

MOUNTAINS-TO-BAY GRAZING ALLIANCE



News & Notes from the Mountains-to-Bay Grazing Alliance

December 2017

The Importance of the Soil Ecosystem to Grazers The Good and the Not-so-good in Meats and Dairy

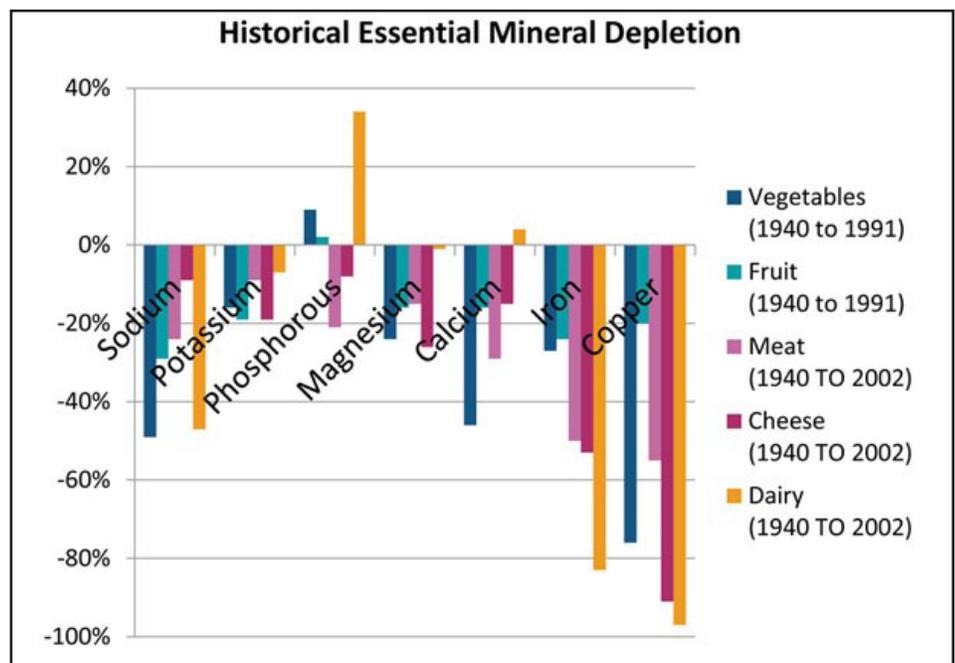
by Nicole Master, Director, Integrity Soils

Nicole will be a featured speaker at the upcoming Regional Grazing Conference on January 11 and at the Future Harvest Conference on January 12. See the calendar section for more details about these conferences.

What is the purpose of agriculture? In a nutshell, it's to produce food and fiber for people. Food quality, however, has been in decline since 1940 across the developed world (e.g., see figure to right). Records show a loss between 30 to 60 percent in mineral values, trace elements, vitamins, amino acids, and essential fatty acids. With this trend, can modern agriculture truly say it's fulfilling one of its core purposes?

Historic figures for mineral content have been in decline despite our increased knowledge around nutrition and animal science. Why? Well, there is no simple answer. Part of the story, however, likely lies with breeding and genetics, increased reliance on pesticides and soluble salt fertilizers, and grain feeding dairy and beef cattle.

But there is more to it than that. For example, many studies show increases in Omega 3 fatty acids and CLA (Conjugated Linoleic Acids, also believed to have beneficial health effects) in beef from a grass-fed diet. However, not all studies show significant differences in quality and nutrient density between grain and grass fed. Just as some of the highest



Thomas, D. "The mineral depletion of foods available to us as a nation (1940-2002)-a review of the 6th Edition of McCance and Widdowson." Nutrition and health 19.1-2 (2007): 21-55.

Graph from www.secondmessage.com

quality produce can come from certified organic and some of the worst.

So what makes the difference? It's all about management: management above-ground and management of microbes and minerals, below-ground. Just feeding grass, implementing

rotational grazing, using cover crops or mob stocking does not guarantee good nutrition for the animals or a high quality food end-product. I hear from many management intensive grazers (MIG) that their individual animal performance drops.

