

# Forage Production of Meadow Fescue at New Liskeard and Emo

J. Johnston, M. Bowman, and K. Calder

Meadow fescue is a bunch-type grass that is commonly used in pasture mixtures in cool, moist environments such as the Maritime provinces and Scandinavian countries. It is shorter, has much finer leaves, and is more palatable to grazing animals than tall fescue. While this species prefers moist sites for best production, it reportedly does not tolerate flooding. Meadow fescue was used to some degree in Ontario through the early 1960's, but it was removed from provincial recommended lists in 1964 due to its lower yield under hay management. The current project was designed to examine meadow fescue yield performance under three cuts per year when compared to tall fescue, orchardgrass, and a mixture of meadow and tall fescue. A further project is underway with similar treatments rotationally grazed by sheep.

## Methods

Small plot tests were sown at Emo in 1995 and at New Liskeard in 1996. A series of four grass plots were sown in either pure stand or in mixture with white clover (Table 1). Plots were harvested three times in each of the first two production years using small plot harvesters. At the time of second cut, hand samples were collected from each plot and separated into grass and legume components.

**Table 1. Treatments in meadow fescue evaluation at New Liskeard and Emo.**

Treatment	Varieties	Seeding Rate
<b>Main Plots</b>		
Pure Grass	-	-
Grass + White Clover	Alice	2 kg/ha
<b>Sub Plots</b>		
Meadow Fescue	Mimer	10 kg/ha
Tall Fescue	Courtenay	10 kg/ha
Orchardgrass	Kay	8 kg/ha
Fescue Mixture	Mimer + Courtenay	5 kg/ha of each grass

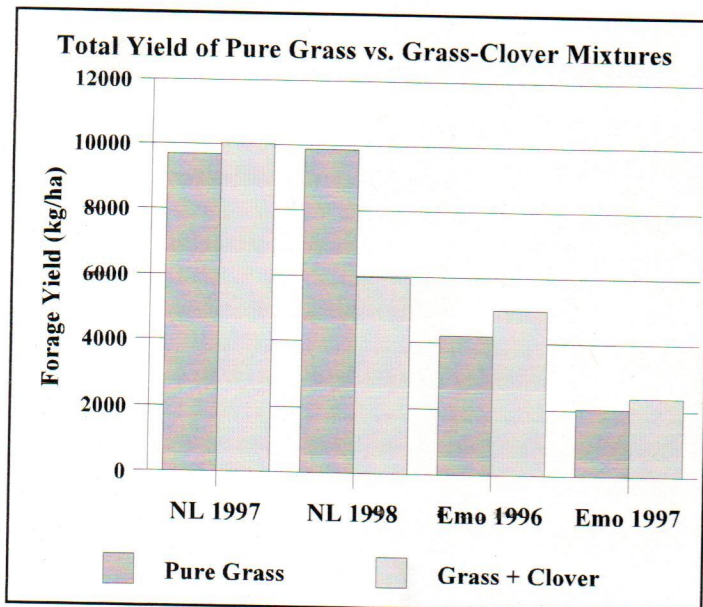
## Results

Three cuts were taken in each harvest year at each site. Among the three pure seeded grass entries, the yield ranking was generally similar over the three cuts within the same site-year. (Table 2). The distribution of forage yield over the three cuts varied widely over sites and years (Table 2). For example, in 1997 at New Liskeard, only 24% of the total meadow fescue yield was harvested in the first cut, but in 1998, almost 60% of the meadow fescue yield was harvested in the first cut. This difference is related to the degree of heading at the time of first cut which is in turn affected by the date of first cut and the weather conditions in that year. With the exception of 1998 at Emo, tall fescue and orchard tended to have a more balanced yield distribution over the season as compared to meadow fescue. This is an important factor to consider when

selecting a pasture grass.

