

Dr. Ballerstedt went on to state that animal agriculture is forage based, and forage production is a sustainable land use, producing far fewer environmental problems than many other uses. Forage plants are eaten directly by animals as pasture, crop residue, silage, and hay. Typically high carbohydrate plants, not consumable by humans are converted to animal products that are readily consumable. In 2000 approximately 26% of the world land area and 70% of the agricultural land was in forages. Perennial forages protect much of the fragile farmland in the world, contributing to better water quality, air quality, and the potential to contribute to a healthy diet.

Dr. Ballerstedt ended by urging participants to be proactive, to tell their story, let consumers, legislators, and other policy makers hear from them, "Let everyone know, red meat should be considered green".

Shoemaker Receives AFGC Merit Award

By: Margaret Kenny

VFGC member Robert Shoemaker from Virginia received the Merit Award at the American Forage and Grassland Council (AFGC). The Merit Award is presented to individuals who have made outstanding Contributions in some phase of forage and grassland agriculture. The individuals receiving Merit Awards were nominated by their peers who recognized their contributions to the forage profession and wished to have that dedication recognized.



Chad Hale (right), AFGC President, presents Robert Shoemaker (left), AFGC member, past president of the VFGC, and a cow-calf producer from Delaplane, Virginia the AFGC's Merit Award.

Carl Stafford (right) won two awards at the 2015 AFGC meeting that was held in St. Louis, Missouri. Carl placed second and third in the AFGC photo contest. The awards were presented to him by Ray Smith (left), AFGC President Elect.



Adel Hite- Policy Does Not Equal Science: Development of the U.S. Dietary Guidelines.

Adele Hite is a Registered Dietitian and focused her presentation on how the U.S. Dietary Guidelines came to be and how they are flawed. Dietary goals were first proposed in 1977; they were hotly debated at the time, and the concept that one size fits all, population wide dietary advice itself was controversial. The recommendations were a drastic change from past diets; the 1977 Dietary Goals introduced a diet high in grains, cereals, vegetables and fruit, and low in fat, with few animal products and vegetable oils substituting for animal fats. Prior government advice had focused on acquisition of adequate nutrition rather than the avoidance of foods that might cause chronic disease. Prior to 1977 Americans got about 36% of their calories from grains, fruits, and vegetables and over 50% of their calories from meat, eggs, cream, cheese and fat.



Ms. Hite pointed out that the health of Americans in the 70s had never been better. Hite answered the question, why were the recommendations changed so drastically with; concerns for the "lifestyle-related" diseases permeated the consciousness of middle class America, and food manufacturers responded accordingly. The American Heart Association influence grew and it promoted the theory that dietary fat, especially from animal products, led to heart disease. Food manufacturers began branding their low animal fat products as "Heart Healthy", even though the Federal Trade Commission repeatedly warned manufacturers not to make false and misleading claims linking their products to heart health. Also books like Diet for a Small Planet popularized vegetarian ideology, and at the same time USDA Secretary Earl Butz was promoting a "fence row to fence row" policy at USDA. This policy encouraged large scale monoculture on all arable land and shifted animal production from pasture and range land to feedlots where they were fed grains. The Vegetarian Movement, expanded grain acreage, American's concern for chronic disease all fit neatly into large agribusiness goal to increase the market for its processed foods, which have a wider profit margin than eggs and meat. All these came together with the Senate Select Committee on Nutrition and Human Needs and resulted in the 1977 Dietary Goals for Americans (DGA).

The DGA met with tremendous controversy, scientist, doctors and public health officials argued the recommendations were scientifically unsound and potentially harmful. Although the debate has never been settled the 1977 Dietary Goals for Americans were written into federal law. Ms. Hite points out a number of papers that show no connection between diets lower in animal products and high in carbohydrates and vegetable oils have any increased health benefits. Studies have shown that persons that are concerned and proactive about their health are healthier whether their diet is low fat/high carb, or high fat/low carb. Ms. Hite closed her talk with this advice, "exercise, watch your weight, eat a balanced diet that supplies nutrients your body needs, and see your doctor for regular checkups and you will be okay."

Recordings of both Dr. Ballerstedt and Ms. Hite's presentations are available at <https://www.youtube.com/playlist?list=PLrq6psn95pUyY39cDzGthFjoN-unS-VyP>. Both also have websites

A Systems Approach to Building Soil Health and Producing a Profitable Livestock Product

This year's VFGC Winter Conference Producer Speaker was Johnny Rodgers of Rodgers Cattle Co, LLC. Rodgers Cattle Company is a diversified pasture-based livestock operation started in 2001 by Johnny and Sharon Rogers. Operating on all leased pasture Johnny and Sharon produce Red Angus and Sim-Angus seed stock, commercial cattle, hair sheep, pastured pork and poultry (broilers and turkeys). They market their livestock through traditional markets and through local direct markets (farmers markets). They strive to create customer satisfaction while improving the resources under their care and to raise their animals in a manner that meets the highest standards in the livestock industry.

Johnny concentrated on two events that forever changed the way he approach activities at RCC. In 2005, he attended the Ranching for Profit School (RFP) administered by Ranch Management Consultants. RFP is often called the "Business School for Ranching" and I felt like I received an MBA in ranching by the end of the week long course. It became clear that most of the good and bad things that occurred in our business were the result of our management. Weather and market conditions are always factors but his success will be defined primarily within the boundaries of the decisions he makes.

