

Coordinating beef grazing and marketing

Farmers United says grassfed market is there for the taking

By Martha Hoffman Kerestes

Statesville, North Carolina — Sam Dobson saw a need to link grassfed beef graziers with wholesale markets looking for volume and consistency.

That's why he founded Farmers United Cattle Company, LLC two years ago. Dobson has been building the business around filling that need, and says it is producing fast growth and interest from both graziers and buyers within its main operating area of the southeastern and Mid-Atlantic states.

Farmers United mainly works in Georgia, South Carolina, North Carolina, Virginia, West Virginia, Tennessee, Kentucky and Ohio, with some production in Pennsylvania and New York as well.

Dobson has a long background in the grassfed space, both in farming and marketing. His family dairy in North Carolina was certified organic, and the farm now raises grassfed beef. He worked as the corporate supply coordinator for Hickory Nut Gap, a direct and wholesale aggregator, from its launch shortly after the turn of the century.

Dobson said he saw more farmers wanting the benefits of an aggregator than Hickory Nut Gap could serve, so he created Farmers United as a sepa-



Farmers United is looking to coordinate beef cattle grazing and marketing across the eastern U.S.

rate company to serve more brands and buyers. Farmers United provides a few different services. One is working with brands that need beef and providing it at the volume, quality and schedule

they need. Wholesale products go to natural grocery stores, foodservice, restaurants, butcher shops and more. Dobson also finds farmers to provide

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In defense of 'conventional' dairy grazing

You can build soils while grazing half the plant

By Nathan Weaver

Regenerative farming ideology has its good points and, as I'll explain below, I employ some of it on parts of my own dairy farm.

However, regenerative principles have also brought tillage-based, annual crop production to grass-based dairies. While this seems counterintuitive, I have seen it happen on too many farms to come to any other conclusion.

Annuals are attractive because they can provide forage tonnage at times when cool season perennials are slowing in the summer slump and at the shoulders of the growing season, especially in the fall. They offer diversity on farms by providing a nutrient profile that differs from cool season grasses and legumes, usually being higher in energy and lower in protein.

Tilling and growing annuals is seen as a way

to beat back a weed problem. And after an annual crop or two, a perennial seeding can provide improved forages for haying and grazing.

Too much tillage

But all of this annual cropping points to a problem: In terms of quantity, quality and profitability, regenerative grazing as it is being touted today is obviously not providing what tillage and annuals are offering. Otherwise we would not be seeing such prevalent use of these practices.

Are tillage and annuals our only recourses to overcoming problems with grazing?

The answer to this lies in a misunderstanding of the differences between a farm that must rely on commodity milk payments, versus one that produces high-value, direct-to-the-consumer meat and milk products. The differences are even greater if the commodity dairy is serving a 100% grassfed market and providing virtually all energy requirements through forages without the aid of grain.

These business and production models are

different, and I remain convinced that we need to recognize the differences.

The regenerative approach is to have short grazing events at high stock density, with stock consuming a third or less of a long-rested paddock. This promotes a sward of deep-rooted grasses, legumes and forbs that have drought resistance but relatively low overall quality.

The highest-quality part of the sward goes through the cow, while the lower quality returns to the soil. This feeds the microbes and builds soil biology.

Proponents point out that the high lignin content in trampled forage means that a greater part of the plant decay is fungus- rather than bacteria-based. This is similar to the balance in forest soils. They also claim that there is little if any root die-off, so plant recovery is faster.

Admittedly this makes excellent sense and is sound reasoning as far as it goes. Most non-commodity, direct marketers can make this work.

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beef to graziers whose own markets have expanded beyond what they can produce on their own farms.

He also works with graziers interested in accessing wholesale markets, aiming to find the best fit among his slate of potential buyers based on the farm's strengths and the brand's protocols. If certifications or verifications are required for a market, Dobson and his staff facilitate the process.

In addition, they take care of organizing butchering dates with processors and trucking the cattle from farm to plant. Dobson says that he and his team are happy to consult about grass management and soil health.

Moving cattle for finishing

In addition to the aggregation part of the business, Farmers United offers a grassfed-finishing alternative to cow-calf producers in the eastern U.S. who have normally raised calves to 900 lbs. before selling them to western feedlots for grain finishing.

Dobson works with a variety of custom graziers to organize efficient year-round grassfed finishing.

This includes grazing higher elevations in the summer before moving them farther south and to lower elevations. Grass farms in Georgia

and eastern North Carolina can grow annuals and cover crops that offer good options for high-quality winter grazing.

Cow-calf producers have the option of selling their cattle to Farmers United or keeping ownership throughout the finishing process. Custom graziers contract for a price per pound of gain.

Throughout the process, the animals are tracked from birth to harvest for transparency to buyers, especially for the cow-calf producers who have retained ownership.

Balancing weather, differing regions and the logistics of moving cattle to custom grazing operations includes a lot of moving parts that can be a challenge to manage.

"It's not easy, that's for sure," Dobson says. Still, he's found that over the years the task gets easier as he becomes familiar with the farmers and their locations while learning to roll with weather variabilities.

