Alfalfa Variety Trial in Southeastern Arizona, 1992-93

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Abstract

Twenty alfalfa varieties with Fall Dormancy ratings of 8 or 9 were tested in a replicated small plot trial on the Safford Agricultural Center. The leading variety after two years of cuttings is Mesa (formerly known as 84D92, an experimental from MBS, Inc). Two other varieties with FD ratings of 6 and 10 were included in the study for comparison. Heat units with thresholds of 77° F and 40° F are included for each cutting in the study.

Introduction

The previous alfalfa variety trial had run its course and was replaced by the one currently being reported. Most of the better varieties from the previous trial were placed in this one along with several new varieties that seemed promising. Since beginning the previous trial the field dormancy ratings were changed with the very non-dormant varieties being listed as 9's instead of 8's, so with this trial we will go to the new convention. The 1993 harvest of this trial marks the 18th year of continuous alfalfa variety testing in Graham county.

Materials and Methods

Twenty one alfalfa varieties with fall dormancy ratings ranging from 8 to 10 are included in this test. Meteor variety, with a fall dormancy rating of 6 was 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: 24 September 1991
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% for reporting purposes.

Results and Discussion

Yield results by cutting from the first harvest year in 1992 are shown in Table 1. Variety 84D92, an experimental variety from MBS, Inc, which has recently been named Mesa, was the highest yielding variety with its strength coming early in the season. Several of the Fall Dormancy (FD) 8 varieties were at the top of the test for the first year's cuttings. The yield results of the second year's cuttings are found in Table 2. In the second year of the trial Pioneer 5929, our leading variety several years ago, was the best yielding variety. Mesa, Maricopa and Falcon, the leaders in the first years harvest were all surpassed by more non-dormant varieties. Mesa faired the best of

varieties, coming in fourth place and maintaining a spot above Mecca, the leader in the previous alfalfa variety trial (1). Table 3 show the summary of the two years cuttings with the cumulative values of the cuttings. Because of the strength of the first years data, Mesa retained its lead in the trial.

The fall dormancy ratings were taken from the listing published by the Certified Alfalfa Seed Council(2).

References

1. Clark, L.J., E.W. Carpenter and R.E. Cluff. 1992. Alfalfa Variety Demonstration at the Safford Agricultural Center, 1991. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson. Series P-92, pp. 3-5.

2. *Alfalfa Varieties 1993/94 Edition.* Certified Alfalfa Seed Council, P.O. Box 1017, Davis, CA 95617-1017.

Table 1. First 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. (Graham county, Safford Agricultural Center. 32° 49' S. Latitude)

