

CABBAGE VARIETY TRIALS 1994/1995

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Introduction

In an effort to assist seed companies and growers in evaluating new and numbered varieties and comparisons of commercial varieties, the University of Arizona has initiated cabbage variety trials. Every effort is made to duplicate the typical commercial practices used in Yuma county including planting throughout the standard planting windows. This practice allows data to be collected during the various weather conditions experienced from early fall through spring.

Desirable characteristics for cabbage include a round shaped, dense head, upright habit, tight wrapper leaves, vivid color, a moderate length core, disease resistance and sound field holding characteristics.

Methods and Materials

Twenty-four entries from numerous seed producers were evaluated during the 1994/1995 season. Plantings were made at the Yuma Valley Agricultural Center and irrigated on the following dates: October 16, and November 11, 1994. All of the cabbage was direct seeded in double rows on north-south oriented 42" beds using an Earthway push planter. A minimum of 60 foot rows was planted in each plot. All were thinned to approximately 10" to 14" at the appropriate time. Standard cultural and IPM practices were utilized throughout the growing season by the Ag Center.

Since many of the varieties vary in rates of development, the trials were evaluated over a period of time as they matured. Plant characteristics were evaluated continuously throughout the season with head and field holding characteristics being evaluated as near to maturity as possible. Plant characteristics evaluated included plant height, stand uniformity, uniformity of maturity, plant habit, and field holding characteristics. Head characteristics included shape, color, density, weight, diameter, and incidence of disease.

Many of the characteristics were rated using a scale of 1 to 5, with 5 being the most desirable and 1 being least desirable. For those characteristics rated by other means, there is a key provided for explanation. Each variety was given an overall rating and additional comments were provided as well. Varieties with an overall rating of 3 to 5 should perform well for the given planting date and conditions under which they were grown. An overall rating of 3 may be commercially acceptable, however the variety may experience some specific problem areas when grown under similar conditions to those of this trial. Varieties rated at 1 to 2 should be considered unacceptable for commercial use under similar conditions to those of these trials.

Results and Discussion

Table 1 is a summary of the overall evaluations for each variety in the three plantings. Detailed evaluations for each of the three trials are provided in tables 2 through 4. Addendum 1 provides the AZMET (Arizona Meteorological Network) monthly summary data for the Yuma Valley for the entire growing period.

Weather conditions for the October planting were much cool and somewhat damp. Slightly more than 2 and one-half inches of precipitation were recorded during this slot which may account for the incidence of downy mildew in some of the varieties. Temperatures cooled from high eighties in the month of October to the middle sixties for the months of December and January.

In the October trial of green cabbage, there were several varieties that produced favorably. Gideon, Megathon, and PSX 286 were all rated at 4. Gideon showed excellent density, shape, color and disease resistance. Megathon expressed exceptional plant size, density and shape while PSX 286 had the best overall uniformity and also showed excellent shape, density and disease resistance. Morris, Rocket and Grenadier were rated at 3.5. Morris was somewhat lacking in size and uniformity of maturity but, showed excellent shape and density. Rocket also showed excellent shape and density but, expressed poorer color and an elongated core at maturity. Grenadier had good uniformity of maturity and shape but, was lacking in plant size and color. Discovery, Farao and Headstart were rated at 3. Discovery was lacking in shape, color and had an elongated core at maturity. Farao was lacking in plant size, was spreading in habit and also had an elongated core at maturity. Headstart was slightly lacking in size and expressed an elongated core at maturity.

The red trial in October had only three entries. Primero was rated at 4.5 based on uniformity of maturity, habit, color, density and disease resistance. Crimson was rated at 3.5 based on habit and density. Sombrero was rated at 3 and expressed the poorest shape and density.

Abnormally warm temperatures in late February and early March were experienced in the November planting and may be associated with some late quality problems throughout the growing area.

