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WINDSOR-A
A NEW SWEET PEPPER

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WINDSOR-A

Windsor-A is a new variety of sweet pepper produced by the Department of Plant Breeding of the Connecticut Agricultural Experiment Station at New Haven. It is early, and at the same time it has many characteristics which ideally meet market and grower requirements.

Previously there seems to have been no pepper variety which satisfied both producer and consumer. California Wonder, a large, smooth, thick-walled type, is perfect for stuffing and salads but the producer finds it an unprofitable crop. The fruit is late and frequently the yield is small. On the other hand, the early productive varieties do not meet the consumers' demands. They are rough, thin-walled, and often entail considerable waste in preparation. Consequently, there is need for a variety

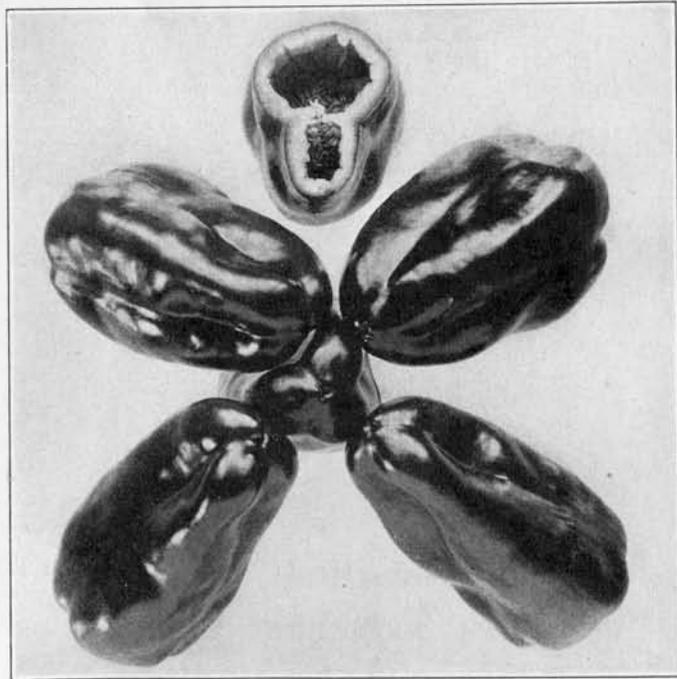


FIGURE 1. Windsor-A is a thick-walled Ruby King type. Fruits are about $4\frac{1}{2}$ inches long, and $2\frac{1}{4}$ inches in diameter at the stem end. They are smooth, thick-walled and furrowed.

that combines the characteristics desired by both producer and consumer. Windsor-A has been developed to meet this need.

Origin of Windsor-A

About ten years ago there appeared in the trials of the Experiment Station a hybrid pepper which undoubtedly resulted from a natural cross between Sweet Spanish and Harris Early Giant. This plant produced an abundance of early fruit and it continued to bear until frost. Seed was saved and planted the following year, and many individual plant lines were selected for early and total yield. The fruit, however, was rough, pointed, very thin-walled, and the color was a pale yellowish green.

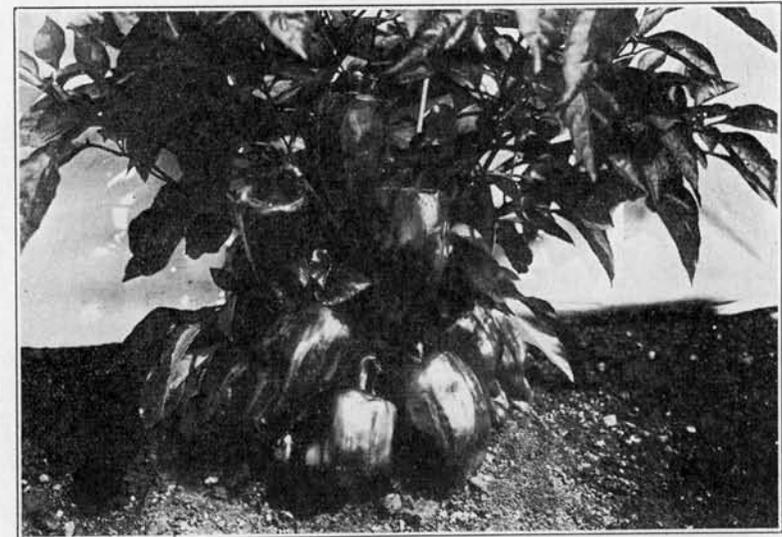


FIGURE 2. Of all the early varieties grown at Windsor, Windsor-A produced the first marketable fruit.