In 2012 he heard NRCS soil scientist Ray Archuleta speak about soil health. Ray showed Johnny that soil was more than chemistry, he discussed the importance of soil biology on the success of agricultural systems. Johnny told conference goers, "after hearing this message over three consecutive days, the light bulb moment for me was when I realized that healthier soil will grow better forages and better forages will grow better livestock. In addition, I realized the soil is the foundation of our society and I have ignored this vital resource for too long. From that moment I decided to consider the whole pasture ecosystem as I made decisions (soil, forage, animals, etc.). Some practices on our farm were having a positive impact on soil health while others contributed to soil degradation. Our success will be defined by how we care for all the resources under our management which includes this strange new world that was under our feet the whole time".

The following are highlights of Mr. Rodgers presentation;

Keep plants growing throughout the year to feed the soil:

The relationship between plant roots and the soil is simply amazing. The zone of soil influenced by roots is called the rhizosphere and it creates a favorable environment for soil microbial activity. Plant roots provide soil microbes with sugars, amino acids and other compounds while soil organisms will mobilize soil nutrients making them plant available. Proper use of Management-intensive Grazing (MiG) can improve soil health. Grazing paddocks to the correct residual height and adequate rest periods will keep more forage growing throughout the year. Actively growing grass has a thriving root system that will feed the soil biology which will provide plant nutrients

Use plant diversity to increase diversity in the soil: Managing our pasture for high levels of living roots will increase the population of soil microbes. To further improve the function of our system we need to increase the number of microbial species present in our soils. Since many soil microbes are fed by plant roots it should seem reasonable that supplying a greater variety of food sources would stimulate more diversity in the microbial population resiliency to our grasslands. Many soil organisms thrive on decaying organic material and they can build soil organic mat

ter which contributes to the soil's ability to support plant growth. By using high density (mob) grazing as a tool we can trample material onto the soil surface for our "micro-herd" (i.e. livestock in the soil). Also we like to un-roll our hay bales when possible to distribute the nutrients in the hay and manure. Hay not consumed by livestock should not be viewed as waste. Rather it should be considered feed for the soil organisms. Earthworms need feed too.

Manage soils more by disturbing them less: Soil disturbance in a cropping system is easier to understand and conventional tillage can cause major changes in our soils. Disturbance of pasture soils may not seem as obvious. However, everything we do to our pastures is a form of disturbance and can affect soil function. Applying nutrients, spraying chemicals, mowing hay, equipment traffic and grazing are all forms of challenges faced by pasture soils.

Certainly we cannot eliminate disturbance to our soils, but we must recognize the consequences of our actions, avoiding management strategies that overpower the soil system. Do you really need to apply herbicide to the whole pasture? If you over graze a pasture, make sure to provide ample rest before returning to that paddock. Think before you act.

Keep the soil covered as much as possible: Managing for soil cover can lead to so many positive changes to our pasture ecology. We have already discussed feeding microbes with plant material on the soil surface. This culminates with increased soil organic matter which increases both the water holding and nutrient exchange capacity of our soils. What would it be worth to have a greater stockpile of soil water during the next dry period? It could be the difference between either continuing to graze or feeding hay.

In his closing remarks Johnny reflected that, "My wife and I have always enjoyed working with livestock and the challenge of making them better through selection. Each fall is like Christmas coming early for us as the new calves are born followed by the lambs in the spring. We really like our animals and provide them the best care. Our farm has been pasture-based since its inception and we have continued to develop our skills as graziers. We have come a long way and still have more to learn about efficient forage management. Now, we are taking a much broader view of our operation and finally we are considering the whole system (not just the parts we enjoy). Why did it take so long to include the soil as a vital part of our system? It should be the foundation for each and every decision we make. It is simply too important to be ignored. As we travel to our pastures daily we carry cattle records, temporary fencing supplies and have recently added a shovel. This allows us to look in on our soil's micro-herd and evaluate their condition. We like animals and now we have billions more to care for than ever before. It's exciting. We would like to invite other producers to join us as we continue "digging for answers" in our pasture".

Recent studies indicate that native grasses can be a useful “tool” for forage producers providing a good complement to tall fescue or orchardgrass and a low input alternative to bermudagrass. There are five species typically considered for forage production: switchgrass, big bluestem, little bluestem, indiagrass, and eastern gamagrass. While all have value for forage production, benefits and site adaptations vary by species. Below, I discuss each of these species and their more widely available cultivars.

Switchgrass—This may be the most familiar of the native grasses to producers because of the attention it has received as a potential bioenergy crop. Switchgrass is very productive, typically yielding more than 5 tons per acre. In a recent UT trial, single harvests of switchgrass yielded 3.5 and 5.5 tons per acre at early boot (late May) and early seed head (mid to late June) stages, respectively.

There are two basic types of switchgrass – upland and lowland. Lowland cultivars (*Alamo* and *Kanlow* are the two most common and are widely available) are taller and stemmier, yielding about 25 - 50% more than many upland cultivars. *Alamo* and *Kanlow* are very similar and the main distinction in terms of choosing which to plant is latitude. Growers from Kentucky north should consider the more cold-hardy *Kanlow*. Growers from Tennessee south will be better off with *Alamo*. Lowland cultivars, as their name implies, are adapted to very wet sites producing acceptable yields where other common production grasses will not survive.

There are many upland cultivars of switchgrass, but the highest yielding and best candidate for forage production is *Cave-in-Rock*. Like other upland switchgrasses, it has finer leaves and is less stemmy than lowland cultivars. Yields typically will be 10 – 20% lower than that produced by lowland cultivars.

