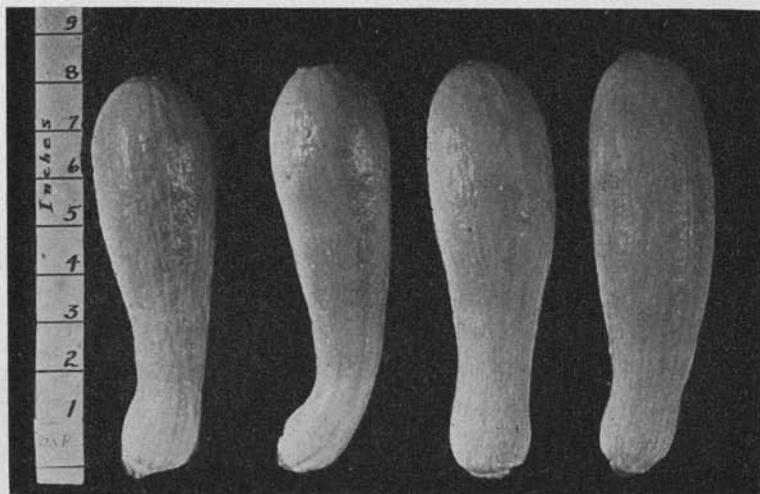


# Yankee Hybrid Summer Squash

An Early, Productive First Generation Cross

LAWRENCE C. CURTIS



Representative Yankee Hybrid fruit in prime edible stage, showing uniformity in size and shape.

Connecticut  
Agricultural Experiment Station  
New Haven

# Yankee Hybrid

## A New, Early, Productive First Generation Hybrid Summer Squash

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**Y**ANKEE Hybrid is the name given to a yellow, straightneck summer squash that has been produced at the Connecticut Agricultural Experiment Station. This early productive squash is a new type, a first generation hybrid; that is, the seed must be produced each year by hybridizing two selected inbred parents in a specially isolated crossing field.

The new hybrid was discovered when Early Prolific Straightneck, an introduction of the Ferry Morse Seed Company, was crossed with C10, a Station inbred. In 1938 these hybrid plants, resulting from the cross made the previous year, were found to produce female blossoms a week ahead of either parent. When preliminary picking trials were conducted in 1939, the following results were recorded for the first picking.

TABLE 1. YIELD OF SUMMER SQUASH AT MOUNT CARMEL IN 1939; ONLY FIRST PICKING RECORDED.

Variety	No. plants	No. Fruit	Weight in pounds
Early Prolific Straightneck	59	25	15
Inbred C10	59	27	17
Yankee Hybrid	59	58	59

Thirty-two of the 59 fruit on the hybrid row were ready to be picked a full week before either parent had produced any marketable fruit.

In 1940 and 1941 more extensive plantings were made and seed was distributed generally to market gardeners throughout the country for trials to determine whether this hybrid would continue to out-yield the best commercial varieties. In all the tests we used Early Prolific Straightneck as a check since it is the best commercial variety obtainable. Table 2 gives the results of two plantings in 1940. Graphic illustrations are given in Figure 1.

Yankee Hybrid, throughout the entire picking season, does not produce a significantly greater amount of fruit than Early Prolific, but it does have the distinct, money-making advantage of producing,

during the early growing season, earlier and more numerous fruits than Early Prolific.

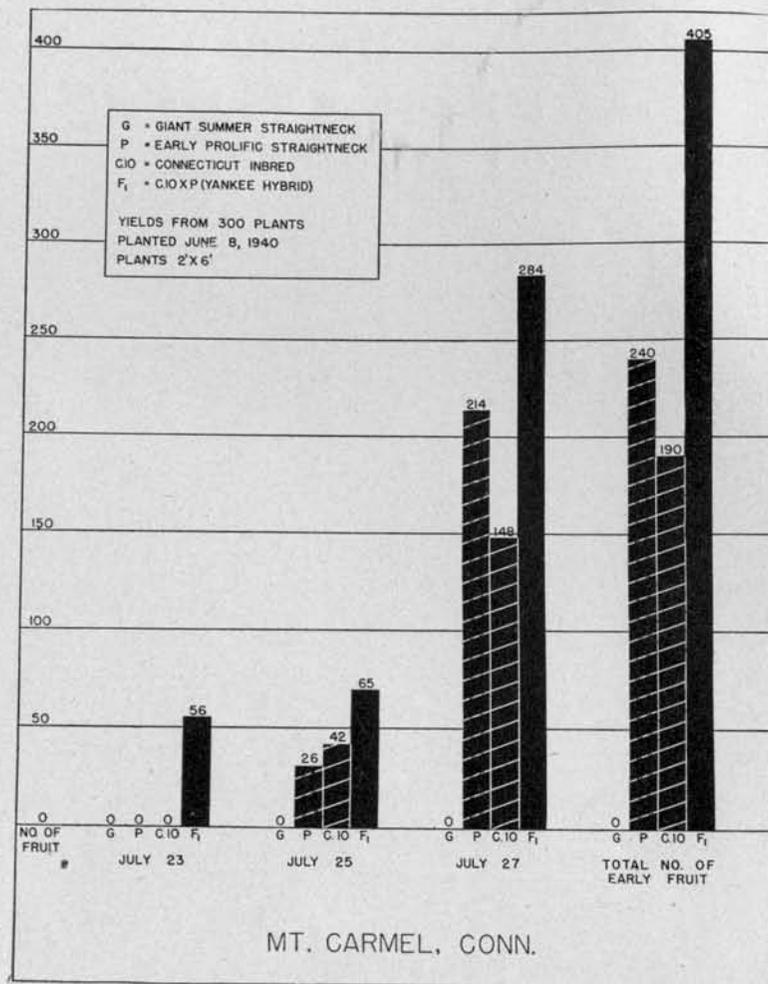


FIGURE 1. Graphic illustration of summer squash yields of early fruit at Mount Carmel, Conn., in 1940, as recorded in Table 2.

