

Alfalfa Variety Demonstration at the Safford Agricultural Center, 1991

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Abstract

Yields are given for 20 varieties of alfalfa grown at the Safford Agricultural Center. Yields were down slightly from 1990. Mecca retained its number one position with a yield of 9.22 tons per acre and yielded nearly 4.4 tons per acre more than Cuf 101, over the four years of the trial.

Introduction

Long staple cotton is still the most important crop in the Safford area followed by upland cotton and then alfalfa. With current yields and value the alfalfa crop in Graham county is worth around \$3 million. This amount of money translates into a fair amount of interest in the crop. This test is a continuation of an alfalfa variety testing program that began more than 15 years ago.

Methods and Materials

Nineteen alfalfa varieties with fall dormancy rating from 6 to 8 are included in this test, with Spredor II (FD 1) used in buffer areas between the replicates.

Crop History

Location: Safford Agricultural Center
Elevation: 2950 feet above sea level
Soil type: Pima clay loam variant
Planted: 18 September 1987. Rate: 25 pounds per acre
Fertilizer: 300 pounds per acre of 16-20-0, preplant
Plot size: 2.5 feet by 20 feet
Replicates: Four

Plots were cut by hand, using a Jari mower and raked and weighed immediately to prevent loss of moisture. Weights were converted to dry weight at 12% moisture for reporting purposes.

Results and Discussion

The yields declined slightly from 1990 to 1991, but this is to be expected in this area when you go into the fourth year of production. In Table 1 Mecca was the top variety at each cutting except for the September cutting. This same trend was seen in 1990 (1). From Table 2 Mecca was seen to be consistent throughout the four years of the test as the top yielding variety.

The fall dormancy classes were taken from a publication by Ottman and Smith (2). A newer system has been developed with the very non-dormant cultivars being classified as 9's. For consistency throughout this trial we have stayed with the older convention. As has been noted in the past, with a couple of exceptions, the very non-dormant cultivars tend to yield more than those with more dormancy.

References

1. Clark, L.J. and R.E. Cluff. 1991. Alfalfa Variety Demonstration at the Safford Agricultural Center, 1990. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson. Series P-90, pp. 10-12.
2. Ottman, M. and S. Smith. 1989. Alfalfa Cultivars for Arizona, 1989. Cooperative Extension, The University of Arizona, Tucson, AZ.

Table 1. Fourth year yield summary for 20 alfalfa varieties grown at 2950 feet above sea level in Southeastern Arizona. Yields are in tons per acre corrected to 12% moisture, ranks are in parentheses.

Variety	Cut 1 2 Apr	Cut 2 15 May	Cut 3 17 Jun	Cut 4 19 Jul	Cut 5 3 Sep	Cut 6 24 Oct	Total	% of Cuf 101
Mecca	0.51 (1)	1.53 (1)	1.75 (1)	1.99 (1)	1.42 (2)	1.07 (1)	8.27 a ¹	119.6
Madera	0.39 (2)	1.41 (2)	1.53 (3)	1.90 (4)	1.31 (3)	1.03 (2)	7.57 ab	109.5
Condor	0.36 (4)	1.26 (5)	1.56 (2)	1.99 (1)	1.31 (4)	0.93 (7)	7.40 abc	107.1
Palmer Special	0.33 (9)	1.26 (6)	1.47 (7)	1.91 (3)	1.45 (1)	0.98 (4)	7.39 abcd	106.9
Sundor	0.37 (3)	1.41 (3)	1.41 (12)	1.74 (10)	1.20 (13)	0.93 (6)	7.05 abcde	102.1
KX87001	0.36 (5)	1.27 (4)	1.42 (10)	1.71 (11)	1.28 (5)	1.01 (3)	7.05 abcde	102.1
Sutter	0.24 (16)	1.20 (10)	1.47 (6)	1.88 (5)	1.27 (8)	0.92 (8)	6.98 bcde	101.0
Valiant	0.35 (6)	1.20 (8)	1.45 (8)	1.83 (6)	1.23 (12)	0.90 (9)	6.95 bcde	100.6
Cuf 101	0.34 (8)	1.20 (9)	1.49 (5)	1.75 (9)	1.27 (6)	0.86 (13)	6.91 bcde	100.0
Maricopa	0.34 (7)	1.25 (7)	1.41 (11)	1.75 (8)	1.15 (15)	0.94 (5)	6.86 bcde	99.2
J-82	0.28 (14)	1.17 (11)	1.44 (9)	1.78 (7)	1.23 (11)	0.89 (10)	6.79 bcde	98.3
Pioneer 5929	0.30 (11)	1.14 (12)	1.26 (15)	1.61 (15)	1.25 (10)	0.88 (11)	6.44 bcdef	93.2
WL 516	0.29 (12)	1.13 (13)	1.23 (16)	1.57 (16)	1.27 (7)	0.80 (15)	6.28 bcdef	90.9
GT 13R+	0.28 (13)	1.09 (15)	1.29 (14)	1.62 (14)	1.14 (16)	0.74 (16)	6.15 cdef	89.0
WL 605	0.31 (10)	1.08 (16)	1.19 (18)	1.66 (12)	1.07 (17)	0.80 (14)	6.11 cdef	88.4
Yolo	0.19 (19)	0.92 (18)	1.51 (4)	1.64 (13)	0.95 (20)	0.87 (12)	6.07 def	87.9
Ardiente	0.27 (15)	1.11 (14)	1.22 (17)	1.47 (19)	1.27 (9)	0.72 (18)	6.06 ef	87.7
Lew	0.23 (17)	0.98 (17)	1.37 (13)	1.56 (17)	1.16 (14)	0.72 (17)	6.03 ef	87.2
Baron	0.20 (18)	0.80 (19)	0.99 (19)	1.49 (18)	1.04 (18)	0.67 (19)	5.18 f	75.0
Spredor II	0.05 (20)	0.49 (20)	0.77 (20)	0.85 (20)	1.02 (19)	0.50 (20)	3.67 g	53.2
Grand mean	0.30	1.14	1.36	1.68	1.22	0.857	6.56	
LSD(05)	0.12	0.30	0.27	0.31	0.23	0.20	1.10	
% CV	40.8	25.9	20.3	18.4	15.6	22.3	18.0	