(article continues on page 2)

Taller grass with low metabolizable energy (ME), low protein, or rank pastures are not a given, they are telling you there is a biological and nutritional imbalance. I work with dairies who are using MIG with tall grass, high ME, high protein, high performance grass systems. Again, there are multiple factors at play. I'm inviting you to consider that although grazing management is your number one tool, it may not be what's putting a drag on your system. Sometimes as a system develops, grazing, which initially led to a bump in performance, may now create a declining cycle. Your ranch/farm is a dynamic ecosystem which requires you to be dynamic and flexible too. Understanding what drives nutrition and soil/plant performance is key.

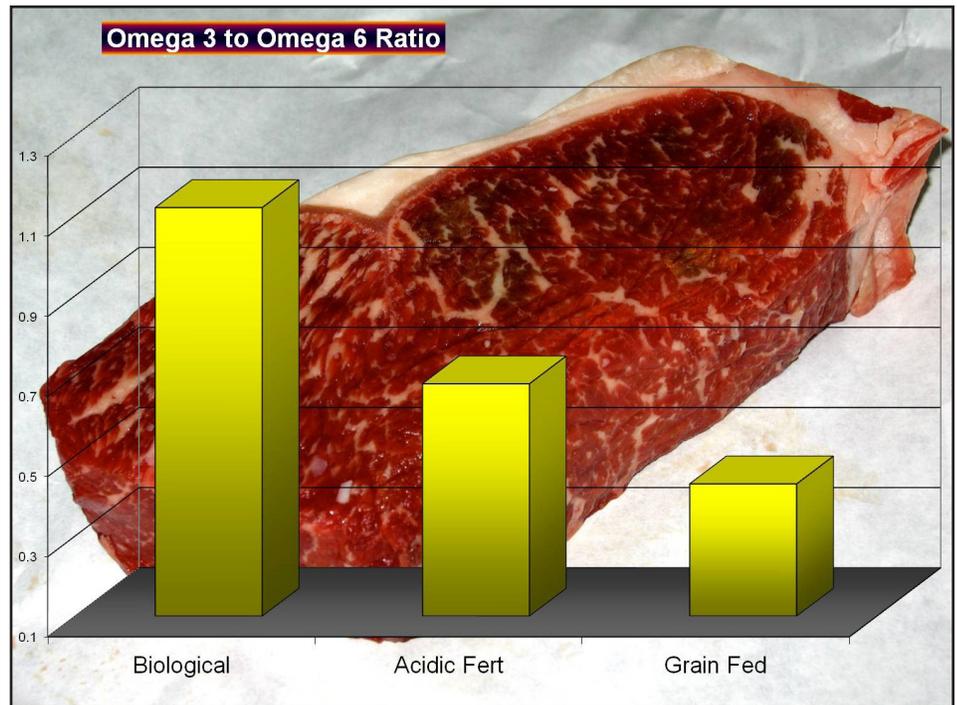
You are what you eat!

This graph to the right is from New Zealand data on Omega 3:6 ratios in beef and compares samples from farms using methods to build soils and soil microbiology (biological), versus grass-fed farms using conventional fertilizers (labeled "acidic fert"), versus grain-fed beef. As you can see, it's not just about grass fed per se, but a focus on soil and plant health that makes the biggest difference. [Click here to see Guelph University studies conducted on organic operations in Canada that found comparable results.](#)

Why do we want a 1:1 ratio of omega-3:omega-6? The Omega 3:6 ratio theory argues that the genetic makeup of human beings is adapted to a diet in which the ratio of 3:6 was around 1. In today's Western diets the ratio is 0.06 (and even lower in the U.S.). This imbalance is thought to contribute to a number of chronic diseases including heart disease, cancer, diabetes, obesity, autoimmune diseases, rheumatoid arthritis, asthma, and depression. Regenerative meat and milk can give producers a significant marketing edge with health conscious consumers.

