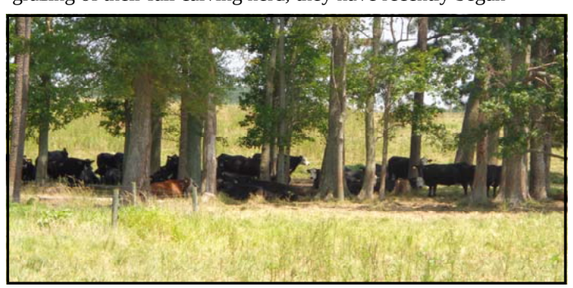
Solar panel for pumping water to holding tanks.

The Clarke Farm forage base consists mainly of fescue and white clover, but they have experimented with Caucasian bluestem, Switch grass, and seeded Bermuda grass to improve summer forage availability. The Caucasian bluestem did not work out well; however, the switchgrass has persisted for over

Switch grass field..

twenty years under grazing and has begun to volunteer in other pastures. The bermudagrass works well as grazing in late summer to allow some fescue pastures to be stock-piled. The Clarke Family not only manages to have stock-piled fescue for winter grazing of their fall calving herd, they have recently began



Cattle enjoying shade on a hot early afternoon...

Mr. Clarke opening rope gate.

utilizing summer stock-pile for grazing dry cows in July and August after weaning calves in May and early June. No hay is made in pastures. They use electrified high tensile wire on all border fences and cross fencing. This allows the use of poly wire which significantly increases their ability to utilize stockpiled fescue and even provide creep grazing for calves. This has decreased the

Waterer fed by gravity from holding tank from solar panel.

number of days they need to feed hay, but they still make it, and have it ready in case they need it.

The Clarkes have opened their farm for field days, workshops, pasture walks, etc. to help others learn from what has worked for them over the years.

The Clarkes were the recipient of the Outstanding Forage Award in 2001 from the Virginia Forage and Grassland Council.

Taylor Clarke serves as the Virginia Cooperative Extension Agent, Agriculture and Natural Resources in Mecklenburg County. Cynthia Gregg, serves as the Virginia Cooperative Extension Agent, Agriculture and Natural Resources in Brunswick County.

The Life of a Mungbean Plant: Origin, Adaptation, and Cultural Practices

By: Ozzie Abaye

Mungbean (Vigna radiata (L.) Wilczek), a warm-season legume native to India, is still grown widely there. It is also cultivated in several other countries in Asia as well as Africa (especially East Africa) and South America. In the United States, most mungbean is grown in Oklahoma (one of the southern states). In 2005, Senegal researchers screened over 34 cultivars of mungbean from several countries (Taiwan, Tanzania, and New Zealand). The beans were screened for a potential export market. The first phase of the study focused on screening for yield performance and quality. The cultivars screened were grown on sandy soil at Ndiol research station, 25 km from Saint-Louis (Cisee, et al., 2011). All cultivars yielded at least 1500 kg ha–1, with a peak of 2222 kg ha–1 for one of the cultivars. Higher yields have been reported elsewhere.

The Mungbean Plant

Mungbean plants look more like garden beans than soybeans and grow 61 to 76 cm tall. Plants are generally branched and grow in an upright bush habit, but some cultivars have a vining growth habit. The plants produce an abundance of yellow or white (depending on variety) flowers in clusters of up to 15 flowers at the end of each stem. Once they begin to flower, they continue to produce flowers throughout the early and mid-summer months, i.e., they are indeterminate. The seed pods are 8 to 10 cm long, each having approximately 10 to 12 seeds. Depending on cultivar and growing conditions, a plant can produce 30 to 40 pods. Due to the indeterminate flowering pattern, the pod production is staggered, with some pods maturing early

Mungbean Seed

Showing purple to white flowers (Santamba) – 50 days after planting

Showing seed pods (Samba)) – 58-60 days after planting

for harvest and others developing later. Harvest usually takes place when at least one-half of the pods have reached maturity. The pods turn darker as they mature.

Only a few cultivars of mungbean are available in the US. Berken, a new cultivar (and one we are using for a cover crop in Toubacuta), is the main cultivar grown in the US. Berken produces small, olive-green beans in 8-cm pods. Each pod holds approximately 12 beans, which mature about 80 days after planting. Berken seeds typically sprout in 3 to 5 days. (In Tobucouta, we had good sprouts in 3 days.) This cultivar has been widely used as a "sprout" bean.

Soil and Climate Adaptation

Mungbean is well adapted to sandy or sandy loam soils. However, it does not do well in "heavier", or more clayey, soils.

Mungbean's appealing qualities include its ability to tolerate drought and to grow on marginal soils. It does poorly in alkaline conditions where it will quickly develop symptoms of severe iron chlorosis, such as yellowing leaves. Mungbeans prefer a slightly acidic to neutral soil with a pH of 6.2 to 7.2. The mungbean belongs to the legume family and has the ability to fix its own nitrogen; but it requires additional nutrients, such as phosphorus, calcium, magnesium, potassium, and sulfur for optimum growth. For successful nodulation and maximum nitrogen fixation, mungbean (like most legumes) must be inoculated with the proper strain of *Rhizobium*. Mungbean can be cross-inoculated with cowpea rhizobia. The mungbean plant requires well-drained soils. It will not tolerate a wet root system, which can cause disease. A lack of moisture -- especially during the critical flowering and pod-filing period can reduce yields significantly. It is a short-day plant (flower initiation requires exposure to nights longer than some critical period), but mungbean can be grown over a wide range of latitudes, provided minimum temperatures exceed 15^{O}C.

