



Converting Pastures to Native Warm Season Grasses: Forage for Drought in Bedford County

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Introduction

Unlike cool-season grasses, which grow predominately in the spring and fall, warm-season grasses are most productive during summer months and have the potential to fill a large forage production gap in the southeastern US, known as the “summer slump.” Native warm season grasses (NWSG) are well-adapted to this region’s climate and soils, maintaining high productivity even in the summer months and with minimal inputs. Their deep rooting potential also has value for carbon sequestration.

Additionally, the robust, upright form and open space between plants in a NWSG stand provides the type of habitat required for foraging and nesting by bobwhite quail and other ground nesting birds. These grasses shelter small mammals and birds from predators, even after heavy snow events when left standing overwinter.

Unfortunately, historic challenges with establishment and misperceptions surrounding nutritional quality and stand management largely account for farmer reluctance to convert tall fescue (*Schedonorus arundinaceus*) pastures to NWSG in Virginia. We intend to address these issues through demonstrations: this fact sheet will provide documentation of a producer’s real-world conversion experience.

Tuck Farms, Moneta, VA

Keith Tuck raises cattle in an all-grass production system on his farm in Bedford County, Virginia. Historically, the pasture species on this farm are comprised of cool-season grasses and legumes. His

farm typically sustains 100 cow-calf pairs and 15-20 replacement heifers on what was once a tobacco farm.

Keith described his reason for converting a 16-acre field to NWSG:

“We typically have a drought period sometime each summer, and I need some pasture acres that are planted to a forage that is better suited for summer production and can better withstand drought conditions and still provide some fresh forage for my grazing livestock.”



Figure 1. Tall fescue makes up most of the pasture acreage at Tuck Farms, but Keith Tuck needed something that would provide feed for his cattle in the summertime (Photo: JB Daniel).

Conversion Process

Keith utilized a spray-smother-spray approach to convert an 18-year-old cool season grass pasture to switchgrass (*Panicum virgatum*), following the process outlined in Table 1.

Table 1. Timeline for converting pastures to NWSG, according to Keith Tuck. (Roundup PowerMAX® at 2 qt./ac. was used as glyphosate source.)

Category	Task	Date
Seed bed preparation	Spray cool season grasses (glyphosate)	May, 2018
Seed bed preparation	Establish smother crop	May, 2018
Seed bed preparation	Harvest smother crop	July-August, 2018
Seed bed preparation	Leave fallow	August, 2018 – March, 2019
Establishment	Spray again (glyphosate): kills misses, seed-lings, weeds	March 23, 2019
Establishment	Plant NWSG (8 lb. of Pure Live Seed per acre)	March 30, 2019
Establishment	Evaluate stand	June 7, 2019
Establishment	Manage weeds	July- early August, 2019
Establishment	Utilize frost-killed forage	December, 2019
Utilization: Year 1	Rest field	January, 2020 - TBD
Utilization: Year 1	Stock field with cattle lightly	TBD

This particular field was chosen because it is well drained and relatively flat. A soil test in 2017 indicated that the soil had a pH of 6.3 and high levels of phosphorus and potassium.

After this first spray, Keith planted sunn hemp (*Crotalaria juncea*, 10 lb./ac.) and pearl millet (*Pennisetum glaucum*, 10 lb./ac.). Dry weather following planting resulted in a poor stand. This field was grazed in the summertime by 70 dry cows for around a week.

Keith then let the field go fallow through the winter before coming back in with another spray.

Immediately after the final spray, Keith drilled switchgrass (cv. Carthage) into the field. No fertilizer or lime was applied at establishment.



Figure 2. Keith Tuck planted his switchgrass using a Haybuster 107 C no-till drill rented from his local Soil and Water Conservation District (Photo. Keith Tuck).

Germination and weeds

Keith noted that germination was very good in 2019, but it took about 6-7 weeks after planting to see the drill rows of young switchgrass seedlings.



Figure 3. The switchgrass had germinated, but substantial weed pressure was evident 10 weeks after planting (Photo. JB Daniel).

About this same time, however, Keith noted substantial crabgrass (*Digitaria spp.*) and foxtail (*Setaria spp.*) cover in the field.

At first it seemed like the switchgrass was far enough long that it would stay ahead of the crabgrass, but by the middle of August, the weedy grasses were taller than the switchgrass.

Keith decided to clip the pasture at a 12” height to set back the summer annual grasses and open the canopy for the young switchgrass plants.



Figure 4. Summer annuals overtopped the switchgrass by late summer (top) so Keith clipped the stand high (bottom) to allow light to reach the switchgrass (Photos. Keith Tuck).

By mowing off the tops of the weeds, Keith allowed sunlight to reach the switchgrass until a killing frost finally arrived in November.

To be continued: Utilization

Once the first frost sent the switchgrass into dormancy, Keith decided to utilize the standing forage in the field for his cattle.

Keith stocked the pasture with 67 cows and 62 fall-born calves for 15 days. Keith also provided protein

supplement (800 lb in tubs) to the cows to improve nutrition and utilization.

Keith looks forward to grazing this field in 2020, only one year after establishment.



Figure 5. Cows and calves can utilize dormant switchgrass and warm season annuals when supplemented with additional high-quality hay or feed (Photo. Keith Tuck).

Keith is also working on another field renovation to a three-way mixture of native grasses that was planted in the spring of 2020. We’ll update this fact sheet with more information on the success and utilization of these two fields as they continue to grow. Stay tuned.

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