

What to Expect When Stockpiling and Strip-grazing Tall Fescue



Summaries and farmer interviews from on-farm demonstrations in the Shenandoah Valley 2011-2013



*Written by JB Daniel,
NRCS Grassland Agronomist*

Winter Grazing Management Yields Big Results While Cutting Costs for the Fox Family!

Progressive farmers constantly strive to find better ways of achieving their farm production goals. In most cases this involves achieving a higher level of economic and environmental sustainability in the process. The Fox family from Luray, VA falls into this category of progressive forage and livestock farmers. After the extreme drought in 2000, the Fox's drilled a well to develop a dependable, pressurized water source for their livestock. They worked with the local conservation office to fence out the surface water in their pastures and install cross fencing to subdivide the pasture system and improve grazing management on the farm.

The Fox family were already considered good farmers and responsible stewards of the land, but one cold December morning in 2010, Gene and Betty Fox realized a greater opportunity existed for their livestock operation. Most farmers don't think of attending a forage field meeting in December, especially on a 20 degree morning, but that is exactly the time of year when progressive graziers in Virginia begin strip-grazing stockpiled tall fescue and saving a pile of money in the process. After attending the strip-grazing demonstration in December and reading the project summary the following summer, the Fox family decided they were ready to stockpile fescue and try strip-grazing their cattle over the winter.

The NRCS regional grazing specialist worked with the Fox family to develop a simple grazing plan and outline the objectives to stockpile enough forage for strip-grazing their cow calf herd for most of the winter. After identifying a paddock on high ground that was mostly fescue with a pH above 6.0 and medium or better phosphorus and potassium levels the rest of the plan was drafted (Fig. 1).



Fig. 1. Field selection is important.

Goal: To stockpile a 17.4 acre tall fescue pasture for 90+ days between mid-August and late-November for winter grazing to minimize winter hay feeding to 60 days or less.

Objectives:

1. Graze the designated pasture to remove summer growth early to mid-August
2. Remove livestock and fertilize with 50 units of N/acre after mid-August to boost forage growth and quality
3. Let forage grow and accumulate (stockpile) without livestock access until December
4. Strip-graze the stockpile with the cattle by moving the temporary poly-wire every 3 days
5. Maximize grazing days, evenly distribute manure and urine nutrients, maintain good ground cover, and save over 50% on winter feed costs

The stockpiling plan was implemented perfectly and the weather could not have been better resulting in superb fall growth. The pasture was fertilized on August 30th with 50 lbs N/acre

(32% liquid N) and good fall rains resulted in 4,800 lbs of high quality forage dry matter per acre (14.6% crude protein (CP) and 62.5% total digestible nutrients (TDN) on November 10th). Using an existing solar powered charger, insulated steel posts, and a new roll of electric polywire, Gene began strip-grazing the herd across the stockpile on December 3rd, with the goal of providing a new strip of forage every 3 days (Fig. 2).

As the Fox family began the strip-grazing demonstration there were several questions they were anxious to have answered:

1. How would the animals react to strip-grazing and train to polywire?
2. How far would they need to move the fence for the next strip of grass?
3. Would the stockpile quality continue to meet the cattle needs throughout winter?
4. How many grazing days could they stretch out of the stockpiled forage?
5. Would the change in management from traditionally feeding hay over the winter to strip grazing be cost effective and a good value of their time?



Fig. 2. Begin strip-grazing Dec 3rd

The transition from dry hay to the stockpiled forage initially resulted in loose manure, but this did not cause any livestock problems and was strictly a factor of the high nutritional quality of the stockpiled forage (Table 1). After one incident of the cows pushing one another through the polywire at the beginning of this process, Mr. Fox tied orange tape on the fence for more visibility and this did not happen again. By checking the cattle daily and watching how quickly the livestock were utilizing the forage, Mr. Fox quickly learned through trial and error how far to move his temporary fence for the next strip of stockpile forage.

