

Research Report

Small Grains Variety Evaluation at Arizona City, Maricopa and Yuma, 2014

AZ1648

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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 <http://ag.arizona.edu/pubs/crops/az1265.pdf>.

Introduction

Small grain varieties were tested as part of the on-going effort to assess variety productivity and characteristics. Barley, durum, and wheat commercial cultivars and experimental lines were tested. The purpose of these tests is to characterize varieties in terms of yield potential, relative maturity, quality, and other characteristics. Small plot variety trials 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 <http://ag.arizona.edu/pubs/crops/az1265.pdf>.

Procedure

Barley, durum, and wheat varieties were evaluated at the following locations: Maricopa by the University of Arizona and World Wide Wheat, Arizona City by Arizona Plant Breeders, and Yuma by Monsanto-WestBred. Second Nature Research (Barkley Seed Inc.) acquired the desert durum breeding program from Monsanto-WestBred effective May, 2014. Also, Bay State Milling acquired the bread wheat and barley breeding program of World Wide Wheat recently. The seed was planted in 20 ft rows with a cone planter in seven rows spaced 7 inches apart. The seeding rate was approximately 100 lbs/acre for durum and wheat varieties and 85 lbs/acre for barley varieties. The experimental design was a randomized complete block with 3-6 replications, and 12 barley, 21 durum, and 11 wheat entries. Growing conditions at each site are listed in Table 1. The following data was collected, but not all data was collected for all crops at all locations: grain yield, test weight, seed weight, plant height, lodging, heading, physiological maturity, grain protein, and HVAC. Grain was harvested with small plot combines 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 5.7 for durum and wheat, and expressed on a 12% moisture basis. Physiological maturity is defined as when the glumes turn brown. Abbreviations for the sources of varieties are: APB = Arizona Plant Breeders, UA = University of Arizona, WB = WestBred, WWW = World Wide Wheat, UC = University of California, SNR = Second Nature Research.

Discussion

Yield and plant characteristics of the varieties are presented for the various locations in Tables 2-10 and a summary of the grain yields at all locations is presented in Table 11. This year was characterized by a warm winter and early spring. 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 <http://ag.arizona.edu/pubs/crops/az1265.pdf>.

Acknowledgments

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Table 1. Cultural practices for the small grains variety trials at the various locations.

Cultural information	Arizona City (APB)	Maricopa (UA)	Maricopa (WWW)	Yuma (WPB)
Previous crop	Cotton	Fallow	Fallow	Lettuce
Soil texture	Sandy loam	Sandy loam	Sandy clay loam	Clay loam
Planting date	12/18/13	12/18/13	1/21/14	1/18/14
Irrigation dates (amount)	12/18 (rain)			
	1/04 (6.15 in.)		1/21 (7 in)	
	1/27 (4.85 in.)	12/18 (5.50 in.)	2/19 (3 in)	
	2/20 (5.05 in.)	1/30 (4.68 in.)	3/11 (4 in)	1/18 Sprinkler Germ
	3/12 (4.34 in.)	2/27 (3.51 in.)	3/21 (4 in)	2/13 Flood
	3/27 (4.78 in.)	3/18 (5.37 in.)	4/05 (5 in)	3/15 Flood
	4/10 (4.97 in.)	4/01 (5.45 in.)	4/17 (5 in)	4/3 Flood
	4/26 (5.36 in.)	4/14 (3.79 in.)	5/02 (4 in)	4/19 Flood
	5/09 (4.86 in.) - Wheat	4/25 (3.64 in.)		5/1 Flood
	Total = 40.34 - Wheat Total = 35.48 - Barley	Total = 31.94 in.	Total = 32 in.	
Nitrogen dates (lbs N/acre, fertilizer)	Nov, 2013: 10 T/A manure			
	12/1: 96 as 27-27-0		Preplant: 50 as 46-0-0	1/18 : 65 as 32-0-0
	1/25: 25 as 24-0-0-10	1/30: 106 as 46-0-0	2/19: 53 as 32-0-0	2/13: 45 as 32-0-0
	2/18: 33 as 24-0-0-10	2/27: 42 as 32-0-0	3/21: 46 as 32-0-0	3/15: 50 as 32-0-0
	3/11: 37 as 24-0-0-10	3/18: 53 as 32-0-0	4/05: 30 as 32-0-0	4/3: 45 as 32-0-0
	3/25: 46 as 24-0-0-10	4/01: 25 as 32-0-0	4/17: 42 as 32-0-0	4/19 40 as 32-0-0
	4/8: 32 as 24-0-0-10			
	4/23: 26 as 24-0-0-10	Total = 226 lbs N/a	Total=221 lbs N/a	Total= 245 lbs N/a
	Total = 295 lbs N/a			
	Phosphorus (date, lbs P ₂ O ₅ /a, fertilizer)	Nov, 2013: 10 T/A manure		
12/1: 96 as 27-27-0		N/A	N/A	None
Total = 96 lbs P ₂ O ₅ /a				
Pesticides (date)	None	None	Warrior II (3/3)	Affinity/Aim (3/10)
Harvest date	7/2	5/27	6/10	6/2

