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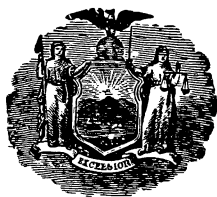
# New York State Agricultural Experiment Station

Geneva, N. Y.

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A DESCRIPTIVE AND HISTORICAL STUDY OF  
SOME YELLOW SWEET CORN HYBRIDS

W. D. ENZIE



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## ABSTRACT

THE material here presented is a continuation of the systematic study of yellow sweet corn hybrids initiated in 1938 and published as Bulletin No. 686 of this Station. During the past 10 years named yellow hybrid sweet corn varieties have practically replaced open-pollinated sorts for commercial canning, for freezing, and for market gardening. All of these, as well as scores of experimental hybrids, have been grown on the Station farms and in other sweet corn producing areas of New York. They have been critically observed and careful descriptive and yield records have been kept for all named varieties. The varieties discussed here have been confined to those which have been actually named and introduced for sale sometime during the past four or five years.

Thirty-eight varieties are included in this bulletin. Such facts of historical interest as parentage, time and place of origin, trial release and introduction, and the names of persons and agencies responsible for the work have been determined for each variety. Detailed and systematic descriptions of plant, ear, season, and quality are included and are based on data obtained from the intensive study of 50 consecutive plants equally spaced within 25-foot five-row blocks. Yield data are expressed in tons and number of marketable ears per acre based on performance records of plots replicated three times. Each variety is compared with two or three others including at least one established commercial variety of similar maturity season. Suggestions are made concerning their adaptation for home and market gardening or for commercial freezing and canning.

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## A DESCRIPTIVE AND HISTORICAL STUDY OF SOME YELLOW SWEET CORN HYBRIDS

W. D. ENZIE<sup>1</sup>

### INTRODUCTION

SINCE the introduction of Golden Cross Bantam 10 years ago, literally scores of new hybrid varieties have been named and introduced for sale by American seedsmen and the agricultural experiment stations. In an effort to record in the horticultural literature as many details as possible about this interesting phase of sweet corn breeding, the first in a series of systematic studies on the subject (2)<sup>2</sup> was published by this Station in 1939. The material presented here represents a continuation of the study and includes historical information, detailed descriptions and comparisons, yield and quality data, and illustrations of 38 additional varieties introduced during the past four or five years.

Hybrid sweet corn varieties have practically replaced open-pollinated ones for commercial canning, for freezing, and for market gardening in New York State. The additional yield, uniformity of maturity, and, in many cases, superiority in quality make them highly desirable for these purposes. Some home gardeners, however, still cling to open-pollinated sorts and have advanced the argument that a greater spread in maturity was more desirable. The available hybrid varieties have such a wide seasonal maturity range, however, that by the proper selection of varieties, a continuous supply of fresh corn can be supplied over a period of 30 days or longer.

### NOMENCLATURE

At the time Bulletin No. 686 of this Station was published the names

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<sup>1</sup>The author wishes to acknowledge the assistance of Clarence DuBois of the Division of Chemistry for freezing the samples and also that of Dr. Domenic DeFelice, Frosted Foods Corporation Investigator, for aid in organizing the judging of the comparative quality of the varieties.

<sup>2</sup>Figures in parenthesis refer to Literature Cited, page 56.

of most of the new hybrid varieties were based upon the original system suggested by the Connecticut Experiment Station, *viz.*, an abbreviation of the variety from which the inbred was derived to which was attached the word "cross", the symbol denoting place of origin, and the number of the inbred line or lines used. For example, Marcross C6-C13, Marcross C6  $\times$  C13, or in this case where both inbreds originated at the same agency, Marcross C6.13, "Mar" indicated that the variety was derived from Golden Early Market and C6  $\times$  C13 meant that the hybrid was a cross between Connecticut inbred 6 and Connecticut inbred 13. Similarly, a top cross was identified as Marcross P39, thereby indicating that one parent was Golden Early Market and the other Purdue inbred 39.

Within recent years, however, the trend for identifying hybrids has been toward the use of names similar in type to those used for open-pollinated varieties. Of the 38 new varieties described here more than two thirds have names of this sort. For the most part these have been selected by adherence to an organized plan. All new hybrids recently introduced by the Associated Seed Growers, Inc., for example, bear Indian names such as Mohawk, Allegheny, etc. New hybrids developed by the Connecticut Experiment Station have been given historical names (6) selected to coincide with the early, mid-, and modern historical periods of our country. Thus, the name Lexington was assigned to an early variety, Lincoln to a midseason sort, and Wilson to a late one. The system obviously is very flexible and lends itself readily to expansion.

## ENVIRONMENTAL CONDITIONS

The trial plots were located on the Station's canning crops farm on Ontario loam soil which was cropped the previous two years to alfalfa and fall plowed for corn the spring of 1942. After the area was given the final discing it was fertilized at the rate of 600 pounds of 5-20-5 per acre by applying the fertilizer about 4 inches deep with a grain drill. The plots upon which the yield data are based were replicated three times on an adjacent area which had grown tomatoes the previous year. The area was also fall plowed and was fitted and fertilized in the manner just described.

The varieties were all planted June 10, 1942, and grew under fairly optimum conditions of moisture and temperature. Rainfall records obtained on the canning crops farm indicated that 11.14 inches fell from planting time until the last variety was harvested. With the exception

of a very heavy precipitation late in September, the rainfall was fairly well distributed. By periods, 1.49 inches were recorded in June after the corn had been planted, 2.59 inches during July, 1.87 inches in August, 4.86 inches in September, and 0.33 inch during the fore part of October.

## OBTAINING DESCRIPTIVE DATA

All plant and ear characteristics were measured from a planting made specifically for the purpose. Each of the 38 varieties here described in detail, five checks of established commercial varieties, and several sorts suspected of being synonyms were planted in blocks of five 25-foot rows each 3 feet apart. When the plants were 6 to 8 inches tall, all lots were thinned to 25 plants per row at 1 foot intervals. The second and fourth rows were used for plant and ear records. As each of the 50 consecutive plants came into silk the plant was numbered and tagged and the silking date recorded in the notebook. Subsequently, each plant so tagged was observed every day until the prime milk stage maturity was attained. Under the prevailing conditions for 1942 this was 22 days for the early and midseason varieties and 23 days for all late varieties.

During this period the following character measurements were recorded: Silk color and date of emergence; tassel size, branching habit, and predominant color; number of tillers; height of plant; height from ground to ear tip; number of multiple-eared plants; length of ear shank; length and character of husks; length of husked ear; ear shape and diameter; number of kernel rows; depth of kernels; toughness of pericarp; and color of kernels. From these data it has been possible to determine the range within each of these characters and to obtain some indication of the varietal uniformity as compared to the checks under the conditions of the trial. These data (Tables 1, 2, and 3) are presented in tabular form for direct comparison and have been used to write the detailed descriptive accounts of the varieties.

Typical ears of each variety were harvested 24 or 25 days after silk emergence for photographing. These were partially husked, placed in containers, and stored in the 0° F refrigerator. During the winter, the ears were removed from storage, and defrosted slowly without removing the husks. After the frost had disappeared, the ears were carefully husked, arranged into groups, and photographed. By these precautions it was possible to secure a direct comparison of all varieties

at the same stage of maturity and under the same photographic conditions.

## METHODS USED TO DETERMINE QUALITY

It is generally conceded by most sweet corn breeders and systematic olericulturists that the most difficult character to describe accurately is that complex factor referred to as quality. This may be defined as the reaction one obtains after making a combined evaluation of the texture, flavor, sweetness, and color of a product. Quality has been impossible to standardize as accurately as other characteristics since it is based on several factors some of which cannot be measured effectively. Since the human element is a factor, all individuals do not place the same emphasis on each component. In an attempt to measure these factors as rapidly and as practically as possible, the following procedures were observed:

*Texture.*—The relative tenderness of a variety is determined both by the amount and character of the pericarp. Since it has been shown (3) that the degree of toughness is directly correlated with the amount of pericarp, the puncture tester devised by Cullpepper and Magoon (1) was used to measure this character. The pericarp resistance, measured in grams pressure necessary to puncture the tissues, was obtained by recording five readings taken on the crowns of normal mid-ear kernels on each of 50 ears 22 days after silk emergence. Thus, the relative tenderness of a variety was based on 250 readings on ears the same age. A 23-day period was used for the 12 late varieties and are therefore comparable with each other but possibly not with the early and midseason sorts. These data were subjected to the analysis of variance test for significance.

*Color.*—The impressions obtained relative to color values by observing freshly husked ears were used to determine the general color. In addition, the number of ears was recorded which showed slight, moderate, or distinct variation in the tint of orange or yellow. These data are used as an index of color uniformity, a factor of considerable importance in quality determination.

*Flavor and sweetness.*—Since these two factors are so intimately associated and since only one can be measured satisfactorily by chemical means, it was decided to establish an arbitrary classification based on the judgment of several qualified food experts. Fifty ear samples of each variety were steam blanched, the kernels cut from the cob by

a Burpee hand cutter, and the product frozen in a Birdseye multiple-plate quick freezer. In December the product from each variety was examined by several production experts from the Frosted Foods Division of General Foods, Inc., and rated for flavor and sweetness. The following numerical basis was established for evaluating their findings: 1 = excellent; 1.1 — 1.5 = very good; 1.6 — 2.0 = good; 2.1 — 2.5 = moderately good; 2.6 — 3.0 = fair; 3.1 — 3.5 = moderately poor; 3.6 — 4.0 = poor.

The data on yields and quality will be found in Tables 4, 5, and 6.

## SYSTEMATIC STUDY OF VARIETIES

Thirty-eight varieties are included in this study. They were all grown under average growing conditions experienced in New York State and are therefore directly comparable. Since no two seasons are alike, growth characteristics obviously will vary somewhat from year to year, but the relative position each one occupies should not change materially unless the inbreds used to produce the hybrid are changed.

In order to describe the varieties in a systematic manner, the classifications given below were established. These were made after a study of the material to determine the means and the extremes of each character measurement.

### Plant Height

Class	Inclusive measurements
Short .....	40-54 inches
Moderately short .....	55-66 inches
Medium tall .....	67-78 inches
Moderately tall .....	79-90 inches
Tall .....	91-102 inches
Very tall .....	103-114 inches

### Height from Ground to Ear Tip

Class	Inclusive measurements
Low .....	17-24 inches
Moderately low .....	25-32 inches
Medium high .....	33-40 inches
High .....	41-48 inches
Very high .....	49-56 inches

### Length of Ear Shank

Class	Inclusive measurements
Short .....	1 inch or less
Moderately short .....	2 or 3 inches



Medium long .....	4 or 5 inches
Moderately long .....	6 or 7 inches
Long .....	8 or 9 inches
Very long .....	10 inches or more

#### Length of Husked Ear

Class	Length measurements
Short .....	4-5 inches
Moderately short .....	5-6 inches
Medium long .....	6-7 inches
Moderately long .....	7-8 inches
Long .....	8-9 inches
Very long .....	9-10 inches

#### Diameter of Ear

Class	Inclusive measurements
Slender .....	1.5 inches or less
Moderately slender .....	1.51-1.65 inches
Medium plump .....	1.66-1.80 inches
Moderately plump .....	1.81-1.95 inches
Plump .....	1.96-2.10 inches
Very plump .....	2.11 inches or more

#### Length of Husks Extending Beyond Ear Tip

Class	Length measurements
Very short .....	1 inch or less
Short .....	1-2 inches
Medium long .....	2-3 inches
Moderately long .....	3-4 inches
Long .....	4-5 inches
Very long .....	5 inches or more

#### Depth of Kernels

Class	Milk stage	Whole kernel stage
Shallow .....	0.33 inch or less	0.40 inch or less
Medium depth .....	0.34-0.36 inch	0.41-0.45 inch
Moderately deep .....	0.37-0.40 inch	0.46-0.50 inch
Deep .....	0.41-0.44 inch	0.51-0.55 inch
Very deep .....	0.45 inch or more	0.56 inch or more

No varietal classification has been attempted other than an alphabetical arrangement of varieties insofar as the detailed historical accounts and technical descriptions are concerned. The tabular data, however, are arranged according to the seasonal maturity period for

each variety. These have been placed into three groups arbitrarily separated by 10-day intervals. Early varieties have been designated as those having produced the majority of their crop in 63 to 72 days, inclusive; midseason varieties in 73 to 82 days, inclusive; and late varieties in 83 to 92 days, inclusive, with the maturity period being based on the prime milk stage. An additional period of 4 or 5 days should be added to determine the approximate length of time for the variety to attain the prime whole kernel maturity stage for canning.

#### ALLEGHENY (Plate VI)

This single cross hybrid is produced by using as the seed parent the 14- to 16-rowed inbred No. 940 derived from a variety cross of Narrow Grained Evergreen and Golden Bantam and, as a source of pollen, the 16- to 22-rowed inbred No. 970 of similar origin. Allegheny was first made in 1936 when it was originated by the Breeding Department of the Associated Seed Growers, Inc., New Haven, Conn. It was first sent out for trial in 1939 and was introduced to the general seed trade in 1940 by the originators. Altho awarded a bronze medal in the 1939 All America Vegetable Trials, the award was held over until 1940 in view of a seed crop failure in 1939.

Allegheny is a late variety having a maturity spread of 8 days at Geneva with the majority of ears attaining the prime milk stage in 92 days. This was 8 days later than Ioana and the latest variety to mature among those here treated. The plants are nearly as tall as those of Seneca Giant, having distinctly narrower, more crinkled leaves, and darker silks. The tassels are similar to those of Soobred in size and branching habit but are more prominently striped with dark red on the bracts. The ears are about as long and as plump as those of Mohawk but have more rows of kernels. The kernels are deeper, slightly narrower, more tapered at the tip, and are slightly more uniform in color.

The variety produced at the rate of 5.61 tons or 10,230 marketable ears per acre. When processed at the prime whole kernel stage for freezing, the cooked samples were judged to have moderately poor quality. Altho the color was very satisfactory, the flavor was rather lacking and the pericarp was found to be significantly tougher than that of Mohawk. It appears to be adapted primarily for the late fresh market and possibly as a cream style corn for canning, altho its season is too late for widespread adaptation in New York.

*Plants* tall to very tall, very vigorous, 72 per cent 8-9 feet, 22 per cent 7½-8 feet; silks 100 per cent red or amber red, 8 days spread in emergence; tassels very long, bushy, 100 per cent with prominently red-striped, dark green bracts and red anthers, lateral spikelets long, distinctly drooping, very numerous, 72 per cent of tassels have 31-40, 28 per cent have 21-30; leaves dark green, distinctly narrow, somewhat ridged and creased; tillers medium to few in number, 54 per cent have 2 or 3, 42 per cent have 1 or none.

*Ears* high to very high, 78 per cent 45-52 inches from ground to ear tip, 16 per cent slightly lower; shanks moderately short to medium long, 68 per cent 2 or 3 inches, 30 per cent 4 or 5 inches; husks very short, extend less than 1 inch beyond ear tip, occasionally slightly exposed, medium in number, rather loosely wrapped; husk leaves 4-5, short and narrow. *Husked ears* medium to moderately long, 26 per cent 6-7 inches, 60 per cent 7-8 inches, 10 per cent slightly longer; very plump, 2.2 inches in diameter, moderately tapered; 80 per cent 18- to 20-rowed including an occasional 22-rowed ear, 20 per cent 16-rowed; 44 per cent slightly irregular or spiral in kernel arrangement, 52 per cent regular. *Kernels* creamy yellow, very uniform, slightly variable in color on only 6 per cent of ears; very deep at both milk and whole kernel maturity stages, 0.46 and 0.62 inch, respectively; pericarp resistance, 290 grams.

#### ALPHAGOLD BANTAM (Plate III)

The variety is a single cross hybrid in which the female or seed parent used is an inbred selected out of a cross between a sweet variety and Yellow Assiniboine, an old Indian flour corn found by Oscar H. Will in the Assiniboine Reservation, Saskatchewan, Canada. The male parent is an inbred developed from a cross between Golden Sunshine and Golden Bantam. Both inbreds were developed by Stuart N. Smith who first made the hybrid in 1937. It was released for trial purposes in 1939 and was first offered for sale in 1942 by the Michael-Leonard Co., Sioux City, Iowa.

Alphagold Bantam is a moderately early variety having a maturity spread of 8 days with the majority of the ears attaining the prime milk stage in 72 days. This was 2 days later than Seneca Golden and 2 days earlier than Hiawatha and Tendergold. The plants most closely resemble Kingscrot G7 and M13 but have somewhat larger and bushier tassels. The ears are produced on shorter shanks than those of Kingscrot G7, average slightly longer, and are slightly larger in diameter due to the presence of 22 per cent 12-rowed specimens. The kernel rows are more irregular in arrangement. The kernels are the same depth and show a greater degree of orange-yellow color variation, altho more ears of Alphagold Bantam manifest this trait.

The variety produced at the rate of 3.58 tons or 11,300 marketable ears per acre. It was graded as moderately good in quality as a frozen product with the kernels being equally as tender as Kingscrot G7, Seneca Golden, and Kingscrot M13 and significantly more tender than any other early variety except Hybrid 6664. It appears to be a variety primarily suited for home and market gardening in New York State.

*Plants* moderately short to medium height, 52 per cent 4½-5½ feet, 42 per cent 5½-6 feet, medium vigor; silks variable, 72 per cent red, 26 per cent amber and 2 per cent green, 10 days spread in emergence; tassels large and medium bushy, 100 per cent with red-striped bracts and red anthers, lateral spikelets moderately long and frequently somewhat drooping, medium to moderately numerous, 84 per cent of the tassels have 11-20, 16 per cent have more; leaves dark green and

medium broad; tillers medium in number, 86 per cent have 2 or 3, 12 per cent have 1 or none.

*Ears* moderately low, 86 per cent 25-32 inches from the ground to tip, 12 per cent lower; shanks variable in length, 62 per cent 2-5 inches, 26 per cent 6-7 inches, and 12 per cent longer; husks medium long, extend 2-3 inches beyond tip of ear, moderately numerous, tightly wrapped; husk leaves 3-4, medium long and narrow. *Husked ear* medium to moderately long, 54 per cent 6-7 inches, 38 per cent 7-8 inches, medium plump to moderately slender, 1.65 to 1.70 inches in diameter, moderately tapered, 78 per cent 8- to 10-rowed, 22 per cent 12-rowed; 74 per cent regular in row arrangement, 24 per cent slightly irregular or spiral. *Kernels* light orange yellow, variable in color on 50 per cent of ears; shallow at both milk and whole kernel maturity stages, 0.32 and 0.38 inch, respectively; pericarp resistance, 265 grams.

ARISTOGOLD BANTAM NO. 2, SYN: MAGNAGOLD  
(Plate V)

This is a single cross hybrid which is produced by crossing inbred lines S15 and S10 and can be interchanged as to seed and pollen parents. The inbred S15 most commonly used as the female parent was selected because of its deep rooting habit in the early years of inbreeding. The hybrid was originated by Stuart N. Smith of the Michael-Leonard Co., Sioux City, Iowa, and was released for trial in 1939. In 1941 the variety was introduced to the seed trade by the originators. That same year the variety was distributed by K. C. Livermore, Honeoye Falls, N. Y., under the name of Magnagold, a name suggested by the originators as being more descriptive than Aristogold Bantam No. 2, altho the latter is now fairly well known in the trade.

Aristogold Bantam No. 2 is a late variety having a maturity spread of 7 days at Geneva with the majority of the ears attaining the prime milk stage in 86 days. This was in season with Purdue 1406, 2 days later than Ioana, and 3 days earlier than Tendermost and Soobred. The plants average about a foot taller than those of Topflight Bantam, bear their ears higher, have somewhat lighter silks, but are very similar in tillering habit and tassel type. The ears are similar in length and row number, altho those of Aristogold Bantam No. 2 are slightly thicker in diameter, somewhat more tapered, and are more protected at the tip by slightly longer husks. The kernels are equally as deep and nearly as narrow as those of Topflight Bantam and are considerably more uniform in orange-yellow color.

