weight and Measure **151**

THIS IS TO CERTIFY that the following described merchandise was weighed, measured or counted by a Public Weighmaster, and his signature is a recognized authority of accuracy, as prescribed by the California Business and Professions Code, Division 5, Chapter 7.

RECEIVED BY: *Henry Smith* DATE: \_\_\_\_\_  
 WEIGHED AT: \_\_\_\_\_

**BARTLETTS**

TRUCKING CO.	NO PALLETS	GROSS VEHICLE WEIGHT	
DRIVER	NO PALLETS	VEHICLE TARE	
TRUCK LICENSE NO. <i>957624</i>	TRAILER LICENSE NO. <i>948755</i>	GROSS LOAD WEIGHT	
NO. OF PALLETS	TARE PER PALLET	TOTAL PALLET TARE	
NUMBER OF CONTAINERS	TARE PER CONT.	TOTAL WEIGHT FRUIT & CONTAINERS	
CONTAINER IDENTIFICATION		TOTAL CONTAINER TARE	
DELIVERED TO <i>Del Monte</i>	BUYER	TOTAL NET WEIGHT OF FRUIT	

FROM PUBLIC WEIGHMASTER CERTIFICATE NUMBER \_\_\_\_\_

PUBLIC WEIGHMASTER: \_\_\_\_\_ NAME OF PUBLIC WEIGHMASTER MUST BE PRINTED ABOVE LINE STATION NO. *10*

BY ISSUED BY WEIGHMASTER \_\_\_\_\_

INSPECTION CERTIFICATE PEAR ZONE SACRAMENTO CO. PROCESSOR COUNTY: *El Dorado* INSPECTION STATION: *Buckley*

HAULED TO STATION BY: \_\_\_\_\_ GROWER  BUYER  AVG. FRUIT WEIGHT PER CONTAINER \_\_\_\_\_

SIZE	%	PRESSURE	PERCENT	WEIGHTS
2 1/4 - 2 3/8	.6	LOW	7	1
- 2 1/4	2	HIGH	18	2
TOTAL	8	MED.	14	3
PERCENT GRADE DEFECTS REPORT ONLY WHEN 6% OR MORE		AVG.	14	4
WORMS 1 %		BINS	24	5
OTHER DEFECTS 6 %		BOXES		6
TOTAL 7 %				