Planting

In Senegal Mungbean can be cultivated under rainy as well as under irrigated conditions. Generally, mungbean should be planted soon after the rainy season begins in Senegal (end of June to early July). Mungbean is a short-season, warm-season food legume that requires 80 to 110 days from seeding to harvest. Therefore, for optimum grain yield, mungbean should be planted as soon as the rainy season begins. Mungbeans planted in Toubacouta in the first week of July began flowering the third week of August (50+ days after planting). However, crops planted in August may not have adequate rain to produce seed and might need to be irrigated. Cisee et al. (2011) planted mungbean in March during the hot, dry season in Senegal (Saint Lauis). Under irrigation, the seeds emerged 5 days after planting. The researchers placed seeds at 3 to 5 cm depth with equidistant spacing (50 x 50 cm), giving 40,000 plants/ha. The vining type mungbean can be seeded at a lower rate with wider spacing.

Use and Nutritional Value

Mungbean has high nutritive value with high protein content about three to four times that of cereals. It is used as a food, feed (forage), or cover crop. As a food, dried beans may be eaten whole or split, cooked, fermented, or milled into flour to make pastas, soups, porridges, confections, and alcoholic beverages. Mungbeans are known for their sweet flavor, and mungbean paste is used in some Asian countries to make frozen ice desserts. In western cultures, the beans are popular for sprouting, with major use as a fresh salad vegetable. (Sprouts are young seedlings just after seed germination.) The most common sprout marketed is mungbean. On a dry-weight basis, mungbeans contain 25 to 28% protein, 1 to 1.5% fat, 3.5 to 4.5% fiber, 4.5 to 5.5 % ash and 60 to 65% carbohydrate. The multiple uses of mungbean as both feed and food can help the farmer distribute economic risk and diversify his farm income.

Reference:

Cisse M., M. Diouf, T. Gueye, and A Fall, 2011. Linking policy, research, agribusiness and processing enterprise to develop mungbean *(Vigna radiata)* production as an export crop from Senegal River Valley. In: Innovations as Key to the Green Revolution in Africa. Bationo, A.; Waswa, B.; Okeyo, J.M.; Maina, F.; Kihara, J.M. (Eds.).

Dr. Ozzie Abaye is with Crop and Soil Environmental Sciences Department at Virginia Tech.

Fescue Genetics - Is the Solution in Selection?

By: Dr. Brian Campbell and Dr. Chris Teutsch

Tall Fescue Toxicosis is a serious issue that still impacts beef producers across the state of Virginia and much of the South Eastern United States. This syndrome is caused by cattle ingesting plants infected by an endophytic fungus (Neotyphodium Cenophealium). This fungus produces an ergot alkaloid (Ergovaline) which causes a range of maladies including reduced weight gain, dry matter intake, and reproductive rates while increasing internal body temperature, heat stress, and respiration rate. To complicate matters more the syndrome also causes animals to retain their winter hair coats into the summer months increasing the heat stress even more.

There have been many attempts to find cure for tall fescue toxicosis but at this point in time no silver bullet has been found. These have included adding binders to minerals, removing the endophyte from the plant, or adding seaweed to the feed. Unfortunately all of these either did not work or proved to have a major flaw in their efficacy. There have been two very promising treatments, the first is the drug domparidone. This acts on the pituitary gland and increases production of dopamine which alleviates tall fescue toxicosis. This drug is ideally used in horses, but due to cost and the frequency of treatment needed is not feasible for cattle. The other solution has been to replace the toxic endophyte with a novel endophyte which does not produce the toxins. This method works well, but the seed is expensive and the cost of reduced production during reestablishment is great so adoption of this forage has been slow. It should also be noted that with the novel endophyte there is no reduction in dry matter intake so stocking rate must be reduced by approximately 25% to prevent overgrazing and stand loss.

We know that we can change the plant to reduce the issues with tall fescue. The other option is to change the cattle and this is what we will be discussing today. It has long been known that different cattle respond differently to the toxins that they ingest. The first time this difference was noted in a scientific journal was in the early 40's by Cunningham in a paper titled "Tall Fescue Grass is Poison for Cattle". In this he noted that cattle within the same herd were greatly impacted with tails and hooves sloughing off or were not impacted at all. This observation along with others led to the belief that a genetic component to tall fescue toxicossis was there and some cattle would be resistant to the toxins while others suffered.

A research study was conducted at The University of Tennessee to try to identify a genetic marker for resistance to tall fescue toxicosis. Hair samples were taken from all cows in two herds, one a spring calving Angus herd and one a fall calving Angus herd. Production records from these two herds were compared for weight gain, weaning weight, birth weight and age at first calving. The records were then compared to the genetic profile of the cattle using a 50k SNP Chip. This device looks at the alleles of 50 thousand snps that are spread across the bovine genome. The individual genes were then analyzed to see if they had any impact on the production of the cattle. Twenty three single nucleotide polymorphisms were identified as possible markers. These SNPS were then examined further SNPS on two different genes proved to be worthwhile as genetic markers. One is located on the Dopamine D2 gene and the other is on XKR4.

