

# Cauliflower Variety Trials, Yuma Valley Agricultural Center 1986

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## INTRODUCTION

Cauliflower is becoming an increasingly important vegetable crop in Yuma; in 1984, the crop was worth more than \$15 million. The acreage increased from 2,000 acres in 1982 to 5,500 acres during the 1985/1986 season. This includes a 24 percent increase in acreage during the previous year. At the same time, there has been a corresponding increase in the consumption of fresh cauliflower nationwide with consumption doubling between 1970 and 1982, and increasing an additional 6 percent since 1982.

Using many varieties through the growing season is necessary to grow a quality product in the desert southwest. This requires a knowledge of a large number of varieties and their performance during different planting dates. To assist growers and agribusiness people, three variety trials were conducted using three planting dates through the season.

## METHODS AND MATERIALS

A total of 75 varieties from 17 seed companies was evaluated in three trials planted at the Yuma Valley Agricultural Center on September 6, October 2 and November 8, 1985. The cauliflower was planted in a single row on the east side of 40-inch raised beds. The plants were thinned to a 14-inch spacing. The 20-foot plots were replicated 3 times using a randomized complete block design. Although transplants were used in previous years, the trials this year were direct-seeded, the method used by most growers in the Yuma area.

The characteristics which were evaluated include stand establishment, uniformity of maturity, head coverage provided by wrapper leaves, head shape and compactness, curd characteristics and color, color uniformity, riciness, fuzziness, scaffold system, field-holding capacity, harvest date, maturity at harvest and an overall rating.

## RESULTS AND DISCUSSION

The weather conditions were unusual during the 1985/1986 winter vegetable season. Cold weather in November and December delayed harvest of the first planting, while extremely warm weather during late December and January caused premature head formation before the plants had developed any size. The third planting was also plagued with unusually warm weather. In addition, the plants were unfortunately exposed to periods of water and nutrient stress, and there were problems with water standing at the end of the field causing poor drainage in some areas.

As a result of these factors, the overall quality of the characteristics evaluated was low; the results cannot be considered characteristic of a particular variety's performance under normal conditions. Nonetheless, the top performers in our early trial were Durato, Suprimax, Snow Crown, SG 121, SG 741, and a very late variety Arapaho. In the mid-season trial Glacier, RS 81207, Gigo, Snow-Pak, Marba, C440, Exp C450, C253 and NS-521 received high ratings, while the high performers in the late trial were NS-521, White Rock, Exp C450, Snow-Pak and White Magic.

Table 1. Variety evaluations for the field test planted September 6, 1985.

