

APPLES (SECTION 1400)

Exemptions, For By - Products Use

Except for maturity, grade, and labeling requirements, lady and crab apples are exempt from the requirements of the California Code of Regulations.

Special Marking Requirements

Consumer Packages (20 Lbs. or Less): Grade (California fancy grade or better). May contain mixed varieties.

Master Containers

Grade designation, and variety or varieties.

Non-consumer Containers: Grade designation, variety or "unknown variety" when in closed containers, minimum diameter when loose in terms of inches not less than 1/8 inch fractions followed by the words "minimum diameter" or abbreviations, "min. dia." or "min."

Gift Pack: May contain mixed varieties. Labeled "gift pack" (grade markings not required; however, must meet extra fancy grade requirements, except russeting permitted on pippins unless they can be scored as appreciable damage in fancy grade).

Grade designation may be used in lieu of California grade designations: U.S. Extra Fancy, U.S. Fancy, U.S. No. 1, U.S. No. 1 and U.S. Utility.

Note: Out-of-state containers and controlled atmosphere, all containers and consumer packages must be marked with the California registration number of the owner or operator of a controlled atmosphere room, or storage building or packer or re-packer of such apples. If such persons are located outside California, the registration number assigned by the Secretary or a comparable California identification assigned by another state

Standard Containers

Required

Tolerances

Grade: 10%, by count, for a combination of defects not to exceed 5%, for any one cause, in any one lot. Individual packages may have double the tolerance provided, that the entire lot averages within the tolerance specified.

When applied to a combination grade, tolerances shall apply only to the lowest grade (fancy) and at least 50%, by count, shall meet the standard for the higher grade. (No tolerance is allowed for the higher grade apples.)

Size: 5%, by count, allowed for apples failing to meet "minimum size" or "uniform size" with not more than 10% permitted for individual containers, provided the lot or container does not exceed the tolerances for defects.

Gravenstein Maturity

Gravenstein apples shall be considered mature when a composite sample of the juice taken from the representative portion of each of 10 representative apples in any lot tests not less than 10.5% soluble solids, as shown by a standard temperature compensating hand refractometer.

Note: Testing - girdling knives are to be used when testing Gravensteins. Cut completely around the apples, 2 the distance between the stem end and the blossom end. The juice is to be extracted from the girdled portion and tested for soluble solids. Gravensteins apples are tested at the time of packing and are the only apples that can be tested for maturity after leaving the area of production.

General Apple Maturity

Apples shipped prior to the release date are subject to inspection for maturity in any receiving county except when certified by the agricultural commissioner of the origin county.

Granny Smith, Red Delicious, Golden Delicious, Jonathan, Rome, Newton Pippins, and McIntosh varieties are released by sampling orchards prior to picking and testing for maturity by using the pressure tester and refractometer. There is no pressure test required on Red Delicious apples, but pressure may be used for the "sliding scale test."

Maturity Testing Prior to Picking:

1. Sample consists of:
 - a. Granny Smith X 15 apples per each size, 3 apples from each of 5 trees for each size, with a total of 30 apples from each orchard
 - b. Other varieties X 10 apples per each size, 2 apples from each of 5 trees for each size, with a total of 20 apples from each orchard
2. Tests start about three weeks prior to anticipated release date
3. The same inspector makes all tests throughout the testing period
4. Apples are taken from the same orchards throughout the testing period for each variety
5. Samples are taken from five representative trees throughout the orchard. Pick two apples from each tree, one from the inside, the other from the outside, (for the Granny Smith, pick the third apple from a mid-point between the other two), avoiding sunburned fruit, and fruit that could be rejected

The steps below do not apply to the Granny Smith:

6. Two sizes are taken at the same time but tested and averaged separately. Small apples would be considered as 2-3/8" to 2-5/8" in diameter, and large apples would be considered as those which are larger than 2-5/8". Circle large or small to indicate the fruit size.
7. Pressure Test: Remove 2" to 3/4" diameter disc of peel no more than 1/16" thick on each fruit at opposite sides at the middle point. Press the rounded 7/16" plunger of the pressure tester into each area to a depth of 5/16" (up to notch) and record the reading. Average the tests of all ten apples.
8. Juice for the soluble solids test is obtained from either the pressure test or from a strip of the apple that has been removed by cutting completely around the fruit with a girdling knife. The juice from all ten pressure tests or all ten strips (including the skin) must be thoroughly mixed before testing. In either case, the juice for the soluble solids test must come from the same fruit that has been tested for pressure.
9. Prior to any testing, have your hand refractometer and your pressure tester checked for accuracy.
10. When completing the form provided by the State, circle the elevation using a practical application of high and low for the county. High would be those orchards which are rolling hills, unirrigated or mountainous; whereas, low would be flatland or that which is irrigated easily by gravity.
11. Once the Red Delicious variety attains a soluble solids reading of 10.0, its projected release date will be no more than two weeks from the date the test equaled 10%.