Table 2. Barley variety yield results from **Maricopa (UA)**, 2014.

Entry	Source	Grain yield ^a	Test weight	Seed weight	Plant height	Lodging	Heading	Flowering	Maturity
		lbs/acre	lbs/bu	mg	inches	%			
Baretta	APB	5566	50.6	45.5	28	0	3/22	3/22	4/29
Kopious	APB	5248	51.4	46.8	28	0	3/15	3/15	4/25
Chico	WB	5203	50.4	39.5	23	0	3/16	3/16	4/24
Cochise	WB	5173	50.1	37.9	23	0	3/24	3/24	5/02
Nebula	WB	4749	46.6	47.3	27	0	3/22	3/22	4/27
Commander	WWW	6776	49.1	44.6	25	0	3/27	3/27	5/04
Max	WWW	4659	47.3	46.3	27	0	4/05	4/05	5/09
205	APB	5143	48.1	40.5	30	0	3/26	3/27	4/29
265	APB	6292	49.2	39.3	26	0	3/28	3/28	5/04
373	APB	5536	49.7	43.6	25	0	3/27	3/27	5/03
BA4545	WWW	5551	47.0	44.9	30	0	3/26	3/26	5/05
BA9101	WWW	5672	47.7	38.9	31	0	4/05	4/05	5/08
Avg.	---	5462	48.9	42.9	27	0	3/25	3/25	5/01

^a Grain yield: LSD (5%) = 730 lbs/acre and cv = 13.1%.

Table 3. Barley variety yield results from **Arizona City (APB)**, 2014.

Entry	Source	Grain yield ^a	Test weight	Seed weight	Plant height	Lodging	Shattering
		lbs/acre	lbs/bu	mg	inches	%	%
Baretta	APB	6706	53.9	45.6	27	5	0
Kopious	APB	6653	54.8	46.0	22	5	0
Chico	WB	6257	55.4	43.8	27	5	10
Cochise	WB	5808	56.0	38.8	25	5	0
Nebula	WB	5174	54.4	44.1	30	5	10
Commander	WWW	6679	55.6	48.9	25	5	0
Max	WWW	5570	54.9	49.3	27	5	0
205	APB	6679	53.0	43.9	32	5	20
265	APB	7867	50.9	40.2	24	5	0
373	APB	6758	54.4	48.8	25	5	0
BA4545	WWW	6732	51.3	44.1	27	5	10
BA9101	WWW	5993	49.2	39.5	25	5	0
Avg.	---	6406	53.7	44.4	26	5	4

^a Grain yield: LSD (5%) = 963 lbs/acre and cv = 10.4%.

Table 4. Barley variety yield results from **Yuma (WB)**, 2014.

