



**United States  
Department of  
Agriculture**

**Agricultural  
Marketing  
Service**

**Fruit and  
Vegetable  
Division**

**Fresh  
Products  
Branch**

# **United States Standards for Grades of Sweet Corn**

**Effective February 12, 1992**  
*(Reprinted - January 1997)*

# United States Standards for Grades of Sweet Corn <sup>1</sup>

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## **Grades**

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## **Grades**

### **§51.835**

#### **U.S. Fancy.**

"U.S. Fancy" consists of ears of sweet corn which meet the following requirements:

(a) Basic Requirements:

(1) Similar varietal characteristics;

(2) Well trimmed; and,

(3) Well developed.

(b) Free From:

(1) Smut;

(2) Worms;

(3) Insect or worm injury; and,

(4) Decay.

(c) Free From Injury Caused By:

(1) Rust;

(2) Discoloration;

(3) Birds;

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<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.

- (4) Mechanical;
- (5) Disease; and,
- (6) Other means. (See §51.843)
- (d) Cobs shall be fairly well filled with plump and milky kernels and well covered with fresh husks.
- (e) Ears shall not be clipped.
- (f) The length of each cob shall be not less than 6 inches (152.4 mm).
- (g) For tolerances see §51.840.

**§51.836 U.S. Fancy, Husked.**

"U.S. Fancy, Husked" consists of husked ears of sweet corn which meet the requirements of the U.S. Fancy grade except those pertaining to amount of covering, trimming, clipping and length of cob. Sweet corn of this grade shall be:

- (a) Husked (any remaining husk must be fresh).
- (b) Properly trimmed.
- (c) Each ear may be clipped but each clipped ear must be well clipped.
- (d) The length of each cob clipped or unclipped, shall be not less than 5 inches (127.0 mm), unless otherwise specified.
- (e) For tolerances see §51.840.

**§51.837 U.S. No. 1.**

"U.S. No. 1" consists of ears of sweet corn which meet the following requirements:

- (a) Basic Requirements:
  - (1) Similar varietal characteristics;
  - (2) Well trimmed; and,
  - (3) Well developed.
- (b) Free From:
  - (1) Smut; and,
  - (2) Decay.
- (c) Free From Injury Caused By:
  - (1) Rust.
- (d) Free From Damage Caused By:
  - (1) Discoloration;
  - (2) Birds;
  - (3) Worms;
  - (4) Other insects;
  - (5) Disease;
  - (6) Mechanical; and,
  - (7) Other means. (See §51.843)
- (e) Cobs shall be fairly well filled with plump and milky kernels and fairly well covered with fresh husks.
- (f) Each ear may be clipped, but each clipped ear shall be properly clipped.
- (g) The length of each cob, clipped or unclipped, shall be not less than 5 inches (127.0 mm), unless otherwise specified.
- (h) For tolerances see §51.840.

**§51.838 U.S. No. 1, Husked.**

"U.S. No. 1, Husked" consists of husked ears of sweet corn which meet the requirements of the U.S. No. 1 grade except those pertaining to amount of covering, trimming, clipping and length of cob. Sweet Corn of this grade shall be:

- (a) Husked (any remaining husk must be fresh).
- (b) Properly trimmed.
- (c) Each ear may be clipped but each clipped ear must be well clipped.
- (d) The length of each cob clipped or unclipped, shall be not less than 4 inches (101.6 mm), unless otherwise specified.
- (e) For tolerances see §51.840.

**§51.839 U.S. No. 2.**

"U.S. No. 2" consists of ears of sweet corn which meet the following requirements:

- (a) Basic Requirements:
  - (1) Similar varietal characteristics;
  - (2) Fairly well trimmed; and,
  - (3) Fairly well developed.
- (b) Free From:
  - (1) Smut; and,
  - (2) Decay.
- (c) Free From Serious Damage Caused By:
  - (1) Birds;
  - (2) Worms;
  - (3) Other insects;
  - (4) Disease;
  - (5) Mechanical; and,
  - (6) Other means. (See §51.843)
- (d) Cobs shall be at least moderately filled with plump and milky kernels and fairly well covered with fresh husks.
- (e) Each ear may be clipped, but each clipped ear shall be properly clipped.
- (f) The length of each cob, clipped or unclipped, shall be not less than 4 inches (101.6 mm), unless otherwise specified.
- (g) For tolerances see §51.840.

**Tolerances**

**§51.840 Tolerances.**

In order to allow for variations incident to proper grading and handling, the following tolerances, by count, are provided as specified:

- (a) **For defects.** 10 percent in any lot for ears of corn which fail to meet the requirements of the grade, including therein not more than 2 percent for decay.
- (b) **For off-size.** 5 percent in any lot for ears of corn which fail to meet the requirements as to length of cob.

