



## Grass/Alfalfa by Larry Hawkins

From a time, about forty years ago, when every hayfield contained grasses mixed with alfalfa to the recent past when alfalfa was used almost exclusively, grass alfalfa mixtures are making a mighty reappearance and for one of the same reasons they left! Grasses left because livestock farmers needed more energy from their hay/haylage and they are coming back for this very same reason! There is a huge difference, of course, in the grasses. Yesterday's grasses were very early-heading which causes the grass have lower energy and digestibility. And as grass was removed from most hayfields, grass was ignored by US plant breeders and soon forgotten.

So what has led to the resurgence? In Europe, dairy producers largely couldn't raise alfalfa, so they were "stuck" with grass. In these last forty years, their plant breeders worked with grasses (instead of alfalfa) and the result is modern improved grasses that in the main are very late-heading. Remember though when you purchase grass seed from your local purveyor, it probably is some of the same grass that you (or your Dad) could have had forty years ago. Byron Seed specializes in these European grasses from Barenbrug, DLF and Eurograss, the three major grass breeding companies in Europe. These companies are the primary sources for the grasses that are viable companions to alfalfa or in many cases able to produce excellent forage standing alone.

When considering grass, there are four huge benefits that should impress even the most dedicated alfalfa purist! They are a) higher yield b) better quality, c) promotion of herd health and improved crop rotation characteristics. A fifth benefit, improved nutrient management opportunity is, at least, important to CAFO farms and as government programs converge upon us, will be important to all. Let's look at them one at a time.

**Yield** A huge driver on forage choices by livestock producers is yield as evidenced by the increase in corn silage acres over pure alfalfa. Grass/alfalfa mixes year in and year out shine in yield per acre. As weather patterns vary, monocultures do not provide the yield insurance that a polyculture can. In the Upper Midwest, our choice for the main grass companion to alfalfa is tall fescue (TF), esp. Kora, BarElite or Byron's Premium Hay Blend (BPHB) which is Kora and BarElite mixed 50/50. The reason is that TF roots nearly as deep as alfalfa and therefore has close to the same drought tolerance as alfalfa and therefore, greater summer production. Besides, when it comes to wet feet, alfalfa does poorly, but TF will still do well. University yield trials in Iowa had tall fescues yield as high as 10 DM tons/acre and nearly every entry over 8 tons. Getting to higher alfalfa yields, we see an increase of 1 to 2 tons DM/year when grass is added to alfalfa at a ratio of 40% grass and 60% alfalfa.

Yield is king because as land prices soar, more tons per acre helps us produce the forage we need on fewer acres, allowing our clients to either buy or rent less ground or produce cash crops on land we already have. (There is a rumor that you can actually sell your extra corn and hay!)



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**Quality** It is almost a no-brainer to add grass to alfalfa when you can not only get higher yields, but at the same time get higher quality. Quality in a forage is defined as **more digestibility (NDF-d)** not by higher Relative Feed Value (RFV). The proper index to look at when judging forage, is Relative Feed Quality (RFQ). This calculation uses all the inputs that the current energy equation (for NE<sub>L</sub>) uses. RFV merely rewards low fiber and we will visit that subject in the herd health section. At the World Dairy Expo Forage Analysis Super Bowl (FASB) a tremendous statement was made by not only the number of finalists in the Dairy Hay, Dairy Haylage and Dairy Baleage divisions, but also the statistics. There were 26 finalists out of 50 spots that contained grass, plus a majority of the top four spots in each. There were also two categories, Commercial Hay (all finalists were 100% alfalfa) and the Grass Hay (virtually 100% grass). The results when comparing the two—grass had a NDF-d of 73.8% and the best of the best alfalfas averaged about 47%! (See chart below). Also, the pure grass finalists averaged 3175 milk/ton and the pure alfalfas averaged 2950.

2011 WDE Forage Analysis Super Bowl Results

Category	Number/Finalists	Forage type	Milk/Ton in #'s	NDF-d %
Dairy Hay	12 <sup>1</sup> /20 <sup>2</sup>	Pure Alfalfa	3022	48.2
Dairy Hay	8/20	Alfalfa/Grass Mix	<b>3070</b>	<b>52.5</b>
Dairy Haylage	8/20	Pure Alfalfa	3059	46.6
Dairy Haylage	12/20	Alfalfa/Grass Mix	<b>3250</b>	<b>55.5</b>
Baleage	4/10	Pure Alfalfa	2877	46.5
Baleage	6/10	Alfalfa/Grass Mix	<b>3138</b>	<b>62.0</b>
Commercial Hay	20/20	Pure Alfalfa	2878	46.3
Grass Hay	10/10	Pure Grass	<b>3175</b>	<b>73.8</b>

<sup>1</sup>equal the number of grass entries in that forage type. <sup>2</sup> equal the number of finalists in that category

**Herd Health** Feeding more forage to dairy cows is a universally recognized way to increase herd health. The problem is that if the forage energy isn't high enough to compensate for replacing higher energy concentrates, milk production goes down. Some people recognizing the profit-making opportunities of higher herd health and reproduction are happy with just that. Others who want high production can ramp up digestible forages to a point and maintain overall ration energy. Either way reducing lost milk production from sick cows, avoiding compromised immune response and fewer emergency vet visits are a huge profit opportunity for any dairy. Diseases like acidosis, DA's, lameness, ketosis and poor reproduction can be mitigated by including high energy grasses into the ration. The key to all of these improvements is the ability to raise digestible fiber in the ration with the addition of grass (high energy) rather than straw (low energy) to the alfalfa.

**Improved Crop Rotations** Work at the University of Wisconsin-Madison showed that corn following grass (as a monoculture) was as good as or better than corn following soybeans or alfalfa. The reason for this surprising result was the tremendous amount of root biomass that grass provides organic matter to our soils. We know of no other crop that can add organic



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matter to our soil as quickly as large-rooted grasses such as tall fescue. Besides organic matter, grasses provide deep channels for new corn roots to follow, improved soil structure and water holding capacity and better soil aggregation. Obviously, a mixture of grass and alfalfa can provide the benefits of both crops as a precursor to the next corn crop.

**Enhanced Nutrient Management for large dairies** As with organic matter, we know of no common crop with the uptake capabilities of cool-season grasses like tall fescue. With their combination of yield and their thirst for nutrients, grasses will remove more N, P and K per year than any other crop. Added to that, with each harvest, another opportunity presents itself to apply manure, especially liquid manure and low nutrient water.

These topics are covered more completely in the Grass Report available from the Indiana warehouse.