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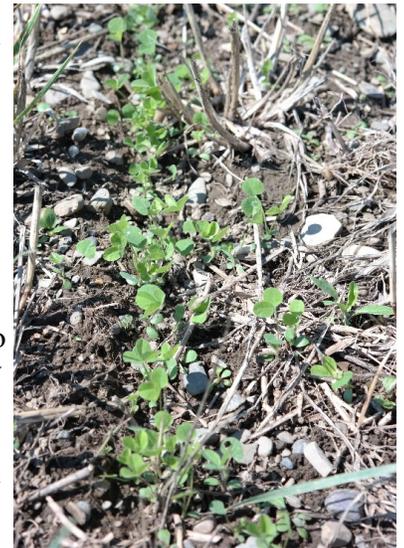
June 2020

"It is the crops
that feed the
cows that make
the milk
which creates
the money."

Advanced Ag Systems
Research, Education, Consulting

New Forage Options From an Old Crop

In the April issue ([April 2020 Rotations Working For You](#) *click for link*) we discussed the impact of shortening your rotations to put more of the acres in high yield conditions. Farmers prefer a longer rotation so they don't have to seed down as often. Seeding year is high risk, a lot of work fitting the soil and picking stones at the busiest time of the year, and then open to erosion from summer thunderstorms. All this for half the yield of a fully established crop. Compounding the problem are the many farms reporting this year that they are only getting 3 years out of their alfalfa. This is because, as the famous agronomist Ev Thomas says: an accumulation of insults. Very frequent cutting by farms refusing to utilize wide swath same-day haylage means that as Dr. Undersander's Wisconsin research clearly shows, driving on the field to chop haylage 5 days after mowing is a 25% yield reduction in the next cutting from crushed regrowth points. To make sure the alfalfa doesn't grow we spread manure several days or weeks after that and further crush the regrowth points that did make it. Tire strips of weeds increasingly occupy more of the field. Add to that the late harvests in a desperate attempt to get the maximum amount out of the crop exposes the crop crown to the full impact of winter and ice sheets. But wait!! We aren't finished with the insults yet. With the horrible milk price, we have completely forgotten liming – yet spend bazillion (agronomic technical term) dollars for the latest genetic alfalfa that still will not grow in low pH. The stress of low pH and the wet soils of the past three years has overwhelmed the disease resistance built into the crop and the plants are dying out. This is especially true on marginal soils where it was iffy to plant alfalfa any way – but if you are a real farmer you are supposed to grow just corn and alfalfa. I am not trying to dump on already stressed farmers. Just pointing out the reality of much of our present forage production and how it takes the legs out of the profitability for which you worked so hard and keeps you from achieving the potentially more profitable high forage diets. Are we expecting the impossible?

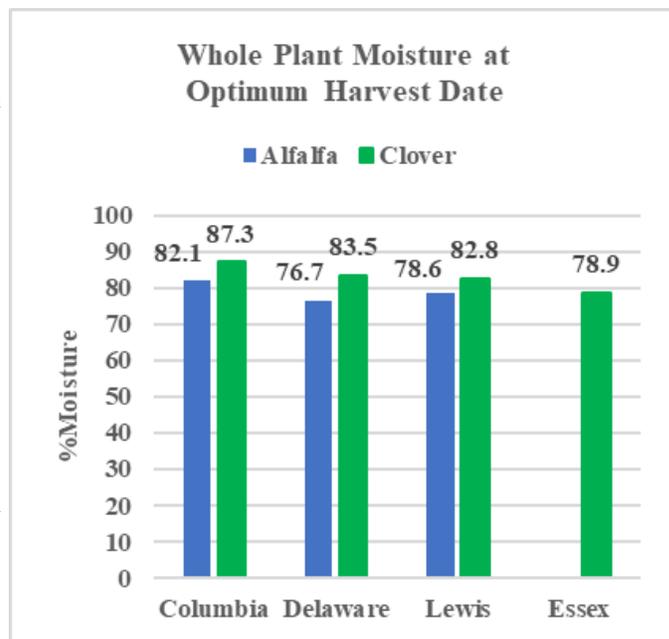


Let's start with reluctance to seed down. More farms are using the legume seeding method described in [April 2020 Rotations Working For You](#). Details are in [Better New Seedings](#). For fields to be seeded, the previous fall they plant and in spring, harvest a winter triticale forage crop. After the rest of haylage is finished they come back with 15 gal./a of car-

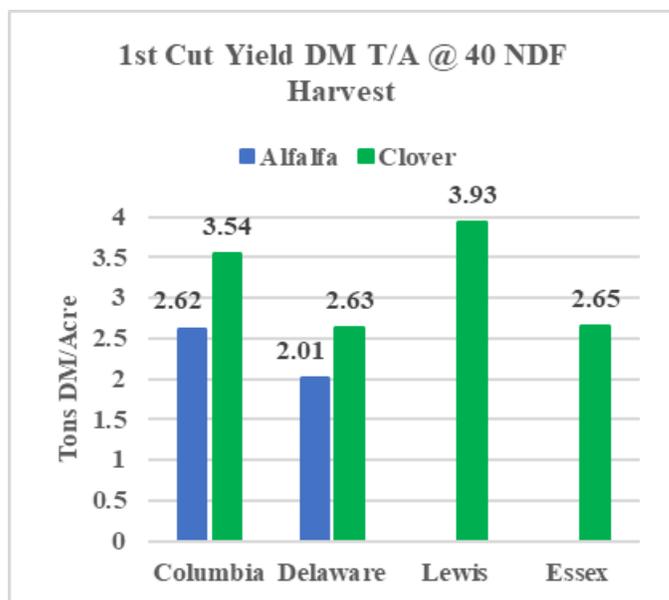
Farmers across the US and in Canada have discovered the many advantages of no-tilling legumes into harvested triticale stubble and the superior seedings that result. This was done with a conventional press wheel drill. Broadcast and rolling or cultipacker seeder will NOT work.

