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Look to Legumes

Increased forage quality, nitrogen fixation and extending the grazing season are just a handful of the reasons these forage specialists like legumes.

by ***Kindra Gordon***

What is one component that most successful livestock graziers have in common? They include legumes — such as alfalfa, clovers or lespedeza — in their forage systems, according to Garry Lacefield and Don Ball.

Lacefield is an Extension forage specialist at the University of Kentucky, and Ball is an Extension agronomist at Auburn University. The duo has traveled across the U.S. and to many foreign countries evaluating different forage systems, and they've become huge advocates for legumes.

"We think there are some good reasons to use legumes," Ball says, "and some things have changed in society and agriculture that make it even more imperative for producers to start using legumes."

Feeding & Feedstuffs

That reason is nitrogen.

The need for nitrogen

Ball explains that, until recently, nitrogen fertilizer was relatively inexpensive, and it was convenient for producers to use to fertilize pastures. However, nitrogen isn't cheap anymore. "I don't think it will be again," he adds.

Lacefield concurs, saying, "The availability of inexpensive nitrogen in agriculture is history. So producers need to start looking to legumes, which have the ability to fix nitrogen and help boost pasture productivity."

Additionally, Lacefield and Ball point to forecasts that the availability of corn will greatly decline in the next three to five years due to demands from ethanol (not to mention what may happen to the price if supply is limited). Thus, they say livestock producers should also be looking at legumes as a means to increase forage quality and ultimately boost animal gains without having to rely on as much grain supplementation.

Lacefield sums it up by saying, "From an agronomic, environmental and patriotic standpoint, legumes have an important role in the future. The need to use them is greater than it's ever been."

The case for legumes

Lacefield and Ball say there is much to admire about legumes. Topping the list is their ability to boost forage yield and quality.

Regarding yield, alfalfa is an example that easily outdoes grasses. For instance, on average, orchard grass produces 2 to 5 tons per acre; smooth bromegrass, 2 to 4 tons per acre; and alfalfa, 3 to 6 tons per acre. Other

More reasons to like legumes

Auburn University Extension agronomist Don Ball provides more reasons for why forage legumes are appealing:

- ► Pastures with legumes tend to be more colorful and attractive. While that provides some scenic value, it keeps pastures more interesting and diverse for grazing livestock, too, Ball says.
- ► Because legumes provide an environmentally friendly source of nitrogen, they are being used in creative ways as a substitute for commercial fertilizer. One example is using legumes as ground cover in pecan orchards, Ball reports.
- ► Legumes are beneficial to wildlife and many species of birds because of their nutrient quality, excellent bottom cover for habitat and flowers that attract insects. Likewise, legumes are a good source of pollen for bees.
- ► In cropping systems, legumes can be beneficial because of the residual nitrogen in their roots and leaves, which can improve soil tilth, and because they provide a crop to break pest cycles.

legumes have high yield potential as well, Ball says.

Lacefield likes legumes for their high quality. They have higher crude protein (CP) content, relative feed value (RFV) and total digestible nutrient (TDN) values than grasses. Additionally, digestibility of legumes (which is intake and rate of passage) is 36 hours, compared to 90 hours for grasses.

Of course, quality is ultimately measured by animal performance, and numerous studies have shown it. He reports that in one study with white clover, a 60% improvement in calf gains was documented, as well as increased conception rates due to better quality of legumes with grasses. "So yes, there is a case for adding legumes," Lacefield says.

Because of their ability to enhance forage quality and yield, Ball and Lacefield say legumes make a productive companion species to annual and perennial grasses. For instance, red clover works well with tall fescue and orchard grass.

Including legumes in grass stands has also been shown to reduce the effects of grass tetany and fescue toxicity. And, most recently, research indicates tannins in some legumes such as serecia lespedeza were found to reduce the number of internal parasites in livestock.

Because legumes grow well during summer months, some grass-legume combinations can also help get through the summer grazing slump and extend the grazing season. One example is annual lespedeza grown with tall fescue. The fescue is grazed in early spring and fall while the lespedeza provides forage from July through September.

Ball suggests producers really need to look at how legumes can fit scenarios like this to give high-quality feed for the longest time period possible. He says, "Every day grazed is money saved."

Overcoming obstacles

With all that said, why haven't forage legumes been used more widely? Ball admits there have been some perceptions that have prevented legumes from finding favor with producers.

Probably the biggest concern is bloat. But Ball says the fear of bloat is mostly perception and not reality. During his 30-year career, he's seen very few livestock deaths due to bloat. He adds, "It's a manageable problem. It shouldn't keep producers from the benefits legumes offer."

Simple management tactics like avoiding putting animals on legumes when it is wet or when they are overly hungry can help decrease the risk of bloat.

Lack of stand persistence has been an issue with legumes. But Ball and Lacefield report that with proper management the problem can be minimized. More varieties of alfalfa and clovers that tolerate grazing are also becoming available.

Cost of establishing legumes may prevent some producers from investing in them. But Ball says legumes' profit potential more than makes up for start-up costs.

He estimates that total cost for establishing clovers with grass pastures can be anywhere from $15-$50 per acre, and notes alfalfa would cost more to establish. Still, he believes most of the time the nitrogen benefits alone from the legumes would more than pay for that expense. Not to mention factoring in the economic benefits of a 5%-20% increase in conception rate, additional beef gains and decreased fertilizer costs.

To add to the argument, Lacefield reports that research on 37 Alabama stocker operations showed that seven of the 10 lowest-cost operations used forage legumes, indicating it's an investment well-spent.

Ball and Lacefield suggest including legumes at 25%-50% of a pasture mix, and in return, producers should be able to extend their grazing season as well as see higher forage yield, better forage quality, increased conception rates and weaning weights, and reduced toxicity issues.

Given all those benefits, Ball says, "There are a lot of farms where legumes could be used more than they are. We hope producers will open their minds and consider legumes."

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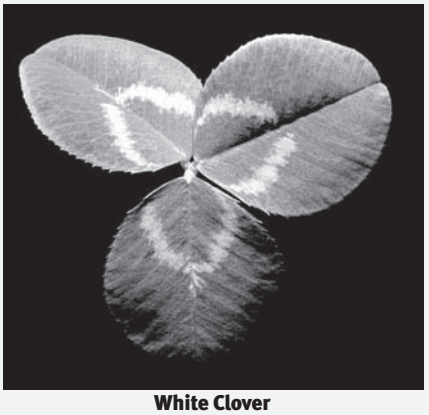
Legumes to consider

While alfalfa is likely the most well-known legume, there is a long list of others to consider, including red clover, white clover, ladino clover, bird's-foot trefoil and lespedeza.

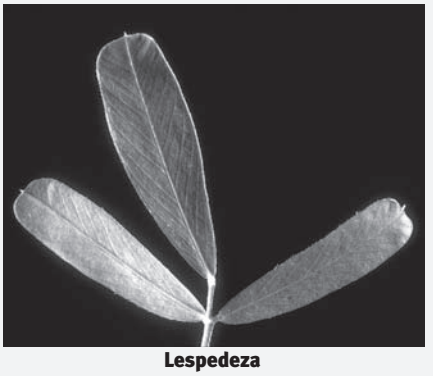
Garry Lacefield, Extension forage specialist at the University of Kentucky, and Don Ball, Extension agronomist at Auburn University, have co-authored the book *Southern Forages* with University of Georgia professor Carl Hoveland where they list 32 different legumes. The book is available for $30 plus shipping and handling from the Potash and Phosphate Institute by calling (770) 825-8084.



White Clover

Alfalfa

Bird's-foot trefoil



Lespedeza

Red clover