CRISPHEAD LETTUCE VARIETY TRIALS 1994/1995

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Introduction

Crisphead lettuce is the single most important economic crop grown in Yuma County. Packers and shippers reported that approximately 47,500 acres of crisphead lettuce were harvested in the 1993/1994 season with estimated gross revenues of approximately $188,100,000.

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

Twelve entries from numerous seed producers were evaluated during the 1994/1995 season. Plantings were made at the Yuma Valley Agricultural Center (YVAC) and irrigated on the following dates: September 14, and November 15, 1994. 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.

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 table 2. Addendum 1 provides the AZMET (Arizona Meteorological Network) monthly summary data (Yuma Valley) 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 low hundreds to the high eighties until early November. Only .58" precipitation was recorded during this slot so predominantly warm dry conditions existed throughout. The numbered entry (PSX 10692) from Petoseed was the top performer in this slot rated at 4. It produced the largest, firmness heads and displayed the best vigor in this period. The remaining three entries, Quechan, Rio Verde and Empire Select were all rated a 3 based upon size, texture, vigor and incidence of tipburn.

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. There was incidence of big vein in nearly all of the entries in this slot. However, Legacy and Mt. Signal expressed the least of all entries, respectively. These two entries were rated at 4 based upon their resistance to big vein, vigor, size and resistance to tipburn. The remaining entries were all rated at 3.5. Winterhaven Select showed good resistance to tipburn but not to big vein. RS 0319 grew good solid heads but was somewhat susceptible to big vein and late drop. Coach Supreme showed good uniformity of maturity but was lacking in uniformity of stand and also expressed symptoms of big vein. Westland grew nice dense heads but showed a high incidence of big vein. BOS 9001 and 9002 both showed resistance to tip burn but were lacking in the areas of head density, leaf texture and color, and had less desirable butt appearances.

** 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 Crisphead Lettuce Planting Dates

	Wet Dates	
Variety	September 14	November 15
PSX 10692 - Petoseed	4	
Quechan - Shamrock	3	
Rio Verde - Shamrock	3	
Empire Select - Shamrock	3	
Winterhaven Select - Shamrock		3.5
Legacy - American Takii		4
RS 0319 - Royal Sluis		3.5
Coach Supreme - Pybas		3.5
Mt. Signal - Orsetti		4
Westland - Orsetti		3.5
BOS 9002 - Orsetti		3.5
BOS 9001 - Orsetti		3.5

Table 2

1994-95 Crisphead Lettuce Evaluation Form

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Yuma Valley Ag Center # 1 Plant date: 9-13-94 Wet date: 9-14-94 # 2 Plant date: 11-14-94 Wet date: 11-15-94 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 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 = sheepnosed 1 = concave Comments:
#1															
PSX-10692 - Marksman	4	M	4	4	4	7	2.25	3.5	3.5	4	3	4	5	11-28 12-9	Good early vigor - strong wrappers.
Quechan - Shamrock	3	M	3	3.5	3	6	1.54	3	3	5	2	3	4	11-28 12-9	Moderate early vigor - some tip burn & incidence of downy mildew late.
Rio Verde - Shamrock	3	M	3	4	3	5	1.38	3	3	4	2	3	4	11-28 12-9	Small firm heads - some tip burn & downy mildew late.
Empire Select - Shamrock	3	M	2	3.5	3	6	1.28	3	3	4	2	3	4	11-28 12-9	Small heads - signs of drop late.
#2															
Winterhaven Select - Shamrock	3.5	M	4	3.5	3.5	5.5	1.62	3.5	3.5	4	4	4	5	3-6 3-11	Nice firm head with good late vigor and butt appearance - no incidence of tip burn - some big vein.
Legacy - American Takii	4	M	4	4	4	6.5	1.74	4	4	4	3.5	4	4	3-6 3-11	Good frame & texture - heads somewhat loose for diameter - some late drop but no signs of tip burn.
RS0319 - Royal Sluis	3.5	M	4	4	4	5	1.75	3.5	4	3.5	3.5	4	4	3-6 3-11	Good dense, firm head with good uniformity - some drop and big vein present - butts slightly large.
Coach Supreme - Pybas	3.5	M	3	4	4	5	1.46	3.5	3.5	3.5	3.5	4	4	3-6 3-11	Heads lacking in density - somewhat lacking in overall uniformity but good uniformity of maturity - some big vein present.
Mt. Signal - Orsetti	4	M	3.5	4	4	6.5	2.2	4	4	3.5	3	4	5	3-6 3-11	Nice large dense heads - somewhat lacking in stand uniformity - no incidence of tip burn and very little big vein.
Westland - Orsetti	3.5	M	4	3.5	3	5	1.94	3.5	3.5	3	3	4	3.5	3-6 3-11	Nice firm dense head for the diameter - high incidence of big vein and some late drop.
BOS 9002 - Orsetti	3.5	M	4	3	3.5	6	1.65	3.5	3.5	3.5	3	4	4	3-6 3-11	Somewhat light in color - good overall uniformity - showing moderate incidence of big vein and no tip burn.
BOS 9001 - Orsetti	3.5	M	4	3.5	3.5	6	1.44	3.5	3.5	3	3	4	4	3-6 3-11	Heads lacking in density and somewhat elongated butts at maturity - good uniformity - some big vein - no tip burn.