The variety yielded at the rate of 5.58 tons or 10,200 marketable ears per acre. The cooked frozen sample was considered moderately poor in quality as indicated by its tough pericarp and moderately poor flavor. It was significantly tougher than Topflight Bantam. It does not have any place as a late variety in New York for commercial processing, but it is suitable for the late fresh market where size of ear is important to the consumer and a large amount of stover is of interest to the grower.

*Plants* tall, very vigorous, 84 per cent  $7\frac{1}{2}$ – $8\frac{1}{2}$  feet; silks 98 per cent green, 7 days spread in emergence; tassels very long and bushy, 98 per cent with dark green, faintly red-striped bracts and red anthers, lateral spikelets long, usually horizontal to slightly drooping, very numerous, 52 per cent of tassels have 21–30, 44 per cent have 31–40 or more; leaves dark green, broad; tillers few to medium in number, 44 per cent have 2 or 3, 54 per cent have 1 or none.

*Ears* high, 74 per cent 41–48 inches from ground to ear tip, 20 per cent slightly lower; shanks moderately short, 78 per cent 2 or 3 inches, 22 per cent 4 or 5 inches; husks short, extend  $1\frac{1}{2}$  inches beyond ear tip, moderately many, rather loosely wrapped; husk leaves 6–8, very short and medium broad. *Husked ears* long, 64 per cent 8–9 inches, 8 per cent longer; very plump, 2.2 inches in diameter, slightly tapered; 90 per cent 16- to 18-rowed, 10 per cent 20-rowed; 54 per cent more or less irregular or spiral in kernel arrangement. *Kernels* creamy yellow, uniform, slightly to moderately variable in color on only 8 per cent of ears; moderately narrow, moderately deep at milk stage, 0.39 inch, and deep at whole kernel maturity stage, 0.53 inch; pericarp resistance, 298 grams.

#### BANKCROSS C13 (Plate II)

The Burbank strain of Golden Bantam was used as the seed parent in making this top-cross hybrid and Golden Early Market inbred C13 served as the source of pollen. Several plant breeders made the cross for the first time about 1936. It was reported in the Connecticut Experiment Station trials for 1937 and was first listed for sale in 1940 by Rogers Bros., Chicago, Ill. The variety has not been widely listed by retail seedsmen.

Bankcross C13 is a moderately early variety having a maturity spread of 10 days at Geneva with most of the ears attaining the prime milk stage in 71 days. This was in season with Lexington, 2 days earlier than Carmelcross, and 3 days later than Marcross. The plants are very similar to those of Early Bancross C13 in height and tillering habit, altho the tassels are larger and more profusely branched. The ears are more variable in their position on the plants than those of Early Bancross C13, are somewhat more variable in length, and are slightly shorter but have more rows and are distinctly more plump and attractive in appearance. The kernels are slightly deeper at the whole kernel stage but show a wider degree of orange yellow color variation. Kernel row arrangement is somewhat more regular on Bankcross C13 than on Early Bancross C13.

The variety yielded at the rate of 4.29 tons or 9,570 marketable ears per acre. It was judged to be moderately poor in quality as a frozen product. Altho the kernels were significantly more tender than those of North Star, Earligold, Marcross, and Early Bancross C13, its color and flavor were not good enough to give it a higher general quality rating. In New York it appears to be primarily a home and early market garden variety.

*Plants* moderately short to medium tall, 62 per cent  $4\frac{1}{2}$ – $5\frac{1}{2}$  feet, 32 per cent  $5\frac{1}{2}$ – $6\frac{1}{2}$  feet; silks variable, 60 per cent red, 40 per cent amber, 10 days spread

in emergence; tassels variable in type, usually medium long and moderately bushy, 100 per cent red-striped bracts and red anthers in varying degrees, lateral spikelets erect, short to medium long, 72 per cent of the tassels have 11-20, 28 per cent have 21-30 or more; leaves medium green and medium broad; tillers few to medium in number, 44 per cent have 1 or none, 56 per cent have 2 or 3.

*Ears* variable in position, 52 per cent 21-28 inches from the ground to tip, 44 per cent 29-36 inches; shanks moderately short to medium long, 34 per cent 2 or 3 inches, 46 per cent 4 or 5 inches, 20 per cent longer; husks medium long, 2½-3 inches, heavy and moderately many, well wrapped; husk leaves 4-6, medium long and narrow. *Husked ears* variable in length, 20 per cent less than 6 inches, 38 per cent 6-7 inches, and 36 per cent 7-8 inches; medium plump, 1.8 inches in diameter, moderately tapered and symmetrical; 86 per cent 12- to 14-rowed, 8 per cent 16-rowed; 78 per cent regular in arrangement. *Kernels* creamy yellow, slightly to distinctly variable in color on 38 per cent of the ears; medium depth at both milk and whole kernel maturity stages, 0.35 and 0.43 inch, respectively; pericarp resistance, 305 grams.

#### BURPEECROSS C6, SYN: BURPEECROSS (Plate IV)

The original seed parent used to make this hybrid was the open-pollinated variety Burpee and the Whipple Yellow inbred C6 was used as the pollen parent. The cross was first made in 1935 by W. R. Singleton of the Connecticut Experiment Station, New Haven, Conn. It was placed on trial in 1936 and 1937 during which period it was judged to have considerable promise by K. C. Barrons and W. C. Warfield of W. Atlee Burpee Co., Philadelphia, Pa. It was introduced to the seed trade by W. Atlee Burpee in 1938. Since that time the variety Burpee has been intensely selected so that the seed for the 1942 season was produced from a F<sup>3</sup> inbred line of Burpee as the female parent. The introducers have indicated that within the near future the variety Burpeecross will be produced as a single cross hybrid.

Burpeecross C6 is a midseason variety having a maturity spread of 10 days at Geneva with most of the ears attaining the prime milk stage in 76 days. This was 2 days later than Tendergold and 5 days earlier than Golden Cross Bantam. The plants are similar to those of Tendergold, altho they are more variable in plant height and tillering habit and have larger, bushier tassels which are more variable in color of bracts. The ears are also very similar in length and row number, altho the regularity of row arrangement on Burpeecross is much more pronounced. The kernels are about the same depth as those of Tendergold and produce fewer ears showing variation in the orange-yellow color. The general color effect is lighter than that of Tendergold.

The variety produced 4.84 tons or 11,870 marketable ears per acre. The frozen samples of Burpeecross C6 were considered to have only moderately good quality in view of the fact that the kernels were significantly less tender than those of Tendergold. It appears to be a home and market garden variety primarily. Altho more variable in maturity and ear size than Carmelcross, it is significantly more tender.

For the home gardener both of these characters are desirable when only one variety is to be planted.

*Plants* medium tall, 92 per cent  $5\frac{1}{2}$ – $6\frac{1}{2}$  feet; silks variable, 68 per cent amber, 16 per cent red, and 16 per cent green, 10 days spread in emergence; tassels large, usually bushy, 82 per cent with red-striped bracts and red anthers, 18 per cent with green bracts and yellow anthers, lateral spikelets long, nearly horizontal, numerous, 56 per cent of the tassels have 21–30 or more, 44 per cent have 11–20; leaves medium green and medium broad; tillers medium in number, 88 per cent have 2 or 3, 12 per cent have 1 or none.

*Ears* moderately low to medium high, 78 per cent 25–32 inches from the ground to tip, 24 per cent 33–36 inches; shanks moderately short to medium long, 56 per cent 2 or 3 inches, 32 per cent 4 or 5 inches, 12 per cent longer; husks medium long,  $2\text{--}2\frac{1}{2}$  inches, tightly wrapped; husk leaves 3–4, medium long, broad. *Husked ears* moderately long to long, 66 per cent 7–8 inches, 16 per cent 8–9 inches or longer; moderately plump, 1.9 inches in diameter, cylindrical to slightly tapering; 86 per cent 12- to 14-rowed, 12 per cent 16-rowed, 78 per cent regular in kernel arrangement. *Kernels* creamy yellow, moderately uniform, slightly variable on 14 per cent of ears; medium depth at both milk and whole kernel maturity stages, 0.34 and 0.43 inch, respectively; pericarp resistance, 267 grams.

#### CARMELCROSS, SYN: MARCROSS P39 $\times$ C13 (Plate II)

This single cross hybrid is produced by using the Purdue Bantam inbred P39 as the seed parent and Golden Early Market inbred C13 as the source of pollen. It was first made in 1934 by D. F. Jones and W. R. Singleton of the Connecticut Experiment Station, New Haven, Conn., and was listed for sale by S. D. Woodruff, Orange, Conn. in 1937 as Marcross 39–13. In order to avoid confusion with several other Marcross hybrids, the originators (5) changed the name to Carmelcross when the variety was formally introduced by the Experiment Station in 1939. Under its new name it was distributed to the seed trade in 1940 by Huntington Bros., Windsor, Conn.; Comstock, Ferre, Inc., Wethersfield, Conn.; K. C. Livermore, Honeoye Falls, N. Y.; and others. The names Golden Nugget (Vaughans, Chicago, Ill.), Improved Carmelcross (Connecticut Experiment Station), and Gold Rush (Corneli Seed Co., St. Louis, Mo.) are used to identify hybrids which are practically identical to Carmelcross and differ from it only in the sub-strain of Purdue Bantam 39 used as the seed parent.

Carmelcross is a moderately early to midseason variety having a maturity spread of 6 days at Geneva with most of the ears attaining the prime milk stage in 73 days. This was 1 day earlier than Tendergold, 5 days earlier than Lincoln, and 5 days later than Marcross. The plants bear more ears, are slightly taller than those of Marcross, are more profusely tillered and have equally as bushy tassels. The ears are about the same length and, altho Carmelcross has more 14- to 16-rowed specimens, the average ear diameter is slightly smaller than for Marcross. The row arrangement is equally as regular. The kernels of Carmelcross are equally as deep as those of Marcross but are narrower

and show a slight to moderate variation in orange-yellow kernel color not evident in Marcross.

Improved Carmelcross has slightly longer ears, smaller plants, and distinctly smaller, less bushy tassels than Carmelcross.

Carmelcross produced at the rate of 4.74 tons or 12,000 marketable ears per acre. The general quality of the frozen product was considered good with the kernels being significantly more tender than those of Marcross but tougher than those of Tendergold and Seneca Golden. It is well suited for a market garden variety, but because of its texture is probably not satisfactory for commercial freezing.

*Plants* moderately short to medium tall, 84 per cent 5-6 feet, 16 per cent 4½-5 feet; silks variable, 76 per cent amber, 20 per cent red, 4 per cent green, 6 days spread in emergence; tassels short and bushy, 98 per cent with red-striped bracts and red anthers, lateral spikelets short, stiff, nearly erect, medium to moderately many, 76 per cent of the tassels have 11-20, 24 per cent have 21-30 or more; leaves medium green, moderately broad; tillers medium to few in number, 62 per cent have 2 or 3, 38 per cent have 1 or none.

*Ears* moderately low, 80 per cent 25-32 inches from the ground to tip, 12 per cent lower; shanks moderately short to medium length, 68 per cent 2 or 3 inches, 24 per cent 4 or 5 inches; husks short, extend 1½-2 inches beyond tip of ear, tightly wrapped; husk leaves 3-4, short and variable in width. *Husked ears* medium to moderately long, 38 per cent 6-7 inches, 52 per cent 7-8 inches, 8 per cent longer; moderately plump, 1.9 inches in diameter, slightly tapered; 84 per cent 12- to 14-rowed, 12 per cent 16-rowed; 84 per cent regular in kernel arrangement. *Kernels* light creamy yellow, slightly to moderately variable in color on 28 per cent of ears; medium depth at both milk and whole kernel maturity stages, 0.36 and 0.44 inch, respectively; pericarp resistance, 284 grams.

#### EARLIGOLD (Plate II)

The original Earligold was a top-cross hybrid, a combination of a partially inbred, intensely selected strain of Early Yellow Sensation and Golden Early Market inbred C13. It was usually produced with the Early Yellow Sensation strain as the female parent, but the reciprocal cross was used also. The variety was developed by Kenneth Kopf of F. H. Woodruff & Sons, Milford, Conn. It was first made in 1936, was released for trial in 1938, and was formally introduced to the seed trade by the originators in 1939. Dr. Kopf has indicated that in 1943 the hybrid will be produced as a single cross in which the Early Yellow Sensation inbred W30 is to be used as the female parent.

Earligold is a moderately early variety having a maturity spread of 9 days at Geneva with the majority of the ears attaining the prime milk stage in 70 days. This was in season with Seneca Golden, a day earlier than Lexington, and 2 days later than North Star. The plants are very similar, altho somewhat more variable in height, color, and narrowness of leaves to those of North Star with the tassel spikelets not as nearly erect as those of the latter. Fewer ears per plant are



produced than on North Star. The ears are similar to those of Seneca Dawn in length and row number and are equally as plump as those of Marcross but more tapered. The kernels are as deep as those of North Star, are practically as uniform in color, but are not quite as regularly arranged.

The variety yielded at the rate of 4.55 tons or 10,830 marketable ears per acre. It was judged to have only moderately good general quality as a frozen product in view of its high pericarp resistance rating of 304, in which respect the kernels were significantly tougher than those of North Star, Patrick Henry, and Spancross. It is primarily suited for growing in the home and market garden where earliness and ear size are the essential requirements.

*Plants* moderately short to medium tall, 72 per cent  $4\frac{1}{2}$ – $5\frac{1}{2}$  feet, 24 per cent  $5\frac{1}{2}$ – $6\frac{1}{2}$  feet; silks variable, 82 per cent red, 14 per cent amber, and 4 per cent green, 9 days spread in emergence; tassels stiff and moderately erect, 100 per cent with red-striped bracts and red anthers, lateral spikelets medium long, 84 per cent of the tassels have 11–20, 12 per cent have more; leaves very dark green and moderately narrow; tillers few to medium in number, 58 per cent have 1 or none, 38 per cent have 2 or 3.

*Ears* variable in position, 64 per cent moderately low, 21–28 inches from the ground to tip, 32 per cent medium high 29–36 inches; shanks moderately short to medium long, 58 per cent 2 or 3 inches, 34 per cent 4 or 5 inches; husks short, 1– $1\frac{1}{2}$  inches, moderately many and tightly wrapped; husk leaves 3–5, moderately short and narrow. *Husked ears* medium to moderately long, 38 per cent 6–7 inches, 46 per cent 7–8 inches; uniformly plump, 2 inches in diameter, moderately tapered; 82 per cent 12-rowed, 12 per cent 8- to 10-rowed; 76 per cent regular in arrangement, 24 per cent slightly irregular or spiral. *Kernels* creamy yellow, slightly to moderately variable in color on 18 per cent of the ears; medium depth, 0.35 inch, at milk stage and moderately deep, 0.47 inch, at whole kernel maturity stage; pericarp resistance, 304 grams.

#### EARLY BANCROSS C13 (Plate II)

This top-cross hybrid is produced by using the open-pollinated variety Extra Early Golden Bantam as the female or seed parent and Golden Early Market inbred C13 as the source of pollen. It was first made about 1936 and was placed on trial a year later. The hybrid was developed by D. F. Jones and W. R. Singleton of the Connecticut Experiment Station at New Haven and was introduced to the seed trade in 1939 by Chas C. Hart Co., Wethersfield, Conn. It has had a rather limited popularity in view of the more recent introduction of North Star, a superior single cross hybrid of similar parentage.

Early Bancross C13 is an early variety having a maturity spread of 10 days at Geneva with most of the ears attaining the prime milk stage in 68 days. This was 2 days earlier than Earligold, in season with North Star and Marcross, and 3 days later than Seneca 60 × C13. Such variation in maturity is objectionable from the market gardener's standpoint. The plants are fairly uniform for a top-cross

hybrid, are very similar to those of Early Golden, less vigorous than North Star, and more variable than that variety in silk color. The ears are similar to those of North Star in length, row number, and diameter, altho the regularity in row arrangement is considerably less uniform and attractive. The kernels are equally as deep but show variation in the orange-yellow color on a greater percentage of the ears than do North Star, Early Golden, or Marcross.

The variety yielded at the rate of 4.04 tons or 11,500 marketable ears per acre. An examination of the frozen product indicated that it possessed moderately poor general quality, since the kernels had poorer flavor and were significantly tougher than those of North Star, Marcross, or Spancross. In view of its maturity spread and comparatively tough pericarp, it probably has only limited application as a home garden variety.

*Plants* moderately short, 78 per cent  $4\frac{1}{2}$ – $5\frac{1}{2}$  feet; silks predominately red or amber red, 4 per cent green, 11 days spread in emergence; tassels short and stiff, 100 per cent with red-striped bracts and anthers, lateral spikelets short, stiff, and nearly erect, few to medium in number, 32 per cent have 10 or less and 68 per cent have 11 to 20; leaves dark green, medium in width; tillers few to medium in number, 56 per cent have 2 or 3, 44 per cent have 1 or none.

*Ears* moderately low, 82 per cent 25–32 inches from the ground to the tip, 18 per cent lower; shanks variable in length, 48 per cent 2 or 3 inches, 32 per cent 4 or 5 inches, and 18 per cent longer; husks very short, extend 1 inch or less beyond tip of ear, moderately tight wrapped, few in number; husk leaves usually short, variable in width. *Husked ears* medium to moderately long, 26 per cent 6–7 inches, 52 per cent 7–8 inches, 18 per cent longer; variable in thickness, slender to medium plump, 1.5 to 1.8 inches in diameter, usually somewhat tapered; variable in row number, 52 per cent 8- and 10-rowed, 48 per cent 12-rowed; 66 per cent regular in arrangement, 8-rowed ears frequently irregular. *Kernels* creamy yellow, moderately to distinctly variable in color on 32 per cent of the ears; medium depth at both milk and whole kernel maturity stages, 0.35 and 0.43 inch, respectively; pericarp resistance, 305 grams.

#### EARLY GOLDEN, SYN: EARLY YELLOW HYBRID 1.13 (Plate I)

This single cross hybrid is produced by using Golden Bantam inbred M-1 as the seed parent and Golden Early Market inbred C13 as the source of pollen. The hybrid was first made in 1939 by R. M. Bailey of the Maine Experiment Station, Orono, Me., and by O. H. Pearson of the Eastern State Farmers' Exchange, Springfield, Mass. It was sold in a limited way in 1942, but the official introduction as indicated by catalog listing occurred in 1943 by the Eastern States Farmers' Exchange.

Early Golden is an early variety having a maturity spread of 7 days at Geneva with the majority of its ears attaining the prime milk stage in 68 days. This was 2 days earlier than Seneca Golden and in season with Marcross, altho 38 per cent of the ears were usable before any were harvested from that variety. The plants average slightly taller

than those of Marcross, are equally as well tillered, have smaller and less bushy tassels, and bear their ears slightly higher from the ground. The ears are equally as long and symmetrical as those of Marcross, more uniform in row number, but are more slender and are very attractive in appearance. The husks are distinctly shorter, however, and frequently fail to cover the ear tips completely. The kernels are slightly more shallow than those of Marcross but practically as uniform in color and decidedly more uniform in this respect than Spancross or Patrick Henry.

The variety produced 3.58 tons or 10,970 marketable ears per acre. It was judged to have moderately good quality as a frozen product, altho the kernels were found to be significantly tougher than those of Seneca Golden and Tendergold. In the trials at Geneva it appeared to be well suited for home and early market garden purposes.

*Plants* moderately short, slender, 74 per cent 5-6 feet, 22 per cent shorter; silks 100 per cent red, 6 days spread in emergence; tassels medium long, slender, 100 per cent with red-striped bracts and red anthers, lateral spikelets slightly drooping, few to medium in number, 44 per cent of the tassels have 10 or less, 56 per cent have 11-20; leaves very dark green, narrow; tillers few to medium in number, 40 per cent have 1 or none, 60 per cent have 2 or 3.

*Ears* moderately low, 82 per cent 25-32 inches from the ground to tip, 18 per cent lower; shanks medium long to long, 56 per cent 4 or 5 inches, 30 per cent 6 or 7 inches; husks very short, usually less than 1 inch beyond tip, frequently ear exposed slightly, moderately few in number, variable in wrapping tightness; husk leaves few, medium long, and narrow. *Husked ears* medium to moderately long, 26 per cent 6-7 inches, 58 per cent 7-8 inches, 16 per cent longer; medium plump, 1.8 inches in diameter, symmetrical and attractive, nearly cylindrical; 100 per cent 10- to 12-rowed, 72 per cent regular in arrangement. *Kernels* creamy yellow, exceptionally uniform in color; medium depth at both milk and whole kernel stages, 0.34 and 0.42 inch, respectively; pericarp resistance, 299 grams.

