

VEGETABLE Variety Trials 1956-61

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In order to find varieties best adapted to Oklahoma, the Agricultural Experiment Station conducts vegetable variety trials each year at several locations in the state. Most of the trials are run at the Perkins farm near Stillwater and the Vegetable Research Station at Bixby. This bulletin reports results of Vegetable Variety Trials conducted from 1956 through 1961.

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.

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

The authors gratefully acknowledge the assistance of J. R. Fleming, Charles Galeotti, George Hedger, Jack Marshall and Lloyd Martin, Superintendents of Horticultural Field Stations in Oklahoma, where much of the work was conducted.

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

The observation plots serve as an initial screening of varieties and 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.

OUTSTANDING VARIETIES

Yield data given in the tables include only named varieties and were secured from the replicated plots. Information on a large portion of the varieties tested each year is not published unless, and until, they are named and released. Only a small fraction of the varieties tested are eventually named and released.

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

Data are missing for certain years, in some instances, due to severe weather conditions.

BEANS (GREEN SNAP)

Improvements in green snap beans in recent years include mosaic resistance, concentrated set, taller plants with pods held off the soil, slow rate of moisture loss from pods after harvest, and some increase in yield. Concentration of set is especially important in varieties used for commercial processing where harvesting is done mechanically. Rate of moisture loss is a major factor in determining shelf-life of beans sold on the fresh market.

EXTENDER—A consistently high producing variety with concentrated set. The round pods average five inches in length and are medium to dark green in color. This variety has an exceptionally slow rate of moisture loss from harvested beans. It is recommended for fresh market or for home garden use. Extender's black seed coat color makes it doubtful for use as a commercial processing variety. If har-

vested before the seed has developed appreciably there is no objectionable discoloration.

LONGVAL—This is a distinctly different variety in that the pod characteristics are similar to most pole beans. Pods are six to eight

Table 1.—Yields of Green Snap Bean Varieties at Bixby, 1957-1961.

Variety	Spring Crop					Fall Crop	
	1957	1958	1959	1960	1961	1960	1961
	(Bushels Per Acre)						
Wade	140	483	116	187	149	204	242
Extender	200	635	160	304	191	215	310
Wadex	140	521	125	216		170	
Black Valentine		483	113	289	145	193	243
Longval		566	150	243		195	
Top Crop			184	279	175	247	192
Harvester				187	180	213	286
Pearlgreen	216						
Seminole	232						
Imp. Supergreen			192				
Harris Shipper					170		278
Slender White					90		278

Table 2.—Yields of Green Snap Bean Varieties at Stilwell, 1956-1961.

Variety	Spring Crop					Fall Crop			
	1956	1958	1959	1960	1961	1958	1959	1960	1961
	(Bushels Per Acre)								
Black Valentine	317	293	300	205	337	235	267	144	108
Wade	257	354	212	240	331			154	145
Extender		374	313	269	395	263	337	229	236
Wadex		414	219	273		188	222	145	
Longval		398	350	277		242	322	252	
Top Crop			343	285	336		288	200	263
Harvester				161	260			142	146
Tendergreen	228								
New Imp.									
Tendergreen	276								
Seminole	336								
Pearlgreen			296				171		
Imp. Supergreen			316				226		
Harris Shipper					266				177
Slenderwhite					316				229

Table 3.—Yields of Green Snap Bean Varieties at Idabel, 1956-1961.

Variety	Spring Crop			
	1956	1958	1960	1961
	(Bushels Per Acre)			
Tendergreen	563			
New Imp. Tendergreen	543			
Seminole	525			
Wade	546	160	278	178
Black Valentine	295	119	278	131
Extender		156	349	141
Wadex		140	244	
Longval		161	373	
Top Crop			337	163
Harvester			216	131
Harris Shipper				109
Slenderwhite				170

inches long, have an oval to flat shape, and are medium green colored. It has much more flavor than other bush varieties but must be harvested before the seed gets very large. Considerable fiber develops in the pods if harvest is delayed. In view of its productivity, long shelf life, and distinct flavor, this variety is suggested for trial by home gardeners, who prefer more flavorful beans, and for fresh market suppliers where there is demand for pole bean types. It appears worthy of trial for processing as a french cut type, provided it is harvested at the proper stage of development.

