

Alfalfa Variety Performance at Tucson, 2003-2004

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Introduction

New alfalfa varieties are constantly being introduced into the marketplace. The number of varieties available for low-elevation desert areas in Arizona in the non-dormant and very non-dormant class is close to 50. 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. A summary of small grain variety trials conducted by the University of Arizona can be found online at <http://ag.arizona.edu/pubs/crops/az1267.pdf>.

Procedure

Alfalfa varieties and experimentals (potential varieties being evaluated for future release) were compared in a field study at the Campus Agricultural Center in Tucson, Arizona. The experimental design was a randomized complete block with four replications and 19 entries. Seed was sown on October 10, 2002 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 4 weeks. The plots were subjected to insect pressure from Egyptian alfalfa weevil, various aphids, alfalfa caterpillar, and beet armyworm, but damage from these pests was not severe enough to warrant chemical control. No herbicides or fertilizers were applied. Plant stand was estimated by counting crowns from two 3 ft² areas in each plot at the last cutting on 11 Nov 04. 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.

Acknowledgments

This research trial was supported by UAP Seeds, MBS Genetics, Pioneer Hi-Bred International, Inc., Cal-West Seeds, Fertilzona, S&W Seeds, ABI Alfalfa, Arizona Grain and Forage Genetics, and Desert Sun Marketing.

Table 1. Forage yield for alfalfa varieties and experimentals at Tucson, AZ.

Variety	Source	2003						2004			
		May 22	Jun 17	Jul 17	Aug 21	Oct 02	Nov 06	Feb 13	Mar 25	Apr 29	May 27
		----- Forage yield (lbs/plot) -----									
59 B49	Pioneer Hi-Bred	18.3	13.9	14.7	17.7	13.9	14.2	8.5	21.3	18.6	21.4
AL 899	UAP Seeds	15.7	11.3	13.2	15.2	12.7	12.4	8.5	20.5	18.8	21.0
AmS 8001 S	ABI Alfalfa	18.1	12.9	12.4	14.6	11.8	11.4	8.3	20.1	18.8	19.4
AZ Grain 1025	Forage Genetics	16.7	11.6	13.2	15.1	12.4	13.4	8.1	20.8	18.8	20.3
CUF 101	U. California	17.2	12.4	13.7	15.7	13.5	13.0	8.3	19.9	17.7	20.9
CW 89064	Cal West Seeds	17.9	12.7	14.6	16.2	13.3	13.3	9.1	21.5	19.9	21.2
CW 89092	Cal West Seeds	16.9	12.3	13.3	16.0	13.3	13.3	8.6	21.8	19.0	21.0
CW 99052	Cal West Seeds	17.6	13.0	13.9	16.0	13.5	13.6	8.8	21.8	19.1	21.6
Fertilac 10	Fertizona	16.5	11.5	13.5	15.4	13.1	13.2	8.1	20.5	18.1	19.0
Hallmark	Desert Sun Mkt.	19.0	12.3	12.7	14.8	11.8	11.5	9.3	21.1	18.2	18.0
Lew	U. Arizona	16.3	11.2	12.8	15.3	12.7	13.1	8.4	20.9	18.1	19.9
Mecca III	MBS Genetics	16.0	12.4	13.5	15.8	13.0	13.3	9.0	21.9	19.4	20.9
Pershing	MBS Genetics	16.7	12.0	13.1	15.6	12.2	13.2	8.6	21.4	19.2	20.5
Sequel HR	Desert Sun Mkt.	16.8	13.0	13.4	15.4	11.5	12.7	8.5	21.2	19.0	20.0
SW 101	S&W Seeds	16.7	12.5	13.3	15.9	13.0	13.3	8.7	20.9	19.4	19.7
SW 9217	S&W Seeds	17.3	13.6	14.2	17.2	14.0	14.5	8.7	22.2	18.7	21.8
SW 9218	S&W Seeds	16.5	12.7	14.0	15.9	12.8	13.0	8.6	21.4	18.9	21.2
UQL - 2	Desert Sun Mkt.	17.7	12.2	13.4	15.1	11.8	13.3	8.8	20.9	19.7	20.1
ZX 9899B	ABI Alfalfa	18.1	12.2	13.0	14.9	12.6	12.5	9.7	21.5	18.7	20.3
Average		17.2	12.4	13.5	15.7	12.8	13.1	8.7	21.1	18.8	20.4
CV (%)		6.1	7.9	6.5	6.9	5.6	4.8	7.3	5.9	5.1	4.2
LSD (5%)		1.4	1.1	1.2	1.5	1.1	0.9	0.9	1.7	1.4	1.2