Variety	Overall Eval. (a)	Wrapper Leaves (a)	Uniform Maturity (a)	Head Shape (b)	Curd (c)	Color (e)	Color Uniformity (a)	Head Compactness (a)	Field-holding Capacity (a)	Riciness (a)	Fuzziness (a)	Scaffold (a)	Stand Establishment (a)	Harvest Date	Maturity at Harvest (d)
aurato (R.S.)	1	2	3	P	L	1	2	1	2	1	1	1	3.0	1/19	OM
aloma (R.S.)	3	2	3	D	M	3	3	2	3	1	1	2	3.0	1/12	VOM
aralto (R.S.)	4	4	4	D	M	4	4	2	2	1	1	2	4.7	12/31	M
uprimax (R.S.)	1	2	3	F	M	1	2	1	2	2	1	1	4.0	1/19	OM
81207 (R.S.)	3	2	3	P	L	3	4	3,V	2	2,V	2,V	3,V	2.3	1/12	VOM
igo (S.C.)	4	2	2	F	M	4	3	4	4	2	4	4	1.7	1/12	VOM
lanca (S.C.)	4	2	2	F	L	4	3	4	3	3	4	4	1.0	1/12	OM
adcha (S.C.)	5	2	2	F	L	3	3	4	4	4	5	5	3.7	1/12	OM
lcap (S.C.)	4	2	4	D	L	2	1	3	2	1	1	3	3.0	12/31	M
andid Charm (Sakata)	2	2	2	F	M	3	3	2	2	1	4	3	2.7	1/12	VOM
lacier (Sakata)	2	3	3	P	L	2	3	2	2	1	3	2	2.3	1/12	VOM
ajestic (Sakata)	4	5	3	D	L	3	3	4	4	3	3	2	2.3	12/8	M
owball Y Imp. (Quali-Sel)	4	1	2	F	L	2	3	4	3	3	1	4	3.7	1/24	M
irlione (Triagro)	4	3	3	D	L	3	3	4	3	1	1	4	2.3	12/27	M
llda (Triagro)	3	2	3	D	M	2	2	3,V	2	1	1	3	1.0	12/27	M
ow Crown (Takii)	1	4	3	D	M	2	2	1	1	1	2	1	1.0	12/27	M
ow Prince (Takii)	2	1	1	D	S	2	2	2	2	2	1	2	2.0	1/24	M
90010 (Castle)	4	2	2	P	L	3	4	2	3	3	3	2	2.3	1/12	OM
90024 (Castle)	4	2	2	D	L	3	3	3	4	4	4	3	2.7	1/19	VOM
X 5001 (Sunseed)	3	2	2	F	M	1	2	3	4	4	1	3	2.3	1/17	OM
X 5003 (Sunseed)	2	1	4	P	L	2	2	1	2	1	1	1	4.0	1/19	OM
X 5007 (Sunseed)	3	2	2	F	M	2	3	2	2	1	1	3	2.7	-	OM
121 (S.G.)*	1	2	2	D	L	2	2	1	1	1	1	1	2.0	12/31	M
119 (S.G.)*	3	2	2	D	L	2	3	3	1	1	1	3	1.5	12/27	M
741 (S.G.)*	1	1	3	D	M	2	2	1	1	2	1	1	3.7	1/17	M
irillon (S.G.)*	3	2	2	V	M	2	2	3,V	2	2	2	3,V	2.3	1/19	M
iket (S.G.)*	5	N.D.	-	-	-	-	-	-	-	-	-	-	4.0	-	-
owball 123 (Moran)	2	2	3	F	M	2	2	1	3	2	1	2	3.7	1/17	VOM
40 (Moran)	3	3	2	D	M	2	3	2	1	1	1	3,V	2.7	12/31	M
narch (Moran)	2	2	2	F	M	2	2	2	3	2	1	2	2.5	1/12	OM
50 (Moran)	3	1	3	F	M	2	2	3	2	1	1	3	3.3	1/17	M
53 (Moran)	3	2	3	F	M	2	3	3	3	2	1	3	3.0	1/17	OM
owball D (Neuman)	3	2	3	V	L	3	3	3,V	2	2	1	3	3.3	-	OM
owball Z (Neuman)	5	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-
-521 (Neuman)	3	3	3	D	L	3	3	2	2	1	3,V	2	2.0	1/12	VOM
ause (Siria)	2	3	2	D	M	2	2	2	3	1	2	2	2.3	1/12	VOM
des (R.S.)*	4	4	3	P	L	5	4	3	3	2	5	2	3.0	1/12	VOM
owcap (R.S.)*	N.D.	-	-	-	-	-	-	-	-	-	-	-	5.0	-	-
rnon (R.S.)*	3	1	3	D	M	2	3	2	4	3	2	3	3.0	1/17	OM
asta (R.S.)*	3	2	3	F	M	3	3	3	2	2	2	3	3.0	1/12	VOM
84378 (R.S.)*	N.D.	-	-	-	-	-	-	-	-	-	-	-	5.0	-	-
tba (S.C.)*	3	2	3	P	L	2	3	3	3	1	2	3	4.0	1/17	M
pop (S.C.)*	2	2	2	D	L	2	3	1	1	1	1	1	4.0	1/24	M
reef (S.C.)*	2	2	2	D	L	2	2	1	2	1	1	2	3.0	1/24	M
444 (S.C.)*	N.D.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
rly Glacier (Sakata)*	N.D.	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-
L-C30 (Ag. Serv.)*	3	3	4	D	M	3	3	3,V	3	2	3	3,V	3.0	1/19	VOM
L-C40 (Ag. Serv.)*	5	N.D.	-	-	-	-	-	-	-	-	-	-	2.0	-	-
apaho (Moran)*	1	1	3	D	M	1	1	1	1	1	2	1	5.0	2/3	M
ite Corona (N/K)*	5	5	4	F	L	4	3	5	5	5	4	5	3.0	12/8	OM
ite Contessa (N/K)*	5	4	4	F	L	5	4	5	5	4	5	5	4.0	12/8	M
ite Dove (N/K)*	2	1	2	D	L	2	1	2	2	2	2	1	3.0	2/3	M
owflower (Asgrow)	3	4	3	D	M	4	3	2	2	1	1	2	3.0	12/31	M
p 84-8 (Sakata)	2	3	3	D	M	2	2	1	2	1	3	1	2.5	12/31	M
bal (S.C.)	3	3	2	F	M	3	3	3	3	2	1	3	2.7	1/12	OM