Table 1. Forage Quality Comparison Over the Winter Grazing Season					
Forage Sampled	Stockpiled Fescue	Stockpiled Fescue	Stockpiled Fescue	Stockpiled Fescue	Best Hay Orchardgrass
Sample Date	Nov 10th	Dec 28th	Jan 30th	February 28th	1st Cut
Crude Protein (%)	14.6	11.0	10.5	11.0	11.5
Total Digestible Nutrients (%)	62.5	55.3	56.3	61.8	45.9

NRCS sampled the fescue monthly and analyzed the stockpiled forage to monitor CP and TDN levels throughout the winter grazing season. Nutritional analysis in Table 1 shows high forage quality beginning in November then dropped quicker than normal but maintained adequate levels of CP and TDN going into calving and beginning lactation by mid-February. The sudden drop in quality from November to December is attributed to the unusually mild

weather we experienced this winter which resulted in faster breakdown of the forage over time. Temperatures in this region of the state averaged 4 degrees above normal in December, January and February then spiked 10 degrees above normal for the month of March (Table 2). Although the stockpiled fescue began to decline in quality faster because of this warm weather the winter feed season was shortened by 3-4 weeks as pastures began to respond and regrow after mid-February in this region of the state.

Average Monthly	September 2011	October 2011	November 2011	December 2011	January 2012	February 2012	March 2012
Temperature	70 (+1)	57 (-1)	50 (+1)	43 (+4)	40 (+4)	43 (+4)	57 (+10)
Rainfall	7.59 (+2.69)	5.32 (+1.58)	3.14 (-0.95))	4.36 (+1.01)	2.19 (-0.91)	2.69 (-0.49)	3.77 (-0.08)

Source: AccuWeather recorded weather data for Luray, VA at www.accuweather.com

Based on dry forage clippings it was estimated there was a total of approximately 84,800 lbs of stockpiled forage dry matter in the 17.4 acre field at the beginning of December. If the cows averaged 1,300 lbs and achieved a grazing harvest efficiency of 85% above the 3 inch forage height, they would be able to graze for about 87 days or until March 1st on the stockpile. The intense strip-grazing increased utilization above initial estimates and the cattle grazed in this field until March 23rd (111 grazing days). The forage began to regrow in this field in late February and it was not possible to keep the cattle off the regrowth without a back fence. It was estimated another 12-15 days of stockpile remained untouched when pasture growth was sufficient to turnout for spring grazing (Fig. 3).

Nutrient management is an important topic on the farm and managed grazing systems lead the way to healthy nutrient cycling. Strip-grazing stockpiled forage takes nutrient distribution to a higher level and maximizes manure and urine distribution across the pasture while preventing nutrient concentrations and bare soil commonly associated with feed areas. In this specific grazing demonstration the livestock recycled an estimated 59 lb(N)– 43 lb(P₂O₅) – 49 lb (K₂O) per acre on the grazed area eliminating the need and expense of a spring fertilizer application on this pasture.

Looking back over the winter stockpiling and strip-grazing season Gene Fox claims, “It has been a good learning experience. It surprised us just how much strip-grazing increased our grazing days. Moving the temporary fence took



Fig. 3. Grazed until March 23rd!

some getting used to, we used old steel posts with insulators and we did not purchase a reel to roll the polywire so in the beginning it probably took 45 minutes to take down and put up another temporary fence each time we moved the cattle. Knowing what I do now, I will purchase a reel for the polywire before next season and I should be able to move the fence much faster.” Even with the added time moving the fence every 3 days, the cost of strip-grazing versus feeding hay this winter saved an estimated \$2,400 even after subtracting out stockpiling expenses for N fertilization, polywire, and \$15/hr labor for moving the fence. “There were no concentrated areas of manure so conditions were clean and we had no evidence of scours during calving season”, Fox explained.

As an end result Gene Fox and his family plan to stockpile and strip-graze again next winter but for now they are looking at ways to further subdivide their existing paddocks to achieve more forage utilization during the regular growing season.

NRCS Stockpiling and Strip Grazing Tall Fescue Demonstration Summary - Hostetler

Stockpiling tall fescue from late summer through fall to provide winter grazing for beef cattle is a tried and proven practice. Research conducted throughout the fescue belt over the last 50 years and farmer adoption of this management strategy provides positive results and compelling farmer testimonials that support the benefits of this practice. Tall fescue can be stockpiled for winter grazing throughout Virginia due to its potential for high forage growth during the fall season and its ability to maintain quality and resist deterioration much better than other cool season perennial grasses. Most farmers who stockpile tall fescue for winter grazing are trying to extend the grazing season to maximize grazing days and minimize the amount of expensive hay needed to winter the traditional cow herd. The following paragraphs summarize the stockpiling fescue and strip grazing demonstration project on a farm in Singer's Glen, VA, during the winter of 2010 -2011.