Entry	Source	Grain yield ^a	Test weight	Seed weight
		lbs/acre	lbs/bu	mg
Baretta	APB	6454	49.5	44.1
Kopious	APB	7008	51.5	44.1
Chico	WB	6016	50.9	39.6
Cochise	WB	7357	50.9	35.0
Nebula	WB	6527	51.0	47.8
Commander	WWW	6994	49.1	42.4
Max	WWW	5820	50.1	44.1
205	APB	5527	48.1	40.4
265	APB	5034	49.6	42.0
373	APB	6810	50.0	43.8
BA4545	WWW	6420	48.5	44.3
BA9101	WWW	5472	49.2	41.1
Avg.	---	6287	49.9	42.4

^a Grain yield: LSD (5%) = 1020 lbs/acre and cv = 9.6%.

Table 5. Barley variety yield results from **Maricopa (WWW)**, 2014.

Entry	Source	Grain yield ^a	Test weight	Seed weight
		lbs/acre	lbs/bu	mg
Baretta	APB	2334	45.8	42.1
Kopious	APB	3149	47.0	41.9
Chico	WB	3475	45.4	37.2
Cochise	WB	2150	46.4	32.1
Nebula	WB	2753	43.5	43.7
Commander	WWW	2348	46.4	43.2
Max	WWW	2154	44.8	44.0
205	APB	2803	46.4	39.3
265	APB	3347	48.6	38.4
373	APB	2914	46.4	45.5
BA4545	WWW	3084	46.1	43.9
BA9101	WWW	2822	44.8	40.1
Avg.	---	2778	46.0	41.0

^a Grain yield: LSD (5%) = 439 lbs/acre and cv = 13.7%.

Table 6. Durum and wheat variety yield results from **Maricopa (UA)**, 2014.

Entry	Source	Grain yield ^a lbs/acre	Test weight lbs/bu	Seed weight mg	Plant height inches	Lodg- ing %	Head- ing	Flower- ing	Matur- ity	HVAC %	Grain protein %
<u>Durum</u>											
Helios	APB	5884	62.5	51.5	31	0	3/16	3/20	4/29	99	14.4
Kronos	APB	5990	62.6	59.0	33	0	3/17	3/21	4/28	100	14.7
Tiburón	APB	6554	61.2	58.2	32	0	3/19	3/22	5/01	100	15.0
Westmore HP	APB	5596	61.2	47.0	32	0	3/18	3/21	4/27	100	16.4
Havasú	SNR	6292	64.2	55.3	32	0	3/17	3/21	4/29	98	14.4
Orita	SNR	6050	59.1	43.7	34	0	3/27	3/31	5/03	99	16.1
WB-Mead	SNR	5415	61.2	42.3	35	0	4/03	4/06	5/07	100	14.8
WB-Mohave	SNR	6413	61.9	50.0	33	0	3/21	3/23	5/01	100	15.3
Crown	WWW	5233	59.3	46.1	35	0	3/25	3/28	5/04	99	14.6
Duraking	WWW	5929	61.5	46.2	33	0	3/24	3/28	5/03	99	13.7
Platinum	WWW	6353	63.4	46.0	27	0	3/19	3/22	4/29	98	14.1
Q-Max	WWW	5808	59.2	46.7	36	0	3/26	3/30	5/04	100	14.4
Topper	WWW	6050	62.4	44.1	35	0	3/29	4/01	5/05	99	13.2
165	APB	5838	63.0	48.4	28	0	3/20	3/23	4/30	100	13.8
177	APB	5748	63.9	48.1	32	0	3/18	3/22	4/29	97	12.8
349	APB	7119	64.0	48.6	29	0	3/17	3/21	4/29	96	12.6
517	APB	6534	63.0	46.1	29	0	3/17	3/21	4/26	97	14.3
ARGD7079	WWW	5022	59.9	52.3	31	0	3/18	3/22	4/28	98	15.3
CHD0710B	WWW	4840	59.6	51.5	30	0	3/22	3/23	5/01	99	14.5
D2517	WWW	6504	63.4	49.6	29	0	3/18	3/22	5/02	99	13.0
D5384-2-1-1	WWW	---	59.6	41.0	31	0	3/26	3/30	5/03	97	14.4
Aldura	NK	2944	62.0	50.7	25	0	3/27	3/31	5/10	100	13.9
WB 881	SNR	2299	60.8	51.1	27	0	3/28	4/01	5/11	99	15.8
Kronos	APB	4961	62.2	60.4	33	0	3/20	3/24	5/01	99	14.6
Avg.	---	5590	61.7	49.3	31	0	3/22	3/25	5/02	99	14.4
<u>Wheat</u>											
Joaquin	WB	---	62.4	51.1	34	0	3/16	3/20	4/28	100	12.9
WB9112	WB	---	62.8	38.7	33	0	3/16	3/20	4/26	100	14.4
WB9229	WB	---	62.9	38.9	34	0	3/22	3/24	4/29	99	14.7
WB-Joaquin Oro	WB	---	62.8	42.2	30	0	3/12	3/16	4/23	99	14.4
WB-Paloma	WB	---	63.0	45.6	31	0	3/17	3/20	4/28	99	14.2
Mika	WWW	---	60.5	36.5	37	0	3/24	3/27	5/04	99	14.4
56	APB	---	61.7	40.4	36	0	3/21	3/25	4/29	98	13.3
157	APB	---	62.6	42.2	30	0	3/18	3/21	4/27	96	13.6
AUBR30023W	WWW	---	62.8	42.1	34	0	3/21	3/23	4/27	98	13.6
CABR3509W	WWW	---	63.1	44.4	31	0	3/22	3/24	4/29	96	12.3
Yecora Rojo	UC	---	59.0	43.4	25	0	3/21	3/25	4/28	100	14.8
Joaquin	WB	---	63.4	43.4	30	0	3/16	3/20	4/27	99	13.8
Avg.	---	---	62.2	42.4	32	0	3/19	3/22	4/28	99	13.9

