

Apples

Receiving and inspecting

Apples should be firm and have smooth skin.

Storing and handling

Apples should be stored at 32-34°F, at 85-95% relative humidity. Susceptible to freezing; do not store below 29°F.

Sensitive to ethylene: No

Produces ethylene: Yes

Odor-sensitive: Yes

Odor-producing: No

Acceptable

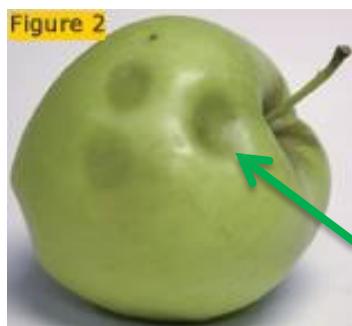


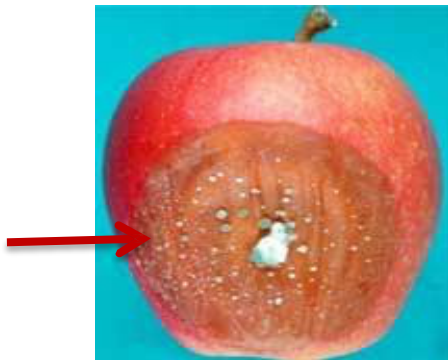
Figure 2

Bruises



Superficial spot

Not acceptable



Blue mold



Gray mold



Alternaria rot



Bull's eye rot

Apricots

Receiving and inspecting

Apricots should be firm to slightly soft (ripe), but not overripe (mushy).

Storing and handling

Apricots should be stored at 32-36°F, 85-95% humidity. Do not store below 31°F.

Sensitive to ethylene: **Yes**

Odor-sensitive: No

Produces ethylene: **Yes**

Odor-producing: No

Acceptable



Sunburn or ripe fruit OK.



Surface scarring, mechanical damage OK

Not acceptable



Rot-mushy and discolored



Split skin

Bananas

Receiving and inspecting

Avoid fruit with damaged skins.

Storing and handling

Bananas should be stored at 56-58°F, at 85-95% relative humidity. To ripen green bananas, store at 60-65°F. Bananas bruise easily; handle with care.

Sensitive to ethylene: Yes

Odor-sensitive: No

Produces ethylene: No

Odor-producing: No

Acceptable



A few bruises



Slight speckling

Not acceptable



Chill damage



Overripe



Also overripe

Bell peppers

Receiving and inspecting

Bell peppers should be firm in texture.

Storing and handling

Bell peppers should be stored at 45-50°F, at 85-95% relative humidity. Avoid storing below 42°F to avoid chill injury.

Sensitive to ethylene: **Yes**

Produces ethylene: No

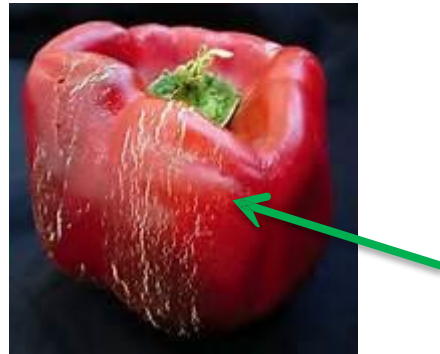
Odor-sensitive: No

Odor-producing: **Yes**

Acceptable



Variations in colors



Surface cracks, blemishes, slight puckering

Not acceptable



Decay, heavy puckering or rotting



Mold

Berries (black, blue)

Receiving and inspecting

Berries should be firm and fairly dry. Berries do not ripen after harvest; discard any green berries.

Storing and handling

Blueberries and blackberries should be stored at 32-34°F at 90-98% relative humidity. Do not store below 30°F, as blackberries are very susceptible to freeze damage. Blackberries in particular are very perishable, so handle with care and use soon after receiving.

Sensitive to ethylene: No

Produces ethylene: No

Odor-sensitive: No

Odor-producing: No

Acceptable



Should not be green or underripe



Check that cartons are not oozing,
slight moistness ok

Not acceptable



Mushy and discolored fruit



Mold

Broccoli

Receiving and inspecting

Broccoli should be firm and not limp. Some yellow is ok.

Storing and handling

Broccoli should be stored at 32°F, at 90-98% relative humidity. Handle with care to avoid damage to bud clusters.

Sensitive to ethylene: Yes

Produces ethylene: No

Odor-sensitive: No

Odor-producing: No

Acceptable



Some yellowing



Multi-colored varieties

Not acceptable



Bacterial soft rot on broccoli

Discoloration from rot (soft, dark spots)



Moldy

Brussels sprouts

Receiving and inspecting

Brussels sprouts should be firm, green, and have compact leaves.