In the November planting only Megathon received a rating of 4. This variety expressed superior overall uniformity and density. Morris and Discovery were rated at 3.5. Morris had excellent density, habit and shape and Discovery displayed superior uniformity of maturity, shape and density. Gideon, Charmont, Headstart, Rocket and Farao were all rated at 3. Gideon was lacking in uniformity of maturity but, showed excellent shape, and density. Charmont also displayed excellent shape and density but, was lacking in uniformity of maturity. Headstart showed good shape and color but, was also lacking in uniformity of maturity and habit. Rocket showed excellent density and shape but, expressed elongated cores at maturity. Farao showed excellent density but, was also slightly lacking in uniformity of maturity. Grenadier was rated at 2.5 based on the poorest uniformity of stand in the planting slot.

The November red trial also had only three entries. Sombrero was rated at 3.5 based on uniformity of maturity, shape and density. Primero and Crimson were rated at 3. Primero showed good uniformity of maturity, shape and density but, was lacking in plant size. Crimson showed good shape, color and density but, was lacking in uniformity of maturity.

** It should be noted that many of the varieties trialed are not necessarily adapted to the planting window in which they are trialed. Occasionally favorable or undesirable results may occur in such instances. In any case, these results are generally associated with environmental conditions rather than varietal characteristics.

Table 1. Summary of Overall Evaluations for the Two Cabbage Planting Dates

<u>Variety</u>	<u>Wet Dates</u>	
	<u>October 16</u>	<u>November 11</u>
Green		
Gideon - Bejo	4	3
Morris - Bejo	3.5	3.5
Discovery - Petoseed	3.5	3
Rocket - Petoseed	3.5	3
Grenadier	3.5	2.5
Megathon - Bejo	4	4
Farao - Bejo	3	3
Headstart - Asgrow	3	
PSX 286 - Petoseed	4	
Charmont - Sakata		3
Red		
Primero - Bejo	4.5	3
Sombrero - Bejo	3	3.5
Crimson - Rogers	3.5	3

Table 2 Cabbage Variety Trial Results Mark Wilcox, U of A Extension Agent, Yuma County

Yuma Valley Ag Center Plant Date: 10-14-94 Wet Date: 10-16-94	Variety	Uniformity of Maturity (a)	Maturity at Harvest (i)	Plant Size (b)	Plant Frame (c)	Wrapper Leaves (d)	Head Shape (e)	Head Diameter (Inches)	Head Weight (lbs)	Head Color - Green (f)	Head Color - Red (g)	Taste (h)	Core Length (i)	Density (k)	Mildew (j)	Overall Rating (a)	Evaluation Date	KEY
	GREEN																	g) 5 = dark red, 1 = lt. red h) 5 = sweet, M = mild, B = bitter i) 5 = short, 1 = long j) 5 = none, 1 = severe k) 5 = tight/dense, 1 = loose/thick l) M = mature, O = over, U = under, V = very
	Gideon - Bejo	4	M	2	3.5	3.5	5	5.5	4.2	5		S-M	4	5	5	4	2-28 3-7	Somewhat variable in overall uniformity - slow in maturing.
	Morris - Bejo	3	M	2	3.5	3.5	4.5	6.0	3.6	5		S	3	5	5	3.5	2-20 2-28	Somewhat lacking in overall uniformity - good field holding.
	Discovery - Petoseed	4	M	3	3	3	2	7.0	3.8	3		M-S	2	5	4	3	2-9 2-18	Low and spreading in habit - very uniform at maturity.
	Rocket - Petoseed	3	M	3	3.5	3.5	4	7.0	4.9	3		M-S	1.5	5	4	3.5	2-9 2-18	Elongated butt - low habit somewhat spreading with good wrappers - slightly sweet.
	Grenadier	4	M	2	3	3.5	4	6.0	3.5	3.5		S	3	5	5	3.5	2-9 2-18	Very good uniformity of maturity and stand - nice round head.
	Megathon - Bejo	4	M	5	4	4	4.5	7.5	4.2	3		M	4	4.5	4	4	2-9 2-18	Nice round head - large upright frame with strong wrappers.
	Farao - Bejo	3.5	M	1.5	2	2.5	3	6.5	3.9	3		S-M	2	4	5	3	2-9 2-18	Very spreading in habit - low with weak wrappers - very sweet.
	Headstart - Asgrow	3	M	2.5	4	3.5	3.5	7.0	5.2	3.5		S	2	4.5	5	3	2-18 2-28	Poor uniformity of stand - slightly spreading in habit.
	PSX-286 - Petoseed	4.5	U-M	2	3.5	4	4.5	6.0	4.3	5		S-M	3	5	5	4	2-28 3-7	Excellent overall uniformity - slow in maturing - good field holding.
	RED																	
	Primero - Bejo	4.5	M	3	4	4	4	6.5	3.8		4	S-M	3	5	5	4.5	2-9 2-18	Excellent stand and uniformity overall - good habit, head shape and flavor.
	Sombrero - Bejo	3	M	3.5	3.5	3.5	3	7.0	3.7		3	M	2	3	5	3	2-18 2-28	Poor stand uniformity and uniformity of maturity.
	Crimson - Rogers	3	M	3	4	4	3.5	6.0	3.4		3	M	2	4.5	4	3.5	2-9 2-18	Somewhat lacking in uniformity of maturity - elongated core and low but upright in habit.