t replicated  
 = most desirable, 5 = undesirable, V = variable, N.D. = no data collected  
 = dome, F = flat dome, P = peaked, V = variable  
 = lumpy, M = moderate, S = smooth  
 = mature, U = under, O = over, V = very

Table 2. Variety evaluations for the field test planted October 2, 1985.

variety	Overall Eval. (a)	Wrapper Leaves (a)	Uniform Maturity (a)	Head Shape (b)	Curd (c)	Color (a)	Color Uniformity (a)	Head Compactness (a)	Field-holding Capacity (a)	Riciness (a)	Fuzziness (a)	Scaffold (a)	Stand Establishment (a)	Harvest Date
. Snowflower (Asgrow)	4	4	2	F	M	3	3	3	4	4	1	3	1.5	1/26
. Olympus (Asgrow)	4	3	3	F	M	3	3	4	4	5	1	4	1.3	1/28
. Snowstar (Asgrow)	N.D.	-	-	-	-	-	-	-	-	-	-	-	2.0	Very Late
. Matra (R.S.)	3	3	3	F	M	3	3	3	3	3	1	3	1.9	1/29
. Durato (R.S.)	3	4	2	F	M	3	2	3	4	3	1	3	1.3	1/28
. Paloma (R.S.)	4	5	3	F	M	4	3	4	4	2	1	4	1.5	1/26
. Suprimax (R.S.)	5	5	3	F	M	3	2	4	4	4	1	4	1.5	1/26
. RS 81207 (R.S.)	2	2	3	D	M	2	2	2	2	1	1	2	1.3	1/28
. RS 84378 (R.S.)	5	4	3	D	M	4	2	3	4	2	4	3	2.9	1/26
. Gigo (S.C.)	2	1	2	D	L	2	2	3	1	2	1	3	1.5	1/28
. Flanca (S.C.)	5	4	2	D	L	4,P	3	4	4	3	4	5	1.7	1/29
. Elby (S.C.)	3	3	4	D	M	3	3	3	2	2	1	3	1.3	1/26
. Elcap (S.C.)	4	3	4	F	M	3	3	4	3	1	1	4	1.9	1/26
. Nedcha (S.C.)	4	2	2	P	L	3	3	4	4	3	2	4	1.5	1/29
. Serva (S.C.)	3	3	3	F	M	3	3	3	3	2	1	3	1.5	1/26
. Sabal (S.C.)	4	3	3	D	M	4	3	3	3	2	2	3	3.7	1/28
. Snow-Pak (Peto)	2	3	2	D	S	2	2	2	2	2	2	2	2.3	2/3
. Glacier (Sakata)	1	3	3	D	M	1	1	1	2	1	1	2	2.5	1/26
. Majestic (Sakata)	5	5	2	F	M	4	2	5	5	4	4	5	1.3	1/26
. Exp 84-8 (Sakata)	4	5	2	D	S	5,P	2	2	4	3	1	1	1.3	1/26
. Snowball Y Imp. (Quali-sel)	5	2	2	F	M	3	3	5	5	5	1	5	1.9	1/26
. Earliane (Triagro)	3	3	4	F	L	3	3	3	3	2	1	3	1.3	1/28
. Kilda (Triagro)	3	3	4	F	L	3	2	3	2	2	1	3	1.7	1/28
. Marba (Triagro)	2	3	4	F	L	3	3	3	2	1	1	3	1.9	1/28
. Wilco (Triagro)	3	2	5	D	L	3	4	3	3	3	1	3	2.9	1/28