In an effort to get more specific answers to farmers' questions on this topic, the USDA-NRCS Field office in Harrisonburg, VA, teamed up with Mr. Peter Hostetler, a local cattle producer from the Singer's Glen community of Rockingham County. Peter grew up raising cattle in Virginia and in recent years has become more interested in his cattle grazing and less interested in the time, labor and expense of having to feed so much hay. Peter had already tried stockpiling fescue in the past but had not committed to fertilizing with nitrogen in August or strip grazing in the winter to maximize forage production and grazing days into the winter.

In July 2010 Peter agreed to a stockpiling/strip grazing demonstration on a somewhat rectangular shaped 75 acre pasture. Peter grazed his 54 cow herd on this field the first two weeks of August, and then moved the cattle to another field. Since much of this field was shallow and somewhat rocky we chose to only apply N on the most productive 35 acres of a Frederick soil in this field. Peter applied 50 lbs of N per acre (ammonium nitrate/ammonium sulfate) on August 23rd to a very dry pasture. The extended heat and dry weather continued through August and much of September but rain and true fall weather prevailed in October resulting in good growing conditions for the last 6 weeks of the growing season. As forage growth stopped near mid November Peter had several questions;

1. Does this stockpiled fescue have sufficient nutritional value to meet the needs of my cow herd that will begin calving late December and reach peak nutritional demand around mid to late February.
2. How much forage did the short 2010 stockpiling season produce
3. How many grazing days should I expect by intensively strip grazing my cattle across the field moving the fence regularly to allow only 1-3 days forage

In late November we randomly assessed standing biomass across the pasture. Based on conservative estimates of standing stockpiled forage, there was on average 3,300 lbs dry matter per acre across that field (more on the productive soils fertilized in August with N and less on the shallow, rocky soils). By strip grazing in 1-3 day intervals and grazing the pasture to leave 2-3

inches residual, we estimated Peter would conservatively graze to around February 1st, but only time would tell how long his winter grazing would last.

Using a 12 volt battery powered fence charger, a long roll of polywire and step-in fence posts, Peter began strip grazing 54 cows on December 7th at the end of the field nearest the water source. Through trial and error Peter figured out how far he needed to move the temporary fence and he was off to an easy start. After timing himself several days it only took 30 minutes to move the temporary wire and set up the next strip for grazing. The cows quickly adapted to strip grazing and preferred the



Hostetler's cows quickly adapted to strip grazing with a single strand of electric polywire.

stockpile fescue over any supplemented hay. He moved the fence 26 times between December 11th and March 28th then pasture began greening up quickly. Despite the cold weather and some snowfall this winter season Peter completely wintered this herd on stockpiled fescue and only supplemented with 16 round bales (600 lb) of hay. By intensively strip grazing his cattle, Peter maximized forage utilization by the livestock and minimized forage waste. This allowed him to far exceed estimated grazing days through the winter and rack up the savings.

Hostetler questioned in the beginning if the quality of the stockpiled fescue would be sufficient to meet the needs of his cow herd through the winter. As winter progressed and his cows calved and reached peak lactation by late February-early March, he was pleased to see they remained in excellent body condition. Forage quality samples were collected and analyzed from his best hay and compared to stockpiled fescue samples throughout the winter. Results of the forage analysis listed in Table 1 showed the quality of the stockpiled fescue declining slightly as winter progressed. The last sample of N fertilized stockpiled fescue on February 16, 2011, was 3% higher in crude protein and 9% higher in TDN compared to the stockpiled fescue with no N applied. Both February samples exceeded the nutritional requirements of his herd as was evident by the excellent body condition. After viewing the quality results of the hay versus stockpiled fescue from the November samples Hostetler stated, "I can't believe even the lowest quality stockpiled fescue has better nutritional value than my best hay!" But it was true; he helped collect the samples himself near the end of November.