BEANS (LIMA)

Lima beans of the baby or small seeded class are usually most productive in the Southwest where fruit set is limited, to some extent, by high temperatures. Varieties with the green seed character are most in demand for processing and are desirable for the home garden. Large seeded limas of the Fordhook type are usually less productive than baby varieties and are more exacting in their climatic requirements.

The nematode resistant, green-seeded *Nemagreen variety*, developed by the Oklahoma Agricultural Experiment Station and the U.S.D.A. cooperating, was in the lima bean nursery trials. The trials were conducted over a five-year period at four locations in Oklahoma. Yields in-

Table 4.—Average Yields of Eight Lima Bean Varieties at Four Locations in Oklahoma; 1956-1961.

Variety and Type	Perkins	Bixby	Blair	Idabel	
	1956-8	1956-7	1960	1957	1960
Baby Lima:	(Pounds Pods Per Acre)				
Nemagreen	960	1386	-----	1998	-----
Thaxter	872	1727	4887	2083	7474
Clark's Bush	867	883	4275	-----	5232
Early					
Thorogreen	1537	1576	4151	-----	4979
Allgreen	942	487	-----	-----	-----
Limagreen	85	498	-----	-----	-----
Large Seed:					
Concentrated					
Fordhook	-----	-----	1375	1453	-----
Fordhook	-----	-----	2105	-----	5306
242	-----	-----	2105	-----	5306

creased regularly from one year to the next and became unusually high in the most favorable 1960 season (Table 4).

THAXTER, a mildew resistant variety, and *Nemagreen* are recommended baby lima varieties. The soil used for home gardens is frequently infested by the root-knot nematode. When this is so, the *Nemagreen* variety is most desirable.

Good production is found in the large seeded varieties, when seasonal factors are more favorable. *FORDHOOK* 242 is the best variety of large seeded limas in this area.

SWEETPOTATOES

Sweetpotato varieties best adapted for Oklahoma were developed at the Oklahoma Experiment Station. These varieties have been grown in nursery trials with other varieties and selected breeding lines. Porto Rico has been used as the standard and trials have been conducted at four locations for four seasons (Table 5).

REDGOLD averaged 216 bushels of Number 1 roots per acre for the highest yield potential in the trials. *Redgold* is wilt resistant and is very desirable in areas where red potatoes are acceptable.

Table 5.—Average Yields of Number 1 and Total Roots of Four Varieties of Sweetpotatoes at Four Locations in Oklahoma, 1955-1958.*

Location	Redgold		Tanhoma		Allgold		Porto Rico	
	No. 1	Total	No. 1	Total	No. 1	Total	No. 1	Total
Blair	256	462	266	429	153	263	192	373
Bixby	124	214	146	266	88	180	79	178
Westville	231	463	212	405	164	357	107	145
Idabel	253	359	160	384	160	286	81	183
Variety Averages for Four Locations	216	375	195	371	141	272	115	220

*Data for 1955 to 1957 for the Idabel Station.

TANHOMA is the most recent introduction and is especially desirable as a replacement for Porto Rico. Tanhoma resembles Porto Rico in skin color but has better internal color, higher table quality and more disease resistance. Tanhoma also shows some promise for the early or "green-harvest" market based on good yields obtained in late August and September diggings.*

ALLGOLD is a good quality sweetpotato and has resistance to diseases such as wilt, black rot and internal cork.

Redgold, Tanhoma, Allgold and Porto Rico are all susceptible to the root-knot nematode, a serious problem to sweetpotato production in this area. The variety Nemagold (yield data not given) is recommended for production in soils infested with nematodes and especially for production in western Oklahoma.

SWEET CORN

The most serious limiting factor in sweet corn production in central and eastern Oklahoma continues to be the corn earworm. Control by insecticides is expensive and the results are too erratic to be economically feasible at the present time. Although differences in severity of earworm injury to different varieties is evident, it appears that time of silking may have more influence than possible resistance factors. None of the varieties tested have shown real resistance to the earworm.

*See Okla. Agri. Expt. Sta. Processed Series Bul. P-392.

Table 6.—Yields of Sweet Corn Varieties at Perkins and Bixby, 1956-1961.

