



## HAWAII COOPERATIVE EXTENSION SERVICE

College of Tropical Agriculture and Human Resources

HOME GARDEN VEGETABLE SERIES No. 4

PLEASE

### SUPERSWEET CORN

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Excellent supersweet corn can be grown year-round in Hawaii if you:

- † Plant recommended hybrids bred for tropical conditions.
- † Fertilize well and follow standard cultural practices.
- † Harvest at the right stage of maturity.

#### Recommended Hybrids and Varieties

The *most important decision* for a sweet corn grower is the choice of hybrid or open-pollinated variety to plant. Most mainland varieties are not adequately resistant to tropical diseases and pests and are poorly adapted to our climate. Hybrids and varieties have been bred in Hawaii for tropical conditions. Get to know them!

“Hybrid” varieties are the results of controlled crosses of two parents, and have a high yield and uniformity preferred for commercial production. “Open-pollinated” varieties are more variable in maturity and quality, but have the advantage that you can save seeds from such varieties for the following plants.

#### The Many Types of Corn

There are two distinct types of vegetable corn. The newest type is called “supersweet” which is noted for high sweetness and retention of quality following harvest. Supersweets are based on the gene *brittle-1* or *shrunk-2*. The older, traditional type is the one designated “sweet corn” based on the gene *sugary*. Supersweet kernels are collapsed and opaque; sweet corn kernels are wrinkled and translucent.

Supersweet corns bred in Hawaii have a crisp texture and high sweetness. “Waimanalo Supersweet” is a vigorous, uniform single-cross (a bi-parental hybrid). It was released to growers in 1992, and its parents have a proud history of over 50 generations of breeding in the tropics. “Hawaiian Supersweet #9” is an open-pollinated variety of high-tenderness and green silks. “Hawaiian Supersweet #10” is an older hybrid based on three parents. All of these supersweets mature in 66 to 74 days (later during winter or at higher elevations).

Sweetcorn hybrid H68 was an early favorite of the traditional type in Hawaii. It should be refrigerated soon after harvest, but has a preferred buttery flavor and fine texture. Released to growers in 1968, it matures in about 68 days.

Hybrids from the continental U.S. can be recommended in Hawaii only for one or a few plantings in the summer without the use of pesticides, or at high elevations. Seed catalogs abound with delightful names such as “Sweet Sue” and “KandyKorn.” Several of these appear in our markets. Commercial favorites in Hawaii include Jubilee (68 days), Silver Queen (white kernels, 70 days), and Florida Stay-sweet (70 days), the last being a supersweet type.

**CAUTION:** Supersweet corns should be isolated from sweet or field corn by two to three weeks in planting time or by a distance of 100–200 yards (100–200 m.). Hawaiian supersweets should also be isolated from Mainland supersweets, as their genes differ. Pollen from these corn plants can cross with the Hawaiian supersweets and result in kernels which are inedible.

#### Soil Preparation and Fertilization

Corn is best adapted to deep soils with good drainage that are not too acid (pH >5.5). Lime can be worked into very acid soils several weeks before planting. Also prior to planting, apply fertilizer at the rate of 1.5 pounds of 15-15-15 per 100 square feet (65 plants). Manure or compost encourage growth and should be incorporated at this time. An additional application of 1 pound of 15-15-15, or 1/3 pound urea per 100 square feet will ensure large, well-filled ears.

#### Planting and Irrigation

Seeds should be planted about 2 inches deep. In field plantings, rows are spaced 3 feet apart and plants 6 inches apart, thus giving a plant population of about 29,000 plants per acre. In the home garden, space the hills 9 inches apart in rows 2 feet apart, and plant 2–3 seeds per hill. Thin the hills to one vigorous plant in about three weeks. A compact design (circular or square) in home gardens ensures better pollination than a single row. When one long row is planted perpendicular to the tradewinds in Hawaii, pollination can be very disappointing, i.e. there will be many missing kernels in the ears.