Table 1. Quality Comparison of Hay and Stockpiled Fescue Through the Winter

Sample Description	Date Sampled	CP (%)	TDN (%)	ADF (%)	NDF (%)
Early Cut Orchardgrass Hay	Nov 16	9.0	56.1	39.5	62.8
Stockpiled Fescue No-N	Nov 16	13.0	64.9	31.7	49.3
Stockpiled Fescue 50 lbs N	Nov 16	21.1	71.2	26.1	38.9
Stockpiled Fescue No-N	Jan 25	9.1	60.9	35.3	57.6
Stockpiled Fescue 50 lbs N	Jan 25	13.1	70.9	26.3	44.4
Stockpiled Fescue No-N	Feb 16	10.1	55.3	40.2	63.9
Stockpiled Fescue 50 lbs N	Feb 16	13.8	64.5	32.0	55.0
Stockpiled Fescue No-N ¹	Mar 22	10.7	52.4	42.8	68.0

¹There was no comparison for quality sample on March 22nd because all the N fertilized acres had been grazed by February 28th.

Looking back over the winter Hostetler claims, “I’m a believer, stockpiling combined with strip grazing is definitely the most cost effective way to winter my cow herd. Not only did I save nearly \$8,500 in hay feeding costs this winter (after subtracting out the associated costs of N, temporary fencing and labor) but there was not a single concentrated feed area on the 75 acre field! The cows redistributed the manure and urine nutrients evenly across the entire length of the field. The calves were on clean grass every day (not around muddy feeders) and the cows ate high quality stockpile all winter, resulting in excellent body condition and rapid reproductive recovery for breeding back. This grazing management technique resulted in my cows becoming more docile and made it easier to tag my calves right in the pasture. I definitely plan to continue this type of winter grazing management in the future.”

A structured approach to stockpiling and strip grazing combined with simple recordkeeping throughout the process, resulted in significant economic benefit to Mr. Hostetler while enhancing the soil, water, plant and animal resources in the system. You can achieve the same benefits too. It is time to start planning. For more information about stockpiling and strip grazing contact your local Conservationist at a USDA Service Center near you.

Strip-Grazing Stockpile Over the Winter: Easier, Quicker and Cheaper!

Mr. Charlie Drumheller of Bellevue Farm in Swoope, VA, tried something new last year to overwinter his cow herd and the results actually surprised him. I was introduced to Charlie by Bill Patterson, Regional Grazing Specialist with USDA. Bill said, “Charlie has a field that lays just right for strip-grazing stockpiled fescue and I think he would be a good cooperater for an on-farm grazing demonstration.” After talking with Charlie, I learned he had stockpiled grass before but had never strip-grazed the resulting biomass. After a short discussion, Charlie and his son Bobby stepped up to the challenge to conduct the structured grazing demonstration including keeping detailed grazing/feeding records and hosting an educational field meeting on their farm to share the good and bad (if any) about the experience to other interested farmers.

Bill was right, the two fields available for stockpiling were fairly long and rectangular, both having access to water troughs with well drained soils capable of supporting winter grazing. The plant mix contained about 50% fescue and 30% clover with the remaining species primarily bluegrass, orchardgrass and common forbs. Visibly the stand was thick and vigorous so it was no surprise the soil test results came back showing no additional lime or fertilizer was needed.



Fig. 1. Field selection is important.

Charlie Drumheller implemented the basic strategy below which provided a great start to the project.

Goal: To stockpile 14.2 acres of pasture for 90+ days between late-August and late-November for winter strip-grazing to fully meet the needs of his developing Red Angus herd.

Objectives:

6. Graze the designated pasture to remove summer growth by late-August
7. Remove livestock by late-August and do not apply N fertilizer since legume composition (30%) is sufficient
8. Let forage grow and accumulate (stockpile) without livestock access until December
9. Strip-graze the stockpile with the cattle by moving the temporary poly-wire every 3 days
10. Maximize grazing days, evenly distribute manure and urine nutrients, maintain good ground cover, and save over 50% on winter feed costs

In addition to a committed farm cooperater, there was buy-in from several local partners to track and support this project at the local level. With coordination from the Va Forage and Grassland Council three key partners signed on to be a part of this demonstration. Specifically I'm referring to Matt Booher, Va Cooperative Extension Agent, Bill Patterson, Regional Grazing Specialist with USDA, and Alston Horn, Field Technician for the Chesapeake Bay Foundation. These specialists are local to this area of the state and were used to working together in support of educational demonstrations that benefit production, economics and conservation of forage-livestock systems.



