

Yield and Quality of Alfalfa Varieties at the Mohave Valley, 1986-1987

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ABSTRACT

Four major non-dormant alfalfa varieties were tested over 1986 and 1987. No differences in yield or quality of the varieties were determined.

INTRODUCTION

Alfalfa, a major income crops for Mohave County producers, is well adapted to the Colorado River areas.

METHODS AND MATERIALS

Four alfalfa varieties with high yield potential were selected; one of them was a reportedly salt-tolerant variety (UC Cibola), which was tested against other recommended varieties.

Location: Wakimoto Farms, Mohave Valley, Arizona
 Elevation: 450 Feet
 Planted: October 7, 1985
 Plot Size: 744' x 14'
 Replications: 4
 Seeding Rate: 22 lbs/A
 Preplant Fertilizer: 11-53-0 400 lbs/A
 Preplant Herbicide: Balan 1 qt/A

Plots were cut and baled at 12% moisture. Random bales were loaded and weighed along with remaining alfalfa in baler chamber. Bale length was 40 inches. Composite samples of varieties were analyzed at three cutting dates for quality.

RESULTS

Table 1. Hay yield at five cutting dates for four varieties.

Variety	1986			1987		Total	% of CUF 101
	05/24	07/16	09/15	04/25	09/12		
	-----lbs/A-----						
Pierce	3976	1979	1858	3030	3051	13894	101
CUF 101	3545	2215	2000	2781	3202	13743	100
Pioneer 5929	3404	2376	1952	2978	2926	13636	99
UC Cibola	3376	1966	1857	2905	2823	12927	94

Table 2. Forage analysis for four varieties at three cutting dates.

Forage Analysis	Variety			
	Pierce	CUF 101	Pioneer 5929	UC Cibola
07/16/86				
Crude Protein	15.60	15.20	15.20	15.30
Acid Det. Fiber	34.80	35.50	35.30	34.90
Neutral Det. Fiber	42.90	43.60	42.90	43.50
Net Energy Lactation	.49	.48	.48	.48
T D N	51.00	50.50	50.90	50.90
Phosphorus	.29	.28	.28	.36
Calcium	1.18	1.15	1.17	1.14
Magnesium	.34	.34	.34	.32
Potassium	2.26	2.20	2.20	2.23
04/25/87				
Crude Protein	22.40	22.50	20.70	21.20
Acid Det. Fiber	24.70	23.90	26.20	25.30
Neutral Det. Fiber	36.70	37.70	42.30	41.70
Net Energy Lactation	.66	.67	.65	.66
T D N	58.00	59.00	57.30	58.00
Phosphorus	.36	.36	.36	.36
Calcium	1.58	1.60	1.48	1.50
Magnesium	.32	.31	.31	.30
Potassium	2.76	2.60	2.56	2.56
09/12/87				
Crude Protein	14.10	14.90	17.80	17.90
Acid Det. Fiber	32.50	32.00	26.90	28.40
Neutral Det. Fiber	48.50	45.60	37.10	39.90
Net Energy Lactation	.569	.572	.629	.611
T D N	52.90	53.00	56.10	55.10
Phosphorus	.31	.30	.32	.33
Magnesium	.30	.32	.36	.35
Potassium	1.81	1.79	1.98	2.07

DISCUSSION

No statistically significant differences in yield due to variety were detected (Table 1). This information, in conjunction with seed price, is valuable in selecting an alfalfa variety in the Mohave Valley.

The forage quality data suggest that difference in quality may exist among the varieties tested particularly for crude protein and neutral detergent fiber (Table 2). More intensive sampling is necessary to establish this, however. Differences in quality among alfalfa varieties are difficult to establish since any difference detected could be due to variety or stage of growth. Alfalfa breeders have not selected for quality in the past, so differences in quality among alfalfa varieties is not expected, according to conventional wisdom.

The July 16 and Sept. 15 cuttings in 1986 suffered severe yield reduction. This may have been caused by above-average temperatures between June 16 and July 16. During this time period, the average mean high temperature was 111; the average mean low temperature was 69 degrees (Table 3). The alfalfa may have undergone stress during this period and not recovered even by the Sept. 15 cutting.

Table 3. Temperature Record for the Mohave Valley from June 16 to July 16, 1986.

Date	High	Low	Date	High	Low
June 16	111	52	July 01	114	75
June 17	111	58	July 02	115	83
June 18	111	55	July 03	112	79
June 19	110	61	July 04	108	86
June 20	110	56	July 05	105	79
June 21	112	56	July 06	107	67
June 22	113	58	July 07	109	74
June 23	116	65	July 08	109	73
June 24	118	73	July 09	111	68
June 25	116	69	July 10	109	62
June 26	118	69	July 11	110	58
June 27	121	68	July 12	110	71
June 28	117	74	July 13	111	69
June 29	102	78	July 14	98	79
June 30	110	72	July 15	106	78
			July 16	108	69