Cattle which are resistant at these markers have been shown to have higher average daily gain, reduced body temperature and will

Solution Page 10

Summer Stockpiling Fescue for Late-summer Pasture

By: Matt Booher, and John Benner,

Summer-stockpiling is a technique where producers defer grazing on a portion of pasture acres from spring-greenup through late-summer as a way to store forage in the field for emergency pasture and/or to assist in stockpiling fall growth of pasture for winter. Summer stockpiling may prove to be a low-input, cost-effective technique for Virginia producers to reduce winter feed costs and to better manage grazing on their farms.

The current procedure for summer stockpiling which is being evaluated here is as follows:

1. Defer grazing from a portion of pasture –around 25% of acres – using temporary electric fencing. Allow growth to accumulate from early-spring through about mid-August.
2. Strip-graze summer stockpile forage using temporary electric fencing, giving cattle access to about 3 days-worth of grazing per move.
3. Fertilize and fall stockpile previously-grazed (during spring and summer) pasture while strip grazing the summer stockpile.

While many managers currently make hay on a portion of pasture acres to capture excess spring growth, followed by summer grazing, very few practice summer stockpiling as described above. We are evaluating the summer stockpiling technique to determine forage quality, pasture toxicity, and grazable yield of the stockpile.

Past testing of whole plant stockpile (*entire plant-not accounting for animal selection*) has shown yields of 4,500-7,000 lbs. /acre, crude protein of 9-15%, and total digestible nutrients (energy) of 50-60%. Using this information, we would currently only recommend summer stockpiled forage for dry or pregnant cows. A large part of this project, however, will be to gather more precise nutritional data; we will use steers fitted with esophageal fistulas to sample and test only the plant parts selected by the animal. Testing will include nutritional measures as well as alkaloid levels to measure toxicity of the stockpile (as a result of tall fescue in the pasture). With more accurate nutritional data, we will be able to recommend a supplementation program to allow the grazing of lactating cows or growing animals on summer stockpiled pasture – or we may find that forage quality alone is sufficient. We will also record the grazing days provided by the summer stockpile system.

Matt Booher is a Crop and Soil Sciences Extension Agent, Augusta County and John Benner, Animal Sciences Extension Agent, Augusta County

Upcoming Events

2016 AFGC Annual Conference
January 10-13, 2016
Baton Rouge, LA
www.afgc.org

2016 Winter Forage Conferences
January 26-29, 2016
Locations
Blackstone 1/26/16
Wytheville 1/27/16
Weyers Cave 1/28/16
Brandy station 1/29/16
www.vaforage.org

Resistance to Tall Fescue Toxicosis: Genotyping Shenandoah Valley AREC Cow Herd

By: Chris Teutsch, Brian Campbell and Biswarup Mukhopadhyay

Tall fescue is grown on more than 35 million acres providing the pasture base for more than 8 million brood cows in the transition area between the temperate northern and subtropical southern United States (Ball et al., 2015). In 1931, an ecotype of tall fescue was discovered on a hillside in Menifee County Kentucky by a researcher from the University of Kentucky. Samples were collected and underwent extensive testing before the cultivar "Kentucky 31" was released in 1943. This grass was rapidly adopted by farmers throughout the transition zone due to its strong agronomic characteristics and tolerance to both biotic and abiotic stresses.

Soon after its release, tall fescue became known for poor animal health. Tall fescue was found to cause several maladies including fescue foot, bovine fat necrosis, and summer slump. Combined these maladies are referred to as tall fescue toxicosis. It was not until the 1970's that the source of these maladies was discovered, an entophyte that grows inside the tall fescue plant. This endophyte-plant combination produces a group of compounds called ergot alkaloids that are highly toxic to livestock. After the endophyte was discovered, plant breeders removed the endophyte from the tall fescue plant and released endophyte free cultivars. While animal performance was excellent, the persistence and tolerance to stresses was lowered, and these cultivars did not persist under less than optimal management.

The most recent chapter in the tall fescue story is the development of tall fescue cultivars infected with the novel or non-toxic endophyte. This endophyte imparts tolerance to stresses, but does not produce the toxins associated with tall fescue toxicosis. The adoption of the novel endophyte technology has been slow and farmers are reluctant to covert large acreages to the non-toxic cultivars. In addition, much of the sloping land in the Appalachian region poses a significant erosion potential, making conversion risky.

Toxicosis Page 10

Waverly Farms Front Page

To sustain the CSA and satisfy its members, Waverly Farms is home to 2 acres of garden, 90 meat goats, 23 head of cattle,

about 85 laying hens, 4 horses, 11 sheep, 7 American Guinea Hogs, and 2 llamas. The animals are rotated through the farm pastures in a cycle that is designed to control weeds and pests, starting with the goats, followed by the cattle, and finished with the horses, where the cycle picks back up again. The chickens are placed into pasture with any of the other animals and are used to aid in the control of parasites and flies that are pests of the larger livestock. The American Guinea Hogs that reside on Waverly Farms are fenced into wooded paddocks around the farm, where they are allowed to root and forage, and are fed garden scraps and soy-free feed.