In terms of forage quality, switchgrass can become stemmy, especially the lowland cultivars, but it is readily grazed by cattle and produces summer gains of 1.5 – 2.0 lb/day on steers. Carrying capacities (at 60 units nitrogen per acre) exceed 2000 lb per acre during May and June. Together, these attributes may make switchgrass the best option among the natives for overall forage production. Rates of gain are at a desirable level for backgrounding and heifer development, and the abundant growth allow for maintaining large numbers of cow-calf pairs during summer droughts. Indeed, switchgrass may be the most drought tolerant of the natives. Economic analyses conducted at UT indicate it provides the best returns and cheapest gains among native grasses. **Big bluestem** — Among the natives, big bluestem is the most preferred by cattle. Yields are not as high as switchgrass with annual production (one to two cuts per year) at about 4 tons per acre. This species has fine, leafy foliage, especially *OZ-70* and *Rountree* cultivars. These two cultivars do well from Tennessee north with *Earl* (a Texas origin cultivar) being better adapted to conditions in the Deep South. There are a number of very desirable local ecotypes being produced by seed growers including *Mammoth*, *Karst*, and *Prairie*. *Kaw* is an Oklahoma origin cultivar that also does well in the eastern US.

Big bluestem produces excellent forage with steers gaining 2.0 – 2.5 lb/day throughout the summer. Carrying capacity for big bluestem is only about two-thirds of that produced by lowland switchgrass (1000 lb per acre during May and June). Big bluestem can grow on a wide variety of sites, but does not do as well on wet

sites as switchgrass. It does best on moderately to well-drained sites. It grows well in blends with indiagrass and little bluestem and such blends can be managed compatibly for pasture or hay. For producers interested in heifer development or backgrounding steers, it is likely the best option because of the exceptional gains it can produce. It also would be the best choice for producing hay for the cash market.

Little bluestem —Little bluestem produces the less forage than the other species mentioned here. However, it has the advantage of doing well on particularly poor sites and, compared to other natives, is easily established. Therefore, it also can be a good complement in blends with big bluestem and indiagrass by filling gaps in the stand where soil is poorer or establishment was not as successful. The most widely available cultivar is *Aldous*, although there are a number of other options available including some desirable local ecotypes. On dry ridges or other sites with thin or degraded soil, a blend of little bluestem and indiagrass will be the best option for forage production.

Indiagrass — Compared to big bluestem, indiagrass is somewhat more productive (about 5 tons per acre annual production based on one to two cuts per year), its leaves are not as fine, and it is slightly stemmier. Indiagrass is an excellent forage, being only slightly less preferred by cattle than big bluestem. Like little bluestem, it is one of the easier natives to establish. The better known cultivars that do well in the eastern US are *Rumsey* and *Osage*. *Americus*, a new release based on southern genetics is well-adapted to the Deep South. Additionally, there are several relatively new local ecotypes on the market that may provide better adaptation based on their origin and include, *Boone* (KY origin), *Prairie* (IN origin), and *VA* (VA origin).

Typically, steers do about as well on this species as they do on big bluestem with gains exceeding 2 lb per day. Carrying capacity is somewhat higher than that of big bluestem though, at about 1200 lb per acre at peak, early summer growth. Indiagrass is less tolerant of wet sites than big bluestem. It can grow on a wide variety of soils, being intermediate between big and little bluestem in terms of its tolerance of poor soils. Like big bluestem, it is an excellent choice for backgrounding steers or heifer development and grows well in blends with that species.

Eastern gamagrass —In terms of yield, carrying capacity, and drought tolerance, eastern gamagrass is comparable to switchgrass. However, it starts growing earlier in the spring and sustains production in late summer better than the others and, unlike the other natives, is very responsive to nitrogen. There are three relatively common cultivars: *Pete*, *Iuka*, and *Highlander*. The first two are similar and have finer leaves and lower yields (about 25% less) than *Highlander*. All three cultivars do well throughout the eastern US.

From a quality standpoint, studies at UT indicate gains (steer weight basis) of about 1.4 lb per day are reasonable. In terms of carrying capacity, a UT trial in which no nitrogen was applied supported stocking of more than 2000 lb per acre with *Highlander*. Like lowland switchgrass, eastern gamagrass can tolerate very wet sites. On the other hand, it is not as tolerant of poor sites as the other natives discussed here. Because of the modest rate of gain for this species, it would not be as desirable



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Upcoming Events

Spring Forage Field Day
Ronnie Nuckols' Farm in Goochland County
Crozier, Virginia
April 21, 2015
www.vaforges.org

Annual Tobacco Field Day
Southern Piedmont AREC
Blackstone, Virginia
July 29, 2015
makenny@vt.edu

2015 Annual Forage/Livestock Field Day
Southern Piedmont AREC
Blackstone, Virginia
July 30, 2015
cteutsch@vt.edu

2015 Family and Farm Day
Southern Piedmont AREC
Blackstone, Virginia
September 12, 2015
makenny@vt.edu



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Virginia Forage and Grassland Council's Forage Producer of the Year Award