In a three-year trial at Windsor, one of these lines, later called Bountiful No. 7, produced a larger number of fruits and more pounds of early fruit per acre than any early commercial variety grown for comparison. In total yield it was not significantly lower than any of the early, mid-season, or late varieties with which it was compared.

Thus in Bountiful and California Wonder we had two extreme types of peppers, each having a few of the qualifications for an ideal variety. In order to obtain a variety which is as early and productive as the Bountiful strains and which has a fruit as large, smooth, and thick-walled as California Wonder, we crossed these two types. The resulting first generation hybrid was outstanding. It was everything that could be asked for in a pepper. The plants were vigorous and healthy; they set fruit early and throughout the season. The fruit was as large or larger

than California Wonder and its walls were thick and tender. All who saw it proclaimed this the finest pepper they had ever seen.

Peppers are naturally self pollinated. Consequently they are normally homozygous for a large number of genetic factors that are responsible for productivity, earliness, disease resistance and uniformity of type. Since many of these heritable genetic factors which favor growth and reproduction are dominant in their expression, it is possible to have a larger number of different growth factors in a first generation hybrid than in either inbred parent. This heterozygous condition, or hybrid vigor, is demonstrated in the first generation by extreme uniformity of type, larger plant growth, earlier production of marketable fruit, and larger total production.

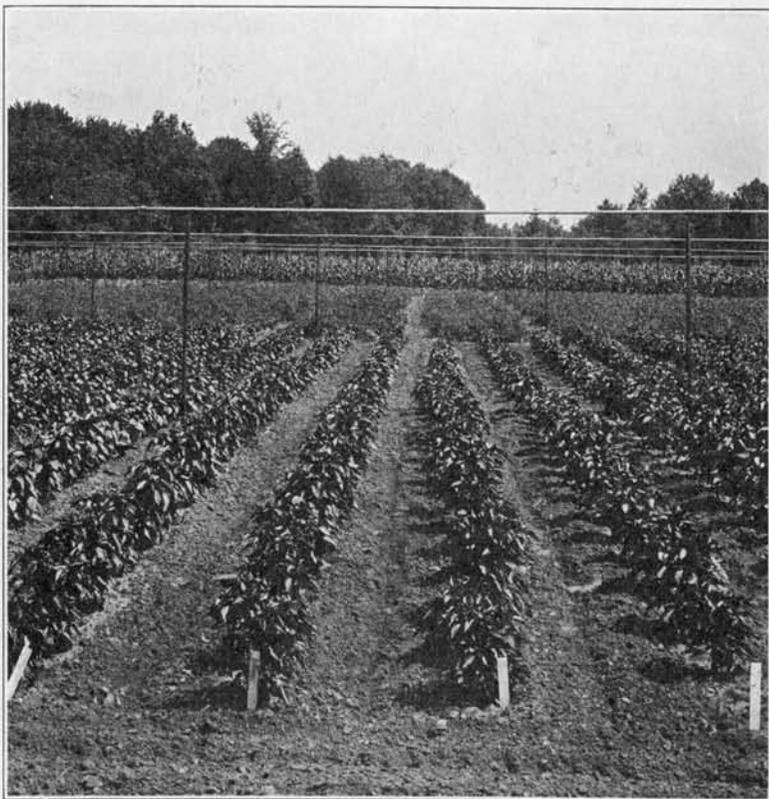


FIGURE 3. This is a section of the pepper trials at the Tobacco and Vegetable Substation at Windsor, Connecticut, where Windsor-A originated.

The increased yields obtained in the first generation hybrid come only the first year after crossing. In the succeeding generations, these genetic factors segregate. Because of the difficulties of recombination of genetic characters, it is extremely difficult, if not impossible, to obtain one individual with all of the growth promoting genes existing in a species.

There are seedsmen in this country who produce first generation hybrid

seed of many of our vegetable varieties as a regular commercial enterprise. In 1932 more than 80,000 acres of corn were planted in this country with seed that had resulted from the crossing of inbred plants. One Japanese seed company is offering for sale hybrid seed of tomato, eggplant, watermelon, and cantaloupe. The production of hybrid pepper seed is not outside the realm of possibility.

