'Hawaiian Super-sweet #6' Corn

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'Hawaiian Super-sweet #6' is a high-sucrose, high-protein vegetable corn cultivar based on the gene, brittle-2. It is harvestable over a much longer period than sweet (sugary-1) corns, and has exceptional quality retention following harvest. When rehydrated following air- or freeze-drying, 'Hawaiian Super-sweet #6' makes a highly acceptable vegetable.

Origin
'Hawaiian Super-sweet #6' was derived from Hawaiian brittle-2 composite I (Brewbaker 1971), following 8 generations of mass and pedigree selection. The general pedigree is listed in Fig. 1, where HS is the 'Hawaiian Sugar' cultivar and AA8b an inbred derived from it, CM104 is a flint from India out of Colombian stock, bt2 was derived from a Maize Genetics Coop stock, BC represents backcross and S represents sib-generations. Intensive selection was made for strong plants with low ears, high disease and insect resistance, excellent quality when harvested very mature, and high seed viability.

Description
'Hawaiian Super-sweet #6' was bred for the tropics, and reaches midsilk in 52 to 58 days in Hawaii, concurrent with 'Silver Queen' hybrid and 'Hawaiian Sugar'. The composite from which it was derived has been tested since 1970 (Brewbaker 1971), and has shown wide adaptability throughout the tropics. Preferred dates of harvest for these high-sucrose corns depend on peculiarities of taste, since they retain suitable tenderness until very mature. In Hawaii they are palatable steamed or roasted between 17 and 28 DAP (days after pollination), vs. 17-19 days for sweet corn, with mature seed harvest around 36 DAP. The ears pictured in Fig. 2 were collected at 26 DAP, a stage often preferred in the tropics. Kernels are turgid and starchy, yet crisp and tender and extremely sweet. Moisture content at this stage is 70%. Kernel dry wt at 26 DAP averaged 9.7 g/100 kernels (est. 47 kcal) on ears that averaged 450 kernels per ear.

'Hawaiian Super-sweet #6' is strongly prolific, 230 cm (7.5 ft) tall, with uppermost ear at 90 cm (3 ft). It brace-roots well, and is highly resistant to root and stalk lodging. It was selected intensively for resistance to earworms, and averages 9 tight husks with a long cover over its 18 cm (7 inch) ears (Fig. 2). It has homozygous resistance to maize mosaic virus (Mv gene), northern leaf blight (Ht1 gene), rust (Rpj1 allele) and sugarcane mosaic virus, and shows high resistance to Fusarium moniliforme Sheld. and Physoderma maidis Miyabe. 'Hawaiian Super-sweet #6' is a high-sucrose type based on the gene brittle-2; it does not carry sugary-1. The bt2 gene is closely linked to sugary-1 on chromosome 4, and blocks the synthesis of starch in corn kernels through its effect on the enzyme, ADPG pyrophosphorylase (Dickinson and Preiss 1971). Its enhancement of sugars in kernels and its chemical mode of action are similar to that of shrunken-2, for the 'Illini Xtra-Sweet' hybrids and several cultivars released in our 'Hawaiian Super-sweet' line (Brewbaker 1971).

Ears are golden yellow, slightly tapered, deep-seeded, with a mean of 14 kernel rows and reasonably fragile glumes. Pericarp thickness averages 68 μ at 26 days after pollination, and tenderness remains acceptable for single-kernel ingestion almost until dry seed harvest. Composite analysis of dry kernels at 23 DAP revealed 46% total sugars, 18% starch, 14.5% protein and 17% oil. Brittle-2 has exceptionally high protein content and quality, with lysine levels equal to that of opaque-2 field corn (Misra et al. 1972). Field viability of our composite exceeds 80%, having been increased by pedigree selection with no evident loss of quality (Banafunzi 1974).

Taste panel evaluations revealed an apparently consistent preference for this high-sucrose corn over 6 composites based on shrunken-2, brittle-1, or sugary-1 genes, largely due to what was described as its nutty or rich-corn flavor (Banafunzi 1974). No sugary-1 corns ranked near it in sweetness, and little loss of sweetness or quality occurred during a week's refrigerated storage or through freezing.

Sub-lines of this cultivar are available at various stages of conversion to the genes opaque-2, floury-2, waxy, Vestigial glume and brown-midrib 3 (low lignin).

Outstanding characteristics and uses
A tropically-adapted high-sucrose corn, 'Hawaiian Super-sweet #6' is the

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Fig. 1. Pedigree of 'Hawaiian Super-sweet #6'.

Fig. 2. Ears of 'Hawaiian Super-sweet #6' at 26 days after pollination.
'Haggith' Apricot:
Rootstock Seed Source1

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'Haggith' (Prunus armeniaca L.) is a new apricot cultivar introduced in 1974 as a seed source for apricot rootstocks. Trees of 'Haggith' are cold hardy, consistently productive, self-fertile and disease tolerant. The seeds of 'Haggith' germinate readily as fall planted pits or as spring planted stratified seeds. 'Haggith' seedlings are quite uniform in the nursery row, attain buddable size by 2 to 5 years of age, and are compatible with a broad range of scion cultivars. Scions on 'Haggith' seedlings appear to be comparable in vigor, precocity and disease response with those on seedlings of 'Alfred' or 'Morden 604'. However, there is a tendency for scions on 'Haggith' seedlings to have wider crotch angles, a more spreading growth habit, and slightly higher yield than on 'Alfred' seedlings. The 'Haggith' seedling rootstock is being introduced to meet the need for a reliable, cold hardy rootstock for apricot. 'Haggith' is not recommended as a scion variety.

Origin
'Haggith' originated as a chance seedling on the farm of Mr. Murray Haggith, Ruthven, Ontario. The seedling tree was at least 50 years old when removed. Because the seedling tree was healthy and consistently productive, scions were collected by T. B. Harrison in 1950. Trees of 'Haggith' were produced and tested at the Harrow Research Station from 1952 to 1961 and 1963 to 1974. 'Haggith' seedlings were tested as rootstocks since 1967.

Description
Seed trees of 'Haggith' are vigorous, spreading, cold hardy and consistently productive. The trees and fruit are tolerant to bacterial spot (1) caused by Xanthomonas pruni (E. F. Sm.) Dows., and to peach canker (Cytospora spp.), but the flowers, twigs and fruit are susceptible to brown rot [Monilinia fructicola (Wint.) Honey]. The leaves are coriaceous, smooth, of medium size and the leaf margins are serrate. Leaf glands are globose in shape and of medium size (Fig. 1). The flowers are white, conspicuous and self fertile. They have some tolerance to blossom frost and bloom 4 days later than 'Earliril' apricot (2). The fruits are ovate and small and ripen at Harrow a week after 'Earli-Orange' and about with 'Goldcot'. The skin is yellow with a greenish background color when ripe. The flesh is orange, soft, and the flavor is only fair. The flesh does not adhere to the pit. The pit is small, oblong, fairly plump and tan in color when dry. It has a graney surface and is slightly winged along the dorsal suture and sparsely pitted along the ventral suture (Fig. 1). The kernel is small and bitter. The fruits drop readily when ripe. The kernels can be easily stratified when removed from the pit. They germinate readily after 45 to 50 days of stratification at 1 to 2°C.

Availability
Scionwood and open pollinated seeds of 'Haggith' are available in limited quantity by contacting Mr. T. B. Harrison, General Manager, Western Ontario Fruit Testing Association, Harrow, Ontario NOR 1G0, Canada. Seed trees of 'Haggith' will be available in limited supply in 1976.

Literature Cited

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1 Received for publication March 7, 1975.
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