Sponsored by: Southern States Cooperative

McIntire Cattle Company

Andy McIntire of McIntire Cattle Company, Inc. is the Virginia Forage and Grassland Council's 2015 Outstanding Forage Producer of the Year. Along with the recognition, plaque, Andy will receive \$500 from the award sponsor. Andy McIntire, owner of McIntire Cattle Company, operates an 85 head beef cow/calf operation on 175 owned acres in Clarke County along the Shenandoah River. The farm is predominantly fescue based, but also contains orchardgrass, bluegrass, and perennial rye grass. Andy has been very active in trying new and different ideas on his farm, including rotational and mob grazing and grazing summer annuals. Andy annually stockpiles around 100 acres



of fescue for winter grazing, and reserves 25 to 30 acres of leftover grass from the spring for use as summer stockpile. During all of 2011 hay was fed for only 45 days, and Andy believes if not for the drought during the summer that inhibited growth for the fall stockpile, he would have made it through the entire winter without feeding hay. "Every bite of grass that a cow takes will always be cheaper than a bite of the cheapest hay" notes McIntire, who quit making hay in 2008 when the cost of making hay began to hit home. That year, to get his mower greased up and ready to go it cost \$1100 before the first blade of grass was cut. Then before he had finished the first round, the gear box went out of the mower and was going to cost \$3000 to fix. Andy decided then he was not going to make any more hay and was going to look at grazing options. He contacted the Lord Fairfax Soil and Water Conservation District and NRCS to develop a conservation plan for his farm.

Andy voluntarily installed Best Management Practices excluding livestock from 12,000 feet of streams and creating streamside buffers. Andy installed over 10,000 feet of interior fences that created eight permanent paddocks to rotate his cattle. A well was drilled and over 4000 ft. of pipeline laid to supply three tire troughs with clean water for his livestock. While installing the pipeline and troughs, Andy worked with a federal archeologist to protect prehistoric Native American sites discovered on his farm.

After fencing all of the streams, installing the water troughs and many of the cross fences, Andy began rotating cattle through the system. The fertility of the soil was low and Andy didn't want to apply expensive commercial fertilizer so he looked for other ways to obtain the stand of grass he needed. He had been

green grass soon returned in fields previously having thin stands. From increased knowledge and experience with his system, Andy now varies the stocking rate from a minimum of 50,000 lbs./acre/day to a maximum of 75,000 lbs., and averages 60,000 lbs/acre/day.

Andy worked with an NRCS grazing specialist in 2011 to develop a prescribed grazing plan for the 175 acres at the river farm. Animals are moved daily. 70 acres of former cropland is used for production and grazing of summer annuals. Winter rye is planted on part of this acreage in the fall for winter and spring grazing. With the eight permanent paddocks, Andy can create 91 paddocks with the use of polywire. This allows him to rest his pasture for three to four months. Andy noticed that these long rest periods allowed less competitive grasses such as timothy and brome to return. Since implementing this system, Andy has not made any hay and has saved thousands of dollars. Previously Andy spent over \$3,000 per month feeding hay and fed hay an average of six months out of the year - four to five months in the winter and one to two months in the summer. Andy believes reaching his goal of zero hay this winter will save him at least \$18,000.

Andy realizes the importance of protecting his sod. He unrolls hay so that no concentrated feeding areas exist, and the locations are moved with each new bale. Andy notes that "unrolling hay is one of the best things you can do to improve your pastures". A five acre field is used as a sacrifice area during heavy snows and periods of extended wetness, and a 21 acre field is used for calving and breeding. Both fields are rested for several months, always allowing the grasses to mature and reseed to rejuvenate the stand.

Andy has a current nutrient management plan on his farm and reduces fertilizer costs by taking soil samples and adopting new management practices. Because nutrients are recycled and legumes comprise 25% to 30% in much of the grass stand, Andy has not applied any commercial fertilizer to his pasture since 2009. Since converting to managed grazing, Andy has stopped clipping his pastures and has noticed that the ground stays cooler and moister during hot dry weather. Andy has noticed an increase in wildlife, particularly the wild turkey population which nearly doubled in the last 3 years.

A grazing program was held at Andy's farm in 2011 to describe the new practices and management techniques he has adopted. It was the most successful educational meeting NRCS and Lord Fairfax have ever held with nearly one hundred people attending. to learn about the benefits of making less hay, stockpiling grass and feeding less hay, and rotationally grazing cattle through a managed grazing system. Farmers attended from Pennsylvania, Maryland, West Virginia, and Virginia. Andy still receives numerous phone calls and questions about his successful methods from others, and he is always willing to describe to farmers what has worked for him.

Because of the numerous best management practices that Andy installed and successfully manages at his farm, the Lord Fairfax Soil and Water Conservation District presented him with their 2011 Clean Water Farm award. Over the past decade, Andy has fully implemented an intensive rotation system on this entire farm, he uses a variety of forages through the seasons, manages his grazing animals for better forage quality, uses many different information sources to adjust his techniques, and finds success from his efforts. Congratulations on being the VFGC 2015 Outstanding Forage Producer.

Efficiency the Holy Grail

By: Carl C. Stafford

Efficiency is the holy grail of business and in agriculture farmers are regularly concerned with this measure. Be it maximum economic yield in crops or feed to gain ratios in livestock, reported as feed conversion in which chickens rank first when measured by pounds of feed required per pound of gain. Commercial beef cattle producer's efficiency interests are in calf weight as a percentage of cow weight. Small cows have been known to excel at this and the biggest cows have a bigger job to compete on a percentage of body weight comparison.

Some efficiency measures come directly from genetic differences in plants and animals. A cattle breeder for example has been able to measure feed intake and the resulting gain to generate an expected progeny difference (EPD) for feed efficiency. The idea behind feed efficiency would be to select cattle gaining the same but while eating less feed. This translates into a lower cost of production and puts value on this genetic trait.

