

## Straight alfalfa or alfalfa-grass mixes

SEVERAL nutrition conferences have included the topic of alfalfa versus alfalfa-grass on the agendas. However, almost all of these conferences have been in the Midwest where straight alfalfa is most popular.

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Straight alfalfa or alfalfa-grass? Many dairy farmers have already answered this question for their farms. Most producers often conclude that alfalfa-grass provides more consistent yields of high-quality forage than alfalfa that's directly seeded alone.

Several years ago, a survey by Cornell University Cooperative Extension found that about 80 percent

of the alfalfa seeded in New York State was planted with a cool-season companion grass such as timothy, orchardgrass, or tall fescue.

This doesn't mean that farmers in the Midwest are making a mistake by growing straight alfalfa; as with many crop choices, soil type makes a big difference. But, even so, in the past couple of years there's been a lot of interest in alfalfa-grass.

A frequently-heard political statement is that "it's all about the economy," but when it comes to deciding on alfalfa versus alfalfa-grass, it's often all about the soil type. The best alfalfa-growing soils are deep, well-drained loams. The key is good drainage, permitting alfalfa taproots to penetrate far into the soil profile.

But some soils have a fertile topsoil with a much less hospitable subsoil, including high acidity and/or a naturally-occurring fragipan that limits good drainage. A fragipan is a dense, natural subsurface layer of hard soil with relatively slow water permeability. It's what farmers call a "hardpan" and is pretty much the same thing. In fact, a fragipan has been defined by one wit as "a hardpan that got a college education!"

Alfalfa taproots can usually penetrate this layer, but poor drainage is usually associated with a fragipan, and the fact that it's usually less than two feet below the soil surface can be a significant challenge. Grasses, on the other hand, have dense, fibrous root systems that don't penetrate nearly as deep into the soil.

If soil conditions are good, it's tough to beat straight alfalfa for yield or forage quality — at least quality as measured by the forage-testing lab. However, some research suggests that alfalfa-grass may be a better forage for dairy cows.

When conditions are more challenging, an alfalfa-grass stand has some defensive characteristics. It's somewhat less susceptible to potato leafhopper damage, may suffer less winter heaving, and, when winter-kill of alfalfa is severe, the grass in the stand could provide some forage for spring harvest.

