

## 2012 Warm Season Grass Summary

We restored 160 acres to native prairie in 1993 and have been raising native grasses for seed since 1998. A question often asked by friends and acquaintances is, who buys the seed? Early on most of the seed we sold went for conservation plantings like NRCS CP-2, some of these local plantings still exist, are doing fine and have been reenrolled in the CRP program. CRP has been scaled back some in recent years and our focus lately has been on long term wildlife habitat and permanent pasture renovation.

What is the value in reestablishing warm season native grasses back into grazing lands? My goal this year was to start and answer that question for myself. I have watched our restoration for 19 years and see improvement in species diversity, soil fertility and forage production. There is nothing like a continuous cover of grasses to tell you where the soil is good and where it isn't. Some of the land we planted in 1993 was highly erodible and some was actually quite productive farm land, all in the same ¼ section. A creek runs through this land and according to the USDA soils map there is 7 different soil types.

My gauge for fertility improvement and forage production over the years is increased grass seed production on a per acre basis. We have not fertilized in 10 years and seem to get more seed per acre nearly every year. Growing degree days and rainfall play an important roll but on average, production has improved. We also do a burn rotation of 2 or 3 years so only 1/3 to 1/2 of the acreage is disturbed on any given year.

Quality grassland will have very little water runoff, even after a heavy rainfall, it stores the water for later in the summer. The soils are porous with root systems going very deep, organic matter is high and the ground is soft underfoot. Warm season (C4) grasses respond to heat and start growing in late May, early June in the northern plains. I started taking photos of our 2012 grassland on June 9 and samples were taken starting June 17.

The summer of 2012 in southern Clay County, Minnesota (near Barnesville) was warm and had some dry periods. The nearest NOAA recording station is Fargo, ND and the FM area was a fair amount dryer over the course of the

summer than Barnesville, likely 3 to 4" less rainfall during the growing season. We burned 50 acres of our grassland on May 12, this is the area in which the forage analysis samples were taken.

On June 9 the height of the warm season grasses averaged about 10", on June 17 the height was 14". The first sample was taken on June 17, this is roughly the time livestock would be turned in for the first grazing period, taken off, leaving a 7 or 8" stubble and moved to the next pasture. The corresponding test results (page 1) performed by Stearns DHIA Labs in Sauk Centre, MN show a crude protein of 13.49 % and a relative feed value of 93.70. Calcium (.43) and Phosphorus (.34), adequate for cows with calves. All test results are on a dry matter basis unless noted otherwise. July 1<sup>st</sup> the next sample was taken and the height of the grass is 24", 10" of growth in 2 weeks. The test sample (page 2) shows a crude protein of 12.81 % and a relative feed value of 93.78, Calcium is .42 and Phosphorus is .33. If one were making hay, this would have been the time to cut, July 1. If you look closely at the July 1 photo you will see the first seed stalks starting to rise over the leaf blades, this is the time to cut native hay. Historically this is very early, a more normal haying time would be July 15 to July 20. Once seed heads start to form the forage value drops quickly, as the following test results will confirm. If one were grazing this acreage this summer, the first grazing period for the entirety would be prior to July 1 or hay could have been made on a portion of the land. The prairie matured quickly this year and the rangeland manager would have to move accordingly to stay on top of it.

Our test samples were taken over the course of the warm season grass growing season without any intervention (mowing, grazing) to serve as a baseline for testing in following years. What we learned in test samples taken July 26 (page 3), August 12 (page 4) and September 9 (page 5) is warm season grasses must be cut for hay when the first seed stalks emerge or 1<sup>st</sup> over grazing should take place between June 15 to July 1 to delay grass maturity. By July 26 protein levels had dropped to 7.89 % and relative feed value to 77.74. At this time the native grass was in full seed head and seed production mode, the high forage value was 3 weeks prior. It should be noted that on the June 17 sample date, soil moisture was very adequate, virtually no rain fell until July 24 and it was hot. This may account for the very rapid maturity in 2012 and possibly a faster than normal decline in protein and relative feed value. When we test in 2013 we will try and match the sample dates as closely as possible for comparison.

I decided to take some samples on our farm of a native grassland (Big bluestem primarily) where my dad makes hay every year on or around July 15. This land borders the creek that flows through our farm and the samples are pages 6 and 7, noted as “regrowth”. This somewhat replicates in my opinion the 2<sup>nd</sup> over grazing that would take place on warm season grasslands in late July, August and early September before dormancy is reached. The test results from August 26 and September 9 showed something quite interesting, the protein levels on the regrowth were as high or higher than in June and early July and the relative feed value was 20 points higher. Warm season grasses become more nutritious after the first partial defoliation, quality grazing can extend to 90 days and beyond.

Testing for 2013 will include a control with sampling dates similar to those in 2012 for historical comparison purposes. The second set of tests will replicate the “twice over grazing” strategy as described in the Grazing Handbook. [www.grazinghandbook.com](http://www.grazinghandbook.com)