How do we get nutrients back into plants and animals?

The main pathway for nutrition into plants and animals is through the microbial bridge. Having soil



Omega 3:6 Ratio in Beef under different feeding regimes, New Zealand.

and gut systems with intact, healthy biology ensures the uptake of optimal nutrition, secondary metabolites, enzymes, and vitamins.

I need to say this again: having functional soil systems, with diverse active microbiology is what ensures the uptake of optimal nutrition, enzymes, and vitamins to the plant and animals... and to us.

There are factors which can result in your soil micro-herd not functioning optimally. Actions which can disturb your underground workforce include most of our common modern farming practices; iicides, soluble fertilizers, compaction, bare ground, waterlogging, tillage, monocultures, overgrazing, etc. Maybe you're not doing any of these detrimental actions? If you are measuring low omega 3/trace elements and vitamins in meat/milk or having animal health/performance issues, pests, weeds, and diseases, it's time to look beyond optimal grazing. Address your limiting factors: is it minerals, microbes, management, or (dare I say), your mindset, putting a drag on your system?

The measure of a successful regenerative operation is the quality

of its outputs. There are many roads to Rome, be that cover crops, grazing systems, bio-stimulants, mineral catalysts, and more. You need a map to figure out if the road you're on is leading you towards less potholes, dead-ends, or long mountain passes.

Where are you now and where do you want to go?

Do you want to take your operation to the next level in terms of regenerating your resource, while producing optimal quality and performance? Start with a road map of testing and benchmarking to determine where your system currently is. If you don't know where you are, how do you know where to go? The lab tests we use include microbial biomass and diversity, soil minerals, carbon, and plant tissue tests. Test your meat/milk— this can be done at most food labs in the U.S.

You don't need to test every field or animal, and you don't need to test every year, what you want to see is changes in trends over time, hopefully in a positive direction! Do this testing now, and then you have tools to pick up early warning signs. And the other testing we recommend? A shovel and your eyes to back up what those lab tests are telling you.

'Micro' is Huge for Grazing Success

Two-day Grazing Workshops Spur Pilot Study

by Michael Heller, Chesapeake Bay Foundation

A recent Maryland Graziers two-day workshop really opened our eyes to some big opportunities we may be missing out on in our pastures. Soil Ecologist Nicole Masters of New Zealand led 40 farmers through a fascinating two days, helping us to better understand the soil ecosystems of our pastures. At the end of the workshop a group of farmers was so intrigued by what we learned that we have decided to do a pilot study on our farms. But wait, I'm getting ahead of myself.

The 'micro' in the title is referring to several different things:

1. **micronutrients** in the soil,
2. **microbiology** in our animals' rumens, and
3. **microbiology** in our soils.

On the first day of the workshop we learned about soil chemistry and the importance of the many micronutrients that play key roles in plant health and productivity. Most of the farmers had some understanding of this, such as the role Boron plays in supporting healthy cell membranes.

As pasture farmers, most were aware that Molybdenum is key in supporting healthy symbiotic nitrogen fixation by Rhizobia bacteria in legume roots,

and of the importance of Zinc to plant growth. But on the second day, Nicole talked about the biology of the soil and really caught our attention with the discussion on the importance of healthy, balanced soil microbial ecosystems.

Just as the Chesapeake Bay can have a lot of life but be a system out of balance (too much algae), the same is true of our pasture soils. A healthy soil microbial ecosystem is a key to unlocking nutrients found in the soil. The chart below from Ohio State shows that the nutrients in one percent organic matter in an acre of soil are worth about \$680. But the key is, can plants harness these nutrients?

It takes the underground graziers to make these nutrients available

This is really great to have all these nutrients in the organic matter, but in order to make these nutrients available a pasture needs a healthy, functioning soil ecosystem.

The soil biology consists of billions of living organisms per handful of soil; and key among them are the bacteria, fungi, protozoa, and nematodes.

We got a basic understanding of the relationships among these groups. We all knew about these groups of organisms, but most of us had never

really thought beyond the fact that most were good things to have.