**Table 2. Forage yield (kg/ha) and percent of total seasonal yield at each of three cuts for pure sown grasses.**

	Cut 1	Cut 2	Cut 3
<b>NL 1997</b>	<b>June 6</b>	<b>July 8</b>	<b>Aug.19</b>
Meadow Fescue	2039 (24%)	4317 (52%)	2009 (24%)
Tall Fescue	2381 (21%)	5533 (48%)	3591 (31%)
Orchard	3184 (34%)	3587 (39%)	2484 (27%)
<b>NL 1998</b>	<b>June 17</b>	<b>July 10</b>	<b>Oct. 30</b>
Meadow Fescue	3968 (58%)	1402 (20%)	1496 (22%)
Tall Fescue	6254 (49%)	3271 (25%)	3322 (26%)
Orchard	5737 (60%)	2307 (24%)	1459 (16%)
<b>Emo 1996</b>	<b>June 12</b>	<b>July 16</b>	<b>Aug. 26</b>
Meadow Fescue	2471 (68%)	498 (14%)	651 (18%)
Tall Fescue	1645 (48%)	780 (23%)	968 (29%)
Orchard	2650 (51%)	1268 (25%)	1252 (24%)
<b>Emo 1997</b>	<b>June 11</b>	<b>July 11</b>	<b>Aug. 20</b>
Meadow Fescue	339 (24%)	618 (43%)	482 (33%)
Tall Fescue	551 (22%)	1012 (41%)	889 (36%)
Orchard	649 (28%)	902 (38%)	812 (34%)

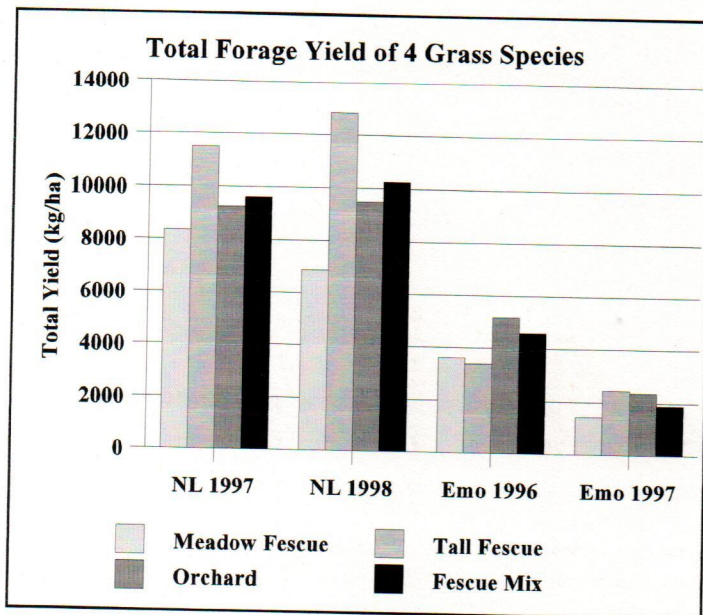


**Figure 1.** Total seasonal yield of pure grass plots and grass-white clover mixtures.

Over three cuts, the total forage yield of pure grass plots was greater than that of grass-white clover mixtures only one year in four (Figure 1). The pure grass plots received 50 kg/ha of actual N in spring and 35 kg/ha after each of the first two cuts. These results support the use of mixed swards since they usually will provide similar yields without the expense of nitrogen. In addition mixed swards should maintain better forage quality for the grazing animals.

Over all harvests, pure seedings of meadow fescue were found to be statistically lower yielding

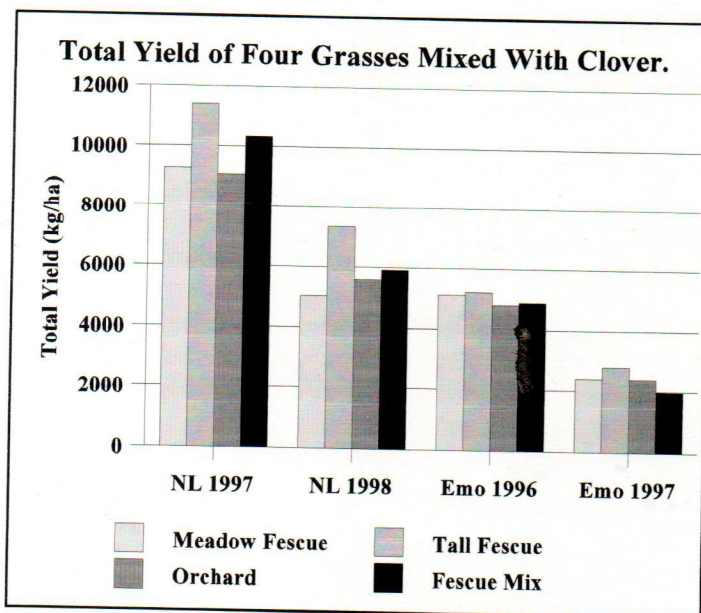
than tall fescue in both years at New Liskeard and one of two years at Emo (Figure 2). In addition, meadow fescue was outyielded by orchardgrass in 1998 at New Liskeard and in both years at Emo, while the mixture of both fescue species was only higher yielding than pure meadow fescue in 1998 at New Liskeard. It is clear that the yield potential of pure seeded meadow fescue is not as high as tall fescue or orchardgrass.