The Rosenbergs, through Waverly Farms, work to provide

an educational opportunity for anyone interested in the operation of a small farm and running a CSA, particularly young adults that are considering a career in agriculture. The farm currently employs a CSA/Garden Manager, an Animal Manager, and two to four interns and apprentices that run the farm on a daily basis, with help from volunteers at picking and packing time. These people are drawn to the one-of-a-kind experience and education provided daily on this working farm. The experience also fosters a sense of community among these volunteers and employees. When asked why they were drawn to this type of employment, one of the employees stated that "none of us grew up on a farm and there was a disconnect and a feeling of 'missing out' on knowing where food comes from and how it is grown". Another said that he "likes growing food and wanted to try on a commercial scale". After interning, apprenticing, and working on this farm, these young adults have gained not only an invaluable education but also a true appreciation of farming and what it takes to produce food.

One particular aspect of the farm operation that the Rosenburgs and their employees take pride in, is the direct marketing aspect of their sales. Direct marketing, or the practice of selling products directly to the customer, creates what one of the employees described as a "satisfaction from interaction with the customer". This practice is becoming more popular in the farming community because it helps create relationships between farmers and their customers and gives consumers the opportunity to know where their food is produced. Waverly Farms also provides members the opportunity to tour and/or volunteer on the farm (a 4-6 hour/week shift will earn a member a weekly CSA share).

Success for the Rosenbergs is found in their ability to bring healthy food to local people, provide educational opportunities for those interested in farming, and improve and honor the environmental richness of Waverly Farms for future generations.

Haley McCann serves as the Virginia Cooperative Extension Agent, Agriculture and Natural Resources in Nottoway County.

To JOIN the *Virginia Forage and Grassland Council* a membership form can be found on the web at http://www.vaforages.org
Contact Margaret Kenny at makenny@vt.edu
or call 434-292-5331

Smith Meadows Page 2

Mr. Pritchard opened a gate and easily demonstrated the eagerness of his cattle herd to move to fresh pasture.

The hogs and hens are not as self sustaining as the cattle and sheep because they require much feed produced off the farm. But they provide good cash flow from a ready consumer base and add value because considerable soil nutrients result from their production.

All hay is purchased and delivered in the winter. Stockpiled forages provide feed usually into mid to late January.

We also paused at selected stations. We were waist deep in high mass forage as J. B. Daniel and Bill Patterson, gripping a colorful bouquet the motley and promiscuous plants around us, presented a review of grazing principles and pasture evaluation. J.B. used a grazing stick to show us how to estimate forage volume. Mark Wastler and Tate Golightly shared their advice and experience with a display of temporary fencing. Don Flegel, Area Soil Scientist, staged his lecture on soil health inside a soil pit he dug. He showed that properly managed pasture builds soil organic matter. His demonstration of water holding capacity of different soil samples proved the value of sound and well grounded management.

Mr. Prichard showed us his farm equipment. His heavy metal inventory amounts to little more than one tractor, one rotary mower, and several golf carts. The Bush-Hog mower has retained considerable value over the years as he rarely mows pasture. Although, he suggested that he may revert to mowing a pasture once every five years.

More than creating a model for success, Smith Meadows is a farm that produces considerable value. According to Mr. Pritchard, "Trampling and manure density are a key focus, while maintaining high levels of available, balanced nutrition."

As 30,000 to 50,000 pounds of livestock per acre come into a new paddock, 30 to 40 per cent of the forage is consumed in a few hours. The balance of the forage is trampled. Then the livestock move on to the next paddock. The grass is allowed to recover before grazing again after 100 -120 days or longer. As a result the organic component of the soil increases. More carbon is sequestered in the soil. Mr. Pritchard's aim is fastened on raising soil organic levels to six per cent. Of course the nitrogen and carbon component in the soil is free to capture from the air around us. The farm is also attracting a more diverse environment as wildlife including turkeys and pheasants are finding habitat, according to Mr. Pritchard.

The term "Mob Grazing" entered our lexicon just a few years ago. But it aptly describes how ungulates and the forages that they consume co-evolved as immense herds moved across the grasslands over millennia. Natural grasslands carpet the deepest and most fertile soils around the globe. Three hundred years ago the Shenandoah Valley was a fertile tall grass prairie.

Obviously, this new forage management paradigm will not suit everyone's set of skills and resources. Yet, Smith Meadows Farm shows how a modern successful enterprise is patterned on an ancient relationship that is building great value today the old fashioned way.

Leo Tammi is a sheep producer from Mt. Sidney, VA and a former VFGC Board member.

Chesapeake Bay News

Federal appeals court upholds Chesapeake Bay pollution limits

A federal appeals court has held that the U.S. Environmental Protection Agency (EPA) can set pollution limits for the Chesapeake Bay, upholding the Total Maximum Daily Load (TMDL) issued by the agency in 2010.