. Snow Dome (Takii)	3	4	2	D	M	3	3	2	3	2	1	2	1.7	1/28
. Snow Prince (Takii)	4	3	3	F	L	3	2	4	4	3	1	5	2.9	2/10
. 5001 (Sunseed)	5	4	2	F	M	4	3	4	5	5	1	4	1.3	1/29
. 5003 (Sunseed)	4	2	2	F	M	3	2	4	3	3	1	4	2.1	1/29
. 5007 (Sunseed)	3	4	2	D	M	3	2	2	2	2	1	3	2.9	1/28
. Igloo (Sunseed)	4	3	2	F	M	3	3	4	4	4	1	4	1.7	1/29
. SG 111 (S.G.)	5	3	3	D	M	5,P	3	2	5	2	1	2	1.5	1/28
. Carillon (S.G.)	4	4	2	F	M	4	3	4	4	4	1	4	1.1	1/28
. White Fox (S.G.)	4	4	3	F	M	4	3	3	3	2	1	3	2.1	1/28
. White Rock (S.G.)	3	3	3	F	M	3,P	2	3	3	2	1	4	1.7	2/3
. Raket (S.G.)	5	3	3	F	M	4	3	5	4	1	1	5	2.0	1/28
. SG 741 (S.G.)	5	4	3	F	M	5,P	3	2	5	5	1	2	1.5	1/26
. C440 (Moran)	2	4	3	F	M	2	2	2	3	2	1	2	1.9	1/26
. Monarch (Moran)	5	4	4	F	M	3	3	4	5	5	1	4	1.5	1/28
. Exp C450 (Moran)	2	3	4	F	M	2	2	2	3	2	1	2	1.3	1/29
. C253 (Moran)	2	3	2	F	M	3	2	2	3	2	1	2	1.7	1/28
. Snowball 123 (Moran)	4	4	2	F	M	5,P	3	3	5	5	1	3	1.5	1/26
. NS-521 (Neuman)	2	3	3	D	M	3	3	2	3	1	1	2	1.5	1/28
. Snowball D (Neuman)	5	3	3	F	M	3	3	5	4	2	1	5	1.5	1/29
. Snowball Z (Neuman)	3	2	3	D	M	3,P	3	1	4	3	2	1	1.7	1/26
. Clause (Siria)	4	3	3	F	M	3,P	2	3	2	2	1	3	1.5	1/28
. hy 90010 (Castle)	3	3	3	P	L	3,P	3	2	2	1	1	2	1.3	1/29
. hy 90024 (Castle)	3	2	4	D	L	3	3	3	3	3	3	3	1.9	1/28
. Vernon (R.S.)*	3	2	3	D	M	2	2	3	3	3	1	2	2.0	2/10
. Shasta (R.S.)*	4	4	3	F	M	5,P	3	2	2	3	1	2	1.5	1/26
. Latba (S.C.)*	N.D.	-	-	-	-	-	-	-	-	-	-	-	4.5	-
. Hipop (S.C.)*	4	2	3	F,I	L	3	2	2	3	1	1	2	1.5	2/3
. Nareef (S.C.)*	3	2	3	F	L	3	2	3	3	1	1	3	2.0	2/3
. HS 444 (S.C.)*	N.D.	-	-	-	-	-	-	-	-	-	-	-	5.0	-
. 5GL-C3U (Agric. Serv.)*	3	4	3	D	M	3,P	3	2	4	3	1	2	1.5	1/26
. 5GL-C40 (Agric. Serv.)*	5	3	3	F	L	4	2	5	4	3	2	5	1.5	1/29

not replicated

1 = most desirable, 5 = undesirable, P = pink, N.D. = no data collected

D = dome, F = flat dome, P = peaked, I = irregular shape

L = lump, M = moderate, S = smooth

Table 3. Variety evaluations for the field test planted November 8, 1985.

