Wheat, Barley, Durum and Advanced Strains Test, Gila Bend, AZ, 1995

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Abstract

Advanced cultivars of small grains were compared with commercially available hybrids in on farm trials. Twenty three, 18 and 29 varieties of wheat, barley and durum were tested in a random complete block layout. All had at least one hybrid that yielded 6000 lb./ac or better. Wheat and barley had one hybrid each (Brooks, 6395 lb./ac; Max, 6356 lb./ac respectively) that had yields in excess of 6000 lb./ac. Durum, had many superior hybrids that gave excellent yields (hybrids: Aconchi, 6772 lb./ac, V8001(WPB) 6320 lb./ac, V8013 (WPB) 6035 lb./ac, D1268 (FMC) 6023 lb./ac, V8010 (WPB), 5952 lb./ac, D8869, 5881 lb./ac). These yields were obtained with 42 water and 260 lb./ac NH_3 applied.

Introduction

Field trials with both commercial and advanced cultivars were grown under low desert conditions to compare yields on the Paloma Ranch west of Gila Bend, AZ. The long range goal is to identify cultivars with both high yield and superior quality. It is hoped that the cultivars can be identified and brought to commercial release through this type of testing.

Methods and Materials

Crops were planted after the cotton had been harvested and seedbed prepared. Cone planters were used to insure uniform seeding rates. There were 6 rows on 11 inch spacing. Seeding rate was 87 lb./ac on 20 ft plots that were trimmed to 16 ft. Four rows were harvested and weighed in the field. The field layout was a random complete block with 6 replicates. When missing data occurred the complete block was dropped. Check varieties were included for barley (Gustoe), durum (Aldura), and wheat (Yecora-rojo). Plots were planted on 14 December 1994 and watered 19 December.

The plots received 42" of water at regular intervals (2, 15 February; 5, 17 March; and 4, 25 April). It was fertilized twice in February (80 lb. each application) one application on the 5th of March (60 lb.) and finally on 25 April (40 lb.).

Data collected for this report includes only the grain yield. Quality data is currently being analyzed and will be presented later.

Results and Discussion

Max, Table 1, was the top yielding barley variety in the trial. Gustoe, the commercial standard, was not among the top yielding varieties.

Aconchi, Table 2., was the top yielding durum variety. Aldura, the commercial standard was near the middle of the tested durum varieties.

Brooks, Table 3, was by far the best yielding wheat variety tested on the Paloma Ranch. It yielded nearly 900 lb./ac better than the standard variety, Yecora-rojo.

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Table 1. Yield comparison of Commercial Barley Varieties and Experimental Lines

Variety	Mean lb/ac.		Percent of Gustoe	Source
Max	6356	a *	137.6	APB
BA7128	5807	a b	125.7	FMC
BA7001	5621	a b	121.7	FMC
DA592-47	5331	a b c	115.4	WPB
BA8063	5064	b c d	109.7	FMC
BA8017	5005	b c d e	108.4	FMC
BA8055	4990	b c d e	108.1	FMC
BA1129	4752	b c d e	102.9	FMC
UC476	4633	c d e	100.3	UC
Gustoe	4618	c d e g	--	WPB
UC337	4529	c d e g	98.1	UC
BA7139	4485	c d e g	97.1	FMC
Barcott	4054	d e g	87.8	WPB
DA587-124	4039	d e g	87.5	WPB
Fiesta	3965	e g	85.9	WPB
BA7026	3594	g	77.8	FMC
DA587-170	3579	g	77.5	WPB
CM72	3564	g	77.2	UC

*Means not followed by the same letter are significantly different at P>0.05 (LSD=1082 lb./ac) (CV=23.5%)

Table 2. Yield comparison of Commercial Durum Varieties and Experimental Lines

Variety	Mean lb/ac.		Percent of Aldura	Source
Aconchi	6772	a *	120.4	Cimmyt
8001	6320	a b	112.4	APB
8013	6035	a b c	107.3	WPB
D1268	6023	a b c d	107.1	FMC
V8010	5952	a b c d e	105.8	WPB
D8869	5881	a b c d e h	104.6	FMC
D1128	5773	b c d e h	102.6	FMC
D2505	5762	b c d e h	102.4	FMC
D1856	5726	b c d e h	101.8	FMC
V6004	5703	b c d e h	101.4	APB
DuraKing	5702	b c d e h	101.4	FMC
Aruba	5691	b c d e h i	101.2	WPB
Aldura	5625	b c d e h i	--	NK
D1636	5572	b c d e h i	99.1	FMC
Cortez	5548	b c d e h i	98.6	WPB
V8009	5524	b c d e h i	98.2	WPB
Minos	5512	b c d e h i	98.0	APB
D8940A	5453	b c d e h i	96.9	FMC
V8011	5394	b c d e h i j	95.9	WPB
WB881	5227	c d e h i j k	92.9	WPB
D5317B	5215	c d e h i j k	92.7	FMC
V8012	5097	d e h i j k	90.6	WPB
Turbo	5061	e h i j k	90.0	WPB
Durex	5049	e h i j k	89.8	FMC
Kofa	4955	h i j k	88.1	WPB
Reva	4954	h i j k	88.1	FMC
D5318B1	4752	i j k	84.5	FMC
D1405	4467	j k	79.4	FMC
Bravadur	4372	k	77.7	FMC

*Means not followed by the same letter are significantly different at P>0.05 (LSD=927 lb./ac) (CV=16.0%)

Table 3. Yield comparison of Commercial Wheat Varieties and Experimental Lines

Variety	Mean lb/ac.		Percent of Yecora -rojo	Source
Brooks	6395	a *	116.1	WPB
PH989-80W	5910	b	107.3	WPB
BR7073B	5762	b	104.6	FMC
BR1231	5633	b c	102.3	FMC
DA990-15	5633	b c	102.3	WPB
DA989-20	5584	b c d	101.4	WPB
Yecora-rojo	5508	b c d e	--	Public
DA992-130	5495	b c d e	99.8	WPB
Poco-red	5485	b c d e f	99.6	FMC
BR8631	5485	b c d e f	99.6	FMC
Cavalier	5475	b c d e f	99.4	FMC
WP906	5435	b c d e f g	98.7	APB
BR1153	5415	b c d e f g	98.3	FMC
BR8631-1	5287	c d e f g h	96.0	FMC
WP9003	5227	c d e f g h	94.9	APB
BR9118	5188	d e f g h i	94.2	FMC
BR9216	5079	e f g h i	92.2	FMC
BR1283	5049	f g h i j	91.7	FMC
PH991-87	5029	g h i j	91.3	WPB
BR1235	4970	h i j	90.2	FMC
BR1277	4841	i j	87.9	FMC
BR1434	4336	k	78.7	FMC
BR7073	4128	k	74.9	FMC

*Means not followed by the same letter are significantly different at P>0.05 (LSD=437 LB./AC) (CV=11.5%)