

Alfalfa-Grass Results Differ by Region of the Country

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The National Institute of Food and Agriculture (NIFA) funded a research project conducted in Kentucky, Minnesota, and New York to evaluate high quality alfalfa and alfalfa-grass mixtures. We are featuring alfalfa-grass results for this article. The three grasses used were *Driftless* meadow fescue, *Dividend VL* orchardgrass, and *Fojtan* festulolium. Stands were established in 2016, with a full season in 2017, and a spring harvest in 2018.

Yield

Alfalfa-grass yields tend to be similar to pure alfalfa in the Midwest, but are often higher than pure alfalfa in the Northeast. In 2017, seasonal dry matter yields for KY and MN averaged 4.6 tons per acre, with no differences among grass species or pure alfalfa stands.

In NY in 2017, alfalfa-orchardgrass yields were 5.4 tons per acre, 16% higher than pure alfalfa stands at 4.9 tons per acre. In the spring of 2018, mixtures for all three grasses averaged 16% higher yield than pure alfalfa in NY. Perennial grass is ideally suited to much of the Northeast, with moderate temperatures and usually adequate rainfall.

Forage Quality

Grasses are normally 20 to 30 percentage units higher in fiber digestibility than alfalfa. As numerous trials in NY have shown, meadow fescue was considerably higher in fiber digestibility than the other grasses in NY (Fig. 1). Trials in Wisconsin also have shown high fiber digestibility for meadow fescue.

While meadow fescue has been consistently high in quality in the Northeast, results from Kentucky show that meadow fescue was the lowest in fiber digestibility of the grasses. Kentucky may be outside of the ideal environmental range for meadow fescue production.

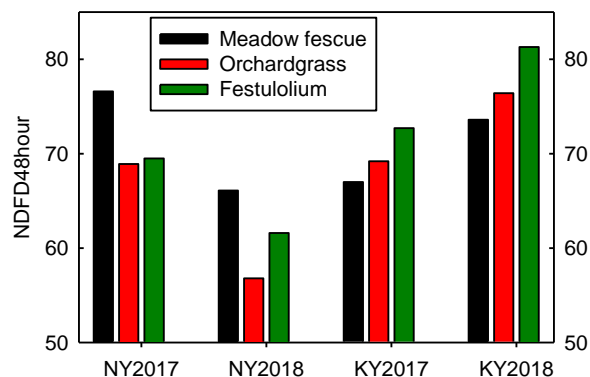


Fig. 1. Meadow fescue highest in NDFD in NY, lowest in KY.

Grass in the Mixture

Grass percentage in mixtures is a function of the grass species, the grass seeding rate, and the availability of moisture for the first few weeks after seeding. Even with very low grass% in mixtures in the seeding year in the Northeast, grass% can increase rapidly (Fig. 2). The figure includes grass% at the end of the seeding year (2016), a 4-cut average for the first production year (2017), and spring grass percentage in 2018. Orchardgrass in particular is ideally suited to the Northeast and very competitive with alfalfa.

Grass% can also be greatly affected by the region of the country. While average grass% increased greatly during the first production year in NY, it did not change greatly in KY (Fig. 2). Grass% in KY did increase greatly from 2017 to 2018, but still was considerably lower than in NY. Orchardgrass grass% in NY was 20 percentage units higher than KY in 2018.