TIME: *2:30 PM* DATE: *7-15-70* GRADE: *First*

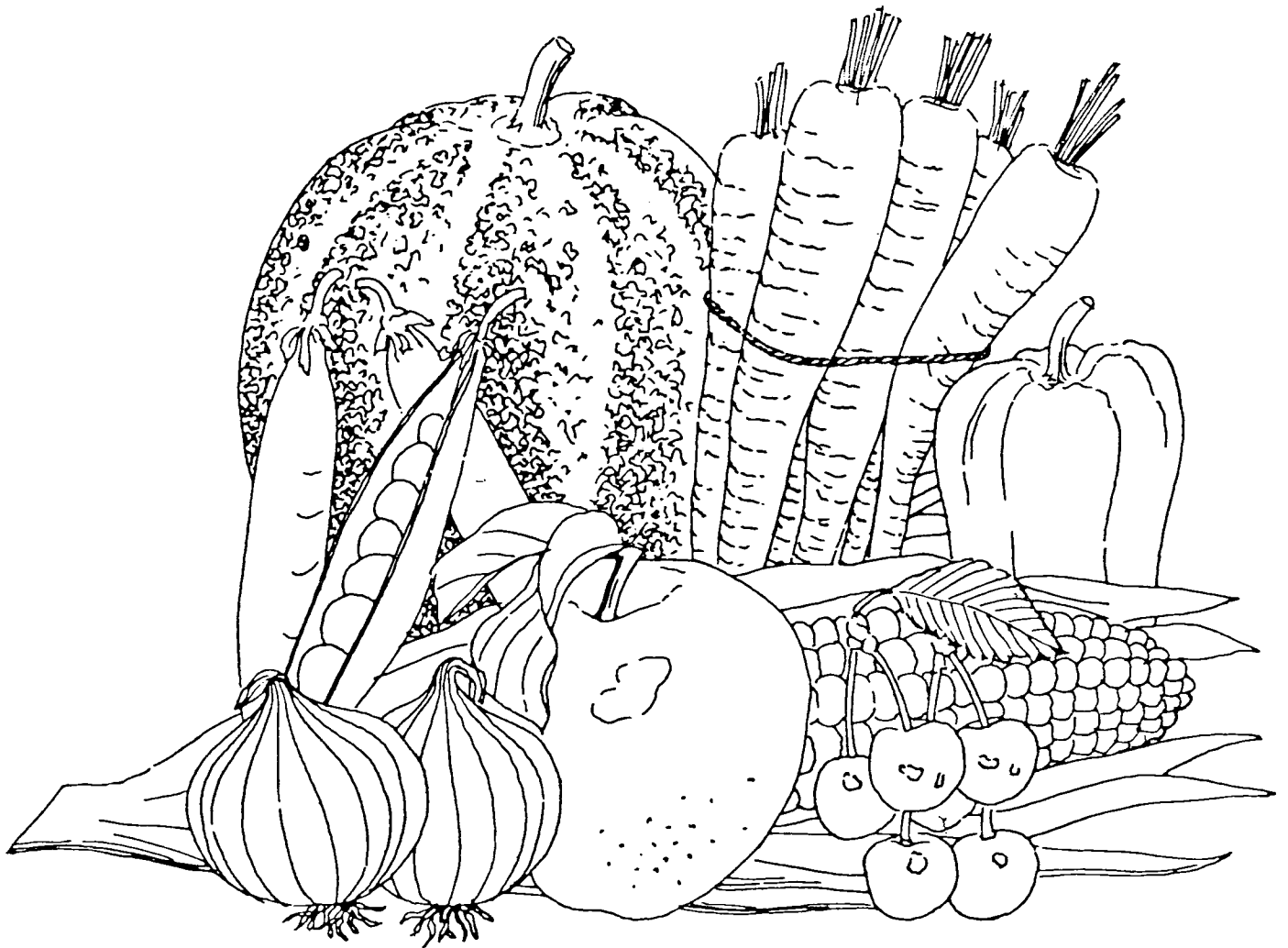
THIS IS TO CERTIFY THAT I INSPECTED SAMPLES OF THE LOT OF PEARS DESCRIBED ABOVE AND THEY MET THE REQUIREMENTS OF THE MARKETING PROGRAM FOR "ROLLING BARTLETT PEARS, AS AMENDED SA 3-70 (L)

BY: *Joe R. Dokes* INSPECTOR



# Appendix I

## United States Standards





UNITED STATES STANDARDS FOR GRADES OF  
PEARS FOR PROCESSING<sup>1</sup>

SOURCE: 35 FR 6957, May 1, 1970, unless  
otherwise noted. Redesignated at 42 FR  
32514, June 27, 1977.

Effective July 1, 1970

	GENERAL	GRADES
<p>Sec. 2851.1345</p>	<p>General.</p>	<p>§ 2851.1346 U.S. No. 1.</p>
	<p>GRADES</p>	
<p>2851.1346</p>	<p>U.S. No. 1.</p>	<p>“U.S. No. 1” consists of pears of one variety which are mature, handpicked, firm, well formed, free from scald, hard end, black end, internal breakdown, decay, worms and worm holes, and from damage caused by broken skins, limbrubs, sprayburn, sunburn, scab, russeting, bruises, hail, frost, drought spot, disease, insects, mechanical or other means. Unless otherwise specified, the pears shall not be further advanced than yellowish green. Tree-ripened pears and pears grown from late blooms shall not be considered as meeting the requirements of this grade. (See §§ 2851.1349 and 2851.1350.)</p>
<p>2851.1347</p>	<p>U.S. No. 2.</p>	
	<p>CULLS</p>	
<p>2851.1348</p>	<p>Culls.</p>	
	<p>SIZE</p>	
<p>2851.1349</p>	<p>Size.</p>	
	<p>APPLICATION OF STANDARDS</p>	
<p>2851.1350</p>	<p>Application of standards.</p>	
	<p>DEFINITIONS</p>	
<p>2851.1351</p>	<p>Mature.</p>	
<p>2851.1352</p>	<p>Handpicked.</p>	
<p>2851.1353</p>	<p>Firm.</p>	
<p>2851.1354</p>	<p>Well Formed.</p>	
<p>2851.1355</p>	<p>Damage.</p>	
<p>2851.1356</p>	<p>Pears grown from late blooms.</p>	<p>§ 2851.1347 U.S. No. 2.</p>
<p>2851.1357</p>	<p>Seriously deformed.</p>	<p>“U.S. No. 2” consists of pears of one variety which are mature, handpicked, firm, not seriously deformed, free from scald, hard end, black end, internal breakdown, decay, worms and worm holes, and free from serious damage by any other cause. Unless otherwise specified, the pears shall not be further advanced than yellowish green. Tree-ripened pears and pears grown from late blooms shall not be considered as meeting the requirements of this grade. (See §§ 2851.1349 and 2851.1350.)</p>
<p>2851.1358</p>	<p>Serious damage.</p>	
<p>2851.1359</p>	<p>Diameter.</p>	

