

Is an Alfalfa/ Grass Mix Good for Your Farm - Revisited?

By John McGregor, MFGA Extension Support

In May of 2017, I wrote an article on the pros and cons of growing a mixed alfalfa/grass stand versus pure stands. Although there are a lot of pros to growing a mixture it does come with some issues that should be considered based on your individual situation.

Variation in forage quality from year-to-year and cutting-to-cutting is my biggest concern. Even with the same seeding rate, the amount of grass established differs each spring depending on environmental conditions. Variability can be a killer in the dairy and hay marketing industry. “Grass” is a big term, and the variability between species and varieties is greater than we see in alfalfa or corn.

Further, grasses express themselves differently in the spring than in the summer and fall. Nearly all of the grasses we use are cool-season grasses, meaning they don’t grow well in hot, dry summers. This creates a situation where spring and fall cuts of a mixed stand will have a higher proportion of grass, while summer cuts will be higher in alfalfa. In some work carried out at Michigan State University (MSU), alfalfa/grass mixtures averaged 51 percent grass in the first cut, but only 21 percent grass in summer cuttings. When compared to pure alfalfa, the grass mixtures increased Neutral Detergent Fiber Digestibility (NDFD) to 19 percent in first cut and up to 23 percent in summer cuttings. This variability causes some uneasiness among nutritionists and hay buyers.



Other benefits to mixing alfalfa and grass other than nutrition include:

- Stands that are affected by winterkill still have potential to produce adequate yields as grasses can fill in for some of the alfalfa that has died out or was damaged.

- Yields can increase in a mixed stand compared to a pure stand. Trials at MSU, seeding alfalfa with orchard grass, tall fescue, or meadow fescue in a 50:50 mix had increased dry forage yield up to 83 percent compared to alfalfa alone.
- Alfalfa/grass stands have the potential for an increased stand life over a pure alfalfa stand. Grasses can be added to an aging stand by over-seeding to fill in any gaps. Due to auto-toxicity issues, adding alfalfa to a thinning stand comes with a lot of risk and low potential of success.
- Alfalfa/grass stands that are greater than 30 percent alfalfa require little or no nitrogen to feed the grass portion of the crop. Depending on your situation this could result in substantial savings through reduced fertilizer costs or increased yields.
- Weed and pest control options are more difficult in a mixed stand. While it is true, we tend to see fewer weed and pest issues in mixed stands, the fact still remains that it is difficult to control grassy weeds in a stand that is 30 percent grass and therefore if grassy weeds are an issue they should be dealt with before establishing the forage stand.
- Soil erosion is something we don't often think about in a forage stand but where there are issues the fibrous roots of grasses have a greater ability to hold soil than the tap root of an alfalfa plant.

Nutritionally in both dairy and beef rations, there are good reasons to feed a mixture of alfalfa and grass:

For dairy, this has been precipitated by the feeding of higher corn silage rations which typically contain elevated levels of non-fiber carbohydrates (NFC). Such rations have been strongly linked to higher incidences of cattle lameness. Grasses have higher neutral detergent fiber (NDF) content than alfalfa, but they are also more digestible.

When dairy science was only looking at acid-detergent fiber (ADF), NDF and protein, it was thought that grass was too high in fiber to be fed to dairy cows. When we compare the NDF level of silages made from corn, alfalfa or grass, the grass had the highest NDF level and was therefore thought to be low-energy. Too much NDF would limit intake and lower the energy value for a given feed.

With the advances in the understanding of fiber digestibility, we now understand what the cows had been telling us all along: There is energy in grass. The term NDFD (the percentage of the NDF that is digestible in a given timeframe) sheds some light on the energy content of grass as forage. While most alfalfa samples have around 50 percent or less of NDFD, and corn silage has an NDFD of 50 to 60 percent, grasses routinely test at 60 to 70 percent NDFD. If two-thirds of the NDF in the forage is digestible and usable as an energy source, that will likely mean less grain is needed to maintain milk production, and since grasses have almost no starch, energy increases while

decreasing the starch load. Coupled with faster digestion, some grass inclusion makes for a good fit with high corn silage (elevated NFC) diets.

For dairy operations considering mixing grasses with alfalfa as a shortcut to increase dry matter intake (DMI) and milk production, this is a flawed strategy according to an article out of MSU. A key reason is that digestion processes are different for grasses vs. legumes. First, legumes pass through the rumen more rapidly than grasses because of how the plant particles break down. Legumes, being more brittle, tend to break down into cube-shaped fragments that can exit the rumen relatively quicker, whereas grasses are degraded to long thin strands that take longer to pass out of the rumen, while potentially also entrapping other small particles within the rumen.

Therefore, even though the NDFD of the forage mix may increase with the addition of grass, the DMI and milk production potential does not necessarily increase. Increasing the proportion of grasses slows passage rate, which will generally cancel out the benefit of increased NDFD on DMI.

In the case of beef cattle, wintering cows that consume only alfalfa may receive more than adequate protein but may be limited by energy. A high-quality alfalfa-grass mix can help to moderate the protein consumption while adding a bit more total digestible nutrients (TDN).

More and more livestock producers are making alfalfa-grass mixtures work to their advantage, but timely cutting is key to maximizing the benefits of an alfalfa/grass mixture.

These nutritional benefits can only be realized if the grass is cut before it becomes too mature, at which point there are copious amounts of not-so-digestible NDF. This has historically been a challenge in alfalfa-grass mixtures, but new grass selections have helped. Consider using grasses in your mixtures that have the potential to be in the late boot stage when alfalfa is in the late bud to early flower stage. Mixed stands at this stage will have superior forage quality.

Finally because of the variation in the percentage of alfalfa to grass between cuts, fields and years, feed testing is critical if you are planning on meeting the nutritional requirement of your livestock.

Further Information:

[Should dairies utilize grasses to increase forage NDF digestibility?](#)