

# Small Grain Variety Trials Safford Agricultural Center, 2001

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## **Abstract**

*Small plot replicate trials were established to test thirteen durum wheat varieties, four varieties of bread/feed wheat and six varieties of barley. Platinum, from World Wide Wheat, was the leading durum wheat variety with a yield of 3496 pounds per acre and YU 995-241, from Western Plant Breeders, the highest yielding bread/feed wheat variety with 5546 pounds per acre. #3 was the highest yielding barley variety with a yield of 6353 pounds per acre.*

## **Introduction**

The durum wheat, bread/feed wheat and barley variety testing program has continued through the years, except for the 1997 crop year when wheat was not grown on the Agricultural Center. This is done to provide current varietal evaluations for farmers who are able to fit small grains into their crop rotation. Crop rotations remain desirable instead of the cotton mono-culture used by many farmers in the county, but economics have precluded the use of small grains from most farmer's cultural practices.

## **Materials and Methods**

Experimental plots were rowed-off and firmed with a roller prior to planting the variety trials so seed placement would be somewhat consistent from top of beds to bottom of furrows. Plots were planted with a six-foot Van Brunt grain drill with fertilizer attachment, over two 36" beds. The cultural practices applied are described below in the crop history.

### *Crop History:*

Previous crop: Cotton

Soil type: Pima clay loam variant

Planting date: 28 December 2000                      Watered up: 29 December 2000

Seeding rate: Wheat 150 lbs/ac, Barley 150 lbs/ac

Fertilizer: 200 lbs/ac of 16-20-0 at planting  
200 lbs/ac urea side dressed on 01 March

Herbicide: None

Insecticide: None

Irrigation: Furrow, watered up and 9 irrigations applied at 45% soil water depletion (from AZSCHED)  
(approximately 29.5 acre in)

Rainfall during the growing season: 1.5 inches

Plot size: 2 rows (6 feet) wide by 45 feet long

Harvest date: Barley 20 June, Wheat 21-22 June 2000

Heat Units (40/81EF) from watering-up to harvest: 3276 HU

The plots were harvested using a Gleaner Model K combine, catching the grain from each plot in a 5 gallon bucket in the grain bin. These buckets were weighed using a hanging scale and samples were taken to determine moisture and bushel weight.

## **Results and Discussion**

Yield results for the durum wheat variety study are available in Table 1 together with data on grain quality and other agronomic variables. Platinum, a variety from World Wide Wheat, was the highest yielding variety with a yield of 3496 pounds per acre. This variety had the highest in yield in our study in 2000 (1) and yielded 101% of the average durum yields in studies in Arizona City, Eloy, Maricopa and Yuma (2). Bushel weights, 1000 kernel weights and percent protein were higher than last year. The average yields were 1200 pounds lower than in 2000.

Table 2 contains the yield and agronomic information for the bread and feed wheat variety study. YU995-241, an experimental variety from Western Plant Breeders produced the highest yield at 5546 pounds per acre. The average yield was 640 pounds per acre lower than the average yield for last year. Bushel weights and 1000 kernel weights were higher than in the study the year before, whereas the percent protein was about the same. Sky, a durum variety was inadvertently included in this study and performed better than the other durum varieties did in their study. Because they were in different studies the authors are reluctant to compare its yield with the others in the study.

Information on the barley variety study is found in Table 3. Yields were better than those of the 2000 season and Baretta was the highest yielding variety with a yield of 5717 pounds per acre. Gustoe is apparently not being produced anymore and was not included in the study.

## **References**

1. Clark, L.J. and E.W. Carpenter. 2000. Small grain variety trials, Safford Agricultural Center, 2000. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-124, pp. 131-134.
2. Ottman, M.J., M.T. Rogers, H.S. Moser and M.D. Sheedy. 2000. Small grain variety evaluation at Arizona City, Eloy, Maricopa and Yuma, 2000. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-124, pp. 123-130.