"It's always a work in progress," he adds.

Dobson thinks the project is sustainable for the long haul, especially since the network of participating

farmers continues to grow across the Farmers United operating region. For example, he says a grazer may hear about Farmers United and get involved, and within several years many of the producer's neighbors are working with the business as well. Dobson says the key to future success lies with strengthening these grazer networks.

For both sides of the business — graziers finishing cattle themselves and those doing custom finishing —

Farmers United negotiates prices with buyers. Some buyers will contract prices up to a year in advance,

with the contracts often including a set percentage over the conventional grain-fed beef market.

Pay prices vary

Pay prices vary based on the brand and other factors, including conventional prices. Dobson says he meets monthly with brands to assess prices and ensure that the prices farmers receive are at least at the conventional market level, and often a solid premium above the market.

He estimates that over a seven-year period, one year may be equal to the conventional price, while the other six will have a nice grassfed premium.

Most markets are looking for 100% grassfed beef, although a few want

pasture-raised beef with some grain. There's some call for certified organic beef as well.

Dobson says he welcomes graziers at almost any scale, and Farmers United works with producers who sell anywhere from 10 to 2,000 head annually. He doesn't mind if producers want to direct market some cattle as well as selling through Farmers United. Some graziers who work with him sell 5-10% of their animals directly and the remainder through him.

"We work with the same people year in, year out," he says.

Right now the main demand is for finished beef steers, although Dobson continues to look for ways to overcome the challenges that come with the dairy beef sector.

"It's out there," he says of the prospect for a dairy beef business. "I just haven't figured it out yet."

Meanwhile, Dobson is looking for more beef cattle. Interested graziers can contact Lorie Townsend, Farmers United business development manager, at lotown77@gmail.com or 336-977-6150.

Growing demand

Dobson says he needs the cattle because the brands Farmers United works with are seeing increased sales. "In the last year to 18 months we've seen pretty substantial growth," he says. "The brands we work with are

"It's not easy, that's for sure."

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Overcoming Anaerobic Soil Conditions

By Paul Schneider Jr., AG-USA

Healthy soil is filled with oxygen. Beneficial aerobic microbes need this oxygen to live. Deprive them of oxygen and harmful anaerobic microbes will take over. AG-USA is on mission to help you overcome anaerobic soil tendencies.

Pitfalls of Anaerobic Soil

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Poor growth. Roots need an oxygen content of about 10% in order to grow. If oxygen isn't present where soil meets roots, as is true in anaerobic soils, it hampers nutrient uptake and plant growth. Roots will stop growing, and if they are deprived of oxygen long enough, roots will die.

Airflow in the soil is especially important to legumes, as their nodules fix nitrogen from the air into the soil. This is one of the reasons why legumes do so much better when MycorrPlus is used to highly structure and bring air down to the root zone.

Six Causes of Anaerobic Soil

1. Excessive rainfall is the number one cause of anaerobic bacteria taking over the soil. If the soil is supersaturated, water will fill the air pockets in the soil. The longer this condition prevails, the more that aerobic bacteria will die and anaerobic bacteria take their place. Fortunately, once the water in the soil has subsided, an application of MycorrPlus can help to repopulate the soil with aerobic microbes.

We have a lot of customers that have reported great results with MycorrPlus, especially those who have used it for more than one year. Others haven't had these results. The greatest difference between great results and mixed results is the amount of moisture in the soil.

If a person applies MycorrPlus and then it rains for weeks, oxygen is quickly used up and then aerobic soil microbes can't breathe. Best results are seen when there is enough moisture for microbes to multiply but not so much that it super saturates the soil.

2. Farmers use cultivation to break up the soil. Unfortunately, it also breaks up the small air pockets in the soil. Without these, when rains come the soil can become even more compacted.

3. Heavy equipment, like tractors, tend to collapse air pockets. The more times across a field, the greater the compaction.



Aerobic, Aerated Soil vs. Anaerobic

Then, even a little rain tends to overwhelm the soil.

4. As animals graze, it compacts the top few inches of soil. This is especially true right after a rain.

5. Chemical applications make it harder for aerobic microbes to live in the soil. We desperately need these microbes to restore structure to the soil.

6. Poorly drained areas of a field tend to stay waterlogged, which creates anaerobic conditions. Tiling a field can help to remedy this.

Overcoming Anaerobic Tendencies

Good farming practices are helpful, but MycorrPlus can help even more! It is a biostimulant that promotes the growth of aerobic bacteria and mycorrhizal fungi. MycorrPlus helps to kick carbon sequestration into high gear, and then its microbes use these sugars to help build and rebuild soil structure.

MycorrPlus can also help in areas that tend to become waterlogged. First, the timing of the application of MycorrPlus is important. It needs to be applied at a time when the soil is not waterlogged and will not become waterlogged for a while. You want to give MycorrPlus time to work its way down in the soil.