Storing and handling

Plums should be stored at 32-36°F, at 90-98% relative humidity. Do not store below 31°F.

Sensitive to ethylene: **Yes**

Odor-sensitive: No

Produces ethylene: No

Odor-producing: No

Acceptable



Firm, green, some surface spots OK

Not acceptable



Yellowing due to age or ethylene exposure



Rot, large black spots

Cabbage

Receiving and inspecting

Cabbages should be fairly even colored and heavy for its size.

Storing and handling

Cabbages should be stored at 32-36°F, at 90-98% relative humidity.

Sensitive to ethylene: **Yes**

Odor-sensitive: **Yes**

Produces ethylene: No

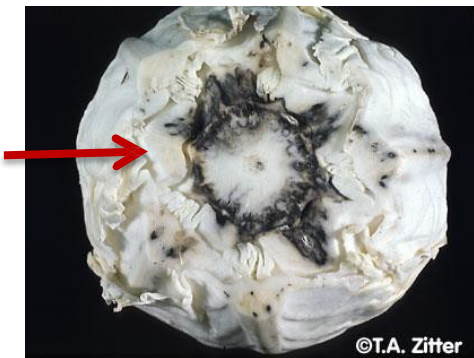
Odor-producing: No

Acceptable



Small spots on outer leaves

Not acceptable



Black rot



White rot



Downy mildew

Cantaloupe

Receiving and inspecting

Cantaloupes should be round with good netting or webbing over creamy-colored rind. They have a distinctive aroma and the blossom end will yield to gentle pressure when ripe.

Storing and handling

Cantaloupes should be stored at 36-41°F, at 90-98% relative humidity. Susceptible to freezing; to prevent chill injury, do not store below 30°F.

Sensitive to ethylene: No
Produces ethylene: **Yes**

Odor-sensitive: No
Odor-producing: No

Acceptable



Slight discoloration



Variations in shape (e.g., oval)

Not acceptable



Mold



Decay



Anthracnose

Carrots

Receiving and inspecting

Carrots should have firm, smooth exteriors (i.e., should snap when bent far enough). Color should be vibrant orange to orange-red.

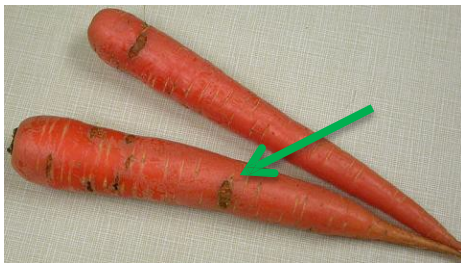
Storing and handling

Carrots should be stored at 33-35°F, at 90-98% relative humidity. Do not store below 30°F.

Sensitive to ethylene: **Yes**
Produces ethylene: No

Odor-sensitive: **Yes**
Odor-producing: No

Acceptable



Spots on outer surface



Odd shapes

Not acceptable



Rot



Mold



More rot

Cauliflower

Receiving and inspecting

Cauliflower should be firm in texture. Most are white, though there are other color varieties as well.

Storing and handling

Cauliflower should be stored at 32°F at 90-98% relative humidity. Do not store below 31°F to avoid freeze injury. Cauliflower is susceptible to bruising; handle with care and do not drop shipping containers on the floor.

Sensitive to ethylene: **Yes**

Produces ethylene: No

Odor-sensitive: No

Odor-producing: No

Acceptable



Light brown spots are fine as long as cauliflower is still firm



Color variations

Not acceptable



Rot – soft/mushy, discolored or moldy

Celery

Receiving and inspecting

Celery should be firm in texture and not too limp; ribs should snap crisply when bent. Color is green but some yellow is ok.

Storing and handling

Celery should be stored at 32-36°F, 90-98% humidity. Do not store below 30°F.

Sensitive to ethylene: No

Odor-sensitive: **Yes**

Produces ethylene: No

Odor-producing: No

Acceptable



Some yellow is ok



Some brown at base is ok

Not acceptable



Soft and slimy



Moldy

Corn, sweet

Receiving and inspecting

Sweet corn should be firm but kernels not hard and dry like feed corn. Color varies white to deep yellow. It should have fresh green husks with silk ends that are free of decay or worms.

Storing and handling

Corn should be stored at 34-38°F at 95% relative humidity. Do not store below 32°F.