#### GOLDENWOOD (Plate V)

In producing this single cross hybrid, the inbred Goldenwood 2, derived from an obscure variety known as Kansas Yellow, is crossed with Purdue Bantam (P39). It is usually made with the latter as the female or seed parent. The variety was originated by Kenneth Kopf of F. H. Woodruff & Sons, Milford, Conn., in 1935, was released for trial in 1940, and was introduced to the seed trade by F. H. Woodruff & Sons in 1941.

Goldenwood is a late variety having a maturity spread of 10 days at Geneva with most of the ears attaining the prime milk stage in 87 days. This was in season with Mohawk, 3 days later than Ioana, and 6 days later than Golden Cross Bantam. The plants are slightly taller than those of Ioana, have broader leaves, larger, more profusely branched tassels, and more variable silk color. The ears are borne higher on the plant, have about the same length and row number, but those of Goldenwood are slightly plumper and distinctly more tapered.

The kernels are more shallow and thicker than those of Ioana and are distinctly more variable in orange-yellow color.

The variety yielded at the rate of 4.52 tons or 11,100 marketable ears per acre. The general quality of the cooked frozen product was graded moderately good with the kernels being significantly more tender than Ioana, but distinctly tougher than Golden Cross Bantam and Tendermost. The variety has unsatisfactory quality for commercial processing and is probably best adapted for use in this State as a large-eared late market corn with a substantial amount of stover available for ensilage.

*Plants* moderately tall to tall, 72 per cent  $6\frac{1}{2}$ – $7\frac{1}{2}$  feet, 26 per cent  $7\frac{1}{2}$ – $8\frac{1}{2}$  feet; silks variable, 68 per cent amber, 20 per cent red, and 12 per cent green, 10 days spread in emergence; tassels long and very bushy, 100 per cent with prominently red-striped bracts and red anthers, lateral spikelets long, horizontal to slightly drooping, very numerous, 48 per cent of tassels have 21–30, 40 per cent have 31–40; leaves dark green, very broad; tillers few to medium in number, 54 per cent have 2 or 3, 42 per cent have 1 or none.

*Ears* medium high to high, 62 per cent extend 37–44 inches from ground to ear tip, 26 per cent 45–58 inches; shanks moderately short to medium long, 74 per cent 2 or 3 inches, 24 per cent 4 or 5 inches; husks short, extend  $1\frac{1}{2}$ –2 inches beyond ear tip, many, tightly wrapped; husk leaves 6–8, moderately short and medium broad. *Husked ears* moderately long to long, 48 per cent 7–8 inches, 36 per cent 8–9 inches; very plump, 2.2 inches in diameter, moderately to distinctly tapered; 52 per cent 12- to 14-rowed, 40 per cent 16-rowed; 62 per cent more or less irregular or spiral in kernel arrangement. *Kernels* light orange yellow, slightly to distinctly variable in color on 58 per cent of ears, rather glossy in appearance, narrow, very tightly set; moderately deep at both milk and whole kernel maturity stages, 0.37 and 0.49 inch, respectively; pericarp resistance, 278 grams.

#### HIAWATHA (Plate III)

The variety is a single cross hybrid in which inbred No. 678 out of Golden Bantam was used as the seed parent and an 8- to 10-rowed Golden Sunshine inbred, Iowa No. 1804, was used as the source of pollen. The latter was developed by E. S. Haber of the Iowa Agricultural Experiment Station, Ames, Iowa. The hybrid was originated by the Department of Plant Breeding of the Associated Seed Growers, Inc., New Haven, Conn., and was first made in 1936. It was released for trial in 1939 and was introduced to the general seed trade by the originators in 1940.

Hiawatha is a moderately early to midseason variety having a maturity spread of 9 days at Geneva with most of the ears attaining prime milk stage in 74 days. This was in season with Tendergold, 3 days later than Kingscrot G7 and Hybrid 6664, and a week earlier than Golden Cross Bantam. The plants are taller than those of Kingscrot G7, more vigorous, have broader leaves and distinctly longer and more drooping tassels with lighter green bracts and are more subject to lodging. The ears are similar in length to those of Kingscrot G7

but are distinctly more variable in row number, regularity of row arrangement, and thickness. The kernels are about the same depth but are much more uniform, altho somewhat lighter orange-yellow in color.

The variety produced at the rate of 3.23 tons or 15,370 marketable ears per acre. The quality of the frozen product was considered only moderately good, altho the kernels were equally as tender as those of Golden Cross. Variation in ear type and stalk weakness have been responsible for its very limited production.

*Plants* medium tall to tall, 82 per cent 6-7 feet, 16 per cent 5-6 feet, have tendency to lodge; silks variable, 50 per cent red, 50 per cent green, 9 days spread in emergence; tassels long and bushy, 100 per cent of bracts faintly striped with red, predominantly green, anthers red, lateral spikelets long, distinctly drooping, numerous, 84 per cent of tassels have 21-30 or more; leaves moderately dark green, broad; tillers medium to many, 70 per cent have 2 or 3, 18 per cent have 4 or 5.

*Ears* medium high, 72 per cent 33-40 inches, 14 per cent higher; shanks variable, moderately short to long, 26 per cent 2 or 3 inches, 58 per cent 4 to 8 inches; husks moderately long,  $3\frac{1}{2}$ -4 inches beyond ear tip, moderately tight wrapped, medium in number; husk leaves 4-5, medium long and narrow. *Husked ears* moderately short to medium long, 26 per cent 5-6 inches, 56 per cent 6-7 inches, 18 per cent 7-8 inches; very slender, 1.4 inches in diameter, tapered; 52 per cent 8-rowed, 36 per cent 10-rowed, 12 per cent 12-rowed; 36 per cent more or less irregular or spiral in kernel arrangement. *Kernels* light orange yellow, moderately uniform; shallow at both milk and whole kernel maturity stages, 0.31 and 0.37 inch, respectively; pericarp resistance, 247 grams.

#### HYBRID 6664 (Plate III)

The variety is produced by crossing two inbred lines which originated from a cross between Golden Bantam and an unknown white variety possessing an exceptionally tender pericarp. The inbred No. 66 is used as the female or seed parent and No. 64 is used as the source of pollen. The hybrid was first made in 1938 by George M. Sawin, Rogers Bros. Seed Co., Inc., Chicago, Ill., and was released for trial in 1940. It was introduced to the seed trade by Rogers Bros. in 1941.

Hybrid 6664 is a moderately early variety having a maturity spread of 7 days at Geneva with most of its ears attaining prime milk stage in 71 days. This was in season with Kingscrost G7, a day later than Seneca Golden, and 3 days earlier than Tendergold. The plants are most like those of Kingscrost G7 and other Golden Bantam types but are much more variable in silk and tassel color, have more profusely branched tassels than Kingscrost G7, and have more red on the outer husks and midribs than any other variety described in this bulletin. The ears are more variable in position than those of Kingscrost G7 but have distinctly shorter and more uniform shanks. The husked ears average shorter than those of Kingscrost G7, have the same ratio of 8- and 10-rowed specimens which are equally as uniform in regularity of arrangement. The kernels are the same depth and show the same

degree of orange-yellow color variation as in Kingscrost G7, altho it is evident on a larger percentage of Hybrid 6664 ears.

The variety yielded at the rate of 3.1 tons or 13,530 marketable ears per acre. The quality of the frozen samples was found to be good, with the kernels being significantly more tender than those of any other early variety. It seems to be especially well adapted for the home garden where small ears, good quality, and moderate earliness make a suitable combination.

*Plants* moderately variable, moderately short to medium tall, 78 per cent 5-6 feet, 8 per cent 4-5 feet and 14 per cent 6-7 feet; silk variable, 50 per cent red, 24 per cent green, and 26 per cent amber, 7 days spread in emergence; tassels usually slender and feathery, 100 per cent with red-striped bracts and red anthers, extremely variable in the intensity of red coloration on both bracts and anthers, lateral spikelets moderately long, horizontal to slightly drooping, medium to many in number, 48 per cent of the tassels have 11-20, 52 per cent have 21-30 or more; leaves usually dark green, occasionally with red midrib, and moderately narrow; tillers medium in number, 86 per cent have 2 or 3, 12 per cent have 4 or 5.

*Ears* variable in height, low to medium high, 48 per cent 21-28 inches from ground to ear tip, 44 per cent 29-36 inches, 6 per cent higher; shanks moderately short to medium long, 48 per cent 2 or 3 inches, 44 per cent 4 or 5 inches; husks medium long, extend  $2\frac{1}{2}$ -3 inches beyond ear tip, numerous, tightly wrapped, exposed portions usually profusely splashed with red; husk leaves 2-3, short and narrow. *Husked ears* moderately short to medium long, 42 per cent 5-6 inches, 56 per cent 6-7 inches; slender, 1.5 inches in diameter, usually tapered; 88 per cent 8-rowed, 12 per cent 12-rowed; 88 per cent regular in kernel arrangement. *Kernels* creamy yellow to orange yellow, slightly to distinctly variable in color on 54 per cent of the ears, shallow at both milk and whole kernel maturity stages, 0.31 and 0.40 inch, respectively; pericarp resistance 251 grams.

#### JACQUES 280 (Plate IV)

This is a single cross hybrid produced by using as the female or seed parent a recovered inbred line consisting largely of Purdue Bantam parentage. The inbred Jacques S-35 is used as the source of pollen. This was selected from a large-eared type of open-pollinated Golden Bantam. The hybrid was originated in 1938 by Roy Stutzman and was introduced to the seed trade by the Jacques Seed Company, Prescott, Wisc. in 1940.

Jacques 280 is a midseason variety having a maturity spread of 8 days at Geneva with the majority of the ears attaining the prime milk stage in 82 days. This was a day later than Golden Cross and 2 days earlier than Ioana. The plants are similar to those of Kingscrost G7 and other Golden Bantam hybrids but are distinctly stockier and more vigorous. The tassels are longer than those of Golden Cross Bantam, are more profusely branched, and have red-striped bracts instead of all green. The ears are less attractive, average shorter than those of Golden Cross, are somewhat more variable in row number and are distinctly plumper. The row arrangement is decidedly more irregular and the kernels are deeper, equally as uniform in color, but

are slightly less tender than those of Golden Cross Bantam yet equally as tender as those of Sachem and Tendergold.

The variety yielded at the rate of 4.52 tons or 10,830 marketable ears per acre. The quality was considered to be good based on the examinations of samples prepared by freezing. Its superior depth of kernel, equally good color to that of Golden Cross Bantam, and satisfactory yield and quality render this variety worthy of trial for commercial canning and freezing.

*Plants* medium tall to tall, 72 per cent 6-7 feet, 20 per cent 7-8 feet; silks amber or amber red, 10 days spread in emergence; tassels long and bushy, 100 per cent with prominently red-striped bracts and red anthers, lateral spikelets long, horizontal to distinctly drooping, numerous, 56 per cent of the tassels have 11-20, 44 per cent have 21-30 or more; leaves dark green, medium broad; tillers medium in number, 66 per cent have 2 or 3, 34 per cent have 1 or none.

*Ears* medium high, 78 per cent 33-40 inches from ground to ear tip, 16 per cent higher; shanks moderately short, 88 per cent 2 or 3 inches, 12 per cent 4 or 5 inches; husks moderately long, extend 3-3½ inches beyond ear tip, numerous, rather loosely wrapped; husk leaves 6-7, moderately short and broad. *Husked ears* very uniform, medium to moderately long, 46 per cent 6-7 inches, 54 per cent 7-8 inches; plump, 2.1 inches in diameter; nearly cylindrical to slightly tapered; 84 per cent 12- to 14-rowed, 14 per cent 10-rowed, 64 per cent more or less irregular or spiral in kernel arrangement. *Kernels* very light orange-yellow, uniform, slightly to moderately variable in color on only 8 per cent of ears; moderately deep at both milk and whole kernel maturity stages, 0.37 and 0.49 inch, respectively; pericarp resistance, 256 grams.

#### KINGSCROST G7 (Plate III)

This is a three-way cross hybrid in which a single cross composed of two 8-row Golden Bantam inbreds is used as the female or seed parent and another 8-rowed Golden Bantam inbred is used as a source of pollen. Since a single cross hybrid is used as the seed parent, Kingscrist G7 is easier to produce than Kingscrist M13. The hybrid was first made commercially in 1939 under the direction of the originators, C. A. Bush and J. H. Shaver of Northrup, King & Co., Minneapolis, Minn. After being in trial for one year, it was introduced to the seed trade in 1941 by the afore-mentioned seed company.

Kingscrist G7 is a moderately early variety having a maturity spread of 8 days at Geneva with the majority of the ears attaining the prime milk stage in 71 days. This was in season with Hybrid 6664, a day later than Kingscrist M13 and Seneca Golden, and 3 days earlier than Tendergold. The plants are similar in type to those of Kingscrist M13 and are difficult to distinguish from them, altho the silks of Kingscrist G7 are usually somewhat more variable in color. The ears average slightly shorter, have a larger percentage of 10-rowed specimens, and are slightly less uniform in row arrangement. The kernels are of equal depth, but a larger percentage of Kingscrist G7 ears show variation in the orange-yellow kernel color.

The variety yielded at the rate 2.45 tons or 11,470 marketable ears per acre. The quality of the frozen product was good with the kernels being equally as tender as those of Seneca Golden and Kingscrost M13 and significantly more tender than any other early variety except Hybrid 6664. It is well adapted for the home and market garden where 8-rowed good quality ears are in demand. It is not as satisfactory for the commercial whole ear pack as Kingscrost B2, described in Bulletin No. 686.

*Plants* moderately short, 84 per cent  $4\frac{1}{2}$ – $5\frac{1}{2}$  feet, 14 per cent  $5\frac{1}{2}$ –6 feet; silks 88 per cent amber, 12 per cent red, 11 days spread in emergence; tassels tall and feathery, 100 per cent with red-striped bracts and red anthers, lateral spikelets moderately long, horizontal to moderately drooping, few to medium in number, 36 per cent of the tassels have 10 or less, 64 per cent have 11–20; leaves dark green and narrow; tillers moderately many, 74 per cent have 2 or 3, 18 per cent have 4 or 5.

*Ears* moderately low, 74 per cent 25–32 inches from the ground to ear tip, 16 per cent 33–36 inches; shanks medium to very long, 34 per cent 4 or 5 inches, 26 per cent 6 or 7 inches, and 32 per cent 8 inches or longer; husks moderately long extend  $3\frac{3}{4}$  inches beyond ear tip, tightly wrapped, medium in number; husk leaves 2–3, long and medium broad. *Husked ears* medium long, 56 per cent 6–7 inches, 22 per cent 7–8 inches, 20 per cent 5–6 inches; slender, 1.5 inches in diameter, cylindrical; 86 per cent 8-rowed, 14 per cent 10-rowed; 88 per cent regular in kernel arrangement. *Kernels* orange yellow, moderately to distinctly variable in color on 34 per cent of the ears; shallow at both milk and whole kernel maturity stages, 0.31 and 0.40 inch, respectively; pericarp resistance, 264 grams.

#### KINGSCROST M13 (Plate III)

The hybrid is made by crossing two 8-rowed Golden Bantam in-breds. It is difficult to produce since delayed planting of the male parent is necessary and the yield of seed from the female parent is rather low. It was originated by C. A. Bush and J. H. Shaver of Northrup, King and Company, Minneapolis, Minn., and was first produced commercially in 1938 after one year's test in the trial grounds. Kingscrost M13 was introduced to the general seed trade in 1940 by the originators and also by R. L. Gould and C. J. Lindholm of Minneapolis, Minn.

Kingscrost M-13 is a moderately early variety having a maturity spread of 7 days at Geneva with most of the ears attaining the prime milk stage in 70 days. This was in season with Seneca Golden, 2 days earlier than Alphagold Bantam and 2 days later than Marcross. The plants are very slender and similar to Golden Bantam in type. They are much more profusely tillered, have decidedly longer and more drooping tassel lateral spikelets than Marcross or Spancross, and bear more ears on decidedly longer shanks. The ears are Golden Bantam in type and are therefore decidedly more slender and cylindrical in shape than those of Marcross or Spancross. The kernels are shallower



and broader and have a deeper orange-yellow tint than the latter varieties.

Since the variety is a small-eared type, the yield in tons is comparatively low. It produced at the rate of 2.81 tons or 14,430 marketable ears per acre. The general quality of the frozen product was found to be good since the kernels were distinctly more tender than any of the Spancross and Marcross types and equal to those of Seneca Golden. It appears to be fairly well adapted for home and market gardening where 8-rowed ears have a demand. Because of its ear type and kernel color, it seems to have little value for commercial canning or freezing in New York.

*Plants* moderately short and slender, 84 per cent  $4\frac{1}{2}$ – $5\frac{1}{2}$  feet, 12 per cent taller; silks 100 per cent amber, 7 days spread in emergence; tassels moderately long and slender, with red-striped bracts and red anthers, lateral spikelets long and drooping, moderately few to medium in number, 56 per cent of the tassels have 11–20, 44 per cent have less; leaves dark green and narrow; tillers tall, medium in number, 80 per cent have 2 or 3, 10 per cent have more.

*Ears* moderately low, 80 per cent 25–32 inches from the ground to tip; shanks slender, variable in length, 40 per cent 4–8 inches, 54 per cent 8–10 inches or longer; husks moderately long, extend  $3\frac{1}{2}$  inches beyond tip of ear, moderately few in number but tightly wrapped; husk leaves few, moderately long and narrow. *Husked ears* medium to moderately long, 58 per cent 6–7 inches, 36 per cent 7–8 inches; slender, 1.4 inches in diameter, cylindrical; 98 per cent 8-rowed, 96 per cent regular in arrangement. *Kernels* orange yellow, slight to moderately variable in color on 26 per cent of the ears; shallow at both milk and whole kernel maturity stages, 0.31 and 0.39 inch, respectively; pericarp resistance, 265 grams.

#### LEE (Plate IV)

This single cross hybrid was developed to replace the top-cross hybrid Whipcross P39. It is produced by using Purdue Bantam 39 as the seed parent and Whipples Yellow inbred C27 as the male or pollen parent. It was originated by W. R. Singleton and D. F. Jones of the Connecticut Agricultural Experiment Station, New Haven, Conn. The hybrid was first made in 1938 and was released for trial in 1940. It was introduced (6) by the Connecticut Experiment Station in 1941 at which time the first commercial seed was grown by Crookham Co., Caldwell, Idaho. It was first distributed for retail sale by Comstock, Ferre, Inc., Wethersfield, Conn., in 1942.

Lee is a midseason variety having a maturity spread of 7 days at Geneva with most of the ears attaining the prime milk stage in 77 days. This was 3 days later than Tendergold, 1 day earlier than Lincoln, and 4 days earlier than Golden Cross Bantam. The plants are slightly shorter and more slender than those of Lincoln, have a similar tillering habit, darker foliage, and larger, more profusely branched tassels with more drooping lateral spikelets. The ears average slightly longer than those of Lincoln, have fewer 16-rowed specimens, and are slightly

thicker in diameter. The kernels are about the same depth, are broader, and have color nearly as uniform as that of Golden Cross Bantam.

The variety yielded at the rate of 5.06 tons or 12,670 marketable ears per acre. The quality of the cooked frozen product was considered good and the kernels were as tender as those of Tendergold but significantly less tender than those of Golden Cross Bantam. It is a decided improvement over the original Whipcross type and is admirably suited for commercial market and truck crop production. Tests have been inadequate to determine fully its place as a commercial processing variety.

*Plants* moderately tall, 92 per cent  $6\frac{1}{2}$ – $7\frac{1}{2}$  feet, vigorous; silks 100 per cent red, 8 days spread in emergence; tassels very long and bushy, 100 per cent with red-striped bracts and red anthers, lateral spikelets long, horizontal to moderately drooping, very numerous, 88 per cent of tassels have 31–40, 8 per cent have more; leaves dark green and broad, tillers few to medium in number, 52 per cent have 2 or 3, 48 per cent have 1 or none.