We learned that the bacteria and fungi are important decomposers and also tie up and hold inorganic nutrients like Nitrogen and Calcium, which would otherwise leach out of the soil. The problem is that the bacteria and fungi will hold onto these nutrients unless they are consumed and the nutrients released. This is where the nematodes and protozoa come in and play a key role.

Nematodes (95 percent of which are beneficial) and protozoa are like the underground cattle that graze on the bacteria and fungi and release the nutrients they contain. Thus, protozoa and nematodes, along with fungi and bacteria, all play a critical part in the nutrient cycling that makes nutrients available to the plants in our pastures.

If the amounts of each of these groups is out of balance, then the nutrient cycling is less effective. This means plants in the pasture do not get to take advantage of many of the nutrients which might be present in the soil.

Research has identified the roles that each of these biological groups plays in nutrient cycling. Less studied is the importance of the relative balance of each of these groups in the soil ecosystem. There are many questions about this balance, including how the balance might be different for different soil types and climates, or different for a pasture versus a woodland or cropland.

Potential Soil Treatments Are Not Expensive; But Are They Effective?

The prevalence of certain plants growing in a pasture can indicate an imbalance in the soil biology of the pasture, such as a lack of fungi or protozoa, or an excess of bacteria.

Value of Soil Organic Matter

Assumptions: 2,000,000 pounds soil in top 6 inches	
Nutrients	1% organic matter = 20,000# 50% Carbon, C:N ratio = 10:1
Nitrogen:	1000# * \$0.50/#N = \$500
Phosphorus:	100# * \$.70/#P = \$70
Potassium:	100# * \$0.40/#K = \$40
Sulfur:	100# * \$0.50/#S = \$50
Carbon:	10,000# or 5 ton * \$4/Ton = \$20
Value of 1% SOM Nutrients/Acre	= \$680
Relative Ratio of Nutrients:	100 Carbon/10 Nitrogen/ 1 Phosphorus/1 Potassium/1 Sulfur

Source: Ohio State University Extension, www.ohioline.osu.edu

(story continues on page 4)

Based on a simple introduction that we got to these indicator plant species, many of us have the impression that the soil ecosystems in some of our pastures are out of balance. So what can we do about it?

Nicole and her staff are currently consulting on 800,000 acres of farmland in four countries. The improved crop and pasture results that she described to us after the adoption of fairly simple use of inputs has made us wonder if these types of inputs might improve our pastures' forage quality and amount.

The inputs that are being

recommended include combinations of such materials as molasses, gypsum, fish extracts, sea salt, and humic acid; most in small amounts per acre at not a very great cost.

A strong emphasis is put on combining these treatments with carefully planned grazing management. There does not seem to be much research available that evaluates the effectiveness of such treatments. So a group of farmers in the Network has decided to undertake our own evaluation.

Nicole will work with us. By examining the pasture soil tests and

plant tissue samples from each farm, she will prescribe specific treatments for each pasture. By using control plots paired with each treatment, we hope to collectively gain a sense of the value of such treatments to help balance the soil ecosystems in our pastures; and more specifically, to determine whether these treatments improve our forage.

Our farmers will meet periodically to discuss our experiences and help each other work through our farm testing of the treatments. We are moving forward with a hopeful skepticism, and will keep you informed on the results through updates in this newsletter.

Farmer Profile: Glenn and Arlene Reid

by Bobby Whitescarver, Whitescarver Natural Resources Management

The newborn calf was in trouble. It was born on a steep hillside, and every time the calf would try to get up his mother would nudge him and knock him down. He eventually rolled down the hill into a muddy area of a stream. And there he was, stuck up to his neck until Glenn and Arlene Reid rescued him. "It took us over an hour to get the calf out of the muck," said Glenn.

The Reids own and operate a cow-calf operation, and also raise vegetables, flowers, and herbs for local markets in their greenhouses. After the muddy area almost took the life of one of their calves, they decided to make a change.

