

Yuma County Broccoli Variety Trials, 1984-1985

Marvin Butler and N. F. Oebker

Broccoli is an increasingly important crop in Yuma County. This year 1,200 acres of broccoli were grown, a substantial increase over the 300 acres grown in 1983.

To assist growers in determining the characteristics of the different varieties under local growing conditions, two variety trials were conducted. Two planting dates and cooperators were chosen to determine the variations in quality under different planting dates and cultural practices.

The first trial, in cooperation with Bruce Church, Inc., included seven varieties and was planted on September 24, 1984. Plots were harvested over four dates between December 31, 1984 and January 11, 1985.

The second trial of ten varieties was planted on October 11, 1984, in cooperation with Pasquinelli Produce Company. A field day for growers and agribusiness people was held January 25, 1985, with an attendance of 30. The plots were harvested January 27, 1985.

The broccoli in both trials was planted in double rows on 40 inch beds. The twenty foot plots were each replicated four times. The plants were thinned to five inches apart in the Bruceences in maturity.

Harvest at Pasquinelli was delayed until after the field day, with all varieties harvested on the same day. Three varieties were not harvested at Pasquinelli because of over-maturity. Due to field harvest operations, first-picking data only is available for each trial.

Several characteristics are considered when evaluating broccoli. It is desirable to have a plant which produces a single large head, dome-shaped for shedding water. Growers like heads with large stalks that add weight and help maintain a compact head. Although various shades of green or even purple cast are acceptable, each head should be uniform in color. Plant uniformity is important in reducing the number of times through the field at harvest.

It is difficult to place a conclusive evaluation on the varieties being tested, since a number of variables are involved. These include planting date, weather conditions, soil type and crop

management. Some varieties, for example, have good quality in a specific time slot, while others appear consistent over a wide variety of conditions. It is possible, however, to identify trends that will benefit the grower in making varietal choices (Tables 2, 3).

Emperor and Commander tend to have uniform plants with large stalks, dome-shaped compact heads and desirable characteristics. Cruiser and Premium Crop had nice heads but were lighter weight due to their more slender stalks. Although Apollo had a large stalk, the plant and color uniformity were more variable with occasional leaves in the head. The heads of Prominence and Green Duke were less compact with branching. Green Valiant did not do as well as expected in our trial. It is thought this was due to a poor seed lot. It did, however, have its characteristically small heads.

When a statistical analysis was made of the data at the Bruce Church trial, there was a significant difference between the head weight of the different varieties (Table 1).

Table 1. Duncan's Multiple Range Test of Head Weight at the Bruce Church Trial

Variety	Mean head weight(lbs.) per 10 feet of row
Emperor	9.45 A*
Commander	8.38 AB
Cruiser	7.40 BC
Prominence	5.95 CD
Premium Crop	5.28 D
Apollo	5.05 D
Green Duke	4.48 D

* Yields followed by the same letter are not statistically different from one another at the 5 percent level.

Table 2. Results of Variety Evaluations of the September 24 Trial

BROCCOLI TRIAL RESULTS

September 24, 1984, Planting
 Marvin Butler, Agricultural Extension Agent, Yuma
 Norm Oebker, Extension Vegetable Specialist, U of A
 Bruce Church Inc., Cooperator
 Field Variety: Premium Crop

Variety	Wgt. (a)	Head Dia. (a)	Stalk Dia. (b)	Head Shape (c)	Plant Uniform. (d)	Mildew Resist. (e)	Beard Size (b)	Beard Uniform. (d)	Head Compact. (f)	Color Uniform. (d)	Cat Eye (g)	First Cut
1. Apollo (Asgrow)	5.1 lbs.	3.8 in.	L	F	V	2.3	M	V	M	V	N	1/4/85
2. Cruiser (Royal Sluis)	7.4	3.7	S	D	E	3.8	M	E	M	E	O	1/4/85
3. Prominence (Takai)	6.0	4.2	M	F	V	2.3	M	U	L	U	O	1/4/85
4. Emperor (NK)	9.5	3.6	M	D	E	2.0	M	E	M	E	N	1/8/85
5. Green Duke (NK)	4.5	4.6	M	V	U	1.8	M	U	L	V	O	12/31/84
6. Commander (NK)	8.4	3.5	L	D	E	2.0	S	E	C	E	N	1/8/85
7. Green Valiant (NK)	-	-	M	D	V	2.8	S	V	M	E	N	1/11/85
8. Premium Crop (Takai)	5.3	3.4	M	D	V	2.3	L	E	M	E	N	1/4/85

(a) first cutting of 10 feet of double row bed
 (b) L = large, M = medium, S = small
 (c) D = dome, V = variable, F = flat
 (d) E = even, V = variable, U = uneven
 (e) 5 = tolerant, 1 = not tolerant
 (f) C = compact, M = moderate, L = loose
 (g) N = no, O = occasional, Y = yes

Table 3. Results of Variety Evaluations of the October 11 Trial

BROCCOLI TRIAL RESULTS

October 11, 1984, Watering
 Marvin Butler, Agricultural Extension Agent, Yuma
 Norm Oebker, Extension Vegetable Specialist, U of A
 Pete Pasquinnelli Produce Co., Cooperator
 Field Variety: Commander

Variety	Wgt.(a)	Head Dia.(a)	Stalk Dia.(b)	Head Shape(c)	Plant Uniform.(d)	Mildew Resist.(e)	Bead Size(b)	Bead Uniform.(d)	Head Compact.(f)	Color Uniform.(d)	Cat Eye(g)	First Cut
1. Apollo (Asgrow)	11.2 lbs.	4.8 in.	L	D	V	-	M	E	M	V	N	1/27/85
2. Cruiser (Royal Sluis)	10.7	4.5	M	D	V	-	M	E	M	E	N	1/27/85
3. Prominence (Taki)	11.9	4.7	M	F	V	-	M	E	L	E	N	1/27/85
4. Emperor (NK)	10.6	4.4	L	D	V	-	M	E	C	V	N	1/27/85
5. Green Duke (NK)	10.2	4.3	L	F	U	-	M	E	L	E	N	1/27/85
6. Commander (NK)	12.7	4.6	L	D	E	--	M	E	C	E	N	1/27/85
7. Green Valiant (NK)	10.5	4.0	L	D	U	-	S	V	L	V	N	1/27/85
8. XPH 5166 (Asgrow)	-	-	L	D	E	-	M	E	L	E	0	1/27/85
9. XPH 5167 (Asgrow)	-	-	L	D	V	-	M	V	L	E	0	1/27/85
10. XPH 5004 (Asgrow)	-	-	L	D	U	-	L	E	M	E	0	1/27/85

(a) first cutting of 10 feet of double row bed
 (b) L = large, M = medium, S = small
 (c) D = dome, V = variable, F = flat
 (d) E = even, V = variable, U = uneven
 (e) 5 = tolerant, 1 = not tolerant
 (f) C = compact, M = moderate, L = loose
 (g) N = no, 0 = occasional, Y = yes