^a Grain yield: LSD (5%) = 979 lbs/acre and cv = 12.7% for durum. Data not presented for some varieties due to bird damage.

Table 7. Durum and wheat variety yield results from **Arizona City (APB)**, 2014.

Entry	Source	Grain yield ^a	Test weight	Seed weight	Plant height	Lodging	HVAC	Grain protein
		lbs/acre	lbs/bu	mg	inches	%		%
<u>Durum</u>								
Helios	APB	7012	62.7	51.2	29	5	85	11.8
Kronos	APB	7619	63.4	65.5	30	20	94	9.1
Tiburón	APB	7730	62.1	64.8	31	20	96	12.3
Westmore HP	APB	7619	59.1	44.1	31	88	98	14.2
Havasú	SNR	7387	57.5	51.4	31	88	96	14.4
Orita	SNR	7999	58.8	55.2	34	63	99	14.8
WB-Mead	SNR	9140	62.1	52.8	33	40	98	14.2
WB-Mohave	SNR	8015	60.3	49.6	34	63	99	14.0
Crown	WWW	8226	60.3	58.5	32	5	93	12.0
Duraking	WWW	7983	64.0	54.2	30	5	93	11.5
Platinum	WWW	7498	62.5	46.7	30	5	94	12.0
Q-Max	WWW	8348	56.6	54.3	36	40	92	13.2
Topper	WWW	8321	60.2	42.8	36	40	95	12.8
165	APB	7946	61.0	48.2	28	40	98	13.0
177	APB	6595	60.3	44.5	32	88	95	12.4
349	APB	8496	62.4	47.4	30	88	98	12.0
517	APB	7545	60.8	47.7	32	40	100	12.2
ARGD7079	WWW	6674	60.7	59.8	34	5	95	13.2
CHD0710B	WWW	7519	61.9	61.1	30	20	99	13.5
D2517	WWW	7593	59.5	45.8	34	63	88	12.2
D5384-2-1-1	WWW	7059	57.3	46.9	31	63	82	13.0
Avg.	---	7730	60.6	52.0	32	42	95	12.8
<u>Wheat</u>								
Joaquin	WB	7857	60.4	47.6	---	---	98	12.7
WB9112	WB	7075	61.4	41.8	---	---	98	12.9
WB9229	WB	6927	59.7	42.5	---	---	98	13.2
WB-Joaquin Oro	WB	6806	57.8	46.4	---	---	97	14.6
WB-Paloma	WB	6405	57.1	47.8	---	---	99	13.5
Mika	WWW	5803	56.7	1.3	---	---	99	13.0
56	APB	7086	58.7	45.9	---	---	98	12.8
157	APB	6225	58.8	52.1	---	---	99	13.0
AUBR30023W	WWW	6816	61.7	47.2	---	---	99	12.6
CABR3509W	WWW	7160	61.2	47.3	---	---	98	11.0
Yecora Rojo	UC	6104	58.3	52.6	---	---	98	12.7
Avg.	---	6751	59.3	43.0	---	---	98	12.9

