

# Grape Grader's Manual

EXTENSION BULLETIN E-897

*(Replaces Folder F-200)*

MARKETING SERIES — JULY 1975

For easy reference, unfold this manual and fasten to the packinghouse wall.

COOPERATIVE EXTENSION SERVICE

MICHIGAN STATE UNIVERSITY



# Limit of Defects for Michigan and U.S. Grape Grades

## \*MICHIGAN GRADES

GRADE FACTORS	MICHIGAN FANCY	MICHIGAN NO. 1 AND NO. 1 FROSTED	MICHIGAN NO. 2 AND NO. 2 FROSTED
<b>CONTAINER</b>	Pack in less than 12 qt. (16 lb.) capacity containers. Stems shall be as nearly concealed as possible.	Pack in 12 qt. (16 lb.) capacity or larger containers. Facing bunches shall have stems as nearly concealed as possible.	Same as No. 1.
<b>VARIETY</b>	One variety.	Same.	No requirement.
<b>MATURITY</b>	Mature — Shall have flavor characteristic of the variety.	Same.	No requirement.
<b>COLOR</b>	Well colored — 90% of berries shall have color characteristic of the variety.	Same.	No requirement.
<b>BUNCHES</b>	Well formed — fairly compact. Compact portions with three or more berries may be used to fill open spaces.	Same.	No requirement.
<b>CRUSHED, DRIED, SOFT, SHATTERED, SPLIT, WET, BERRY MOTH, MILDEW, RUSSETING AND ROT.</b>	Free from.	Free from.	Must be sound marketable grapes.
<b>DISEASE, INSECT, MECHANICAL OR OTHER MEANS.</b>	Free from damage. Must not materially affect appearance, edible or shipping quality.	Same.	Must be sound marketable grapes.
<b>TOLERANCES</b>	Not more than 10% of the berries by count may be below grade requirements and 2% mechanical injury. 1% may be affected by rot. In addition not more than 5% for bunches not well formed.	Same as Fancy except: 3% for mechanical injury and 2% rot. 15% for bunches not well formed.	Must be sound marketable grapes.

Berries must be firm sound and firmly attached to capstems. Frosted grades permit grapes which have been subject to frost injury before harvest. Mich. grapes have no size requirements.

### MARKING REQUIREMENTS

All containers must be clean and in good condition and shall be conspicuously and legibly marked in letters not less than ¼ inch in height, declaring the name and address of the packer, vendor or shipper; the grade or unclassified, net contents and variety, if the variety is unknown it shall be so stated, the term "frosted" shall be in letters ½ inch in height.

### UNCLASSIFIED (Refers to U.S. Grades only)

Consists of grapes which have not been classified in accordance with any of the foregoing grades. The term unclassified is not a grade within the meaning of these standards but is provided as a designation to show that no grade has been applied to the lot.

### MINIMUM DIAMETERS — SEE BERRY SIZE (U.S. Grades Only)



## U.S. GRADES (EASTERN TYPE)

GRADE FACTORS	U.S. FANCY TABLE	U.S. NO. 1 TABLE	U.S. NO. 1 JUICE
<b>VARIETY</b>	One variety except when marked assorted varieties.	Same.	Same.
<b>BERRIES SHALL BE:</b>	Well colored, mature, firm and firmly attached to, capstems.	Same except, fairly well colored.	Same as No. 1.
<b>FREE FROM</b>	Split, shattered, crushed, dried or wet berries and free from decay, mold, mildew, berry moth, russetting and hail.	Split, crushed, shattered, dried or wet berries and free from mold, decay and berry moth.	Same as U.S. No. 1.
<b>FREE FROM DAMAGE BY</b>	Freezing, disease, insect or other means.	Freezing, russetting, hail, mildew and disease, insect or other means.	Damage allowed.
<b>FREE FROM SERIOUS DAMAGE BY</b>	Any means.	Any means.	Freezing, russetting, hail, mildew, disease, insect or other means.
<b>BUNCHES</b>	Not less than 50 percent of bunches in any container must be compact; the rest must be fairly compact. Bunches must not be excessively small; however, compact portions of no less than five berries may be used to fill open spaces between whole bunches.	85% fairly compact.	60% fairly compact.
<b>BERRY SIZE</b>	Not less than 90 percent, by count, of the berries, exclusive of dried berries, on each bunch of the Concord, Worden, Champion and other varieties of similar size shall have a minimum diameter of nine-sixteenths of an inch.	Same.	No requirement.
<b>TOLERANCES</b>	5% for straggly bunches, 10% for bunches which fail to meet minimum size for berries. 10% for berries and bunches which fail to meet remaining grade requirements, including 5% for serious damage and of this 5% not more than 1% mold or decay and 2% for berry moth.	Same as U.S. fancy except: 15% for straggly bunches.	15% bunches and berries which fail grade requirements, including 6% serious damage of this 6% not more than 3% for mold or decay and 2% for berry moth.