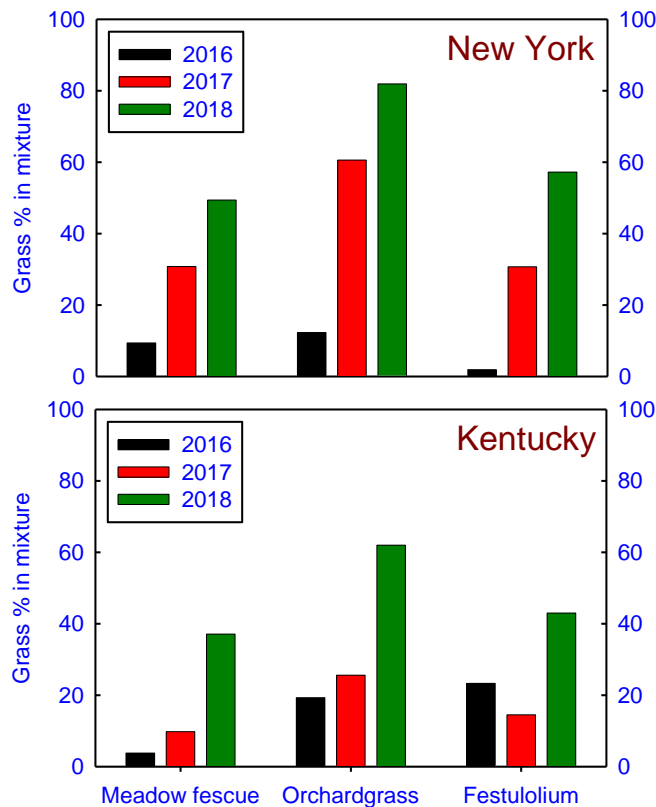


Fig. 2. Grass% in alfalfa-grass mixtures varies by region and environment at seeding.

When is Meadow Fescue-Alfalfa a Good Idea?

Grass has much higher fiber digestibility than alfalfa. Meadow fescue has considerably higher fiber digestibility than other commonly used grasses in some parts of the country. Wisconsin dairy feeding trials have resulted in similar milk production between alfalfa diets and alfalfa-meadow fescue diets.

Grass in a mixture can increase the harvest window, particularly for regrowth cuttings. Grass with alfalfa will increase the drying rate of cut forage. Mixtures with grass improve soil health with less soil erosion. There are less insect pests and disease in mixtures, and mixtures typically have longer stand life.

Also, corn silage-alfalfa dairy rations often require additional fiber, grass is considerably higher in NDF than alfalfa. Grass in the dairy ration will reduce the level of readily fermentable carbohydrates in the ration. Addition of grass makes for a healthier diet, reducing the occurrence of a variety of animal health issues.

When is Meadow Fescue-Alfalfa a Bad Idea?

If a buyer wants pure alfalfa hay, it is pointless to try and convince them to switch to alfalfa-grass. According to USDA-NRCS, meadow fescue can be found growing in all states except Hawaii, while other government websites exclude it from the southern USA. In reality, however, it is a northern species, best suited to Canada and the northern USA.

While meadow fescue is supposedly less aggressive than tall fescue, it has proven to be very aggressive with alfalfa, at least in the Northeastern USA. A very low seeding rate (1-2 lb/a) is required to minimize the chances of excess grass in the mixture.

In the late fall of 2017 in NY, unusually warm, wet weather resulted in excessive meadow fescue growth, stands with more than 50% grass matted down and in some cases smothered alfalfa plants over the winter. This is likely a rare occurrence, however, and one solution would be a post-freeze harvest.



Photo: Perennial grass grown with alfalfa can provide as much or more yield than pure alfalfa, and mixtures can provide a healthier diet for cows.

Other Challenges with Mixtures

Alfalfa growth and development is driven by growing degree days (GDD), while grass development in spring is controlled by day length. Based on Michigan State research, alfalfa

averages 35% NDF at 600 GDD and 40% NDF at about 750 GDD. Abnormally cool spring weather will set back alfalfa development but not grass.

This can occasionally complicate harvest management for mixed stands. In the spring of 2018 in NY, for example, early-bud stage alfalfa harvested May 30 was only 36% NDF (640 GDD), while grass in mixtures was fully headed out and averaged 64% NDF. This resulted in the unusually low fiber digestibility for grass in NY for 2018 (Fig. 1).

Consider Mixtures

Choice of grass species for mixtures will depend on your region of the country. Choice of grass varieties will depend on whether any local variety trial data is available. Out-of-state grass variety trials will not provide useful information. A high quality alfalfa variety mixed with a high quality grass should significantly improve milk production.



Photo: A little meadow fescue in the fall of the seeding year (10% grass, Sept. 2018) can become 40-50% meadow fescue the following spring.

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