^a Grain yield: LSD (5%) = 881 lbs/acre and cv = 11.3% for durum and 652 lbs/acre and cv = 6.7% for wheat.

Table 8. Durum and wheat variety yield results from **Yuma (WB)**, 2014.

Entry	Source	Grain yield ^a	Test weight	Seed weight	HVAC	Grain protein
		lbs/acre	lbs/bu	mg		%
			<u>Durum</u>			
Helios	APB	7183	64.0	45.4	98	13.0
Kronos	APB	6553	64.0	57.6	99	14.5
Tiburon	APB	7870	64.2	62.5	100	14.2
Westmore HP	APB	7127	64.2	47.4	100	14.8
Havasu	SNR	7492	65.3	54.0	100	13.8
Orita	SNR	8557	63.7	56.2	100	14.5
WB-Mead	SNR	7991	65.3	54.2	99	14.1
WB-Mohave	SNR	8247	65.0	52.0	98	14.6
Crown	WWW	8126	63.3	51.5	98	12.7
Duraking	WWW	8216	65.6	49.0	100	13.0
Platinum	WWW	7287	65.1	44.8	99	13.3
Q-Max	WWW	8046	63.5	51.4	99	12.5
Topper	WWW	8223	66.1	44.6	97	12.0
165	APB	6781	64.5	43.7	99	12.9
177	APB	7064	64.7	43.4	98	12.6
349	APB	7158	65.4	46.1	99	12.7
517	APB	6822	64.8	46.3	100	14.0
ARGD7079	WWW	7059	62.4	52.1	99	14.6
CHD0710B	WWW	6791	63.9	56.6	99	13.9
D2517	WWW	6016	64.7	45.8	97	13.3
D5384-2-1-1	WWW	7606	62.9	39.9	94	13.4
Maestrале	Allstar	7054	65.8	50.8	99	12.9
Saragolla	Allstar	4983	65.6	53.5	94	12.0
Avg.	---	7315	64.5	49.9	99	13.4
			<u>Wheat</u>			
Joaquin	WB	8194	64.4	41.5	100	14.6
WB9112	WB	7708	65.0	36.3	100	14.4
WB9229	WB	6892	65.2	37.4	100	15.4
WB-Joaquin Oro	WB	7248	60.2	43.4	100	15.6
WB-Paloma	WB	6331	64.7	38.8	100	14.1
Mika	WWW	7287	62.5	39.1	100	15.5
56	APB	5268	63.4	38.5	99	13.2
157	APB	7243	64.1	46.5	100	13.4
AUBR30023W	WWW	7543	64.8	41.0	98	12.3
CABR3509W	WWW	8322	64.8	39.6	98	11.8
Yecora Rojo	UC	6609	64.5	43.6	100	14.6
Avg.	---	7150	64.0	40.5	99	14.1

^a Grain yield: LSD (5%) = 1273 lbs/acre and cv = 10.6% for durum and 1173 lbs/acre and cv = 9.6% for wheat.