If MycorrPlus has enough time to structure soil a foot down, that means the soil can then hold 6" of rain. Two feet of structuring = 12" of rain. Three feet = 18" of rain. It can be difficult to turn waterlogged areas around, but with some diligence and help from heaven with the timing of rains, it is possible!

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all growing, and we need production. We need producers.”

Dobson says that while this is a general trend in the wholesale grassfed space, his buyers were particularly prepared for the growth.

“The brands we work with are really good, established,” he explains. “They’ve been through all of the hurdles, growing pains with being a small meat company, and they’ve figured it out and are poised for growth. We’re just having to grow with them.”

Despite the logistics challenges that come with rapid expansion, Dobson is looking forward to the future.

“We’ve just literally been dealing with day-to-day growing pains that growth brings about, which is good, but you know we’re learning,” he explains.

“We haven’t gotten this thing exactly where we want yet, but we’re determined. We’re really hanging our hat on being able to offer year-round production of grassfed beef on pasture, and that’s something that we’ve made work.”

Dobson thinks the consistency piece of the puzzle is a primary challenge, especially in supplying chefs who are used to working with uniform size and quality meats, but also for consumers seeking a pleasant eating experience.

Quality and COOL

Dobson believes part of the answer

is the geographically planned model Farmers United is using to achieve better gains and finishing compared to what’s often feasible when cattle are born and finished in the same area.

Another priority for Dobson is genetics for carcass quality and efficient grass finishing. While progress has not been rapid, he believes slow and steady improvement will make a difference.

“What’s important is that we do improve year on year,” he explains.

Better quality, coupled with larger scale, may be the best way to edge out imported beef — especially without major changes to Country of Origin Labeling (COOL). Some brands can’t get enough quality domestic grassfed. Dobson wants to change that.

USDA recently issued a proposal for labeling imported animal products, but Dobson thinks the new COOL plan has just a 50-50 shot of being implemented. If it is, he thinks that could be a game changer for domestic grassfed beef.

Dobson believes that while some

grassfed beef consumers are price conscious, a sizable sector would be willing to pay more for domestic beef, especially if it fulfills other reasons for purchasing grassfed such as animal welfare, environment, and health. He thinks the willingness to pay more

for animal products that meet customers’ needs and desires has increased over the past several years.

Yet he’s not sure how the sector could meet the demand for

domestic product that COOL could produce.

Dobson says his grassfed beef contacts across the country are reporting expanding demand similar to what he’s seeing with Farmers United.

Regenerative interest

In addition to health aspects and concerns about animal welfare, he is keeping an eye on the growing profile of the regenerative agriculture movement. One of the graziers he works with is pursuing verification through the Savory Institute with the idea

that having third-party verification of regenerative practices for labels will have real value down the road.

“Grassfed beef checks a lot of boxes for the educated consumer,” Dobson notes. He sees climate-conscious consumers learning about the role that livestock play in regenerative agriculture.

These consumers, he says, are pivoting away from their pre-Covid-19 focus on plant-based meats, and toward soil health and carbon sequestration.

“The conversation has shifted back to our roots in grazing livestock, and I think that’s really positive for the industry as a whole,” he says. He thinks grassfed producers should be open to learning from people who are buying their meats, especially in terms of animal welfare.

“We have to be adjusting the way we do things to meet consumer demand,” Dobson asserts.

“As farmers we’ve got to stay within what we can reasonably do, but at the same time we have to be willing to alter, to change the way we do things to meet opportunities as they come.”

“It’s the key to survival. As frustrating as it can be, I think it’s an exciting time to be in this industry for sure.”

Martha Hoffman Kerestes is Graze contributing editor who also farms near Streator, Illinois.



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Graze

advisors

This month’s question:

How do you beat the heat?

If you have a question you’d like addressed, contact *Graze*.

Scott Wedemeier

When I started grazing, when it was hot I would bring the cows back to the barn at about 1 p.m. and keep them there until the afternoon milking at 4. After starting this I found they had had less mastitis, more milk production, higher summer pregnancy rates and better condition. There was less pasture damage, too.

All of our pasture is converted crop ground, and there is not a tree available for shade. In the first years we tried a custom-made shade, but it was not big enough for all the cows and there was always a muddy damaged spot where it had been placed. For our hybrid grazing system we have invested in shaded stalls with sprinklers and fans that allow evaporative cooling for the entire milking herd within the barn. We milk early (4:15 a.m.) to get the cows out in the morning while the conditions are coolest. Most days they are able to head out to pasture by 5:15 a.m. We bring them back to the barn after they’ve grazed their fill. This is usually around 11 a.m., plus or minus an hour, with timing varying based on the heat index and fly pressure. We try to get them in just before they begin to group up.

Once back in the barn the cooling begins under the sprinklers, and they immediately begin eating the partial-TMR that is available to them. Most days the cows have returned to a comfortable level within 20-30 minutes and have begun to lie down. Sprinklers are set on a timer that has them running at 1- to 10-minute intervals, with 2-10 minutes between cycles. Timing depends on intensity

of the heat. We begin the second milking at 2 p.m. Cows are allowed to return to pasture immediately after milking if they choose to, or they can continue to cool and eat in the barn. All cows are pushed out to the pasture around 4:30 and locked down for the evening.