The Reids enrolled into the Conservation Reserve Enhancement Program (CREP) to fence their cattle out of the spring that created the muddy area. The program helped install fencing, a hardened crossing, and several waterers as part of a rotational grazing system. Trees were also planted along their stream.

"It is so easy now to move the herd, I can do it myself," Arlene says. "We used to have lots of help moving the cows when the children were young, but they are all in school now. So,

this rotational grazing has really helped us."

Keeping livestock out of calving risk areas and ease of herd movement throughout the farm are two reasons farmers enroll in programs that keep livestock out of springs, ponds, streams, and rivers.

Perhaps the most important reason farmers enroll in livestock exclusion programs is to have more watering stations throughout the farm. The Reids installed four watering stations and interior fencing to create six grazing paddocks. Prior to the CREP project, they had one big field. The smaller fields with access to water in each one, distributes grazing throughout the farm and allows pastures to "rest" and regrow. This equates to more forage for livestock to eat.

According to the Virginia Tech Extension publication "Controlled Grazing Virginia's Pastures," stocking rates of grazing animals can be increased by as much as 30 percent in a rotational system.

The Reid farm is in Virginia's Linville Creek Watershed, which is on the state's impaired waters list.



Glenn and Arlene Reid use rotational grazing on their Virginia farm to increase forage for their livestock and improve water quality to nearby Linville Creek.

"We didn't know the creek was polluted until we attended a meeting about it," Glenn recounted. Not long after the meeting the Reids met with members of the local conservation team to develop a plan.

"We enjoyed working with the team, they listened to our concerns and together we came up with a system that works for us and we feel good that the water leaving our farm is a lot cleaner than it used to be," Glenn said.

Analyzing Your Dairy Profits

by Dale Johnson, Farm Management Specialist, University of Maryland Extension

What price are you getting for a hundred pounds of milk? If you are like most dairy farmers, you know the price or you can get it by reviewing milk check receipts. Do you know how much it costs you to produce a hundred pounds of milk? If you are like many dairy farmers, you may not know. Dairy farming is complex, and determining your costs of production is sometimes difficult. Yet, your costs directly affect your profit, and it is important to understand them.

I encourage dairy farmers to calculate income and expenses on a per cow and a per cwt basis. This will give you good perspective on your profit, enabling you to analyze your efficiency. Each year, the University of Maryland Extension conducts the Maryland Dairy Farm Business Summary. Through this summary, we work individually with dairy farmers to calculate their income and expenses per cow and per cwt. Data from all farms participating are then summarized to determine average income, expense, and profit per cow or per cwt. This gives farmers benchmarks with which they can compare their farm.

The table below summarizes income, expenses, and profit per cow for 30 Maryland farms. It shows annual averages for three years, from 2014 through 2016. It shows the averages for seven organic pasture-based farms and 23 non-organic farms. It is interesting to note that although milk sales and total income per cow are much lower on organic pasture-based farms than non-organic farms, reduced costs on organic farms more than offset the lower income, giving the organic pasture-based farms a higher profit per cow. That profit is also more stable, as organic prices vary little compared to non-organic prices that fluctuated greatly from 2014 to 2016.

As you compare your farm to the averages, you may want to take a careful look at costs that are more than 20 percent higher than the average to see if you can improve your management of those areas of your business. If some of your costs are more than 20 percent lower than average, then these may be areas of strength in your business.

If you would like your farm to participate in this analysis to get a good financial summary for your farm, please contact Dale Johnson at or 301/432-2767, x325.

