

Alfalfa Variety Performance at Maricopa, 1999-2000

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Introduction

Alfalfa varieties are being introduced into the marketplace at a record-setting pace. The number of varieties available for low-elevation desert areas in Arizona in the non-dormant and very non-dormant class is about 44. New varieties are introduced each year and unbiased yield comparisons are helpful to the grower to base the decision of whether or not to sow a new variety. The study reported here is part of the on-going effort to evaluate alfalfa variety performance in Arizona.

Procedure

Alfalfa varieties and experimentals (potential varieties being evaluated for future release) were compared in a field study on a Casa Grande sandy loam soil on Field 107 at the Maricopa Agricultural Center near Maricopa, Arizona. The experimental design was a randomized complete block with four replications and 46 entries. Seed was sown on October 29, 1998 into five rows spaced 6 inches apart with a single row hand planter at a rate of 20 pounds of seed per acre. The plots were 3 ft. wide by 12 ft. long. Irrigation water was applied the same day as planting to germinate the seed. Irrigations of about 4 to 6 inches each were applied using the border flood method at an interval of twice per cutting. The plots were cut with a sickle-bar mower, the forage was raked, placed on a tarp, and weighed. The cutting interval at the peak of the season was every 4 weeks. The plots were subjected to insect pressure from Egyptian alfalfa weevil, various aphids, alfalfa caterpillar, beet armyworm, and whitefly, but damage from these pests was not severe enough to warrant chemical control. No herbicides or fertilizers were applied. The data was analyzed using nearest neighbor analysis and least-squares means are reported. Least-squares means were calculated for the annual totals and are not identical to the sum of the least-squares means of the individual harvests.

Discussion

Forage yields for the varieties tested are presented in Table 1. No general conclusions will be made from this study, which is part of an ongoing effort to evaluate alfalfa variety performance in Arizona. This information is intended to help growers decide whether or not to plant a new variety on a limited acreage on commercial farms. A new variety should be planted on a larger acreage only after the variety has been evaluated on a smaller acreage under farm-specific conditions.

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Table 1. Forage yield for alfalfa varieties and experimentals at Maricopa, AZ in 1999.

