

at a glance

- Apples intended for storage should be picked when mature—fully developed but hard and starchy.
- Apples to be consumed immediately should be picked when ripe—soft and fully flavored.
- Fruit skin color is not a reliable indicator of maturity for all cultivars.
- Optimal harvest date will vary each year and with each cultivar of apple.
- Several indicators can be used to determine maturity or ripeness.
- Allowing apples to freeze before harvest may reduce quality and storability.
- Apples freeze below 30°F.

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When to Harvest Apples

Introduction

Depending on the cultivar, apples mature from early August through October. Harvest timing is critical to maintaining fruit quality. Apples that are to be immediately consumed or processed should be allowed to ripen on the tree, while those to be stored should be picked when mature but before fully ripe. Deciding when to harvest apples is complex and requires an understanding of how apples develop and mature.

Mature Versus Ripe

Apple fruit develops by accumulating starch produced by the process of photosynthesis, which occurs in green leaves of all plants. A “mature” apple has maximum starch accumulation, has finished enlarging, and has the ability to ripen after being removed from the tree. A “ripe” apple has an acceptable eating quality—good or desired flavor and texture.

A mature apple will ripen while on the tree or in storage. During the ripening process, starch changes to sugar, giving apples a sweet flavor and a softer texture. However, “sweet” is relative and apples of some cultivars, although sweeter when ripe, are still quite tart.

HOW 'BOUT THEM APPLES?

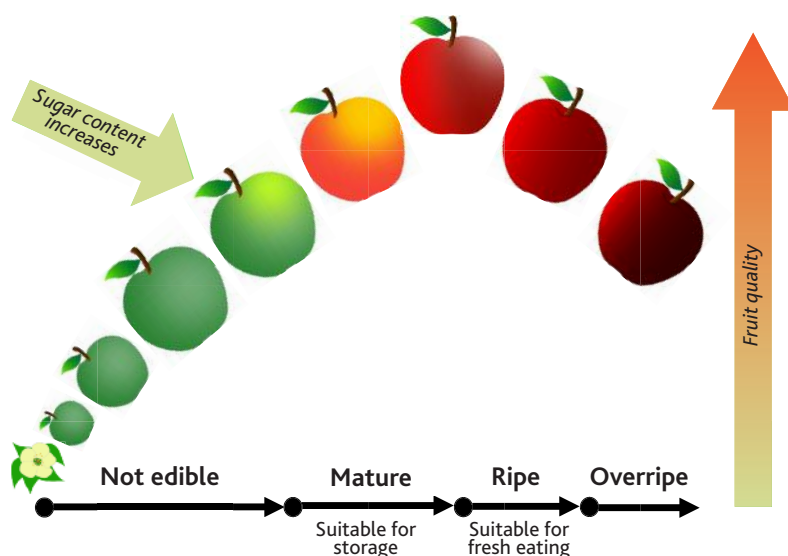


Figure 1. Changes in apple fruit appearance and quality associated with a timeline of maturity. Illustration by Tony McCammon and Paige Henderson.

Indicators of Maturity and Ripeness

Not all of the following indicators apply to all cultivars, nor should only one indicator be used for any single cultivar. The most important factors affecting maturity and ripeness are cultivar, growing region, and the type of growing season during the current crop year.

Environment plays a vital role in fruit development. Consequently, it is not possible to set an exact harvest date even though a cultivar will likely mature about the same time each year. Be aware that fruit on the southern and outside branches of a tree will often ripen sooner than fruit on the northern or inside branches. The southern side should be the starting location for checking fruit maturity.

Flavor

A reliable way to determine if apples are ripe is simply to taste them. Apples that have the desired flavor are considered ripe and can be stored for a short time. Apples that are mature will taste slightly starchy, with a crisp texture.

Skin Color

Although fruit skin color may indicate maturity on many cultivars, red skin color does not indicate maturity on all cultivars because it is influenced by temperature, light intensity, fertility, and soil moisture. Instead, monitor the "ground" or "background" skin color on the side of the apple facing the inside of the tree (away from the light) or in the stem cavity.

Ground color changes from bright green to yellowish when an apple is mature and yellowish to varying shades of red when the apple is ripe. However, nonred cultivars such as Golden Delicious will have yellow skin color when ripe.

Seeds

In many cultivars, seeds of mature apples will be dark brown while seeds of immature apples will be greenish-white. Sometimes ripe fruit will have detached seeds within the core that make rattling sounds when the fruit is shaken.

Separation Ease

Mature fruit will easily separate from the tree when it is rotated and twisted upward. Sound, nondamaged fruit on the ground indicates the fruits are past maturity and should be immediately harvested.

Stem End Cracking

In some cultivars, the skin around the stem attachment cracks if the apples are overripe.

Cold-Temperature Effects

It is a commonly held opinion that apples need some frost to develop a sweet flavor. This is not true. Sweetness develops from sugars accumulating during warm days and cool nights and has nothing to do with a fall frost. In fact, hard frost is detrimental to fruit quality.

When the temperature is below 30°F, apple fruit will freeze, forming ice crystals between fruit cells. The amount of damage depends on the temperature and duration of the cold. Subjecting apples to just a few minutes of cold will do less damage than exposing them to several hours. Also, if the daytime weather before the freezing event was cold and cloudy, it will take less time to damage the fruit than if it had been warm and sunny.

Apples that have been frozen will turn brown and deteriorate rapidly after the temperature warms to above freezing. Frozen apples should be consumed or processed immediately.

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