

# Alfalfa Variety Performance at Tucson, 2001-2003

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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 about 46. 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. The data contained in this report are also available at <http://www.ag.arizona.edu/~azalfalf/yield/2000/>. 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 25 entries. Seed was sown on October 19, 2000 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 areas in each plot 3 ft<sup>2</sup> in size on 8 May 03. 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 Tucson, AZ in 2001.

Variety	Source	2001							
		21-Mar	19-Apr	17-May	13-Jun	7-Jul	16-Aug	27-Sep	20-Dec
----- Forage yield (lbs/plot) -----									
9002	United Agri Products	13.3	12.1	8.6	14.4	13.2	13.9	9.8	9.7
CUF 101	U. of California	11.9	10.8	8.0	13.9	13.4	13.9	9.7	10.3
CW 6975	Cal-West Seeds	13.9	12.5	8.6	13.0	12.0	12.6	9.8	10.4
CW 78118	Cal-West Seeds	12.2	11.7	8.6	14.1	13.1	14.1	10.4	10.2
CW 79103	Cal-West Seeds	13.2	11.9	8.6	14.1	12.5	12.6	9.6	10.5
CW 89061	Cal-West Seeds	11.6	11.0	8.0	13.1	12.4	12.6	9.2	9.9
CW 89064	Cal-West Seeds	12.6	11.6	8.1	14.0	13.9	13.3	9.6	9.3
CW 89068	Cal-West Seeds	13.0	12.2	8.8	13.5	13.4	13.5	8.8	9.1
CW 89132	Cal-West Seeds	11.9	11.6	8.4	14.3	13.3	12.5	9.4	9.7
DS 994	Dairyland Seed, Inc.	10.9	10.5	7.8	15.2	14.5	14.8	8.8	8.9
Lew	U. of Arizona	13.3	12.0	8.3	14.1	13.0	13.3	9.4	10.7
Magna 901	Dairyland Seed, Inc.	12.3	11.4	8.1	14.2	13.1	13.1	9.4	10.4
Maricopa	PGI Alfalfa, Inc.	12.9	12.1	8.3	13.6	12.8	13.5	9.5	9.9
Mecca III	PGI Alfalfa, Inc.	12.7	12.2	8.7	14.3	13.3	13.8	9.7	9.5
Pershing	PGI Alfalfa, Inc.	13.3	12.4	8.2	14.1	13.5	14.0	9.5	9.5
Salado	America's Alfalfa	14.0	12.4	8.3	14.2	13.0	13.2	9.3	9.1
Sedona	NK Brand Alfalfa	13.1	12.1	8.8	13.4	13.0	13.7	10.2	9.9
SW 101	S&W Seed Co.	13.8	12.9	9.4	14.4	13.1	13.3	10.2	10.1
SW 1028	S&W Seed Co.	13.1	12.1	8.5	14.5	13.8	13.6	10.3	9.3
WL 625HQ	W-L Research, Inc.	11.7	11.1	8.4	13.7	13.3	13.3	9.4	9.5
Y59N49	Pioneer Hi-Bred	13.1	11.8	8.3	14.0	13.4	13.4	9.3	8.9
ZS 0000	America's Alfalfa	12.1	11.5	8.4	14.0	13.5	13.6	9.5	9.3
ZS 0090	America's Alfalfa	12.5	12.5	9.0	14.7	14.0	13.9	9.8	9.6
ZS 9992	America's Alfalfa	13.7	12.5	8.2	13.6	13.1	13.0	9.0	9.4
ZS 9999G	America's Alfalfa	15.0	13.2	8.3	14.6	12.9	13.8	9.0	9.3
CV (%)		7.42	6.46	6.09	4.59	5.86	7.03	8.30	8.17
LSD (5%)		1.35	1.07	0.71	0.90	1.07	1.34	1.10	1.13

Table 1. (cont'd) Forage yield for alfalfa varieties and experimentals at Tucson, AZ in 2002.

