



## Converting pastures to native warm season grasses: Filling the summer forage slump in Orange County

Authored by Gabriel Pent, Superintendent, Shenandoah Valley Agricultural Research and Extension Center, Virginia Tech; J. B. Daniel, Grassland Agronomist, Natural Resources Conservation Service, United States Department of Agriculture

### Introduction

Feed costs can represent over half of the costs associated with operating a cow-calf operation in Virginia. However, the overwhelming costs of haymaking and hay feeding can be minimized by managing grazing, reducing stocking rates, and relying on stockpiled forages during times when forage growth slows.

Introduced cool season grasses dominate Virginia pasture systems. These species feed livestock with abundant production of forage in the spring and fall months. Tall fescue (*Schedonorus arundinaceus*) – one of the most resilient of the cool season grasses – retains nutritional value even in the winter and may be stockpiled for late winter grazing.

Yet as more and more farmers recognize the effects that management intensive grazing and feeding less hay can have on their bottom line, it has become evident that a year-round grazing system will need more than just cool season production.

The seasonal production of native warm season grasses (NWSG) complements that of the cool season species in a grazing system. Abundant growth of selected native species in the summer gives farmers an opportunity to rest and stockpile cool season pastures for winter grazing.

Unfortunately, historic challenges with establishment and misperceptions surrounding nutritional quality and stand management largely account for farmer reluctance to convert tall fescue 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.

### Wilbanks Farm, Orange, VA

Bob Wilbanks in Orange, Virginia, sees opportunity in grazing longer through the year. He rotates about 70-80 pairs through 225 open acres of pasture on his farm in a 12-paddock grazing system, further subdivided with polywire, and he regularly achieves 270-300 days of grazing each year.

While tall fescue and other cool season grasses play a significant role in achieving that number of grazing days, Bob not only maintains 20% of his grazing acreage in novel endophyte fescue, but he also decided to try including NWSG in his pasture rotation so that he can rest his cool season pastures in the summer and stockpile tall fescue in the fall.

With a goal of eventually converting 20% of his pasture acreage into NWSG, Bob selected a 22-acre field located centrally within his pasture system as the first site to convert.



Figure 1. Minimizing feed costs by grazing more days is a yearly objective for the Wilbanks Farm.

## Conversion Process

Bob Wilbanks planted two crops of annual forages on the field, first in the summer and then in the fall, to protect the soil, smother weeds and Kentucky 31 tall fescue remnants, as well as minimize the loss of forage production during the conversion process.

A brown midrib pearl millet (*Pennisetum glaucum*) variety (seeding rate: 25 lb/acre) sustained grazing by 75 cow-calf pairs for over five weeks across three rotations during the first summer of the conversion process.



Figure 2. Pearl millet produced abundant summer forage during the conversion process, but opened the opportunity for weeds to sprout which required a herbicide burndown in the late summer (Photo: Bob Wilbanks).

After the summer forage crop was utilized and terminated, Bob planted a mixture of rye (*Secale cereale* cv. Wheeler; seeding rate: 2 bushels/acre) and forage turnip (*Brassica rapa* cv. New York, seeding rate: 2 lb/acre).

While Bob wished he had planted at higher seeding rates, these winter annual forages grew quickly enough that he was able to start grazing about 60 days after planting, but full utilization of the winter cover was not realized due to an unseasonably wet winter.

He utilized these highly digestible forages by allowing the cows unlimited access to dry hay and limited access to the annuals to minimize the risk of bloat.

When he gave them the first strip of the annuals, Bob said that the cows “hated the offering and drifted back into fescue – wouldn’t eat the turnips as they grazed the rye.” When he came back later that evening, however, the cows had “scalped” the test area. The cows quickly learned that the turnip tops were good forage after that initial delay.



Figure 3. Cereal rye and forage turnip produced high quality forage in less than 60 days after planting.

Due to high late winter rainfall and pugging potential, Bob limited late winter grazing until spring drying allowed grazing prior to termination of the stand.



Figure 4. It took just a few hours for the cows to learn that forage turnip is a plant worth eating (Photo: Bob Wilbanks).