variety	Overall Eval (a)	Wrapper leaves (a)	Uniform Maturity (a)	Head Shape (b)	Curd (c)	Color (a)	Uniform Color (a)	Head Compactness (a)	Field-holding Capacity (a)	Riciness (a)	Fuzziness (a)	Butt size (a)	Scaffold (a)	Harvest Date
RS 81207 (Royal Sluis)	3	3	3	P	L	3	3	3	2	2	1	3	3	3/6
Elcap (Southern Cross)	4	3	4	F	M	3	3	4	4	3	1	4	5	3/6
Earlione (Triagro)	4	4	3	D	M	3	3	4	3	3	1	4	4	2/27
Kilda (Triagro)	4	3	3	D	M	4	3	4	3	1	1	3	4	2/27
Snow Prince (Takii)	4	3	3	F	M	4,P	4	3	4	3	2	1	3	3/24
hy 90010 (Castle)	3	4	2	D	L	4	4	2	4	2	1	3	2	3/6
hy 90024 (Castle)	4	3	4	P	M	4,P	3	3	4	3	1	3	3	3/6
5003 (Sunseed)	4	4	2	F	M	4	3	4	4	4	3	3	4	2/27
5001 (Sunseed)	5	5	3	F	M	5	4	4	4	4	1	4	4	3/6
5007 (Sunseed)	3	4	2	F	S	4	3	3	3	3	1	3	3	3/6
Carillon (Sluis & Groot)	5	4	4	D	M	5	4	5	5	4	1	4	5	3/6
Raket (Sluis & Groot)	4	4	4	F	S	4	4	4	3	3	1	4	4	3/6
C440 (Moran)	3	4	2	D	M	4	3	3	3	2	1	3	3	2/27
Exp C450 (Moran)	2	4	3	F	S	2	2	3	3	2	1	3	3	3/6
C253 (Moran)	4	4	2	F	S	4	3	4	3	3	1	3	4	3/6
NS-521 (Neuman)	1	2	2	P	M	2	2	1	2	1	1	1	1	3/6
Clause (Siria)	3	4	2	D	M	5,P	5	1	3	2	1	3	1	3/6
Vernon (Royal Sluis)*	3	4	3	P	M	4	4	3	3	3	1	3	3	3/24
Shasta (Royal Sluis)*	5	5	4	F	M	5,P	3	4	4	3	1	4	4	3/6
RS 84378 (Royal Sluis)	4	4	3	D	M	3	3	3	3	2	5	3	3	2/27
Latba (Southern Cross)*	3	3	2	D	M	4	4	3	3	3	3	4	3	3/6
Hipop (Southern Cross)*	5	3	4	F,I	L	4	3	3	3	1	1	1	3	3/11
Nareef (Southern Cross)*	5	3	4	F	L	4,P	4	4	4	2	4	1	3	3/11
HS 444 (Southern Cross)*	4	3	3	F	L	4,P	3	5	4	4	3	4	5	3/6
5GL-C30 (Agric. Serv.)*	3	4	4	D	M	3	3	3	3	1	1	3	3	2/27
5GL-C40 (Agric. Serv.)*	4	3	3	F	M	3,P	2	3	3	1	1	1	3	3/11
Snowstar (Asgrow)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-
Serva (Southern Cross)	4	4	3	F	M	4,P	4	3	4	2	1	4	4	3/6
Snow-Pak (Petoseed)	2	3	3	F	S	4	4	1	1	1	2	2	1	3/6
Marba (Triagro)	3	4	2	F	M	4	3	3	3	2	1	3	3	3/6
Wilco (Triagro)	3	3	4	P	L	4	3	3	3	3	1	3	3	3/6
Snow Dome (Takii)	3	4	2	F	M	4	3	3	3	2	1	2	4	3/6
Igloo (Sunseed)	3	4	2	F	M	3	3	3	3	2	1	3	3	2/27
White Rock (Sluis & Groot)	1	3	2	D	M	2	2	2	2	1	1	1	2	3/11
Paleface (Yates)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-
Toga (Southern Cross)	5	3	4	F,I	M	4,P	3	3	4	3	5	1	3	3/24
Baco (Southern Cross)	5	3	4	F	M	4,P	3	3	4	2	5	1	3	3/24
White Magic (H & H)	2	3	2	F	M	4	4	1	3	2	3	1	1	3/6
Arapaho (Moran)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-
PSR 10384 (Petoseed)	5	3	4	D	M	5	4	3	5	5	5	3	3	2/27

not replicated

1 = most desirable, 5 = undesirable, P = pink, N.D. = no data collected  
 D = dome, F = flat dome, P = peaked, I = irregular shape  
 L = Lumpy, M = Moderate, S = Smooth