Table 9. Durum and wheat variety yield results from **Maricopa (WWW)**, 2014.

Entry	Source	Grain yield ^a	Test weight	Seed weight	HVAC	Grain protein
		lbs/acre	lbs/bu	mg		%
			<u>Durum</u>			
Helios	APB	4539	63.0	47.5	99	14.5
Kronos	APB	3982	63.4	56.9	100	14.5
Tiburon	APB	4433	62.4	57.2	99	15.3
Westmore HP	APB	3614	61.8	41.7	98	15.3
Havasu	SNR	4677	64.3	49.5	99	13.9
Orita	SNR	4170	61.1	50.3	99	16.3
WB-Mead	SNR	3185	62.1	42.9	100	15.3
WB-Mohave	SNR	3982	63.0	50.6	99	15.1
Crown	WWW	4157	59.2	45.8	99	14.8
Duraking	WWW	3922	63.0	42.5	99	13.6
Platinum	WWW	3894	62.7	39.9	100	14.1
Q-Max	WWW	3963	60.2	47.0	100	13.8
Topper	WWW	4249	64.6	45.4	99	13.9
165	APB	3807	62.4	40.7	99	13.9
177	APB	3871	63.7	44.8	97	13.5
349	APB	3963	63.7	44.6	97	12.4
517	APB	3637	60.8	38.3	100	15.1
ARGD7079	WWW	3687	59.8	47.9	99	14.3
CHD0710B	WWW	4194	62.7	56.0	99	12.6
D2517	WWW	4507	65.0	48.9	98	13.5
D5384-2-1-1	WWW	4460	61.1	41.3	100	14.2
Avg.	---	4043	62.4	46.6	99	14.3
			<u>Wheat</u>			
Joaquin	WB	3098	62.4	40.1	100	14.8
WB9112	WB	2960	63.0	37.3	100	13.9
WB9229	WB	3572	63.7	37.1	99	15.4
WB-Joaquin Oro	WB	2854	62.4	33.2	100	15.3
WB-Paloma	WB	3254	63.4	37.9	100	15.1
Mika	WWW	---	---	---	---	---
56	APB	3176	62.7	40.0	98	13.4
157	APB	2559	62.1	45.0	100	14.8
AUBR30023W	WWW	3475	63.4	41.9	97	14.0
CABR3509W	WWW	2693	63.0	41.2	100	12.9
Avg.	---	3071	62.9	39.3	99	14.4

^a Grain yield: LSD (5%) = 556 lbs/acre and cv = 12.0% for durum and 558 lbs/acre and cv = 15.6% for wheat.

Table 10. Winterized spring wheat variety yield results from **Maricopa (UA)**, 2014. The variety Phoenix was used as a source of the vernalization (vrn) gene in winterized spring wheat varieties. Winterized spring wheats have later heading and better chance to avoid late spring frost than the respective spring wheat types due to the vrn gene. Winterized spring wheats do not have the cold hardiness of true winter wheats, however. The winterized spring wheat concept was first developed by Albert Pugsley in Australia as a way for spring wheat varieties to avoid late spring frosts. All the varieties were developed by Cal Qualset, Emeritus Wheat Breeder at UC Davis, except for Joaquin, which was developed by WestBred. Grain yields are not presented due to bird damage.

