

Alfalfa Variety Trial in Graham County Arizona, 2002

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Abstract

Twenty six alfalfa varieties with fall dormancy ratings of 8 or 9 were tested in a replicated small plot trial on a sandy clay loam soil on the Safford Agricultural Center. This was the fourth year of the study. Coronado was the highest yielding variety in 2002 with Mecca III and ZX9393 following closely behind. All three varieties produced a yield over 6 tons per acre and averaged over 8 tons per acre over the 4-year period..

Introduction

This is the fourth year of a study which includes the best varieties from the previous trial along with several new varieties that seem promising. Because the yield relations by variety were quite different on the heavy soil currently underway at the Agricultural Center compared with previous studies done, this study was started on lighter soil and will be reported on concurrently with the other study. This is the 27th year of continuous alfalfa variety testing in Graham County.

Materials and Methods

Twenty six alfalfa varieties with fall dormancy ratings ranging from 8 to 10 are included in this test. Plots were planted using a John Deere Van Brunt 6-foot grain drill with a small seed attachment. Eight lines were planted down two 36-inch beds, with 6-inch spacings between lines. A ring roller was run over the plots before planting to firm the beds and afterwards to help incorporate the seed.

Crop History:

Location: Safford Agricultural Center, Graham County

Elevation: 2950 feet above sea level

Soil type: Grabe clay loam

Planting date: 2 October 1998 Rate: 25 lbs/acre

Herbicide: None

Fertilizer: 300 lbs/ac 16-20-0 at planting

Insecticide: Treatment to control alfalfa weevil

Irrigation: Border- 15 irrigations (ca. 133 acre inches)

Harvest strategy: Cut around 10% bloom to optimize quantity and stand longevity.

Plot size: 4 feet by 15 feet

Replicates: Four

Plots were cut and weighed immediately to prevent loss of moisture. Weights were converted to dry weight at 0% moisture for reporting purposes.

Table 1. Fourth year yield summary for 26 alfalfa varieties grown at 2950 feet above sea level grown in a Grabe clay loam soil in southeastern Arizona. Yields are in tons per acre. (Graham County, Safford Agricultural Center. 32° 49' N, 109E 41' W)

Variety	Cut 1 4/22	Cut 2 5/24	Cut 3 6/14	Cut 4 7/18	Cut 5 8/16	Cut 6 9/16	Cut 7 11/25	Total 2002	% of Cuf 101
Coronado	1.17 a	1.13 a	1.21 ab	1.21 ab	0.62 ab	0.48 abc	0.77 ab	6.60 a	128.9
Mecca III	1.14 a	1.07 ab	1.25 a	1.35 a	0.54 abc	0.44 a-d	0.57 abc	6.36 ab	124.2
ZX9393	1.05 ab	1.05 ab	1.13 a-d	1.10 abc	0.66 a	0.54 a	0.68 abc	6.21 abc	121.3
Mecca II	1.12 ab	0.98 abc	1.18 abc	1.00 abc	0.51 abc	0.41 b-e	0.67 abc	5.86 a-d	114.5
WL525HQ	1.05 ab	0.97 abc	1.09 a-d	1.05 abc	0.42 bc	0.38 b-f	0.55 abc	5.51 a-e	107.6
Mesa	1.02 ab	0.94 abc	1.03 a-d	1.03 abc	0.41 c	0.37 c-g	0.69 abc	5.48 a-e	107.0
Alto	1.00 ab	1.00 abc	0.90 a-d	1.01 abc	0.49 abc	0.37 c-g	0.68 abc	5.46 a-e	106.6
Weststar	1.01 ab	0.99 abc	1.03 a-d	0.88 bc	0.48 abc	0.31 e-j	0.67 abc	5.36 a-e	104.7
UN9T1078	0.93 ab	1.00 abc	0.99 a-d	1.04 abc	0.43 bc	0.35 d-h	0.61 abc	5.35 a-e	104.5
Yolo	0.97 ab	0.96 abc	0.98 a-d	1.04 abc	0.38 c	0.37 c-g	0.57 abc	5.27 b-e	102.9
Barbara	0.89 ab	0.97 abc	0.94 a-d	1.05 abc	0.50 abc	0.28 f-j	0.64 abc	5.27 b-e	102.9
SW 7400	0.95 ab	0.99 abc	0.93 a-d	0.92 bc	0.49 abc	0.33 d-j	0.65 abc	5.26 b-e	102.7
DK191	1.14 a	1.13 a	0.91 a-d	0.96 bc	0.33 c	0.25 g-j	0.52 c	5.25 b-e	102.5
ZX9701	0.96 ab	0.99 abc	1.07 a-d	0.89 bc	0.35 c	0.35 d-i	0.63 abc	5.24 b-e	102.3
Cuf 101	0.91 ab	0.94 abc	1.00 a-d	0.74 c	0.37 c	0.39 b-f	0.78 a	5.12 b-e	100.0
ABI 9283	0.99 ab	1.02 abc	0.99 a-d	0.91 bc	0.42 bc	0.32 d-j	0.45 c	5.09 b-e	99.4
Maricopa	0.93 ab	1.00 abc	0.97 a-d	0.92 bc	0.44 bc	0.29 e-j	0.53 bc	5.08 b-e	99.2
Achiever	1.14 a	1.00 abc	0.82 d	0.98 abc	0.39 c	0.23 ij	0.50 c	5.06 b-e	98.8
UN1718	0.90 ab	0.90 abc	0.93 a-d	1.02 abc	0.37 c	0.37 c-g	0.50 c	4.99 cde	97.5
Mecca	0.87 ab	0.96 abc	0.84 cd	0.84 bc	0.41 c	0.50 ab	0.51 c	4.91 cde	95.9
ZL9889A	0.94 ab	0.97 abc	0.88 bcd	0.88 bc	0.35 c	0.30 e-j	0.56 abc	4.89 cde	95.5
SW 8210	1.03 ab	0.92 abc	0.85 cd	0.83 c	0.42 bc	0.23 hij	0.59 abc	4.87 cde	95.1
Amrstnd 801S	0.93 ab	0.95 abc	0.94 a-d	0.82 c	0.42 bc	0.23 hij	0.51 c	4.81 de	93.9
ZG9797	0.90 ab	0.92 abc	0.79 d	0.84 bc	0.45 bc	0.30 e-j	0.51 c	4.71 de	92.0
DK 180	0.92 ab	0.83 bc	0.83 cd	0.88 bc	0.36 c	0.22 j	0.50 c	4.55 de	88.9
UN9L600	0.81 b	0.78 c	0.78 d	0.76 c	0.36 c	0.24 hij	0.54 bc	4.26 e	83.2
Average	0.99	0.98	0.97	0.96	0.44	0.34	0.59	5.26	
LSD(05)	0.25	0.22	0.29	0.31	0.17	0.10	0.20	1.1	
CV(%)	18.2	15.6	21.3	23.0	27.8	21.4	23.5	14.8	
HU 77/41EF	1470	815	640	1120	976	982	1466	7469	

