

# **Alfalfa Variety Demonstration at the Safford Agricultural Center, 1989**

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## ***Abstract***

*Yields by cutting are given for 22 varieties of alfalfa grown at the Safford Agricultural Center. Yields were good in 1989 with 9 of the varieties yielding over 10 tons per acre in 7 cuttings and the top variety yielding 12 tons per acre. Graphs are shown comparing yields by cutting between sister varieties of differing fall dormancy classes.*

## **Introduction**

Alfalfa continues to be the number three crop in Graham county with approximately 4000 acres in production. Prices for hay have been good for producers and interest remains constant about increasing production. This report is on the second year's production of this demonstration plot.

## **Methods and Materials**

Twenty-one 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

Table 1. Second year yield summary for 22 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 20 Apr	Cut 2 30 May	Cut 3 26 Jun	Cut 4 27 Jul	Cut 5 29 Aug	Cut 6 29 Sep	Cut 7 30 Oct	Total	% of Cuf 101
Mecca	1.62 (1)	1.83 (1)	2.26 (1)	2.26 (1)	1.86 (1)	1.25 (1)	0.96 (1)	12.04 a <sup>1</sup>	111.4
Palmer Spec	1.45 (7)	1.63 (6)	2.14 (2)	2.20 (2)	1.69 (2)	1.18 (3)	0.87 (4)	11.16 ab	103.2
Madera	1.51 (5)	1.76 (4)	1.99 (6)	2.00 (7)	1.60 (5)	1.16 (6)	0.86 (6)	10.88 ab	100.6
Cuf 101	1.46 (6)	1.59 (8)	2.03 (4)	2.09 (3)	1.60 (4)	1.19 (2)	0.86 (7)	10.82 ab	100.0
Pioneer 5929	1.54 (3)	1.80 (2)	1.95 (9)	2.07 (4)	1.49 (9)	1.15 (7)	0.80 (6)	10.80 ab	99.9
KX 87001	1.57 (2)	1.77 (3)	1.97 (8)	2.03 (6)	1.51 (7)	1.18 (5)	0.77 (12)	10.79 ab	99.8
Condor	1.42 (8)	1.58 (9)	1.97 (7)	1.95 (8)	1.61 (3)	1.18 (4)	0.90 (2)	10.62 ab	98.2
Valiant	1.33 (11)	1.51 (11)	2.07 (3)	2.03 (5)	1.59 (6)	1.12 (8)	0.88 (3)	10.53 ab	97.4
Sundor	1.52 (4)	1.70 (5)	2.00 (5)	1.93 (9)	1.50 (8)	1.08 (9)	0.79 (11)	10.53 ab	97.4
Yolo	1.33 (12)	1.38 (16)	1.92 (10)	1.93 (10)	1.30 (15)	1.04 (12)	0.87 (5)	9.75 b	90.2
Maricopa	1.25 (15)	1.48 (13)	1.75 (14)	1.89 (11)	1.44 (11)	1.05 (10)	0.82 (8)	9.67 b	89.5
J-82	1.19 (16)	1.38 (15)	1.80 (12)	1.82 (13)	1.49 (10)	1.05 (11)	0.81 (9)	9.54 b	88.3
WL 516	1.34 (9)	1.59 (7)	1.76 (13)	1.80 (14)	1.37 (12)	0.99 (14)	0.67 (16)	9.53 b	88.2
WL 605	1.30 (13)	1.55 (10)	1.68 (18)	1.87 (12)	1.37 (13)	1.01 (13)	0.72 (13)	9.50 b	87.9
Ardiente	1.34 (10)	1.51 (12)	1.73 (16)	1.70 (16)	1.24 (18)	0.83 (18)	0.54 (18)	8.89 bc	82.2
Sutter	1.11 (18)	1.43 (14)	1.71 (17)	1.59 (18)	1.35 (14)	0.95 (15)	0.71 (14)	8.86 bc	82.0
GT 13R+	1.25 (14)	1.36 (17)	1.75 (15)	1.72 (15)	1.27 (17)	0.89 (17)	0.61 (17)	8.86 bc	82.0
Lew	1.18 (17)	1.30 (18)	1.81 (11)	1.66 (17)	1.28 (16)	0.92 (16)	0.68 (15)	8.84 bc	81.8
Pierce <sup>2</sup>	1.05 (20)	1.26 (20)	1.24 (20)	1.30 (19)	0.98 (19)	0.70 (19)	0.47 (19)	7.02 cd	64.9
Baron	1.07 (19)	1.27 (19)	1.48 (19)	1.19 (20)	0.82 (20)	0.69 (20)	0.47 (20)	7.00 cd	64.8
Spredor II	0.97 (21)	1.03 (21)	1.17 (21)	1.05 (21)	0.81 (21)	0.52 (21)	0.30 (21)	5.84 d	54.0
HyPhy <sup>3</sup>	0.82 (22)	0.87 (22)	0.79 (22)	0.68 (22)	0.48 (22)	0.31 (22)	0.19 (22)	4.14 e	38.3
GRAND MEAN	1.30	1.48	1.77	1.76	1.35	0.97	0.71	9.35	
% CV	6.32	4.75	6.34	7.76	10.52	8.93	14.37	4.95	
LSD (05)	0.24	0.30	0.24	0.28	0.23	0.15	0.12	1.29	