The TMDL, also known as the Bay "pollution diet," set limits on the amount of nitrogen, phosphorous and sediment allowed to run into the Bay each year. Watershed Implementation Plans (WIPs) describe the steps each of the seven Bay jurisdictions—Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia—will take to meet these goals, and are included as commitments in the recent Chesapeake Bay Watershed Agreement.

In 2011, the American Farm Bureau Federation, the Pennsylvania Farm Bureau, the National Association of Home Builders and a number of agricultural trade associations filed suit against the EPA, claiming the federal agency lacked authority to issue the TMDL. Numerous local and national partners intervened in support of the EPA, including the Chesapeake Bay Foundation, Midshore Riverkeeper Conservancy, National Wildlife Federation and others. In 2013, Pennsylvania Federal Judge Sylvia Rambo upheld the pollution limits, leading plaintiffs to appeal. On Monday, the U.S. Third Circuit Court of Appeals in Philadelphia again upheld the TMDL as legal under the Clean Water Act.

"Water pollution in the Chesapeake Bay is a complex problem currently affecting at least 17,000,000 people (with more to come)," wrote Judge Thomas L. Ambro, part of the three-judge panel that heard the appeal, in a 60-page ruling. "Congress made a judgment in the Clean Water Act that the states and the EPA could, working together, best allocate the benefits and burdens of lowering pollution."

Learn more about the plan to reduce pollution in the Bay on the EPA's TMDL website.

Fescue Genetics Page 8

Up until recently, solutions for tall fescue toxicosis have been plant centered. However, work at the University of Tennessee has focused on animal genetics. Two polymorphisms, one in the Dopamine Receptor (DRD2) and the other in the Kell Blood Group Complex Subunit Related Family Member 4 (XKR4) have been associated with resistance to tall fescue toxicosis (Campbell, 2012; Ely, 2014; Campbell et al., 2014). In 2014 as part of a larger project associated with documenting the impact of the novel and toxic endophyte on the rumen micro-biome, brood cows and their calves at the Shenandoah Valley AREC were genotyped for the DRD2 polymorphism. It was found that 19% of the cow herd and only 8% of the calves possessed the DRD2 polymorphism that was related to resistance to tall fescue toxicosis (Figures 1 and 2). The lower expression of the genotype resistant to tall fescue toxicosis was somewhat unexpected, but is likely related to a breeding program based primarily on AI sires. Many of these sires likely came from areas outside of the tall fescue belt.

Research focusing on the animal genetics resistant to tall fescue toxicosis is truly exciting. However, it is important to remember that this is preliminary work and that resistance to tall fescue toxicosis is likely a multi-gene trait. It is also important to remember that the use of AI has introduced many desirable traits to cattle in Virginia and that selection based on a single trait is NEVER recommended. In conclusion, preliminary work at the University of Tennessee suggests that screening cows and potential sires for the DRD2 gene may be useful for selecting animals resistant to tall fescue toxicosis.

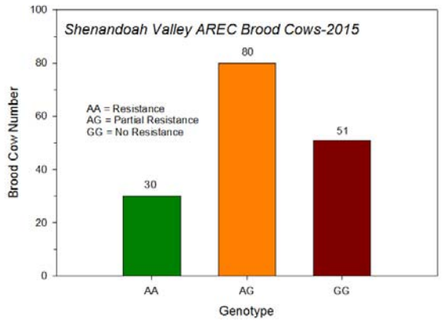


Figure 1. Genotypes of fall calving brood cows at Virginia Tech's Shenandoah Valley Agricultural Res. and Ext. Center, Steeles Tavern, VA.

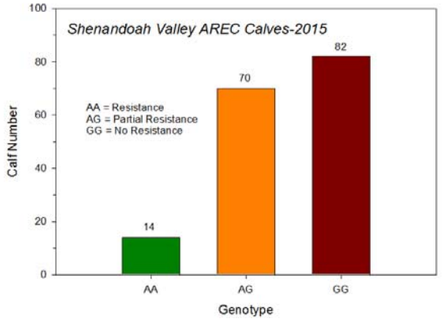


Figure 2. Genotypes of fall born calves at the Shenandoah Valley Agricultural Res. and Ext. Center, Steeles Tavern, VA.

Chris Teutsch, Virginia Tech's Southern Piedmont AREC, Brian Campbell, DSM Animal Nutrition and Health, and Biswarup Mukhopadhyay, Biochemistry, Virginia Tech

calve earlier in their lifetime, which is an indicator of overall reproductive efficiency than their susceptible counter parts. With these advances dealing with tall fescue may soon be as simple as pulling a hair from an animal, running a test and determining if it stays in the herd or is culled.

This is not a true silver bullet as resistance to tall fescue toxicosis is not the same as not being impacted at all. While these animals are better able to handle the toxins it sill impacts them in some ways. Best management practices should still be used, a good mineral program, rotational grazing, hay testing and culling the cattle that do not perform well on your farm will all help your farm improve.

