

# Barley Variety Trial on the Safford Agricultural Center, 1994

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## **Abstract**

*Ten varieties of barley were tested at the Safford Agricultural Center in 1994. Gustoe, the standard variety for the area, was the highest yielding variety in the trial.*

## **Introduction**

Barley has a greater potential as an alternative crop in Graham county than wheat, because it is more salt tolerant (1) and many of the fields and wells in the county have moderate salt problems. Small grain prices have been low the past several years and thus few acres are currently being grown in the county. It is important, however, to test barley varieties every few years to see if new materials have been introduced that will benefit those who do grow the crop. At the higher elevations in the county, rust and other diseases have been occurring under center pivot irrigation. Research needs to be done to evaluate disease resistance in available barley varieties under disease pressure situations.

## **Methods and Materials**

Ten varieties of barley were obtained from the breeders and seed companies that have an interest in barley being grown in Arizona. Most of these same varieties were grown by Mike Ottman on the Maricopa Agricultural Center. A small plot, replicated field trial was developed for the comparison of these varieties. Plots were planted using a John Deere Van Brunt grain drill, seeding in 6 inch rows. The following crop history indicates the important features of the study.

### ***Crop History:***

Previous crop: Cotton

Soil type: Pima clay loam variant

Planting date: 16 December 1993

Seeding rate: Approximately 150 lbs/ac

Fertilizer: 200 lbs/ac of 16-20-0 broadcast pre-plant, 110 lbs/ac urea on 11 February and again on 18 March

Herbicide: None

Insecticide: None

Irrigation: Furrow, watered up and 7 irrigations (approximately 40 acre inches)      Rainfall: 1.57 inches

Plot size: 2 rows (6 feet) wide by 35 feet long

Harvest date: 12 July

The plots were harvested using a Gleaner Model L combine, catching the grain from each plot in a 5 gallon bucket in the grain bin. These buckets were weighed using an electronic hanging scale and samples were taken to determine moisture and bushel weight. Plant height and stand counts were taken just prior to harvest.

## **Results and Discussion**

Yield and other agronomic data from the trial are found in Table 1. From the table one can see that Gustoe, the old time favorite, still seems to have a yield advantage over the other varieties, even though the high field variability made statistical separation of the top seven varieties impossible. Variability of the other parameters measured, as

measured by the CV(%) (coefficient of variability) , were in the acceptable range, so it is a frustration that the yields varied so much in the trial. Another frustration in this trial is the low yields, other fields on the Ag Center had yields of gustoe barley ranging up to 7100 pounds per acre. In future studies with small grain varieties, plots will be increased in size to see if field variability can be reduced. Plant heights were short this year and Mucho was the shortest variety in the study. A highly significant correlation was found between plant height and yield. This is probably because the lowest yielding varieties, Barcott and Mucho, were the shortest varieties. One seed setting was used on the grain drill for all varieties so the seeding rate varied with the size and weight of the different seeds. Plant populations were determined by counting heads per square foot, thus including all tillers. No significant correlations were found between seeding rate and plant population. Positive correlations were seen between plant height and seeding rate. This indicates that competition can cause plants to grow taller.

### References

1. Maas, E.V. 1986. Salt tolerance in plants. *In: Applied Agricultural Research*, V1, No. 1, pp.12-25. Springer-Verlag New York.

### Acknowledgements

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**Table 1. Yields and other agronomic characteristics of barley varieties grown on the Safford Agricultural Center, 1994.**

Variety	Yield (lbs/ac)	Percent of Gustoe Yield	Bushel Weight	Plant Height	Seeding Rate	Plant Population
Gustoe	3397.8 a	100	53.0 ab	23.0 ab	195	740520 abc
BB82	3238.8 ab	95.3	53.3 a	23.5 a	220	784080 a
BA7128	2984.4 ab	87.8	51.5 b	19.8 bc	114	707850 abc
Max	2961.1 ab	87.1	52.3 ab	22.3 ab	156	707850 abc
BA7139	2876.0 abc	84.6	52.3 ab	23.0 ab	146	762300 ab
BA8055	2813.0 abc	82.8	52.3 ab	20.3 abc	176	675180 bcd
BA 7026	2702.7 abc	79.5	52.3 ab	22.0 ab	129	686070 bc
BA1129	2559.0 bc	75.3	52.0 ab	21.0 ab	184	598950 d
Barcott	2230.2 cd	65.6	52.0 ab	19.8 bc	176	686070 bc
Mucho	1613.4 d	47.5	53.0 ab	17.5 c	123	664290 cd
<b>Mean</b>	<b>2737.7</b>	--	<b>52.7</b>	<b>21.2</b>	<b>161.9</b>	<b>701316</b>
<b>LSD(05)</b>	<b>634.1</b>	--	<b>1.32</b>	<b>3.05</b>		<b>78447.5</b>
<b>CV(%)</b>	<b>26.6</b>		<b>1.82</b>	<b>13.4</b>		<b>9.87</b>