As of now, I believe we are doing a good job of keeping cows cool, milking and eating with the system we have. Early on I was making management decisions based on how I wanted the system to function while not necessarily keying in on how the cows were being affected by the conditions. Once I started responding to what the cows wanted, they paid me back for my efforts. I think tunnel ventilation would be the cat’s meow, but I’m not willing to put that much capital into a barn that was not designed for the system.

Scott Wedemeier milks cows on a certified organic dairy near Maynard, Iowa.

Ted Miller


Here in the Deep South, heat stress mitigation is one of our highest management priorities. With average daytime highs getting into the upper-80s by late April and mid-90s being the norm for the next five months or more, it is absolutely critical to manipulate that environment to create conditions in which a lactating dairy cow can continue to eat adequate amounts of feed, produce milk and not lose body condition. The biggest step we take to minimize the effects of summer heat is to calve the entire herd on a strict fall-seasonal schedule. The goal is to have all calves born from mid-September to mid-November. This places peak lactation well beyond the late-summer heat and into a season with daytime temperatures in the mid-50s — excellent conditions for not only peak milk production, but also efficient breeding. The one drawback we’ve seen is that the shorter days of winter reduce energy levels in the forage available to graze, thus requiring increased grain supplementation during this time.

Even so, up to 90 days at the end of lactation, and sometimes the first 30 days, are too hot for the cows to remain comfortable. We mitigate this by providing cooling in the pasture, utilizing our center pivot irrigation rigs outfitted with misting nozzles to provide evaporative cooling. We installed a three-inch line below the main irrigation pipe running the length of the entire system, with misting nozzles 20 feet apart. Each nozzle is sized with a No. 10 orifice that puts out 0.75 gpm of water. The nozzles have smooth or groove-free splash plates to ensure that water droplets are as small as possible, thus enhancing evaporation efficiency. We also outfitted a “T” with manual valves at the pivot point, allowing water to be directed for either cooling or irrigation.

Depending on the length of the pivot we are cooling from, water demands range from 40 to 60 gpm per rig. Water can be supplied by running one of our diesel irrigation pumps at about 20% throttle. Or, because the pivots are tied together with underground lines, we can “bleed off” of our electric-powered irrigation pump while it is irrigating on another pivot. This is the most efficient method of operation from an energy cost perspective because we are using the same energy to pressurize both cooling and irrigation systems. When we do not need to irrigate, we run the diesel engine exclusively to provide cooling water. Fuel consumption runs around three-quarters of a gallon per hour, which comes to \$30/day to cool for 10 hours.

During the summer months we incorporate the positions of the pivots into our grazing rotation to provide for cooling. This requires a few extra management steps and some calculations to keep everything coordinated. We’ve accurately calibrated the walking speeds of the pivots so we can set them to travel across an entire paddock over the course of a daily graze. The value in this is that not only are the cows kept comfortable, but they are continually being led across fresh grass while manure and urine are being spread evenly over the same area. One of the pivots has GPS and cellular capability so we can control it with our phones. We want to outfit all of the systems with this technology, as

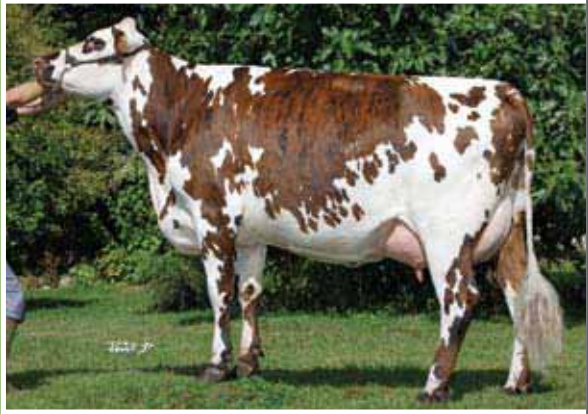
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it has eliminated a lot of time spent traveling to turn pivots off and on. On rare occasions we have run over cows with the pivots. This risk is much higher at night, so we make a point of cooling only during daylight hours. Usually the cows voluntarily move away from the cooling around dusk anyway, so night-time cooling is not a necessity.

Most of the time, pivot cooling is reserved for the milking herd because of limitations on how many paddocks we can cool in at any given time. The heifer and bull groups mainly have to rely on shaded paddocks during the day, so they get priority on those areas. Following dry-off in late July the springing heifers are combined with the dry cows, which helps take some pressure off the shaded paddock rotations.

Even with all the effort we put into mitigating the effects of heat, to a degree climatic conditions still leave a mark on production levels and overall feed efficiency. We consistently see low birth weights because all cows are gestating during extreme heat. While convenient from a calving ease perspective, I feel this limits growth rates and ultimately mature body weights for calving heifers. This potentially keeps a lid on milk production. But we view the fact that we can house all cattle outside 12 months of the year as a trade-off to the costs of cooling them plus any potential production lost from operating this way in a hot and humid environment.

