

# CRISPHEAD LETTUCE VARIETY TRIALS 1995/1996

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## Introduction

Crisphead lettuce is the single most important economic crop grown in Yuma County. Packers and shippers reported that approximately 50,000 acres of crisphead lettuce were harvested in the 1995/1996 season with estimated gross revenues of approximately \$144,270,000.

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 begun conducting annual crisphead lettuce 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 crisphead lettuce include uniformity of stand and maturity, deep green color, sturdy wrapper leaves, good overall vigor, a small to medium sized butt, dense heads, good field holding capabilities and resistance to disease.

## Methods and Materials

Twenty-eight entries from numerous seed producers were evaluated during the 1995/1996 season. Plantings were made in commercial fields in the Yuma and Gila Valleys on the following dates: September 14, October 13 and November 22, 1995. All of the lettuce was direct seeded in double rows on north-south oriented 40" beds using an Earthway push planter. A minimum of 100 foot rows was planted in each plot. All were thinned by a commercial crew to approximately 10" at the appropriate time. Standard cultural and IPM practices were utilized throughout the growing season. For evaluation purposes, a minimum of ten heads were harvested, trimmed and weighed as Arizona naked. Color was rated based on values read from a Minolta chlorophyll meter then transformed to the standard one to five evaluation rating.

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 stand uniformity, uniformity of maturity, leaf texture, plant frame, vigor and field holding characteristics. Head characteristics included size (diameter), weight, color, butt characteristics, 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 trials are provided in tables 2, 3 and 4. Addendum 1 provides the AZMET (Arizona Meteorological Network) monthly summary data (Gila and Yuma Valleys) for the entire growing period.

For the September planting, environmental conditions throughout the growing period were very warm for the months of September and October with daytime temperatures ranging from the 113 degrees F to 92 degrees with the average high recorded at 104 degrees F and the average low being 75 degrees. Only .06" precipitation was recorded during this slot so predominantly dry conditions existed throughout.

The top entry in this trial was Marksman rated at 4.25 based on overall uniformity, size and texture. The next group consisted of Fallgreen and Diplomat being rated at 4 with Oasis and Tres Equis coming in just behind at 3.75. Empire, Empire Select and Quechan were all rated at 3.5.

Weather conditions for the October planting were also unseasonably warm throughout the period. No precipitation was recorded during this slot and temperatures ranged from the middle 90's to low 100's the first three weeks of the month to the low 80's the last week of November.

Desert Storm rated the highest in this planting period at 4.25 based on overall uniformity, size and uniformity. Legacy, El Toro, Moran Gold, Cal K-60, Coach Supreme and Van Mor all following at 4. Yuma was rated next at 3.75 with Winterhaven Select, Sonora, Mohave, and Mount Signal all following at 3.5.

Predominantly dry and cooler conditions were recorded throughout the growing period for the November planting which produced strong overall results. Though slightly later than the other entries, Van Mor was rated highest at 4.5 based on overall color, uniformity, and appearance. Winterhaven Select, Sonora and Desert Storm were rated at 4.25 followed by El Toro at 4. Coach Supreme was rated at 3.75 followed by Legacy at 3.5.

\*\* 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 Three Crisphead Lettuce Planting Dates**

<u>Variety</u>	<u>Wet Dates</u>		
	<u>September 16</u>	<u>October 13</u>	<u>November 24</u>
Empire Select - Shamrock	3.5		
Quechan - Shamrock	3.5		
Empire - Harris Moran	3.5		
Oasis - Central Valley Seed	3.75		
Tres Equis - Synergene	3.75		
Fallgreen - Ferry Morse	4.0		
Marksman - Peto Seed	4.25		
Diplomat - Peto Seed	4.0		
Legacy - American Takii		4.0	3.5
Winterhaven Select - Harris Moran		3.5	
Desert Storm - Harris Moran		4.25	4.25
Sonora - Harris Moran		3.5	4.25
El Toro - Harris Moran		4.0	4.0
Mohave - Harris Moran		3.5	
Moran Gold - Harris Moran		4.0	
Cal K 60 - Harris Moran		4.0	
Mount Signal - Orsetti		3.5	
Coach Supreme - Pybas		4.0	3.75
Yuma - Harris Moran		3.75	
Van Mor - Harris Moran		4.0	4.5
Winterhaven Select - Shamrock			4.25
Westland - Orsetti			4.5