Sensitive to ethylene: No

Odor-sensitive: **Yes**

Produces ethylene: No

Odor-producing: No

Acceptable



Varied colors and odd shaped or missing kernels



Dark silks can be ok (check kernels for moisture)

Not acceptable



Corn worm



Corn smut mold

Cucumbers

Receiving and inspecting

Cucumbers should be firm in texture. Color should be green (or mostly green).

Storing and handling

Cucumbers should be stored at 45-50°F at 85-95% relative humidity. To avoid chill injury, avoid storing below 45°F.

Sensitive to ethylene: **Yes**

Produces ethylene: No

Odor-sensitive: No

Odor-producing: No

Acceptable



Outer blemishes



Slight yellowing

Not acceptable



Rot-puckered and soft (especially common after chill injury)



Moldy

Grapefruit

Receiving and inspecting

Grapefruit should be firm and heavy for its size. Grapefruit may exhibit some regreening of the skin, but that does not affect the internal fruit quality.

Storing and handling

Optimal storage temperature varies by type. CA and AZ: 50-55°F; FL and TX: 50-60°F, 85-95% relative humidity.

Sensitive to ethylene: **Yes**

Produces ethylene: No

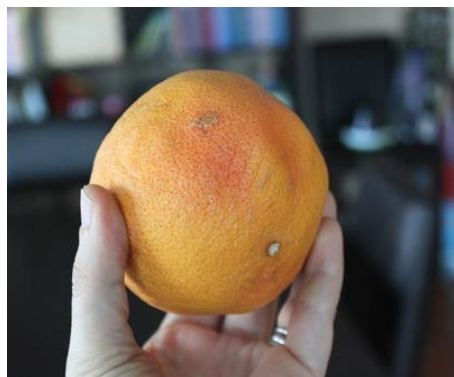
Odor-sensitive: No

Odor-producing: No

Acceptable



Slight greenish skin



Some surface blemishes

Not acceptable



Rot



Mold

Lemons/Limes

Receiving and inspecting

Lemons and limes should be firm in texture.

Storing and handling

Lemons and limes should be stored at 45-48°F, 85-95% relative humidity.

Sensitive to ethylene: **Yes**

Odor-sensitive: No

Produces ethylene: No

Odor-producing: No

Acceptable



Variations in colors are ok



Some surface blemishes are ok

Not acceptable



Diseases or rotting



Moldy

Lettuce

Receiving and inspecting

In general, avoid wilted and discolored leaves. For iceberg lettuce, some browning of the core end is natural and occurs from oxidation after lettuce has been harvested and trimmed.

Storing and handling

Lettuce should be stored at 34-36°F, at 90-98% relative humidity. Keep lettuce away from drafts to avoid dehydration.

Sensitive to ethylene: **Yes**
Produces ethylene: No

Odor-sensitive: No
Odor-producing: No

Acceptable



Brown core

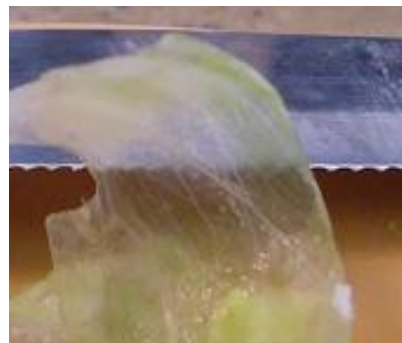


Tear/slight bruising

Not acceptable



Wilted leaves



Translucent leaves (freeze damage)



White mold

Mushrooms

Receiving and inspecting

Mushrooms should have a firm texture and be free of spots. Open veils are not a sign of poor quality, size and color do not affect quality. Some common types are portabella, cremini, white, and oyster.

Storing and handling

Mushrooms should be stored at 32-36°F, at 90-98% relative humidity.

Sensitive to ethylene: No

Odor-sensitive: **Yes**

Produces ethylene: No

Odor-producing: No

Acceptable



Irregular shapes or dirt

Not acceptable



Sliminess or dark spots



Shriveled or dehydrated

Nectarines

Receiving and inspecting

Nectarines should be firm to slightly soft (ripe), but not overripe (mushy).

Storing and handling

Nectarines should be stored at 32-36°F, 90-98% relative humidity. Do not store below 31°F.

