

Vegetable  
Variety  
Trials...

Summary Through  
1954

By  
F. A. Romshe and  
H. B. Cordner  
Department of Horticulture



Experiment Station



# *Why Variety Trials?*

Very few vegetable varieties are adapted to a wide range of climatic conditions. It is unwise to assume that varieties grown extensively in other regions of the U. S. will be equally satisfactory in Oklahoma. In fact, eastern and southeastern Oklahoma have climatic conditions different from those of the western part of the state. Since climate is the primary factor determining how well a crop will grow, it is essential to consider local conditions and use the varieties best suited for the locality.

To determine the varieties best adapted to Oklahoma, the Experiment Station conducts variety trials at several locations in the state each year. Plantings of several of the major vegetable crops are made and information is obtained as to their growth habit, season of maturity, quality, production, and other characteristics. The process is a continuous one because of the number of new varieties introduced each year.

New varieties are recommended for general planting only after three or more years of testing. A minimum of three years is deemed necessary because of variable performance under different seasonal conditions. Only those varieties that prove definitely superior to established varieties in major characteristics are recommended.

Planting of new varieties by commercial growers should be on a limited scale for at least one year. Occasionally a new variety will have some characteristic making it undesirable for the fresh market trade or processing which has been overlooked by the plant breeder.

## C O N T E N T S

Variety Testing Program .....	5
Best Adapted Varieties in Station Trials .....	6
Beans (Green Snap) .....	6
Beans (Lima) .....	7
Cucumbers .....	9
Muskmelons .....	9
Onions .....	10
Sweet Corn .....	11
Tomatoes .....	12
Sweetpotatoes .....	13
Watermelons .....	14

# Vegetable Variety Trials

## Summary Through 1954

By **F. A. Romshe and H. B. Corder**  
Department of Horticulture

Planting a good variety instead of a poor one is essential in growing the best crop possible. Many vegetable crops that are well adapted to other parts of the country do poorly in the climatic conditions of Oklahoma. Therefore it is necessary to plant varieties suitable to Oklahoma to insure satisfactory production of quality produce.

In order to find the varieties best adapted to Oklahoma, the Agricultural Experiment Station each year conducts vegetable variety trials at several locations in the state. The Perkins Farm near Stillwater and the Vegetable Research Station at Bixby are used for the most extensive trials.

### Variety Testing Program

This testing program is conducted in cooperation with 12 other southern states and the U. S. Department of Agriculture. Plantings are uniform in all locations, and data and information are secured and summarized from each location. The resulting composite rating gives a more comprehensive evaluation of individual varieties than could several years testing at any one location.

---

**The Extension Service periodically publishes a list of vegetable varieties recommended for Oklahoma that is available through the County Agricultural Agents. This list is revised frequently to include new varieties proven superior in the variety testing program.**

---

One-hundred and fifty to 200 varieties, hybrids, strains, and breeder's lines of the various vegetable crops are included each year in the test plantings to obtain information on production and other important factors.

The plantings generally consist of two parts: (1) A replicated series in which each variety is planted on four to six plots to balance up soil and location variability for accurate yield determinations; and (2) Single plots for observation in regard to growth habit, season of maturity, quality, production, and other characteristics.

The observation plots serve as an initial screening of varieties and un-named breeder's lines. Lots that appear promising in the observation plots are included in the replicated series the following year or two to compare production with the best standard varieties and to obtain additional information on market quality.

When new varieties prove to be superior to the best standard varieties for two or three years in the trials, they are then used for planting larger areas for additional information on production and market acceptance. The large rotation-fertilizer plots at the Vegetable Research Station and the plantings made for processing or fresh market production tests at the Kiamichi Station, Idabel, and the Eastern Station, Stilwell, are frequently used for the final testing of promising new varieties.

## **Best Adapted Varieties In Station Trials**

Included below are tables summarizing the production of varieties that are considered outstanding or of special interest because of having been introduced recently and may have an outstanding characteristic such as disease resistance. Some popular varieties are included for comparison, and they generally illustrate the superiority of new and better varieties.

The brief descriptions and comments accompanying the tables outline outstanding qualities and limitations of the varieties and are based on performance records and ratings as a result of the Oklahoma trials.