The Beef Cattle Improvement Association (BCIA) held its 57th annual Bull sale at the Culpeper Agricultural Enterprises, Saturday December 13. 60 bulls made the sale, representing the top two thirds of a larger group consigned by 13 breeders. Bulls ranged in price from \$2400 up to \$12,000 each and averaged \$5044. A number of them left the state. At sales end when the buyers lined up to load out I noticed one producer who stood out from the rest. I went over the chat with him. You see, he looked to be efficient as his hauling rig was probably worth less than the average price paid for bulls in the sale. When I complimented him on this apparent efficiency, he allowed as how "dad always said an efficient operation always looked a little thread bare". This seems about right as I know of many other examples like this.

In other articles I have addressed little efficient cows, the kind you would not pick in a judging contest until the calf was brought into the ring. I have described the work of a Kansas State economist who characterized the most profitable beef producers. Being big is one criteria but also being capable of cutting your biggest expense is another. Cutting the biggest cost with less costly production helps smaller producers compete on efficiency. In other articles income producing assets have been discussed. Improved, adapted, proven livestock, certified seed, improved varieties, soil fertility, fencing, cattle working facilities all count under this heading. Bull cost per calf sold has been described as one of your smallest costs in producing a calf – more money is spent on diesel. And finally in today's example, being a little thread bare can be one indicator of efficiency.

In this example the producer was allocating money to an income producing asset. And, when comparing what he spent on the bull to what he had in truck and trailer value, the bull was about equal to the hauling rig – a good ratio it seems. So despite bulls costing more today, you spend more per calf on other inputs and bulls are income producing while improving genetics if adapted to our environment, and they give us a chance to take some well-deserved pride in our progress.

Carl Stafford is an Extension Agent in Culpeper County.

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

Teutsch Receives Medallion Awards

By: Margaret Kenny

Dr. Chris Teutsch from Virginia Tech, Southern Piedmont Agriculture Extension and Research Center and of Virginia Forage and Grassland Council received the Medallion Award. The Medallion Award is the highest recognition given by AFGC. The recipient received an engraved medallion and plaque. Only one such award is presented annually. The recipient of the AFGC Medallion Award must be a member of AFGC and have made such outstanding contributions on behalf of forages and grasslands and the AFGC to have earned national recognition for work in research, teaching, extension, or industrial development.



Chad Hale, AFGC president presents Chris Teutsch with AFGC's Medallion Award.

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for stockers or heifer development as the other species. However, because of its high carrying capacity, eastern gamagrass can be a very useful grass for providing forage during prolonged droughts. Producers with access to inexpensive forms of nitrogen (poultry litter, dairy effluent, municipal sludge), could experience considerably higher gains and carrying capacities given this species ability to respond to fertility.

Consideration of the site adaptations, available cultivars, and attributes of these species can allow producers to identify options among native grasses that may be best suited to their operation. Additional information is available at the UT Extension publications website by entering the term "native warm-season grass" into the search engine: <https://utextension.tennessee.edu/publications> or visit the website for the Center for Native Grasslands Management: <http://nativegrasses.utk.edu/>.

Managed Grazing, Annual Forages and Soil Health!

By: J.B. Daniel

Improving soil health in grazing systems has been a common theme over the last few years. If you attended the VFGC Winter Forage Conference in January, you heard Mr. Johnny Rogers deliver one of the most practical soil health presentations ever presented. Johnny explained how he uses practical management techniques to implement the 4 soil health principles on his farm. Johnny is unique in his technical understanding and practical implementation of soil health building management techniques that are proving successful in his grassfed and finished livestock operation. If you were not present to hear his presentation, then you need to go to the VA Forages You Tube channel and watch it, in its entirety at <https://www.youtube.com/user/VTForges>.

Although Johnny has accomplished great things on his farms in Roxboro, NC, he is not alone. Many of you have personally experienced the increased vigor and productivity of the forages in your pastures directly attributed to your intentional changes in pasture and grazing management. For the remainder of this article I want to focus on just one of many proactive graziers who has transformed his cattle operation into a highly productive forage and livestock system.

Mr. Ronnie Nuckols operates a beef cattle operation on approximately 115 acres of pasture at his farm in Crozier, VA, in Goochland County. Since Ronnie took over management of this farm in the last few years, he has been able to make significant changes. Ronnie began networking with a small group of graziers in the Powhatan and Goochland area. He sought information and technical assistance from Extension, the local farmers cooperative and installed a conservation grazing system with help from the Monacan SWCD. By late 2013, Ronnie was plugged into the Virginia Forage and Grassland Council (VFGC) and attended the Beginning Grazer School followed by a stockpile fescue strip-grazing field meeting. After these events Ronnie contacted me and invited me to his farm since it was close to our state office.

After visiting the farm in June 2014, listening to his questions and briefly discussing his goals, he was interested in fine tuning his grazing management and using certain forage species to boost production and provide more grazing days during transition seasons. He had one 9-acre Teff hay field that he was interested in testing some annuals to meet his goals while possibly improving soil health. Based on Ronnie's goals, his willingness to try different things and to share what he learned with the farmers in the region, the VFGC partnered with him, the Monacan SWCD, Extension, NRCS and the local agribusiness to conduct an on-farm grazing demonstration.

Ronnie planted five different plots across the 9 acre field with the assistance of the Monacan SWCD and multiple seed dealers. The demonstration was planted and fertilized in September, then grew well until the beginning of November. A fall field meeting was held with short notice on



November 4th and approximately 40 participants attended. With the yearling heifers strip-grazing across the plots, everyone walked across the field as each mixture was evaluated.

