Pepper Variety Trials, Yuma 1986

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INTRODUCTION

Bell peppers are a demanding crop to grow in the desert southwest. The crop has to be squeezed between the freezing temperatures often reaching into the first of February and the high temperatures and light intensity of June.

Because of the short growing season and the nature of the plants, peppers must be pushed with high amounts of nitrogen (400-500 units) and water. Sunburning of the fruit is a major problem and, as a result, it is important to develop a large plant which can provide shading before fruit is set. Even after fruit set, it is important not to reduce the application of the water or nitrogen.

METHODS AND MATERIALS

Transplants of 36 varieties were seeded on December 8, 1985, and grown at the Bud Antle greenhouse operation in Holtville. These varieties were transplanted, along with 27 additional varieties, on February 20, 1986, using a 4-row transplanting machine supplied by the grower-cooperator. The plants were placed in a single row, 12 inches apart, on 40 inch beds. Sprinklers were used during establishment, after which the plants were furrow-irrigated. The trial was conducted on sandy soil north of the Yuma Farming Company asparagus packing plant on Riverside Drive.

The original 36 varieties were planted in single-row plots 75 feet long. The additional 27 varieties were used in the guard row areas surrounding the trial, which did not allow for adequate testing of some varieties, especially those at the east end of the field.

The plants got off to a slow start, possibly due to one or more of the following reasons: 11 week old transplants rather than the desired 8 weeks; malfunctioning of the pump used for sprinkler irrigation; a lack of water or nitrogen at some point, or the unusually warm weather. Unfortunately, the plants were smaller than desired when they began setting fruit and most varieties did not provide adequate shading. At fruit set, the leaves of nearly all the plants developed a chlorotic and mottled appearance. Leaf samples were analyzed for a minor element deficiency and evaluated for virus diseases. The results pointed to the presence of a virus disease rather than a minor element deficiency.

The grower-cooperator began harvesting the first of May and by May 29 had harvested 1600 pounds of bell peppers and 110 pounds of hot peppers from the 1/2 acre plot. Observations were made on May 22, May 30, and June 3, with the results included on the evaluation summary.

RESULTS AND DISCUSSION

Although the size of the plants and quality of the fruit were less than desired, there are several items that were learned from this study. The hot peppers seemed to be more forgiving and better adapted to Yuma growing conditions. The sweet yellow peppers did not have the sunburning problem of the green peppers.

It is important to push the plants with nitrogen, ìespecially early in the season. Water stress must be avoided since it promotes fruit set and maturity, even when plant or fruit size is not adequate. It may be better to go to a double row with staggered plants 16 inches apart to increase shading and reduce sunburn.

Insect control is important in reducing virus infection. In a separate study conducted in the same area, both black and reflective mulches produced greater plant growth than non-mulched plots.

Although this study does not provide an adequate or, in all cases, fair evaluation of the varieties tested, the results would indicate that California Wonder 300, Shamrock, AVX 0101 and P324 should be considered in future evaluations of bell peppers, Cubanelle for an elongated sweet pepper, Gypsy for a yellow elongated sweet pepper, Lipari for an Anaheim pepper, Santa Fe Grande for a yellow wax pepper, and Serrano chili as a chili pepper.

Table 1. Variety evaluations for sweet and hot pepper varieties.