### **Beans (Green Snap)**

Several varieties of green snap beans introduced in recent years have a high degree of resistance to bean mosaic. This disease is especially serious in the fall and only resistant varieties should be planted. All four of the varieties listed here are mosaic resistant and are highly productive. (See Table I for average production of these varieties at two locations in Oklahoma.)

**Table I.—Average Yields of Green Snap Bean Varieties at Bixby and Idabel, 1949-1954.***(30-pound bushels per acre)*

Variety	Bixby		Idabel	
	No. Years Tested	Avg. Bu. Per Acre	No. Years Tested	Avg. Bu. Per Acre
Topcrop	4	192	3	199
Wade	6	188	4	185
Contender	6	178	4	181
Tendergreen	6	159	4	160
Tenderlong # 15	3	194	--	---

*Contender.*—A good quality variety that holds up well after harvest. It is recommended especially for fresh market use. Pods are longer than most varieties, medium color, oval, and slightly curved.

*Tenderlong 15.*—A mosaic resistant strain of Tenderlong. Pods are long, straight, round, and of high quality. An excellent variety for canning and freezing.

*Topcrop.*—One of the most productive varieties available at the present time. Highly recommended for processing. It is not suitable for fresh market because the pods shrivel and lose weight rather rapidly after harvest.

*Wade.*—One of the newest varieties introduced. High yields of dark green pods and a longer bearing season should make this variety popular with home and market gardeners.

## Beans (Lima)

Low production from lima beans is usually associated with high temperatures which are unfavorable for fruit set. Small-seeded varieties are much more productive in Oklahoma than large-seeded varieties (like Fordhook) because they set fruit better during hot weather. For dependable production, plant only small-seeded varieties.

Table II shows yield data of six varieties of lima beans at three locations.

*Bixby.*—A small, plump-seeded type with white cotyledons recently developed at the Oklahoma Experiment Station. It is tolerant to nematodes and is one of the most productive varieties for this region.

*Clarks Bush* and *Early Thorogreen.*—Two small-seeded varieties that have green cotyledons, making them more desirable for processing.

**Table II.—Average Yields of Seven Lima Bean Varieties at Three Locations in Oklahoma; 1946-1954.***(Pounds of pods per acre)*

Variety	Perkins		Bixby		Idabel	
	No. Years Tested	Avg. Yield (pounds)	No. Years Tested	Avg. Yield (pounds)	No. Years Tested	Avg. Yield (pounds)
<b>Small Seed*</b>						
Henderson's Bush	4	3817	5	3152	2	7161
Clark's Bush	7	3295	5	3809	4	5801
Early Thorogreen	6	3901	4	4002	4	5181
Bixby	5	4621	2	5493	3	6687
<b>Large Seed**</b>						
Fordhook	2	1152	2	342	1	3030
Fordhook 242	2	3033	2	591	1	2250

\* Clark's Bush and Early Thorogreen are green seeded varieties.

\*\* Large-seeded lima beans are not adapted to this area and failed completely in approximately half of the tests. The above yields are for the more favorable seasons.

**Table III.—Average Yields of Cucumber Varieties at Perkins and Bixby for Various Numbers of Years.***(Bushels per acre)*

Variety	Perkins		Bixby	
	No. Years Tested	Avg. Yield	No. Years Tested	Avg. Yield
Marketer	5	293	4	299
Palmetto	5	190	3	244
Santee	4	216	4	278
Stono	3	237	4	346
Ashley	1	259	2	315

**Table IV.—Average Number of Muskmelons per Acre and Average Weight per Melon of Five Varieties Tested at Perkins, 1939-1943, And Bixby, 1944-1949.**

Variety	Perkins			Bixby		
	No. Years Tested	No. Melons Per Acre	Avg. Weight Per Melon	No. Years Tested	No. Melons Per Acre	Avg. Weight Per Melon
Hales Best 36	3	3110	2.26	5	3015	2.77
Mildew Res. 45	3	3534	2.19	5	2459	2.75
Honey Rock	2	2920	2.46	3	1550	2.97
Purdue 44	-	-----	---	4	3367	2.37
Texas Res. #1	-	-----	---	2	2201	2.58



## Cucumbers

Most of the material tested in recent years has been hybrids and new mildew resistant lines. The variety Marketer has been grown in the trials as the standard for comparison. Fifty-two varieties, hybrids, and breeding lines have been tested during the past eight years. Most of the F<sub>1</sub> hybrids tested were quite vigorous and highly productive. However, the large fruit size and/or poor color of these hybrids make them undesirable for market purposes. (See Table III for yields of several cucumber varieties.)