All other varieties need only be "properly matured", which means that the apple, at the time it was taken from the tree, had reached the stage of minimum maturity, based upon the known and defined factors of maturity, which ensures palatability and proper completion of the ripening process.

Granny Smith Maturity

The apples shall be considered mature when attaining a numerical value of 2.5 on the "Granny Smith Apple Starch Scale." This value is based on the mathematical average of the sample apples and is determined by use of the starch-iodine test.

The following standard iodine-potassium solution is used:

- 1 ounce of potassium iodide
- 1/4 ounce of iodine
- 5 pints of water

Store the solution in a sealed, dark glass container in a dark place.

Granny Smith Sampling and Testing Procedure

Use the following sampling and testing procedures for Granny Smith:

1. Collect a sample of 30 apples.
2. Cut each apple into halves; cutting horizontally at the widest part.
3. Put iodine solution in shallow pan to a depth of about $\frac{1}{8}$ inch.
4. Place cut surface of the stem end half in the solution for about 30 seconds.
5. Transfer to the distilled water rinse for about 10 seconds.
6. Remove the apple from the rinse and stand it face up for one minute.
7. Note blue color development on apple and compare to starch scale chart.
8. Record numerical value.
9. Calculate an average of the 30 readings.
10. To pass maturity, the numerical value must show an average of 2.5 or better.

Iodine will stain almost anything it contacts, especially skin and clothing. Cover the testing table surface with plastic. Wear a suitable apron and use rubber gloves (surgical gloves permits greater dexterity). Use a sharp instrument such as a knife or ice pick to manipulate the apple in the iodine.

The iodine solution and rinse water can be reused and added to between samples, but should not be carried from one day's testing into the next day. Iodine loses its strength if exposed to light and will affect test results.

County Release Date

The release date for harvest may be established when the average numerical value of the test orchards in the county is equal to or greater than 2.5 on the starch scale.

Apples shipped prior to the release date are subject to inspection for maturity in any receiving county except when certified by the agricultural commissioner of the origin county.

Maturity of Apples From Out-of-State

Maturity provisions of the California Code of Regulations do not apply to out-of-state apples, except that the apples must be "properly matured" as defined by the Code of Regulations or must meet the maturity requirements of the state of origin. For the Granny Smith, Red and Golden Delicious, Jonathan, Rome, Newtown Pippin, and McIntosh, properly matured means the standards established for those varieties.