Fig. 2. Alston Horn collects forage samples for nutrient analysis

By not applying any fertilizer or N to the pasture in August, Charlie wondered would the accumulated forage have enough plant food to provide high quality forage to his cattle throughout the winter. This would be a factor of plant-available soil moisture during the fall and soil nutrient availability in this pasture. Field measurements were taken in late November to measure stockpiled yield and forage samples were collected and analyzed monthly throughout the winter to

track nutritional quality.

Charlie implemented the proposed stockpiling plan in a timely manner with just enough rainfall to accumulate approximately 3,000 lbs./DM/acre between late August and late November. The resulting stockpile tested high in nutritive value (13% CP and 69% TDN see Table 1) just before grazing was scheduled to begin.

Table 1. Forage Quality Comparison Over the Winter Grazing Season (2012-2013)					
Forage Sampled	Stockpiled Fescue	Stockpiled Fescue	Stockpiled Fescue	Stockpiled Fescue	Switchgrass Hay
Sample Date	Nov 29th	Jan 2nd	Feb 2nd	March 7th	1st Cut
Crude Protein (%)	13.1	9.2	11.6	10	7.8
Total Digestible Nutrients (%)	69.3	57.9	56.3	55.1	51.2

The grazing demonstration began when the cattle were turned into the stockpile on December 12th. Using the existing electric perimeter fence, Drumheller cross fenced with a single strand of high quality electric polybraid (9 strand stainless steel filament) while comparing two different

styles of step in posts. As Charlie began strip-grazing his herd, there were several questions he was hoping to answer through the course of the demonstration:

6. How would the animals react to strip-grazing with polywire?
7. How far will I need to move the fence for the next strip of grass?
8. Could I really stretch the grazing days and get through winter just by strip-grazing?
9. Would stockpile quality meet cattle needs to maintain body condition?
10. Would the change in management from traditionally feeding hay over the winter to strip grazing be cost effective and a good value of my time?

By checking the cattle daily and watching how the livestock were utilizing the forage, Charlie learned within a week how far to move the temporary fence for the next strip of stockpiled grass. Charlie admits, “I quickly realized it was rather easy to move the fence every other day and it was faster than hauling out a bale of hay.

Based on forage clippings it was calculated to be approximately 42,000 lbs of stockpiled forage dry matter in the 14.2 acre field at the end of November. Of the 5 cows 3 bred heifers and a bull, we estimated

weights and calculated a total of 11 AUE’s (animal unit equivalents). Based on these livestock, the intense strip-grazing management and the estimated 85% forage utilization rate, one might figure the stockpiled forage would last approximately 120 days (through April 12th). By assessing the remaining stockpile supply on February 13th, Drumheller realized he had more than enough forage to get him until pasture green-up, so he began to move the cattle faster and not make them utilize as much of the stockpiled forage. Fortunately Charlie easily strip-grazed until March 10th, he could have stretched it longer but other pastures were already greening up so he transitioned to new spring growth. (Note: The high clover content in this particular pasture caused faster forage deterioration as winter progressed compared to a pure fescue stand, therefore the forage would not stretch 120 days.)

Intense strip-grazing management, providing just enough forage to graze for 1-3 days, increases the utilization of stockpiled forage and typically doubles the number of grazing days compared to just turning the livestock in to graze the stockpile continuously. In this demonstration Mr. Drumheller only fed 2- 800 lb. bales of hay, due to a heavy ice crust one day and one short trip away from the farm and not being present to move the fence.

Charlie admits, “The cattle seem to perform very well on the stockpile. I was really surprised that the stockpiled forage tested significantly higher in quality compared to my hay!” Monthly analysis of the forage samples, recorded in Table 1 above, show the typical decline of quality over the winter but considering that approximately 50% of the stand was not fescue, forage



Fig. 3. Cattle quickly adjusted to management with poly-wire.

quality held up well. Some decline in quality is expected over the course of the winter but it still remained above 10 % crude protein and 55% total digestible nutrients until spring green-up. Based on visual observation of the livestock, the forage quality seemed to meet the nutritional needs of this small herd very well throughout the winter.