**Table 1. Yield and other agronomic data from the durum wheat variety trial, Safford Agricultural Center, 2000-2001.**

Variety		Yield @ 10% M	Bushel Weight	Plant Height	Percent Moisture	Percent Protein	1000 kernel weight (g)
Platinum	www	3496.4 a <sup>1</sup>	60.5 c	23.3 de	6.90 c	13.7	41
D2830	www	3420.1 ab	60.5 c	27.0 ab	7.10 b	13.9	47
Topper	www	3255.1 abc	62.0 a	26.0 abc	8.00 a	13.0	43
Duraking	www	3237.0 abc	60.0 d	24.6 cd	6.80 d	14.2	44
Bravadur	www	2846.4 a-d	60.5 c	25.4 bcd	6.80 d	14.0	46
Matt	apb	2780.0 a-d	61.0 b	25.6 bc	6.80 d	14.8	48
Kronos	apb	2753.9 a-d	60.0 d	24.6 cd	6.80 d	13.9	49
Kofa	wpb	2647.9 b-e	59.5 f	27.8 a	6.90 c	14.6	54
Ria	www	2636.4 b-e	60.5 c	24.5 cd	6.60 e	14.6	45
YU 895-89	wpb	2441.2 c-f	59.0 f	25.3 bcd	6.00 h	15.1	54
Deluxe	www	2112.2 def	59.5 e	21.8 e	6.30 g	14.8	49
Tacna	wpb	1854.5 ef	59.0 f	23.5 d-e	6.80 d	16.3	49
Mohawk	wpb	1688.6 f	59.5 e	24.3 cd	6.50 f	14.4	49
Ave		2705.3	60.1	24.9	6.79	14.4	47.5
LSD		720.3	0.30	1.91	0.04	--	--
CV %		18.6	0.35	5.34	0.45	--	--

1. Values followed by the same letter, within a column, are not significantly different at the 95% level of confidence using Duncan's Multiple Range test.

**Table 2. Yield and other agronomic data from the wheat variety trial, Safford Agricultural Center, 2000-2001.**

Variety	Source	Yield @ 10% Moisture	Bushel Weight	Percent Moisture	Percent Protein	1000 kernel weight (g)	HVAC
YU995-241	wpb	5545.8 a <sup>1</sup>	61.8 b	6.80 b	14.2	38.5	99.5
Cavalier	www	5534.0 a	62.9 a	7.00 ab	14.6	43.5	99.0
CO1957-3	www	4980.3 ab	62.6 a	6.80 b	13.9	35.5	98.5
Sky (durum)	wpb	4620.8 b	60.8 c	6.48 b	14.1	41.5	--
Yecora Rojo	uc	4573.6 b	63.3 a	7.45 a	15.1	45.0	98.5
Ave		5050.9	62.3	6.91	14.4	40.8	98.9
LSD		809.67	0.72	0.59	--	--	--
CV%		10.40	0.75	5.53	--	--	--

1. Values followed by the same letter, within a column, are not significantly different at the 95% level of confidence using Duncan's Multiple Range test.

**Table 3. Yield and other agronomic data from the barley variety trial grown on the Safford Agricultural Center, 2000-2001.**

Variety		Yield (pounds/acre)	Bushel Weight	Percent Moisture	Plant Height (inches)
Max	www	6352.5 a <sup>1</sup>	53.0 a	10.8 ab	23.1 ab
Baretta	apb	5717 ab	52.0 a	10.3 b	23.1 ab
Commander	www	5263.5 ab	52.0 a	10.3 ab	24.6 a
Nebula	wpb	4537.5 bc	53.0 a	11.0 a	25.1 a
Patti	www	4537.5 bc	52.5 a	10.5 ab	22.5 b
Barcott	wpb	3811.5 c	53.3 a	10.5 ab	18.5 c
Ave		5036.6	52.6	10.6	22.8
LSD		1138.5	2.43	0.67	1.91
CV%		15.0	3.06	4.2	5.56

1. Values followed by the same letter, within a column, are not significantly different at the 95% level of confidence using Duncan's Multiple Range test.