Variety	Perkins						Bixby	
	1956	1957	1958	1959	1960	1961	1956	1957
	(Dozen Ears Per Acre)							
Aristogold Bantam								
Evergreen	326	883	862	585	757	759	1225	995
Golden Security	342	587	1121	752	996	1096	1601	1158
Topyield	456	744					1222	953
Tempo	479	598						1121
Golden Cross Bantam	583		1232					
Paymaster	357						1652	
Chedder Cross	653						1272	
Seneca Supermarket	539						1365	
Golden Hybrid 3952	663						1430	
Asgrow Golden 60	637						1084	
Victory Chief		640	924					1096
Golden Yield		576	1003					894
Golden Hybrid 5		673	443					1010
Golden Hybrid 3494		715						852
Florigold			1183	605		746		
Longchief			758					
Staygold					581	751		
Merit						987		
LSD 5%	29	55	184	19	n.s.	52	111	56
LSD 1%	39	74	249	26	n.s.	71	150	76

The quality of most of the new varieties tested in recent years has been disappointing. None have been rated equal to Golden Cross Bantam.

STAYGOLD: Ears are a little larger than average for a fresh market variety. Appearance of the ears is rated very good both with the husks on and with the husks removed. It has been one of the best quality varieties in the trials for the past two years.

MERIT: This variety is considered more suitable for canning than for fresh market. Ears are fairly large in diameter and variable in length. Quality is above average.

TOMATOES

Tomato production in Oklahoma is usually limited by high summer temperatures. It is essential that blooming occurs before tempera-

Table 7.—Yields of Tomato Varieties at Perkins and Bixby, 1956-1961.

Variety	Perkins						Bixby		
	1956	1957	1958	1959	1960	1961	1956	1957	1960
	(Pounds Per Acre)								
Rutgers	2541	6362	6403	1708	6919	8451	7139	3060	9031
Sioux	8359	10795	12015	6063			13867	8505	24481
Home- stead 2	4961	6627	9710				9170	3576	
Big Early Hybrid	10735	9693	8930				13463	6617	
Moreton Hybrid	8867	9313	9783				14530	13602	
Home- stead 24		8053	11925	2976	8627	18048		3380	20938
Kokomo		6059						2073	
Marion			7558	2686	6065	11758			9264
Manapal				1810	8115	6857			12066
LSD 5%	437	616	339	282	478		437	739	
LSD 1%	590	830	456	377	647		590	996	

tures range above 90°F. for satisfactory fruit set. Varieties which bloom relatively early and profusely are most consistently productive. Factors other than fruit set must also be considered in evaluating varieties. Disease resistance, size and quality of fruit, and vine growth for protection of fruits from sunscald are important.

HOMESTEAD 24—This variety is outstanding for resistance to tomato wilt. It is highly recommended for gardens or fields where the soil is infected with wilt. Vines are vigorous and give good protection against sunscald. Fruits are medium sized and of good quality. Homestead 24 matures a few days later in season than Sioux and Stokesdale but earlier than Rutgers. Production has been quite satisfactory in central and eastern Oklahoma.

HYBRID TOMATOES—Several Hybrids have been tested but none have proven superior to the better standard varieties. Fruits of MORETON HYBRID were relatively small and not firm enough for use as a fresh market type. BIG EARLY HYBRID produces large, firm fruit but at times many of the fruits are rough or irregular in shape.

