



**United States
Department of
Agriculture**

**Agricultural
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Service**

**Fruit and
Vegetable
Division**

**Fresh
Products
Branch**

United States Standards for Grades of Seed Potatoes

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§51.3000 General.

Compliance with the provisions of these standards shall not excuse failure to comply with provisions of applicable Federal or State Laws.

§51.3001 Grade.

"U.S. No. 1 Seed Potatoes" consist of unwashed potatoes identified as certified seed by the state of origin by blue tags fixed to the containers or official State or Federal State certificates accompanying bulk loads, which identify the variety, size, class, crop year, and grower or shipper of the potatoes, and the State certification agency. These potatoes must meet the following requirements:

(a) Fairly well shaped.

(b) Free from:

(1) Freezing injury;

(2) Blackheart;

(3) Late Blight Tuber Rot;

(4) Nematode or Tuber Moth injury;

(5) Bacterial Ring Rot;

(6) Soft rot or wet breakdown; and,

(7) Fresh cuts or fresh broken-off second growth.

(c) Free from serious damage caused by:

(1) Hollow Heart; and,

(2) Vascular ring discoloration.

(d) Free from damage by soil and any other cause. (See §51.3005 - 06).

(e) Size:

(1) Minimum diameter, unless otherwise specified, shall not be less than 1-1/2 inches (38.1 mm) in diameter;

(2) Maximum size, unless otherwise specified, shall not exceed 3-1/4 inches (82.6 mm) in diameter or 12 ounces (340.20 g) in weight.

(f) Tolerances. (See §51.3002).

§51.3002 Tolerances.

In order to allow for variations incident to proper grading and handling in the foregoing grade, the following tolerances, by weight, are provided as specified.

(a) For defects:

- (1) 10 percent for potatoes in any lot which are seriously damaged by hollow heart;
- (2) 10 percent for potatoes in any lot which are damaged by soil;
- (3) 5 percent for potatoes in any lot which are seriously damaged by vascular ring discoloration;
- (4) 11 percent for potatoes which fail to meet the remaining requirements of the grade including therein not more than 6 percent for external defects and not more than 5 percent for internal defects: Provided, that included in these tolerances not more than the following percentages shall be allowed for the defects listed:

	Percent
Bacterial Ring Rot	0.00
Serious damage by dry or moist type Fusarium Tuber Rot	2.00
Late Blight Tuber Rot	1.00
Nematode or Tuber Moth injury	0.00
Varietal mixture	0.25
Frozen, soft rot or wet breakdown	0.50

Provided, that en route or at destination, an additional 0.50 percent, or a total of 1 percent, shall be allowed for potatoes which are frozen or affected by soft rot or wet breakdown.

(b) For off-size:

- (1) For undersize: 5 percent for potatoes in any lot which fail to meet the required or specified minimum size.
- (2) For oversize: 10 percent for potatoes in any lot which fail to meet the required or specified maximum size.

§51.3003 Application of tolerances.

Individual samples (See §51.3004) shall not have more than double the tolerances specified, except that at least one defective and one off-size potato may be permitted in any sample; Provided, that en route or at destination, one-tenth of the samples may contain three times the tolerance permitted for potatoes which are frozen or affected by soft rot or wet breakdown; and provided further, that the averages for the entire lot are within the tolerances specified for the grade.

§51.3004 Samples for grade and size determination.

Individual samples shall consist of at least 20 pounds (9.06 kg). The number of such individual samples drawn for grade and size determination will vary with the size of the lot.

§51.3005 Definitions.

- (a) "Fairly well shaped" means that the potato is not materially pointed, dumbbell-shaped or otherwise materially deformed.
- (b) "Nematode or Tuber Moth injury" means the presence of, or any evidence of, Nematode or Tuber Moth.
- (c) Soil:
 - (1) "Fairly clean" means that at least 90 percent of the potatoes in the lot have no more than 10 percent of the surface covered with caked soil.
 - (2) "Damage by soil" means that caked soil covers more than 25 percent of a potato's surface.

(3) "Loose soil" -- A lot of seed potatoes is not considered damaged by the presence of loose soil, clods, rocks, vines, and foreign material, but such will be considered a tare factor if the following allowances are exceeded:

- 8 ounces (226.80 g) in a 100 pound (45.3 kg) container.
- 4 ounces (113.40 g) in a 50 pound (22.65 kg) container.
- 2 ounces (56.70 g) in a 25 pound (11.33 kg) container or less.
- 1 percent in a bulk load

(d) "Shriveling" -- Damage by shriveling means that the individual potato is more than moderately shriveled, spongy or flabby.