Nutrient management is an important topic on the farm and managed grazing systems lead the way to healthy nutrient cycling. Strip-grazing stockpiled forage takes nutrient distribution to a higher level and maximizes manure and urine distribution across the pasture while preventing nutrient concentrations and bare soil commonly associated with feed areas. The pasture surface remained completely covered with grass stubble and residue over the winter preventing the opportunity for erosion. Looking back



Fig. 4. Grazed until March 10th and pastures began to green-up!

over the stockpiling and strip-grazing season Drumheller explains, “The biggest thing I saw firsthand was how easy and effective winter grazing can be. In comparison to my hay feeding years it was easier, quicker and cheaper! Strip-grazing most certainly paid for itself and based on this experience, I plan on making the transition to do this for all the cattle on the farm. My biggest challenge is to have enough grazing acreage during September, October and November to stockpile for winter. I am developing a simple plan to convert my hay fields into grazing paddocks over the next two years. In most years this should allow me enough grazing acres to stockpile between ½ and 1.0 acre per animal unit equivalent and provide the winter grazing I need. Learning by doing is a saying I have heard before, and it most certainly applies to this experience. I have definitely become a believer in this system!”

In addition to the success of this winter grazing demonstration, Charlie and Bobby are looking at ways to intensify grazing management throughout the entire year. Currently they are developing an annual grazing plan on the entire grazing operation to meet their goals for production, wildlife and overall conservation on the farm to guide them through these improvements. To find out more information about this project you can contact Mr. Charlie Drumheller at c.drumheller@meat-pro.com.

Striving to Achieve Cost Savings, Simplicity and Sustainability

Jay Hafner owns and operates a livestock operation at Jumping Run Farm in Edinburg, VA. Jay is a farmer and contractor with an economics degree, so he pays attention to the input costs of his farming enterprise. Over the years he had heard of and somewhat tried stockpiling fall forage for winter grazing, but recently he became curious about the alleged benefits of strip-grazing the stockpile.

After finding out more about strip-grazing from the Natural Resources Conservation Service (NRCS), Jay agreed to try this management strategy on a 10 acre pasture in 2012/2013. To begin the process the livestock grazed off the summer growth and Jay applied approximately 3 tons/acre poultry litter as fall fertilization on September 10, 2012. The pasture was set aside for the forage to grow and stockpile until winter. Unfortunately, the fall weather was very dry. Low rainfall resulted in below average forage growth. This in turn made strip-grazing even more important to maximize what was available.



Jay Hafner and his nephew Bryan, pictured above, are excited to begin the strip-grazing demonstration.

In late November, samples of the stockpiled forage were measured and estimated to have accumulated about 2,100 lbs. dry matter per acre above the 3 inch grazing height. The forage stand was a mixture of about 50% fescue with the balance of bluegrass, orchard grass and common forbs. A composite sample of the stockpile was analyzed for forage quality then compared to similar samples of his stored hay. Each month thereafter composite samples of the stockpile forage were analyzed to track nutritional quality as the winter progressed (See table below).

Forage Quality Summary	Stockpiled Fescue	Stockpiled Fescue	Stockpiled Fescue	1 st Cut Orchardgrass Clover Hay	2 nd Cut Orchardgrass Clover Hay
Sample Date	Nov 29 th	Jan 3 rd	Feb 5	Nov 29 th	Nov 29 th
Crude Protein (%)	14	14	14	11	14
Total Digestible Nutrients (%)	68.4	62	60	52	61

After nearly 3 months of stockpiling, Jay began strip-grazing on Dec 6th. The small herd consisted of 8 heifers, 7 dry cows and 1 bull (estimated 18.5 AEU animal unit equivalents) on this 10 acre field. The herd was provided a new strip of forage every 2 days on average. This helped maximize the actual utilization of the forage by the livestock which greatly helped the situation since it was only about 21,000 lbs. of available dry matter stockpiled for the herd. Twice during the grazing period of this demonstration the combination of snow and ice resulted

in the cattle being moved off the pasture to a feeding location for a total of 20 days to avoid unnecessary damage to the pasture sod. By February 16th all the forage had been grazed and the cattle were moved to another pasture and strip grazed until March 23rd. As the grass was greening up the cattle rotated onto the main pasture and 10 more round bales were fed there before they went completely on spring forage.

