

# MIXED LETTUCE AND ROMAINE VARIETY TRIALS 1994/1995

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## Introduction

Over the past five years there has been a steady increase in the number of acres each year planted to the various leaf type lettuces. This acreage has grown from less than 1,000 acres in 1985 to over 7,000 being reported in 1994-95. The major factor responsible for this increase is consumer demand for these specialty lettuces.

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 mixed 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.

Some of the desirable characteristics for mixed and romaine lettuces includes uniformity of stand and maturity, deep vivid color, sturdy plant frames, various leaf textures, good overall vigor, a small to medium sized butt, good field holding capabilities and resistance to disease.

## Methods and Materials

Nineteen mixed entries and seven romaine 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: (Mixed) October 16 and November 2, 1994; (Romaine) October 16 and October 31, 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 50 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.

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 most undesirable. 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 the trials are provided in tables 2, 3 and 4. Addendum 1 provides the AZMET (Arizona Meteorological Network) monthly summary data (Yuma Valley) for the entire growing period.

The October trial had five entries of Butter types, three entries of green leaf and four red leaf entries. In the Butter trial, Encore was rated the highest at 4.5 showing the best overall uniformity and vigor. Condor was rated at 4 based on best color and showing good vigor as well. Both of the Shamrock entries, LM 2641 and Pontiac, were rated at 3.5 based mainly on color. The numbered variety did make large dense heads but, leaf texture was lacking. Pontiac was also lacking in leaf texture as well as size. The Sakata entry, Red Vogue, was the only red type trialed and while it made excellent color and acceptable size it was lacking in stand establishment and uniformity.

In the October green leaf trial, Two Star and Tiara were rated at 4 with Two Star showing the best overall uniformity and Tiara having the best leaf texture. Both expressed good late vigor. Coastal Green was rated at 3.5 based on uniformity of maturity. Of the red leaf types, Red Sceptre and Western Red were rated at 4 based on uniformity, vigor and appearance. New Red Fire was rated at 3.5 and Vulcan at 3. Both obtained poorer stands and uniformity problems.

In the November green leaf trial, Tiara and Coastal Green were rated at 4 and compared quite evenly in uniformity, size and all other plant characteristics. Two Star was rated at 3.5 based upon less uniformity and butt appearance. Of the red types in this slot, New Red Fire rated 4 based on superior uniformity and color. Western Red and Red Sceptre were rated at 3.5 based on closely equal performance of all plant characteristics.

In the October 14 romaine trial, Capri was rated at 4 based on superior color and overall uniformity. PIC 714 was rated 4 based on strong plant frame and field holding characteristics. PIC 318 and Grand Teton were rated at 3.5. PIC 318 was lacking in overall uniformity and Grand Teton expressed elongated butts at maturity.

In the October 31 romaine trial, Capri and PIC 318 were rated at 4 based on comparable overall plant characteristics. PIC 714 was rated at 3.5 based on butt appearance and overall uniformity.

\*\* 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 Mixed and Romaine Planting Dates**

**Mixed Lettuce**

<u>Variety</u>	<u>Wet Dates</u>	
	<u>October 16</u>	<u>November 2</u>
<b>Butter</b>		
Red Vogue - Sakata	3	
Condor - Asgrow	4	
LM 2641 - Shamrock	3.5	
Pontiac - Shamrock	3.5	
Encore - Royal Sluis	4.5	
<b>Green Leaf</b>		
Two Star - Orsetti	4	3.5
Tiara - Asgrow	4	4
Coastal Green	3.5	4
<b>Red Leaf</b>		
Western Red - Orsetti	4	3.5
Red Sceptre - Asgrow	4	3.5
New Red Fire - American Takii	3.5	4
Vulcan - Sakata	3	0

**Romaine Lettuce**

<u>Variety</u>	<u>Wet Dates</u>	
	<u>October 16</u>	<u>October 31</u>
PIC 714 - Asgrow	4	3.5
PIC 318 - Royal Sluis	3.5	4
Capri - Asgrow	4	4
Grand Teton - Asgrow	3.5	

1994-95 Leaf Lettuce Evaluation Form  
Mark Wilcox, U of A Extension Agent - Yuma County