*Ashley and Stono.*—Two downy mildew resistant varieties that were named and released in the spring of 1955 from the South Carolina Experiment Station. Seed will be available for the 1956 season. Both varieties have desirable fruit size, shape, and color to satisfy market demands. Early yields as well as total yields have exceeded those secured from Marketer at the Vegetable Research Station at Bixby. The same relationship in regard to earliness was found at the Main station near Perkins. However, Marketer has consistently produced the highest total yield of marketable fruits at this location.

*Marketer.*—This has been an outstanding variety for several years and is highly recommended. Fruits are medium size, very dark green, and have small seed cavities.

## Muskmelons

Although many varieties of muskmelons have been grown in the trial plantings since 1939, there is relatively little change in the variety recommendations. This crop will tolerate reasonably high temperatures provided an adequate supply of soil moisture is maintained. The variety trials have been conducted without irrigation, thus indicating performance under natural weather conditions. The usual occurrence of hot, dry weather just previous to and during the harvest season prevents proper development of the fruits, especially netting and sugar accumulation. Some varieties are affected considerably more than others and late maturing ones are most often of low quality. Production figures of the better varieties are presented in Table IV.

*Hales Best 36.*—This variety has been and still is the standard for this area. Fruits are nearly round and uniformly well netted. Several other strains of Hales Best are available and vary primarily in size and time of maturity.

**Table V.—Yields of Onion Varieties at Perkins, 1941-1942, and Bixby, 1948-1951.**

(Bushels per acre)

Variety	Perkins			Bixby				
	1941	1942	Avg.	1948	1949	1950	1951	Avg.
Yellow Sweet Spanish	160	427	294	428	310	442	398	395
White Sweet Spanish	109	250	180	291	290	479	292	338
Crystal Wax	77	177	127	278	262	361	320	305
San Joaquin	---	---	---	---	236	404	228	289

Another selection of Hales Best is *Purdue 44*. It is a little earlier and more uniform in fruit size; however, the size runs smaller than H. B. 36. *Hales Best 936* is a larger fruited strain.

*Mildew Resistant 45*.— Similar in size to Hales Best 36, but fruits are slightly elongated and show some ribbing. It is generally three to five days later in maturity than H. B. 36. Quality is good and this variety stands commercial handling very well.

*Texas Resistant No. 1*.—Recommended for home gardens but not for commercial use. A productive variety of good quality melons. Tolerates hot, dry conditions better than most varieties. Very resistant to plant lice (aphids). Sparse netting and early development of yellow color on the outer surface make them less attractive for commercial use than Hales-type melons.

## Onions

Varieties of onions adapted to growing in Oklahoma are confined to the Bermuda and Sweet Spanish types. Domestic (storage) varieties are late in forming bulbs and high temperatures restrict proper development.

Table V shows production figures of four varieties at two locations.

*White Bermuda (Crystal Wax)*.— Early maturing, white, and flat with very mild flavor. This variety does not keep well.

*Yellow Sweet Spanish*.—Large, yellow, globe-shaped bulbs with mild flavor. Matures about two weeks later than Bermudas. Well-matured bulbs will keep several weeks under dry storage conditions. The most productive variety tested in the trials.

*White Sweet Spanish*.—Similar to Yellow Sweet Spanish except white in color and slightly less productive.

## Sweet Corn

Nearly all sweet corn grown is yellow hybrids. A large number of varieties have been introduced in recent years, and it seems likely additional varieties will be released at a relatively rapid rate. One-hundred and sixty-five varieties have been tested during the last seven years.

Nearly all varieties of sweet corn have a potential yield of two ears per stalk. Variations in yield for fresh market (dozens of ears per acre) between varieties, therefore, are due primarily to the way the varieties are adapted to the conditions which exist during the growing season, or perhaps stand of plants. The factors of quality, ear size, and time of maturity are really more important than yield in rating varieties. Differences in corn earworm injury are evident in the variety trial plantings. However, it appears this is related to time of silking rather than actual resistance. The early varieties are always more heavily damaged than midseason and late varieties.