2014-2016 Average of Maryland Dairy Farms Income, Expenses, and Profit per COW

Analysis June 2017

	Organic Farms	Non-Organic Farms		
	7 Farms	Total 23 Farms	High 5 Farms	Low 5 farms
Average number of cows	76	135	167	152
CWT of milk sold per cow	78	213	208	235
Farm income				
Milk sales	2,858	4,218	4,192	4,615
Cattle sales	463	433	363	560
Other income	212	427	470	279
Total income	3,533	5,077	5,025	5,454
Farm expenses				
Feed purchased	632	1,342	951	2,046
Seed, fertilizer, chemicals	165	435	505	349
Depreciation and repairs	597	749	767	819
Labor	116	259	174	448
Medical and breeding	43	198	194	230
Car, Truck, Fuel, Hauling	163	367	363	338
Rent	106	169	197	92
Interest	120	131	161	100
Custom hire	140	233	220	232
Other expenses	418	558	426	699
Total Expenses	2,501	4,442	3,958	5,354
Profit per COW	1,032	635	1,067	101

Solar Unit Brings Water Closer to Cattle

by Vic Bradshaw • *Republished with permission of Lancaster Farming*

Agriculture and environmental leaders are touting a portable solar livestock watering system as a low-cost alternative water source, and they have units available for Shenandoah Valley farmers to try out.

Officials from the Chesapeake Bay Foundation and Virginia Cooperative Extension demonstrated the system for members of the media on October 5 at Buck Hill Farm.

The system drew water from a spring-fed pond on the 300-plus-acre northern Augusta County farm owned by Dave Horn, who has a 140-head cow-calf operation.

“The missing link to really good grazing is often water and the availability of water,” said Matt Kowalski, Virginia Watershed Restoration Scientist with the Chesapeake Bay Foundation.

The system pumped water about 600 feet with a 25- to 30-foot rise in terrain at a rate of about five gallons per minute. A trailer with three containers held 900 gallons of water while fresh water was pumped into the 700-gallon trough as part of the demonstration.

A float tied to a valve turns off the water once it reaches the desired depth.

The roughly 50 cows and calves grazing the area where the demonstration took place approached the trough cautiously and wouldn't drink at first. But once the water reached a certain level, they gathered around to drink.

Kowalski said the system cost the foundation almost \$6,000 to build, but many farmers can reduce that cost.

The main expense, he said, was the 270-watt solar unit, which retails for \$2,800. He described it as a “plug-and-play” unit that requires farmers to put the solar panels on a post or trailer facing the direction of greatest sun



exposure—usually south, attach color-coded wires to the pump, and then place the pump in the water source.

A hotwire also can be connected to the solar unit to provide temporary electric fencing.

Another \$2,000 was spent on the trailer, but Kowalski said many farmers would have one already and could save that expense. Pipes, valves, five trailer jacks used to stabilize the trailer in the hilly field, and IBC containers to collect water reserves accounted for the rest of the cost.

The containers were placed on the trailer uphill from the trough so it could be gravity-fed.

With 700 gallons in the trough and 900 more gallons in the containers, Kowalski said the system provided the herd enough backup to last one or two days.

He said that research has shown that cattle don't like to graze much more than 800 feet from their water source. The trough was placed in a spot near the middle of a 15-acre field divided into two paddocks.

Alston Horn, Field Technician with the Chesapeake Bay Foundation and Dave Horn's nephew, said the farm normally

gets one or two cuttings of hay off the field used in the experiment because it's about 1,700 feet from the nearest accessible water source. Allowing the cattle to graze the 15 acres provides an opportunity to rest other fields, he said.

“Hopefully by having the cattle in here and saving these other pastures, it will extend the grazing season,” Horn said.

Stockpiled forage, Kowalski said, often has better nutritional value than hay grown in the same fields. Grazing the land instead of making hay bales can also save time and expense in farming the land and moving the crop around as needed.

“Cattle are made to graze,” he said. “They're made to take advantage of the forage where it is.”

Dave Horn said the paddock grazed the previous month grew back greener than it had been.

Bringing water closer to the herd also is good for cattle.

“There are a lot of different advantages to it,” Kowalski said. “For the efficiency of the operation, cattle that are walking less far are going to put

(story continues on page 7)

on weight more often, and if they're drinking clean water they've got less health issues. So there's a myriad of reasons why we're excited about this."

In some places, he said, watering systems have been installed in areas where cattle haven't been excluded from creeks. He said the animals preferred to drink the clean water pumped to them, then stood in the creek to cool off.