Repeated, periodic sprays during and between establishment of the cover crops in the spring and fall helped kill weeds and clean up the pasture before planting the NWSG. Bob used glyphosate in the first burn down prior to establishing the pearl millet, and then he used glyphosate and Remedy

Ultra® (1 pt/acre) to control some sericea lespedeza (*Lespedeza cuneata*) before planting the winter annuals. He waited three weeks between spraying the broadleaf herbicide and seeding the winter annuals to ensure there was no residual activity of the herbicide on the annuals.

Table 1. Timeline for converting pastures to NWSG, according to Bob Wilbanks.

Category	Task	Date
Seed bed preparation	Spray cool season grasses	May, 2018
	Establish millet smother crop	May, 2018
	Graze smother crop	July-August, 2018
	Spray smother crop	August 25, 2018
	Establish turnip and rye smother crop	September, 2018
	Graze smother crop	November, 2018
	Graze smother crop	April, 2019
	Spray smother crop	May, 2019
Establishment	Plant NWSG (9 lb of Pure Live Seed per acre, Kanlow switchgrass)	May, 2019
	Poor stand noted	Summer 2019
	Burn stand	April 3, 2020
	Re-plant NWSG (12 lb of Pure Live Seed per acre,	May 15, 2020

	Alamo and Performer switchgrass)	
	Evaluate stand	Summer, 2020
Utilization: Year 1	Stock field with cattle lightly, allow crabgrass to be consumed without significant defoliation of switchgrass	Summer, 2020
Utilization: Year 2	Rest field	January, 2021 until planned late March burn
	Spray field with 2,4-D and Dicamba for broadleaf weed control	April 15, 2021
	Stock field with cattle lightly, allow crabgrass to be consumed without significant defoliation of switchgrass	May 21, 2021

## Germination and weeds

While Bob had followed the conversion recipe perfectly, the switchgrass (*Panicum virgatum* cv. Kanlow) germination was inconsistent the summer of establishment, likely a result of a low viability rate in the batch of seed. It may also be possible that the cereal rye cover crop inhibited some germination of the switchgrass due to allelopathic chemicals; Bob is considering using oats as a winter cover crop in any future conversions.

After evaluating the stand at the end of that first summer, Bob allowed the scant first year's stand to completely mature and senesce before burning the

following spring with a prescribed burn. At that time, he overseeded the first year's stand with a mixture of 8 lb of Alamo and 4 lb of Performer switchgrass seed.



Figure 5. Switchgrass plants were present, but sparse prior to grazing and then replanting in 2020 (Photo: Bob Wilbanks).

Due to heavy competition from weeds and crabgrass, even the replant in the spring of 2020 initially appeared sparse at best. The replant resulted in a fair stand, but was much shorter than the previous year's stand.



Figure 6. Fire was used as a tool to eliminate plant residue and clean up the new stand (Photo: Bob Wilbanks).

Bob describes that he considers most of the field to have a 75% stand of switchgrass by cover, but about one quarter of the field consists of only 10% in switchgrass cover. There is a substantial amount of warm season annuals, such as crabgrass (*Digitaria*

spp.), in the areas without switchgrass, which provide some forage production in these areas.

## Utilization

An unexpected benefit from the poor germination after the initial stand seeding was the quantity of crabgrass which germinated from the residual seed bank. This “unplanned grass” turned out to be useful for early summer grazing.

Wilbanks utilized the stand lightly in 2021 to keep crabgrass grazed down without heavy pressure that might have resulted in too much defoliation of the switchgrass. Switchgrass production improved substantially in 2022, and Bob anticipates incremental improved production in the subsequent years.

## Acknowledgements

Thanks to Bob Wilbanks for providing information on his experience converting a pasture to NWSG.

This fact sheet has been developed as part of a project funded in part by a USDA-NRCS Conservation Innovation Grant.

Visit Virginia Cooperative Extension: [ext.vt.edu](http://ext.vt.edu)

Virginia Cooperative Extension is a partnership of Virginia Tech, Virginia State University, the U.S. Department of Agriculture, and local governments. Its programs and employment are open to all, regardless of age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, military status, or any other basis protected by law.

2023

SPES-514NP