Ted Miller milks cows near Baskin, Louisiana.

Jim Feete

When I first saw this topic, I was a little embarrassed to admit that we have heat stress issues. The record high for our area is 92 degrees. We very rarely have temperatures above 85 at the peak of the summer, and even then the nights are in the 70s. However, we do struggle with heat stress. It is mostly a side-effect of endophyte toxicity. While August is our hottest month, September and October are usually our worst heat stress times as endophytes build up in the grass. A lot of our management techniques are focused on controlling endophyte issues rather than simply heat stress.

In the past we have tried a lot of different techniques to limit heat stress. We created several silvopasture areas that we can move the cows to during the heat of the day. We are regularly rotating shade areas and providing more areas that are larger, with the goal of avoiding too much impact on any one site. It is critical to have an excess of quality shade in order to avoid competition. Fields with tree lines that provide small amounts of shade are avoided, as the cows will overcrowd and milk quality will drop. During the day we try to avoid any pastures that have a little shade within them, as the cows will just group up and try to fit under one tree. We briefly tried sprinkler guns in the fields, but the cows instantly made such a mess that we had to quickly abandon that idea.

Our biggest success in managing heat stress has been in moving milking to the middle of the day. We realized when we switched to once-a-day milking that we were wasting cool hours in the morning when the cows could be grazing. Now we give the cows a break of grass as early as possible, around 6:30 a.m., and then milk at 11:30. We have shade trees around our holding pen, plus overhead sprinklers, so they are very comfortable during milking. If the heat is extreme they leave the parlor and go to shade for the afternoon, then get a break in the evening as the day cools. For most of the summer, cows don't suffer if returned to unshaded pasture after milking.

Grazing management has a huge impact on how much heat stress we see. We run two grazing platforms during the summer: native fescue, and an improved ryegrass/clover/plantain platform. We graze the fescue at night and the improved pastures during the day, sometimes with two small breaks during the day and one large break at night. This minimizes the excess heat stress caused by the endophyte, though I still see some animals panting in the morning when

it's 60 degrees. We are trying to reseed enough pasture to dilute the effects of the fescue, but it's not an easy fight in our climate. Trying to eliminate endophyte-infected fescue without herbicides is a challenge, and fescue also helps our late-fall grazing, so I'm hesitant to completely eliminate it from the system. However, coping with it in the summer is a challenge. We have been using selenium in our grain mix to help reduce the endophyte effects and have increased the percentage of soyhulls in the summer.

While we have been able to reduce physical heat stress signs, milk production is a different matter. We see a drop starting in mid-August that lasts through September. We usually start to regain some production from late September through October, but then our lactation curve catches up with us. Late summer is a big problem for the cheese as well, as we have found that milk from heat/endophyte-stressed cows doesn't coagulate as well and needs more rennet than our normal milk production. Variable milk components are also a problem. When heat stress increases, milk volume suddenly drops, but components — mostly butterfat — go up. We need to be as close as possible to a 1:1 fat-to-protein ratio for the cheese, as aging problems and reduced cheese yields occur when protein drops below 0.8 of butterfat. These summertime variations cause a spike in cheese discards.

This year we are planting 5-10 acres of pure plantain. We are planning on having it grazed in small breaks through August and September, hopefully at 15% of total daily dry matter. The plantain should significantly dilute the fescue, and it increases protein in the milk without raising butterfat. This should result in higher yields and more stable cheese. I am optimistic about the coming summer and our new plans for it. Our failures in producing stable milk through these critical months have significantly impacted our cheese production and business.

Jim Feete milks cows near Galax, Virginia. His family makes award-winning cheese.

Leon Corse

First let me say that we have not had a big issue with heat stress to this point. Our location in the northern U.S. and atop a hill where the wind blows most days has limited our concerns about heat stress. However, as climate change happens (yes, I believe it is happening!), we are experiencing more days where heat stress is a concern.

To try to alleviate that concern, we have reconfigured how we set up fences so that more paddocks include shade, and are making water readily available in all paddocks. To date we have not put the cows in the barn on hot days to keep them in the shade. However, we do start afternoon milking at 3-3:30 so that they are in during what can be the hottest part of the day. The barn is an open-sided freestall, with the open side facing south-southwest. It has a fairly large door on the west end so that if there is any breeze, it goes through the barn. The cows go back out to fresh grass around 5:30 p.m., and conditions usually begin to cool a bit by then or soon after.

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‘Conventional’ grazing —

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Grain-fed dairy operations can balance rations to make up for any intake and forage quality shortfalls.

But this is not good enough for 100% grassfed dairy producers in the Upper Midwest and the Northeast selling into commodity markets. Most who graze this way are not providing the quality tonnage required for a viable operation.

Hence the attraction of tillage, annuals and purchased forage seed

genetics to make up the shortfalls of feed production.

A different model

The grassfed dairy producer milking year-round for a commodity market requires a different model if costly tillage and seeding is to be avoided.

In this model, cows in confined winter settings are fed and housed, often with purchased feed and bedding. This material provides fertility to be applied judiciously across the farm.

