

Small Grain Variety Comparisons At the Maricopa Agricultural Center 1991

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Abstract

Yield trials were conducted at the Maricopa Agricultural Center during the 1990-91 growing season. Barley, Durum and Wheat varieties as well as experimental lines from various seed companies were tested for yield performance. Gustoe and Sunbar 409 barleys, Turbo and Aldura durum wheats; and 911 and Klasic bread wheats were the highest yielding commercial varieties in this yield trial.

Introduction

At the Maricopa Agricultural Center, a small grains trial compared yield of 17 cultivars in each crop of barley, durum and wheat.

A 6 by 6 latin square was used to compare grain yields of each variety within a certain crop. The check varieties Gustoe and Sunbar 458, 881 and Aldura; and Klasic and Yecora Rojo were used for yield comparisons of the barley, durum and wheat crops.

Materials and Methods

The planting site was fallow the previous year. The seedbed was prepared with 85# N/A and 75# P₂O₅/A incorporated prior to a preplant irrigation. Each crop was planted on November 15, 1991, in a moist seedbed at the rate of 80# seed/A. An additional 12# N/A and 50# N/A was applied in the first and second post emergence irrigations on January 28 and February 14. Additional irrigations were scheduled on March 4 and 18 and April 4, 15 and 26. Thirty-one acre-inches of water were applied to each crop. An additional 4.5 inches of rain fell during the growing season.

Irrigation scheduling was determined with the use of Arizona Meteorological Data (AZMET) and the Arizona Irrigation Scheduling Program (AZSCHED).

Each plot consisted of six rows spaced 12 inches apart and 20 feet long. The middle four rows were harvested with a Massey-Ferguson (MF8) plot combine in mid-May. Plot yields were recorded by the on-board computer.

Results

Gustoe and Sunbar 458 were the two top yielding registered varieties in this years trial (Table 1). Of the experimental lines, BA8076 and BA7024 were significantly higher yielding than either Gustoe or Sunbar 458.

Turbo and Aldura were the top yielding durum varieties (Table 2). Five experimental lines; 8002, D5765, 8001 and D5456 produced significantly greater yields than the check variety Aldura. The line 8002 was slightly greater

yielding than Turbo.

Klasic and 911 were the greatest yielding bread wheat varieties (Table 3). Two lines, W10-8 and 988-131 were significantly greater yielding than the check variety Klasic.

Acknowledgements

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

Variety	Source	Heading Date	Plant Height inches	Lodging	Test Weight lbs/bu	lbs/A	Grain Yield	
							Gustoe	Sunbar 458

Latin Square 1 CV=8.6%

Gustoe	WPB	3-19	36	50	51	5700a	100	103
Sunbar 458	NK	3-14	38	30	47	5483a	96	100
Sunbar 409	NK	3-12	38	20	49	5283a	93	96
Fiesta	Germaines	2-27	36	30	52	5275a	93	96
Sunbar 400	NK	3-3	38	100	48	4641b	81	90
Barcott	WPB	2-25	38	40	48	3658c	64	67

Latin Square 2 CV=7.0%

BA 7128	FMC	3-21	38	40	50	6241a	106	109
Gustoe	WPB	3-19	36	60	52	5883ab	100	103
Sunbar 458	NK	3-14	38	40	46	5708b	97	100
F1	APB	3-8	34	50	53	5158c	88	90
DA586-14	WPB	2-27	44	60	50	4150d	71	73
Barcott	WPB	2-25	42	40	49	3733d	63	65

Latin Square 3 CV=10.1%

BA8076	FMC	3-16	40	60	49	6275a	114	119
584-11	WPB	3-19	36	50	52	5641ab	103	107
Gustoe	WPB	3-19	36	40	52	5500b	100	104
F3	APB	3-2	34	50	51	5458b	99	103
Sunbar 458	NK	3-14	38	30	46	5283b	96	100
Arivat		3-5	46	70	48	3741c	68	71

Latin Square 4 CV=12.2%

BA 7024	FMC	3-22	36	40	52	6250a	125	123
DA 588-70	WPB	3-14	35	20	51	5716ab	114	112
Sunbar 458	NK	3-14	36	60	47	5083b	101	100
Gustoe	WPB	3-19	32	60	51	5016bc	100	99
F10	APB	3-23	37	90	48	4491c	90	88
Gus	WPB	3-14	40	70	49	3233d	64	64