TAKE HOME MESSAGES

Some cattle are resistant to tall fescue toxicosis

Cattle which are raised on tall fescue toxicosis for generations are more likely to be resistant

Pick your bulls and replacement heifers wisely

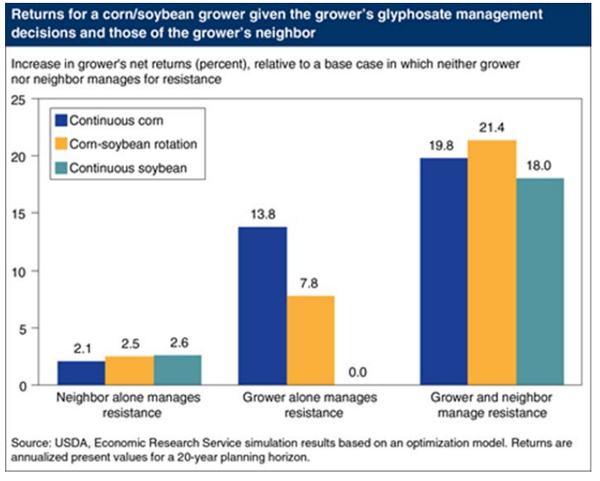
Do Not Single Trait Select

Unfortunately this test is not commercially available

Dr. Brian Campbell, DSM Nutritional Products and Dr. Chris Teutsch, Virginia Tech Southern Piedmont Agricultural Research & Extension Center.

Corn and soybean returns are highest when growers and their neighbors manage glyphosate resistance

Glyphosate, also known by the trade name Roundup, is the most widely used herbicide in the United States. Widespread and exclusive use of glyphosate, without other weed control strategies, can induce resistance to the herbicide by controlling susceptible weeds while allowing more resistant weeds to survive, propagate, and spread. Resistant weed seeds can disperse across fields—carried by animals, equipment, people, wind, and water. Consequently, controlling weed resistance depends on the joint actions of farmers and their neighbors. ERS analyses evaluated the long-term financial returns to growers who adopt weed control practices that aim to slow resistance to glyphosate, and compared those returns when neighboring farmers also manage to slow resistance. Projected net returns (annualized over 20 years) for growers who manage resistance generally exceed returns for growers who ignore resistance; they are even higher when neighbors also manage resistance. Projected net returns for growers with neighbors who also manage resistance range 18-20 percent higher than those of growers/neighbors who ignore resistance. This chart visualizes data found in the *Amber Waves* feature, "Managing Glyphosate Resistance May Sustain Its Efficacy and Increase Long-Term Returns to Corn and Soybean Production," May 2015.



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President's Message

So, you thought making high quality forages was a can of corn. Most areas across the state have been overly blessed with moisture which has made harvesting highly desirable forage feedstuffs a major challenge for 2015. This has certainly been the opportune time to utilize the process of harvesting and wrapping forages as wet balage. For those not fortunate enough to have access to wrapping equipment, the efforts to make high quality dry hay has been two fold. The first obstacle has been to cut and harvest hay without getting quality compromised by rain. Secondly, as waiting has taken place for long enough rain free windows, quality has decreased as forages have matured. For many producers the waiting game has meant harvesting not only the first, but also the second cutting at the same time, as the under store vegetative growth has flourished. This has resulted in a total unknown in regard to the quality of what has been harvested.

2015 is beginning to set up the perfect storm for those who do not annually test their harvested forages. It is vitally important to consider testing forages so that the guess work is removed as to the quality of forages you have produced and will be feeding later. Forage testing will allow you to properly feed harvested forages, while at the same time save money, and properly maintain your livestock and horses during the feeding months.

Just as high quality forage production is a challenge, maintaining the high level of educational opportunities that the Virginia Forage and Grassland Council provide across the state is never ending. This summer has seen three excellent Field Days across the state with one more to follow during September in the Shenandoah Valley.

Plans are also in place for our four Winter Forage Conferences to be held in 2016. We will be focusing on Tall Fescue Production and Utilization. These conferences will certainly provide you with the most current cutting edge research and production information, as we continue to utilize tall fescue in Virginia to its strongest advantage in our livestock systems.

Thanks to all who have worked diligently to put forth all these forage events. Your continued efforts are greatly appreciated. If you would like to garner more information about VFGC and or all of our upcoming events, you are able to continually learn more through the reading of our quarterly newsletters and or by visiting our Web Site (vaforages.org).

Stay Save as you continue forward with your daily efforts

Best Regards,
Jon Repair
President, VFGC

Mob Grazing on Smith Meadows Farm

By: Leo Tammi

Mob Grazing, as it is commonly practiced today, involves moving a relatively large herd of cattle or other livestock between small paddocks daily or more frequently. Some of the forage in each paddock is eaten, but most of it is severely trampled by hoof action. The herd is then moved on to the next small paddock to the same result. To the untrained eye, the aftermath is an ugly mess.

The upshot is to create a forage and livestock system that allows more cattle on the same or fewer acres, good weed control, less fertilizer, extended growing season, improved livestock health, more plant diversity, and better soil health by building organic matter and stemming erosion. It is a beautiful thing.

In mid July forage producers had an opportunity to see mob grazing in action as we converged on Forrest Pritchard's family Smith Meadows Farm in Berryville, Virginia. The program and tour was sponsored by VFGC, USDA-NRCS, Lord Fairfax SWCD and Virginia Association for Biological Farming (VABF).