The annual forage mixes ranged from two very diverse mixtures including six species from three different functional groups, compared to three other simple mixtures with 3 species or less. Each strip was designed to provide fall growth for early winter grazing and species that would regrow in the spring for another graze in April. Each strip was sampled in late October and the nutritional analysis was high across treatments ranging from 25-33% crude protein and 70-75% total digestible nutrients. Average forage height was measured across treatments and samples were cut and dried to estimate dry matter yield. The yield varied between 1,450 and 2,400 lbs. across treatments, although the samples were not replicated. All treatments provided plant species diversity capitalizing on different plant structure and leaf shapes to maximize the solar panel, while the roots had different structures and provided various simple sugars in root exudates to feed the microbe population in the soil.



Participants were interested in seeing these plant species growing in mixtures for forage and grazed by the livestock instead of just being used as a cover crop. In this demonstration the plant mixtures are providing ground cover, minimizing soil disturbance, energizing the system with diversity

and maximizing living roots longer through the grazing year. These heifers strip-grazed the 9 acres of mixed annual forages for 38 days, between November 3rd and Dec 10th. The forage provided a very high quality fresh feed for the heifers prior to breeding. The plots are scheduled for a nitrogen application in March after green-up to grow and graze again in April.

Mark your calendar and join Ronnie Nuckols, the VFGC and all the local partners involved at the spring forage field day scheduled for Tuesday, April 21st, to see Ronnie's entire operation for yourself! More details will be communicated about this event soon.

Provided by: J.B. Daniel, USDA-NRCS Grassland Agronomist and member of the VFGC Board.



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Environmental Regulation of Agriculture: The Des Moines Water Works Issue

By: **Jonathan Coppess**, Clinical assistant professor, Department of Agriculture and Consumer Economics, University of Illinois, on February 3, 2015 in **Agriculture, Environment**

On Jan. 9, the Des Moines Water Works (DMWW) sent a letter to three drainage districts in Iowa providing 60 days' notice that it intends to sue over nitrates in the water bodies that make up much of the drinking water supply for Des Moines. The threat of a lawsuit adds a new dimension to the ongoing debate about the environmental regulation of agriculture. This article takes a closer look at the issues raised.

Background

As discussed previously, the Clean Water Act (CWA) was designed to protect, restore, and maintain the waters of the United States, mostly by prohibiting the discharge of any pollutant from a point source without a permit issued under the National Pollutant Discharge Elimination System (NPDES). In general, the NPDES system of permits restricts or limits the amount or concentration of pollutants discharged from point sources into navigable waters. (See, *S. Florida Water Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 102 (2004)). Agricultural stormwater discharge and return flows from irrigation agriculture are not considered point sources and thus there is no requirement for NPDES permits for discharges. (See, *Fishermen Against the Destruction of the Environment, Inc. v. Closter Farms*, 300 F.3d 1294, 1297 (11th Cir. 2002)).

For CWA purposes, the potential DMWW lawsuit would test the agricultural stormwater discharge exemption for water flowing through tile drained farmland. According to the DMWW letter, drainage districts were created by law to construct, administer and maintain levees, drains, and drainage tiles. They are typically managed by a county board of supervisors and costs are covered by levying assessments on property owners within the district. Drainage tiles are below the surface and drain water out of fields into open ditches and streams.

Section 1365(a)(1) of the CWA allows any citizen to bring a lawsuit under the CWA "against any person, including the U.S. government or other governmental instrumentality for an alleged violation of an effluent standard or limitation or an order issued by EPA or a State." (33 U.S.C. 1365(a)(1)). The person seeking to sue must give 60 days' notice and a citizen is defined as a "person or persons having an interest which is or may be adversely affected." (33 U.S.C. 1365(g)).

Discussion

Likely the main issue raised by DMWW under the CWA is whether water carrying nitrates as it flows through drainage systems constitutes "agricultural stormwater discharge" that is exempted from permitting requirements. This appears to be an unexplored issue in the law and the following discussion is merely an initial look. It is not meant to explain how a court might rule on the lawsuit should it be litigated, nor is it intended to offer an opinion about the merit of the issues raised or the lawsuit in general.

It is clear under the statute, regulations, and court decisions that point source discharges require NPDES permits but that agricultural stormwater discharges are excluded from the definition of point source and do not require an NPDES permit. (See, 33 U.S.C. §1362(14), 40 C.F.R. 122.3, and *Closter Farms, Inc.*, 300 F.3d at 1297). This is the key issue for any citizen's suit under the CWA,

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As I begin my duties and responsibilities as the next President of the Virginia Forage and Grassland Council, I would be remiss if I didn't take time to thank our immediate past President, Patty Johnson. Patty has done an outstanding job leading our Association for the past two years. Her dedication and efforts to continue the strong strength of purpose for the Association certainly deserves mention, as she finishes her time at the helm of VFGC. Thank you Patty!!! I look forward to your continued help, support and guidance as I take on my responsibilities as the next President of VFGC.

The month of February as proven to be a very busy and successful month, for VFGC. We have successfully completed our winter forage conferences at four locations across the state. Over five hundred participants were able to learn more about "Red Meat, Forages, and Human Health". Those in attendance were able to gain a better understanding of the total interrelationships of forage production, red meat production, and how they both influence the food we eat and our daily health.

Thank you to all who attended this year's conferences. We hope you found them to be informative, educational and useful in your daily efforts, as you continue to produce and utilize forages in your farming operations. Thank you is also in order to all our sponsors of this year's conferences. Your generosity and recognition of the importance of forage production to Virginia Agriculture is certainly a valued asset that VFGC is very grateful for. Lastly, thank you to everyone who helped to put this effort forward. These challenges are put together by a strong group of volunteers who truly recognize the continued need for forage production and education. Once again, thank you all!!!