**Figure 2.** Total seasonal yield (3 cuts/year) of 4 grass species sown in pure stand.

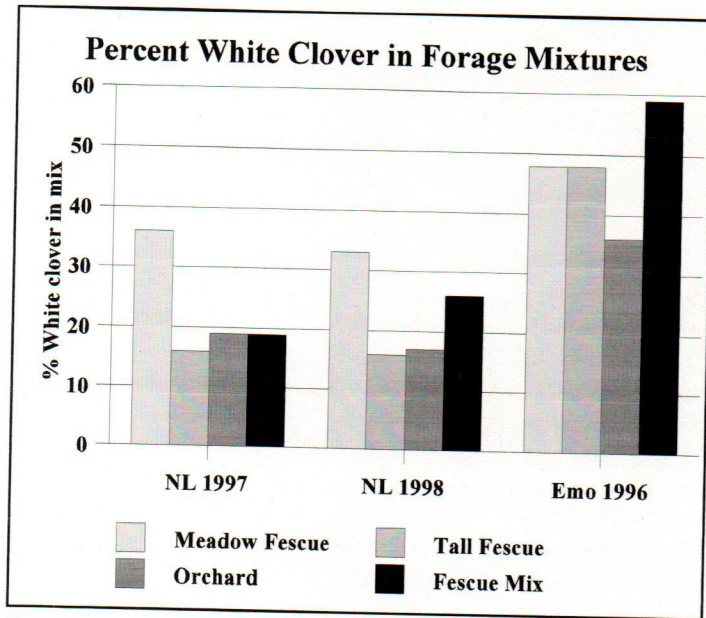
Over all harvests, mixtures of meadow fescue and white clover were found to be statistically

lower yielding than similar tall fescue mixtures in both years at New Liskeard, however, at Emo meadow fescue-clover yields were equal to tall fescue-clover yields (Figure 3). In all cases, orchard-clover mixtures, and three way mixtures of the two fescues and clover were found to be statistically equal to the meadow fescue-white clover mixtures.



**Figure 3.** Total seasonal yield (3 cuts/year) of four grass species in mixture with white clover.

Hand samples were collected from the grass-clover plots at the time of the second harvest and separated into the grass and legume components. At both years at New Liskeard, meadow fescue had significantly higher clover content than tall fescue or orchardgrass (Figure 4). This corresponded to visual appraisals of meadow fescue at New Liskeard that indicated meadow fescue was less competitive than tall fescue. At Emo, the clover content of all fescue plots were similar and greater than the orchardgrass plots. The higher legume content at New Liskeard should be reflected in higher forage quality for grazing animals (data not available yet).



**Figure 4.** Percent white clover in four grass-clover mixtures at the time of the second cut.

### Summary and Conclusion

Meadow fescue established well at both New Liskeard and Emo. In general, tall fescue had a more even distribution of yield over the season as compared to meadow fescue. Meadow fescue was consistently lower in yield than tall fescue at New Liskeard and in one of two years at Emo. Meadow fescue-white clover mixtures tended to be higher in clover content than tall fescue-white clover mixtures at New Liskeard. This should be reflected in higher crude protein and lower NDF in the meadow fescue plots, but it also seems to support observations that meadow fescue was relatively uncompetitive.

Meadow fescue is still being evaluated under actual sheep grazing, but preliminary data is similar to that presented above: meadow fescue is lower in yield than tall fescue. Forage quality results are not yet available. Under sheep grazing, meadow fescue is clearly more palatable than tall fescue or orchardgrass, but sheep do consume the other species once the meadow fescue is gone. At this time, our results would suggest that meadow fescue is not preferable to tall fescue or orchardgrass in terms of yield distribution or total seasonal yield. It may have a place as a secondary component of complex mixtures. This is currently being evaluated in small plot experiments.