Smith Meadows Farm has been in the Pritchard family since the early 1800's. Forrest Pritchard's first venture into managing the farm after graduating from college in 1996 included growing corn and soybeans over most the acres. He shared costs and returns with a neighbor that provided the expertise and equipment. The family's share of net income that year was $18.16.

Now, Smith Meadows Farm succeeds as a result of low cost inputs and a high level of management. Mr. Pritchard has done well what many of us are clumsy at: He has matched his livestock with his available resources. He has also built a brand through his production practices and philosophy that are supported by a market demand that will pay retail prices for this type of locally produced livestock products.

As we roamed the pasture, Mr. Pritchard set forth describing the farm and elaborating on his farming philosophy.

On 390 acres of available grazing, Mr. Pritchard grazes approximately 50 ewes and their lambs and 180 stocker calves that he purchases from a neighbor. He also produces 250 hogs and 1200 laying hens on pasture. The meat and eggs produced are sold directly to consumers from the farm store and several farmers' markets in the region. In addition to providing family income the farm currently employs ten other full time workers. Mr. Pritchard is proud to say that he has met payroll for 19 years.

Thirty two paddocks are dense in grass, clovers, forbs (weeds) and browse in a diverse mixture that is a sight to behold and difficult to traipse through in mid summer. These paddocks that have not been seeded, are subdivided by single strand temporary electric fence to contain the cattle and sheep. The calves are stocked between 500-650 pounds and finished solely on pasture for approximately 18 months with desired finish goal of 1250 pounds. The Katahdin/Dorper cross sheep seem to voluntarily stay close to the cattle. Lambs take about ten months to finish. Hogs finish in three months (from 100 pound stockers to 275 finished weight). The hens are kept for three years on chicken feed while free ranging on pasture.

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How to Get Your Chickens to Make the Best Use of Pasture

By Kathy Voth / July 14, 2014 / Comments Off on How to Get Your Chickens to Make the Best Use of Pasture

Changing the time when you feed your birds can increase their foraging, potentially increase weight gain, and reduce labor costs.

Labor cost and feed-conversion efficiencies; these are the two things that determine the profitability of a pastured meat-

▲ **Photo 6.** All the chickens in each group are marked with spray paint on their primary wing feathers. This allows separation in the event they cross a fence and get mixed-up. The photo shows two groups, one in each half of the hoopie.

bird operation. The less you have to work with the birds, the lower your labor costs. But how do you improve the rate that they turn feed into meat? That's the question that the producers at **Pasture Perfect Poultry** decided to answer with some on farm research supported by SARE (Sustainable Agriculture Research and Education.) It turns out that by paying attention to WHEN you feed the birds, you reduce your labor costs and you increase their feed efficiency.

▲ **Photo 7.** On processing day, the birds are weighed live and then processed. Some chickens stand calmly in the bucket and others don't!

After watching the birds in the Day Range system, they learned that birds foraged most actively during the early morning and the evening hours. That also happened to be the time when they fed they chicks and let them out to forage, or when they put them up in the evening. But what if they fed them once a day between 11 am and 2 pm? Would that take advantage of their natural behavior and improve weight gain? If it did, this kind of system would also reduce labor costs by requiring only one visit to the chickens each day.

	Wild Hollow		Great Oak	
	12-Jul	13-Sep	20-Sep	25-Oct
1 feeding/day	6.23	5.58	6.96	6.10
2 feedings/day	6.61	5.65	6.47	5.75
P(T<t)	0.07	0.32	0.10	0.07

▲ **Table 4:** The average live weights for each batch of birds in the trial. Each batch consisted of 120-150 chickens divided into three replications of each feeding treatment. Dates shown are the processing dates. P-values less than 0.10 indicate the means are statistically different.

They ran two feeding trials each at two of the four Pasture Perfect Poultry farms to compare the difference between feeding twice a day, as they always had, or once at mid-day. On processing day, they weighed each bird and determined an average live weight. What they found is that there was not a significant different in the weights of the birds between the two feeding. But there was a difference in labor cost, according to project coordinator Melissa Fischbach:

"Being able to feed the poultry one time per day in the Day-Range system would save one visit to the poultry, which depending on the number of birds being raised, can easily be 0.5 to 1.0 hours per day. Over the 4 week pasture grow-out period this equates to up to 28 hours saved. Multiplied by an hourly wage of $12 per hour, feeding one-time per day could save up to $336 Although the results were not consistent across all four batches tested, the once-per-day feeding may even increase the performance of the birds. A 0.5 average weight increase was observed for one of the batches, which equates to an extra $1.40 of revenue per bird assuming a retail price of $2.85 per pound."

Melissa encourages others to do this trial on their operations. She notes that very little research is being done in this field, and that additional data gathered by farmers will help everyone figure out how to maximize profits and gain. If you'd like to run your own trial, she and her colleagues created a "how-to" manual that you can download here. You can share your results by contacting Melissa and Jason Fischbach at pastureperfectpoultry@gmail.com.

See more at: http://onpasture.com/2014/07/14/how-to-get-your-chickens-to-make-the-best-use-of-pasture/#sthash.9QvKYoZc.dpuf

About the author *Kathy Voth* editor and contributor Kathy worked with the Bureau of Land Management for 12 years before founding Livestock for Landscapes in 2004. Her twelve years at the agency allowed her to pursue her goal of helping communities find ways to live profitably AND sustainably in their environment. She has been researching and working with livestock as a land management tool for over a decade. When she's not helping farmers, ranchers and land managers on-site, she writes articles, and books, and edits videos to help others turn their livestock into landscape managers.

