

## Performance of Alfalfa-Grass Mixtures in 1998

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In 1993, a small-plot demonstration was established to compare pure alfalfa with 5 alfalfa-grass mixtures. The mixtures, varieties, and seeding rates used are shown in Table 1. The mixtures were direct seeded in spring (May, 1993) into a conventionally prepared seedbed. Soil P and K levels were high based on soil test values and fertilizer has not been applied since the seeding year. The plots were harvested once in the seeding year (1993) and twice each year thereafter.

**Table 1. Mixtures, varieties, and seeding rates used in alfalfa-grass demonstration.**

Mixture	Variety	Seeding Rate (kg/ha)
Alfalfa	Centurion	13 kg/ha
+ Bromegrass	Beacon	11 alfalfa, 9 brome
+ Orchardgrass	Kay	11 alfalfa, 2 orchard
+ Timothy	Climax	13 alfalfa, 1 timothy
+ Reed Canarygrass	Palaton	9 alfalfa, 5 reed canary
+ Tall Fescue	Courtenay	11 alfalfa, 8 tall fescue

### Mixture Performance in 1998

Forage yields were quite high in 1998, particularly for a fifth-production year stand (Table 2). No significant differences in yield occurred among treatments for cut 1, cut 2, or the total yield.

**Table 2. Forage yield (kg/ha dry matter) of alfalfa and alfalfa-grass mixtures in 1998.**

Mixture	Cut 1 (June 24)	Cut 2 (Aug. 05)	Total Yield
Pure Alfalfa	8325	4268	12593
+ Brome	8323	4627	12950
+ Orchard	9487	4495	13982
+ Timothy	8050	4534	12583
+ Reed Canary	8585	4315	12900
+ Tall Fescue	7770	4621	12391
Average	8423	4476	12900
LSD (0.05)	NS	NS	NS
C.V. (%)	8.4	6.6	5.3

The alfalfa content of the mixtures was very high for the pure alfalfa treatment as well as for the brome and timothy mixtures (Table 3). The reed canary mixture was intermediate for alfalfa content (about 85% to 90% alfalfa). The orchard and tall fescue mixtures both had lower proportions of alfalfa in the mixture (and thus a higher grass content) than the other mixtures. This was apparent in both harvests. Both orchard and tall fescue are aggressive and show rapid regrowth after cutting, which explains the lower amount of alfalfa in those mixtures. It is surprising that reed canary and brome grass plots did not have more grass, since these grasses spread by rhizomes and would be expected to thicken with time. However, it seems that the excellent winter survival and vigour of the alfalfa prevented these grasses from thickening.

**Table 3. Alfalfa content (% of total dry matter) of mixtures in each cut.**

Mixture	% Alfalfa Cut 1	% Alfalfa Cut 2
Pure Alfalfa	100	100
+ Brome	98.5	94.5
+ Orchard	71.8	78.0
+ Timothy	96.3	92.8
+ Reed Canary	90.3	84.8
+ Tall Fescue	56.5	54.0
Average	85.6	84.0

### Forage Yields 1993 to 1998

Over the 5 production years of this trial, average total yields have ranged from 9500 to 13000 kg/ha, with the highest being in 1998 (Table 4). This reflects not only the excellent growing conditions for alfalfa in 1998, but also the excellent winter survival of alfalfa in this test. Of the five years, only in 1994 did a significant difference in total yield occur between mixtures. This indicates that when an excellent catch of alfalfa is achieved and winter survival is good, the effect of the companion grass on total yield is minor. However, as indicated above, the choice of companion grass will have an effect on the alfalfa content of the harvested forage.



**Table 4. Total annual yield of alfalfa-grass mixtures from 1993 to 1998.**

<b>Mixture</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
Pure Alfalfa	8984	9620	10965	10369	12593
+ Brome	9866	10000	10934	11102	12950
+ Orchard	8798	10347	10637	11441	13982
+ Timothy	9655	9343	10324	11521	12583
+ Reed Canary	9544	9873	11009	10834	12900
+ Tall Fescue	10076	9878	10789	11526	12391
Average	9487	9843	10776	11132	12900
LSD (0.05)	824	NS	NS	NS	NS
C.V. (%)	4.8	5.4	8.3	8.3	5.3