

Small Grain Comparisons at the Maricopa Agricultural Center in 1987

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As in previous years (1984-86), 6x6 Latin square designs were used to increase replications and reduce the coefficient of variation (CV) for yield. Six barley, 11 bread wheat and 16 durum wheat commercial and experimental varieties with some commercial potential were evaluated. The same check variety was included in all tests of a particular grain to compare varieties between Latin squares.

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. After the third irrigation on March 22, fourth, fifth and sixth irrigations were spaced at 12-13 day intervals. They were effective in reducing the shriveled grain problem encountered in previous years. The barley and bread wheat had five post-emergence irrigations of approximately four inches each with little lodging. The durum wheat was irrigated once more to insure optimum grain filling. Considerable grain lodging resulted.

Seeding was in a moist seed bed after a preplant irrigation. Each plot consisted of six 11-inch rows, 12 feet long. The barley and bread wheat was seeded at 80 lbs and the durum at 85 lbs per acre. The center four rows of each plot were harvested for grain yield with a Hege plot combine.

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

Table 1. Barley varieties compared.

Variety	Source	Plant	Maturity	Test	--Grain yield--	
		height in		weight lbs/bu	lbs/A ^{1/}	% of Gustoe
Latin square 23 (CV=6.0%)						
Westbred Gustoe	WPB	28	med-late	51.0	10693a	100
Columbia	Germaine	35	late	49.0	9446 b	88
X1558	NK	32	late	49.0	9221 bc	86
Westbred Fiesta	WPB	29	early	54.5	8633 bc	81
Westbred Barcott	WPB	30	very early	51.5	8486 bc	79
Sunbar 409	NK	31	medium	48.0	8437 c	79

^{1/} Variety yields 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	Plant			Lodging %	Test weight lbs/bu	---Grain yield---	
		height in	maturity range				lbs/A ^{1/}	% of check
Latin square 24 (CV=5.9%)								
PH984-75	WPB	32	early		0	61.5	7128a	113
Probrand 775	NK	30	early		0	62.5	7050a	112
PH983-83	WPB	31	medium		0	60.5	6977ab	111
Yecora Rojo (ck)	UofC	31	early		0	61.5	6281 bc	100
Oslo	H&H	41	early		0	61.0	6255 c	100
PH983-69	WPB	31	early		0	62.0	6246 c	99
Latin square 25 (CV=8.2%)								
C79-97	UofA	35	early-med		0	61.5	7337a	122
I710	UofA	35	med-late		0	58.5	6905 b	115
82S-419	NK	41	medium		5	61.5	6633 b	110
82S-723	NK	29	medium		0	60.0	6591 b	110
Yecora Rojo (ck)	UofC	31	early		8	62.5	6008 c	100
Westbred 911	WPB	31	late		0	61.5	5962 c	99

^{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 wheat varieties and experimentals compared.

Variety	Source	Plant height in	Maturity range	Lodging %	Test weight lbs/bu	--Grain yield-- lbs/A ^{1/}	% of check
Latin square 1 (CV=6.3)							
Turbo	WPB	38	med-late	63	61.5	7928a	106
Yavaros 75	CIMMYT	36	med-late	40	63.0	7768ab	104
Aldura (ck)	NK	33	early-med	31	62.5	7474ab	100
Altar 84	CIMMYT	36	medium	53	63.5	7286 b	97
Gem	H&H	34	med-late	36	61.5	6528 c	87
Westbred 881	WPB	34	early	33	61.0	5869 d	79
Latin square 2 (CV=9.5)							
Aldura (ck)	NK	32	early-med	13	63.5	7596a	100
Turbo E	WPB	36	med-late	43	63.0	7228ab	95
PH884-32	WPB	32	medium	12	62.5	6891ab	91
PH884-15	WPB	38	medium	32	62.0	6713 b	88
Mexicali 75	CIMMYT	36	very early	50	61.5	5836 c	77
PH883-2	WPB	35	very early	48	62.0	5645 c	74
Latin square 3 (CV=11.3)							
1000D	WPB	36	late	8	60.0	7991a	109
Lloyd	ND	34	very late	3	60.5	7770ab	106
W66	UofA	36	med-late	3	64.0	7614ab	103
Aldura (ck)	NK	33	early-med	7	62.5	7359 b	100
W903	UofA	35	medium	40	63.0	6597 c	90
W628	UofA	35	medium	63	62.0	5299 d	72

^{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.