Variety	Source	1999							
		15-Apr	5-May	17-Jun	22-Jul	26-Aug	30-Sep	2-Dec	Total
----- Forage yield (lbs/plot) -----									
9L600	Forage Genetics	9.6	9.1	14.7	14.2	12.1	9.6	9.8	79.6
Aztec	Asgrow	9.1	9.0	14.3	13.4	11.7	8.4	7.7	75.0
Beacon	Forage Genetics	9.4	8.8	14.3	13.5	11.7	9.0	8.8	75.9
Coronado	Forage Genetics	9.2	9.0	14.2	13.7	11.6	8.5	8.0	74.7
CUF-101	Univ. CA	8.7	9.2	14.2	13.7	12.2	8.3	7.6	75.3
CW 59128	Cal/West	8.8	9.1	14.3	13.5	12.3	9.3	9.0	76.9
CW 5965	Cal/West	8.8	9.0	14.1	13.8	12.2	8.7	7.8	74.6
CW 5991	Cal/West	8.3	8.8	13.9	13.8	11.7	8.5	7.6	72.5
CW 69117	Cal/West	8.4	8.9	14.0	13.4	11.8	8.8	7.8	73.8
CW 69120	Cal/West	9.0	9.3	14.1	14.1	11.3	8.8	7.8	74.6
DK 180ML	Kamprath	8.9	9.1	13.5	13.0	9.9	8.3	7.2	69.7
DK 191	Kamprath	9.8	9.7	14.9	14.0	11.0	8.4	7.3	74.0
Magna 901	Dairyland	8.2	9.0	14.3	13.6	11.4	8.5	7.3	75.2
DS 881	Dairyland	9.1	9.4	14.1	13.7	11.3	8.4	7.3	73.0
DS 882	Dairyland	10.1	9.8	14.3	12.8	9.7	7.7	6.5	69.9
FG98-1000	Forage Genetics	8.7	8.9	14.0	13.9	12.4	8.9	8.9	76.3
Lew	Univ. AZ	9.1	8.9	14.2	14.0	12.1	9.1	8.5	76.5
Magna 8	Dairyland	9.4	9.0	14.7	13.8	11.9	8.7	7.7	75.7
Maricopa	MBS Inc.	8.9	9.1	14.4	14.0	12.1	8.4	7.2	74.1
Mecca III	MBS Inc.	8.8	9.2	14.2	14.3	12.1	9.0	7.9	75.3
Mesa	MBS Inc.	9.0	9.2	13.5	13.3	11.1	8.0	6.4	69.4
SW 8730	S&W Seed	9.1	9.2	13.9	13.6	11.3	8.4	7.5	72.9
SW 8816	S&W Seed	8.6	9.0	14.2	12.8	11.9	8.7	7.7	73.4
SW 8829	S&W Seed	8.9	8.6	13.5	13.6	11.3	8.6	7.3	71.2
SW 9500	S&W Seed	8.9	8.6	14.1	14.1	11.9	8.8	8.3	75.6
SW 9601	S&W Seed	8.5	8.3	13.7	12.9	12.1	8.7	8.4	72.9
SW 9720	S&W Seed	9.1	9.4	14.6	13.8	12.7	8.5	8.2	77.1
SW 9800	S&W Seed	8.0	8.5	13.8	13.8	12.9	9.3	9.0	76.5
UC-2524	Univ. CA	9.2	8.9	14.3	14.3	12.4	9.2	8.8	77.3
UC-2598	Univ. CA	9.4	8.9	14.0	13.7	11.7	8.7	8.5	75.0
UN 1718	Forage Genetics	9.6	9.9	14.3	13.3	10.9	8.8	7.4	73.2
WL 525HQ	W-L Research	9.2	9.3	14.3	14.3	11.5	8.2	7.5	74.1
WL 612	W-L Research	9.0	9.0	14.3	13.5	12.0	9.1	8.2	74.8
WL 711WF	W-L Research	8.2	8.5	14.4	13.6	12.4	9.7	9.1	76.2
WL 92296	W-L Research	8.6	8.9	13.7	13.3	12.2	9.0	8.1	73.5
WL C252	W-L Research	8.4	9.3	14.1	13.7	11.9	8.7	7.7	73.3
WL C345	W-L Research	9.3	8.9	13.9	13.3	11.5	8.4	7.8	73.6
XP3666	Asgrow	9.4	9.8	14.1	13.5	9.5	7.0	5.7	68.0
ZG 9891	ABI Alfalfa	9.2	9.5	14.0	13.1	10.4	7.9	6.6	70.4
ZS 9592	ABI Alfalfa	8.9	9.0	14.2	13.8	11.6	8.6	8.0	74.4
ZS 9890	ABI Alfalfa	9.2	8.8	13.8	13.5	11.2	8.8	7.5	73.2
ZX 9393	ABI Alfalfa	8.5	8.7	14.7	13.4	12.6	9.0	8.6	76.0
ZX 9699	ABI Alfalfa	8.5	9.2	13.5	12.7	10.6	7.5	6.9	69.3
ZX 9701	ABI Alfalfa	9.0	9.4	14.3	13.0	11.4	8.6	7.8	72.2
ZX 9791	ABI Alfalfa	9.2	9.4	14.2	13.4	11.7	8.4	7.5	73.9
ZX 9894	ABI Alfalfa	8.8	8.5	13.6	12.9	11.8	8.9	8.5	73.6
AVERAGE		9.0	9.1	14.1	13.6	11.6	8.6	7.8	74.0
CV (%)		6.2	6.9	4.3	5.0	4.5	6.0	6.6	6.0
LSD (5%)		0.8	0.6	0.7	1.0	0.9	0.7	0.7	5.3

Table 1(cont'd). Forage yield for alfalfa varieties and experimentals at Maricopa, AZ in 2000.

