

Small Grain Variety Comparisons at the Maricopa Agricultural Center in 1986

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As in the harvest years 1984 and 1985, 6 x 6 Latin square designs were effectively utilized to reduce the coefficient of variation (CV) for yield to below 10%. Ten barley, 26 bread and 34 durum commercial varieties and experimentals with some commercial potential were evaluated and data are presented here. The same check variety was included in all tests of a particular grain to compare varieties between Latin squares.

Seeding was in a moist soil after a preplant irrigation. Fertilization was 100 lbs N and 28 lbs P during seed bed preparation and two additional applications of 60 lbs N with the first and second post-emergence irrigations in early February and early March. The fourth and fifth irrigations, in April, were spaced at 13-day intervals and were effective in reducing the shriveled grain problem present in 1984 and 1985.

Each plot consisted of six 11-inch rows, 12 feet long. The barley and bread wheat plots were seeded at 80 lbs per acre and the durum at 86 lbs per acre. The center four rows of each plot were harvested with a Hege plot combine.

The season was relatively warm with some high daytime temperatures in late March, resulting in earlier than normal maturity. Prevailing winds during the April irrigations resulted in considerable lodging and hindered harvest but quality of grain and yields were generally very good to excellent. The bread wheat check variety Yecora Rojo did well and the durum check variety Aldura was outstanding in performance.

Relative performance data for barley are presented in Table 1, for bread wheat in Table 2 and for durum in Table 3.

Table 1. Barley varieties and experimentals compared

Variety	Source	Heading date	Physiological maturity date	Plant height in.	----- Grain yield ----- lbs/A ¹	% of Gustoe
Latin Square 1 (CV=8.4%)						
Westbred Barcott	WPB	2-20	4-3	30	6005a	103
Westbred Gustoe	WPB	3-13	4-22	29	5838ab	100
Columbia	Germaines	3-15	4-26	35	5410 bc	93
X-1558	NK	3-14	4-30	31	5248 c	90
Westbred Fiesta	WPB	3-2	4-16	30	5215 c	89
Sunbar 409	NK	3-11	4-15	34	5199 c	89
Latin Square 2 (CV=10.4%)						
Westbred Barcott	WPB	2-21	4-8	30	6454a	101
Westbred Gustoe	WPB	3-14	4-22	29	6406a	100
Westbred Gus	WPB	3-10	4-18	33	5146 b	80
Signal	Public	3-3	4-12	37	4638 bc	72
Prato	Public	3-9	4-17	37	4278 bc	67
Poco	Wilbur-Ellis	2-4	4-1	25	4125 c	64

¹/ Variety yields within each latin square followed by the same letter are not significantly different at the 5% probability level using Duncan's Multiple Range Test.

Table 2. Bread wheat varieties and experimentals compared

Variety	Source	Maturity date	Plant height in.	Lodging %	Test Weight lb/bu	----- Grain yield ----- lbs/A ¹	% of check
Latin Square 20 (CV=4.8 %)							
Probrand 775	NK	5-5	32	25	61.8	6411 a	115
C79-97	Public	5-3	35	26	61.0	6020 b	108
Westbred 9II	WPB	late	30	0	60.8	5855 bc	105
Probred	NK	5-3	33	31	61.8	5722 bc	103
Yecora Rojo(ck)	Public	5-1	33	23	62.3	5558 cd	100
Oslo	H&H	5-2	43	10	62.5	5306 d	95
Latin Square 21 (CV=11.6 %)							
S8330501	Sogetal	med	41	29	63.8	6711 a	116
S8330022	Sogetal	med	39	33	61.5	5923 b	103
Yecora Rojo(ck)	Public	5-1	33	12	62.5	5767 b	100
82S-419	NK	med	41	4	62.0	5627 b	98
82S-723	NK	med	30	0	61.0	5456 bc	95
S8330014	Sogetal	med	41	33	61.5	5124 c	89
Latin Square 22 (CV=8.0 %)							
Anza	Public	med	38	30	63.8	6129 a	103
Yecora Rojo(ck)	Public	5-2	34	26	62.5	5959 a	100
I-458	Public	5-6	33	26	62.5	5889 ab	99
Super-X	Public	med	39	15	62.8	5860 ab	98
I-445	Public	med	41	19	63.3	5579 ab	94
Cajeme	Public	5-3	35	39	62.3	5298 b	89
Latin Square 26 (CV=6.0 %)							
P983-83	WPB	5-2	35	28	61.5	6269 a	104
Yr x Aim	WPB	5-1	37	22	63.3	6220 a	103
P983-69	WPB	5-1	34	23	63.0	6097 a	101
P983-63	WPB	5-3	33	19	60.8	6054 a	100
Yecora Rojo(ck)	Public	5-1	34	18	62.8	6046 a	100
P983-103	WPB	5-4	41	23	62.8	5082 b	84
Latin Square 25 (CV=6.2 %)							
UC 633	Public	5-6	41	25	63.3	6614 a	109
Yecora Rojo(ck)	Public	5-1	35	33	62.8	6091 b	100
UC 628	Public	med	41	31	63.8	6089 b	100
UC 635	Public	med	41	23	64.3	5949 b	98
I-547	Public	5-3	33	25	61.0	5914 b	97
UC 638	Public	med	42	29	62.5	5755 b	94

