Grasses to Grow with Alfalfa in Mixes

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Interest is growing in the potential for perennial forage grasses to complement alfalfa in high-quality forage production. Alfalfa mixed with perennial cool-season grasses offer whole-system advantages (soil, crop, and livestock) over alfalfa monocultures. Increased knowledge of NDF digestibility shows benefits to feeding grasses in ruminant diets. But, yield and quality data with modern varieties and harvest management was lacking. A UM-Extension team has been assessing yield, quality, and species compatibility of alfalfa-grass mixtures vs. alfalfa monocultures for 8 years. Only 10 lbs of alfalfa seed was seeded in the mixtures (Table 1). The intent was to have a 50:50 alfalfa:grass stand. Seeding rates reflect seed size and number of seeds per pound. The critical factor of success in establishment is good seed to soil contact.

Table 1. Seeding rates for mixtures.

Alfalfa = 10 lbs/ac	+ meadow fescue (MF) = 12 lbs/ac
Alf 10 lbs + MF 7 lbs	+ tall fescue (TF) = 10 lbs/ac
Alf 10 lbs + MF 7 lbs	+ meadow brome (MB) = 15 lbs/ac
Alf 10 lbs + MF 7 lbs	+ smooth brome (SB) = 15 lbs/ac
Alf 10 lbs + MF 7 lbs	+ orchardgrass (OG) = 4 lbs/ac

Forage quality of most cool-season grasses complement alfalfa by adding greater NDF digestibility and moderating soluble protein concentration. Too much focus is put on forage crude protein content and not digestibility which allows greater forage intake. At the same maturity stage, grasses exceed alfalfa in digestible NDF. Matching maturity stages, especially in the first cutting, can be a challenge with certain species. It is important to use improved grass varieties to attain higher quality, particularly for tall fescue and orchardgrass.

For lactating cows, a mixture of alfalfa with meadow and tall fescue results in higher yield and quality compared to alfalfa alone; it tolerates a 4-cut system intensity. Improved orchardgrass varieties also perform well. Smooth brome, meadow brome, and timothy can yield well, especially in spring, but may not tolerate a 4-cut system; they are better suited to a 2- or 3-cut system and managed pastures. Brome grasses can also be used in dry cow and heifer diets at a more mature stage by utilizing different cutting strategies for some fields and even pastures.

A concern was observed that newer, improved grass varieties such as tall fescue and orchardgrass may not have as much cold tolerance as older varieties. However, each had greater survival rates when part of a three-specie mixture compared to a pure stand. Smooth and meadow brome grasses showed typical slow establishment and are better suited to spring seeding with a cover crop. Meadow brome was particularly slow, perhaps due to the establishment year; 2012 was a drought year. It became very prevalent the second year. Meadow brome is sensitive to cutting height. Do not expect to harvest much brome grass the seeding year.

Cutting height is a critical aspect. Grasses regrow from above ground stubble; alfalfa regrows from the crown below ground. If a mixed stand is cut at 2", the grasses will not grow back as fast as the alfalfa and will be more likely to die. This is a particular concern with disc mowers; they need to be at a 3-4" cutting height. This will also help reduce soil contamination.

In conclusion, meadow fescue is a cool-season grass offering another forage choice. Its yield and quality meet or exceed comparable grasses and compare with alfalfa.