*Ears* medium high, 80 per cent 33–40 inches from ground to ear tip, 14 per cent slightly lower; shanks moderately short to medium length, 40 per cent 2 or 3 inches, 56 per cent 4 or 5 inches; husks medium long, extend 2–3 inches beyond ear tip, tightly wrapped, medium in number; husk leaves 7–8, long and broad. *Husked ears* moderately long to long, 64 per cent 7–8 inches, 28 per cent 8–9 inches; plump, 2 inches in diameter, cylindrical to slightly tapered; 72 per cent 12- to 14-rowed, 26 per cent 16-rowed; 84 per cent regular in kernel arrangement. *Kernels* creamy yellow, moderately uniform, slightly to moderately variable in color on 14 per cent of ears; moderately broad; moderately deep at milk stage, 0.38 inch, medium deep at whole kernel maturity stage, 0.43 inch; pericarp resistance, 261 grams.

#### LEXINGTON, SYN: GOLDEN PRIDE (Plate II)

This single cross hybrid is produced by using Golden Early Market inbred C13 as the seed parent and inbred C15 as the male or pollen parent. The latter was secured from a cross between Black Mexican and Spanish Gold. Both inbreds were developed by W. R. Singleton and D. F. Jones of the Connecticut Experiment Station who made the hybrid for the first time in 1938. It was released for trial in 1940 and was introduced (6) by the Connecticut Experiment Station in 1941. Distribution of seed by commercial seedsmen occurred a year later at which time it was obtainable from Maurice Rogers, Crookham Co., Chas. C. Hart, and others.

Lexington is a moderately early variety having a maturity spread of 8 days at Geneva with the majority of the ears attaining the prime milk stage in 71 days. This was in season with Bankcross C13, 2 days later than Patrick Henry, and 2 days earlier than Carmelcross. The plants are taller, altho more variable in height, than those of Spancross, are very similar in tillering habit, and have tassels which are much more profusely branched. The ears extend higher on the plants, are more variable in positions, and average slightly longer and thicker.

The kernels are slightly deeper than those of Spancross, are somewhat more regularly arranged, and altho some variation in orange-yellow color is evident, it is much less pronounced than on Spancross.

The variety produced 4.3 tons or 10,700 marketable ears per acre. It was judged to have moderately good general quality as a frozen product. Altho the kernels were found to be about the same texture as those of Spancross, the flavor and color were rated considerably higher. It is strictly a home and market garden variety having the advantage of somewhat better quality over that of Spancross.

*Plants* moderately short to medium tall, 52 per cent 4½-5½ feet, 34 per cent 5½-6½ feet, silks 70 per cent red, 30 per cent amber, 8 days spread in emergence; tassels short and moderately bushy, 100 per cent with red-striped bracts and red anthers, lateral spikelets short, stiff, nearly erect, moderately numerous, 68 per cent of the tassels have 11-20, 20 per cent have 21-30 or more; leaves dark green and narrow; tillers medium to few in number, 62 per cent have 2 or 3, 38 per cent have 1 or none.

*Ears* variable in height, 58 per cent 21-28 inches from the ground to ear tip, 34 per cent 29-36 inches; shanks moderately short to medium long, 68 per cent 2 or 3 inches, 22 per cent 4 or 5 inches, 10 per cent longer; husks medium long, extend 2-3 inches beyond tip of ear, moderately tight wrapped; husk leaves 3-4, short and narrow. *Husked ears* medium to moderately long, 34 per cent 6-7 inches, 52 per cent 7-8 inches; moderately plump, 1.9 inches in diameter, slightly tapered; 88 per cent 12-rowed, 10 per cent 14- to 16-rowed; 88 per cent regular in arrangement. *Kernels* creamy yellow, slightly to moderately variable in color on 22 per cent of ears; medium depth at both milk and whole kernel maturity stages, 0.35 and 0.45 inch, respectively; pericarp resistance, 293 grams.

#### LINCOLN (Plate IV)

This is another single cross of the Whipcross type which is produced by using Purdue Bantam (P39) inbred as the female or seed parent and Whipples Yellow inbred C23 as the source of pollen. It was developed by W. R. Singleton and D. F. Jones of the Connecticut Agricultural Experiment Station, New Haven, Conn., and was first produced in 1938. It was released for trial in 1940 and was introduced (6) by the Connecticut Experiment Station in 1941. It was awarded a bronze medal for 1942 as the result of the 1941 All America Trials and was introduced to the general seed trade by many seed companies in 1942.

Lincoln is a midseason variety having a maturity spread of 7 days at Geneva with the majority of the ears attaining the prime milk stage in 78 days. This was a day later than Lee and 3 days earlier than Golden Cross Bantam. The plants are taller and more vigorous than those of Lee, have lighter green foliage, decidedly lighter silks, and have slightly smaller less profusely branched tassels with somewhat more upright lateral spikelets. In comparison to Golden Cross Bantam the plants are considerably taller and more vigorous and have tassels similar in type but with predominately red-striped bracts instead of green. The ears of Lincoln average slightly shorter than those of

Golden Cross Bantam and, altho equally as thick in diameter, Lincoln has more rows of narrower kernels. The kernels are about the same depth as those of Golden Cross Bantam and are nearly as uniform in color.

The variety produced at the rate of 5.48 tons or 11,420 marketable ears per acre. It was considered to have good quality when examined as a cooked frozen product with the kernels being equally as tender as those of Lee and Tendergold, altho significantly less tender than those of Golden Cross Bantam. It appears well adapted for commercial market and truck crop production but is of too recent origin to have been tested thoroly for commercial processing.

*Plants* moderately tall to tall, 94 per cent 7-8 feet, very vigorous; silks 96 per cent green, 8 days spread in emergence; tassels long and moderately bushy, 100 per cent with faintly red-striped bracts and red anthers, lateral spikelets long, nearly horizontal to moderately erect, medium to numerous, 88 per cent of the tassels have 21-30, 12 per cent have 11-20; leaves medium to moderately light green, broad; tillers few to medium in number, 62 per cent have 1 or none, 38 per cent have 2.

*Ears* high, 78 per cent 41-48 inches from ground to ear tip, 14 per cent slightly lower; shanks moderately short, 60 per cent 2 or 3 inches, 40 per cent 4 or 5 inches; husks short, extend  $1\frac{1}{2}$ -2 inches beyond ear tip, moderately tight wrapped, numerous; husk leaves 7-9, medium long and broad. *Husked ears* medium to moderately long, 66 per cent 7-8 inches, 24 per cent 6-7 inches; moderately plump, 1.9 inches in diameter, slightly tapering to nearly cylindrical; 76 per cent 14- to 16-rowed, 22 per cent 12-rowed; 72 per cent regular in kernel arrangement. *Kernels* creamy yellow, moderately uniform, slightly to moderately variable in color on 24 per cent of ears; moderately narrow; medium depth at both milk and whole kernel maturity stages, 0.37 and 0.42 inch, respectively; pericarp resistance, 261 grams.

#### MARCCROSS NORTHERN (Plate IV)

The variety is a single cross hybrid in which the female or seed parent is Golden Early Market inbred 60-D-G. A substrain of the inbred P39 is used as the pollen parent. The variety was first made in 1936 by George M. Sawin and was released for trial in 1938. It was introduced to the general seed trade in 1939 by Rogers Bros. Seed Company, Inc., Chicago, Ill.

Marcross Northern is a moderately early to midseason variety having a 9-day maturity spread at Geneva with most of the ears attaining the prime milk stage in 74 days. This was in season with Tendergold, 6 days later than Marcross C6.13, and a week earlier than Golden Cross Bantam. The plants are distinctly taller and more vigorous than those of Marcross C6.13 and have larger tassels which are more variable in color. The ears are more variable in position than those of Marcross C6.13, are similar in length but have more kernel rows slightly less regularly arranged. The kernels are more shallow, narrower and show more variation in the orange-yellow color than do those of Marcross C6.13.

The variety yielded at the rate of 4.26 tons or 10,870 ears per acre. It was considered to have moderately good quality as a frozen product and had kernels which were nearly as tender as those of Tendergold and significantly more tender than those of Marcross C6.13. Shallowness and variability in color are its most serious kernel weaknesses. In view of its variability in maturity and with quality not superior to that of Tendergold or Seneca Golden, it does not appear to be particularly adapted for commercial processing in New York.

*Plants* medium tall to tall, 68 per cent  $5\frac{1}{2}$ – $6\frac{1}{2}$  feet, 24 per cent taller; silks variable, 68 per cent red or amber, 32 per cent green, 9 days spread in emergence; tassels long and stocky, 92 per cent with red-striped bracts and red anthers, 8 per cent with green bracts and yellow anthers, lateral spikelets long and slightly drooping, medium to many in number, 60 per cent of the tassels have 11–20, 28 per cent have 21–30 or more; leaves medium green and moderately broad; tillers medium in number, 66 per cent have 2 or 3, 34 per cent have 1 or none.

*Ears* medium high to high, 68 per cent 29–36 inches from the ground to tip, 20 per cent higher; shanks moderately short to long, 36 per cent 2 or 3 inches, 48 per cent 4 or 5 inches, 16 per cent longer; husks medium long, extend 2–3 inches beyond tip of ear, variable in number, moderately tight wrapped, husk leaves 2–5 in number, variable in size. *Husked ears* medium to moderately long, 26 per cent 6–7 inches, 52 per cent 7–8 inches, 18 per cent 8 inches or longer; medium plump, 1.8 inches in diameter, usually tapered; 80 per cent 12- to 14-rowed, 16 per cent 16-rowed; 74 per cent regular in arrangement. *Kernels* light creamy yellow, slightly to moderately variable in color on 38 per cent of the ears; shallow at both milk and whole kernel maturity stages, 0.34 and 0.40 inch, respectively; pericarp resistance, 267 grams.

MARKET HYBRID, SYNS: GOLDEN MARKET HYBRID, GEMCROSS, GOLDEN TREASURE, SWEETCROSS C13 (Plate I)

Market Gem or Early Golden Sweet, a 12-rowed open-pollinated variety, is used as the female or seed parent in producing this top-cross hybrid and Golden Early Market inbred C13 is used as the source of pollen. The variety was originated by George Crookham, Jr. of Caldwell, Idaho and was first produced commercially in 1937 by Crookham Company. It was first sold to the retail trade in 1938 by Comstock, Ferre & Co., Wethersfield, Conn., as Gemcross, but a year later was distributed by numerous retailers under its present name. As in the case of most top-cross hybrids it has rather limited use and will probably be replaced by a single cross hybrid.

Market Hybrid is an early variety having a maturity spread of 8 days at Geneva with the majority of the ears attaining the prime milk stage in 69 days. This was in season with Patrick Henry, 2 days earlier than Lexington, and a day later than Marcross and North Star. The plants are similar in height and vigor to those of Spancross, practically as well tillered, but have somewhat larger and bushier tassels. The ears are borne slightly higher on the plants, are longer than those of Spancross, and, altho very similar in row number, are slightly thicker in diameter. The kernels are slightly more shallow than those

of Marcross, practically as regular in arrangement but are distinctly more variable in the orange-yellow color. In this respect they show about the same degree of variation as the kernels of Seneca 60 × C13.

The variety yielded at the rate of 4.32 tons or 11,730 marketable ears per acre. The frozen product was judged to have only moderately good general quality, since the kernels were found to be significantly tougher than those of North Star. It is primarily adapted for home and market gardening but is rapidly being replaced by other varieties.

*Plants* moderately short to short, 58 per cent  $4\frac{1}{2}$ – $5\frac{1}{2}$  feet, 36 per cent shorter; silks variable, 86 per cent red and 14 per cent amber or green, 7 days spread in emergence; tassels short and bushy, 98 per cent with red-striped bracts and anthers, lateral spikelets short, stiff and nearly vertical, medium in number, 72 per cent of tassels have 11–20, 20 per cent have less; leaves dark green, narrow; tillers medium in number, 62 per cent have 2 or 3, 38 per cent have 1 or none.

*Ears* low to moderately low, 84 per cent 21–28 inches from the ground to tip, 12 per cent higher; shanks moderately short to medium long, 54 per cent 2 or 3 inches, 40 per cent 4 or 5 inches; husks short,  $1\frac{1}{2}$ –2 inches beyond tip of ear, moderately many and well wrapped; husk leaves 3–4, usually short and moderately broad. *Husked ears* medium to moderately long, 32 per cent 6–7 inches, 50 per cent 7–8 inches, 10 per cent longer; moderately plump, 1.9 inches in diameter, usually tapered, 64 per cent 12-rowed, 30 per cent 8- to 10-rowed; 76 per cent regular in arrangement; 8-rowed ears unattractive and irregular in appearance. *Kernels* creamy yellow, slightly to distinctly variable in color on 36 per cent of ears; medium depth at both milk and whole kernel maturity stages, 0.34 and 0.43 inch, respectively; pericarp resistance, 300 grams.

#### MOHAWK (Plate V)

This single cross hybrid is made by using the 12- to 14-rowed mid-season Bantam inbred No. 739, a line selected out of Purdue Bantam 1339, as the seed parent. The male parent is the 14- to 18-rowed inbred No. 938 derived from the variety hybrid Narrow Grain Evergreen × Golden Bantam. It originated in 1937 with the Department of Breeding of the Associated Seed Growers, Inc., New Haven, Conn. Mohawk was released for trial in 1939 and was introduced to the seed trade in 1940 by the Associated Seed Growers, Inc.

Mohawk is a late variety having a maturity spread of 6 days at Geneva with most of the ears attaining the prime milk stage in 87 days. This was in season with Goldenwood, 3 days later than Ioana, and 5 days earlier than Allegheny. The plants are stockier than those of Golden Cross Bantam, have broader leaves which are not quite as dark green as those of Goldenwood and have more uniform amber silk color than the latter. The tassels are as large as those of Goldenwood, are not quite as profusely branched, and have green bracts with considerably less red on them. The ears are not borne as high on the plant as are those of Goldenwood or Allegheny, are shorter than those of Ioana, and are distinctly thicker. Mohawk has more kernel rows than Ioana and these are considerably more irregular in arrangement. The kernels are decidedly narrower and deeper than are those of Ioana or Golden Cross Bantam but are practically as uniform in color.