The fertility can be used to boost

mid-summer/fall production, or for transferring nutrients from high- to low-fertility areas. This added fertility allows us to think there is less of need for trampling more residual into our soils for the next growing cycle.

These farms concentrate grazing on high-quality, low-growing, dense swards.

On our dairy in central New York, the ideal grazing event has cows going into pastures at 25 days of rest, with eight to ten inches of high-quality forage available. The herd should be in this paddock no more than 12 hours, and they should leave behind three to four inches of residual.

The sward is dense enough so that little if any bare soil is exposed. Remaining green leaves absorb at least 50% of the sun’s energy, and that builds back to more than 90% by the time the next grazing event happens 25 days later. Unless we have very severe drought, our rest periods generally stay between 20 and 30 days.

While different climatic conditions in other areas may affect rest periods and turn-in heights, the principles involved apply to virtually all grazing dairies — particularly 100% grassfed operations.

This is all about putting the maximum amount of grass grown on our farm through the cows.

We don’t want to see high-lignin forages where the lower leaves are

rotting. We want the leaves to be digested by rumen microbes. This enables us to capture saleable milk and meat value from our pastures.

Pasture vs. woodlands

Regenerative purists will claim that we are not providing enough lignified matter for a healthy soil food web. If we think our pasture soils need to resemble the profile of our woodland soils, then that would be correct.

However, much as I admire a forest of healthy trees and see great value in such, it’s not what I want to turn my cows into and expect a good rumen fill when they come back out.

In my mind, the soil food web in our pasture should be different from the soils in our woodlands. What is important to us is that decay and nutrient cycling happens, be it bacteria- or fungus-based.

In decent growing conditions we want to come to a pasture at four weeks or less after the last grazing event and not be able to find dung from the previous grazing. There is no zone of repugnance around the dung piles. The pasture is grazed not necessarily as if it were mowed, but in an undulated fashion with acceptable variances.

The drought-proofing comes less from deep-rooted plants, and more from the moisture retention of soils high in organic matter. This organic

Advisors

continued from page 5

In the morning we put the cows out just as soon as milking is completed — even before we clean up the milkroom and parlor. This gets the herd out on fresh grass by 6:30 a.m., giving them several hours to graze before the hottest part of the day.

I have thought about how we will need to change if heat stress becomes a regular concern. I think it would be feasible to bring the cows in at noon, and fans and even misters over the bunk are not out of the question. We have two artesian wells and a seemingly bottomless remote spring (with a solar pump), any of which could be made available to use as a water supply to the misters. We have also started planting more shade trees in the pastures, and we have one that is targeted to become an actual silvopasture. The planting for that is scheduled for later this spring.

Leon Corse milks cows on a certified organic dairy near Whitingham, Vermont.

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matter buildup comes from grazing at least half of available forage (eight to ten inches down to three to four inches).

This means there *is* root die-off. This die-off places some of the carbon that was sequestered from the previous plant growth cycle into the soil organic matter, which becomes a sponge holding water where shallow-rooted plants can access it.

According to ATTRA, each 1% of soil organic matter has a water holding capacity of at least 16,000 gallons per acre. Hence a 7% organic matter soil holds 112,000 gallons of water, or four inches of rainfall equivalent.

It seems that compared to grazing a little and trampling the rest, we can gain just as much regenerative resilience by maximizing the amount of our farm's forage utilized by the cow, and then capturing the 85-90% of nutrients that are not used for meat, milk and body maintainance as dung and urine (which are teeming with bacteria), and then bringing these nutrients back to the land with careful management.

The sweet spot

We think the efficiency of this cycling is superior to the school of thought that wants more lignified forages not going through the cow.

Our farm is a solar panel of green leaves. The more sunlight we can capture by a full greenery on our

landscapes, the more productive our farms will become.

Turning cows in when grasses are at the three- to four-leaf stage has proven adequate for replenishing root systems for the next cycle of growth. This is also the point where the forage is at its optimum quality. And it is where the cow will peak in her production output.

It is the sweet spot we aim for.

In a recent conversation, veteran grazing consultant Jim Gerrish lamented that the bad rap that perennial pastures receive because of low production is largely due to too much of our land being covered by stale solar panels.

What he meant is that too many of our swards are too often not at their peak in terms of being able to turn the sun's energy into high-energy food for our livestock. I heartily agree.

And what about the cow? Where are the pounds of milk coming from when grassfed farms are following regenerative grazing practices? Are they coming from annual crops?

Regenerative proponents often say their cows are healthier compared to when they followed something closer to the management on my farm. We probably do see a few more feet and leg problems because we are right at the edge of having too much protein in our swards. Our milk urea nitrogen numbers average 14-15 during the grazing season.

A lot of this has to do with cattle genetics. Sharp, modern cattle genetics won't hold up on a rocket fuel diet, but if we have a cow suited to what we do on our farm, she'll make a profitable amount of milk per acre.

Fungal model can work, too

So my sympathies lie with the bacterial decay, nutrient cycling model. But I will not slam the door on the regenerative/fungal decay model. It is valid in many cases, including on our own farm.

