

# **Final Report**

Arizona Grain Research and Promotion Council

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Small Grains Variety Testing, 2020

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# Small Grains Variety Evaluation at Maricopa, 2020

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## Summary

*Small grain varieties are evaluated each year by University of Arizona personnel. The purpose of these tests is to characterize varieties in terms of yield and other attributes. Variety performance varies greatly from year to year and several site-years are necessary to adequately characterize the yield potential of a variety. A summary of small grain variety trials conducted by the University of Arizona can be found online at <https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1265-2020.pdf>*

## Introduction

Small grain varieties were tested as part of the on-going effort to assess variety productivity and characteristics. Barley and durum commercial cultivars were tested. The purpose of these tests is to characterize varieties in terms of yield potential, quality, and other characteristics. Variety trials on agricultural experimental stations do not substitute for localized on-farm testing of new varieties. Varieties are known to differ in their response to specific management regimes and weather conditions. A summary of small grain variety trials conducted by the University of Arizona is available from your local Cooperative Extension office or online at <https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1265-2020.pdf>

## Procedure

Barley and durum varieties were evaluated at Maricopa by the University of Arizona (UA). The seed was planted with a cone planter in plots 20 ft long in seven rows spaced 7 inches apart. The seeding rate was approximately 100 lbs/acre for durum and 85 lbs/acre for barley. The experimental design was a randomized complete block with 5 replications and 6 barley and 18 durum entries. Growing conditions are listed in Table 1.

The following data was collected: grain yield, test weight, seed weight, plant height, lodging, grain protein, and HVAC (durum only). Grain was harvested with a small plot combine and yields are expressed on an “as is” moisture basis. Test weight was calculated from the weight of 1 pint of grain. Seed weight was determined from 200 seed. HVAC was determined from 10 g of seed. Grain protein was determined from total N multiplied by 6.25 for barley and 5.7 for durum and expressed on a 12% moisture basis.

## Discussion

Yield and plant characteristics of the varieties are presented in Table 2. Several locations and years are needed to accurately assess variety performance. The results of this trial are most useful when combined with data from previous years. A summary of small grain variety trials conducted by the University of Arizona can be found online at <https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1265-2020.pdf>.

## Acknowledgments

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Table 1. Cultural practices for the small grains variety trial at Maricopa, 2020.

Cultural information	Maricopa (UA)
Previous crop	Fallow
Soil texture	Sandy loam
Planting date	12/18/19
Irrigation dates and amounts	12/18: 7.18 in 2/5: 3.96 in 2/28: 4.33 in 3/18: 4.34 in 4/2: 2.60 in 4/16: 4.64 in 4/30: 3.14 in SUM = 30.19 in
Nitrogen application dates and amounts	<u>46-0-0</u> 2/5: 101 lbs N/A as 46-0-0 2/28: 51 lbs N/A as 46-0-0 3/18: 36 lbs N/A as 46-0-0 4/2: 35 lbs N/A as 32-0-0 4/16: 34 lbs N/A as 46-0-0 SUM = 257 lbs N/A
Phosphorus application date and amount	None
Pesticides	None

Table 2. Barley and durum yield results from a small grain variety test conducted at Maricopa, 2020. Grain yield data for certain varieties is missing due to bird damage. No lodging was observed in this trial.

Entry	Source	Grain yield lb/acre	Test weight lb/bu	Seed weight mg	Plant height inches	HVAC %	Grain protein %
<u>Barley</u>							
Baretta	APB	6118	51.2	53.3	33	---	12.69
Kopious		6580	50.6	48.3	30	---	11.23
Cochise	HSG	6444	49.7	43.3	29	---	11.83
Nebula		---	47.5	50.8	34	---	13.02
Diamondback		6101	50.1	47.8	31	---	12.89
CG916-926		5922	48.8	39.5	35	---	11.50
Average		6233	49.7	47.2	32	---	12.19
CV (%)		3.4					
LSD <sub>.05</sub>		293					
<u>Durum</u>							
Alberto	APB	5920	63.0	53.5	29	81	13.76
Tiburón		6325	62.6	57.3	33	86	13.88
Westmore HP		5855	64.0	43.5	36	87	13.82
Powell	SNR	---	64.0	55.3	32	76	14.67
WB Mead		6072	62.9	43.8	37	85	14.06
WB Mohave		5532	63.9	48.0	36	91	14.30
ASC122	WM	---	65.5	56.8	37	76	13.15
Desert gold		6158	62.5	47.0	36	87	12.73
Desert king		5789	63.1	45.0	37	90	13.33
Miwok		6182	64.8	54.5	35	86	12.73
Platinum	Dunn	6022	64.0	45.3	32	75	13.94
Phoenix		6498	64.1	41.5	42	73	13.64
Topper		6568	64.6	43.5	37	82	12.42
Maestrале	Allstar	---	63.1	45.0	42	67	13.09
Saragolla		5970	64.0	46.0	35	49	12.30
ASC123		6837	63.6	52.8	37	74	12.73
ASC124		5263	62.0	44.0	32	40	12.85
ASC129		5762	63.1	49.8	38	87	13.15
Average		6050	63.6	48.5	36	77	13.36
CV (%)		5.8					
LSD <sub>.05</sub>		585					