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Table 3

Variety	Overall Evaluation (a)	Maturity (b)	Uniformity (a)	Color (c)	Leaf Texture (d)	Size (Diameter Inches)	Weight (lbs. oz.)	Plant Frame (a)	Vigor (a)	Butt Appearance (e)	Butt Size (f)	Field Holding (a)	Incidence of Disease (a)	Evaluation Date	KEY	Comments:
Plant date: 10-12-95 Wet date: 10-13-95															a) 5 = most desirable, 1 = least desirable b) M = mature O = over U = under c) 5 = dark 4 = bright 3 = dull 2 = light 1 = yellowish d) 5 = heavy, 1 = light e) 5 = smooth & round 4 = smooth & flat 3 = ribby 2 = sheepsnoosed 1 = concave	
Legacy - American Takii	4	M	4	4	4	6.5	1.6	3.5	4	4.5	4	4.5	5	12-14 12-22		Somewhat small frame but strong wrappers & excellent texture.
Winterhaven Select - Shamrock Seed	3.5	M	3	3.5	4	6.5	1.4	4	4	4	4	4	3.5	12-14 12-22		Heads somewhat loose & light for diameter. Lacking in uniformity of maturity. Expressing some big vein.
Desert Storm - Harris Moran	4.25	M	4.5	4	4	7.0	1.75	4	4	4	4	4.5	5	12-14 12-22		Excellent overall uniformity, size & appearance. Very nice butt appearance & size. Good field holding.
Somora - Harris Moran	3.5	M	3	3.5	3	6.0	1.5	4	3.5	4	4	4	3.5	12-14 12-22		Lacking in uniformity of maturity & expressing big vein at maturity.
Ei Toro - Harris Moran	4	M	3.5	4	4	5.5	1.6	4	4	4	4	4	5	12-14 12-22		Some variability of uniformity. Nice compact head with good overall appearance & field holding.
Mohave - Harris Moran	3.5	M	3	4	4	7.0	1.25	4	3.5	3	4	4	5	12-14 12-22		Lacking in compactness/weight, but expressing good leaf characteristics & strong frame.
Moran Gold - Harris Moran	4	M	3.5	4	4	5.5	1.5	4	4	4	4	4	5	12-14 12-22		Head diameter somewhat small but with excellent density. Good late vigor & field holding.
Cal K-60 - Harris Moran	4	M	4	4	4	6.5	1.65	4	4	4.5	4	4	5	12-14 12-22		Good overall plant characteristics & excellent head formation & density.
Mount Signal - Orsetti Seed	3.5	M	3	4	3.5	7.0	1.44	4.5	3.5	4.5	4	4	5	12-22 12-30		Rather light for the diameter. Lacking in uniformity of maturity of maturity. Good field holding characteristics.
Coach Supreme - Pybas	4	M	4.5	4	4	6.5	1.7	4	4	4.5	4	4	4	12-22 12-30		Very nice compact head with strong frame. Excellent butt size & appearance. Expressing big vein late.
Yuma - Harris Moran	3.75	M	3	4	3.5	7.0	1.35	4.5	3.5	4	4	4	5	12-22 12-30		Lacking in compactness & uniformity of maturity. Excellent plant frame & wrappers but late maturing in this slot.
Van Mor - Harris Moran	4	M	3.5	4	4	7.0	1.5	4	4	4	4	4	5	12-22 12-30		Excellent texture & frame. Nice butt appearance & size. Good field holding characteristics.

