

Using a Summer Stockpiling System to Extend the Grazing Season

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Fall stockpiling for winter grazing has been a common practice to extend the grazing season in Virginia for many years. Despite an overabundance of spring pasture growth that is commonly harvested for hay, the need for fall pasture often limits the acreage that can be set aside for winter grazing. A novel system developed at the Shenandoah Valley Agricultural Research and Extension Center (SVAREC) enhances producers' ability to maximize fall stockpiled acreage and consistently extend the grazing season.

Summer stockpiling is a system that excludes grazing from a portion of pasture acres during spring and summer in order to store forage for late-summer and early-fall while other pasture is stockpiled for winter grazing. A 2015-16 study funded by the Virginia Agricultural Council helped to document the summer stockpiling system and provide critical information on the forage quality it provides. The following protocol developed by the SVAREC, and has been used there since 2010 to consistently and predictably extend the grazing season into February or later.



Cattle grazing summer-stockpiled pasture.

1) **Early spring.** Select pasture to be summer-stockpiled and defer grazing on it from spring green-up through mid-August. Plan to summer stockpile around twenty-five percent of total pasture acres while rotationally grazing the remainder through spring and summer. At the SVAREC a whole-farm stocking rate of 2 acres of pasture/cow-calf pair has been used. Stockpiled plants should be allowed to mature and set seed without any grazing or mowing. Leafy regrowth will accumulate below the canopy and, by August, stems and seed heads will dry down and begin to deteriorate. While applying nitrogen does boost spring growth, it has not been found to increase yield of the final stockpile.

2) **Late summer.** Begin strip-grazing the summer stockpile in mid-August. The high stocking density afforded by limit feeding is critical to stretch the forage supply. Use electric polywire and tread-in posts to allocate two or three days-worth of pasture at a time. It may help to set up two grazing allotments using two separate fences so the first fence can be taken up and "leapfrogged" past the second one to move animals to their next portion of stockpile. No back fence is necessary and pasture should be grazed short before moving animals in order to optimize use of the forage. Animals can backgraze to the water source without permanent damage to plants because of the long recovery period that will follow.

3) **Fall.** As the summer stockpile is being grazed, apply nitrogen to other pastures and begin stockpiling fall growth for grazing in winter. When summer stockpiling is used on approximately twenty-five percent of pasture acres, cattle should be able to strip-graze on it for two months or more in late-summer/early fall, allowing for the *fall* stockpiling of fifty percent of total pasture acreage elsewhere. This model has consistently extended the grazing season ninety days longer than the conventional grazing season.

Example summer-stockpiling scenario using 100 acres of pasture with 50 fall-calving cows.



Forage Quality

While conventional wisdom would suggest summer stockpiled pasture is of low nutritional value, testing shows it to be adequate for beef cows at any stage of production (including early-lactation). Growing or finishing animals would require some supplementation with protein and energy.



Forage quality analysis of summer-stockpiled pasture, with its abundant leafy undergrowth, has averaged about 12% crude protein (CP) and 60% total digestible nutrients (TDN). The toxic alkaloid content of summer stockpiled pasture tested no higher than what is commonly measured on conventionally grazed pasture. Spring fertilization with nitrogen boosted the protein content of the final stockpile in our study, but had no measurable effect on yield.

Utilization of summer-stockpiled pasture

During recent research, stockpile yield ranged from 2.5 to 4 tons/acre. Forage yield, livestock density, and the frequency at which they are moved determine how long the stockpile will last. Typically, cattle are strip-grazed on summer-stockpile pasture, resulting in a stock density of around 60,000 lbs. of live weight per acre at initial turn out. Cattle are moved about every three days. Under these conditions the summer stockpile has consistently provided sixty or more days of grazing. In addition, the summer stockpile system results in a significant amount of acreage (about 25% of total pasture) that has had the opportunity to regrow while the summer stockpile is being grazed. This acreage buys additional grazing time prior to winter grazing of the fall stockpile.

Table 1. Yield and forage quality of summer-stockpiled pasture in late-summer, 2015-2016.

| | Crude protein (% CP) | Total digestible nutrients (% TDN) | Parts per billion total ergot alkaloids (ppb) | Dry matter yield (lbs./acre) |
|--|-----------------------------|---|---|-------------------------------------|
| Sampled by hand clipping (averaged across years and nitrogen treatments) | 11.3 | 60.0 | 550 | 6836 |
| Sampled by fistula (averaged across years and nitrogen treatments) | 12.4 | 60.2 | 894 | 6836 |
| Treatment 1 - 0 lbs. nitrogen/acre treatment averaged across years and sampling methods | 10.9 | 58.7 | 628 | 7138 |
| Treatment 2 - 50 lbs. nitrogen/acre treatment (averaged across years and sampling methods) | 12.9 | 61.5 | 815 | 6534 |
| Averaged across all treatments and sampling methods | 11.9 | 60.1 | 722 | 6835 |

Labor requirements

Labor requirements prior to grazing are limited to setting up electric fencing or otherwise restricting livestock from the area to be stockpiled. When strip-grazing, labor requirements are typically 15-30 minutes two or three times per week to move fencing.

Effects on pasture condition

We have not seen any impacts of practical significance. It is thought that the long recovery period following grazing, as well as rotating the location of summer stockpiled areas, has prevented any lasting changes in pasture composition or plant vigor. In fact, the summer stockpiled pasture grazed earliest in the process often regrows enough to provide additional grazing before moving to the fall stockpile.



Cattle on the second day of a recent allocation of summer stockpiled pasture. Temporary electric fencing, seen in the distance, is used to ration the summer stockpile and maximize forage utilization. Livestock backgraze across the previous pasture allocation seen in the foreground to access water.

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