The unit can also benefit farmers by allowing them to graze their land more efficiently, even on leased land. The unit's mobility allows farmers to buy a system without fear of losing the investment if they lose their lease.

Kowalski said farmers can regulate how they use water in the reserve tanks to prevent temperatures from getting too high or algae buildup. Cutoff valves at the bottom of the tanks can control water flows from the reservoirs.

The system can be transported from pasture to pasture. Alston Horn said moving the unit takes about two hours, with moving water lines the most time-consuming chore.

Horn said that in an emergency situation, such as a long-term power loss, the solar unit can be taken from the field to provide power where it's needed most.

Matt Booher, an Augusta County Extension agent, said the unit should provide a payoff within two or three years.

"Based on the additional forage that you would get, the additional efficiency of harvesting the pasture that's out there, it's very affordable for farmers to get," Booher said.

The portable system would also likely cost much less than drilling a well to provide a permanent water source, Alston Horn said. Though costs vary greatly, a well can run \$10,000 or more and getting electricity to the site can cost \$20,000 depending on the proximity to power lines.

The unit can also run off a generator if necessary.

Jenkins Farm in the Kerrs Creek area of Rockbridge County is one of nine farms to have tried the unit. Farm owner Brian Jenkins said he was so impressed that he invested in a system when his two-month trial period ended this summer.

A part-time cow-calf producer with 20 to 30 cows at a time, Jenkins said he used the system to replace a ram pump he was finding increasingly unreliable.

"You could spend a half a day making sure your water was still running," Jenkins said.

Now, his cattle have water in the two fixed troughs in the field, and Jenkins said he is hoping to be able to strip-graze the paddock his one-inch buried water pipes run through.

"If we hadn't put it in, it would have been a good mile walk for the cows to get a reliable source of water," he said. "It's pretty important for grazing land to get a reliable source of water for that section of the farm."

Jenkins said that he often had to move his cows into a different paddock when his previous pump failed. The system also didn't recharge quick enough, so the cows would drink the water down to a level that the calves' necks weren't long enough to reach.

Jenkins said he spent about \$2,000 for the solar panels and pump, and a bit more for fittings and some PVC pipe. The other infrastructure he already had in place.

"It was very simple," he said. "I'm getting a much better flow compared to what I had previously."

Alston Horn said the system used at Buck Hill Farm can pump water up to 1,000 feet and that the destination be no more than 100 feet above the water source.

The panels have a five-year warranty, he said, but they're expected to

last 10 years.

Horn left the pipe and wiring laying on the ground during the trial and used a bucket to keep the pump off the pond bottom. He initially used a 100 PSI pipe but found that the thin walls kinked up, so he switched to a 200 PSI pipe.

The mobile systems, Kowalski said, probably don't qualify for most state and federal cost-share programs because they're not permanent, though the foundation will likely provide technical assistance for such projects, including instructions on how its unit was built.

Alston Horn said that Continuing Conservation Initiative funding of \$1 per foot can be used to install permanent fencing to keep livestock out of water sources.

The foundation has one solar livestock watering unit in the Shenandoah Valley with three total units available for Shenandoah Valley farmers to try. Virginia Cooperative Extension and its partners have two more in the region and are considering building a third.

The goal is to educate farmers on the value of the system and demonstrate how it works, Kowalski said. After that, efforts will be made to spread it around the state and perhaps into other states.

Kowalski said the foundation is seeking farmers in the area, from Rockbridge County to Frederick County, to loan the units to for a season at a time. In exchange for its use, a farmer would be expected to exclude their livestock from the waterway and allow the farm to be used as a demonstration site.

"Ultimately, what we're hoping is that people see the benefits of it and will be looking to make the investment in one themselves," he said.

To apply for a demonstration-unit trial in 2018, contact Kowalski at 540/233-1066 or mkowalski@cbf.org.