In summary the livestock strip-grazed 52 days on the 10 acre stockpiled field. This truly exceeded the estimates of grazing utilization while maintaining the small herd in excellent body condition. Jay and his nephew Bryan took their time moving the fence enjoying the opportunity to pay close attention to the cattle and the grass. The fertilized stockpile fescue maintained excellent quality through early February far exceeding his first hay cut and consistent with premium 2nd cut orchard grass and clover hay (CP 14% TDN 61%) easily sold for top quality horse hay (see forage quality summary table).



Alston Horn, CBF, provides training on the practical of using portable electric fencing for strip-grazing.

When the project was over Jay shared his thoughts with us. “Looking back I enjoyed the process of strip-grazing. The cattle trained easy. The biggest surprise to me was the feed value of the sampled stockpiled fescue in February! The greatest benefit to me is the cost savings, the simplicity and sustainability. Added benefits of prepping the pasture for renovation and the fact that you can see the cattle so much better on ground level than on a tractor is a real advantage. The field itself was much better off with an even distribution of manure from the cattle, no tractor rutting, no sacrifice feed areas etc. Overall it was a tremendous experience and when people ask, I share what I learned. “



Richard Fitzgerald, NRCS Field Agronomist, captures the attention of the audience when explaining the nutrient cycling benefit of winter strip-grazing.

Jay concluded by saying, “This experience makes me want to try mob grazing next summer. The practice is definitely worth doing each winter. My only disappointment was the lack of rainfall; I look forward to what the sward of grass will be with good rainfall conditions during the stockpiling period next year!”

Demonstrations like this take time, effort, coordination and follow-up to accurately document the activities, develop trustworthy relationships and to spread the positive results about this grazing management technique. The investment in this demonstration provides a learning experience for all parties involved and results in practical changes on the farms throughout the region.

Stockpiling Gets Exciting When I See the Economic Difference

Background

Cole Heizer of Middlebrook, VA participated in a fescue stockpiling and strip-grazing demonstration in the fall/winter of 2013-14. The field used for the demonstration was a 25-acre, square, fenced pasture consisting of mixed fescue and clover that had been utilized for both hay and pasture prior to stockpiling. The predominant soil type on the field is Frederick-Christian silt loam, with some areas of Christian gravelly fine sandy loam. The topography is generally hilly, with slopes ranging from 5 to 25%. A unique aspect of the field includes a tree covered area interspersed with grass, of about 5 acres in size, which was utilized as part of the stockpiled strip grazing. The lone water source was a waterer in the corner of the field; the longest distance cattle travelled to water was about 1,250 feet.

Stockpiling

The field was bushogged in late-July to remove the negligible clumps of tall or older forage material left from summer grazing. 40 lbs. of actual nitrogen/acre was applied on August 9 in the form of urea coated with Agrotain urease inhibitor. The cost of nitrogen plus application was \$37/acre. 40 lbs.- N/acre was chosen because the field had a large percentage of clover which was expected to contribute some nitrogen to the stockpiling fescue. The field stockpiled forage from August 9 to Dec 9th, at which time Cole turned 34 fall cow-calf pairs in to the first pasture allotment. The cows used in the demonstration had experience grazing stockpiled fescue in previous years, but had not been managed with strip grazing. Total rainfall during the stockpiling period was around 10.6 inches, with a critical 5 inches falling in August to promote grass growth. A September drought was followed by 5

inches of rain in October and November and an additional 4-5" inches of rain during the grazing period, which created muddy conditions in the field at times.



Stockpiled forage by November 1st.

Strip- grazing

Thirty-four, late-lactation cows with calves were turned into the stockpile on December 9 and grazed through January 21 without any hay being used – despite periods of snow and sub-zero temperatures. Generally, conditions were cold and at times muddy, which Cole Heizer states was the only drawback of strip-grazing during this unusually wet winter season. During muddy conditions more grass was rendered unusable by trampling, and cattle had to be moved more frequently in an attempt to protect the soil and plants. Anecdotally, Cole noted that while feeding hay to other cattle in adjacent pastures during sub-zero temperatures, none of the strip-grazing cattle showed any interest or even stopped grazing to raise their heads. A total of 20 moves were made during the grazing period, amounting to around 1.25 acres allotted for cattle to graze at any point in time. Cole used temporary pigtail posts, 7-strand braided electric polywire, and 3:1 geared reels to strip graze, and was pleased with their performance. Only one strand of polywire was used, which held cows well. Calves were able to creep graze underneath wire, which was unplanned but not undesirable as calves were able to acquire better nutrition for growth.



