Department of Plant Sciences

SWEET CORN FOR THE TENNESSEE VEGETABLE GARDEN

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Crop Description

Sweet corn is the closest rival to tomatoes for first position in the hearts, minds and memories of home gardeners. With a range of both traditional corn cultivars as well as many new supersweet and sugary enhanced cultivars, options await sweet corn gardeners.

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Corn (*Zea mays*) is actually a grass in the Poaceae family, and there are several distinct types besides sweet corn (var. rugosa) including dent, flint, flour and popcorn. The fact that corn is in a different family from many garden vegetables can make it useful in yearly rotations because it can be used to break some pest and disease cycles.

Corn is monecious, which means male and female flower structures are present on the same plant. The tassel contains the male pollen and the lateral ear shoots contain female flowers. The silks are the female flower parts (style and stigma) that collect the pollen to enable fertilization. Each kernel is fertilized, so this means that each kernel is actually a fruit. Within this fruit is the embryo and an endosperm to support that embryo with energy for germination. It is that endosperm that we as gardeners are most interested in, as it is most of the edible portion of the corn plant.

In fact, the conversation of sugar to starch in the endosperm is one of the important elements of sweet corn breeding and selection, and differences in these characteristics give us the range of sweet corn types. Normal sugary (su) is the traditional sweet corn with a creamy texture, but a faster sugar to starch conversion. The sugary enhanced (se) and shrunken (sh_2) have a slower conversion that enables a longer window of peak eating quality. Se types have more tender kernels with creamier texture than sh_2, which are often described as crunchier in texture, and sometimes sweeter, too. Xtra-tender, Ultrasweet and Triplesweet are newer options in sweetcorn breeding that combine genetics from other sweetcorn types to provide good storage quality, sweetness and a tender kernel. They generally are grown similarly to shrunken types.

Sweet corn type	Cultivars with kernel color and days to harvest
Normal sugary (su)	Golden queen (yellow), Silver Queen (white), Merit (yellow), Butter and Sugar (bicolor), Early Sunglow
Sugary enhanced (se)	Incredible (yellow), Sugar Buns (white), Ambrosia (bicolor)
Supersweet (sh_2-shrunken)	Obsession (bicolor), Peaches and Cream (bicolor), Vision (yellow), American Dream (bicolor)
Synergistic (syn) and others	Celestial (white), Sweetness (bicolor)

Planting and Growing

Garden sites for growing sweet corn should be in full sun with good soil drainage. A range of soil types can support successful sweetcorn production if managed well. Pre-plant fertilization should be completed as recommended in the soil test report. Many home gardeners till their soil prior to planting, but corn is also compatible with no-till garden settings as long as temperature and moisture on the site are appropriate for good germination.

Also keep in mind that corn is wind pollinated, so it is often planted in blocks of shorter rows rather than single, long rows. Select a site large enough to plant at least four rows of corn (with a similar days to harvest) to support good pollination.

Corn is a warm-season annual, so it is often seeded after danger of frost. To enable the earliest possible harvest, some gardeners carefully seed slightly prior to the frost free date and plan on seedlings emerging after any final frosts. While air temperature is important, one of the most critical aspects of selecting a planting date for sweet corn is soil temperature. A minimum soil temperature of 55 F is required, but warmer temperatures will increase the germination speed and likely decrease losses. Se and sh_2 types often prefer warmer soil temperatures — around 65 F. Often corn is treated with a fungicide to increase germination, so keep in mind that treated seed will likely have higher germination in early season/cooler soil temperatures. Treated seeds will have a bright (often pink) dye to indicate that a fungicide has been used as a coating.

In East Tennessee, typical planting dates are between April 15 and June 30, while planting is recommended in West Tennessee between April 15 and June 15.

Corn is generally direct seeded at 1 to 2 inches in depth and about 4 to 6 inches between seeds. Final within row spacing of plants is typically 6 to 12 inches, so seeding done at 4-inch spacing may need some thinning after emergence. Row spacing is generally 36 inches, but some early maturing, smaller cultivars may be planted with 30-inch row spacing.

Often sweetcorn is sequentially seeded to enable fresh harvest for longer periods of time, so it is common for gardeners to select early, mid-season and late season cultivars. Some of the most common questions about corn seeding is whether different types need to be isolated. Because corn is wind pollinated, different cultivars can cross-pollinate (if maturing at the same time) and

differences in the kernels can sometimes be seen if su and se or sh_2 cross-pollinate. Supersweet or shrunken corn cultivars should be separated by 300 feet or 12-14 days in silk maturity from su, se, and all popcorn or field corn to prevent cross-pollination that can cause some kernels to be more starchy or tough. Se types should also be separated from su types, but the impact may be less noticeable than with supersweets. Distance separation can be a challenge for home gardeners, so timing of maturity is likely the best method for preventing cross-pollination.

While corn is often described as one of the more drought-tolerant garden vegetables, a consistent supply of adequate water will increase production. In small to moderate garden plots, drip irrigation could be used to ensure that the approximately 1-2 inches of water a week is supplied.

Cultivate at a shallow depth to prevent root damage or consider using a natural mulch such as straw to reduce weed pressure. It is especially important early in the season before the plants shade rows. Sometimes corn plants produce suckers or side tillers. These have not been shown to reduce yield (in fact, they could actually increase it), so there is no need to remove them. If you have extensive tillering, do consider if your row spacing or fertilizer management is in line with recommendations.

Corn is known as a heavy feeder in terms of nutrient needs, so in addition to pre-plant fertilization, a side dressing is recommended when the plants are 12 to 18 inches tall. For every 100 feet of row, 1 to 1.5 pounds of ammonium nitrate or urea (33-0-0 or 34-0-0) or 2 to 3 pounds of calcium nitrate are recommended. Place this fertilizer a few inches away from the plant stem to prevent burning. Cover it lightly with soil and water in for most rapid availability.

Harvesting and Storage

Corn should be harvested when the silks have dried down brown but the shucks are still green. Early morning harvest is best, and freshly picked corn should be cooled as soon as possible. Storage at slightly above 32 F is recommended, and ears are best if consumed or processed within a few days as quality can rapidly decrease after harvest (speed depends on type).

Common Issues in Sweetcorn

Description	Possible cause(s), signs	Prevention/ Control Steps
Feeding damage on/around ears, young leaves	· Corn earworm · Fall armyworm · European corn borer	Insecticide sprays.
Odd puffy white growth on corn ears	Corn smut (image above) starts white and then produces gray/black spores. Drought, high nitrogen, damage can contribute.	Remove fungus to prevent spores overwintering in soil.
Orange/rusty leaf discoloration	Rust	Use resistant varieties, apply fungicides

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