Sensitive to ethylene: **Yes**

Odor-sensitive: No

Produces ethylene: **Yes**

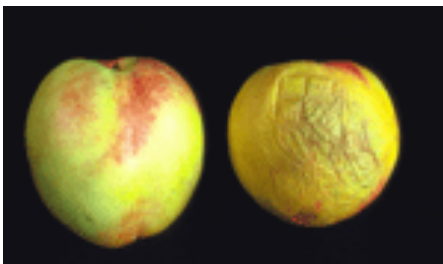
Odor-producing: No

Acceptable



Slight pitting OK

Not acceptable



Shriveling



Rot, mold

Onions, bulb

Receiving and inspecting

Good quality onions should be firm and hard with short, tight necks and dry papery skin. Slightly loose outer skin is common and should not affect quality.

Storing and handling

Onions should be stored at 40-60°F, at 85-95% relative humidity. For extended storage (longer than 7 days), hold at 32-36°F. Keep out of direct sunlight.

Sensitive to ethylene: **Yes**

Odor-sensitive: **Yes**

Produces ethylene: No

Odor-producing: **Yes**

Acceptable



Small sprouts



Unusual shape

Not acceptable



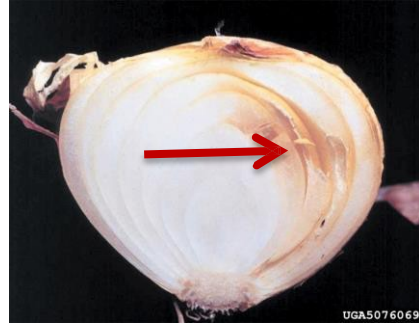
Bulb rot



Bacterial soft rot



Neck rot



Sour skin

Oranges

Receiving and inspecting

Oranges should be firm, heavy for size, and have fine-textured skin. Skin color of a ripe orange ranges from orange to greenish-orange. Many oranges go through a regreening process on the tree in which the skin color begins to turn from orange back to green again. Regreening is a natural occurrence and does not affect the flavor quality of the orange.

Storing and handling

Optimal storage temperature varies by type. FL: 32-34°F; CA: 45-48°F; AZ & TX: 32-48°F, at 85-95% relative humidity.

Sensitive to ethylene: No
Produces ethylene: No

Odor-sensitive: No
Odor-producing: **Yes**

Acceptable



Slightly green oranges



Small spots

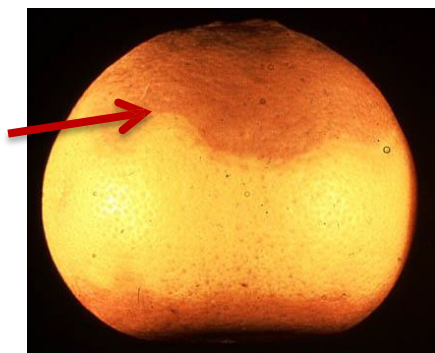
Not acceptable



Mold



Mold in navel



Stem end decay



More mold (green)

Peaches

Receiving and inspecting

Peaches should be firm to slightly soft (ripe), but not overripe (mushy).

Storing and handling

Peaches should be stored at 32-36°F, 90-98% humidity. Do not store below 31°F.

Sensitive to ethylene: **Yes**

Odor-sensitive: No

Produces ethylene: **Yes**

Odor-producing: No

Acceptable



Skin discoloration (inking) OK



Surface scarring OK

Not acceptable



Severe bruising



Rot, mold

Pears

Receiving and inspecting

Pears should be at least fairly firm in texture.

Storing and handling

Pears should be stored at 32°F at 90-98% relative humidity. Do not store below 29°F to avoid freeze injury. Ripen at 60-70°F.

Sensitive to ethylene: No

Produces ethylene: Yes

Odor-sensitive: Yes

Odor-producing: Yes

Acceptable



Variations in colors and green unripe



Some surface blemishes and slight bruising

Not acceptable



Heavy bruising and mushiness



Moldy

Plums

Receiving and inspecting

Plums should be firm to slightly soft (ripe), but not overripe (mushy).

Storing and handling

Plums should be stored at 32-36°F. Do not store below 31°F.

Sensitive to ethylene: **Yes**

Odor-sensitive: No

Produces ethylene: **Yes**

Odor-producing: No

Acceptable



Skin discoloration, surface scarring OK

Not acceptable



Shriveling



Rot, mold

Potatoes

Receiving and inspecting

All potato varieties should be fairly clean, firm, and smooth. Avoid potatoes with wrinkled skins, soft dark spots, or green appearance.

Storing and handling

Potatoes should be stored at 45-50°F, at 85-95% relative humidity. Susceptible to freezing; to prevent chill injury, do not store below 42°F.