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

Variety	Source	Heading Date	Plant Height inches	Lodging	Test Weight lbs/bu	lbs/A	Grain Yield	
							881	Aldura

Latin Square 1 CV=7.6%

Turbo	WPB	3-22	43	40	63.5	6691a	131	111
Aldura	NK	3-14	36	20	65	6016b	118	100
Aldente	WPB	3-10	40	40	63	5808b	113	96
881	WPB	3-10	40	20	63	5108c	100	85
NuDura	NK	3-8	40	20	65	5025c	98	84
Durex	FMC	3-9	41	40	62	4816c	94	80

Latin Square 2 CV=4.5%

8002	WPB	3-28	38	20	63	6866a	133	107
Turbo	WPB	3-22	42	30	63	6666ab	129	104
Aldura	NK	3-13	38	20	64	6416b	124	100
Nurex	FMC	3-12	41	20	64	5808c	112	91
APB-8	APB	3-13	44	30	64	5758c	111	90
881	WPB	3-11	41	30	63	5175d	100	81

Latin Square 3 CV=4.6%

D5765	FMC	3-18	40	30	63.5	6475a	132	108
8001	WPB	3-7	40	30	63.5	6416a	131	107
D5318 BW	FMC	3-16	40	40	64	6158ab	126	103
Aldura	NK	3-16	38	30	64	5983b	122	100
D03-29	APB	3-12	36	70	62	5108c	104	85
881	WPB	3-12	40	20	63.5	4891c	100	82

Latin Square 4 CV=4.7%

D5456	FMC	3-15	38	30	64.5	6266a	141	115
D03-21	APB	3-10	40	20	62	5866b	132	107
Aldura	NK	3-16	36	50	64	5466c	123	100
D03-5	APB	3-22	38	20	64	5183cd	117	95
PH884-2	WPB	3-7	40	50	63	5075d	114	93
881	WPB	3-11	38	20	63.5	4433Ee	100	81

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

Variety	Source	Heading Date	Plant Height Inches	Lodging	Test Weight lbs/bu	lbs/A	Grain Yield	
							Klasic	Yecora Rojo

Latin Square 1 CV=6.7%

911	WPB	3-28	37	10	63	6733a	103	119
Klasic	NK	3-6	35	20	65	6508ab	100	115
BR5738-1	FMC	3-11	34	10	60	6150bc	94	109
Probred	NK	3-14	38	10	64	6133bc	94	108
Baker	WPB	3-10	37	10	64.5	5700cd	88	101
Y. Rojo	UC	3-7	35	10	64	5650d	87	100

Latin Square 2 CV=6.2%

Klasic	NK	3-8	35	30	65	6275a	100	114
986-12W	WPB	3-2	42	10	64	5875ab	94	107
Super X	CIMMYT	3-22	42	40	63.5	5666b	90	103
Y. Rojo	UC	3-6	36	10	64	5500b	88	100
SieteCerros	CIMMYT	3-24	44	40	61	5458b	87	99
Baker	WPB	3-12	35	10	64.5	5258c	84	96

Latin Square 3 CV=4.5%

Klasic	NK	3-7	38	10	65	5991a	100	116
PH986-61	WPB	3-15	42	10	63	5800a	97	112
BR5680	FMC	3-14	38	10	64	5775a	96	111
W08-3	APB	3-7	34	10	63.5	5408b	90	104
Y. Rojo	UC	3-7	38	10	64	5183b	87	100
BR8453	FMC	3-2	40	10	63.5	4091c	68	79

Latin Square 4 CV=4.8%

W10-8	APB	3-2	34	10	64	6583a	110	120
988-131	WPB	3-7	38	10	64	6358a	106	117
Klasic	NK	3-7	35	10	65	6008b	100	110
BR5702	FMC	3-11	36	10	64	5766bc	96	106
W10-9	APB	3-7	38	10	63.5	5633c	94	104
Y. Rojo	UC	3-7	37	10	64.5	5441c	91	100