1. Values followed by the same letter are not significantly different at the 5% level using the Student-Newman-Keul's test.
2. Differences between these plots and a bulk planting of Pierce raise a question of veracity on this variety.
3. The stand of HyPhy was poor, probably due to old seed.

Mecca showed its strength even more strongly than in the 1988 season (1), being the top yielding variety in each cutting. Palmer Special, Madera and Cuf 101 also increased their ranking during the 1989 season. Yields were very good with 9 of the varieties yielding over 10 tons per acre.

Table 2. Two year summary for 22 alfalfa varieties grown at 2950 feet above sea level in southeastern Arizona.

Variety	Fall Dormancy	1988 <sup>1</sup>	1989	Average	% of Cuf 101
Mecca	8	7.69 (1)	12.04 (1)	9.87 a <sup>2</sup>	108.9
Palmer Spec	8	7.41 (3)	11.16 (2)	9.29 ab	102.5
Pioneer 5929	8	7.59 (2)	10.80 (5)	9.20 abc	101.5
Madera	7	7.27 (8)	10.88 (3)	9.07 abcd	100.2
KX 87001		7.35 (5)	10.79 (6)	9.07 abcd	100.2
Cuf 101	8	7.29 (7)	10.82 (4)	9.05 abcd	100.0
Sundor	8	7.25 (9)	10.53 (9)	8.89 a-e	98.2
Valiant	8	7.17 (11)	10.53 (8)	8.85 a-e	97.7
Condor	7	6.96 (14)	10.62 (7)	8.79 a-e	97.1
Yolo	6	7.35 (4)	9.75 (10)	8.55 b-e	94.4
Maricopa	7	7.20 (10)	9.67 (11)	8.44 b-e	93.2
WL 516	7	7.33 (6)	9.53 (13)	8.43 b-f	93.1
WL 605	8	7.06 (13)	9.50 (14)	8.28 b-f	91.4
J-82		6.33 (19)	9.54 (12)	7.93 b-f	87.6
Ardiente	7	6.82 (15)	8.89 (15)	7.86 c-f	86.7
Lew	8	6.62 (16)	8.84 (18)	7.73 d-g	85.4
Sutter	6	6.60 (17)	8.86 (16)	7.73 d-g	85.4
GT-13R+	7	6.38 (18)	8.86 (17)	7.62 e-g	84.2
Baron	6	7.15 (12)	7.00 (20)	7.08 fg	78.1
Pierce <sup>3</sup>	7	6.32 (20)	7.02 (19)	6.67 g	73.1
Spredor II	1	5.72 (22)	5.84 (21)	5.78 g	63.8
HyPhy <sup>4</sup>		6.03 (21)	4.14 (22)	5.08 h	56.2
Grand mean		6.95	9.35	8.17	
% CV		7.40	4.95	14.72	
LSD (05)		0.49	1.29	0.81	

1. The 1988 yields are from cuttings 2 through 6, the first cutting was sacrificed to alfalfa weevil and a seventh cutting was not taken.
2. Values followed by the same letter are not significantly different at the 5% level using the Student-Newman-Keul's test.
3. See note on Pierce in Table 1.
4. See note on HyPhy in Table 1.

The fall dormancy classes are taken from were taken from a publication by Ottman and Smith (2) and it is noted that with few exceptions, the more non-dormant varieties yielded more than the other varieties. Looking at sister varieties in different dormancy classes, Figures 1 and 2, it can be seen that normally the less dormant varieties start quicker in the spring, peak higher and then produce more in the fall. One may be concerned about the more non-dormant varieties losing their stand before the more dormant varieties. A variety trial in its fifth year in Greenlee county (3) would give evidence that this is not the case.