As we move forward VFGC has already begun to plan more educational activities for 2015. As plans progress, we will get information available to you, so you will have every opportunity to take part in these activities.

Hang in there, spring will be here before we know it.

Best Regards,
Jon Repair

Donate a calf to the Dr. Harlan E. White Memorial Scholarship Fund

With record high cattle prices, the Virginia Forage and Grassland Council is asking you to consider donating the proceeds from the sale of one calf this fall to the Dr. Harlan E. White Memorial Scholarship Fund. This fund has been established by the Virginia Forage and Grassland Council in memory of Dr. White and will be used to award scholarships to deserving undergraduate and graduate students to help train the next generation of forage and grassland specialists.

Dr. White's career was long and distinguished. He joined the Virginia Tech Agronomy Department in 1966 as an Extension Forage Specialist. In 1979, he was the driving force behind the formation of the Virginia Forage and Grassland Council which has grown to become a major voice for the forage and livestock industries in Virginia.

As livestock and forage producers, many of you personally knew Dr. White and there is a good possibility you attended a producer meeting or field day where Dr. White was a speaker. Many of you still utilize concepts that Dr. White developed such as stockpiling tall fescue for winter grazing. He pioneered no-till planting of forage crops and promoted the use of legumes in forage crops and pastures. He was a strong proponent of rotational grazing and advised countless numbers of graduate students in forages at Virginia Tech.

Dr. White dedicated his life to Virginia's forage industry. It is now time for us, the recipients of his knowledge and good works, to

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because if the water flowing through the tile system is considered agricultural stormwater then the exemption effectively blocks any citizen lawsuit under the CWA. (See, *Hiebenthal v. Meduri Farms*, 242 F.Supp 2d 885, 887 (Dist. Or. 2002)). In other words, if the exemption applies, there is nothing to maintain a lawsuit because there is no discharge from a point source requiring a permit; there is no case.

In its letter, DMWW argues that the water flowing through the drainage district systems is not stormwater discharge but is "artificially drained groundwater." Specifically, DMWW claims that the water is "conveyed by ground water, not by storm water" and that the exemption does not apply. (DMWW letter, pp. 7-8). According to EPA regulations, "storm water means storm water runoff, snow melt runoff, and surface runoff and drainage." (40 C.F.R. 122.26(b)(13)). The section of the regulation dealing with the exclusion states that "[a]ny introduction of pollutants from nonpoint-source agriculture and silvicultural activities, including storm water runoff from orchards, cultivated crops, pastures, range lands and forest lands" does not require an NPDES permit. (40 C.F.R. 122.3(e)).

There are two areas of CWA case law that may shed some light on this discussion. The first involves how courts have treated discharges from Confined Animal Feeding Operations (CAFO). The same provisions that provide an exemption for agricultural stormwater discharge explicitly remove from that exemption any discharge from a CAFO. In other words, discharges from CAFOs are not exempt and must have an NPDES permit. The second involves return flows from irrigated agriculture which is also exempted from the definition of point source.

For CAFOs in general, a discharge falls under point-source pollution and is subject to an NPDES permit. The CAFO rule and NPDES permit requirements also apply to the application of wastes to land areas under control of the CAFO unless "it is an agricultural storm water discharge." (40 C.F.R. 122.23(f)). Such "precipitation-related" discharges are considered an agricultural stormwater discharge so long as the application was done in accordance with a nutrient management plan. The U.S. Court of Appeals for the Second Circuit has looked specifically at "whether the liquid manure spreading operations fell within the 'agricultural stormwater discharges' exception to point source discharges" under the CWA. (*Concerned Area Residents for the Environment v. Southview Farm*, 34 F.3d 114, 115 (2nd Cir. 1994)). It decided that the "collection of liquid manure into tankers and their discharge on fields from which the manure directly flows into navigable waters are point-source discharges." (*Id.*, at 119). The court was sorting out whether the particular discharges in the case were caused by precipitation or just happened to occur on rainy days. It found that it was reasonable to conclude that the discharges were "primarily caused by the over-saturation of the fields" with manure and waste and "were not the result of rain." (*Id.*, at 121).

Ten years later, the Second Circuit revisited the agricultural stormwater discharge issue with regards to the CAFO rule. (*Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 507 (2nd Cir. 2005)). Under the CAFO rule, "precipitation-related" discharges involving land application of CAFO wastes are considered an agricultural stormwater discharge so long as the application was done in accordance with a nutrient management plan. (40 C.F.R. 122.23(f)). The court looked closely at the different treatment for land application by a CAFO (point-source discharge) compared to a precipitation-related discharge where the application had been within the nutrient management standards (nonpoint-source