Variety (Sweet Peppers)	Overall Evaluation (a)	Pepper					Plant			Crop
		Size (b)	Length (c)	Lobes	Attachment (d)	Color (e)	Size (f)	Cover (g)	Uniformity (g)	Size (h)
Ace *	4 #	M	M	3-4	V	G	S	P	M	M
Alamo (Clause)	3	L	B	4	V	G	M	M	M	L
Beauty Bell (Known-You Seed)	3	M	M	3-4	P	G	M	M	M	M
Bell Boy (Petoseed)	3	M	B	4	V	G	M	M	M	M
Bell Captain (Petoseed)	3	M	M	3-4	P	G	M	M	G	M
Bell Tower (Sluis & Groot)	3	M	M	3-4	P	G	M	M	G	L
Belle Star (Ferry Morris)	3	M	M	3-4	V	G	M	M	P	M
Blue Star (Known-You Seed)	3	S	E	3-4	V	G	M	M	M	L
Cadice (Sluis & Groot)	3	M	E	3-4	V	G	M	P	M	H
California Wonder 300 (Petoseed)	2	L	B	4	V	G	M	G	M	M
Clovis	3	M	M	3-4	V	G	M	M	M	M
Cuban	3	M	VE	3	P	G-Y	M	M	M	M
Cubanelle (Petoseed)	2	L	VE	3	P	G-Y	T	G	M	H
Desert KRG #3	3	M	M	3-4	V	G	T	M	M	L
Espadon (Sluis & Groot)	3	M	M	3-4	V	G	M	M	M	M
Florida VR2 (Northrup King)	3	M	B	4	U	G	M	M	G	M
Four Corners (Ferry Morris)	3	M	B	4	V	G	M	M	M	H
Gambo	3	M	VB	4	V	G	M	G	G	M
Gedeon	4	S	VE	3	P	G-Y	T	M	M	L
Golden Bell	3	M	E	3-4	V	G	M	M	G	H
Golden Cal Wonder	4	M	B	4	U	G	S	P	M	M
Grande Rio 66 (Harris Moran)	5	S	B	3-4	U	G	S	P	M	L
Gypsy (Petoseed)	2	M	VE	3	P	Y	T	G	M	H
Jupiter (Northrup King)	5	S	M	3-4	V	G	S	M	P	L
KRG #3 (Petoseed)	3	M	B	4	V	G	M	M	G	M
KRG #38	3	M	M	3-4	V	G	T	G	G	M
Ma Belle (Petoseed)	4	S	B	4	V	G	S	M	M	M
Marengo	3	M	M	4	U	G	M	G	G	M
Maor (Isra)	4	M	B	4	V	G	M	G	M	L
Melody	4	M	M	3-4	V	G	M	M	M	M
Mission Bell	4	S	B	4	V	G	S	P	M	M
Resistant Giant #4 (Petoseed)	4	M	B	4	V	G	S	M	F	L
Shamrock	2	L	B	4	P	G	M	G	G	M
Shrina	3	M	B	4	V	G	T	M	G	M
Skipper	3	M	B	4	V	G	M	M	M	L
Yellow Supergolla	5	S	M	3-4	V	G	S	P	M	L
Yolo Wonder (Petoseed)	4	M	M	3-4	V	G	S	M	P	L
1003	3	L	M	3-4	V	G	M	M	G	M
1005	3	M	VE	3	P	G-Y	T	M	G	L
AVX 0101 (Sun Seeds)	2	M	B	4	U	G	T	M	M	H
Hyb. #7118 (Sluis & Groot)	5	L	E	3-4	V	G	M	M	M	L
HXP 2643 (Harris Moran)	4	S	M	3-4	U	G	S	P	M	M
HXP 3647 (Harris Moran)	4	M	M	3-4	U	G	M	P	M	M
NVH 3050	4	M	B	4	U	G	M	P	M	M
NVH 3052 (Northrup King)	4	M	VB	4	V	G	M	M	G	L
NVH 3053 (Northrup King)	3	M	B	4	V	G	M	M	G	L
NVH 3054 (Northrup King)	4	M	B	4	U	G	M	P	M	M
MA 79259 (Royal Sluis)	3	M	B	4	V	G	M	M	M	L
P101 RS	5	M	B	4	U	G	M	M	M	L
P130 (Sluis & Groot)	3	M	M	3-4	V	G	T	G	M	L
P324 (Sluis & Groot)	2	M	B	4	V	G	T	M	G	H
P720	4	M	E	3-4	V	G	S	P	M	L
P1001 (Sluis & Groot)	4	M	B	4	P	G	M	M	M	M
P1718	3	M	E	3-4	P	G	T	G	M	L
P1745 (Sluis & Groot)	3	L	M	3-4	P	G	T	M	M	L

Variety (Hot Peppers)	Overall Evaluation (a)	Pepper Type	Plant			Crop Size (h)
			Size (f)	Cover (g)	Uniform (g)	
Ageo College 6-4	3	Anaheim	M	G	G	H
Anaheim TMR 23 (Petoseed)	3	Anaheim	M	F	M	M
Gold Spike	3	Yellow Wax	M	G	M	M
Jalapeno M	3	Jalapeno	M	G	M	M
Lipari	2	Anaheim	T	G	G	H
P 705	3	Anaheim	T	G	G	L
Santa Fe Grande (Petoseed)	1	Yellow Wax	M	G	G	H
Serrano Chili (Petoseed)	2	Serrano Chili	VT	G	G	H

KEY

(a) 1 = Most desirable, 5 = Undesirable
(b) L = Large, M = Medium, S = Small
(c) B = Blocky, M = Medium, E = Elongated, V = Very
(d) P = Pendant, V = Variable, U = Upright
(e) G = Green, Y = Yellow
(f) T = Tall, M = Medium, S = Short, V = Very
(g) G = Good, M = Moderate, P = Poor
(h) H = Heavy, M = Moderate, L = Light

* Varieties without the seed company name were planted in guard rows and therefore may not have received a regular sized plot.