Table 1 (Con'd). Forage yield for alfalfa varieties and experimentals at Tucson, AZ and final stand on 11 Nov 04.

Variety	Source	2004					2003	2004	Grand	Final
		Jun 24	Jul 22	Aug 19	Sep 23	Nov 11	Total	Total	Total	Stand
		----- Forage yield (lbs/plot) -----					----- % CUF 101 -----			crowns ft ²
59 B49	Pioneer Hi-Bred	18.7	18.5	20.3	16.7	12.2	106.5	104.5	105.9	5.4
AL 899	UAP Seeds	19.1	19.0	21.1	18.2	12.6	92.8	105.7	101.2	5.5
AmS 8001 S	ABI Alfalfa	16.9	15.4	16.7	15.8	10.8	92.9	95.3	94.5	5.3
AZ Grain 1025	Forage Genetics	17.0	16.7	18.4	16.6	13.3	94.4	101.2	98.7	5.6
CUF 101	U. California	18.7	18.1	19.4	17.4	13.3	100.0	100.0	100.0	5.3
CW 89064	Cal West Seeds	19.6	18.0	22.2	17.5	11.7	101.5	107.5	105.0	5.3
CW 89092	Cal West Seeds	17.3	18.4	20.3	17.5	12.7	97.2	105.6	102.4	5.9
CW 99052	Cal West Seeds	18.9	18.5	21.3	18.4	12.9	100.0	108.5	105.8	6.0
Fertilac 10	Fertizona	17.0	15.8	18.4	15.5	13.4	94.7	98.4	98.0	5.5
Hallmark	Desert Sun Mkt.	14.4	13.0	14.7	12.2	8.9	93.6	86.4	88.7	5.7
Lew	U. Arizona	18.3	17.4	20.4	16.8	12.4	92.5	102.4	100.2	4.6
Mecca III	MBS Genetics	19.3	17.7	21.0	17.6	12.7	96.3	106.6	103.2	5.9
Pershing	MBS Genetics	16.9	16.9	18.5	16.4	11.7	94.2	100.5	98.3	5.5
Sequel HR	Desert Sun Mkt.	17.5	14.4	15.1	12.0	10.0	94.4	92.4	94.4	5.6
SW 101	S&W Seeds	16.4	16.3	17.5	16.2	11.9	98.3	97.7	97.0	5.0
SW 9217	S&W Seeds	19.3	19.8	22.3	19.0	14.0	104.6	111.6	108.2	6.5
SW 9218	S&W Seeds	18.0	19.0	23.4	19.1	13.2	97.5	108.4	103.7	6.5
UQL - 2	Desert Sun Mkt.	18.4	15.9	17.6	16.3	12.4	94.8	99.2	97.8	5.3
ZX 9899B	ABI Alfalfa	17.6	17.0	20.1	16.7	12.3	95.0	103.6	100.3	5.5
Average		17.9	17.1	19.4	16.6	12.2	96.9	99.6	100.2	5.6
CV (%)		6.3	5.8	5.4	6.5	9.8	4.9	3.1	3.9	20.6
LSD (5%)		1.5	1.4	1.5	1.6	1.7	6.5	4.4	5.5	NS