

# IRRIGATED TALL FESCUE VARIETY TRIAL

Mylen Bohle, and Steven R. James  
Central Oregon Agricultural Research Center  
Madras, OR

## Abstract

**Eight tall fescue cultivars were established in August 1987 at the Powell Butte research site of the Central Oregon Agricultural Research Center. 'Mozark' was the top yielder, while 'Tandem', which equaled 'Mozark' the first two years, was the poorest yielder. 'Fawn', the check variety, was among the lowest yielding cultivars.**

## Introduction

Grass hay and pasture are important agricultural crops in central Oregon either as pure stands, or in mixtures with alfalfa and clovers. A grass variety trial was conducted from 1968 to 1972 at Redmond, Oregon. Species in that trial included, ranked in the order of most to least productive, orchardgrass, timothy, bromegrass, meadow foxtail, intermediate wheatgrass, tall fescue, and Kentucky bluegrass. This new trial was initiated because many new varieties have been introduced since 1968.

## Materials and Methods

Non-coated, non-treated seed of eight tall fescue cultivars was hand broadcast on August 21 and 22, 1987. Tall fescue grass names and sources of each variety planted at Powell Butte, Oregon are as follows:

<u>Variety</u>	<u>Source</u>
Forager	Cenex/Land O'Lakes
Syn W	Cenex/Land O'Lakes
Mozark	International Seeds, Inc.
Martin	International Seeds, Inc.
FA-293-86	Turf Seed, Inc.
Tandem	Turf Seed, Inc.
Johnstone	Willamette Seed & Grain
Fawn	CHECK

The planting rate was 18 lb/a, and the seed was planted into 6 x 20 ft, plots in a randomized complete block design, and replicated four times. The seed was raked in and rolled with a corrugated roller.

---

This trial was partially supported by testing fees collected from Cenex/Land O'Lakes, International Seeds, Inc., Turf Seed, Inc. and Willamette Seed and Grain.

Soil test values (samples taken June 1, 1987) were:

pH	P	K	N-NO3	depth
6.5	13 ppm	281 ppm	6.2 ppm	0-12"

A broadcast fertilizer application of 16-20-0-15 at 410 lb/a was incorporated into the seedbed in August 17, 1987 prior to planting. On April 4, 1988, 500 pounds of 16-20-0-15 was top-dressed.

Table 1. Fertilizer applications in lb/a for nitrogen and sulfur at Powell Butte.

Year	1st Cut N S	2nd Cut N S	3rd Cut N S	4th Cut N S
	--lb/a--	--lb/a--	--lb/a--	--lb/a--
1989	80 - 60	80 - 0		
1990	90 - 60	80 - 0		
1991	100 - 60	90-0	90-0	
1992	110 - 60	100 - 0	100 - 0	100 - 0

Plot size harvested in 1989 was 3.3 x 14 ft. In 1990, 1991, and 1992, plot size harvested was 3.5 x 15 ft. Yields were converted to tons per acre after a sample was taken from each plot and oven dried to determine dry matter. In 1990, 1991, and 1992 samples were dried at 149°F. Yield results are reported in oven dry weight.

### Results and Discussion

Results for 1988 are published in "Central Oregon Crop Research 1987-1988, OSU Agricultural Experiment Station Special Report 847, October 1989". The yield data for 1989, 1990, 1991, and 1992 are in Tables 2, 3, 4, and 5.

'Mozark' ranked first, second, third, first, and first annually over the five year trial, and ranked first for the five years. 'Johnstone' and 'Syn W' performed above average. 'Tandem's' yield, after being one of the top yielders the first two years, dropped dramatically the third year and was the lowest yielder through the end of the trial. The plant stand was severely reduced at the beginning of the third year. Native grasses and Kentucky bluegrass took over the plot. For the five years, seven tall fescue varieties (excluding 'Tandem') averaged 26.93 tons per acre (trial average was 26.28 t/a), compared to 26.18 tons per acre for the 13 orchardgrass varieties in an adjacent trial.

Tables 6, 7, and 8 summarize the yield data for the duration of the trial: 6) annual yield summary; 7) cumulative annual yield summary, and 8) percent relative yield compared to the check summary.

The potential yield of the tall fescues may not have been approached in this trial based on some unpublished nitrogen rate work on grass hay field trial done in 1992. In those trials yield increases were obtained in applications of up to 150 pounds N per acre per cutting on a two and three cutting harvest regime. The current trials were fertilized from 80 to 110 pounds N per acre per cutting.

Table 2. 1989 Tall fescue variety yield results in tons per acre at Powell Butte.

Variety	1st Cut	2nd Cut	Total
	--t/a--	--t/a--	--t/a--
Forager	1.93	2.37	4.30
Syn W	1.88	2.59	4.47
Mozark	2.03	2.62	4.65
Martin	2.00	2.33	4.33
FA-293	2.01	2.41	4.42
Tandem	2.37	2.48	4.85
Johnstone	2.14	2.38	4.52
Fawn*	2.05	2.48	4.53
Mean	2.05	2.46	4.51
Harvest Date	6/20	8/29	
PLSD .10	---	---	
PLSD .05	0.40	0.33	0.54
PLSD .01			
CV %	13.2	9.1	8.1

\* Check

Table 3. 1990 Tall fescue variety yield in tons per acre at Powell Butte.