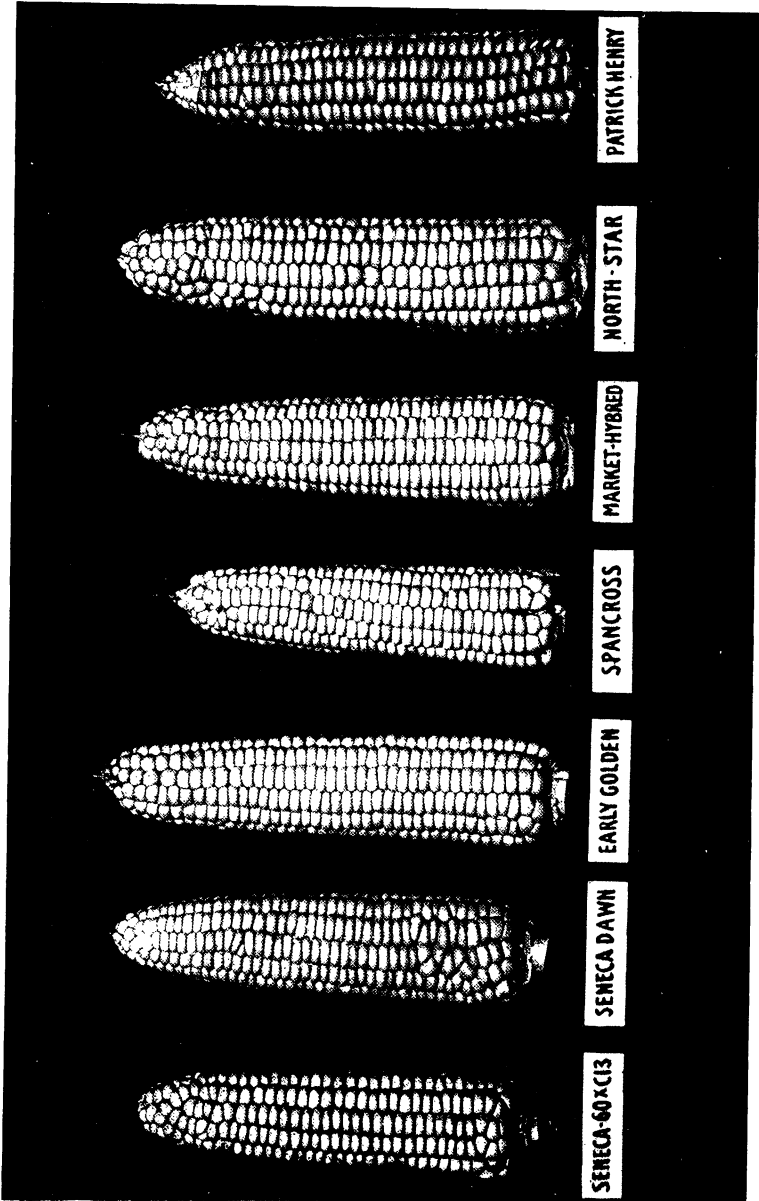


PLATE I

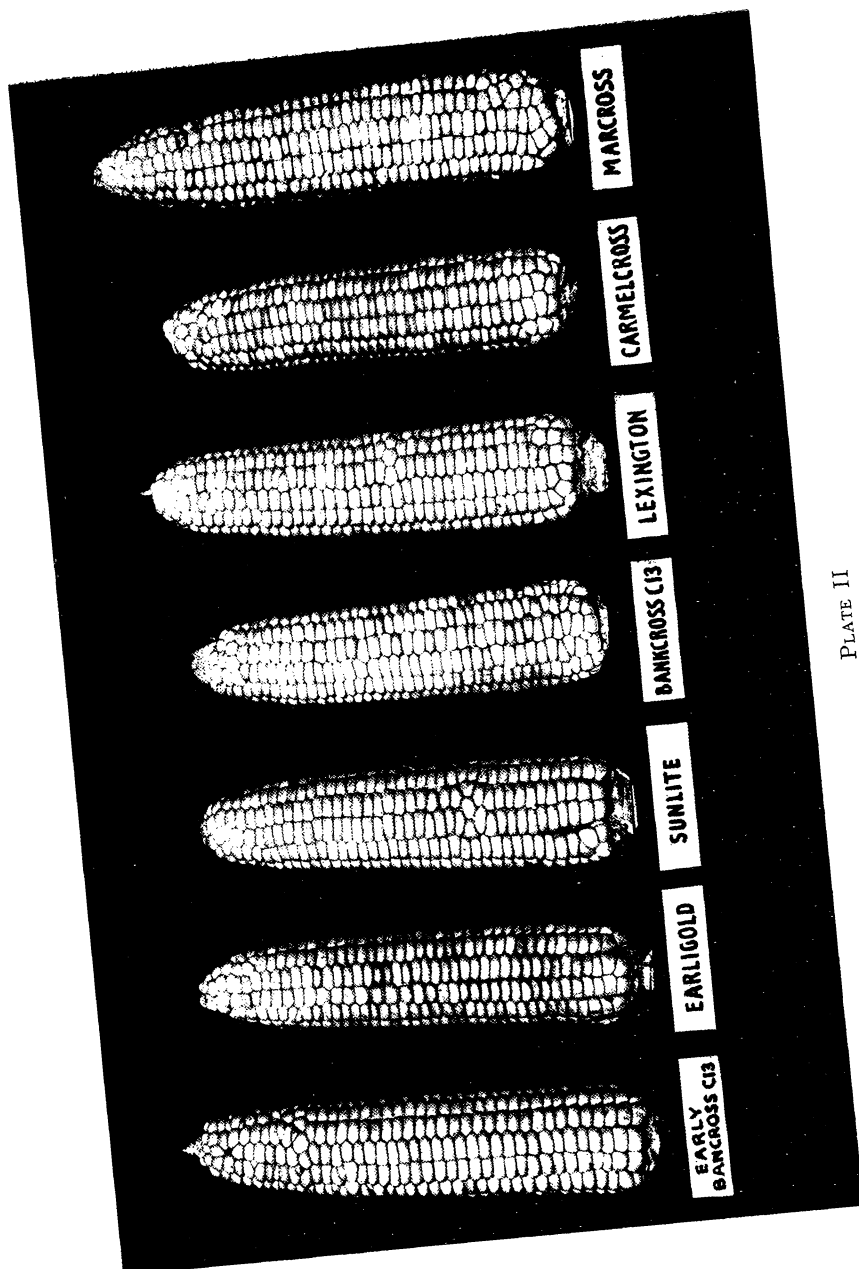


PLATE II



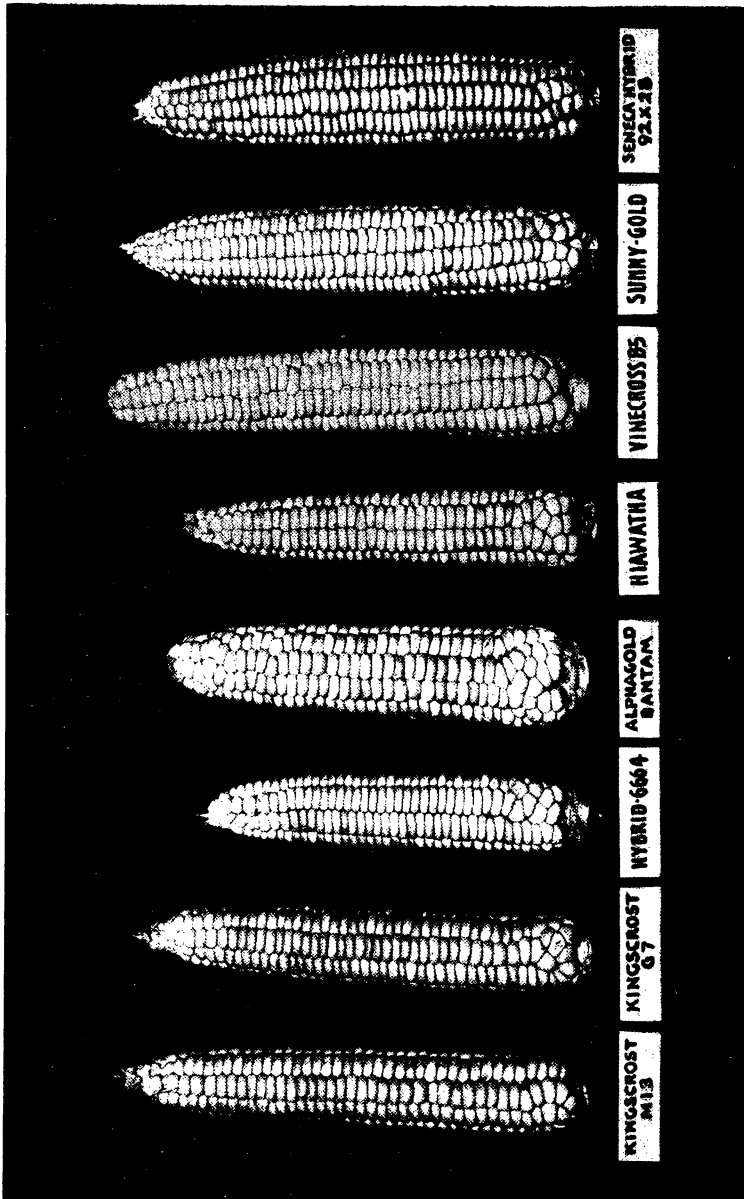


PLATE III

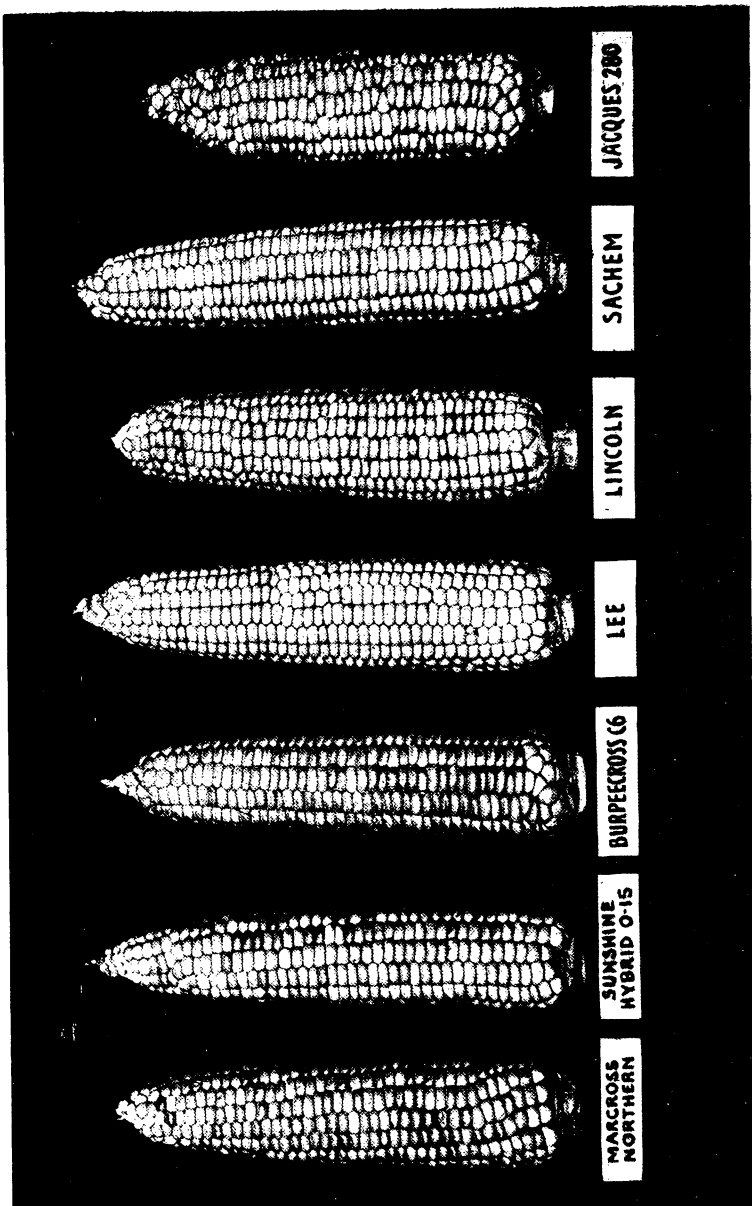


PLATE IV

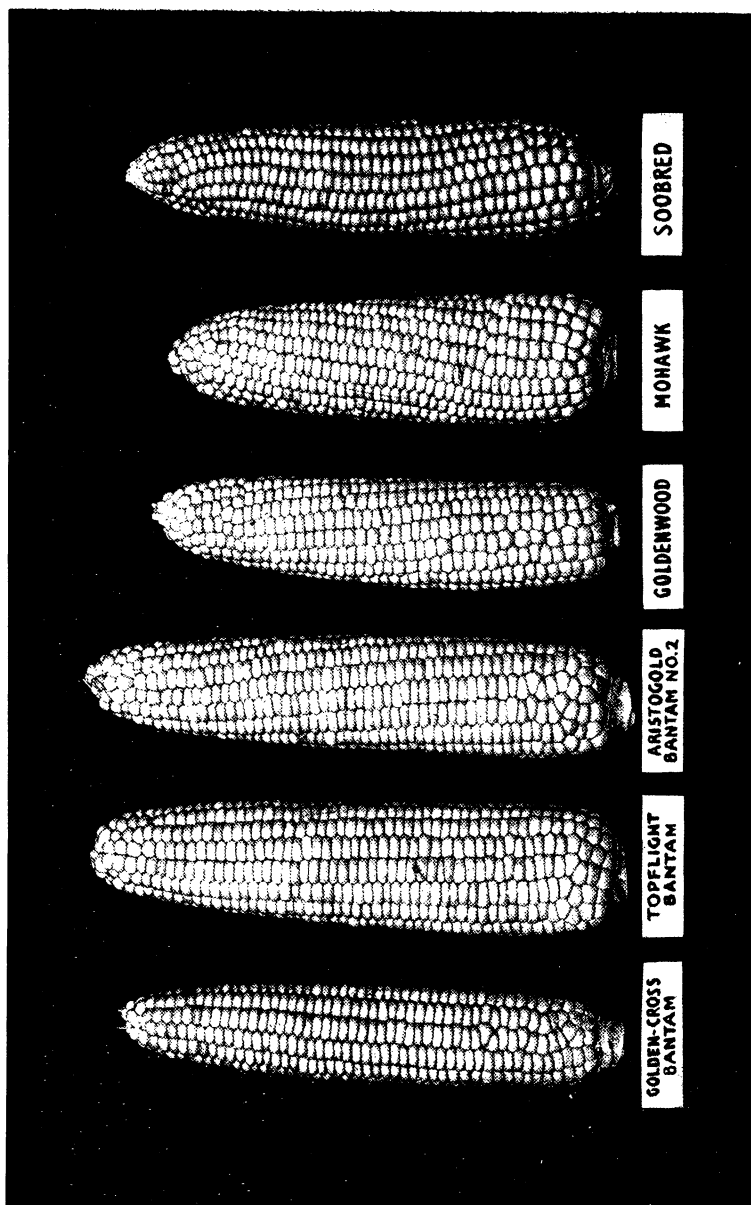


PLATE V

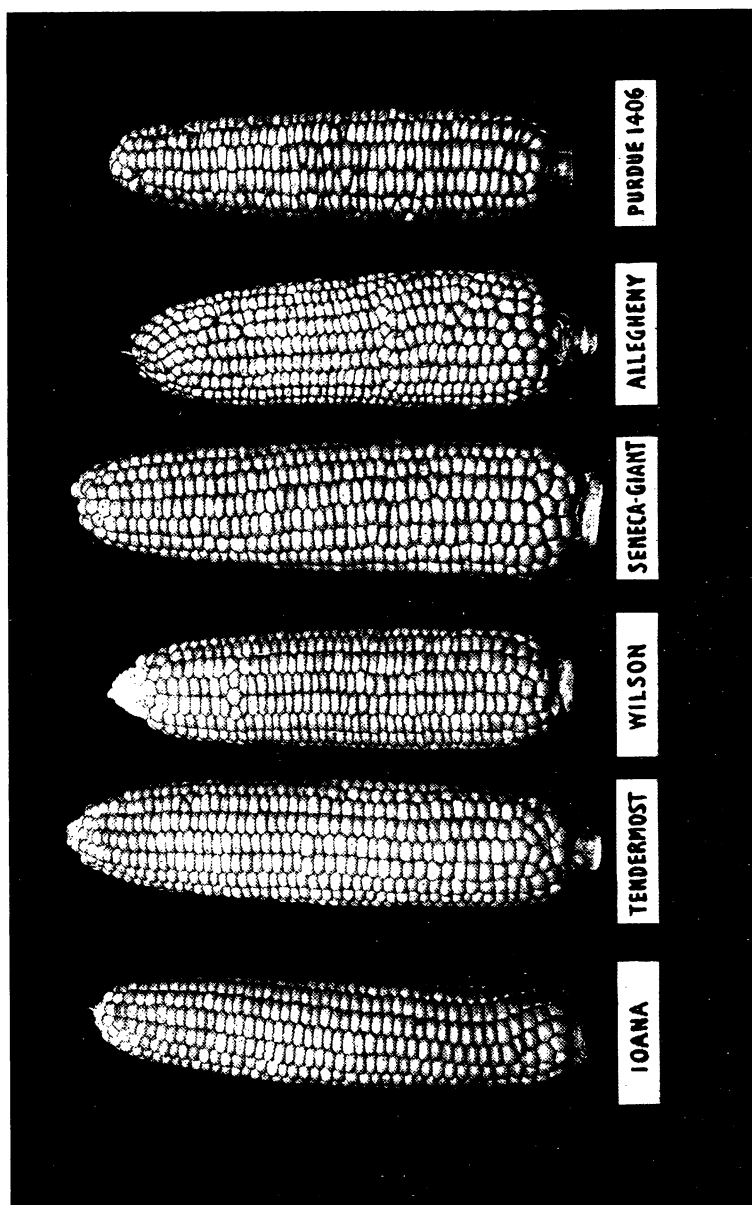


PLATE VI

The variety yielded at the rate of 5.00 tons or 10,200 marketable ears per acre. The cooked frozen samples were judged to have moderately good general quality. Altho the kernels were significantly tougher than those of Golden Cross and Tendermost, they were equally as tender as those of Purdue 1406. Mohawk appears to be moderately well adapted as a late corn for commercial freezing if harvested sufficiently young. Trials in previous years have indicated that it had too firm a skin to compare favorably with Golden Cross Bantam for canning as whole kernel corn.

*Plants* moderately tall, 86 per cent  $6\frac{1}{2}$ – $7\frac{1}{2}$  feet, 10 per cent taller; silks 98 per cent amber green, 6 days spread in emergence; tassels long and bushy, 94 per cent with faintly red-striped bracts and red anthers; lateral spikelets long, slightly drooping, numerous, 72 per cent of tassels have 21–30, 28 per cent have 11–20; leaves medium green, broad; tillers few to medium in number, 42 per cent have 2 or 3, 56 per cent have 1 or none.

*Ears* moderately high, 84 per cent 37–44 inches from ground to ear tip, 10 per cent slightly lower; shanks moderately short, 82 per cent 2 or 3 inches, 16 per cent 4 or 5 inches; husks medium long, extend  $2\frac{1}{2}$ –3 inches beyond ear tip, numerous, moderately tight wrapped; husk leaves 5–6, short and broad. *Husked ears* medium to moderately long, 22 per cent 6–7 inches, 74 per cent 7–8 inches; very plump, 2.2 inches in diameter, nearly cylindrical to slightly tapered; 80 per cent 16-rowed, 18 per cent 18-rowed; 48 per cent more or less irregular or spiral in kernel arrangement. *Kernels* creamy yellow, uniform, slightly to moderately variable on 16 per cent of ears; narrow, tightly set; deep at both milk and whole kernel maturity stages, 0.42 and 0.54 inch, respectively; pericarp resistance, 271 grams.

#### NORTH STAR (Plate I)

The variety is a single cross hybrid in which the Extra Early Bantam inbred B is used as the female or seed parent and the Golden Early Market inbred C13 is used as the pollen parent. The hybrid originated in 1938 with the Joseph Harris Company, Inc., Moreton Farm, Rochester, N. Y. It was released for trial in 1940 and formally introduced to the seed trade in 1941 by the originators.

North Star is an early variety having a maturity spread at Geneva of 8 days with most of the ears attaining the prime milk stage in 68 days. This was 2 days earlier than Earligold, in season with Spancross, and 2 days later than Seneca Dawn. The plants are taller and more vigorous than those of Seneca Dawn or Spancross, have larger and bushier tassels than Spancross, and, with the exception of Seneca 60 × C13, produce more ears than any variety maturing in less than 70 days. The ears are borne slightly higher from the ground than are those of Marcross, are equally as long, are more slender, and have a substantially higher percentage of 10-rowed specimens. The kernels are the same depth as those of Seneca Dawn, are much more uniform in color, and are more regular in row arrangement.

The variety yielded at the rate of 4.68 tons or 14,330 marketable ears per acre. Tests have indicated it to have good quality as a frozen

product and to have a significantly more tender pericarp than Seneca Dawn, Marcross, or Early Golden, altho tougher than Seneca Golden and Tendergold. It appears to be very well adapted as a good quality, early, productive sort suitable for the home and market garden.

*Plants* medium tall, 72 per cent 5-6 feet, 18 per cent shorter; silks 90 per cent red, 10 per cent amber, 7 days spread in emergence; tassels distinctly stiff and erect, 100 per cent with red-striped bracts and red anthers, lateral spikelets medium long and erect, medium in number, 92 per cent of the tassels have 11-20; leaves very dark green and rather narrow; tillers few to medium in number, 66 per cent have 1 or none, 34 per cent have 2 or 3.

*Ears* moderately low, 86 per cent 25-32 inches from the ground to tip, 10 per cent lower; shanks rather variable, 50 per cent 2 or 3 inches, 28 per cent 4 or 5 inches and 22 per cent 6-9 inches, husks short, extend 1-1½ inches beyond tip of ear, few and moderately tight wrapped; husk leaves 4-5, moderately long and broad, occasionally very short. *Husked ears* medium to moderately long, 30 per cent 6-7 inches, 58 per cent 7-8 inches, 10 per cent longer; medium plump, 1.8 inches in diameter, symmetrical and attractive, very slightly tapered; 86 per cent 10- to 12-rowed, 14 per cent 8-rowed; 86 per cent regular in arrangement. *Kernels* creamy yellow, slightly to moderately variable in color on 10 per cent of ears; medium depth at both milk and whole kernel maturity stages, 0.35 and 0.44 inch, respectively; pericarp resistance, 285 grams.

#### PATRICK HENRY (Plate I)

This single cross hybrid is usually made by using the Golden Early Market inbred C13 as the female or seed parent. The inbred C5, derived from a cross of Spancross P39 backcrossed once to Spanish Gold, is used as the source of pollen. The hybrid was first made in 1937 by W. R. Singleton and D. F. Jones of the Connecticut Experiment Station and was released for trial in 1942. It was first produced commercially in 1942 by Crookham Company, Caldwell, Idaho, and was introduced in 1943 (4) by the Connecticut Agricultural Experiment Station, New Haven, Conn. Seed was first sold commercially in 1943 by Comstock-Ferre, Wethersfield, Conn.

Patrick Henry is an early variety having a maturity spread of 6 days at Geneva with most of the ears attaining the prime milk stage in 69 days. This was 3 days later than Seneca Dawn, in season with Market Hybrid, and 2 days earlier than Lexington. The plants are taller than those of Spancross, equally as well tillered, have bushier tassels, and bear the ears higher from the ground. The ears are longer than those of Spancross and, altho similar in diameter, have more 14- and 16-rowed specimens. The kernels are very similar in depth, show about the same degree of orange-yellow color variation, and are similar in regularity of arrangement.

The variety produced 4.29 tons or 11,230 marketable ears per acre. It was judged to have better general quality than Spancross on the basis of flavor but no difference in toughness of skin could be detected, both being significantly tougher than Seneca Golden and Tendergold

but more tender than Seneca Dawn. It is primarily suited for home and early market garden purposes.

*Plants* moderately short, 72 per cent  $4\frac{1}{2}$ – $5\frac{1}{2}$  feet, 18 per cent shorter; silks 94 per cent red or amber red, 6 days spread in emergence; tassels short and bushy with red-striped bracts and red anthers, lateral spikelets short and stiff, medium in number, 84 per cent of the tassels have 11–20, 16 per cent have less; leaves dark green, medium broad; tillers medium in number, 64 per cent have 2 or 3, 36 per cent have less.

*Ears* moderately low, 86 per cent 21–28 inches from the ground to tip; shanks moderately short to medium long, 54 per cent 2 and 3 inches, 30 per cent 4 and 5 inches; husks short, extend 1–2 inches beyond tip of ear, medium in number and moderately tight wrapped; husk leaves numerous, moderately long and broad. *Husked ears* medium to moderately long, 44 per cent 6–7 inches, 42 per cent 7–8 inches; medium plump 1.8 inches in diameter, slightly tapering; 94 per cent 12- to 14-rowed; 72 per cent regular in arrangement. *Kernels* light orange yellow, slight to moderately variable in color on 40 per cent of the ears; medium depth at both milk and whole kernel maturity stages, 0.35 and 0.44 inch, respectively; pericarp resistance, 290 grams.

#### PURDUE 1406 (Plate VI)

This is a single cross hybrid which is produced by using the inbred P14 as the female or seed parent and inbred P39C as the pollen parent. The latter is a sister line of Purdue Bantam. The hybrid was first made in 1937 by the originator, Glenn M. Smith, and was released for trial in 1938. It was introduced by the Purdue Agricultural Experiment Station, LaFayette, Ind., and was listed for sale by Northrup, King & Co., Minneapolis, Minn., in 1941.