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Winter Forage Conferences January 26-29, 2016

Managing Tall Fescue in Grazing Systems Theme of 2016 Winter Conferences

By: Margaret Kenny

The theme of the 2016 VFGC Winter Conferences will be "Tall Fescue in the 21st Century: Understanding and Managing Tall Fescue in Grazing Systems". The conferences will be held on January 26 in Blackstone, VA, January 27, in Wytheville, VA, January 28 in Weyers Cave, VA, and January 29 in Brandy Station, VA. The speakers selected for this year's conferences are nationally and internationally renowned experts in tall fescue and tall fescue toxicosis.

The morning sessions will be focus on problems and issues associated with the use of tall fescue in grazing system. Matt Booher and John Benner will discuss "What we have learned about Tall Fescue" - explaining the take away points from their field trials in the Valley. Glenn Aiken of the USDA's Ag Research Service ARS, Lexington Kentucky will then discuss the impact of tall fescue on the animal. Joe Bouton will end the morning session with a discussion of challenges and opportunities of incorporating novel endophyte tall fescues into grazing systems.

The afternoon session will focus on finding practical solutions to using tall fescue in grazing systems. Craig Roberts of the University of Missouri will began with lead with a discussion of cattle genetics and whether resistance to tall fescue toxicosis is real. Pat Burch of Dow Agrosciences will discuss the chemical suppression of seedheads in tall fescue pastures. The highlight of the afternoon will be presentations by local producers on how they manage tall fescue on their farms. The final summary speaker of the day will be John Andrae of Clemson University and co-author of "Fescue Toxicosis and Management". Dr. Andrae will discuss putting all the pieces together to form an integrated approach to managing tall fescue in grazing systems.

These conferences will likely be the best tall fescue conferences in the country and it is happening at your doorstep in Virginia. Registration for conferences will begin in November. For more information on this winter's conferences and to see a copy of tentative agenda go to www.vaforages.org.

Margaret Kenny is the Managing Editor, VA FORAGER & Admin Assistant for the VFGC. She is with Virginia Tech Southern Piedmont Center in Blackstone, Virginia. She lives on a farm in Nottoway County with her husband Kim Kenny.

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Meet Waverly Farms

By: Haley McCann

Waverly Farms, owned by Stuart and Patti Rosenberg, is located outside Burkeville, Virginia in Nottoway County. Stuart's family's association with Burkeville began around 1865 with the purchase of Inverness, a significant dairy operation just a mile down the road from Waverly Farms. Summers spent at Inverness and with his uncle, Bill Agnew, at Waverly Farms were a big part of growing up. There were many happy and large family gatherings in Burkeville over the years. In 2007, Stuart and Patti were looking for a farm to call their own, and jumped at the opportunity to purchase Waverly Farms from Mr. Agnew keeping it in the family and in farming.

Waverly Farms is operated as a Community Supported Agriculture (CSA) farm with vegetable and optional eggs and optional protein shares. A CSA is defined as a community of individuals, called shareholders or members, purchase a "share" of the anticipated harvest and make payment in advance at an agreed price. In return, they receive a portion of the farm's bounty throughout the growing season. The Waverly Farms CSA runs from April 30th to almost the end of December and has 80 families as members. The shares are boxed and delivered to seven different pick-up locations from Burkeville to Farmville and Richmond, with a home delivery option. Shares comes in either a regular (averaging 8-12 pounds) share or a large (averaging 15-20 pounds) share and can be scheduled weekly or bi-weekly. Each of the boxes contains a variety of the weeks' harvest of vegetables. There is also the option to purchase shares of beef, pork, goat, honey, goat cheese, or eggs and have them added to the box. Each member also receives a newsletter that lists the contents of their box and tips on cooking and preserving the bounty.

Stuart and Patti Rosenberg

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Clarke Farms in Brunswick County

By: Cynthia Gregg and Taylor Clarke

The Clarke Farm in Southern Brunswick County has managed its pastures with rotational grazing for two decades.

The Clarke Family in developing their rotational system has partnered numerous times with their local soil and water district, Lake Country. This partnership has led to an innovative and diverse livestock watering systems that supports their rotational grazing system and improves their forage management for their fall calving herd.

Their interest in developing a rotational grazing system began with the desire to preserve and protect a natural spring on the farm. Through cost-share and technical assistance from Lake Country SWCD, the spring was developed as a water source to supply 6 paddocks using gravity fed tire waters. Later, through assistance from the Old Dominion RC&D in partnership with Lake Country a solar water pumping system was added to the spring. The solar system allowed water to be pumped from the spring to storage tanks uphill then gravity fed to ball waterers serving 3 more paddocks. With the use of pressurized, gravity and solar, the Clarke Family has developed a watering system for all their grazing acreage reach consists of 25 permanent paddocks of which most are easily and frequently subdivided with poly-wire.

Mr. Clarke at Tiew water, fed by continuous.

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