Variety	1st Cut	2nd Cut	Total
Forager	1.62	2.23	3.85
Syn W	1.71	2.70	4.40
Mozark	1.61	2.75	4.36
Martin	1.70	2.47	4.17
FA-293	1.43	2.47	3.90
Tandem	0.56	1.04	1.61
Johnstone	2.03	2.39	4.42
Fawn	1.66	2.37	4.03
Mean	1.54	2.30	3.84
Harvest Date	6/27	9/11	
PLSD .10	0.25	0.34	0.41
PLSD .05	0.30	0.41	0.49
PLSD .01	0.41	0.56	0.67
CV%	13.3	12.2	8.8

Check

Table 4. 1991 yield results for the tall fescue varieties in tons per acre at Powell Butte.

Variety	1st Cut	2nd Cut	Cuts 1 & 2	3rd Cut	Cuts 1, 2 & 3
Forager	2.11	2.38	4.49	1.67	6.16
Syn W	2.38	2.44	4.82	1.62	6.44
Mozark	2.69	2.38	5.07	1.57	6.64
Martin	2.23	2.09	4.32	1.59	5.91
FA-273	2.09	2.23	4.32	1.65	5.97
Tandem	1.49	1.10	2.59	1.03	3.36
Johnstone	2.23	2.29	4.52	1.59	6.11
Fawn	2.14	2.18	4.32	1.53	5.81
Mean	2.17	2.13	4.31	1.53	5.84
Harvest Date	6/26	8/19	N/A	10/18	N/A
PLSD .10	0.34	0.23	0.71	0.24	0.72
PLSD .05	0.41	0.28	NS	0.29	0.87
PLSD .01	0.55	0.38	NS	0.39	1.19
CV%	12.7	8.9	13.5	12.7	10.2

Table 5. 1992 yield results of the tall fescue varieties in tons per acre at Powell Butte.

Variety	1st Cut	2nd Cut	Cut 1 & 2	3rd Cut	Cuts 1, 2 & 3	4th Cut	Total All Cuts
Forager	2.01	2.20	4.20	1.18	5.38	1.10	6.48
Syn W	2.02	2.14	4.15	1.18	5.33	1.06	6.39
Mozark	2.12	2.32	4.44	1.09	5.53	1.14	6.66
Martin	1.72	1.98	3.70	1.11	4.80	0.99	5.79
FA-273	1.96	2.10	4.06	1.16	5.21	1.18	6.40
Tandem	1.85	1.40	3.24	0.80	4.04	0.98	5.02
Johnstone	1.82	2.43	4.25	1.06	5.30	1.06	6.37
Fawn*	2.08	2.29	4.37	1.17	5.54	1.07	6.61
Mean	1.95	2.11	4.05	1.09	5.14	1.07	6.21
Harvest Date	5/28	7/14	N.A.	8/19	N.A.	10/19	N.A.
PLSD .10	NS	0.43	0.53	0.12	0.54	0.11	0.54
.05	NS	0.52	0.64	0.15	0.66	NS	0.65
.01	NS	NS	NS	0.02	0.89	NS	0.89
CV%	13.8	16.7	10.8	9.3	8.7	8.3	7.2

\*Check 1988-1992 Tall fescue variety annual yield summary in tons per acre at Powell

Table 6.  
Butte.

Variety	19882	19892	19902	19913	19924	Total
Forager	5.26	4.30	3.85	6.16	6.48	26.05
Syn W	6.02	4.47	4.40	6.44	6.39	27.72
Mozark	6.97	4.65	4.36	6.64	6.66	29.28
Martin	5.35	4.33	4.17	5.91	5.79	25.55
FA-273	5.71	4.42	3.90	5.97	6.40	26.40
Tandem	6.75	4.85	1.61	3.62	5.02	21.85
Johnstone	5.64	4.52	4.42	6.18	6.37	27.13
Fawn	5.34	4.53	4.03	5.85	6.61	26.36
Mean	5.88	4.51	3.84	5.84	6.21	26.28
PLSD .10			0.41	0.72	0.54	
.05		0.54	0.49	0.87	0.65	
.01			0.67	1.19	0.89	
CV%		8.1	8.8	10.2	7.2	

\*Check

<sup>2</sup> two cuttings

<sup>3</sup> three cuttings

<sup>4</sup> four cuttings

Table 7. 1988-1992 cumulative yield summary of the tall fescue varieties in tons per acre at Powell Butte.

Variety	19882	19892	19902	19913	1992 & Total <sup>4</sup>
Forager	5.26	9.56	13.41	19.57	26.05
Syn W	6.02	10.49	14.89	21.33	27.72
Mozark	6.97	11.62	15.98	22.62	29.28
Martin	5.35	9.68	13.85	19.76	25.55
FA-273	5.71	10.13	14.03	20.00	26.40
Tandem	6.75	11.60	13.21	16.83	21.85
Johnstone	5.64	10.16	14.58	20.76	26.13
Fawn*	5.34	9.87	13.90	19.75	26.36
Mean	5.88	10.39	14.23	20.07	26.28

<sup>2</sup> two cuttings

<sup>3</sup> three cuttings

<sup>4</sup> four cuttings

Table 8. 1988-1992 percent relative yield to check annual summary of the tall fescue varieties in tons per acre at Powell Butte.

Variety	1988	1989	1990	1991	1992	Five Year Total
Forager	99	95	96	105	98	99
Syn W	113	99	109	110	97	105
Mozark	131	103	108	114	101	111
Martin	100	96	103	101	88	97
FA-273	107	98	97	102	97	100
Tandem	126	107	40	62	76	83
Johnstone	106	100	110	106	96	103
Fawn*	100	100	100	100	100	100
Mean	110	100	95	100	94	100

\* Check