Purdue 1406 is a late variety having a maturity spread of 8 days at Geneva with most of the ears attaining the prime milk stage in 86 days. This was 2 days later than Ioana, 5 days later than Golden Cross Bantam, and 3 days earlier than Soobred. The plants are similar in height, in foliage, and in tassel color to those of Golden Cross Bantam, but the leaves are narrower, the tassels are distinctly smaller, and have fewer, stiffer, and more erect lateral spikelets. The ears average slightly shorter, are similar in shape, row number, and thickness, but the kernel rows are decidedly less regular in arrangement. The kernels of Purdue 1406 are slightly deeper than those of Golden Cross Bantam and show a slight variation in orange-yellow color on considerably more ears.

The variety yielded at the rate of 4.14 tons or 10,970 marketable ears per acre. In both respects the differences between Golden Cross Bantam and Purdue 1406 were on the border of significance in favor of Golden Cross Bantam. Altho the general quality of the cooked frozen samples was found to be good, the kernels of Purdue 1406 were significantly less tender than those of Golden Cross Bantam but more tender than those of Ioana and Topflight Bantam. The variety may have a place as a late sort for commercial processing but is probably not good enough to compete with Golden Cross Bantam in New York State.

*Plants* moderately tall, 68 per cent 6½-7½ feet, 14 per cent taller; silks 100 per cent green, 8 days spread in emergence; tassels medium long and brush-like, 100 per cent with green bracts and yellow anthers, lateral spikelets medium long, usually moderately stiff and nearly erect, medium in number, 68 per cent of tassels have 11-20, 28 per cent have 21-30; leaves dark green, narrow; tillers medium in number, 70 per cent have 2 or 3, 28 per cent have 1 or none.

*Ears* medium high, 80 per cent 33-40 inches from the ground to ear tip, 14 per cent slightly lower; shanks moderately short to medium long, 68 per cent 2 or 3 inches, 30 per cent 4 or 5 inches; husks medium long, extend 2-3 inches beyond ear tip; moderately many, tightly wrapped; husk leaves 6-8, short and medium broad. *Husked ears* moderately long to long, 74 per cent 7-8 inches, 14 per cent 8-9 inches; moderately plump, 1.9 inches in diameter; slightly tapered; 94 per cent 12- to 14-rowed, 48 per cent more or less irregular or spiral in kernel arrangement. *Kernels* creamy yellow, slightly variable in color on 22 per cent of ears; moderately deep at both milk and whole kernel maturity stages, 0.37 and 0.46 inch, respectively; pericarp resistance, 273 grams.

#### SACHEM (Plate IV)

In producing this single cross hybrid the 12- to 14-rowed inbred No. 739H selected out of Purdue Bantam is used as the female or seed parent and the early Golden Bantam inbred No. 635 is used as the source of pollen. The variety was originated in 1937 by the Plant Breeding Department of the Associated Seed Growers, Inc., New Haven, Conn. It was released for trial in 1939 and was introduced to the seed trade by the Associated Seed Growers, Inc., in 1940.

Sachem is a midseason variety having a maturity spread of 7 days at Geneva with the majority of the ears attaining the prime milk stage in 79 days. This was 5 days later than Tendergold and 2 days earlier than Golden Cross Bantam. The plants average slightly shorter than those of Golden Cross Bantam and are more slender, have darker green foliage and tassels, are equally as well tillered, and bear their ears slightly lower. The ears are slightly shorter, more slender, and are not quite as regular in row arrangement as those of Golden Cross Bantam. The kernels are more shallow, are usually slightly broader on the 10-rowed ears, are not as closely set, and have a higher percentage of ears showing slight variation in orange-yellow color. The general color impression is a bright buttery yellow as contrasted to the lighter creamy yellow of Golden Cross Bantam.

The variety yielded at the rate of 4.49 tons or 11,600 marketable ears per acre. The quality of the frozen product when cooked was distinctive and was considered to be good. Altho the kernels were significantly less tender than those of Golden Cross Bantam, they were equally as tender as those of Tendergold. The variety is moderately well adapted for commercial canning and freezing, particularly for the whole ear pack.

*Plants* medium tall, 88 per cent 6-7 feet, 12 per cent slightly shorter; silks 94 per cent amber red or red, 6 per cent green; 7 days spread in emergence;



tassels long and bushy, 94 per cent with prominently dark red-striped bracts and red anthers, lateral spikelets long, usually drooping, moderately many, 68 per cent of tassels have 21-30, 32 per cent have 11-20; leaves dark green, medium broad; tillers medium in number, 70 per cent have 2 or 3, 30 per cent have 1 or none.

*Ears* medium high, 80 per cent 33-40 inches from ground to ear tip, 14 per cent slightly lower; shanks moderately short to medium length, 62 per cent 2 or 3 inches, 36 per cent 4 or 5 inches; husks moderately long, 3-3½ inches, numerous, tightly wrapped; husk leaves 4-5, moderately short and medium broad. *Husked ears* moderately long to long, 58 per cent 7-8 inches, 20 per cent 8-9 inches; medium plump, 1.8 inches in diameter; moderately cylindrical to slightly tapered; 72 per cent 12-rowed; 26 per cent 10-rowed; 74 per cent regular in kernel arrangement, 22 per cent slightly irregular or spiral. *Kernels* deep butter yellow, slightly variable in color on 24 per cent of ears; medium depth at both milk and whole kernel maturity stages, 0.34 and 0.41 inch, respectively; pericarp resistance, 255 grams.

#### SENECA DAWN (Plate I)

This is a single cross hybrid in which an inbred derived from a probable chance cross with Spanish Gold is used as the female or seed parent and the Golden Early Market inbred C13 is used as the source of pollen. The hybrid was originated in 1939 by Orson Robson and John McCabe of Robson Seed Farms, Hall, N. Y. It was first released for trial in 1942 as Experiment Hybrid No. 101 and was officially introduced by the originators in 1943 as Seneca Dawn.

Seneca Dawn is an early variety having a maturity spread of 7 days at Geneva with most of the ears attaining the prime milk stage in 66 days. This was 1 day later than Seneca 60 × C13 and 2 days earlier than Spancross and North Star. The plants are more vigorous and stockier than those of Seneca 60 × C13 but average about 6 inches shorter than those of North Star. They are predominantly single-eared in bearing habit as indicated by the fact that only 10 per cent of the plants produce more than one ear. The ears are larger, are borne higher on the plant than either those of Seneca 60 × C13 or Spancross, but are similar to them in row arrangement and number. The kernels are as deep as those of North Star but show a greater degree of orange-yellow color variation.

The variety produced 3.94 tons or 9,830 marketable ears per acre. It was judged to have only fair quality as a frozen product and was significantly tougher than North Star. Its chief attributes are increased size of ear and earliness and it is primarily suited for the home and early market garden.

*Plants* moderately short but stocky, 64 per cent 4½-5½ feet, 24 per cent shorter; silks 98 per cent red, 7 days spread in emergence; tassels short and bushy with red-striped bracts and red anthers, lateral spikelets short and stiff, medium in number, 100 per cent of the tassels have 11-20; leaves dark green and medium broad; tillers few in number, 76 per cent have 1 or none, 24 per cent have 2 or 3.

*Ears* moderately low, 76 per cent 25-32 inches from the ground to the tip; 24 per cent lower; shanks moderately short to medium long, 40 per cent 2 and 3 inches, 50 per cent 4 and 5 inches; husks very short, extend 1 inch or less beyond tip of ear, medium in number and tightly wrapped; husk leaves very few, short and narrow. *Husked ears* medium to moderately long, 38 per cent 6-7 inches, 52 per cent 7-8 inches, moderately plump, 1.9 inches in diameter, moderately tapered; 90 per cent 12- to 14-rowed; 42 per cent more or less irregular or spiral in arrangement. *Kernels* light orange yellow, moderately variable in color on 20 per cent of the ear; medium depth at both milk and whole kernel maturity stages, 0.35 and 0.44 inch, respectively; pericarp resistance, 298 grams.

#### SENECA GIANT (Plate VI)

This single cross hybrid has a rather involved history. The female or seed parent is an inbred line selected from a cross between a purple-seeded inbred and Purdue Bantam 39. The pollen parent is an inbred selected from Golden Mammoth, an open-pollinated variety developed by W. R. Singleton from a cross between Long Island Beauty and Purdue 39 and then backcrossed twice by the former variety. Seneca Giant was originated by Orson Robson and John McCabe in 1939, was released for trial in 1941, and was introduced to the seed trade by the Robson Seed Farms, Hall, N. Y., in 1942.

Seneca Giant is a late variety having a maturity spread of 9 days at Geneva with the majority of the ears attaining the prime milk stage in 91 days. This was a day earlier than Allegheny, 2 days later than Soobred, and a week later than Ioana. The plants are taller than those of any other variety here treated but are somewhat similar to Aristogold Bantam No. 2, altho the leaves are not as broad, the tassels are less bushy, and the silks are distinctly more variable in color. The ears are very similar to those of Wilson in length, diameter, and row number but are much more regular in row arrangement than that variety. The kernels are distinctly more shallow and thicker than those of Mohawk, Wilson, and Allegheny and show nearly as much variation in orange-yellow color as Goldenwood.

The variety yielded at the rate of 6 tons or 9,800 marketable ears per acre. The quality was judged to be poor since it was decidedly lacking in flavor and the kernels were tougher than any other variety here treated. Seneca Giant appears to be suited only for the large-eared, late, fresh market under circumstances where the large amount of stover would be an important consideration.

*Plants* tall to very tall, 70 per cent 8-9 feet, 20 per cent taller, very vigorous, have slight tendency to bend near medial; silks variable, 40 per cent red, 48 per cent amber, 12 per cent green, 9 days spread in emergence; tassels very long, moderately bushy, 100 per cent with red-striped bracts and red anthers, lateral spikelets very long, horizontal to drooping, numerous, 84 per cent of tassels have 21-30, 12 per cent have 11-20; leaves dark green, moderately broad; tillers few to medium in number, 50 per cent have 2 or 3, 50 per cent have 1 or none.

*Ears* high to very high, 80 per cent 45-52 inches from ground to ear tip, 10 per cent slightly higher; shanks variable, 62 per cent 2-5 inches long, 38 per cent

6-9 inches; husks moderately long, extend 3-4 inches beyond ear tip, numerous, moderately tight wrapped; husk leaves 5-6, moderately long and broad. *Husked ears* moderately long to long, 44 per cent 7-8 inches, 32 per cent 8-9 inches, 20 per cent shorter; very plump, 2.3 inches in diameter, slightly tapered; 82 per cent 14- to 16-rowed, 10 per cent 12-rowed; 70 per cent regular in kernel arrangement. *Kernels* creamy yellow to light orange yellow, slightly to moderately variable in color on 54 per cent of ears, medium width, distinctly thick; moderately deep at both milk and whole kernel maturity stages, 0.38 and 0.47 inch, respectively; pericarp resistance, 312 grams.

#### SENECA HYBRID 92 $\times$ 28 (Plate III)

This is a single cross hybrid which is produced by using as the seed parent an inbred selected several generations for long, slender, 12-rowed ears from Purdue Bantam. The male or pollen parent is a sub-strain selected out of Purdue 51. The variety was originated by Orson Robson in 1936, was released for experimental trial in 1939, and was introduced to the general seed trade in 1943 by the Robson Seed Farms, Hall, N. Y.

Seneca Hybrid 92  $\times$  28 is a midseason variety having a maturity spread of 5 days at Geneva with the majority of the ears maturing in 80 days. This was 1 day earlier than Golden Cross Bantam and 6 days later than Tendergold. The plants are practically identical to those of Golden Cross Bantam in height, tillering, and tassel characteristics. The ears, however, average slightly longer, are more slender, and have considerably more 10-rowed specimens. The kernels have the same depth and show slight variation in the orange-yellow color on a larger percentage of the ears.

The variety yielded at the rate of 5 tons or 14,400 marketable ears per acre. The quality of the frozen product when cooked was very good with the kernels being equally as tender as those of Golden Cross Bantam. Seneca Hybrid 92  $\times$  28 was developed primarily for the whole ear pack trade for freezing and canning and as such it has few equals in this State. It is equally as well suited for market and the home garden where there is a desire for slightly more slender ears than obtained from Golden Cross Bantam without sacrificing quality.

*Plants* moderately tall, 60 per cent 6½-7 feet, 20 per cent 7½ feet; silk 100 per cent green, 7 days spread in emergence; tassels medium long, moderately bushy, 100 per cent with green bracts and yellow anthers, lateral spikelets medium long, nearly horizontal to moderately erect, numerous, 86 per cent of tassels have 21-30, 14 per cent have 11-20; leaves medium green, medium broad; tillers medium in number, 68 per cent have 2 or 3, 32 per cent have 1 or none.

*Ears* medium high, 84 per cent 33-40 inches from ground to ear tip, 16 per cent slightly higher; shanks moderately short to medium length, 60 per cent 2 or 3 inches, 32 per cent 4 or 5 inches; husks medium long, extend 2½-3 inches beyond ear tip, medium in number, tightly wrapped; husk leaves 4-5, medium long and broad. *Husked ears* moderately long to long, 50 per cent 7-8 inches, 40 per cent 8-9 inches; medium plump, 1.7 inches in diameter, nearly cylindrical to slightly tapered; 76 per cent 12-rowed, 24 per cent 10-rowed; 84 per cent of

ears regular in kernel arrangement. *Kernels* creamy yellow, slightly to moderately variable in color on 20 per cent of ears; medium deep at both milk and whole kernel maturity stages, 0.36 and 0.45 inches, respectively; pericarp resistance, 240 grams.

SENECA 60  $\times$  C13, SYN: SENATOR (Plate I)

The variety is a three-way cross in which the single cross hybrid Seneca 60 is used as the female or seed parent and the Golden Early Market inbred C13 is used as the pollen parent. The hybrid was first made by D. F. Jones and W. R. Singleton at the Connecticut Experiment Station in New Haven in 1937 and was released for trial in 1938. Commercial production was undertaken by the Robson Seed Farms, Hall, N. Y., by whom it was named and introduced to the trade in 1940.

Seneca 60  $\times$  C13 is a very early variety having a maturity spread of 7 days with most of the ears attaining the prime milk stage in 65 days. This was 3 days earlier than Spancross C4.13 and Marcross C6.13 and 5 days earlier than Seneca Golden. The plants are similar to those of Spancross in height and vigor, but produce fewer tillers, have somewhat bushier tassels, and bear more ears. The ears average slightly longer than those of Spancross and include considerably more 8-rowed specimens. These are distinctly more tapered than the average for the variety. The kernels are slightly deeper than those of Spancross and show the same degree of orange-yellow color variation, altho fewer ears of Seneca 60  $\times$  C13 manifest this trait. Kernel row arrangement for the latter is slightly less regular than for Spancross.

Seneca 60  $\times$  C13 produced 3.97 tons or 12,400 marketable ears per acre. It was judged to have moderately good quality as a frozen product, altho the kernels were found to be significantly tougher than those of Seneca Golden and Tendergold. It appears to be primarily suited for the home and early market garden purposes where earliness is frequently the most essential prerequisite.

*Plants* short, 74 per cent 4-5 feet, 18 per cent shorter; silks 90 per cent red, 7 days spread in emergence; tassels short, upright, and stiff, with red-striped bracts and red anthers, lateral spikelets short and erect, medium in number, 72 per cent of the tassels have 11-20, 28 per cent have less; tillers few, 66 per cent of the plants have 1 or none, 34 per cent have more.

*Ears* low, 74 per cent 17-24 inches from the ground to tip; shanks moderately short to medium long, 44 per cent 2 and 3 inches, 40 per cent 4 and 5 inches; husks very short, extend 1 inch or less beyond tip of ear, moderately tight wrapped, few in number and have few short husk leaves attached. *Husked ears* medium to moderately long, 52 per cent 6-7 inches, 40 per cent 7-8 inches; medium plump, 1.8 inches in diameter, usually slightly tapered, 8-rowed ears distinctly tapered; 82 per cent 10- to 12-rowed, 18 per cent 8-rowed; 38 per cent more or less irregular or spiral in arrangement. *Kernels* light orange yellow, moderately to distinctly variable in color on 30 per cent of the ears; medium depth at both milk and whole kernel maturity stages, 0.35 and 0.44 inch, respectively; pericarp resistance 289 grams.

## SOOBRED (Plate V)

The inbred Purdue Bantam P39 is used as the female or seed parent in producing the present Soobred single cross hybrid and the inbred GB51 developed by E. S. Haber of the Iowa Experiment Station is used as the source of pollen. The original Soobred was produced in 1933 by Stuart N. Smith of Michael-Leonard Co., Sioux City, Iowa, and was released for trial in 1935. The variety was introduced to the general seed trade in 1938 by the Michael-Leonard Seed Company. At that time the variety distributed as Soobred was very late in season, decidedly vigorous, and had the general appearance of field corn. The modern strain described here is much less coarse in appearance.

Soobred is a late variety with a maturity spread of 8 days at Geneva with the majority of ears attaining the prime milk stage in 89 days. This was in season with Wilson and Tendermost, 3 days earlier than Allegheny, and 5 days later than Ioana. The plants are taller than those of Topflight Bantam, have similar broad, dark green leaves, and have tassels which are similar in size and bushiness but with more pronounced red-striped bracts. The ears are borne higher on the plant than are those of Topflight Bantam, average slightly shorter, have the same number of rows, but are somewhat more slender and more tapered. The kernels are similar in depth to those of Tendermost but are distinctly more tapered at the crown, narrower, and slightly more uniform in color.

Soobred produced at the rate of 5.94 tons or 13,270 marketable ears per acre. The cooked frozen samples were judged to have moderately poor quality in view of the fact that the kernels were significantly tougher than those of Topflight Bantam, Ioana, Mohawk, and others. The variety does not appear to be adapted for commercial processing in New York but may be suitable for the late fresh market where size of ear and quantity of stover are of importance.

*Plants* moderately tall to tall, 82 per cent 7-8 feet, 10 per cent taller; silks 100 per cent green, 8 days spread in emergence; tassels long and bushy, 100 per cent with red-striped bracts and red anthers, lateral spikelets long, nearly horizontal to slightly drooping, very numerous, 72 per cent of tassels have 31-40, 28 per cent have 21-30; leaves dark green and broad; tillers few to medium in number, 46 per cent have 2 or 3, 50 per cent have 1 or none.

*Ears* high, 76 per cent 41-48 inches from ground to ear tip, 14 per cent slightly lower, shanks moderately short, 72 per cent 2 or 3 inches, 28 per cent 4 or 5 inches; husks short, extend about 1 inch beyond ear tip, moderately many, moderately tight wrapped; husk leaves 4-6, very short and moderately narrow. *Husked ears* moderately long to long, 50 per cent 7-8 inches, 36 per cent 8-9 inches; moderately plump, 1.9 inches in diameter, distinctly tapered; 74 per cent 16-rowed, 14 per cent 18-rowed; 50 per cent of ears more or less irregular or spiral in kernel arrangement. *Kernels* creamy yellow, very uniform, slightly to moderately variable in color on only 6 per cent of ears; deep at both milk and whole kernel maturity stages, 0.41 and 0.52 inch, respectively; pericarp resistance, 306 grams.

SPANCROSS, SYNS: SPANCROSS C4.13, SPANCROSS C13.4,  
MARCROSS C4.13, SURPRISE (Plate I)

This single cross hybrid is produced by using the Spanish Gold inbred C4 as the female or seed parent and the bacterial wilt-resistant Golden Early Market inbred C13 as the source of pollen. The reciprocal cross is also used in view of the fact that no consistent differences in the result have been recorded. The hybrid was first made in 1937 by W. R. Singleton and D. F. Jones and was placed on trial in 1938 as Marcross C4.13. It was officially introduced by the Connecticut Experiment Station in 1939 and was offered to the general seed trade in 1940 by Huntington Brothers, Windsor, Conn.; Maurice Rogers, Orange, Conn.; George Crookham Company, Caldwell, Idaho; and W. E. Barrett, Providence, R. I. As suggested by the originators (5), the variety is listed without the inbred numbers attached in order to distinguish it from previously introduced Spancross hybrids. The variety was awarded honorable mention in the All America vegetable trials for 1941.

Spancross is an early variety having a maturity spread of 8 days at Geneva with most of the ears attaining the prime milk stage in 68 days. This was 3 days later than Seneca 60  $\times$  C13, in season with Marcross and North Star, and 3 days earlier than Lexington. The plants average about a foot shorter than those of North Star, produce more tillers, have distinctly smaller, less branched tassels and bear fewer ears. The ears are shorter than those of North Star but very similar in row number and diameter. The kernels are slightly shallower than those of Marcross, slightly less regular in arrangement, and show distinctly greater variation in the orange yellow color.