Yield data and ear size of the highest yielding varieties are given in Table VI.

*Calumet*.—Stalks are vigorous and develop very few suckers. Ears are a little longer than Golden Cross Bantam. Kernel color and quality are satisfactory. Maturity is two to three days later than Golden Cross.

*Golden Cross Bantam*.—The standard variety for fresh market and home garden plantings. It is rated one of the best for quality, production, and desirable ear size for fresh market. The high quality makes it very desirable for use when fresh or for freezing and canning.

*Golden Security*.—This is a consistently high yielding variety but is rated considerably below G. C. Bantam in quality. Ear size is rather

**Table VI.—Number of Ears per Acre, Weight (pounds) per Acre, and Average Weight per Ear for Sweet Corn Varieties Tested at Bixby, 1948-1954, and Perkins, 1948-1951.**

Variety	Bixby				Perkins			
	No. Years Tested	No. Ears Per Acre	Weight Per Acre (lbs.)	Avg. Wt. Per Ear	No. Ears Per Acre	No. Years Tested	Weight Per Acre (lbs.)	Avg. Wt. Per Ear
Golden Cross Bantam	5	14409	8294	.58	4	9471	4626	.49
Golden Security	4	16066	10469	.65	4	12271	7044	.57
Ioana	4	13671	9061	.66	4	8766	5214	.59
Calumet	3	15161	8959	.59	2	10597	5957	.56
Huron	3	19122	11936	.62	3	9183	5258	.57

large but attractive in color and shape. Maturity is about two days later than G. C. Bantam. Not recommended because of tough seed coats and low sugar content.

*Huron*.—Similar to Calumet except two days later in maturing and ears  $\frac{1}{2}$  to 1 inch longer.

Early sweet corn varieties are desirable for home gardeners because they provide a longer harvest season when planted along with midseason and later varieties. Commercial gardeners often plant an early variety to take advantage of the higher prices usually received for the early home grown corn.

Most of the early maturing varieties have small ears, and the severity of corn earworms on these varieties results in a low yield of marketable ears. Three varieties that produce ears sufficiently large to be marketable are Gold Rush, North Star, and Marcross. Nitrogen fertilizer should be used generously early in the season to develop a good stalk and large ears.

*Gold Rush*.—Eight to ten days earlier than G. C. Bantam with ears somewhat larger. Quality acceptable but lower than G. C. Bantam.

*North Star*.—In season with Gold Rush. Ears more slender but of adequate length (7 to 8 inches) to allow some earworm injury and still have a marketable ear.

*Marcross*.—Four days earlier than G. C. Bantam. Fair quality and medium ear size.

## Tomatoes

Successful production of tomatoes in Oklahoma frequently depends on securing a good set of fruits by the middle of June or before temperatures range above 90°. Varieties vary a great deal in the time of coming into bloom and also the abundance of blossoms produced early in the season. The most consistently productive varieties are

**Table VII.—Average Yields of Tomato Varieties Tested at Three Locations in Oklahoma.**  
(Tons per acre)

Variety	Location		
	Bixby (8 yrs.)	Perkins (5 yrs.)	Idabel (5 yrs.)
Rutgers	3.94	4.40	5.49
Stokesdale	5.03	7.40	5.65
Sioux	5.87	8.98	5.90

those which bloom early and profusely. Around 400 varieties, hybrids, strains, and breeding lines have been tested in the trials during the past eight years. Table VII presents yield summaries of the two varieties found to be the most dependable producers with desirable fruit characteristics, along with Rutgers. Rutgers has been widely grown in Oklahoma for several years but should be replaced by more productive varieties.

*Sioux*.—A vigorous growing and early blooming variety that is considered the most dependable at the present time. It has been outstanding in the trials at Bixby, Idabel, Stilwell, and Stillwater. The fruits are nearly white from the time they set on until turning red at maturity. There are no green shoulders on the fruits. Because of the light color of the immature fruits this variety is not suitable for the green-wrap market as there is no noticeable color change at the mature-green stage. A uniform, deep-red color develops as the fruits mature. Recommended for canning, fresh market, and home gardens. Sioux is only moderately resistant to wilt.