^{1/} Variety yields within each latin square followed by the same letter are not significantly different at the 5% probability level using Duncan's Multiple Range Test.

Table 3. Durum varieties and experimentals compared

Variety	Source	Maturity date	Plant height in.	Lodging %	Test Weight lb/bu	Grain yield ----- lbs/A ¹	% of Aldura
Latin Square 3 (CV=7.9%)							
Westbred 1000D	WPB	5-13	36	0	59.5	7954 a	100
Aldura(ck)	NK	5-7	34	11	64.0	7947 a	100
LLoyd	Public	5-18	37	0	62.5	7362 ab	93
E26-3	NutriSeed	5-8	37	10	64.5	6923 bc	88
Bittern"S"	Public	5-4	37	34	65.0	6608 bc	83
Yavaros 79	Public	5-10	40	33	64.0	6526 c	82
Latin Square 4 (CV=7.5%)							
Westbred Turbo	WPB	5-9	39	13	63.3	8000 a	101
Aldura(ck)	NK	5-6	34	20	64.0	7911 a	100
Mexicali 75	Public	5-2	40	35	62.7	6485 b	82
Gem	H&H	5-9	37	25	63.7	6387 b	81
W-586	Public	5-4	35	36	65.0	6311 b	80
Westbred 881	WPB	5-4	37	24	62.3	6142 b	78
Latin Square 5 (CV=9.1%)							
Aldura(ck)	NK	5-5	33	8	64.0	7542 a	100
P884-32	WPB	5-7	33	8	63.3	7500 a	99
Westbred Turbo	WPB	5-9	39	26	63.3	7132 ab	96
P883-15	WPB	5-6	37	10	61.3	6518 b	86
Westbred 881	WPB	5-5	37	25	62.3	6168 c	82
P883-2	WPB	5-1	37	35	62.7	6157 c	82
Latin Square 6 (CV=8.2%)							
Aldura(ck)	NK	5-6	34	12		8093 a	100
E-414	PSC	5-9	35	28		7666 ab	95
E-412	PSC	5-3	37	53		7440 ab	92
E-416	PSC	5-3	35	50		7262 bc	90
E-415	PSC	5-9	37	26		7157 bc	88
E-413	PSC	5-4	37	40		6836 c	84
Latin Square 7 (CV=9.2%)							
Aldura(ck)	NK	5-5	33	12	64.5	8114 a	100
Waha"S"	Public	4-30	39	25	65.0	7313 b	90
(S0129--JNK)YAV"S"	Public	5-12	34	3	64.5	6932 bc	85
Altar 84	Public	5-10	39	40	66.0	6702 bc	83
Mesaoria	Public	5-1	34	23	63.0	6381 cd	79
W-586		5-3	37	26	64.0	5856 d	72
Latin Square 14 (CV=8.7%)							
Aldura(ck)	NK	5-6	34	21	64.0	8256 a	100
UC 306	Public	5-3	39	30	64.3	7177 b	87
UC 642	Public	med	39	21	63.3	6802 b	83
UC 646	Public	5-7	44	23	63.8	6086 c	74
UC 647	Public	med	38	33	64.8	5991 c	73
UC 640	Public	5-5	38	48	63.0	5870 c	71
UC 499	Public	5-1	36	20	63.5	7726 b	90

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