Yuma Valley Ag Center Plant date: 10-14-94 Wet date: 10-16-94 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 (A)	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 = bright, 1 = dull D) 5 = savoy, 1 = smooth Comments:
Butter														
Red Vogue* - Sakata	3	M	3	5	5	4.5	0.75	4	3	4	5	5	1-30 2-9	* Red Butter - excellent color, good habit, but lacking in stand uniformity and vigor.
Condor - Asgrow	4	M	4	4	4	4.5	0.8	4	3	3.5	5	5	1-30 2-9	Good uniformity of maturity, best color and vigor.
LM 2641 - Shamrock	3.5	M	3.5	3	2	6.0	1.15	4	3.5	3.5	5	5	1-30 2-9	Somewhat pale in color but good large, dense heads - fair uniformity overall.
Pontiac - Shamrock	3.5	M	4	3.5	2	5.0	0.75	3.5	3.5	3.5	5	5	1-30 2-9	Somewhat pale in color - small but firm heads - good uniformity overall.
Encore - Royal Sluis	4.5	M	4.5	4	3	5.0	1.1	4	4	4	5	5	1-30 2-9	Fair color with excellent frame and habit - nice, large, dense heads - excellent overall uniformity.
Green Leaf														
Two Star - Orsetti	4	M	4	3	3	5.5	1.8	4	4	4	5	5	1-30 2-9	Good frame and vigor - good overall uniformity - good late vigor
Tiara - Asgrow	4	M	3.5	3.5	4	6.5	1.65	3.5	4	3.5	5	5	1-30 2-9	Somewhat lacking in uniformity of stand but good frame and vigor.
Costal Green	3.5	M	3.5	4	4	7.0	1.65	3	4	3.5	5	5	1-30 2-9	Somewhat lacking in uniformity of maturity - excellent color and good habit/frame.
Red Leaf														
Vulcan - Sakata	3	M	2	4	4	6.0	0.85	3	3	3	5	5	1-30 2-9	Poor overall uniformity - good color and leaf texture.
New Red Fire - American Takii	3.5	M	3	4.5	4	5.5	1.0	4	3.5	3.5	5	5	1-30 2-9	Poor uniformity of stand but good uniformity of maturity - good frame and excellent color.
Red Sceptre - Asgrow	4	M	4	3	4	7.0	1.25	4	4	4	5	5	1-30 2-9	Large erect heads - excellent overall uniformity - good frame.
Western Red - Orsetti	4	M	4.5	3.5	4	6.0	1.65	4	4	4	5	5	1-30 2-9	Nice large heads with good overall uniformity - good frame with somewhat elongated butt.

1994-95 Leaf Lettuce Evaluation Form  
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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 (A)	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 = bright, 1 = dull D) 5 = savoy, 1 = smooth	Comments:
<b>Red Leaf</b>															
Western Red - Orsetti	3.5	M	3.5	3.5	4	5.0	1.3	4	3.5	3.5	4	5	2-9 2-19		Somewhat lacking in uniformity of stand but good uniformity of maturity - strong frame with good texture.
Red Sceptre - Asgrow	3.5	M	4	3.5	4	5.0	1.2	4	4	3.5	4	5	2-9 2-19		Good overall uniformity and vigor - strong frame and good texture.
New Red Fire - American Takii	4.0	M	4.5	4.5	4	4.5	0.9	3	4	3.5	4	5	2-9 2-19		Best color and excellent overall uniformity - small frame but good density and texture.
Vulcan - Sakata	0												2-9 2-19		Insufficient stand to evaluate.
<b>Green Leaf</b>															
Tiara - Asgrow	4	M	4	4	4	5.0	1.25	4	4	3.5	4	5	2-9 2-19		Good overall uniformity and vigor - nice erect heads with good frame - slightly large elongated butt.
Costal Green	4	M	4	4	4	5.5	1.1	4	4	4	4	5	2-9 2-19		Good uniformity with strong frame - nice upright habit - short round butt.
Two Star - Brinker	3.5	M	3	4	4	5.5	1.1	3	4	3	4	5	2-9 2-19		Good texture and early vigor - somewhat lacking in uniformity of size - elongated butt.

Table 3

Yuma Valley Ag Center

Plant date: 10-31-94

Wet date: 11-2-94

Table 4  
 1994-95 Romaine Lettuce Evaluation Form  
 Mark Wilcox, U of A Extension Agent - Yuma County

Variety	Overall Evaluation (A)	Maturity (B)	Uniformity (A)	Color (C)	Size (Diameter inches)	Weight (lbs. oz.)	Plant Frame (A)	Vigor (A)	Leaf Texture (D)	Butt Appearance (A)	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 = yellow D) 5 = savoy, 1 = smooth Comments:
#1														
PIC 714	4	M	3	5	5.0	1.85	4	3.5	5	4	4	5	1-30 2-9	Nice erect frame - somewhat lacking in overall uniformity.
PIC 318 - Royal Sluis	3.5	M	3	4.5	5.0	1.7	4	3	5	4	3.5	5	1-30 2-9	Good frame but also lacking in uniformity of stand.
Grand Teton - Asgrow	3.5	M	4	4.5	7.0	1.9	4	4	5	3	3.5	5	1-30 2-9	Somewhat elongated butt, nice frame with upright habit.
Capri - Asgrow	4.5	M	4	5	5.0	2.4	4	4.5	5	4.5	4	5	1-30 2-9	Very nice butt shape, good habit and excellent vigor.
#2														
PIC 714 - Asgrow	3.5	M	3	4	4.5	1.8	3.5	3.5	4	3.5	4	5	2-10 2-20	Good habit and frame - somewhat elongated butt and lacking in uniformity of stand.
PIC 318 - Royal Sluis	4	M	4	4	5.0	1.98	4	4	4	4	4	5	2-10 2-20	Good overall uniformity - excellent habit and frame.
Capri - Asgrow	4	M	4	4	4.5	1.9	3	3	4	4	4	5	2-10 2-20	Some variability of uniformity - good habit and frame.