discharge). The court decided that EPA's rule was a reasonable reading of the CWA provisions. (*Id.*, at 507). According to the court, Congressional intent was to make clear the "impropriety of imposing on 'any person' liability for agriculture-related discharges triggered not by negligence or malfeasance, but by the weather—even when those discharges came from what would otherwise be point sources." (*Id.*) The second area that might shed some light is the exemption language that applies to return flows from irrigated agriculture. The U.S. Court of Appeals for the Eleventh Circuit has concluded that any water used in the agricultural irrigation process is classified as return flow and thus can be discharged without an NPDES permit. *Fisherman Against the Destruction of the Environment, Inc. v. Closter Farms, Inc.*, 300 F.3d 1294, 1297-98 (11th Cir. 2002). A case recently litigated in the District Court for the Eastern District of California appears to be testing the limits of the irrigation return flow exception, specifically as it applies to a tile drainage system under farmlands in the Central Valley that drain groundwater as well as irrigation water. (See, *Pacific Coast Federation of Fisherman's Assns. v. Glaser*, 2012 U.S. Dist. LEXIS 124720 at *4 (Aug. 30, 2012, E.D. CA)). In one ruling the court indicated it is willing to let the case go forward to determine whether there are discharges in the tiles that are unrelated to agricultural crop production. (See, *Pacific Coast Federation of Fisherman's Assns. v. Glaser* 2013 U.S. Dist. LEXIS 132240 at *39 (Sept. 16, 2013, E.D. CA) (the exemption "covers discharges from irrigated agriculture that do not contain additional discharges unrelated to crop production.")).

Conclusion

The cases discussed in this article highlight the issues raised by DMWW but in no way dispose of them. Far from providing guidance or clarity, these cases indicate the challenge for courts in addressing environmental regulation of agricultural production under the CWA. The potential DMWW litigation would raise an issue as to whether the water flowing through drainage systems has arrived there due to storms and precipitation, or whether it is merely groundwater; it could question if there is even a difference. Such a lawsuit may require determining how much water in the system is due to precipitation and how much is not. At this stage it is far too early to know, but should the litigation proceed it will be watched closely.

Legal dissection of words and phrases, however, seems unsatisfactory; it obscures a bigger issue. It seems too easy—too convenient—to blame farmers for the nitrate problems in Des Moines. The farmer is putting nitrogen on the fields; nitrates are in the drinking water. The farmer, however, has no interest in putting nitrogen into the water supply; he or she has no control over the rains and lost nitrogen is also a loss to them because it doesn't feed the growing crops. How much of this is beyond the farmer's control? Collectively through markets and policies we are telling farmers to produce more and more corn to feed livestock and nine billion mouths, to help solve energy challenges. At the same time, it isn't fair that the citizens of Des Moines or any other place should have pay to clean nitrogen out of their drinking water so that farmers can provide for this ever-more crowded planet. The bottom line here may well be that any such lawsuit is an indicator of failure: a failure of policies and people to find better solutions to common problems. The farmer loses when nitrogen washes into the drinking water supply, and so do the citizens who pay for cleaning that nitrate out of the water so they can safely drink it. If ever there was an issue begging for smarter policy solutions, this is it.



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Red Meat, Forages, and Human Health

Red Meat, Forages, and Human Health was the theme for the 2015 VFGC Winter Forage Conferences, based on the numbers it was a subject of interest to many. Attendance totaled 484 for the four venues across the state. Peter J. Ballerstedt, PhD, Forage



Production Manager for Barenbrug USA was the keynote speaker. Dr. Ballerstedt's presentation focused on dietary policy in the United States and how its negative economic impact on livestock farmers.

In his first presentations Dr. Ballerstedt asserted that today's low fat/high carb dietary guidelines actually are less healthy than a diet

based on animal products. He referenced literature reviews and studies to back up this argument, continuing to state that policy makers are aware of these reviews and studies, but continue to promote the low fat/high carb diet. This policy has been in place since 1977 and the rate of obesity in adults has doubled in the

last 20 years, it has almost tripled in children ages 2-11, if this trend continues one in three babies born today will develop diabetes in their lifetime.

In his second talk of the day, "Red Meat is Green", Dr. Ballerstedt pointed out some of the reasons he judges dietary policy has not followed the science. In the late 80's the terms "healthy diet," "organic, and sustainable" were terms that became directly related to a plant based diet that is low in fat and high in carbs. Today in the face of scientific studies that do not support the current policy of a low fat, low animal product diet, Dr. Ballerstedt believes sustainability has become the impetus for current policy. In 2014 the USDA was directed to review the current scientific and medical knowledge and to update dietary guidelines if necessary. Dr. Ballerstedt asserted that despite the available science he believes disputes the current policy, the committee focused on how animal production damages the environment, which he believes is a separate question, and one where forage production and animal agriculture have many positive effects.

Ballerstedt Page 6

VFGC Website Update

By: Dennis Jones

The VFGC website has moved to a new host and its look and function's have been updated with service from the Downstream Project and its director Bill Howard. New to the site is a blog where articles, research, helpful charts and forms, and other information can be posted. If you have information pertaining to Forages submit it to info@vaforages.org for review and posting to the site.

Also new is a forum where website visitors can post comments and questions on forum topics. The forum is located under the Mentor tab. Individuals will have to register to comment or ask questions in the forum. Email ideas for topics to info@vaforages.org. Events can also be submitted for inclusion on the calendar of events and the blog. As with the blog and forum, events will be reviewed before posting. This process is being used to prevent spammers and others

from hijacking the site. The Mentors tab has contact information for experienced grazers that have committed to mentoring beginning-grazers. If you are starting out grazing, or want to try a different grazing method, these individuals can help.



VFGC members and those wanting to join the VFGC can now sign up and pay dues online. Just follow the instructions under the Join Us tab. In the future you will also be able to sign up and pay registration for VFGC events online.

When you visit the site you will realize VFGC is still working to fill the site with helpful information for Forage growers. Send us your helpful ideas and comments, sign up for email alerts when new information is posted to the site. Please remember, your input can help.

Dennis Jones is a VFGC Secretary USDA, NRCS Retired

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