1. Values followed by the same letter are not significantly different at the 5% level.

Table 2. Four year summary for 20 alfalfa varieties grown at 2950 feet above sea level in southeastern Arizona.

Variety	Fall Dormancy	1988 ¹	1989	1990	1991	Average	% of Cuf 101
Mecca	8	7.69 (1)	12.04 (1)	8.86 (1)	8.26 (1)	9.22 a ²	113.3
Madera	7	7.27 (8)	10.88 (3)	8.55 (2)	7.57 (2)	8.57 ab	105.3
Palmer Spec	8	7.41 (3)	11.16 (2)	7.67 (8)	7.39 (4)	8.41 abc	103.4
KX 87001		7.35 (5)	10.79 (6)	8.18 (4)	7.05 (6)	8.34 abc	102.6
Condor	7	6.96 (14)	10.62 (7)	8.28 (3)	7.40 (3)	8.31 abc	102.2
Cuf 101	8	7.29 (7)	10.82 (4)	7.51(11)	6.91 (9)	8.13 bcd	100.0
Pioneer 5929	8	7.59 (2)	10.80 (5)	7.62 (9)	6.44 (12)	8.11 bcd	99.8
Sundor	8	7.25 (9)	10.53 (9)	7.40 (12)	7.05 (5)	8.06 bcd	99.1
Valiant	8	7.17 (11)	10.53 (8)	7.08 (14)	6.95 (8)	7.93 bcde	97.5
Maricopa	7	7.20 (10)	9.67 (11)	7.99 (6)	6.86 (10)	7.93 bcde	97.5
WL 516	7	7.33 (6)	9.53 (13)	7.24 (13)	6.28 (13)	7.60 bcdef	93.4
J-82		6.33 (19)	9.54 (12)	7.53 (10)	6.79 (11)	7.55 bcdef	92.8
Sutter	6	6.60 (17)	8.86 (16)	7.75 (7)	6.98 (7)	7.55 bcdef	92.8
WL 605	8	7.06 (13)	9.50 (14)	6.99 (15)	6.11 (15)	7.42 cdef	91.2
Yolo	6	7.35 (4)	9.75 (10)	8.02 (5)	6.07 (16)	7.39 cdef	90.9
Ardiente	7	6.82 (15)	8.89 (15)	6.62 (16)	6.06 (17)	7.10 def	87.3
GT-13R+	7	6.38 (18)	8.86 (17)	6.45 (17)	6.15 (14)	6.96 efg	85.5
Lew	8	6.62 (16)	8.84 (18)	5.79 (18)	6.03 (18)	6.82 fg	83.8
Baron	6	7.15 (12)	7.00 (20)	4.64 (20)	5.18 (19)	5.99 gh	74.9
Spredor II	1	5.72 (22)	5.84 (21)	4.37 (21)	3.65 (20)	5.30 h	65.2
Grand mean		6.95	9.35	6.97	6.35	7.40	
LSD (05)		0.49	1.29	1.11	1.10	0.92	
C.V. (%)		7.40	4.95	22.9	21.5	17.4	

1. The 1988 yields are from cuttings 2 through 6, the first cutting was sacrificed to alfalfa weevil.
2. Values followed by the same letter are not significantly different at the 5% level using Duncan's Multiple range test.