California Wonder was crossed by 55 different strains of Bountiful in 1930. For five years selections were made from these combinations with the aim of getting an early California Wonder type.

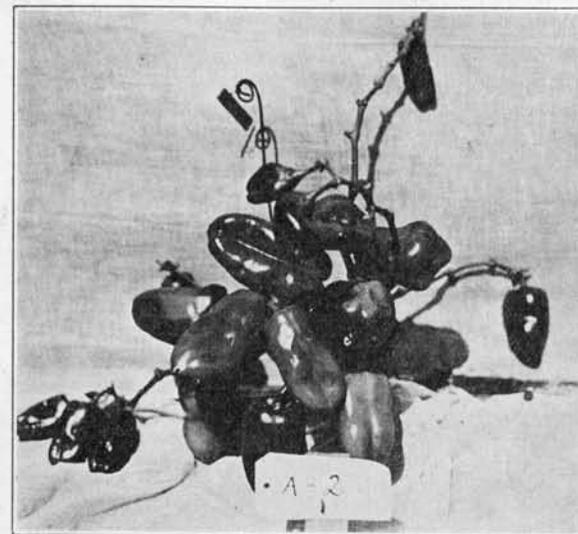


FIGURE 4. The leaves are removed from this Windsor-A plant to show the heavy production of fruit.

Windsor-A is the first of these selections to be named and released. Although it is not the ideal type for which we have been working, it is better than any other variety or strain that we have grown. The fruit is early and abundant like Bountiful, and it has the thick wall of California Wonder. In shape it is intermediate between the two types: smooth, slightly tapered, and somewhat furrowed. For the most part, it has a blunt blossom end and the stem end is not depressed as in California Wonder. The majority of the fruits measure about four and one-half inches in length and are two and one-quarter inches in diameter at the stem. The color is a lighter green than California Wonder.

Instead of obtaining an early, productive, California Wonder type, as was our aim, Windsor-A might be classified as an early, productive, thick-walled Ruby King.

Varietal Stability and Adaptation

A varietal type of any vegetable is merely the mental concept which the grower or seedman has of the variety. Consequently, just as soon as seedmen begin to increase this variety and select their own stock seeds,

they will select those plants which conform to their ideal. As a result, every seedman will have a different type. If he selects for earliness, he may lose thickness of wall; if he selects for shape or size, he may lose earliness or productivity.

Windsor-A has been developed primarily for Connecticut conditions. A difference in soil and climate will undoubtedly influence its performance, appearance and plant growth.

Among 100 or more strains that have been selected from the original 55 crosses, we have many types which show various combinations of characters of both parental varieties. These will be released as soon as their relative merits are established.



FIGURE 5. These Windsor-A plants and fruits show the normal variation in a sample of fruit. They may have two, three, or four cavities.

Table I, below, shows the comparative yields of Windsor-A and several other varieties. Windsor-A was significantly earlier than any other variety. Waltham Beauty, newly introduced by the Massachusetts Vegetable Field Station at Waltham, produced more fruit and weight per acre. However, the fruit was rough and was quite small toward the end of the season. The differences in total weight and number of fruits between Windsor-A and Waltham Beauty are probably not significant. Windsor-A continued to produce smooth fruit of marketable size throughout the picking season.

Seed of Windsor A

Seed of Windsor-A is available in trial packages for growers, seedsmen, and experiment stations, at the Department of Plant Breeding of the Connecticut Agricultural Experiment Station, New Haven, Connecticut.

TABLE I. RESULTS OF PRELIMINARY PEPPER TRIALS
BEFORE VARIETAL STABILITY

Variety	Yield to August 2		Total yield to September 15	
	Number fruits per acre	Weight in pounds per acre	Number fruits per acre	Weight in pounds per acre
Windsor-A	16,500*	3,500	52,000	12,000
Waltham Beauty	12,500	2,500	53,000	13,000
California Wonder Ferry Morse	4,500	1,000	19,500	6,000
Early California Wonder No. 3 Asgrow	7,500	2,000	26,500	8,000
Asgrow King	9,000	1,500	20,500	5,000
World Beater Asgrow	4,000	1,000	25,500	7,000
California Wonder Asgrow	3,500	1,000	24,500	8,000

* Number of fruits and weight are given to the nearest 500.