## References

1. Clark, L.J. and R.E. Cluff. 1989. Alfalfa variety demonstration at the Safford Agricultural Center, 1988. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson. Series P-79, pp. 16-18.
2. Ottman, M. and S. Smith. 1989. Alfalfa Cultivars for Arizona, 1989. Cooperative Extension, The University of Arizona, Tucson, AZ.
3. Clark, L.J. and E. DeRosa. 1990. Alfalfa variety trial in Greenlee county, 1989. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson. In press.

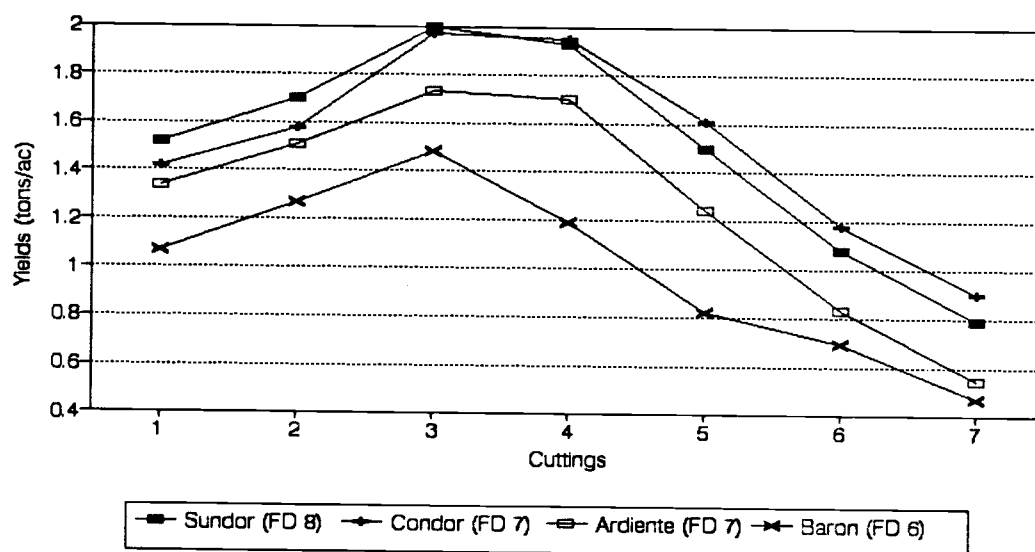


Figure 1. Yield by cutting for two Northrup King and two AgriPro cultivars of differing fall dormancy class.

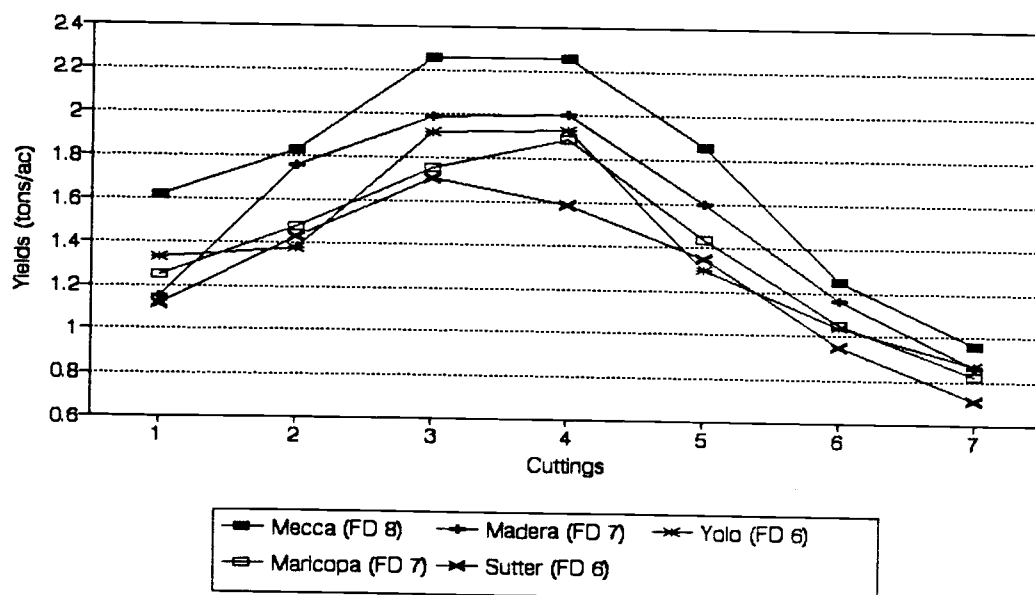


Figure 2. Yield by cutting for five Plant Genetics cultivars of differing fall dormancy class.