**Count**

**§51.841 Requirement as to count.**

The number of ears of corn in any package may be specified by count or in terms of dozens or half

dozens. Variation from the number specified shall be permitted as follows: **Provided**, That the average for the lot is not less than the number specified nor more than two ears greater than the number specified:

Specified number Per package:	Variation permitted in individual packages:
1 - 10 ears	0.
11 - 25 ears	2 ears under count, 2 ears over count.
26 - 60 ears	3 ears under count, 5 ears over count.
More than 60 ears	4 ears under count, 6 ears over count.

### **Application of Tolerances**

#### **§51.842 Application of tolerances.**

The contents of individual packages in the lot, based on sample inspection, are subject to the following limitations: **Provided**, That the averages for the entire lot are within the tolerance specified:

- (a) For packages which contain 10 specimens or more and a tolerance of 10 percent or more is provided, individual packages in any lot may contain not more than one and one-half times the tolerance specified. For packages which contain 10 specimens or more and a tolerance of less than 10 percent is provided, individual packages may contain not more than double the tolerance specified except that at least one defective and one off-size specimen may be permitted in any package; and,
- (b) For packages which contain less than 10 specimens, individual packages in any lot may contain not more than double the tolerance specified, except that at least one defective and one off-size specimen may be permitted in any package: **Provided**, That for packages which contain 5 specimens or less, individual packages in any lot are not restricted as to the percentage of defects: **And Provided Further**, That not more than one specimen which is affected by decay or otherwise seriously damaged and one off-size specimen may be permitted in any package.

### **Definitions**

#### **§51.843 Definitions.**

- (a) **Similar varietal characteristics** means that the ears in any package have similar kernel color and character of growth. Ears of field corn and sweet corn, or ears having white color kernels, yellow color kernels and mixed color kernels of corn, shall not be mixed.
- (b) **Well trimmed** means that the ears are practically free from loose husks and that the shank shall be not more than 6 inches (152.4 mm) in length and not extend more than one inch (25.4 mm) beyond the point of attachment of the outside husk.
- (c) **Well developed** means that the ears are fairly straight and are not stunted. Nubbins are not well developed ears.

(d) **Insect or worm injury** means that insect or worm frass is present, or there is visible evidence of insect or worm injury.

(e) **Injury** means any defect listed in §51.844 or any defect which more than slightly affects the appearance, or the edible or shipping quality of the ear. Any one of the following defects, or any combination of defects, the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as injury:

(1) Rust when the aggregate area on the husk exceeds one square inch (64.5 mm<sup>2</sup>), or when the rust extends deeper than 2 layers of husks; and

(2) Discoloration caused by frost or sprayburn, or similar types of discoloration when affecting an aggregate area of more than 3 square inches (193.5 mm<sup>2</sup>) on the husk, or when exceeding an aggregate area of 25 percent of the surface of all blades.

(f) **Fairly well filled** means that the rows of kernels show fairly uniform development, and that the appearance and quality of the edible portion of the ear are not materially affected by poorly developed rows. When the ear has not been clipped, not more than one-fourth of the length of the cob may have poorly developed or missing kernels at the tip. When the ear has been clipped, it shall have practically no poorly developed kernels at the tip of the cob. Missing or poorly developed kernels on other parts of the ear shall not aggregate more than one square inch (64.5 mm<sup>2</sup>) on a cob 6 inches (152.4 mm) in length, and a proportionally greater area shall be permitted on a longer cob and a proportionally lesser area on a shorter cob.

(g) **Plump and milky** means that the kernels are well developed and the contents have a milky, creamy, or clear jelly-like consistency.

(h) **Well covered** means that the husk enclosing the ear is tight and undisturbed, except that a slight opening may have been made at the tip: **Provided**, That the disturbed part has been properly replaced so that the appearance of the ear is not more than slightly affected.

(i) **Fresh** means that the husks have fairly good green color and are not badly wilted.

(j) **Husked** means that on the full length of the cob the equivalent of at least 3 rows of kernels are exposed up to the entire cob.

(k) **Well clipped** means that one or both ends of the cob, or one or both ends of the cob and husk have been neatly removed approximately at a right angle to the longitudinal axis.

(l) **Properly trimmed** means that the ear is not damaged by loose husks and silks and that the shank shall not extend more than 1 inch (25.4 mm) from the cob, when present.