Variety	Cut 1 10 Apr	Cut 2 26 May	Cut 3 30 Jun	Cut 4 4 Aug	Cut 5 4 Sep	Cut 6 9 Oct	Total	% of Cuf 101
Mesa (84D92)	2.22 (2)	1.97 (4)	1.76 (1)	1.63 (4)	1.04 (19)	1.03 (3)	9.64 a	105.9
Maricopa	2.24 (1)	1.97 (3)	1.58 (9)	1.63 (5)	1.14 (14)	0.92 (19)	9.49 ab	104.3
Falcon	2.17 (3)	2.00 (1)	1.57 (10)	1.47 (19)	1.15 (12)	0.99 (17)	9.36 ab	102.9
UC 329	1.97 (9)	1.94 (6)	1.61 (5)	1.75 (1)	0.89 (22)	1.13 (1)	9.30 ab	102.2
Pioneer 5888	1.99 (7)	1.93 (8)	1.59 (6)	1.55 (10)	1.20 (6)	1.01 11)	9.27 ab	101.9
Mecca	1.92 (13)	2.00 (2)	1.48 (17)	1.57 (8)	1.25 (1)	0.99 (15)	9.21 ab	101.2
UC 340	2.00 (5)	1.82 (17)	1.70 (2)	1.56 (9)	1.07 (18)	1.01 (8)	9.16 ab	100.7
Pioneer 5929	1.75 (19)	1.84 (15)	1.68 (3)	1.64 (3)	1.19 (8)	1.05 (2)	9.15 ab	100.5
UC 342	1.93 (12)	1.87 (11)	1.58 (8)	1.54 (12)	1.19 (7)	1.00 (12)	9.12 ab	100.2
GT 13R Supreme	2.01 (22)	1.92 (9)	1.51 (13)	1.49 (17)	1.21 (5)	0.99 (16)	9.12 ab	100.2
Cuf 101	1.78 (18)	1.81 (19)	1.68 (4)	1.58 (7)	1.21 (4)	1.03 (6)	9.10 ab	100.0
Condor	1.73 (20)	1.96 (5)	1.56 (11)	1.64 (2)	1.18 (9)	1.03 (4)	9.10 ab	100.0
Madera	1.95 (10)	1.80 (21)	1.59 (7)	1.51 (13)	1.22 (3)	1.01 (9)	9.08 abc	99.8
Pioneer 5715	1.89 (15)	1.90 (10)	1.43 (20)	1.62 (6)	1.22 (2)	1.01 (10)	9.07 abc	99.7
ABI 9194	2.00 (6)	1.87 (12)	1.45 (18)	1.49 (14)	1.17 (11)	0.99 (14)	8.98 abc	98.7
PGI 8633C	1.79 (17)	1.86 (13)	1.50 (15)	1.55 (11)	1.15 (13)	1.02 (7)	8.88 abc	97.6
Yolo	2.08 (4)	1.86 (14)	1.50 (14)	1.44 (20)	1.10 (16)	0.88 (20)	8.87 abc	97.5
Cibola	1.80 (16)	1.82 (18)	1.56 (12)	1.47 (18)	1.17 (10)	0.99 (13)	8.81 abc	96.8
Sundor	1.90 (14)	1.84 (16)	1.45 (19)	1.49 (16)	1.09 (17)	1.03 (5)	8.80 abc	96.7
Pierce	1.98 (8)	1.80 (20)	1.33 (22)	1.42 (21)	1.13 (15)	0.84 (21)	8.52 abc	93.6
Meteor	1.94 (11)	1.93 (7)	1.49 (16)	1.33 (22)	0.92 (21)	0.67 (22)	8.28 bc	91.0
Arabian	1.43 (21)	1.54 (22)	1.42 (21)	1.49 (15)	1.02 (20)	0.97 (18)	7.88 c	86.6
HU(77/40)	1531	1374	1163	1230	1076	1119	7493	
GRAND MEAN	1.93	1.88	1.55	1.54	1.13	0.98	9.01	
LSD (05)	0.24	0.27	0.32	0.24	0.20	0.21	1.03	
% CV	12.3	10.8	14.7	13.5	15.0	16.3	8.49	

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

Table 2. 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. (Graham county, Safford Agricultural Center. 32° 49' S. Latitude)