About half of our land is on steep slopes that are difficult to reach with manure-spreading and haying equipment. On those acres we will be utilizing the tools offered by the fungal decay model.

We plan to graze heifers and dry cows on higher-lignin forages where some trampling of mature forages is to take place.

Even our good soils will stand for that treatment on occasion. We take great stock in the warnings that rigid grazing practices will lead to production stagnation. We do use these "regenerative" tools to the benefit of the farm.

And in general I applaud the current regenerative wave, especially cover-cropping and no-tilling for row crops. The regenerative movement has brought public awareness to the possibilities of capturing carbon in our soils.

Decay and rebirth

I don't think the two models outlined here are at odds with each other. Both are all about the decay and rebirth cycle of earthly life. Both utilize bacteria- and fungus-based turnover. One relies more on the fungal part, while the other relies more on rumen bacteria to get the job done.

It's just that I want to make enough milk off each of my grazing acres to be profitable in a commodity milk market without needing to rely upon expensive annual crops. At least for me, relying on the cow's rumen bacteria works better than regenerative/fungus-based grazing.

Therein lies the mystery of bringing good production to the 100% grassfed, fully perennial farm. In the traditional northern dairy belt, farms that have stocked their acreage relatively high (at least one animal unit per every two acres), are already growing the tonnage and quality they are looking for from their perennial sods.

It's just that they are not capturing it before the opportunity passes due to long rest periods.

On good soils, four tons of this forage captured by the milk cow will translate into enough milk production for the farm to be able to compete economically with the best that industrial agriculture can throw at us.

Nathan and Kristine Weaver and their family milk cows near Cazenovia, NY.



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Joel McNair

The greenwashing of carbon credit efforts

Federally subsidized crop insurance. Ethanol blending requirements. Emergency payments for crop failures due to weather issues or international market calamity.

These are the primary programs and special deals provided to ensure that today’s dominant cropping and CAFO agriculture remains that way into the future despite all its warts, waste and weakness. All are funded by American taxpayers.

However, the big new wave of the future is largely being built by private enterprise. Corporate agribusiness giants are developing carbon payment programs that are supposed to provide incentives for farmers to reduce their carbon footprints and make for a better planet.

Climate change is hot and getting hotter in the minds and pocketbooks of a growing share of global consumers, and multinational corporations want to tell everyone that they are doing something about the problem.

Greenwashing

But what’s being told isn’t matching reality. In truth, today’s carbon markets amount to just another version of corporate greenwashing that obscures the fact that nothing of real consequence is taking place. Or at least consequence as it relates to affecting carbon footprints.

The true aim of these carbon markets is to cement agriculture’s status quo. Even worse for individual farmers, the data these companies demand

for their programs worms them ever further into the private business lives of those who participate.

While I’ve touched on much of this in the past, a few weeks ago I came across a brand new report that does as good a job as anything I’ve seen in describing the seamy side of carbon markets. “Agricultural Carbon Markets, Payments and Data: Big Ag’s Latest Power Grab” is a joint effort of the Open Markets Institute and Friends of the Earth.

Their analysis is so close to the mark that I’ve decided to provide some space to a slightly edited version of the report’s executive summary. For the full report, which includes citations, I suggest you go to either openmarketsinstitute.org or foe.org and look up publications under their agricultural tabs.

After that I’ll offer a few additional comments, including a couple pertaining specifically to grass farming.

The report: a power grab

How can farmers be part of the solution to global climate change? Currently, leading politicians on both sides of the aisle say the answer lies

with carbon markets.

These allow polluters to “offset” their greenhouse gas emissions by paying farmers to engage in practices that are supposed to draw carbon down from the air and sequester it in their soil. But behind the simplistic

appeal of a “market-based” approach lies a deeply concerning trail of scientific uncertainties, fraud and corporate exploitation.

Corporate soil carbon credit pro-

grams are likely to further entrench chemical-intensive farming practices, disenfranchise family-scale farmers, and increase corporate control over the food system, all while failing to achieve their purported goal of reducing greenhouse gas emissions.

These carbon offset schemes rest on shaky soil carbon estimates and give corporations cover to greenwash their operations and avoid pollution regulation. At the same time, carbon payment programs run by dominant agribusiness corporations, including Bayer, Cargill, Nutrien and Corteva, let Big Ag define “climate-smart” farming in ways that boost their bottom line and maintain the status quo.

The programs also allow corpo-

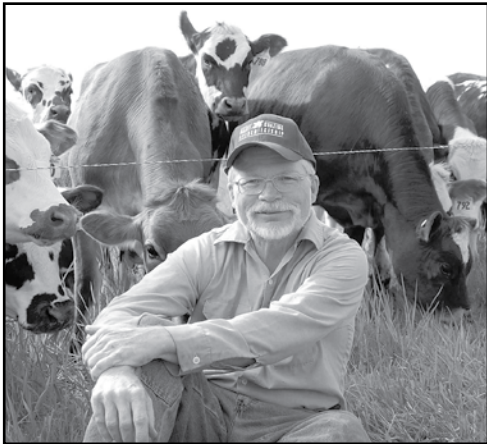
rate giants to collect valuable farmer data and promote environmentally destructive monoculture crop production. Meanwhile, family-scale farmers using regenerative, diversified, and perennial farming practices with tangible environmental benefits and greater carbon sequestration potential are unlikely to benefit from corporate-driven soil carbon payment schemes.