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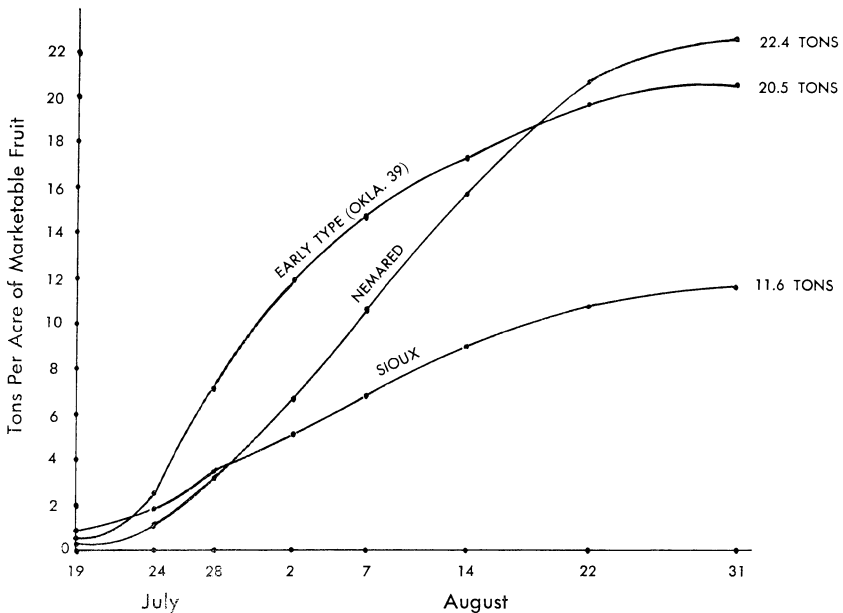


Figure 1. Cumulative yields by harvest dates for three tomato varieties, Blair, Oklahoma, 1961.

SIOUX—A vigorous growing and early blooming variety considered as one of the most dependable producers, especially in central and eastern Oklahoma. Recommended for canning, early fresh market, and home gardens. It has only moderate resistance to wilt.

STOKESDALE—A medium early variety which is quite productive. Fruits are medium sized and more solid than Sioux. Vine growth is usually adequate to protect most fruits from sunscald. Moderately resistant to wilt.

NEMARED—A root-knot resistant tomato developed and released in 1961 by the Oklahoma Agricultural Experiment Station.* To produce this resistant and adapted variety, it required some back crossing to good commercial types of tomatoes and many generations of screening seedling populations in nematode infested soils in the greenhouse and in the field.

*A result of a species cross involving a nematode resistant wild South American species and the cultivated species. Foundation work done at the California, Arkansas and Hawaii Stations is acknowledged.

Nemared was widely planted commercially throughout Oklahoma in 1962. It appears to be quite productive and it may be a little later than the Sioux variety, which has been grown as a standard. Figure 1 illustrates cumulative yields (Tons/A.) by harvest dates for an early Oklahoma line (No. 39), Nemared and Sioux. Nemared production lagged behind for the first two harvests, however, nine days after the harvest season began (3rd harvest) Nemared yields of about 3 tons were equal to those of Sioux. After harvest period of about 30 days, yields were equal for Nemared and the early maturing Okla. 39. Final yields were 22.4, 20.5 and 11.6 tons per acre, respectively, for Nemared, Okla. 39 and Sioux varieties.

CUCUMBERS

The cucumber trials included only white spined or slicing varieties. These were evaluated primarily on characteristics important for fresh market use. Size, color, productivity, and shape were the main factors considered.

MARKETER—This has been the standard market variety for many years and is still considered one of the best for this region. Fruits are medium sized, very dark green color, and have small seed cavities.

ASHLEY, STONO, AND PALOMAR—These varieties are resistant to downy mildew but this disease is usually not serious in Oklahoma. Ashley has excellent dark color but is rated no better than Marketer in other characteristics. Stono is very productive but is rated only medium in color. Palomar fruits were rated low in color and shape. Many fruits were too long for the fresh market.

Table 8.—Yields of Cucumber Varieties at Perkins and Bixby, 1956-1957.

Variety	Perkins		Bixby	
	1956	1957	1956	1957
	(Bushels Per Acre)			
Marketer	225	428	60	440
Stono	297	446	103	577
Ashley	269	355	51	423
Palomar	236	450	54	492

Oklahoma's Wealth In Agriculture

Agriculture is Oklahoma's number one industry. It has more capital invested and employs more people than any other industry in the state. Farms and ranches alone represent a capital investment of four billion dollars—three billion in land and buildings, one-half billion in machinery and one-half billion in livestock.

Farm income currently amounts to more than \$700,000,000 annually. The value added by manufacture of farm products adds another \$130,000,000 annually.

Some 175,000 Oklahoman's manage and operate its nearly 100,000 farms and ranches. Another 14,000 workers are required to keep farmers supplied with production items. Approximately 300,000 full-time employees are engaged by the firms that market and process Oklahoma farm products.