(e) "Freezing injury" means that the potato is frozen or shows evidence of having been frozen.

(f) "Soft rot or wet breakdown" means any soft, mushy or leaky condition of the tissue.

(g) "Zero Tolerance" (0.00) means none found during the normal inspecting procedures.

Certification of a lot is not a guarantee that the lot inspected is free of a zero tolerance disease or injury.

(h) "Damage" means any defect or any combination of defects which materially detracts from the internal or external appearance of the potato, or any external or internal defect which cannot be removed without a loss of more than 5 percent of the total weight of the potato (See §51.3006).

(i) "Serious damage" means any defect or any combination of defects which seriously detracts from the internal or external appearance of the potato, or any internal or external defect which cannot be removed without a loss of more than 10 percent of the total weight of the potato (See §51.3006).

(j) "External defects" are defects which can be detected by examining the surface of the potato. Cutting may be required to determine the extent of the injury (See §51.3006, Table I).

(k) "Internal defects" are defects which cannot be detected without cutting the potato (See §51.3006, Table II).

(l) "Permanent defects" are defects which are not subject to change during storage or shipment.

(m) "Condition defects" are defects which may develop or change during storage or shipment.

§51.3006 Classification of defects.

(a) Brown discoloration following skinning, dried stems, flattened depressed areas (showing no underlying flesh discoloration), greening, skin checks and sunburn do not affect seed quality and shall not be scored against the grade.

(b) Table I -- External Defects.

x-indicates method of scoring unless otherwise noted.

Defect	Damage	
	When materially detracting from the appearance of the potato	or When removal causes a loss of more than 5 percent of the total weight of the potato.
Air cracks.....	.....	X
Bruises.....	.....	X
Cuts and broken-off second growth (healed).....	X.....	X
Elephant hide (scaling)	X.....	
Enlarged, discolored or sunken lenticels.....	X.....	
Folded ends.....	X.....	
Second growth.....	X.....	
Shriveling.....	When more than moderately shriveled, spongy, or flabby.	
Sprouts.....	When more than 20 percent of the potatoes in any lot have any sprout more than 1 inch (25.4 mm) in length.	
Surface cracking.....	X.....	X
Flea Beetle injury.....	X.....	X
Grub damage.....	X.....	X
Rodent and/or bird damage.....	X.....	X
Wireworm or grass damage.....	Any hole more than 3/4 inch (19.1 mm) long or when the aggregate length of all holes is more than 1-1/4 inches (31.mm) ¹ .	
Dry rots.....	.....	X
Rhizoctonia.....	X.....	
Scab, pitted.....	X.....	X
Scab, russet.....	When affecting more than 1/3 of the surface.....	

Scab, surface.....	When affecting more than 5 percent of the surface	
Silver Scurf.....	When affecting more than 25 percent of the surface.....	
Growth cracks.....	When seriously detracting from the appearance.....	
Pressure bruises and sunken areas with underlying flesh discolored.	.....	When removal causes a loss of more than 10 percent of the total weight.

¹Definitions of damage and serious damage are based on potatoes that are 2-1/2 inches (63.5 mm) in diameter or 6 ounces (170.10 g) in weight. Correspondingly lesser or greater areas are permitted on smaller or larger potatoes.

(c) Table II- Internal Defects.

Defect	Damage	
	When materially detracting from the appearance of the potato	or When removal causes a loss of more than 5 percent of the total weight of the potato
Ingrown sprouts.....	.....	X
Internal discoloration occurring interior to the vascular ring (such as, Internal Brown Spot, Mahogany Browning and Heat Necrosis.).	When more than the equivalent of three scattered light brown spots 1/8 inch (3.2 mm) in diameter ¹	
All other internal discoloration excluding discoloration confined to the vascular ring.	.....	X

¹Definitions of damage and serious damage are based on potatoes that are 2-1/2 inches (63.5 mm) in diameter or 6 ounces (170.10 g) in weight. Correspondingly lesser or greater areas are permitted on smaller or larger potatoes.

Defect	Serious damage	
	When seriously detracting from the appearance of the potato.	or When removal causes a loss of more than 10 percent of the total weight of the potato.
Internal Discoloration confined to the vascular ring.	.....	X
Hollow Heart or Hollow Heart with discoloration.	When affected area exceeds that of a circle 3/4 inch (19.1 mm) in diameter. ¹	

¹Definitions of damage and serious damage are based on potatoes that are 2-1/2 inches (63.5 mm) in diameter or 6 ounces (170.10 g) in weight. Corresponding lesser or greater areas are permitted on smaller or larger potatoes.