1. Values followed by the same letter are not significantly different at the 5% level of probability using the Duncan Multiple Ra

Table 2. Four year yield summary for 26 alfalfa varieties grown at 2950 feet above sea level grown in a Grabe clay loam soil in southeastern Arizona. Yields are in tons per acre, ranks are shown in parentheses.

Variety	Source	FallDomancy Rating	1999Yield Average	2000 Yield Average	2001 Yield Average	2002 Yield Average	4-yearAverage	Percent of Cuf 101
Coronado	Novartis	9	9.49 (2)	9.20 (1)	9.44 (1)	6.60 (1)	8.67 a	117.2
Mecca III	PGI/MBS	9	9.55 (1)	9.10 (2)	9.39 (2)	6.36 (2)	8.59 ab	116.1
DK 191	DeKalb	9	9.29 (3)	9.08 (3)	9.12 (3)	5.25 (13)	8.18 abc	110.5
ZX9393			9.09 (5)	8.03 (12)	8.59 (8)	6.21 (3)	7.98 abc	107.8
Mecca II	PGI/MBS	9	8.18 (17)	8.43 (7)	8.90 (4)	5.86 (4)	7.84 abc	105.9
Mesa	PGI/MBS	8	8.61 (9)	8.30 (9)	8.32 (11)	5.48 (6)	7.67 a-d	103.6
Amrstnd801S			8.52 (13)	8.63 (4)	8.67 (5)	4.81 (23)	7.65 a-d	103.4
ZX9701			8.58 (10)	8.03 (13)	8.63 (6)	5.24 (14)	7.61 a-d	102.8
SW 7400	S&W Seed	7	9.10 (4)	7.76 (16)	8.31 (13)	5.26 (12)	7.60 a-d	102.7
Maricopa	PGI/MBS	8	8.69 (8)	8.18 (10)	8.32 (12)	5.08 (17)	7.56 a-d	102.2
ABI 9283			8.54 (11)	8.12 (11)	8.47 (9)	5.09 (16)	7.55 a-d	102.0
Achiever			7.98 (21)	8.57 (5)	8.40 (10)	5.06 (18)	7.50 a-d	101.4
Yolo	PGI/MBS	8	8.01 (20)	8.32 (8)	8.28 (15)	5.27 (11)	7.47 a-d	100.9
Cuf 101	Public	9	8.08 (18)	7.80 (15)	8.61 (7)	5.12 (15)	7.40 a-d	100.0
SW 8210	S%W Seed	8	8.84 (7)	7.65 (18)	8.00 (17)	4.87 (22)	7.34 b-e	99.2
UN9L600			8.98 (6)	8.50 (6)	7.45 (22)	4.26 (26)	7.31 b-e	98.8
WL525HQ	W-L Rsrch	8	8.29 (14)	7.63 (19)	7.74 (18)	5.51 (5)	7.29 b-e	98.5
Weststar	Lohse Mill	8	7.92 (22)	7.86 (14)	7.71 (19)	5.36 (8)	7.21 c-f	97.4
UN1718			8.52 (12)	7.76 (17)	7.29 (23)	4.99 (19)	7.14 c-f	96.5
ZG9797			8.04 (19)	7.43 (20)	8.30 (14)	4.71 (24)	7.12 c-f	96.2
Alto	Grt Plains	8	7.63 (23)	7.15 (22)	8.15 (16)	5.46 (7)	7.09 c-f	95.8
Mecca	PGI/MBS	9	8.28 (15)	7.36 (21)	7.62 (20)	4.91 (20)	7.04 c-f	95.1
Barbara	Argentina		8.19 (16)	6.90 (23)	7.62 (21)	5.27 (10)	6.99 c-f	94.5
ZL9889A			7.48 (24)	6.47 (24)	6.87 (24)	4.89 (21)	6.42 def	86.8
UN9T1078			6.76 (25)	5.48 (26)	6.71 (25)	5.35 (9)	6.07 ef	82.0
DK 180	DeKalb	8	6.28 (26)	6.34 (25)	6.65 (26)	4.55 (25)	5.95 f	80.4
Average			8.34	7.85	8.14	5.26	7.39	--
LSD(05)			1.50	1.62	1.58	1.10	1.11	--
CV(%)			12.7	14.7	13.81	14.80	10.60	--
Heat Units	(77/41EF)		7515	7510	7194	7469		--

1. Values followed by the same letter are not significantly different at the 5% level of probability using the Duncan Multiple Ra