AUTHORITY: The provisions of this subpart issued under secs. 203, 205, 60 Stat. 1087, as amended, 1090 as amended; 7 U.S.C. 1622, 1624.

GENERAL

§ 2851.1345 General.

All percentages shall be calculated on the basis of weight.

CULLS

§ 2851.1348 Culls.

“Culls” are pears which do not meet the requirements of either of the foregoing grades.

<sup>1</sup> Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug and Cosmetic Act, or with applicable State laws and regulations.

## SIZE

## § 2851.1349 Size.

Size may be specified in connection with a grade by agreement between buyer and seller and stated in terms of minimum diameter or minimum and maximum diameters. Diameters shall be specified in inches and not less than eighth-inch fractions thereof. In addition, size may be stated in terms of ratio of length to diameter.

## APPLICATION OF STANDARDS

## § 2851.1350 Application of standards.

(a) Tolerances shall not apply in the application of the standards to determine the percentages of U.S. No. 1 and U.S. No. 2 quality, culls and off-size in a lot of pears; for example, when determining compliance with a grower-processor contract.

(b) Tolerances: The following tolerances, by weight, shall apply when a lot of pears has been sorted to meet a specific grade, such as a shipment to a processor which is intended to meet the requirements of the U.S. No. 1 grade:

(1) *For defects.* 10 percent for pears which fail to meet the requirements of the grade: *Provided*, That included in this amount not more than the following percentages shall be allowed for the defects listed:

(i) 2 percent for pears which are affected by decay.

(ii) 5 percent for pears which are infested by worms or have worm holes.

(2) *For off-size.* 5 percent for pears which are smaller than any specified minimum size, and 10 percent for pears larger than any specified maximum size.

## DEFINITIONS

## § 2851.1351 Mature.

"Mature" means that the pear has reached the stage of maturity which will insure the proper completion of the ripening process.

## § 2851.1352 Handpicked.

"Handpicked" means that the pears do not show evidence of having been on the ground.

## § 2851.1353 Firm.

"Firm" means that the pear is fairly solid and yields only very slightly to moderate pressure, and is not wilted, shriveled, rubbery or flabby.

## § 2851.1354 Well Formed.

"Well formed" means that the pear has the shape characteristic of the variety, so that after paring, cutting in halves, and coring, each half of the pear shall be well formed. Bartlett pears shall have at least a fairly well developed neck.

## § 2851.1355 Damage.

"Damage" means any injury or defect which materially affects the processing quality of the fruit. After paring, cutting in halves, and coring, each half of the pear shall be well formed or the pear is considered damaged. Pears showing surface blemishes shall be considered damaged when the injury cannot be completely removed in the ordinary process of paring for commercial use.

## § 2851.1356 Pears grown from late blooms.

"Pears grown from late blooms". Such pears often have excessively long stems (commonly termed "rat tails"), or may be misshapen or slightly rough. Such pears do not ripen properly for ordinary canning use.

## § 2851.1357 Seriously deformed.

"Seriously deformed" means that the pear is so badly misshapen as to cause a loss during the usual commercial preparation for use of over 20 percent, by weight, of the pear in excess of that which would occur if the pear were well formed. Round or apple-shaped pears shall not be considered seriously deformed.



**§ 2851.1358 Serious damage.**

"Serious damage" means any injury or defect which cannot be removed during the usual commercial preparation for use without a loss of over 20 percent, by weight, of the pear in excess of that which would occur if the pear were not defective.

**§ 2851.1359 Diameter.**

"Diameter" means the greatest dimension of the pear taken at right angles to a line running from the stem to the blossom end.

Dated: April 28, 1970.

G. R. GRANGE,  
*Deputy Administrator,*  
*Marketing Services.*

[F.R. Doc. 70-5359; Filed, Apr. 30, 1970;  
8:48 a.m.]