Entry	Test weight	Seed weight	Plant height	Lodging	Heading	Flowering	Maturity	HVAC	Grain protein
	lbs/bu	mg	inches	%				%	%
Anza	62.9	36.1	32	0	3/23	3/25	4/30	95	13.4
Anza 94W (Winanza)	62.7	34.1	33	0	3/29	4/01	5/02	95	13.5
Siete Cerros 66	62.2	39.1	31	0	3/25	3/28	5/02	98	13.5
Siete Cerros 93W (Wincerros)	61.6	36.2	31	0	3/28	4/01	5/03	99	13.4
Tanori 71	62.9	38.2	33	0	3/15	3/19	4/25	98	14.2
Tanori 94W red (Wintan Rojo)	62.3	36.2	37	0	3/22	3/25	5/02	98	13.4
Tanori 94W white (Wintan Blanco)	63.1	37.3	34	0	3/22	3/25	5/01	98	13.4
Yecora Rojo	62.4	45.3	24	0	3/17	3/21	4/25	99	14.8
Joaquin	62.6	39.9	29	0	3/10	3/15	4/21	99	14.3
Yecora Rojo 93W (Wincora)	61.6	38.5	29	0	3/23	3/27	4/30	98	14.6
Portola	63.3	19.9	30	0	3/21	3/22	4/28	99	14.2
Portola 94W (Wintola)	61.1	29.8	30	0	3/27	4/01	5/02	97	15.9
Pitic 82	59.7	36.3	34	0	3/19	3/22	4/27	98	13.5
Pitic 94W (Wintic)	59.0	35.8	35	0	3/24	3/27	5/02	99	13.7
Phoenix	62.4	33.6	33	0	3/31	4/03	5/07	96	13.4
Wincal 09196	62.0	34.0	27	0	3/25	3/29	5/01	99	14.0
Avg.	62.0	35.6	31	0	3/22	3/26	4/30	98	14.0

Table 11. Summary of barley, durum, and wheat variety yield results for 2014 from three locations. Data from WWW was not used due to low yields and barley data from APB was not used due to shattering.

Entry	Source	Grain yield (% of location average)			Mean	Standard Deviation
		AZ City (APB)	Maricopa (UA)	Yuma (WPB)		
			<u>Barley</u>			
Baretta	APB	---	102	103	102	1
Kopious	APB	---	96	112	104	11
Chico	WB	---	95	96	96	0
Cochise	WB	---	95	117	106	16
Nebula	WB	---	87	104	95	12
Commander	WWW	---	124	111	118	9
Max	WWW	---	85	93	89	5
205	APB	---	94	88	91	4
265	APB	---	115	80	98	25
373	APB	---	101	108	105	5
BA4545	WWW	---	102	102	102	0
BA9101	WWW	---	104	87	95	12
Helios	APB	91	108	98	99	8
Kronos	APB	99	103	90	97	7
Tiburon	APB	100	118	108	108	9
Westmore HP	APB	99	97	97	98	1
Havasus	SNR	96	115	102	104	10
Orita	SNR	104	109	117	110	7
WB-Mead	SNR	118	99	109	109	10
WB-Mohave	SNR	104	112	113	109	5
Crown	WWW	106	96	111	104	8
Duraking	WWW	103	108	112	108	5
Platinum	WWW	97	111	100	102	7
Q-Max	WWW	108	106	110	108	2
Topper	WWW	108	111	112	110	2
165	APB	103	95	93	97	5
177	APB	85	105	97	96	10
349	APB	110	124	98	111	13
517	APB	98	111	93	101	9
ARGD7079	WWW	86	92	97	92	5
CHD0710B	WWW	97	88	93	93	5
D2517	WWW	98	119	82	100	18
D5384-2-1-1	WWW	91	98	104	98	6
Joaquin	WB	116	---	115	116	1
WB9112	WB	105	---	108	106	2
WB9229	WB	103	---	96	100	4
WB-Joaquin Oro	WB	101	---	101	101	0
WB-Paloma	WB	95	---	89	92	4
Mika	WWW	86	---	102	94	11
56	APB	105	---	74	89	22
157	APB	92	---	101	97	6
AUBR30023W	WWW	101	---	106	103	3
CABR3509W	WWW	106	---	116	111	7