Grades and California Grades

U. S. Extra Fancy must meet California Extra Fancy

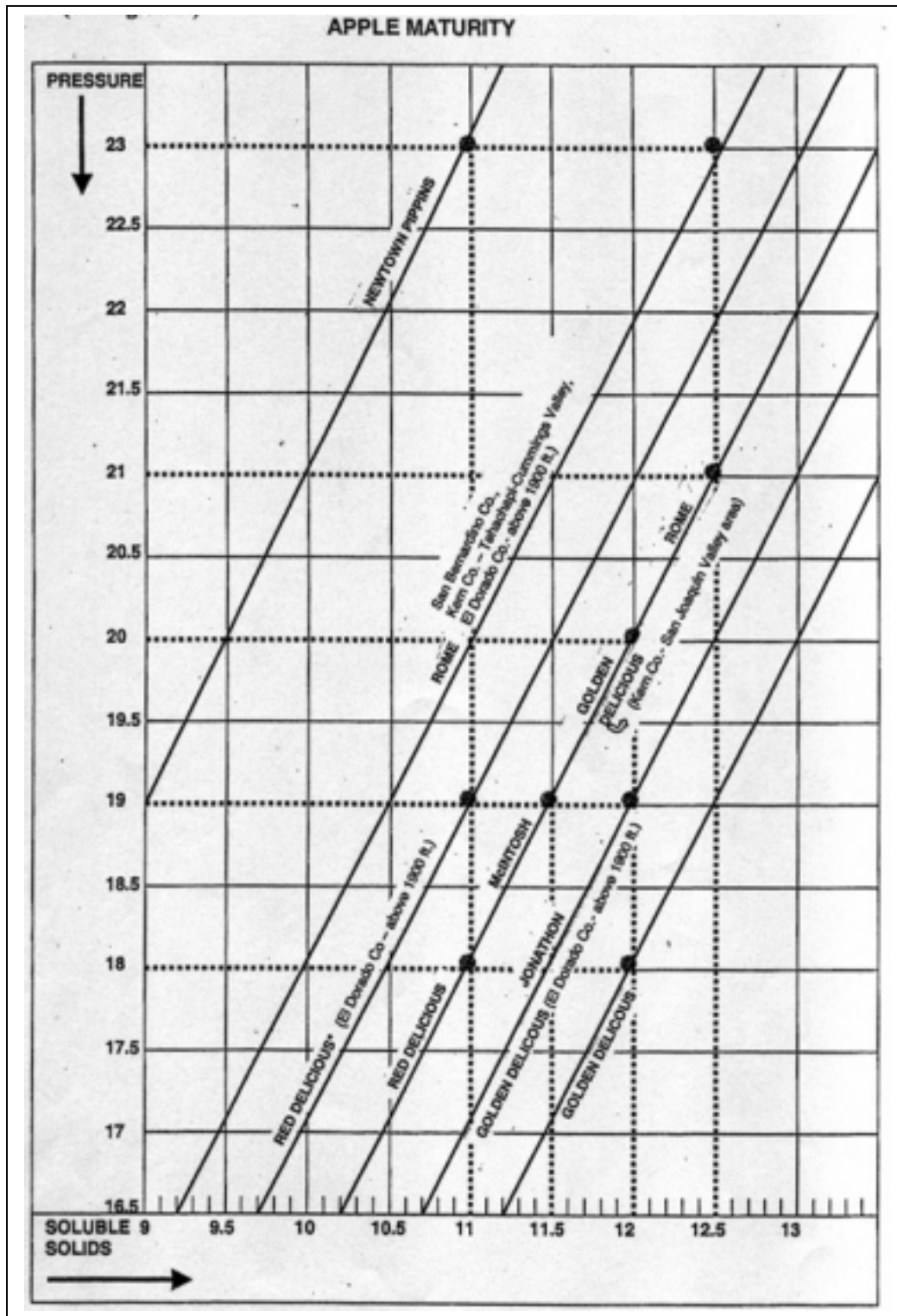
U. S. Fancy must meet California Fancy

U. S. No. 1 must meet California Fancy

U. S. Utility must meet California C Grade

The additional tolerance for hail permitted under the U.S. No. 1 hail grade is not permitted under California Grades.

Maturity Chart (Sliding Scale)



*Red Delicious apples need not comply with the pressure requirements when complying with the minimum soluble solids requirements; however pressure may be used to compensate for soluble solids as provided below:

Apples are considered mature when the combination of pressure and soluble solids are charted on the line or to the right of the line that bears the name of the variety.

REQUIREMENTS BY GRADE

	FOR EXTRA FANCY	FOR FANCY	FOR C GRADE
Properly Matured	X	X	X
Not Overripe	X	X	X
One Variety (except consumer containers)	X	X	X
Clean (not showing signs of being on the ground)	X	X	Virtually Clean
Hand Picked	X	X	X
Shape	Fairly Well Formed	Fairly Well Formed	No Requirements
Color	Well Colored (based on color table)	Fairly Well Colored (based on color table)	No Requirements

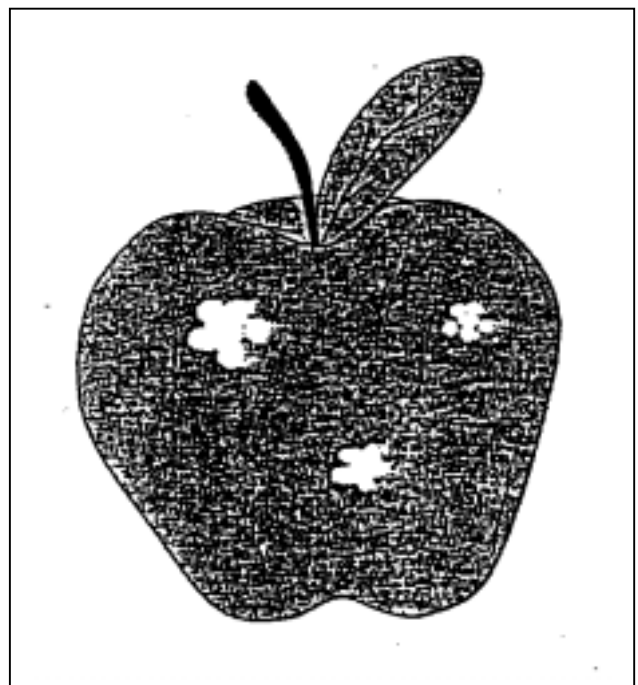
DEFECTS BY GRADE

DEFECTS	EXTRA FANCY	FANCY	C GRADE
Decay	None	None	None
Bitter Pit	None	None	None, except Bellefleur and Newtown Pippins (not more than 3 spots on not more than 25% of the apples in any container).
Jonathan Spot	None	None	None, except as above for Bellefleur and Pippins.
Jonathan Freckle	None	Not more than appreciably affecting the appearance or quality.	Not to exceed 2" aggregate.
Internal Breakdown	None	None	None
Internal Browning	None	Not more than a trace of discoloration in the flesh.	Not able to be detected by external examination. No cutting required to find it.
Visible Watercore	None	None	None
Skin Breaks---Unhealed	Not over 1/8" diameter, or 1/8" depth, or aggregate over 3/16".	Same as Extra Fancy	Same as Extra Fancy
Well Healed	Not over 1/4" aggregate	Same as Extra Fancy	Not over 2" aggregate.