It produced 3.42 tons or 11,500 marketable ears per acre. As a frozen product it was judged to have fair quality, since the kernels were found to be about as tough as those of Seneca 60  $\times$  C13, significantly tougher than those of Seneca Golden and Tendergold, and were poorer in flavor than Marcross. Its chief attribute is earliness and appears to be primarily suited for home and early market gardening.

*Plants* short, 80 per cent 4-5 feet, 12 per cent shorter; silks variable in color, 56 per cent red and 44 per cent amber, 8 days spread in emergence; tassels short and erect with red-striped bracts and red anthers, lateral spikelets short and stiff, few in number, 84 per cent of the tassels have 10 or less; leaves dark green and narrow; tillers medium in number, 72 per cent of the plants have 2 or 3, 28 per cent have less.

*Ears* low, 96 per cent 17-24 inches from the ground to tip; shanks moderately short to medium long, 50 per cent 2 and 3 inches, 46 per cent 4 and 5 inches; husks very short, extend 1 inch or less beyond tip of ear, moderately tight wrapped, few in number and have few short husk leaves attached. *Husked ears* medium long, 66 per cent 6-7 inches, 18 per cent longer; medium plump, 1.8 inches in diameter; slightly tapered, symmetrical; 92 per cent 10- to 12-rowed, 6 per cent 14- to 16-rowed; 72 per cent regular in arrangement. *Kernels* light orange yellow, moderately variable in color on 42 per cent of the ears; medium

depth at both milk and whole kernel maturity stages, 0.34 and 0.41 inch, respectively; pericarp resistance, 290 grams.

#### SUNLITE, SYN: NEW EARLY HYBRID NO. 2441 (Plate II)

This early variety is a top-cross hybrid produced by using a selected strain of Golden Sunshine as the seed parent and Golden Early Market inbred C13 as the male parent. It was first made in 1938 after the possibilities of such a cross were foreseen by various members of Peter Henderson & Company. Sunlite was released for trial in 1939 and was introduced to the general seed trade in 1940 by Peter Henderson & Co., New York City.

Sunlite is a moderately early variety having a maturity spread of 8 days at Geneva with most of the ears attaining the prime milk stage in 71 days. This was in season with Lexington, 2 days later than Patrick Henry, and 2 days earlier than Carmelcross. The plants are about as tall as those of Market Hybrid and intermediate in tassel type between Kingscrot M13 and Spancross in regard to length and erectness of lateral spikelets. Most of the ears are similar to those of Marcross, altho they are somewhat more variable in length and row number, are slightly more slender in diameter, but are equally as attractive and symmetrical in general appearance. The kernels are as deep as those of Marcross but show more variation of orange-yellow color.

Sunlite produced 4.23 tons or 10,470 marketable ears per acre. It was judged to have good quality as a frozen product with the kernels being significantly more tender than Marcross, Market Hybrid, or Earlgold but not as tender as those of Seneca Golden or Tendergold. The variety seems well adapted for home and market gardening.

*Plants* moderately short, vigorous, 64 per cent 4½–5½ feet, 28 per cent shorter; silks somewhat variable, 72 per cent red, 28 per cent amber, 8 days spread in emergence; tassels medium long and slender with 100 per cent red-striped bracts and red anthers, lateral spikelets medium long and slightly drooping, medium in number, 72 per cent of the tassels have 11–20; leaves medium green and moderately broad; tillers variable in number, 42 per cent have 1 or none, 56 per cent have 2 or 3.

*Ears* moderately low, 68 per cent 21–28 inches from the ground to tip, 20 per cent taller; shanks moderately short to medium long, 58 per cent 2 or 3 inches, 34 per cent 4 or 5 inches; husks short, extend 1–1½ inches beyond tip of ear, medium in number, rather loosely wrapped; husk leaves 3–5, medium long and narrow. *Husked ears* variable in length, 30 per cent 6–7 inches, 44 per cent 7–8 inches, 26 per cent shorter or longer; moderately plump, 1.9 inches in diameter, nearly cylindrical, symmetrical and attractive, 82 per cent 10- to 12-rowed, 16 per cent 14- to 16-rowed; 72 per cent regular in arrangement. *Kernels* bright creamy yellow, slightly to moderately variable in color on 22 per cent of the ears; medium depth at both milk and whole kernel maturity stages, 0.35 and 0.44 inch, respectively; pericarp resistance, 283 grams.

#### SUNNY-GOLD (Plate III)

Sunny-Gold is a top-cross hybrid in which the new open-pollinated

variety Cream O'Gold (Golden Bantam  $\times$  Money Maker) is used as the female or seed parent and the inbred Purdue 51 is used as the source of pollen. The idea to make the cross was conceived by members of Peter Henderson and Company, and the hybrid was first produced in 1938. It was released for trial in 1939 and was introduced in 1940 thru the wholesale catalog of Peter Henderson & Co., New York City.

Sunny-Gold is a midseason to moderately late variety having a maturity spread of 7 days at Geneva with most of the ears attaining the prime milk stage in 84 days. This was 3 days later than Golden Cross Bantam, in season with Ioana, and 3 days earlier than Mohawk. The plants most closely resemble those of Golden Cross Bantam but are slightly shorter, distinctly more slender, and have much more bushy tassels which, altho predominantly light green, have a very slight trace of red. The ears are about the same length as those of Golden Cross Bantam but are distinctly more slender, somewhat more brittle, and have fewer kernel rows. The kernels are somewhat more shallow, distinctly broader, especially on the 8-rowed ears, and are equally as uniform, altho lighter in color than those of Golden Cross Bantam.

The variety yielded at the rate of 4.9 tons or 17,170 marketable ears per acre, in the latter respect being the most productive among all varieties in trial. This is further indicated by the fact that 64 per cent of the plants produced two or more ears. The quality of the frozen samples when cooked was judged to be very good with the kernels being nearly as tender as those of Tendermost. Sunny-Gold is admirably adapted for home and market gardening where excellent quality has preference over large plump ear size and earliness.

*Plants* medium tall, 70 per cent 6-7 feet, 18 per cent 5½-6 feet, 12 per cent taller; silks 100 per cent green, 8 days spread in emergence; tassels moderately long and very bushy, 100 per cent with light green bracts faintly streaked with red on most of them, anthers 100 per cent yellow, lateral spikelets moderately long, usually horizontal to moderately upright, very numerous, 68 per cent of tassels have 31-40, 20 per cent have 21-30; leaves medium green and moderately narrow; tillers medium in number, 68 per cent have 2 or 3, 24 per cent have 1 or none.

*Ears* medium to moderately high, 68 per cent 37-44 inches from the ground to ear tip, 22 per cent slightly lower; shanks moderately short to medium length, 44 per cent 2 or 3 inches, 36 per cent 4 or 5 inches; husks short, extend 1-1½ beyond ear tip, tightly wrapped, medium in number; husk leaves 4-5, moderately short and narrow. *Husked ears* moderately long to long, 36 per cent 7-8 inches, 46 per cent 8-9 inches, 4 per cent longer; somewhat brittle; medium plump, 1.7 inches in diameter; very nearly perfect cylindrical; 70 per cent 10- to 12-rowed; 30 per cent 8-rowed; 84 per cent regular in kernel arrangement, 16 per cent very slightly irregular or spiral. *Kernels* light butter yellow, very uniform, slight to moderately variable in color on 12 per cent of ears; broad, particularly on 8-rowed ears; medium deep at both milk and whole kernel maturity stages, 0.34 and 0.42 inch, respectively; pericarp resistance, 238 grams.



## SUNSHINE HYBRID 015 (Plate IV)

This is the first commercial single cross variety in which both parental inbred lines originated from Golden Sunshine. Inbred No. 735 is used as the female or seed parent and inbred No. 935 as the source of pollen. It was developed by C. A. Bush and J. H. Shaver of Northrup, King and Co., Minneapolis, Minn., and was first produced commercially in 1939. It was released for trial in 1940 and was introduced to the seed trade by Northrup, King and Co. in 1941.

Sunshine Hybrid 015 is a moderately early to midseason variety having a maturity spread of 8 days at Geneva with most of the ears attaining the prime milk stage in 74 days. This was in season with Tendergold, 4 days later than Seneca Golden, and a week earlier than Golden Cross Bantam. The plants are similar to those of Tendergold but have slightly lighter green foliage, larger and slightly more drooping tassels, and lighter silk color. The ears average shorter, are slightly more slender, and have a higher percentage of more regularly arranged kernel rows. The kernels are practically equal in depth, but those of Sunshine Hybrid 015 show a more pronounced variation in the orange-yellow color range.

The variety produced at the rate of 4.32 tons or 11,100 marketable ears per acre. The general quality of the frozen product was graded good, nearly equal to that of Tendergold, with the kernels significantly more tender than those of that variety. It does not appear to be sufficiently promising to replace Tendergold in New York State for an early commercial freezing variety, altho it does have some desirable attributes.

*Plants* medium tall, 92 per cent  $5\frac{1}{2}$ – $6\frac{1}{2}$  feet; silks variable in color, 76 per cent green, 16 per cent amber, and 8 per cent red, 8 days spread in emergence; tassels large, moderately bushy, 94 per cent with red-striped bracts and anthers, 6 per cent with green bracts and yellow anthers, lateral spikelets moderately long, slightly drooping to horizontal, medium to many in number, 72 per cent of the tassels have 11–20, 28 per cent have 21–30 or more; leaves moderately light green, medium width; tillers medium in number, 72 per cent have 2 or 3, 22 per cent have 1 or none.

*Ears* variable in height, 34 per cent 25–32 inches from ground to tip, 64 per cent 33–40 inches, shanks moderately short to medium length, 58 per cent 2 or 3 inches, 36 per cent 4 or 5 inches; husks moderately long, numerous, tightly wrapped; husk leaves 5–7, moderately short and broad. *Husked ears* medium to moderately long, 38 per cent 6–7 inches, 54 per cent 7–8 inches; medium plump, 1.8 inches in diameter, moderately tapered, 88 per cent 12- to 14-rowed, 10 per cent 8- to 10-rowed; 54 per cent regular in row arrangement, 46 per cent more or less irregular or spiral. *Kernels* light orange yellow to creamy yellow, variable in color on 54 per cent of the ears; shallow to medium deep, 0.33 and 0.43 inch, at milk and whole kernel maturity stages, respectively; pericarp resistance, 245 grams.

## TENDERMOST (Plate VI)

This is a single cross hybrid which is produced by using as the female

or seed parent the inbred A3, a yellow line out of Silver Cross Bantam, and the inbred S24 as the source of pollen. The latter was developed from a volunteer plant found growing in a window box from a mixture of remnant breeding material sown in 1934 by the young son of the originator. The cross was first made in 1939 by Stuart N. Smith of the Michael-Leonard Co., Sioux City, Iowa. It was released for trial in 1941, was distributed in a limited way in 1942, and was introduced to the general seed trade by the Michael-Leonard Co. in 1943.

Tendermost is a late variety having a maturity spread of 7 days at Geneva with the majority of the ears attaining the prime milk stage in 89 days. This was in season with Wilson, 3 days earlier than Allegheny, and 5 days later than Ioana. The plants average about a foot taller than those of Ioana, are much more vigorous, have more variable silk color and fewer tillers, and have decidedly larger and more profusely branched tassels which are slightly more variable in color. The ears have more tightly wrapped husks than those of Topflight Bantam, are borne as high as those of Wilson, and have decidedly longer shanks than any other late variety. The husked ears are about as long as those of Topflight Bantam, have the same number of kernel rows, and are somewhat more cylindrical in shape. The kernels are decidedly deeper than those of Ioana, are similar in width and thickness, and are nearly as uniform in color.

The variety yielded at the rate of 6.07 tons or 13,000 marketable ears per acre. The quality was judged to be very good and the kernels were decidedly more tender than those of any other late variety except Sunny-Gold. The variety appears to have considerable promise as a late sort for commercial freezing and canning as well as a very desirable sort for market where large ears of good quality are in demand. An abundance of stover also renders the stalks of extra value for ensilage or as a source of organic material to be disced and plowed under.

*Plants* tall and vigorous, 76 per cent 7½–8½ feet, 18 per cent 7–7½ feet; silks variable, 58 per cent amber, 36 per cent red and 6 per cent green, 7 days spread in emergence; tassels very long and bushy, 94 per cent with red-striped bracts and red anthers; lateral spikelets long, nearly horizontal to slightly drooping, very numerous, 60 per cent of tassels have 31–40, 28 per cent have 41–50 or more; leaves medium green and very broad; tillers few to medium in number, 58 per cent have 1 or none, 42 per cent have 2 or 3.

*Ears* high, 84 per cent 41–48 inches from ground to ear tip, 16 per cent higher; occasionally somewhat pendant, shanks variable, medium to very long, 60 per cent 4–7 inches, 40 per cent 8–10 inches or more; husks short, extend 1½–2 inches beyond ear tip, medium in number, tightly wrapped; husk leaves 5–6, moderately short and medium broad. *Husked ears* moderately long to long, 30 per cent 7–8 inches, 48 per cent 8–9 inches; plump, 2.1 inches in diameter; cylindrical, occasionally slightly tapered; 64 per cent 16-rowed, 20 per cent 18- to 20-rowed; 80 per cent regular in kernel arrangement. *Kernels* light creamy yellow, slightly to moderately variable in color on 22 per cent of ears; deep at both milk and

whole kernel maturity stages, 0.41 and 0.51 inch, respectively; pericarp resistance, 234 grams.

#### TOPFLIGHT BANTAM (Plate V)

This is a single cross hybrid which is produced by crossing inbreds A393 and S10. The latter is used as the male or pollen parent. The variety was originated in 1939 by Stuart N. Smith of the Michael-Leonard Co., Ames, Iowa, and was placed in the 1941 All America Vegetable Trials. At these trials it was given honorable mention for 1942. Topflight Bantam was introduced to the seed trade in 1942 by the Michael-Leonard Company and was also listed for sale that year by W. Atlee Burpee & Co., Philadelphia, Pa.

Topflight Bantam is a late variety having a maturity spread of 7 days at Geneva with the majority of the ears attaining the prime milk stage in 85 days. This was a day later than Ioana and 4 days earlier than Soobred. The plants are about as tall as those of Golden Cross Bantam and bear fewer average number of ears per stalk. The leaves are darker green and broader and the tassels are darker, larger, and more profusely branched. The ears are as long as those of Ioana but have more kernel rows and are distinctly plumper. The kernels are decidedly deeper than those of Golden Cross Bantam, are narrower, and show variation in orange-yellow color on considerably more ears than either Golden Cross Bantam or Ioana.

The variety produced at the rate of 5.32 tons or 9,570 marketable ears per acre. The cooked frozen samples were judged to have fair quality, being somewhat lacking in flavor, with the kernels about equal in tenderness to those of Ioana and significantly tougher than those of Golden Cross Bantam. All of the late varieties, with the exception of Sunny-Gold and Tendermost, were much tougher than Golden Cross Bantam. The variety did not appear to be suitable for commercial processing in New York in view of its unsatisfactory texture, altho it was attractive as a late large-eared market variety.

*Plants* medium to moderately tall, vigorous, 78 per cent 6-7 feet, 20 per cent slightly taller; silks 72 per cent amber, 28 per cent green, 7 days spread in emergence; tassels moderately long and profusely branched, bushy, 100 per cent have dark green, faintly red-striped bracts and red anthers, lateral spikelets moderately long, horizontal to moderately erect, occasionally slightly drooping, very numerous, 40 per cent of tassels have 21-30, 48 per cent have 31-40 or more; leaves moderately dark green and broad; tillers few to medium in number, 52 per cent have 1 or none, 46 per cent have 2 or 3.

*Ears* medium high, 78 per cent 33-40 inches from ground to ear tip, 16 per cent slightly higher; shanks moderately short, 82 per cent 2 or 3 inches, 18 per cent slightly longer; husks very short, usually extend 1 inch or less beyond ear tip, occasionally exposed, moderately numerous, moderately well wrapped; husk leaves 4-6, usually short and moderately broad. *Husked ears* long, 42 per cent 7-8 inches, 40 per cent 8-9 inches, 10 per cent 9-10 inches; plump, 2.1 inches in diameter, cylindrical to slightly tapered; 88 per cent 16- to 18-rowed, 10 per

cent 14-rowed; 60 per cent more or less irregular or spiral in kernel arrangement. *Kernels* creamy yellow, slightly to moderately variable in color on 34 per cent of ears; narrow, moderately deep at milk stage, 0.38 inch, deep at whole kernel maturity stage, 0.55 inch; pericarp resistance, 284 grams.

#### VINECROSS B5 (Plate III)

This Canadian single cross variety is produced by using Golden Bantam Vineland Station inbred No. 3 as the seed parent and Golden Bantam Vineland Station inbred No. 1 as the male or pollen parent. It was developed by W. J. Strong of the Vineland Horticultural Experiment Station, Ontario, Canada, and was first made in 1932. It was released for trial about 1936 and was produced commercially in 1942 under the supervision of the Experiment Station for registration with the Canadian Seed Growers' Association, Ottawa, Canada.

Vinecross B5 is a midseason variety having a maturity spread of 8 days at Geneva with most of the ears attaining the prime milk stage in 78 days. This was in season with Lincoln, a week later than Kingscrot G7, and 3 days earlier than Golden Cross Bantam. The plants are very similar in type to the Golden Bantam hybrids Kingscrot G7 and Kingscrot M13 but are distinctly taller, more vigorous, and have larger, more profusely branched tassels. The ears are longer than those of Kingscrot G7, average slightly thicker in diameter due to the existence of 18 per cent 10- and 12-rowed specimens, and are nearly as regular in row arrangement. The kernels are deeper and, with the exception of Hiawatha, are much more uniform in color than any of the other 8-rowed varieties described in this bulletin.

The variety yielded at the rate of 4.07 tons or 13,830 marketable ears per acre. This exceeded in tonnage any other variety of similar ear type. The quality of the cooked frozen product was judged to be very good. With the exception of Tendermost, the kernels were significantly more tender than those of the other varieties grown for these trials. The variety is well adapted for home and market gardening where 8- to 10-rowed ears of exceptional quality are appreciated. It should also be very satisfactory for commercial freezing and canning for the whole ear pack where slender ears are more popular than the 12-rowed ones.

*Plants* medium to moderately tall, 70 per cent 6-7 feet, 20 per cent 7-7½ feet, slender; silks 100 per cent red, 10 days spread in emergence; tassels long, slender, bushy, 100 per cent with red-striped bracts and anthers, lateral spikelets long, distinctly drooping, moderately numerous, 72 per cent of the tassels have 11-20, 28 per cent have 21-30 or more; leaves dark green and narrow; tillers tall and moderately many, 80 per cent have 2 or 3, 6 per cent have 4 or 5.

*Ears* medium high, 64 per cent 33-40 inches from the ground to ear tip, 20 per cent 29-32 inches; shanks variable, medium to moderately long, 42 per cent 4 or 5 inches, 32 per cent 6 or 7 inches, 18 per cent 2 or 3 inches; husks medium long, extend 2-3 inches beyond ear tip, tightly wrapped, moderately many, frequently splashed with red on the exterior; husk leaves 4-6, usually short and narrow. *Husked ears* moderately long to long, 48 per cent 7-8 inches, 42 per

cent 8-9 inches, moderately slender, 1.6 inches in diameter, nearly cylindrical; 82 per cent 8-rowed, 14 per cent 10-rowed; 80 per cent regular in kernel arrangement. *Kernels* light orange yellow, very uniform, medium depth at both milk and whole kernel maturity stages, 0.34 and 0.41 inch, respectively; pericarp resistance, 232 grams.