Variety	Source	2002							
		25-Mar	2-May	23-May	27-Jun	1-Aug	3-Sep	24-Oct	31-Dec
----- Forage yield (lbs/plot) -----									
9002	United Agri Products	16.9	24.2	18.5	20.9	18.4	12.2	13.5	11.5
CUF 101	U. of California	17.1	24.9	19.0	20.4	18.3	13.2	13.1	11.4
CW 6975	Cal-West Seeds	16.7	25.9	19.0	20.1	17.5	12.2	12.5	11.7
CW 78118	Cal-West Seeds	17.7	25.3	19.0	20.1	18.7	13.6	13.7	11.2
CW 79103	Cal-West Seeds	16.4	24.6	19.0	20.6	18.4	12.6	12.8	11.2
CW 89061	Cal-West Seeds	17.2	24.6	17.5	21.6	17.5	12.9	12.9	11.6
CW 89064	Cal-West Seeds	17.5	23.6	18.9	20.5	18.2	12.4	12.7	11.6
CW 89068	Cal-West Seeds	16.5	23.3	18.0	19.3	16.9	12.9	12.3	10.4
CW 89132	Cal-West Seeds	17.4	24.2	18.9	20.4	18.4	12.6	13.5	11.1
DS 994	Dairyland Seed, Inc.	16.3	23.6	19.5	21.3	17.8	13.2	13.2	9.1
Lew	U. of Arizona	16.6	25.0	17.9	20.9	17.3	13.0	13.9	11.3
Magna 901	Dairyland Seed, Inc.	16.4	24.2	18.3	19.8	16.6	11.8	12.5	10.8
Maricopa	PGI Alfalfa, Inc.	16.6	24.9	19.0	21.2	18.5	13.2	12.7	11.3
Mecca III	PGI Alfalfa, Inc.	17.7	25.9	19.9	20.9	18.6	13.4	13.8	11.8
Pershing	PGI Alfalfa, Inc.	16.9	25.5	18.4	20.6	17.3	13.5	12.3	11.0
Salado	America's Alfalfa	15.9	25.1	18.5	20.7	17.3	12.3	13.3	11.1
Sedona	NK Brand Alfalfa	16.7	25.1	18.4	21.2	18.6	12.8	12.9	11.4
SW 101	S&W Seed Co.	17.0	25.3	19.1	20.1	18.7	12.0	13.3	9.5
SW 1028	S&W Seed Co.	17.1	23.5	19.7	20.8	18.9	13.1	12.9	11.7
WL 625HQ	W-L Research, Inc.	16.2	24.3	19.5	20.4	17.0	12.8	12.7	11.0
Y59N49	Pioneer Hi-Bred	16.3	24.1	17.6	19.7	16.5	12.1	12.3	10.3
ZS 0000	America's Alfalfa	16.8	24.8	19.8	20.7	18.3	13.4	13.2	11.6
ZS 0090	America's Alfalfa	16.7	25.0	20.0	20.7	18.4	13.2	13.3	11.4
ZS 9992	America's Alfalfa	16.7	25.6	19.1	20.0	17.9	12.6	13.0	11.8
ZS 9999G	America's Alfalfa	16.3	24.5	18.9	20.7	17.6	13.0	13.1	11.1
CV (%)		5.26	4.16	5.48	4.89	5.89	7.58	5.22	6.41
LSD (5%)		1.24	1.45	1.43	1.41	1.46	1.36	0.95	1.01

Table 1 (cont'd). Forage yield for alfalfa varieties and experimentals at Tucson, AZ in 2003.

Variety	Source	2003				2001	2002	2003	2001-2003	Stand on
		27-Mar	8-May	5-Jun	2-Jul	Total	Total	Total	Total	8-May-03
		---- Forage yield (lbs/plot) ----				----- % CUF -----				crowns ft <sup>-2</sup>
9002	United Agri Products	13.9	18.3	19.4	16.8	103.8	97.5	97.7	100.9	5.10
CUF 101	U. of California	12.7	19.7	20.0	18.0	100.0	100.0	100.0	100.0	4.92
CW 6975	Cal-West Seeds	12.8	19.4	19.5	17.2	100.8	98.8	98.2	99.6	5.25
CW 78118	Cal-West Seeds	13.6	19.5	20.5	18.4	102.7	101.4	102.6	102.3	4.75
CW 79103	Cal-West Seeds	13.9	18.9	19.8	17.1	100.6	99.3	99.6	99.2	4.89
CW 89061	Cal-West Seeds	13.1	19.8	20.1	16.8	95.8	98.7	99.8	97.3	5.00
CW 89064	Cal-West Seeds	13.7	20.0	20.2	17.4	101.8	97.4	101.4	100.4	4.42
CW 89068	Cal-West Seeds	13.2	17.7	19.3	17.2	100.9	92.3	95.7	97.0	4.78
CW 89132	Cal-West Seeds	12.0	17.5	19.6	17.5	99.4	99.2	94.3	97.9	5.08
DS 994	Dairyland Seed, Inc.	11.7	16.0	18.4	16.8	99.3	97.3	89.9	96.3	5.50
Lew	U. of Arizona	13.4	20.2	19.5	16.8	102.7	99.0	99.9	100.0	5.08
Magna 901	Dairyland Seed, Inc.	13.6	18.6	19.5	17.2	100.8	93.4	97.5	98.1	5.92
Maricopa	PGI Alfalfa, Inc.	12.9	19.7	20.9	17.3	100.9	99.6	100.9	100.6	4.92
Mecca III	PGI Alfalfa, Inc.	13.1	19.5	20.4	18.3	102.6	102.4	101.5	103.2	5.50
Pershing	PGI Alfalfa, Inc.	12.8	19.3	19.7	17.4	102.7	98.4	99.2	100.1	5.00
Salado	America's Alfalfa	13.4	18.1	19.6	16.4	102.0	97.0	96.1	98.9	4.50
Sedona	NK Brand Alfalfa	12.6	19.1	19.4	17.4	103.7	98.4	97.4	100.1	5.56
SW 101	S&W Seed Co.	13.8	20.4	20.5	17.4	106.2	100.0	102.9	103.0	5.42
SW 1028	S&W Seed Co.	12.6	19.2	20.4	19.1	104.4	98.0	100.6	102.9	5.50
WL 625HQ	W-L Research, Inc.	13.3	18.2	19.9	17.8	98.2	97.6	98.6	97.6	5.00
Y59N49	Pioneer Hi-Bred	12.1	18.2	19.1	16.9	100.6	92.8	94.2	95.9	5.00
ZS 0000	America's Alfalfa	12.7	19.3	20.7	18.1	100.4	99.9	101.1	100.8	5.33
ZS 0090	America's Alfalfa	12.8	19.4	20.0	17.8	104.4	100.7	99.5	101.7	5.44
ZS 9992	America's Alfalfa	12.8	18.5	18.9	16.9	100.7	98.7	95.5	99.1	4.83
ZS 9999G	America's Alfalfa	14.2	18.7	18.6	16.3	105.3	98.2	96.4	99.6	4.83
CV (%)		5.86	4.73	4.98	5.78	3.48	3.74	3.67	2.76	9.31
LSD (5%)		1.07	1.25	1.38	1.42	4.85	5.14	5.08	3.84	0.67