*Stokesdale*.—A very productive, medium early variety with fruits of medium size. Stokesdale has been an outstanding variety for many years in the trials and is rated second only to Sioux. Fairly vigorous vines protect most fruits from sunscald. Moderately resistant to tomato wilt.

*Firesteel*.—A very early type that sets on a large number of fruits. Under favorable conditions the fruits are of good size and quality. Vine growth is limited and the fruits are often exposed which allows serious sunscalding. Heavy fertilization and irrigation will encourage additional vine growth.

*Porter*.—The most dependable variety for the western part of Oklahoma. Fruits are pink and of the size and shape of large plums. Vines are vigorous, productive, and will set fruits under higher temperatures than standard varieties.

## Sweetpotatoes

The development of new varieties in recent years as a result of an extensive breeding program has helped to stimulate interest in this crop in Oklahoma. All three of the following varieties were developed at the Oklahoma Experiment Station. (Table VIII shows production of Number 1 roots for the varieties below, plus Porto Rico.)

**Table VIII.—Average Yield of Number 1 Roots of Sweet Potato Varieties Tested At Bixby, 1948-1954, and Idabel, 1949-1954.**  
(Bushels per acre)

Variety	Bixby		Idabel	
	No. Years Tested	Avg. Bu. Per Acre #1 Roots	No. Years Tested	Avg. Bu. Per Acre #1 Roots
Allgold	7	285	7	175
Redgold	4	217	6	248
Unit No. 1 P. R.	7	129	6	135
Nemagold	3	125	3	113

*Allgold*.—Roots have russet-golden skin and the flesh is a bright salmon color which remains bright when cooked. They are generally smooth, fusiform shape, and are in the same market class with Porto Rico. Yields are consistently higher than the Porto Rico. Allgold is resistant to wilt, black rot, and internal cork. Roots develop rapidly and some may get too large if allowed a full growing season.

*Redgold*.—A highly productive variety resistant to wilt. The roots have purple skin, orange flesh, and are medium in size. A good replacement for the Red or Improved Porto Rico, especially where wilt is a problem. Yields average about 50 percent greater than Porto Rico.

*Nemagold*.—This is a nematode resistant variety. Roots are smooth, medium sized, with russet-golden skin and orange flesh. A Jersey-type potato and lower in production than the yam-type such as Allgold. It is recommended for planting in Oklahoma, especially where the soil is known to be infested with nematodes.

## Watermelons

Ninety-seven varieties, hybrids, and strains have been tested during the past 15 years. Several varieties introduced in recent years are resistant to wilt or to anthracnose, and a few have resistance to both diseases. However, in spite of the desirability of disease resistance, other characteristics make them less acceptable for growing in Oklahoma than the non-resistant variety *Black Diamond*.

Table IX shows average production and size of fruits of several new resistant varieties along with *Black Diamond*.

Most commercial growers avoid serious losses from wilt by growing melons on newly cleared land or by planting only every fifth to seventh year on the same land.

**Table IX.—Average Number of Melons per Acre and Average Weight per Melon of Several Watermelon Varieties Tested at the Perkins Farm, 1952-1954.**

Variety	No. Melons Per Acre	Avg. Weight Per Melon
Okla. Black Diamond	1250	26.5
Dixie Queen	946	22.7
Calhoun Sweet	503	25.2
Chris Cross	848	25.2
Congo	586	23.7
Fairfax*	507	20.6
Charleston Gray	730	24.6

\* Not in 1954 Trials.

Anthracoise is serious only during seasons of plentiful moisture, which occur so rarely that it is not too serious.

*Congo, Fairfax, and Charleston Gray.*—These varieties are resistant to anthracnose and have moderate to high resistance to wilt. They produce long-type melons which apparently makes them more subject to fruit deformities under our climatic conditions. In some seasons a high percentage of the fruits are misshapen to the extent that they are unmarketable. These varieties also lack the rugged rind character of Black Diamond and thus will not stand long distance shipping too well.

*Dixie Queen, Chris Cross, and Calhoun Sweet.*—These three varieties have desirable shape, size, and flesh quality but will not stand up under commercial handling to distant markets.