TABLE 2. YIELD OF STRAIGHTNECK SUMMER SQUASH AT MOUNT CARMEL AND WINDSOR, CONN., IN 1940.

Variety	Number Plants	Early fruit		Total fruit	
		Mount Carmel	Windsor	Mount Carmel	Windsor
Early Prolific	300	240	164	3116	2384
Inbred C10	300	190	234	2162	1716
Yankee Hybrid	300	405	483	2921	2514
Giant Summer Straightneck	300	—	5	1934	1582

Market gardeners who have kept careful records of the productivity of Yankee Hybrid, as compared with Early Prolific, confirm the results as they are reported here. In addition, some growers have pointed out that the size of Yankee Hybrid fruits is, in their opinion, better adapted to the containers in use. Thirty-six fruits of Early Prolific are required to fill a half-bushel tub, while only 27 to 30 fruits of Yankee Hybrid are needed.

### HYBRID VIGOR

The increased earliness, yield, size and vigor that a first generation hybrid shows over its parents is called hybrid vigor. This phenomenon is well known in both the plant and animal kingdom. Among plants this knowledge led to the production of hybrid corn. While it is true that hybrid vigor has been found in many other crops, Yankee Hybrid is the first reported case of hybrid vigor in squash, as measured by the production of early fruit. Furthermore, Yankee Hybrid is the only first generation hybrid seed, other than corn, which is being produced economically on a large commercial scale.

Since the original discovery was made, several new combinations of inbreds have been found which exceed Yankee Hybrid in earliness and yield, but they are not ready for release until they have been adequately tested.

### VIGOR IN THE FIRST GENERATION

The maximum possible hybrid vigor, regardless of whether plant or animal, corn or squash, is always manifest in the first generation. With corn and many other crop plants the vigor and yield are reduced materially in each succeeding generation from the first. These successive generations, likewise, are extremely variable as to type, size, shape and color. In the second generation summer squash there is not a marked reduction in early yield. However, the fruit shows more variation in color, shape and size, making it less desirable as a market crop than that of the first generation. There is no more advantage for growers to save their own seed of Yankee Hybrid than for them to save seed from hybrid corn.

### UNIVERSAL ADAPTABILITY

Favorable reports on Yankee Hybrid Squash have been received from all parts of the country where it has been grown, and also from the All-America Trials of 1941 in which it was awarded a bronze medal. It appears to do well along the South Atlantic seaboard, in the Midwest and on the Pacific Coast. In the high altitudes of the Rocky Mountains it was reported to have come into production seven days earlier than any other summer squash grown in comparison. It is obvious that, where the growing season is short, increased earliness of a crop is of considerable importance.

### RECOMMENDATIONS

The only criticism of Yankee Hybrid has been in regard to color. It is not a solid yellow; there are faint stripes of brighter yellow which give the fruit a two-toned effect. Only one grower spoke unfavorably of this characteristic. On the other hand, when Yankee Hybrid was placed on roadside stands, the proprietors invariably commented on its attractive appearance and its good selling qualities.

No grower should ever plant all of his crop to a new variety, regardless of its reported desirability, without first making a trial planting to determine whether the vegetable is adapted to his particular soil and climatic conditions and to compare it with other varieties.

### SEED PRODUCTION

The practical production of first generation hybrid seed in summer squash is greatly facilitated by the convenient arrangement which this plant, like corn, has of producing both male and female blossoms individually on the same plant. Figure 2 shows this arrangement. The female flowers are those which bear small fruit; the male flowers are borne on long stems. The removal of the male blossoms makes



FIGURE 2. Summer squash vine showing conspicuous male and female flowers borne individually on the same plant. The female flowers are those with the small fruits, while the male flowers are borne on long stems. In preparation for inbreeding, or selfing, the flowers in this picture were tied with a string before they opened to prevent insects from contaminating them with pollen from other flowers. The large fruit has already been selfed, marked and dated.

the plant strictly female, and any seed that such a plant produces will have been fertilized by pollen carried by insects from another plant.

When a field is planted with two lines, A and B, in alternate rows and the male blossoms are removed from row A, all the seed from this row will then be hybrid seed, fertilized by pollen from row B. Bees carry the pollen from row B to the female blossoms on the emasculated rows. When the blossoming period is over, the center or male row is disked up and the seed from only the female rows is saved. This is the seed which produces Yankee Hybrid squash.

### SPECIAL CARE AND PRECAUTIONS

The production of first generation hybrid seed is a specialized phase of the seed-producing industry. The principles of plant pollination and fertilization must be well understood by the producer. He must comply to rigid standards of precision and timing if the hybrid seed he grows is to give the farmer the maximum possible returns. In the production of Yankee Hybrid summer squash, only inbred lines that have been maintained by hand pollination should be used as parents. At no time should seed be planted in a crossing field that is more than one generation removed from hand pollination. The crossing field should be at least two miles distant from other squash plantings. Great vigilance should be exercised in the removal of all male flowers on the female, or seed, row before they open.

Further instructions concerning the commercial production of Yankee Hybrid seed are available upon request.