DEFECTS	EXTRA FANCY	FANCY	C GRADE
Spray Burn Sunscald Sunburn	None	Not more than slight skin or flesh discoloration. No blistering or cracking of the skin.	Not seriously discoloring or injuring the flesh. Not blistering or cracking the skin.
Sunburn (Granny Smith - Any shade of brown, not yellow or tan, on the skin)	Not more than ¼” aggregate diameter.	Not more than 2” aggregate diameter.	Not more than ¾” aggregate diameter.
Scald Storage Scald	None	Not more than ¼” brown skin discoloration.	Not more than 1” brown skin discoloration.
Soft Scald (decay)	None	None	None
Hail	None	Not more than 2 marks, each 1/8” or less, not exceeding 1/16” in depth.	Not more than 10% of the surface affected, or not seriously deformed.
Fly Speck Fungus	None	Not more than slightly affecting the appearance.	Not seriously affecting the appearance or quality.
Stem or Calyx Cracks (well healed)	See skin Breaks, above.	Not over ¼” in aggregate length.	Not over 2” in aggregate length.
Frost Injury	None	Not over 2” aggregate diameter. Skin deep only.	Not more than 10% of the surface or seriously deforming the fruit.
Scab	None	Not over ¼” aggregate diameter.	Not over 2” aggregate diameter.
Insect Injury---Unless otherwise specified	None	None	None
Scale Insects including San Jose Scale	A	Green/Yellow surface not more than 3 spots. Red surface not more than 5 spots.	Not more than 10% of the surface of the apple.
Stink Bug	A	Not more than ¼” aggregate diameter.	Not more than 1-1/2” aggregate diameter.
Coddling Moth bites and stings (healed).	A	Not more than 2, each 1/8” or less in diameter.	Not more than 5, each 1/8” or less in diameter.
Pansy Spot*	Not more than 5/8” aggregate diameter.	Not more than 7/8” aggregate diameter.	Nor more than 1-1/2” aggregate diameter.
Limb Rub	None	Not soft, or exceeding ¾” aggregate diameter.	Not more than 10% of the surface, or seriously affecting the appearance or quality of the apple.

DEFECTS	EXTRA FANCY	FANCY	C GRADE
Cork/Drought Spot	None	Not more than 2" aggregate diameter, or deeper than 3/16".	Not more than 10% of the surface of the apple.
Russeting Excessively Rough or Dark Not Excessively Rough	Confined to basin of the stem cavity.	Not more than 3/4" aggregate diameter. Not more than 15% of the surface of the apple, except as below. Not more than 25% of the surface of Pippin or Green variety apples.	Not more than 10% of the surface of the apple. Not a defect.
Bruising Individual bruise Multiple bruises	Not more than 1/4" in depth. Not more than 1" in diameter Not more than 2" in aggregate diameter	Same as Extra Fancy	Same as Extra Fancy
Other Diseases or Defects	None	Not more than appreciably affecting the appearance or quality of the apple.	Not seriously affecting the appearance or quality of the apple.

*Pansy Spot is a superficial blemish caused by thrips, that affects only the skin, and is non-progressive in nature. The defect often appears as a pansy shaped pattern or discolored skin. On green varieties, it will appear whitish, and on red varieties, whitish to pale pink.



Size and Packing

Shall be packed to comply with extra fancy, fancy, “C” grade, or combination of extra fancy and fancy.

All varieties of Gravenstein apples for shipment or sale on North American Continent shall be at least fancy grade or better.

All apples, except well packed apples, lady apples, crab apples, and “C” grade loose, shall be of a size that will not pass through a 2-1/4” ring.

Each container marked with grade must contain only one variety, except gift packs, and consumer packages may contain mixed varieties. Gift pack apples must meet extra fancy grade requirements, except russeting is permitted on pippins, unless scoreable as appreciable damage in fancy grade.

Well-packed apples must be uniform in size (125 or less - 3/8” variance, 138 or more - 1/4” variance) and packed in a regular, compact, diagonal arrangement. Size variation is determined by measuring the smallest and largest fruit in the container. Each pair is counted as one defect.