Variety	Source	2000									1999-00
		2-Mar	13-Apr	11-May	6-Jun	13-Jul	17-Aug	28-Sep	30-Nov	Total	Total
----- Forage yield (lbs/plot) -----											% CUF
9L600	Forage Genetics	12.5	15.3	19.1	18.8	14.6	10.6	7.0	5.8	103.8	108
Aztec	Asgrow	10.1	13.4	16.4	16.5	13.5	10.6	6.7	5.6	92.6	99
Beacon	Forage Genetics	11.0	13.8	17.2	17.4	14.5	11.0	7.2	5.7	97.4	102
Coronado	Forage Genetics	10.2	13.9	16.5	16.8	14.1	10.3	6.9	5.6	93.9	99
CUF-101	Univ. CA	11.0	13.4	16.5	17.0	13.8	10.1	6.5	5.2	93.5	100
CW 59128	Cal/West	11.0	14.0	17.8	18.3	15.1	11.9	7.6	5.9	102.3	106
CW 5965	Cal/West	9.6	13.1	16.3	17.0	14.5	11.7	7.5	5.6	95.3	100
CW 5991	Cal/West	10.2	13.4	16.5	16.4	14.3	10.8	7.2	5.5	94.1	97
CW 69117	Cal/West	10.4	13.8	16.8	16.8	13.9	11.2	6.9	5.5	95.1	99
CW 69120	Cal/West	10.3	13.4	16.8	16.7	14.5	10.7	6.8	5.4	94.3	99
DK 180ML	Kamprath	8.8	13.2	16.5	15.4	12.8	8.6	9.3	4.8	88.7	93
DK 191	Kamprath	10.1	13.0	16.2	15.9	13.4	9.7	6.1	5.2	89.3	95
Magna 901	Dairyland	9.8	13.2	15.5	16.6	13.9	10.7	6.9	5.2	91.5	96
DS 881	Dairyland	8.9	12.2	15.0	15.7	13.2	9.7	6.5	5.3	85.8	93
DS 882	Dairyland	8.7	12.4	14.0	13.9	11.8	8.5	6.0	5.0	80.1	87
FG98-1000	Forage Genetics	11.5	14.5	17.8	18.4	15.1	11.2	7.2	5.7	101.4	105
Lew	Univ. AZ	12.4	14.7	17.8	18.3	14.1	11.0	7.2	5.5	101.0	105
Magna 8	Dairyland	10.8	14.0	18.0	18.4	14.6	10.7	6.9	5.2	98.8	103
Maricopa	MBS Inc.	9.4	12.6	15.4	15.8	13.0	10.7	6.4	4.8	88.5	95
Mecca III	MBS Inc.	10.8	13.5	16.8	17.2	15.5	11.4	7.5	5.3	97.2	101
Mesa	MBS Inc.	8.3	12.1	14.1	14.5	12.4	9.5	6.2	4.8	81.4	88
SW 8730	S&W Seed	9.1	13.4	15.8	15.7	13.8	9.4	6.3	5.2	88.9	95
SW 8816	S&W Seed	10.4	13.2	16.0	17.3	14.7	11.6	7.7	5.7	96.4	99
SW 8829	S&W Seed	9.6	12.4	16.0	15.7	14.3	10.6	6.8	5.0	90.3	94
SW 9500	S&W Seed	10.7	13.4	17.1	16.9	14.3	10.8	7.1	5.3	95.9	102
SW 9601	S&W Seed	11.0	14.1	17.1	17.5	14.3	11.8	7.6	5.4	99.1	101
SW 9720	S&W Seed	10.8	13.9	17.3	18.4	14.7	11.8	7.1	5.6	100.2	105
SW 9800	S&W Seed	11.1	14.7	17.5	18.3	15.4	12.2	8.1	6.0	103.7	107
UC-2524	Univ. CA	11.8	14.6	17.7	18.2	14.0	10.5	7.1	5.7	99.3	103
UC-2598	Univ. CA	11.1	13.4	15.3	15.7	12.9	10.1	7.0	5.5	90.4	97
UN 1718	Forage Genetics	9.6	13.0	15.5	15.7	13.6	10.4	6.3	4.9	88.9	94
WL 525HQ	W-L Research	10.0	13.1	16.5	16.8	14.5	10.7	6.5	4.9	93.0	98
WL 612	W-L Research	11.7	14.1	16.7	16.4	14.6	10.7	7.3	5.3	95.4	100
WL 711WF	W-L Research	12.7	15.2	19.6	20.4	16.2	12.3	8.8	6.8	112.4	112
WL 92296	W-L Research	10.5	13.7	16.8	17.2	14.6	11.9	7.4	5.3	97.5	101
WL C252	W-L Research	10.3	13.1	16.5	16.4	13.5	11.4	6.9	5.2	93.4	97
WL C345	W-L Research	10.8	13.2	16.2	16.7	13.7	10.7	6.9	5.4	93.6	98
XP3666	Asgrow	6.8	11.4	13.7	12.9	10.7	7.4	4.8	4.1	71.7	80
ZG 9891	ABI Alfalfa	8.8	12.2	14.8	15.4	12.2	8.5	5.7	4.7	81.9	90
ZS 9592	ABI Alfalfa	11.0	14.1	17.9	17.7	14.3	10.2	6.1	4.9	96.5	101
ZS 9890	ABI Alfalfa	11.1	13.6	17.0	17.3	14.1	9.7	6.0	4.7	93.6	98
ZX 9393	ABI Alfalfa	12.0	14.7	18.6	17.6	14.4	11.1	7.3	5.7	101.6	105
ZX 9699	ABI Alfalfa	8.9	12.1	13.9	14.5	11.8	8.8	5.9	4.9	80.3	88
ZX 9701	ABI Alfalfa	10.0	13.2	16.9	16.3	14.1	10.0	6.7	5.2	92.3	98
ZX 9791	ABI Alfalfa	9.9	13.3	16.9	17.0	13.5	10.1	6.7	5.7	93.3	98
ZX 9894	ABI Alfalfa	11.8	14.1	16.9	17.8	14.3	10.8	6.7	5.4	98.3	101
AVERAGE		10.4	13.5	16.5	16.8	13.9	10.5	6.9	5.3	93.7	99
CV (%)		6.5	6.3	7.2	8.4	6.6	7.0	6.9	5.6	5.5	5.4
LSD (5%)		1.0	1.2	1.7	2.0	1.3	1.0	0.7	0.4	7.9	7.5