Managing Native Grass Forages

Patrick Keyser, Professor and Director, Center for Native Grasslands Management

Early Studies on Native Grass Forages – a Tribute to a Pioneer

About 18 months ago, I wrote an article about an early pioneer in native grass forage research, Dr. Gerry Jung, who had conducted several studies during the 1970s and 1980s while at Penn State. I’d like to introduce you to a scientist who conducted work in Missouri beginning in the early 1960s – some 50 years ago! Dr. Arthur Matches was on the faculty at the University of Missouri and in 1965, initiated research on the use of native grasses as a tool to fill the summer forage gap in an area dominated by tall fescue. The results from his studies are quite interesting.

He and his co-workers evaluated yields from two forages we have studied here at the University of Tennessee more recently, indiangrass and a lowland switchgrass (‘Kanlow’ variety). They found yields only slightly below what we have observed nearly 50 years later, 3.8 tons per ac for the Indiangrass and 4.4 for the switchgrass. They also documented when the forage was produced by conducting harvests every four weeks. They found that 100% of the indiangrass and 94% of the switchgrass forage was produced between June 1 and August 31 each year, a time when tall fescue (or any other cool-season grass) is not very productive. In fact, in a direct comparison with tall fescue, they reported only 42% of this cool-season grass was produced during these same three months. With that species’ lower yield, this means 1.2 tons of fescue vs about 4 tons per acre of native grasses – a big difference!

In terms of forage quality, at least the way it is measured in the lab, the two natives averaged about 10% crude protein, a level similar to what we have measured here at UTIA (for early boot-stage harvests), and adequate for meeting cattle nutritive demands. In their grazing trials, they reported gains on yearling dairy heifers comparable (up to about 1.5 lb per day) to what we have seen here in our Tennessee studies (1.6 lb per day). They also observed carrying capacities of up to 3,000 lb per acre on the switchgrass, again, similar to what we have seen here in Tennessee.

What is most interesting to me about this research is that despite being conducted a half-century before our work here at UTIA, by different researchers, with different backgrounds, working in very different environments (some 400 miles to the west, with very different soils and climate), the results are very similar to ours. And, as I mentioned in my article about Gerry Jung, very similar to his results. What this tells me is that the information we have been sharing with producers is quite reliable. It has stood the test of time and has held up whether studied in Pennsylvania, southwest Missouri, or Middle Tennessee.

What should not be surprising therefore, is that Dr. Matches and his co-workers also reached the conclusion that tall-growing native grasses such as indiangrass and switchgrass can provide a valuable complement to our cool-season pastures. We have gained a great deal of experience in establishing and managing these forages since Dr. Matches initiated his work and drew his conclusions. And that experience has shown us that native grasses can indeed play a valuable role in our forage production systems in the fescue belt.