Variety	Cut 1 27 Apr	Cut 2 2 Jun	Cut 3 6 Jul	Cut 4 5 Aug	Cut 5 13 Sep	Cut 6 25 Oct	Total	% of Cuf101
Pio 5929	1.16 (4)	1.85 (1)	2.07 (7)	1.83 (1)	1.37 (7)	1.08 (8)	9.35 a	111.3
UC 340	1.20 (2)	1.57 (5)	2.10 (5)	1.82 (2)	1.41 (1)	1.22 (1)	9.31 a	110.8
Sundor	1.21 (1)	1.58 (4)	2.21 (2)	1.76 (4)	1.37 (5)	1.12 (4)	9.24 a	110.0
Mesa (84D92)	1.15 (5)	1.58 (3)	2.16 (3)	1.78 (3)	1.32 (11)	0.99 (14)	8.98 a	106.8
Mecca	1.06 (10)	1.37 (13)	2.13 (4)	1.75 (5)	1.37 (6)	1.12 (5)	8.79 a	104.7
Madera	1.06 (9)	1.50 (8)	2.01 (9)	1.75 (6)	1.39 (3)	1.07 (9)	8.78 a	104.5
UC 329	1.02 (15)	1.35 (15)	2.01 (10)	1.72 (8)	1.40 (2)	1.18 (2)	8.68 a	103.3
Falcon	1.02 (16)	1.52 (7)	2.06 (8)	1.73 (7)	1.32 (10)	0.95 (19)	8.59 a	102.3
Maricopa	1.07 (8)	1.31 (16)	2.21 (1)	1.71 (9)	1.29 (13)	0.97 (17)	8.56 a	101.9
ABI 9194	1.04 (13)	1.60 (2)	1.82 (18)	1.70 (10)	1.33 (9)	1.07 (11)	8.55 a	101.8
Pierce	1.12 (6)	1.43 (10)	1.93 (13)	1.58 (15)	1.31 (12)	1.07 (10)	8.44 a	100.5
Pio 5715	1.02 (17)	1.55 (6)	1.99 (11)	1.63 (12)	1.27 (14)	0.98 (15)	8.43 a	100.3
Cuf 101	1.10 (7)	1.29 (17)	1.88 (16)	1.66 (11)	1.37 (4)	1.11 (6)	8.41 a	100.0
Cibola	1.17 (3)	1.27 (18)	1.95 (12)	1.62 (13)	1.35 (8)	1.03 (12)	8.39 a	99.9
Pio 5888	1.05 (11)	1.37 (12)	2.08 (6)	1.45 (20)	1.24 (17)	1.12 (3)	8.30 a	98.8
PGI 8633C	0.99 (19)	1.42 (11)	1.90 (14)	1.58 (14)	1.25 (16)	1.09 (7)	8.23 a	97.9
GT13R Supreme	1.04 (12)	1.46 (9)	1.87 (17)	1.48 (18)	1.21 (18)	1.01 (13)	8.08 a	96.1
Arabian	1.00 (18)	1.25 (19)	1.88 (15)	1.57 (16)	1.25 (15)	0.98 (16)	7.92 a	94.3
Yolo	0.86 (21)	1.36 (14)	1.81 (19)	1.46 (19)	1.21 (19)	0.95 (18)	7.64 a	91.0
Condor	1.02 (14)	1.12 (20)	1.70 (21)	1.50 (17)	1.10 (21)	0.95 (20)	7.38 a	87.9
UC 342	0.97 (20)	1.09 (21)	1.76 (20)	1.42 (21)	1.13 (20)	0.93 (21)	7.30 a	86.9
Meteor	0.85 (22)	0.70 (22)	1.06 (22)	0.86 (22)	1.04 (22)	0.65 (22)	5.16 b	61.4
HU(77/40)	1185	986	1056	991	1293	1074	6585	
GRAND MEAN	1.05	1.39	1.94	1.61	1.29	1.03	8.30	
LSD (05)	0.27	0.47	0.52	0.41	0.26	0.22	1.67	
% CV	21.3	30.6	26.0	22.7	16.8	18.2	19.8	

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

Table 3. Two 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.

Variety	Fall Dormancy Rating	1992 Yield Average	1993 Yield Average	Two Year Yield Average	Percent of Cuf 101
Mesa (84D92)	8	9.64 (1)	8.99 (4)	9.31 a[1]	106.3
Pioneer 5929	9	9.15 (8)	9.33 (1)	9.24 a	105.5
UC 340		9.16 (7)	9.31 (2)	9.24 a	105.4
Maricopa	8	9.49 (2)	8.56 (9)	9.02 a	103.0
Sundor	9	8.80 (19)	9.24 (3)	9.02 a	102.9
Mecca	9	8.79 (6)	9.21 (5)	9.00 a	102.7
Falcon	8	9.36 (3)	8.59 (8)	8.97 a	102.5
Madera	8	9.08 (13)	8.78 (6)	8.93 a	101.9
Pioneer 5888	8	9.27 (5)	8.30 (15)	8.78 a	100.3
ABI 9194		8.98 (15)	8.56 910)	8.77 a	100.1
Cuf 101	9	9.10 (11)	8.41 (13)	8.76 a	100.0
Pioneer 5715	8	9.07 (14)	8.43 (12)	8.75 a	99.9
Cibola	9	8.81 (18)	8.40 (14)	8.61 a	98.2
GT13R Supreme	8	9.12 (10)	8.09 (17)	8.60 a	98.2
PGI 8633C		8.88 (16)	8.23 (16)	8.56 ab	97.7
UC 329		8.28 (4)	8.69 (7)	8.48 ab	96.9
Pierce	8	8.52 (20)	8.44 (11)	8.48 ab	96.8
Yolo	8	8.87 (17)	7.64 (19)	8.25 ab	94.2
Condor	8	9.10 (12)	7.39 (20)	8.24 ab	94.1
UC 342		9.12 (9)	7.30 (21)	8.21 ab	93.8
Arabian	10	7.88 (22)	7.92 (18)	7.90 ab	90.2
Meteor	6	8.28 (21)	5.14 (22)	6.71 b	76.6
Average		9.01	8.30	8.65	
LSD(05)		1.03	1.67	1.16	
CV(%)		8.49	19.7	11.7	

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