### DEFINITIONS FOR U.S. GRADES (EASTERN TYPE)

**Firm** — means that the berry is reasonably turgid and does not yield more than slightly to moderate pressure.

**Mature** — means that the grapes are juicy, palatable, and have reached that stage of development at which the skin of the berry easily separates from the pulp. Frozen or slightly frosted stock is not to be confused with mature stock.

**Well Colored** — means that the berries show full color characteristic of the variety.

**Fairly well colored** — means that not less than 75 percent, by weight, of the berries show full color characteristic of the variety; 25 percent of the berries may be partially or poorly colored but not characteristic of immature berries.

**Shattered** — means that the berry is separated from the bunch and may or may not have the capstem attached.

**Compact** — means that the bunches are well filled and have no open spaces.

**Fairly compact** — means that the bunches are well filled but that the berries are not closely spaced as in "compact" bunches.

**Straggly** — means that the bunches are decidedly open with large open spaces and very few berries. Small immature shot berries, characteristic of the Worden variety, should be disregarded unless they are excessive in number and detract materially from the appearance.

**Damage** — means any specific defect described in this section; or any equally objectionable variation of this defect, any other defect, or any combination of defects, which materially detracts from the appearance, or the edible or shipping quality of the individual berry or the bunch as a whole. The following specific defect shall be considered as damage:

(a) Mildew when detracting from the appearance of the individual berry of the bunch as a whole. Berries on the inside of the bunch which show only slight traces of mildew are not considered as damaged.

**Serious damage** — means any defect, or any combination of defects, which seriously detracts from the appearance, or the edible or shipping quality of the individual berry or the bunch as a whole.

## U.S. GRADES (EUROPEAN OR VINIFERA TYPE)

GRADE FACTORS	U.S. FANCY TABLE U.S. FANCY EXPORT	U.S. NO. 1 TABLE
<b>VARIETY</b>	One variety except when designated as assorted varieties.	Same.
<b>BUNCHES SHALL CONSIST OF GRAPES WHICH ARE:</b>	Well developed reasonably well colored, mature, firm, firmly attached to capstems, not weak, not shriveled at capstem, not shattered, not split or crushed and not wet.	Same except: fairly well colored and not materially shriveled at capstem.
<b>BASIC REQUIREMENT FOR BUNCHES</b>	Fairly well filled and not excessively tight for the variety.	Not straggly.
<b>BASIC REQUIREMENT FOR STEMS</b>	Well developed and strong, not dry or brittle.	Not weak or dry and brittle.
<b>BERRIES SHALL BE FREE FROM:</b>	Decay, waterberry sunburn and almeria spot.	Decay, waterberry and sunburn.
<b>STEMS SHALL BE FREE FROM:</b>	Mold and decay.	Same.
<b>BERRIES NOT DAMAGED BY:</b>	Any other cause.	Same.
<b>BUNCHES NOT DAMAGED BY:</b>	Shot berries, dried or other defective berries, trimming away of defective berries or any other cause.	Same.
<b>STEMS NOT DAMAGED BY:</b>	Freezing or any other cause.	Same.
<b>BERRY SIZE:</b>	(1) For berries: Exclusive of shot berries and dried berries, the following percentages, by count, of the berries on each bunch shall have the minimum diameters indicated for varieties as follows: (i) For Ribier, Cardinal, Robin, Exotic, Queen, Italia Muscat, and other similar varieties, 90 percent shall be at least twelve-sixteenths of an inch; (ii) For Thompson Seedless, Perlette, Delight, and Beauty Seedless varieties, 75 percent shall be at least ten-sixteenths of an inch; and (iii) For other varieties 90 percent shall be at least ten-sixteenths of an inch.	(1) For berries: Exclusive of shot berries and dried berries, 75 percent, by count, of the berries on each bunch shall have the minimum diameters indicated for varieties as follows: (i) Thompson Seedless, Perlette, Delight, and Beauty Seedless nine-sixteenths of an inch. (ii) Other varieties ten-sixteenths of an inch.
<b>BUNCH SIZE:</b>	Not less than ¼ lb.	Same.

### TOLERANCES

Factor	U.S. Extra Fancy table	U.S. Fancy table	U.S. No. 1 table
	Percent	Percent	Percent
(A) For bunches failing to meet color requirements	10	10	10
(B) For bunches failing to meet requirements for minimum diameter of berries	10	10	10
(C) For bunches failing to meet stem color requirements	10		
(D) For undersize bunches <sup>2</sup> and for bunches and berries failing to meet the remaining requirements for the grade	8	8	8
Including in (D):			
(a) For serious damage	2	2	2
And, including in (a):			
(i) For decay	½ of 1	½ of 1	½ of 1

### Application of tolerances.

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

- (a) For tolerances of 10 percent or more, individual packages may contain not more than one and one-half times the specified tolerance.
- (b) For a tolerance of less than 10 percent, individual packages may contain not more than double the specified tolerance.

### U.S. FANCY EXPORT

Shall meet requirements of the U.S. Fancy except that bunches shall weigh not less than ½ lb. and in addition meet packing requirements for export.