(m) **Damage** means any defect listed in §51.844 or any defect which materially affects the appearance, or the edible or shipping quality of the ear. Any one of the following defects, or any combination of defects, the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as damage:

(1) Discoloration caused by frost or sprayburn, or similar types of discoloration when affecting an aggregate area of more than 5 square inches (322.5 mm<sup>2</sup>) on the husk, or when exceeding an aggregate area of 50 percent of the surface of all blades; and,

(2) Worm injury on unclipped ears when extending more than 1-1/2 inches (38.1 mm) from the tip on an ear 6 inches (152.4 mm) in length (proportionately greater or lesser amounts permitted on longer or shorter ears, respectively), or when affecting the kernels on other parts of the ear or any worm injury on clipped ears.

(n) **Fairly well covered** means that the husk enclosing the ear is fairly tight and undisturbed

except that an opening may have been made at the tip: **Provided**, That the disturbed part has been properly replaced so that the appearance of the ear is not materially affected.

(o) **Properly clipped** means that the tip end of the cob, or the tip end of the cob and husk have been neatly removed approximately at a right angle to the longitudinal axis.

(p) **Fairly well trimmed** means that the appearance of the individual ear of corn is not seriously affected by loose husks and that the shank shall not be more than 6 inches (152.4 mm) in length and not extend more than 2 inches (50.8 mm) beyond the point of attachment of the outside husk.

(q) **Fairly well developed** means that the ears are not stunted to the extent that the appearance is seriously affected.

(r) **Serious damage** means any defect listed in §51.844 or any defect which seriously affects the appearance, or the edible or shipping quality of the ear. The following defects or any combination of defects, the seriousness of which exceeds the maximum allowed for any one defect, shall be considered as serious damage:

(1) Worm injury on unclipped ears when extending more than 2 inches (50.8 mm) from the tip on an ear 6 inches (152.4 mm) in length (proportionately greater or lesser amounts permitted on longer or shorter ears, respectively), or when affecting more than 4 kernels on other parts of the cob, or any worm injury on clipped ears extending more than one-fourth inch (3.2 mm) from the tip.

(s) **Moderately filled** means that the rows of kernels show fairly uniform development, and that the appearance and quality of the edible portion of the ear are not seriously affected by poorly developed rows. When the ear has not been clipped, more than one-fourth but less than one-third of the length of the cob has poorly developed or missing kernels at the tip. When the ear has been clipped it shall have not more than a slight amount of poorly developed kernels at the tip of the cob. Missing or poorly developed kernels on other parts of the ear shall not aggregate more than one and one-fourth square inches (80.6 mm<sup>2</sup>) on a cob 6 inches (152.4 mm) in length, and proportionally greater area shall be permitted on a longer cob and a proportionally lesser area on a shorter cob.

(t) **Poorly filled** means, on unclipped ears, that the edible quality or appearance is affected to a greater extent than that of an ear 6 inches (152.4 mm) in length which has one-third of the cob at the tip end and aggregate area 1-1/2 inches square (96.8 mm<sup>2</sup>) on other portions of the ear with undeveloped kernels or open spaces; and means, on clipped ears, that the edible quality or appearance is affected to a greater extent than that of an ear 6 inches (152.4 mm) in length which has one inch (25.4 mm) at the tip end and an aggregate area 1-1/2 inches square (96.8 mm<sup>2</sup>) on other portions of the ear with undeveloped kernels or open spaces.

### **Classification of Defects**

#### **§51.844 Classification of defects.**

Number of affected kernels allowed for the following defects:

**Mechanical, Bird<sup>1</sup>, Disease,  
and Indented Kernels.**

Length of cob	Injury	Damage	Serious Damage
3 inches (76.2 mm) to 6 inches (152.4 mm)	4	6	8
more than 6 inches (152.4 mm) to 10 inches (254.0 mm)	8	12	16
more than 10 inches (254.0 mm) to 13 inches (330.2 mm)	12	18	24

<sup>1</sup> In scoring injury, if more than the number of kernels allowed above are discolored or punctured or if the husks have been penetrated in more than 1 place; damage, if more than the number of kernels allowed above are discolored or punctured or if the husks have been penetrated in more than 2 places; serious damage, if more than the number of kernels allowed above are discolored or punctured or if the husks have been penetrated in more than 3 places.

**Metric Conversion Table**

**§51.845 Metric conversion table.**

Inches                      Millimeters (mm)

1/4 .....	3.2
1 .....	25.4
1-1/2 .....	38.1
2 .....	50.8
3 .....	76.2
4 .....	101.6
5 .....	127.0
6 .....	152.4
7 .....	177.8
8 .....	203.2
9 .....	228.6
10 .....	254.0
11 .....	279.4
12 .....	304.8
13 .....	330.2

Square                      Square  
Inches                      Millimeters (mm<sup>2</sup>)

1 .....	64.5
1-1/4 .....	80.6
1-1/2 .....	96.8
3 .....	193.5
5 .....	322.5