#### WILSON (Plate VI)

This hybrid is a single cross which is produced by using inbred C31 as the seed parent and inbred C87 as the source of pollen. The C31 inbred was developed from a cross between inbred P39 and the open-pollinated white variety Long Island Beauty and then backcrossed three times to P39. In the development of inbred C87, the Stowells Evergreen inbred C77 was crossed by P39 and then the hybrid was backcrossed four times to C77 and selected for yellow seeds. Wilson was originated by W. R. Singleton and D. F. Jones in 1939. It was released for trial in 1940 and was introduced in 1943 (4) by the Connecticut Agricultural Experiment Station, New Haven, Conn. The first commercial seed was produced by Huntington Bros., Windsor, Conn., and Maurice Rogers, Orange, Conn.

Wilson is a late variety having a maturity spread at Geneva of 8 days with most of the ears attaining the prime milk stage in 89 days. This was in season with Tendermost, 3 days earlier than Allegheny, and 5 days later than Ioana. The plants are considerably taller than those of Ioana and have fewer tillers. They are similar to the plants of Aristogold Bantam No. 2, but are even more vigorous, have slightly broader leaves, and equally as bushy tassels, altho the bracts of Wilson have considerably more red and the anthers are distinctly deeper wine color. The ears are borne higher from the ground than are those of Ioana, average slightly shorter, but have more kernel rows and are distinctly more plump. The kernels are decidedly deeper than those of Ioana and are very similar to those of Allegheny. They are decidedly more variable in the degree of orange-yellow color than those of Mohawk or Ioana, a trait which is evident on a larger percentage of ears than with any other variety in the trial.

The variety yielded at the rate of 5.29 tons or 10,200 marketable ears per acre. The general quality of the cooked frozen product was considered to be moderately good. Altho the kernels were about the same texture as those of Ioana, the flavor was satisfactory and the color as judged by the cooked frozen samples appeared to be more uniform than it was on the cob. The variety is apparently well adapted for the late fresh market but is of too recent origin to determine its status in New York for commercial canning and freezing.

*Plants* tall, very vigorous, 70 per cent  $7\frac{1}{2}$ -8 $\frac{1}{2}$  feet, 12 per cent higher; silks 72 per cent red, 28 per cent amber, 8 days spread in emergence; tassels very long and bushy, 100 per cent with dark green bracts distinctly striped with red, anthers uniformly very dark wine red, lateral spikelets long, usually horizontal to slightly drooping, very numerous, 44 per cent of the tassels have 21-30, 48 per

cent have 31–40 or more; leaves dark green and very broad; tillers few to medium in number, 62 per cent have 1 or none, 38 per cent have 2 or 3.

*Ears* high, 74 per cent 41–48 inches from ground to ear tip, 16 per cent slightly higher; shanks moderately short to medium long, 66 per cent 2 or 3 inches, 34 per cent 4 or 5 inches; husks moderately long, extend 3–3½ inches beyond ear tip, numerous, tightly wrapped; husk leaves 5–6, moderately short and medium broad. *Husked ears* moderately long to long, 56 per cent 7–8 inches, 22 per cent 8–9 inches; very plump, 2.3 inches in diameter, nearly cylindrical to slightly tapered; 74 per cent 14- to 16-rowed, 20 per cent 12-rowed; 76 per cent of ears more or less irregular or spiral in kernel arrangement. *Kernels* creamy yellow to orange yellow, moderately to distinctly variable in color on 80 per cent of ears, slightly variable on 14 per cent; very deep at both milk and whole kernel maturity stages, 0.46 and 0.64 inch, respectively; pericarp resistance, 284 grams.

## SUMMARY

1. Hybrid sweet corn varieties have practically replaced open-pollinated sorts for commercial canning and freezing and for market gardening in New York State.

2. The number of new hybrid varieties is increasing rapidly, a situation which requires the maintenance of frequent trials in order to determine varietal adaptation. Since 1939, at least 38 new varieties have been introduced by seedsmen and agricultural experiment stations. Historical information about these has been secured, including parentage, date and place of origin, time of release and introduction, and the persons and firms responsible for their development.

3. Detailed descriptions for each variety are based on careful observation and meticulous field records on plants and ears from 50 consecutive plants. Illustrations of typical ears for each variety are included.

4. Each variety has been compared with several other sorts, including at least one established commercial variety, in respect to maturity, quality, plant and ear characteristics, and its probable utility in New York State.

5. The earliest variety was Seneca 60 × C13, which was followed closely by Seneca Dawn, Early Golden, Spancross, North Star, and Patrick Henry. None of the early varieties had as good quality as Seneca Golden, altho the ears were usually larger. North Star appeared to be one of the best early home and market garden varieties.

6. The midseason varieties Carmelcross, Hybrid 6664, Vincross B5, Lincoln, and Lee were among the best in quality, with Vincross B5 being particularly desirable.

7. The late varieties Sunny-Gold and Tendermost were outstanding in respect to both quality and yield, altho the slender ear type of Sunny-

Gold may limit its usage except for home and market gardening. Other late varieties, including Soobred, Seneca Giant, Allegheny, and Aristogold Bantam No. 2, were distinctly less tender, altho they were very productive of large ears and large amounts of stover.

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TABLE 1.—PLANT AND EAR CHARACTER MEASUREMENTS OF 18 EARLY VARIETIES OF SWEET CORN EXPRESSED IN PERCENTAGE OF A 50-PLANT POPULATION WITHIN EACH OF SEVERAL CLASSES.

VARIETY	DAYS SPREAD IN SILK EMER- GENCE	TAS- SEL COL- OR, %		SILK COLOR, %		HEIGHT OF PLANTS IN INCHES, %							NUM- BER OF TIL- LERS, %		PLANTS WITH TWO OR MORE EARS, %		NUM- BER OF TASSEL SPIKE- LETS, %		HEIGHT TO TIP OF EAR IN INCHES, %								SHANK LENGTH IN INCHES, %							
		Red	Green	Red	Amber	Green	43-48	49-54	55-60	61-66	67-72	73-78	79-84	0 or 1	2 or 3	4 or 5	0-10	11-20	21-30	17-20	21-24	25-28	29-32	33-36	37-40	41-44	0-1	2 or 3	4 or 5	6 or 7	8 or 9	10 or over		
Seneca 60×C13.....	7	100		90	4	6	18	42	32	8				66	34		52	72		22	52	26						44	40	16				2
Seneca Dawn.....	7	100		98	2			24	42	22	12			76	24		10	100		2	22	60	16					40	50	8				
Spangcross.....	8	100		56	44		12	50	30	8				28	72		28	84	16	40	56	4					50	46	4					
Marcross.....	7	100		88	12			8	46	38	8			44	56		23			8	50	40	2					40	46	14				
Early Golden.....	7	100		100				4	22	40	34			40	60		21	44	56	2	16	58	24					56	30					
North Star.....	8	100		90	10			18	38	34	10			66	34		57	8	92	10	52	34	4					8	56	30	4			
Early Bancross C13...	10	100		60	40			8	44	34	12	2		44	56		35	32	68	2	16	60	22					50	28	18	4			
Patrick Henry.....	6	100		34	60	6		18	24	48	10			36	64		36	16	84	36	50	16					2	48	32	16	2			
Market Hybrid.....	8	98	2	86	12	2		4	30	36	22	8		38	62		28	20	72	8	4	40	10	2				54	30	14	2			
Kingscross M-13.....	7	100		100				4	22	62	12			10	80	10	64	44	56	4	40	44	6					54	40	6				
Earligold.....	9	100		82	14	4		2	28	44	16	8		2	58	38	21	4		84	12							6	20	20	16	38		
Seneca Golden.....	5	100		100					22	34	42			2	38	60	2	56		56	44							2	72	32	4			
Sunlite.....	8	100		72	28			26	34	30	8			42	56	2	28	16		72	12	12	42	26	18			58	34	8				
Bancross C13.....	10	100		86	12	2		6	26	36	24	8		44	56		23			72	28	12	40	32	12	4		34	46	16	4			
Lexington.....	8	100		70	30			2	10	12	40	26	8	38	62		29	12	68	20	8	16	42	20	14			68	22	10				
Hybrid 6664.....	7	100		50	26	24		6	2	38	40	12	2	2	86	12	67	48	52	2	18	30	32	12				48	44	4				
Kingscross G7.....	8	100		12	88			2	26	58	14			8	74	18	40	36	64	2	8	34	40	16				8	34	26	10	22		
Alphagold Bantam....	8	100		72	26	2		4	24	28	42	2		12	86	2	38	84	16		12	40	46	2				24	38	26	6			





TABLE 2.—PLANT AND EAR CHARACTER MEASUREMENTS OF 13 MIDSEASON VARIETIES OF SWEET CORN EXPRESSED IN PERCENTAGE OF A 50-PLANT POPULATION WITHIN EACH OF SEVERAL CLASSES.

VARIETY	DAYS SPREAD IN SILK EMER- GENCE	TAS- SEL COL- OR, %		SILK COLOR, %			HEIGHT OF PLANTS IN INCHES, %							NUM- BER OF TIL- LERS, %		PLANTS WITH TWO OR MORE EARS, %	NUM- BER OF TASSEL SPIKE- LETS, %		HEIGHT TO TIP OF EAR IN INCHES, %						SHANK LENGTH IN INCHES, %												
		Red	Green	Red	Amber	Green	55-60	61-66	67-72	73-78	79-84	85-90	91-96	97-102	0 or 1		2 or 3	4 or 5	11-20	21-30	31-40+	21-24	25-28	29-32	33-36	37-40	41-44	45-48	49-52	2 or 3	4 or 5	6 or 7	8 or 9	10 or over			
Carmelcross.....	6	98	2	20	76	4	16	50	34					38	62					44	76	24		12	52	28	8					68	24	6	2		
Northern Marcross.....	9	92	8	28	40	32	2	6	26	42	24			34	66					32	72	28		4	8	34	34	18	2				36	48	14	2	
Tendergold.....	8	96	4	16	46	38		8	46	34	12			44	48					40	68	32			20	30	38	12				66	26	8			
Sunshine Hybrid																																					
015.....	8	94	6	8	16	76		4	48	44	2	2		22	72	6				33	72	28		2	8	26	42	22				58	36	4	2		
Hiawatha.....	9	100		50		50		4	12	56	26	2		12	70	18				66	32	48	20			14	30	42	14				28	30	28	10	4
Burpee's C6.....	10	82	18	16	68	16		10	42	40	6	2		12	88						44	44	12		6	42	36	24	2				56	32	12		
Lee.....	7	100		100		4		8	42	50				48	52					36					2	12	38	42	6				40	56	2		2
Lincoln.....	7	100				96			10	46	24	20		62	38					36	12	86	4			14	46	32				8	60	40			
Vinecross B5.....	8	100		100		6		2	8	28	42	20		14	80	6				38	72	28			20	34	30	16				18	42	32	6	2	
Sachem.....	7	94	6	34	60			12	40	44	4			30	70					34	32	56	12			14	40	40	6				62	36	2		
Seneca Hybrid																																					
92 X 28.....	5	100		100		100		4	20	60	16			38	62					48	16	70	14			54	30	16				60	32	4			
Golden Cross Ban-																																					
tan.....	6	100		100		100			20	54	26			36	64					40	12	76	12			36	46	18				84	16				
Jacques 280.....	8	100		8	92			8	46	26	14	6		34	66					36	56	44			6	32	46	16				88	12				



TABLE 3.—PLANT AND EAR CHARACTER MEASUREMENTS OF 12 LATE VARIETIES OF SWEET CORN EXPRESSED IN PERCENTAGE OF A 50-PLANT POPULATION WITHIN EACH OF SEVERAL CLASSES.

VARIETY	DAYS SPREAD IN SILK EMER- GENCE	TAS- SEL COLOR, %		SILK COLOR, %		HEIGHT OF PLANTS IN INCHES, %								NUM- BER OF TIL- LERS, %		PLANTS WITH TWO OR MORE EARS, %	NUM- BER OF TAS- SEL SPIKE- LETS, %	HEIGHT TO TIP OF EAR IN INCHES, %						SHANK LENGTH IN INCHES, %										
		Red	Green	Red	Amber	Green	67-72	73-78	79-84	85-90	91-96	97-102	103-108	109-112	0 or 1			2 or 3	4 or 5	11-20	21-30	31-40 +	29-32	33-36	37-40	41-44	45-48	49-52	53-56	2 or 3	4 or 5	6 or 7	8 or 9	10 or over
Sunny-Gold.....	7	100		26	74	100	18-46	24-10	2					24-68	8			64	4-28	68		22-42	26-10					44-36	20					
Ioana.....	5	100					8-32	48-12						32-66	2			24	12-88			2-22	42-30	4				80-20						
Topflight Bantam.....	7	100			72	28	2-22	56-16	4					52-46	2			14	12-40	48		6-38	40-16					82-18						
Purdue 1406.....	8		100			100	18-26	42-14						28-70	2			32	72-28			12-36	44-8					68-30	2					
Aristogold Bantam No. 2	7	100				100	100	12-42	42			4		54-44	2			12	4-52	44		2-18	40-34	6				78-22						
Goldenwood.....	10	100		20	68	12	2-30	42-18	8					42-54	4			28	12-48	40		2-63	82-24	26-4				76-24						
Mohawk.....	6	94	6	100			4-40	46-10						56-42	2			20	28-72			10-40	44-6					82-16	2					
Tendermost.....	7	94	636	58	6		6-18	36-36				4		58-42				50	8-92			28-56	16					30-30	16	24				
Wilson.....	8	100		72	28		16-40	30-10					4-62	38				12	8-44	48		10-32	42-16					66-34						
Soobred.....	8	100				100	8-34	48-8	2					50-46	4			48	28-72			14-42	34-10					72-28						
Seneca Giant.....	9	100		40	48	12	2	8-26	44-20					50-50				12	12-84	4								10-32	48	10-28	34-26	12		
Allegheny.....	8	100		32	68		6-22	32-40						42-54				24	28-72			16-38	40					6-68	30-2					

TABLE 3.—*Concluded.*

[illegible]

TABLE 4.—COMPARISON OF YIELDS AND QUALITY OF 18 EARLY YELLOW HYBRID SWEET CORN VARIETIES.

VARIETY	YIELD PER ACRE			EARS SHOWING VARIATION IN ORANGE-YELLOW KERNEL COLOR, %			RELATIVE TENDERNESS OF PERICARP, GRAMS PRESSURE	FLAVOR AND SWEETNESS INDEX*	GENERAL QUALITY RATING
	Tons	Number of marketable ears	Number of cull ears	Moder- ate		Distinct			
				Slight					
Seneca 60×C13.....	3.97	12,400	2,200	—	22	8	289	2.2	Moderately good
Seneca Dawn.....	3.94	9,830	380	—	20	—	298	3.1	Fair
Spangcross.....	3.42	11,500	890	2	42	4	290	2.6	Fair
Marcross.....	4.58	10,730	1,160	—	—	—	296	2.1	Moderately good
Early Golden.....	3.58	10,970	770	—	2	—	299	2.4	Moderately good
North Star.....	4.68	14,330	890	2	8	—	285	1.8	Good
Early Bancross C13	4.04	11,500	1,550	—	20	4	305	2.8	Moderately poor
Patrick Henry.....	4.29	11,230	1,000	10	30	—	290	2.0	Moderately good
Market Hybrid.....	4.32	11,730	1,000	4	26	6	300	1.8	Moderately good
Kingscrost M13....	2.81	14,430	1,390	6	20	—	265	2.2	Good
Earlgold.....	4.55	10,830	890	6	12	—	304	1.6	Moderately good
Seneca Golden.....	4.90	13,670	990	16	10	—	263	1.7	Very good
Sunlite.....	4.23	10,470	1,780	12	10	—	283	2.0	Good
Bancross C13.....	4.29	9,570	2,050	14	20	4	278	3.4	Moderately poor
Lexington.....	4.30	10,700	1,780	10	12	—	293	2.0	Moderately good
Hybrid 6664.....	3.10	13,530	2,550	14	28	12	251	1.6	Good
Kingscrost G7.....	2.45	11,470	2,050	4	28	6	264	2.0	Good
Alphagold Bantam..	3.58	11,330	1,390	18	24	8	265	2.2	Moderately good
Difference necessary for significance, 5%	1.07	2,260	—				6		

\*1 = Excellent; 1.1-1.5 = Very good; 1.6-2.0 = Good; 2.1-2.5 = Moderately good; 2.6-3.0 = Fair; 3.1-3.5 = Moderately poor; 3.6-4.0 = Poor.

TABLE 5.—COMPARISON OF YIELDS AND QUALITY OF 13 MIDSEASON YELLOW HYBRID SWEET CORN VARIETIES.

VARIETY	YIELD PER ACRE			EARS SHOWING VARIATION IN ORANGE-YELLOW KERNEL COLOR, %			RELATIVE TENDERNESS OF PERICARP, GRAMS PRESSURE	FLAVOR AND SWEETNESS INDEX*	GENERAL QUALITY RATING
	Tons	Number of marketable ears	Number of cull ears						
				Slight	Moder- ate	Distinct			
Carmelcross.....	4.74	12,000	890	14	14	—	284	1.5	Good
Marcross Northern...	4.26	10,870	770	8	30	—	267	1.9	Moderately good
Tendergold.....	4.55	11,470	1,930	14	16	4	258	1.3	Very good
Sunshine Hybrid 015	4.32	11,100	1,660	10	36	8	245	1.6	Good
Hiawatha.....	3.23	15,370	1,270	4	6	—	247	2.3	Moderately good
Burpeeccross C6.....	4.84	11,870	1,930	14	4	—	267	2.2	Moderately good
Lee.....	5.06	12,670	500	4	10	—	261	2.0	Good
Lincoln.....	5.48	11,470	1,160	8	16	—	261	2.1	Good
Vinecross B5.....	4.07	13,830	1,540	4	4	—	232	1.5	Very good
Sachem.....	4.49	11,600	1,660	24	6	—	255	2.0	Good
Seneca Hybrid 92X28.....	5.00	14,400	820	20	—	—	240	1.8	Very good
Golden Cross Ban- tam.....	5.20	13,030	770	8	—	—	240	1.7	Very good
Jacques 280.....	4.52	10,830	2,320	2	4	—	256	1.9	Good
Difference necessary for significance, 5%	1.07	2,260	—				6		

\*1 = Excellent; 1.1-1.5 = Very good; 1.6-2.0 = Good; 2.1-2.5 = Moderately good; 2.6-3.0 = Fair; 3.1-3.5 = Moderately poor; 3.6-4.0 = Poor.

TABLE 6.—COMPARISON OF YIELDS AND QUALITY OF 12 LATE YELLOW HYBRID SWEET CORN VARIETIES.

VARIETY	YIELD PER ACRE			EARS SHOWING VARIATION IN ORANGE-YELLOW KERNEL COLOR, %			RELATIVE TENDERNESS OF PERICARP, GRAMS PRESSURE	FLAVOR AND SWEETNESS INDEX*	GENERAL QUALITY RATING
	Tons	Number of marketable ears	Number of cull ears	COLOR, %					
				Slight	Moder- ate	Distinct			
Sunny-Gold.....	4.90	17,170	2,320	6	6	—	238	1.8	Very good
Ioana.....	4.65	10,970	890	2	2	—	286	2.4	Moderately good
Topflight Bantam...	5.32	9,570	1,660	16	18	—	284	2.4	Fair
Purdue 1406.....	4.14	10,970	1,780	22	2	—	273	2.1	Good
Aristogold Bantam No. 2.....	5.58	10,200	610	6	2	—	298	3.5	Moderately poor
Goldenwood.....	4.52	11,100	1,160	24	32	2	278	2.3	Moderately good
Mohawk.....	5.00	10,200	1,270	10	6	—	271	2.5	Moderately good
Tendermost.....	6.07	13,000	500	14	8	—	234	1.4	Very good
Wilson.....	5.29	10,200	610	14	62	18	284	2.1	Moderately good
Soobred.....	5.94	13,270	2,050	4	4	2	306	2.6	Moderately poor
Seneca Giant.....	6.00	9,800	2,160	44	10	—	312	3.4	Poor
Allegheny.....	5.61	10,230	2,170	6	—	—	290	3.1	Moderately poor
Difference necessary for significance, 5%	1.07	2,260	—				8		

\*1 = Excellent; 1.1-1.5 = Very good; 1.6-2.0 = Good; 2.1-2.5 = Moderately good; 2.6-3.0 = Fair; 3.1-3.5 = Moderately poor; 3.6-4.0 = Poor.