### EXPORT PACK

When designated as Export, grapes shall be packed with any of the customary protective materials such as cushions, liners, or wraps, or properly packed in sawdust or granulated cork. The so-called "semi-sawdust packs" which are cushioned and/or covered with sawdust are not approved as protective packaging for export.

## DEFINITIONS FOR U.S. GRADES (EUROPEAN OR VINIFERA TYPE)

Color Terms	Black Varieties	Red Varieties	White Varieties
Reasonably well colored (U.S. Fancy).	Each bunch shall have not less than 85 percent, by count, of berries showing good characteristic color. <sup>1</sup>	Each bunch shall have not less than 66% percent, by count, of berries showing good characteristic color <sup>1</sup> except the Tokay and Cardinal varieties shall have not less than 75 percent, by count, of berries showing characteristic color. <sup>2</sup>	No requirement.
Fairly well colored (U.S. No. 1).	Each bunch shall have not less than 75 percent, by count, of berries showing characteristic color. <sup>2</sup>	Each bunch shall have not less than 60 percent, by count, of berries showing characteristic color. <sup>2</sup>	No requirement.

<sup>1</sup>Good characteristic color for black varieties means purple to black except that Ribier or similar varieties of grapes shall have at least two-thirds of the surface of the berry showing purple to black color.

<sup>2</sup>For red varieties good characteristic color means at least two-thirds of the surface of the berry is light red through dark red color; except, for the Tokay variety pink through dark red, and for the Cardinal variety light red through purple shall be permitted.

<sup>3</sup>Characteristic color for black varieties means reddish-purple to black except that Ribier or similar varieties of grapes shall have at least two-thirds of the surface of the berry showing reddish-purple to black color.

<sup>4</sup>For red varieties characteristic color means at least two-thirds of the surface of the berry is pink to dark red; except, for the Tokay variety light pink through dark red and for the Cardinal variety light pink through purple color shall be permitted.

**Excessively tight** — means that the berries are so wedged together that the bunch is extremely compact for the variety and resulting distorted berries materially detract from the appearance of the bunch.

**Fairly well filled** — means that the berries are reasonably closely spaced on main and lateral stems and that the bunch is not very loose or stringy.

**Materially shriveled at capstem** — means that the skin of the berry is definitely wrinkled adjacent to the capstem and the surface is materially sunken.

**Well developed and strong** — means that the main and lateral stems are firm, fibrous, and pliable; not distinctly immature or spindly or threadlike at time of packing.

**Well developed grapes** — means grapes which are not abnormally small for the variety.

**Firm** — means the berry does not yield more than slightly to moderate pressure and is not flabby or wilted.

**Weak** — means that individual berries are somewhat translucent, watery and soft, may have relatively low sugar content, inferior flavor, or are of poor keeping quality.

**Shattered** — means that the berry is separated from the bunch and may or may not have the capstem attached.

**Straggly** — means that the berries are so widely spaced on main and lateral stems that the bunch is distinctly open or very stemmy or stringy in structure.

**Wet** — means that the grapes are wet from moisture from crushed, leaking, or decayed berries or from rain. Grapes which are moist from dew or other moisture condensation such as that resulting from removing grapes from a refrigerator car or cold storage to a warmer location shall not be considered as wet.

**Shriveled at capstem** — means that the berry shows more than slight wrinkling of the skin surrounding the capstem.

**Waterberry** — means a watery, soft, or flabby condition of the berry. Affected berries are low in sugar content, have tender skins, and are easily crushed. This is an advanced or more pronounced stage of the condition referred to as "weak."

**Sunburn** — means injury to the berry caused by exposure to the sun, including "sulphur burn," usually occurring as a sunken and discolored or dried area on the exposed surface.

**Decay** — means any soft breakdown of the flesh or skin of the berry resulting from bacterial or fungus infection. Slight surface development of green mold (Cladosporium) shall not be considered decay.

**Damage** — means any specific defect described in this section; or an equally objectionable variation of this defect, any other defect, or any combination of defects, which materially detracts from the appearance, or the edible or shipping quality of the individual berry or the bunch as a whole. The following specific defect shall be considered as damage:

(a) Mildew when detracting from the appearance of the individual berry or the bunch as a whole. Berries on the inside of the bunch which show only slight traces of mildew are not considered as damaged.

**Shot berries** — means very small berries resulting from insufficient pollination, usually seedless in those varieties which normally develop seeds.

**Serious damage** — means any defect or any combination of defects which seriously detracts from the appearance, or the edible or marketing quality of the grapes and includes berries which are split, crushed, wet, affected by decay or waterberry, or affected by heat or freezing. Grapes which show healed cracks at the blossom end shall not be considered as seriously damaged.

**Diameter** — means the greatest dimension of the berry taken at right angles to a line running from the stem to the blossom end.

**Dried berries** — means berries which are dry and shriveled to the extent that practically no moisture is present.



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