Mountains-to-Bay Grazing Alliance Partnership



Virginia Events

VIRGINIA FORAGE AND GRASSLAND COUNCIL 2018 WINTER CONFERENCES

Monday, January 29 in Wytheville
Tuesday, January 30 in Chatham
Wednesday, January 31 in Madison
Thursday, February 1 in Weyers Cave

The conferences will highlight the realities of grassland farming and what it takes to adapt to changing circumstances. This year's keynote speaker is Dr. Dennis Hancock from the University of Georgia, where he is an associate professor in the Crop and Soil Sciences Department and the Forage Extension Specialist. Registration costs \$35 and can be completed at the Forage Council's website, www.vaforges.org.

VIRGINIA NO-TILL ALLIANCE WINTER CONFERENCE

Wednesday, January 31
8:00 a.m.–3:30 p.m.
Rockingham County Fairgrounds
4808 South Valley Pike
Harrisonburg, VA

This year's conference will focus on the economic impacts of no-till production. Two practitioners of no-till will share their experiences in developing profitable operations. Registration is \$10. To register, call 540/564-3080 or visit www.virginianotill.com.

"KNEE DEEP" GRAZING AND PASTURE MANAGEMENT WORKSHOP SERIES

Thursday, February 15,
Monday, February 19, and
Wednesday, February 21
Each session begins at 6:00 p.m.
with a light dinner
Harrisonburg, VA

This three-day series is designed for both beginning and experienced beef and sheep producers interested in grazing management. The last session will offer the opportunity to sit down with the instructors to begin developing a custom grazing plan. \$30 registration fee is due at the first workshop. R.S.V.P. to Matt Booher at mrbooher@vt.edu or 540/245-5750, or Rebecca Webert at rwebert@fcvirginias.com or 540/347-3344.

Regional Events

REGIONAL GRAZING CONFERENCE

Thursday, January 11

9:30 a.m.–2:30 p.m.

Washington County Agriculture

Education Center

7313 Sharpsburg Pike, Boonsboro, MD

The Mountains-to-Bay Grazing Alliance is pleased to present Gabe Brown, a North Dakota rancher, and Nicole Masters, from Integrity Soils in New Zealand, at this conference. Gabe will speak about regenerative agriculture that integrates animals, crops, and multi-species cover crops. Nicole will explain how to improve soils to reduce or eliminate the need for purchased inputs. We will also host a farmer panel, featuring graziers from the region. To register [click here](#) or email Michael Heller at mheller@cbf.org.

Maryland Events

CULTIVATE THE CHESAPEAKE FOODSHED CONFERENCE

Thursday, January 11 through

Saturday, January 13

9:30 a.m.–2:30 p.m.

College Park Marriott

3501 University Boulevard East

College Park, MD

Join Future Harvest CASA for three days of local farm and food workshops, farm fresh meals, inspiring speakers, and networking opportunities. To register, visit Future Harvest CASA's website at www.futureharvestcasa.org.

Pennsylvania Events

FRANKLIN COUNTY GRAZERS 2018 WINTER MEETING

Tuesday, January 16

9:30 a.m.–12:30 p.m.

Chambersburg Mennonite Church

1800 Philadelphia Avenue

Chambersburg, PA

Attend the winter meeting to hear about topics like, "What 100% Grassfed Looks Like," "Water Quality Management," and "Diversity of Forages." Registration costs \$15 and includes a hot lunch. For more information, contact Franklin County Graziers Coordinator Titus Martin at tilinmartin@embarqmail.com or 717/729-6339.

LEBANON COUNTY GRAZING NETWORK'S WINTER GRAZING CONFERENCE

Thursday, January 25

9:30 a.m.–3:00 p.m.

Schaefferstown Fire Hall

Locust and West Oak Streets

Schaefferstown, PA

Speakers at this conference include NRCS' J.B. Harrold, Penn State Extension's Jessica Williamson and Andrew Frankenfield, and organic dairy producer Clair Wenger. The conference is free to attend, but you must register. To do so, [click here](#) or call Susan Richards at 717/241-4361.

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