Corn should be irrigated frequently and not allowed to wilt. However, it does not thrive in over-soaked or poorly drained soils. One hand-weeding about four weeks after planting is usually sufficient. Also, various herbicides are available for commercial vegetable corn production.

Corn loves sunlight! Ears are well-filled during Hawaii's sunny summer days, but they become poorly filled in over-cast winter days or in gardens that are partially shaded.

### Diseases and Pests

Hawaii's climate invites crop production continuously through the year, and this in turn invites a large family of pests and diseases. Some of these are controlled by predators or parasites, that also thrive with year-round plantings. Pesticides often eliminate beneficial insects, in addition to controlling pests. "Pesticide-free" production has been the target of corn breeding in Hawaii. Generally, Hawaiian hybrids have high tolerance to all of our year-round pests and diseases.

Maize mosaic virus is the most common severe disease of vegetable corn, especially when plantings are continuous. It is carried by the corn leafhopper. The Hawaiian-bred corns are highly resistant to the mosaic, but mainland varieties are largely susceptible and may require insecticides to control the leafhopper.

Leaf blights and rusts may become troublesome during cool and wet weather. Aphid-borne Maize Dwarf Mosaic virus, bacterial leaf stripe, and brown spot are other diseases commonly seen on mainland hybrids growing in Hawaii. Pesticides may be used to control these problems.

The corn earworm is the most damaging insect of vegetable corn in Hawaii. With the use of tight-husked Hawaiian corns, insecticidal sprays are not essential. Rose beetles chew holes in corn leaves but normally do not affect yield. Both insects fly in the early evening, and avoid lighted areas.

### Harvesting Sweet Corn

You can expect to harvest ten weeks after planting in summer, and later in winter or at higher elevations. The timing of harvest is all-important. Immature ears are low in flavor while overmature ears can be tough and chewy. Supersweet ears are harvestable over a longer period than sweet corn types.

Determining proper harvest stage is not easy. Corn is ready to eat as early as 18 days after pollination (the time of silk emergence). Look for browning of silks that are not yet fully shrivelled, and feel the ear for a well-filled tip. Peel back a bit of husk and look for full kernels with rich yellow color. Kernels will burst if squeezed. At a later stage, the kernel is in "soft dough," and may be preferred for use in fritter-making. One study suggested that supersweets No. 9 and No. 10 should be harvested within 3-4 days after the first one-fourth of the ears become harvestable.

### BABY CORN

"Baby corn" is simply the immature ear of corn, harvested soon after silks emerge. The ears should be removed with a sharp snap and cut at the base and tip to unroll the husks. You may wish to leave uppermost ears for supersweet corn, and use only the second or lower ears as baby corn.



Figure 1. *Waimanalo Supersweet*, vigorous new singlecross hybrid, shows uniformity of ear size, maturity and height.

### After Harvest

"Highly perishable" should be stamped on all labeled fresh vegetable corn. Sugars turn to starch and the delicate corn flavors will be lost if left in the sun a few hours. The enzyme action in the kernel is stopped by refrigeration, treatment with ice water, or by cooking. Supersweet corn is crisp and sugarcane-sweet at harvest, and this sweetness is retained much longer than with the older sweet corn varieties.

### Cooking and Freezing Sweet and Supersweet Corn

Corn should be cooked only until the kernels turn dark yellow and the smell of corn fills the pot. The preferred method is to steam for 8 minutes or microwave for 4 minutes. Boiling for more than 4 minutes can lead to flavor loss. Grilling in foil works very well. Ears can be frozen directly upon picking, but are preferably blanched first. After blanching put the ears into ice-water until well chilled. They can then be frozen. Supersweet corns freeze well on the ear, while sweet corns "on the cob" become soggy.

It is usually preferred to freeze the whole kernels. Use a sharp knife to cut kernels off, and scrape the cob to recover all of the rich kernel juices. Freeze in plastic bags (3-4 ears make one cup). Frozen supersweet corn is an excellent addition to soups, stews, fritters, corn puddings and ice creams, in addition to the more traditional stir-fry serving. Be creative.

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