Managing Reduced Lignin Alfalfa

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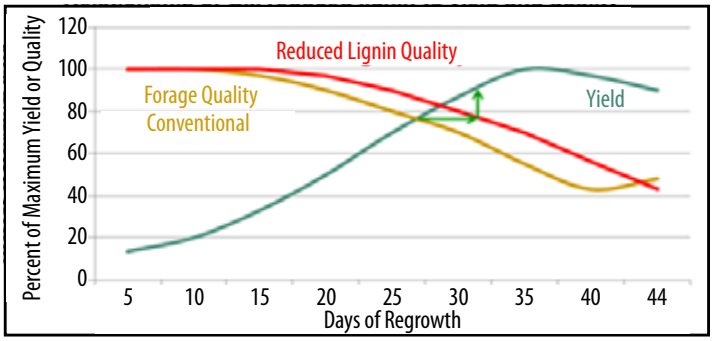
The reduced lignin trait (HarvXtra™) has great potential benefit to farmers but will require a totally new management system to achieve these benefits.

First, consider the seeding. Most of the Midwest typically seeds conventional alfalfa at 17-20 lbs of seed per acre when all research data has shown 10 lbs/ac uncoated seed (or 13 lbs/ac coated seed) is adequate for high-yielding stands if good seeding practices are implemented. The difference between historic seeding rates used by farmers and that which is recommended will be about $60-80/ac for HarvXtra.

Data from numerous studies have shown, at higher seeding rates, more plants emerge (at 20 lbs/ac as many as 90 plants/ft^2), however, the plants die back to 25-30 plants/ft^2 regardless of the seeding rate. Therefore, the higher the seeding rate, the more plants emerge and die in the seeding year. Some farmers use a higher seeding rate to minimize weed growth. However, with Roundup Ready varieties, lower seeding rates can be used since farmers can apply Roundup to control weeds earlier than when conventional herbicides can be used.

Figure 1. Relationship of GM reduced lignin to yield and quality.



The higher seeding rate has been recommended by some due to assumed poor planting practices. If soil pH is low, soil is loose, or seed is planted too deep, a good stand may not be achieved. However, due to additional seed costs it may be worthwhile to soil test, lime accordingly, and use a well-maintained Brillion seeder or even refurbish or purchase new alfalfa seeding drills.

Harvest in the seeding year. The recommendation has been to harvest conventional alfalfa beginning ~60 days after planting. This remains a good recommendation with HarvXtra alfalfa and will result in higher quality forage than conventional varieties. However, farmers will have the option to delay harvest. The main consideration should be to space cuttings so the entire growing season is utilized. Farmers have the option of harvesting at 60 days, then at 28-day intervals for higher quality alfalfa than previously achieved or harvesting first cut at 30˝ and later cuttings at 35 days for similar quality to conventional alfalfa but with higher yield. Note cutting at 28-day intervals (as with conventional varieties) results in a 20% yield reduction. The key is to make use of the full growing season (i.e., take the last cutting at the beginning of the no-cut window) to maximize yield.

Harvest in production years. If HarvXtra reduces lignin content by 15%, the NDF will be slightly higher than 98% of conventional varieties. Therefore, farmers can use PEAQ (Predictive Equations for Alfalfa Quality) sticks to harvest at similar RFV as before, realizing the relative forage quality (RFQ) will be higher due to greater fiber digestibility. My recommendation is to take the first cutting by the same standards as conventional alfalfa (28˝ height or bud stage, whichever comes first). Letting the alfalfa get taller will increase lodging in either conventional alfalfa or the HarvXtra.

Later cuttings can be taken either on 28-day intervals for those who want supreme quality for 25,000+ lb milking herds or at 35 days for those who want 170 RFQ and greater yield.