rier and 2/3 quart of glyphosate. After an hour of drying time then they no-till seed the legume. They have little or no stone picking; proven resistant to erosion; moisture conservation to feed the small legumes; rapid emergence and growth as warm temperatures keep the small plants ahead of seedling diseases for consistently successful seedings. All this and you moved a major workload out of the April spring rush to after the crunch in early June; and before you even take the first new seeding cutting, harvest 7 to 14 tons of 35% DM silage (*triticale at flag leaf*) off new seeding acreage, with better quality than any other crop you can grow .

What to seed? Based on **NY Farm Viability** supported research in 2011 and more detailed harvest research in 2019, a clear alternative is emerging for less than ideal drained soils in the old crop red clover, utilizing modern management techniques. Let's start with the major objections: it is wet and doesn't dry. Yes, it was 5.4% wetter than paired alfalfa in our replicated trials in three locations (see graph at right). Back in 2011, the research we did clearly showed, under adverse drying conditions (all three sites had significant rain the night before and it was the second year, heavy first cutting clover – which is typically 30% higher yielding than the same alfalfa) all sites achieved over 30% dry matter the same day as mowed. The key was to mow at greater than 80% of cutter bar with **NO deflector shields** of any type. After two hours of drying, a careful **tedding** lifted the bottom layers and brought them up to the top to dry. There was **NO response to conditioning**, and there was no need to run the tedder on the second and third cut.



In our **2019 research**, across all the sites the **clover**, both at the same harvest date as the alfalfa, and at the 40 NDF harvest dates for each, **clearly out yielded the alfalfa** in the first harvest (two sites the alfalfa did not establish or established poorly in the spring seedings). The **first cut of the clover** at 40 NDF harvest date, was an average of 33% higher yielding than the paired alfalfa at its 40 NDF harvest date. At the Columbia site, the clover was 35% higher yielding than the alfalfa. At the Delaware site it was 31% higher yielding than the alfalfa. This can be seen in the graph at right. At the Columbia site, the alfalfa went on to lose yield as harvest went past optimum. The majority of this was a loss of lower leaves and petioles. Clover also lost but at a slightly later time frame. At both sites delaying harvest past optimum, the clover and the alfalfa sustained severe lodging (clear legume, no grass). The average clover yield at 40 NDF harvest date for all four sites (all had good stands) was **3.19 tons of dry matter**. The important point is that this was **ONLY THE FIRST CUT**. We still had two more harvests to add to the tonnage. This is not a one-year wonder yield. Julie Hansen's excellent clover variety trials ([click for details](#)) at Cornell regularly show the superior yield of red clover compared to alfalfa in a short rotation. Clover in a short rotation has the potential to increase the production on our less than ideal drained soils.



Farmers may object that clover will not yield when it turns dry compared to alfalfa. Is it the crop or the

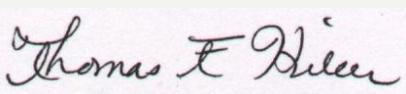
soils it which it was planted? Alfalfa is grown on well-drained soils which usually mean deep rooting potential. Clover is grown on poorer drained soils. Nearly every less-than-ideal drained soil I have looked at (and there were plenty) sometime in the past was plowed when it was too wet. Compaction doesn't go away magically. It will last for decades until it is removed (Midwest research found compaction remaining from the wagon trains going west). An example is our research that found a severe yield-limiting plow pan in an alfalfa timothy sod that had been established for 15 years. There were no roots below 6-inch. Compaction on these moderate to wetter soils limits the root growth, and water availability of the clover to 6 or 7 inches, severely limiting yield when it turns dry. In the photo at right, we deep tilled a severely compacted sand/gravel on 30-inch centers when in corn. A year after seeding clover it turned very dry. The alfalfa and the clover turned brown and died back. When it rained again the clover came up and grew fine in foot wide strips on 30-inch centers where the compacted pan was eliminated. Removing compaction takes planning and forethought. The [November 2018](#) newsletter will give you details for successfully removing compaction. Once it is removed, a careful, short rotation with no-till, as described in the April issue, will keep the deep rooting depth of all the sequential crops.



Another hidden impact of clover is that work at the University of Wisconsin has found, depending on how far north you are, 3 or 4 mowing's are all that is needed to maximize yield and quality. Compared to 5 or 6 cuttings for alfalfa, this is a substantial reduction in harvest time, cost, and cost/ton of dry matter, and weather risk. It opens the potential to put profit back into your high forage diet.

Finally, red clover has naturally hairy leaves. This will repel potatoleaf hoppers and so eliminate the expense (each expense = less profit for you) and need to spray for them. My experience with the hairless type was that hoppers loved it and killed the stand. Our research showed that you don't need the hairless type to dry for same day haylage.

Our 2019 research found that the red clover image of it not supporting milk production is not true. Poor management, based on farming practices from decades ago, destroys most of the potential for red clover to profitably sustain high milk production. The next newsletter will go into the details of time and method of harvest's huge impact on feed quality, milk supported, and palatability of red clover. It will compare milk potential to identically paired alfalfa. We will discuss the components in clover that are different from alfalfa and adjustments nutritionists need to make to optimize production and profit. Using clover, we can potentially increase the digestibility of legume forage harvested on heavier soils to the digestibility levels of the new alfalfas that will not survive there.

Sincerely,

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