Economic benefit

Most days both Cole and his wife Jill worked together to move fences. This took about 30 minutes each day, resulting in total labor requirements of around 10 man-hours. Alternatively, Cole estimates that he would have spent around 7 total hours to feed hay daily during the same period. Additionally, Cole also estimates that he would have used 50 4x5 bales of first-cutting hay if he did not have the

The livestock wintered in excellent body condition without protein or energy supplementation.

stockpile; he estimates the time to make that amount of hay at around 8 man-hours. By Coles calculations, the strip-grazing saved him about 7 hours of labor - most of which would have during spring when he is very limited on time. In terms of actual cost savings, Cole calculates that the 50

bales of hay he didn't have to feed are very conservatively valued at around \$35/bale, or \$1750 in total feed cost savings. This does not include fuel or equipment costs. Additionally, the stockpiled fescue pasture exceeded the nutritive value of available hay, resulting in cows and calves wintering in excellent body condition without any need for additional energy or protein supplementation.

Forage quality

Available forage yield and forage nutritive value were evaluated in early-December at the beginning of the stockpiling period, and again in mid-January. Table 1 shows forage available for grazing in terms of dry matter yield (DM yield) in pounds/acre. Table 1 also shows the % crude protein (CP) and % total digestible nutrients (TDN) of the forage at the two sampling dates. Crude protein and total digestible nutrients are the primary indicators of general nutritive value of forage and are used to evaluate how well a feed source meets animal requirements. The measure of total digestible nutrients is an indicator of the energy content of forage. Both the yield and quality of available forage predictably decrease over the grazing period due to plant decomposition. This was likely worsened by the rainfall and muddy conditions experienced in December and January. In perspective, however, the yield and quality held up well throughout the grazing period. The nutritive value of the forage – even in January - equaled that of average first cutting orchardgrass hay.

Table 1. Nutrient content of stockpiled fescue compared to stored forage in the Heizer demonstration.

Forage Quality Summary	Stockpiled Fescue	Stockpiled Fescue	Alfalfa Mix Grass Hay	Timothy Hay	Rye Baleage
Sample Date	Dec 2 nd	Jan 6 th	Dec 2 nd	Dec 2 nd	Dec 2 nd
Crude Protein (%)	13.5	11.7	11.5	9.5	10.9
Total Digestible Nutrients (%)	67.6	60	53	55	53

Table 2 shown below is an excerpt from the National Research Council's publication on nutrient requirements of beef cattle. A comparison of animals' nutrient requirements and the nutritive content of the stockpiled forage in this demonstration show that forage quality met or exceeded animal needs throughout the stockpiling period for all classes of mature cows. For calves in this demonstration, crude protein and energy were both somewhat limiting. However, because calves were able to creep graze

under the temporary fence to select the highest quality plant parts without competition from cows, it is likely that they were able to obtain a diet not limited by protein or energy.

Table 2. Average daily nutrient requirements of beef cattle. (NRC, 1996)

	Dry matter intake (lbs./day)	Crude protein (%)	Energy (% TDN)
cow-late gestation	25.0	8.7	55.7
cow-early lactation	27.5	10.0	58.7
first-calf heifer	23.8	10.7	61.4
6-wt. spring calf (2 lbs. daily gain)	14.4	12.1	68.0
dry cow	24.2	6.0	44.9

Cole concluded by saying, "I'm not an agronomist or a nutritionist, just a cattle farmer with an economics degree. But from an economic standpoint I'm pretty excited about the differences I see. We try to make as high quality of hay as economically possible for a herd of beef cows. Actually seeing the numbers of how much higher quality the stockpiled grass is compared to the hay, really shows me the benefits of stockpiling. Especially when I look at what it costs me to make the hay compared to what it costs me to graze the grass!"

Demonstrations like this take time, effort, coordination and follow-up to accurately document the activities, develop trustworthy relationships and to spread the positive results about this grazing management technique. The investment in this demonstration provides a

learning experience for all parties involved and results in practical changes on the farms throughout the region.

All parties involved in these demonstrations want to thank the farmer-cooperators for their commitment to this demonstration and acknowledge the Chesapeake Bay Foundation and National Fish and Wildlife Foundation for providing funding to support the basic supplies and analysis needed to successfully conduct this grazing project.

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