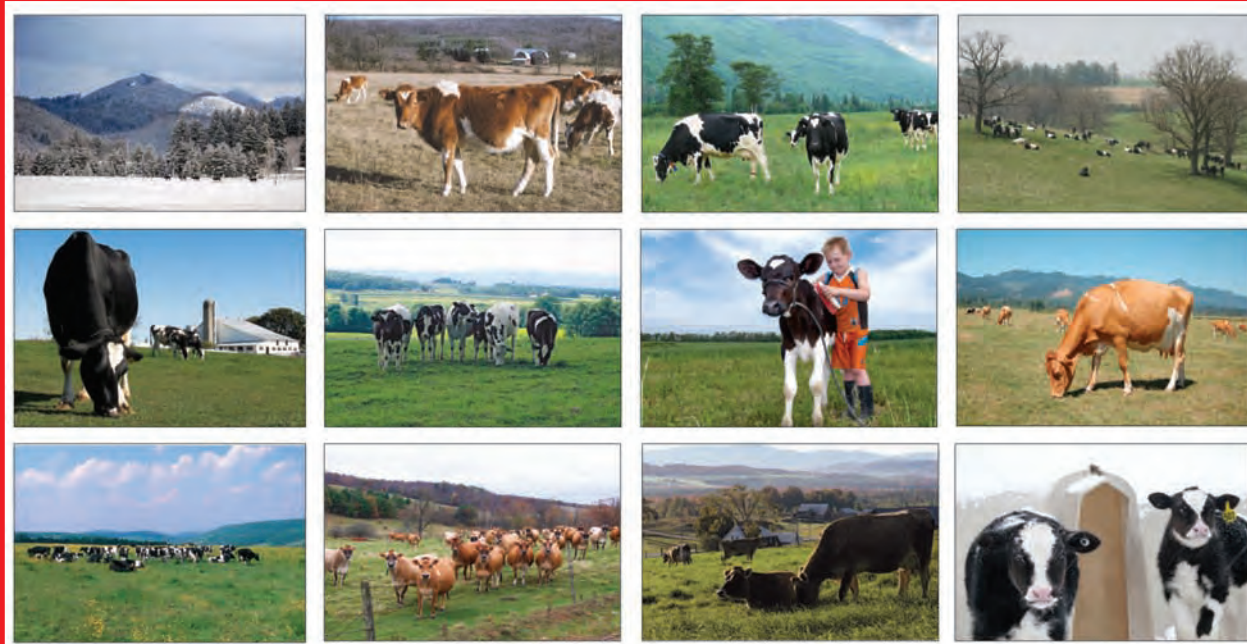
### Soil fertility challenges

Both of us are proponents of alfalfa-grass where it's adapted. However, one place where a mixed stand (alfalfa-grass or clover-grass) is not a good fit is on low-fertility soils — especially soils limited in potassium. That's because the fibrous root system of grass is very efficient at utilizing applied potassium, both as manure and as commercial fertilizer. If soil potassium levels are limiting in mixed stands, it's not unusual for grass to remove so much of the available K before the alfalfa has a chance to use it that the alfalfa starves to death due to the lack of this essential nutrient. Unless and until soil test K is at medium or higher levels, either straight alfalfa or straight grass is a better option than alfalfa-grass.

Recently established alfalfa-grass stands should be fertilized about the same as straight alfalfa. That means no nitrogen fertilizer as long as alfalfa is the primary component of yield. As the alfalfa begins to die

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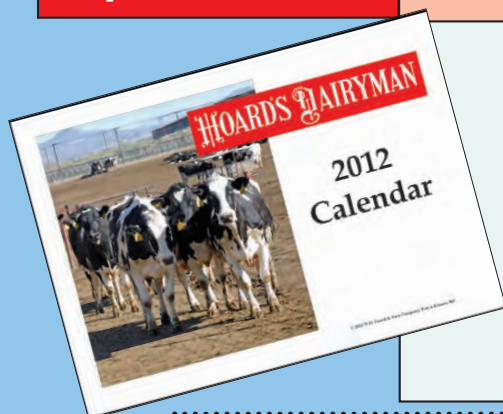
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off and grass becomes a more significant yield contributor, either slurry, liquid manure, or a moderate rate of nitrogen fertilizer will boost yield and quality.

There's not much research on N fertilization of older mixed stands, but 50 pounds per acre of actual N at spring green-up should be "in the ballpark," as they say. Note: Nitrogen will not adversely affect the alfalfa in an alfalfa-grass stand. It won't enhance alfalfa yield enough to justify applying it to straight alfalfa, but it's A-OK to apply it to mixed stands as they age.

### Seeding rates and species

With as little research as has been done on nitrogen fertilization of alfalfa-grass mixtures, there's been even less recent research on the seeding rates of alfalfa-grass. For instance, seeding recommendations by Cornell University agronomists have changed little in the past 50 years.

In general, the proportion of alfalfa to grass ranges from 2:1 to 3:1, depending on the grass species, with a total seeding rate of about 20 pounds per acre. You can get a successful stand with somewhat less than 20 pounds per acre, depending on soil condition, seed depth, and seeding equipment. We've seen farmers who by mistake undershot their desired seeding rate by almost 50 percent and still wound up with an excellent stand because they did almost everything else right.

Timothy, orchardgrass, ryegrass, and reed canarygrass are all popular forage grasses, but the grass recently receiving considerable attention is tall fescue, especially now that many endophyte-free varieties are on the market. Tall fescue has good adaptability to variable soil drainage conditions, mixes well with alfalfa, and has the potential for high yield and quality. 

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### Illinois on-line courses

ON-LINE courses from the University of Illinois include Advanced Dairy Nutrition (ANSC 423) and Milk Quality and Mastitis (ANSC 435). Lectures for both classes are recorded on CD (class on demand) with a live internet class held during the 10 weeks of class on Monday nights from 6 to 7 p.m. CST (feeding) and 8 to 9 p.m. (milk quality). Both classes will begin January 23.

The nutrition course will be coordinated by Mike Hutjens and taught by a team of two instructors. The milk quality course features Dick Wallace as coordinator, along with two other instructors.

Enrollees can participate for credit (University of Illinois tuition rate), continuing education credit (veterinarians and ARPAS), or for noncredit with reduced tuition. To review the class schedule, topics, and enrollment details, go to: <http://online.ansci.uiuc.edu> or call Mike Hutjens at (217) 333-2928.



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