

Alfalfa Variety Trial in Greenlee County, 1989

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Abstract

Ten alfalfa varieties, ranging from very non-dormant to moderately dormant cultivars, have been grown and yields compared over a four year period. No significant differences were noted in the yields for 1989; all varieties yielded over 8 tons per acre in 6 cuttings. Interesting changes are taking place, however, with the very non-dormant varieties continuing their productivity and the more dormant varieties productivity declining.

Introduction

This varietal evaluation on alfalfa is the continuation of the trial started in 1985, covering a crop of economic importance to Greenlee county. Most stands of alfalfa in the southeastern part of Arizona have begun to thin by their third year, so following varietal yields a fourth year normally only serves as a post mortem examination of which varieties fell apart worse. This is not the case for this particular trial; yields of all varieties were respectable.

Materials and Methods

In 1985, ten varieties of alfalfa were planted in Greenlee county to find the variety that would produce the most hay per acre over the life of the stand. Different varieties were selected which were felt to be adapted to the area and were selected from a range of fall dormancy classes. These plots have been maintained for four years with hand cuttings being taken each time the field was cut.

Crop History

Location: Larry Barney farm, north of Duncan
Elevation: 3500 feet above sea level
Soil type: Pima silty clay loam
Planted: 11 September 1985, 25 pounds per acre
Replications: Four

Plots were cut using a Jari hand mower and weighed immediately to avoid moisture loss. The weights were then converted to dry weight at approximately 12% moisture.

Results and Discussion

Table 1. Fourth year summary for 10 alfalfa varieties at 3600 feet above sea level in southeastern Arizona. Yields are in tons per acre corrected to 12% moisture, ranks are in parentheses.

Variety	Cut 1 26 Apr	Cut 2 5 Jun	Cut 3 6 Jul	Cut 4 8 Aug	Cut 5 13 Sep	Cut 6 14 Oct	Total	% of Baron
Lew	1.91 (6)	2.05 (7)	2.01 (1)	1.20 (3)	1.18 (1)	1.12 (4)	9.46 a*	1.08
Cuf 101	1.94 (5)	2.19 (2)	1.84 (4)	1.24 (1)	1.09 (4)	1.14 (3)	9.45 a	1.08
Pioneer 5929	1.84 (7)	2.08 (4)	1.84 (5)	1.23 (2)	1.15 (2)	1.18 (1)	9.31 a	1.07
Valiant	1.81 (9)	2.06 (6)	1.87 (3)	1.15 (4)	1.08 (6)	1.15 (2)	9.12 a	1.04
Ardiente	1.95 (3)	2.25 (1)	1.82 (6)	1.13 (6)	0.99 (9)	0.97 (6)	9.11 a	1.04
Pierce	2.01 (2)	2.09 (3)	1.74 (9)	1.11 (7)	1.07 (7)	0.97 (7)	8.99 a	1.03
Hy Pty	1.95 (4)	1.93 (9)	1.97 (2)	1.14 (5)	1.09 (5)	0.69 (10)	8.78 a	1.00
Baron	1.82 (8)	2.06 (5)	1.79 (8)	1.09 (8)	1.14 (3)	0.84 (8)	8.73 a	1.00
Palmer Spec.	1.54 (10)	1.81 (10)	1.80 (7)	1.06 (9)	1.04 (8)	1.09 (5)	8.34 a	0.95
Rincon	2.07 (1)	1.95 (8)	1.60 (10)	0.83 (10)	0.83 (10)	0.69 (10)	8.11 a	0.93
Grand mean	1.88	2.05	1.83	1.12	1.07	1.00	8.94	
% CV	10.48	9.53	12.40	16.80	13.40	18.02	7.60	
LSD (05)	0.24	0.25	0.25	0.25	0.18	0.14	0.85	

* Values followed by the same letter are not different at the 5% level using the Student-Newman-Keul's test.

Lew retained its first place position from the previous year, but Cuf 101 had essentially the same yield and jumped from fifth to second place. Pierce also increased in its rating from the previous year, its yield was about the same as last year, but other varieties ranked around it declined in production. Table 2 gives a four-year summary of the yield data.

Table 2. Four year summary for 10 alfalfa varieties grown at 3600 feet above sea level in southeastern Arizona. Yields are in tons per acre corrected to 12% moisture, ranks are in parentheses.

Variety	1986	1987	1988	1989	Average	% of Baron
Cuf 101	6.52 (5)	10.69 (2)	9.08 (5)	9.45 (2)	8.94 a*	100.8
Pio 5929	6.68 (3)	10.23 (6)	9.22 (2)	9.31 (3)	8.86 ab	100.0
Baron	7.09 (1)	10.59 (3)	9.02 (7)	8.73 (8)	8.86 ab	100.0
Valiant	6.44 (6)	10.75 (1)	9.03 (6)	9.12 (4)	8.84 ab	99.7
Lew	6.64 (4)	9.48 (8)	9.36 (1)	9.46 (1)	8.74 ab	98.6
Pierce	6.64 (4)	10.33 (5)	8.95 (8)	8.99 (6)	8.73 ab	98.5
Ardiente	6.18 (7)	10.01 (7)	9.14 (3)	9.11 (5)	8.61 abc	97.2
Hy Pty	7.08 (2)	9.30 (9)	9.11 (4)	8.78 (7)	8.57 bc	96.7
Palmer Spec.	5.99 (8)	10.50 (4)	8.75 (10)	8.34 (9)	8.40 c	94.4
Rincon	5.42 (9)	8.69 (10)	8.86 (9)	8.11 (10)	7.77 d	87.7
Grand mean	6.40	10.00	9.05	8.94	8.63	
% CV	7.5	6.5	1.8	7.6	4.46	
LSD (05)	0.13	0.10	0.73	0.85	0.21	

* Values followed by the same letter are not different at the 5% level using the Student-Newman-Keul's test.

Two of the very non-dormant varieties, Cuf 101 and Pioneer 5929, finally overtook Baron as its yield continued to decline with time. The average yield of the trial was very similar to the previous year, but the very non-dormant varieties generally increased in yield with the more dormant varieties declining.

At the end of the year, stands of all varieties seemed acceptable, so the trial will be extended through the 1990 season.

References

1. Clark, L.J. and Edith DeRosa. 1989. Alfalfa variety trial in Greenlee county, 1988. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-79, pp. 13-15.
2. DeRosa, E. and L.J. Clark. 1988. Alfalfa variety trial in Greenlee county, 1987. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-74, pp. 39-41.