Sensitive to ethylene: No

Odor-sensitive: **Yes**

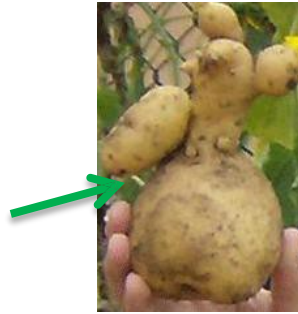
Produces ethylene: No

Odor-producing: **Yes**

Acceptable



Small peepers (sprouts)



Odd lumps

Not acceptable



Moldy cut



Green potato (solanine)



Common scab



Late blight

Squash, hard-shell

Note: Hard-shell squash types are generally larger than soft-shell types and have hard, inedible rinds. Major types include acorn, buttercup, kabocha, and spaghetti.

Receiving and inspecting

Squash should be firm in texture.

Storing and handling

Hard-shell squash should be stored at 50-55°F at 85-95% relative humidity. To avoid chill injury, avoid storing below 50°F.

Sensitive to ethylene: Yes

Produces ethylene: No

Odor-sensitive: No

Odor-producing: No



Acceptable



There are many varieties—very similar needs in terms of handling and storage

Discoloration, slight surface blemishes

Not acceptable



Start of decay



Moldy and rotting

Squash, soft-shell

Note: *Soft-shell squash are also known as summer squash. Common varieties include zucchini, straightneck (yellow squash), crookneck, and pattypan.*

Receiving and inspecting

Squash should be firm in texture with shiny, tender rinds.

Storing and handling

Soft-shell squash should be stored at 41-50°F at 85-95% relative humidity. To avoid chill injury, avoid storing below 41°F.

Sensitive to ethylene: **Yes**

Produces ethylene: No

Odor-sensitive: No

Odor-producing: No

Acceptable



Irregular shapes



Discoloration, slight surface blemishes

Not acceptable



Blossom end rot



Mold

Strawberries

Receiving and inspecting

Strawberries should be firm in texture. Color should be red, though some lighter color is ok. Avoid strawberries that are green, or those that appear mushy, shriveled, or leaky.

Storing and handling

Strawberries should be stored at 32-34°F at 90-98% relative humidity. Berries should not be rinsed until just before they are used. Temperatures above 36°F will accelerate the growth of gray mold.

Sensitive to ethylene: No

Produces ethylene: No

Odor-sensitive: No

Odor-producing: No

Acceptable



Odd shapes

Red in color, though some lightness is fine

Not acceptable



Rot-mushy and discolored



Moldy

Sweet potatoes

Receiving and inspecting

Good quality sweet potatoes should be firm with smooth skins.

Storing and handling

Sweet potatoes should be stored at 55-60°F, at 85-95% relative humidity. Store in well-ventilated area.

Sensitive to ethylene: **Yes**

Produces ethylene: No

Odor-sensitive: No

Odor-producing: No

Acceptable



Odd shapes



Small sprouts

Not acceptable



Mold



Chill damage (soft spots)

Tomatoes

Receiving and inspecting

Good quality tomatoes should have bright, shiny skin and firm flesh.

Storing and handling

Ripe (nearly full red) tomatoes should be stored at 55-60°F; less ripe tomatoes should be stored at 62-68°F. 85-95% relative humidity is ideal.

Sensitive to ethylene: No

Odor-sensitive: No

Produces ethylene: No

Odor-producing: No

Acceptable

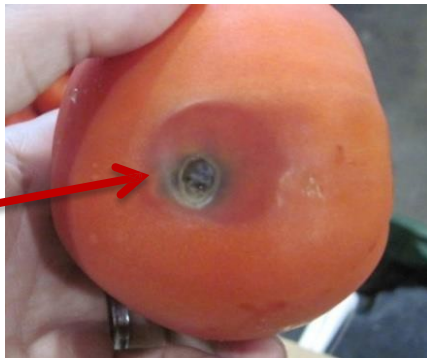


Slight dent



Greenish tint

Not acceptable



Moldy bruise



Black rot



Late blight



Mold and bruising

Watermelon

Receiving and inspecting

Watermelons should be firm. Watermelons do not ripen after harvesting; a ripe watermelon will produce a distinct hollow sound when thumped.

Storing and handling

Watermelons should be stored at 50-60°F, at 85-95% relative humidity. Susceptible to freezing; to prevent chill injury, avoid storing below 41°F.

Sensitive to ethylene: Yes

Odor-sensitive: No

Produces ethylene: No

Odor-producing: No

Acceptable



White/yellow patch



Small spots

Not acceptable



Decay



Anthracnose



Fruit blotch