Table 3

Cabbage Variety Trial Results
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Variety	Uniformity of Maturity (a)	Maturity at Harvest (i)	Plant Size (b)	Plant Frame (c)	Wrapper Leaves (d)	Head Shape (e)	Head Diameter (Inches)	Head Weight (lbs.)	Head Color - Green (f)	Head Color - Red (g)	Taste (h)	Core Length (l)	Density (k)	Mildew (j)	Overall Rating (a)	Evaluation Date	KEY
GREEN																	g) 5 = dark red, 1 = lt. red h) 5 = sweet, M = mild, B = bitter i) 5 = short, 1 = long j) 5 = none, 1 = severe k) 5 = tight/dense, 1 = loose/thick l) M = mature, O = over, U = under, V = very
Gideon - Bejo	2.5	M-O	3	2	4	4.5	6.0	3.5	3		M	3	4.5	4	3	3-7	Some what variable in stand and maturity - good dense round head.
Morris - Bejo	3.5	M-O	4.5	4	4	4.5	7.0	3.95	3		M-B	4	4	4	3.5	3-7	Large plant frame with strong wrappers - large round heads.
Discovery - Petoseed	4	M	3	3	3.5	4.5	6.0	3.8	3		S-M	4	5	4	3.5	3-7	Somewhat lacking in uniformity of stand with good uniformity of maturity.
Charmont - Sakata	3	M-O	3.5	3.5	3.5	4.5	6.0	3.45	3		S	3.5	4.5	4	3	3-7	Lacking in stand uniformity and uniformity of maturity - some early bolting.
Headstart - Asgrow	2.5	M	3.5	3	3	4	6.5	3.8	3		M	3	4	4	3	3-7	Lacking in overall uniformity - slightly spreading in habit.
Rocket - Petoseed	3.5	M	3	3.5	3.5	4.5	6.5	3.6	3		S-M	2.5	4.5	4	3	3-7	Lacking in uniformity of stand but good uniformity of maturity.
Grenadier	4	M	3	4	4	4.5	6.25	4.35	3		S	3	5	4	2.5	3-7	Poor uniformity of stand - nice round heads - good habit and density.
Megathon - Bejo	4	M	3	4	4	4.5	6.5	3.85	3		M	3	5	4	4	3-7	Excellent overall uniformity - good vigor and habit - good density.
Farao - Bejo	3	M	4	3.5	3.5	3.5	5.75	3.8	3		M	3	4.5	4	3	3-7	Lacking in uniformity of maturity and head shape - holding well and getting very large.
RED																	
Primero - Bejo	3.5	M	2	3	4	4	5.0	3.0		4	M	3.5	5	3.5	3	3-16 3-24	High incidence of late downy - some what lacking in uniformity of stand.
Sombrero - Bejo	4	M	3.5	4	4	4.5	5.5	2.8		4	M	3	4.5	4	3.5	3-16 3-24	Excellent overall uniformity - good frame and habit - good late vigor.
Crimson - Rogers	3	M	3	3	4	4	4.6	1.6		4	M	3	4	4	3	3-16 3-24	Late in maturity - good stand uniformity and late vigor.