Uncertain science

Soil carbon is especially unsuited for commodification and trading. Measuring soil carbon in a uniform way to ensure integrity in soil carbon markets will likely remain an elusive goal.

There are currently dozens of different certifiers using dozens of unregulated standards to measure soil carbon, most of which are based on theoretical modeling of carbon sequestration as opposed to actual soil measurements. These models, based on radical simplifications of soil ecosystems, fail to account for the role that microorganisms play in breaking down soil carbon and therefore risk overestimating how much carbon will remain in the soil long-term.

Relying on models can also oversimplify the high degrees of variation in soil carbon over time and within fields. One study found that soil carbon concentrations even in a seemingly uniform field can vary fivefold. This variability confounds attempts to accurately measure year-to-year changes, undermining the ability to



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Graze is published 10 times each year — monthly except for July and September — by No Bull Press, L.L.C., 5792 Alpine Road, Brooklyn, WI, 53521-9457. Subscription price: \$30 per year. Periodical postage paid at Brooklyn, WI, and additional mailing offices. POSTMASTER: Send address changes to Graze, P.O. Box 48, Belleville, WI 53508-0048. ISSN: 1940-6185 USPS 024-496

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accurately measure or verify carbon credits.

The value of soil carbon offsets are also undermined by the fact that soil carbon storage is largely impermanent. Carbon sequestered in the soil can be released with a change in land management, through severe weather events, or as soils warm due to climate change, invalidating carbon offsetting claims.

In sum, voluntary carbon trading diverts resources into offsets that, at best, overpromise and under deliver. At worst, these schemes may increase greenhouse gas emissions since they allow corporations to keep polluting while they claim to have “net-zero” emissions.

In fact, existing carbon markets, such as California’s forest offset program, have been shown to increase emissions.

Entrenching the status quo

Powerful corporate players are well poised to game soil carbon markets. Major agribusiness companies like Cargill, Bayer, Corteva and Nutrien have launched private programs that purport to pay farmers for sequestering carbon.

These projects let agrichemical companies define “climate-smart” agriculture and collect valuable farmer data in ways that will further entrench chemically intensive, biologically simplified industrial agriculture and

their market power. Studies show that agroecological management and agroforestry have far greater climate and environmental benefits than implementing isolated practices like cover-cropping or no-till agriculture on conventional, monocrop farms. Even by conservative estimates, agroforestry can sequester 10 to 20 times more carbon per acre than no-till or cover-cropping.

But virtually all agribusiness carbon payment programs only reward farmers for a limited set of practices that can be integrated into the conventional industrial approach to farming: reducing fertilizer use, reducing tillage or planting cover crops.

Conventional approaches to cover-cropping and no-till depend on pesticide use. This helps companies like Bayer sell more pesticides to farmers who are enrolled in their carbon programs. Yet science shows that Roundup and other commonly used pesticides harm the soil life that is central to soil carbon sequestration along with the biodiversity that underpins food production.

These programs not only entrench a harmful status quo, but by shutting out family-scale farmers practicing diversified, regenerative agriculture from a new potential revenue stream, most carbon markets will only further marginalize smaller, innovative farmers and drive consolidation.

Corporate carbon payment pro-

grams also require farmers to upload agronomic data through companies’ proprietary digital agriculture software to certify carbon credits.

Capturing large volumes of farm-level data helps seed and agrichemical companies build dominant digital platforms through which farmers access agriculture software and data-driven farm management prescriptions. Agribusinesses use these platforms to sell more of their products and direct on-farm decisions, making it ever more difficult for farmers to transition to sustainable practices.

On top of these harms, many carbon contracts aren’t a fair deal for farmers. Private carbon payment programs require that farmers contractually commit to years, even decades, of practices to produce offset credits with minimal payment guarantees.

For example, while some programs tie payment to carbon credit sales value, Bayer unilaterally sets the prices it pays per practice per acre.

True solutions

To reduce agriculture’s carbon footprint and promote the adoption of ecologically regenerative farming methods, Congress and the USDA should:

• **Ensure that USDA programs** do not promote private carbon payment programs and reject corporate contributions to conservation programs that require farmers to share ownership of

carbon credits with corporate donors.

- **Invest in existing programs** with a proven track record of funding environmental improvements in agriculture, such as the Environmental Quality Incentives Program (EQIP) and the Conservation Stewardship Program (CSP); channel funds toward practices that are demonstrated to enhance on-farm biodiversity, conserve water, improve soil carbon sequestration, reduce the use of synthetic inputs, and enhance farmers’ resilience in the face of droughts and floods.

- **Encourage tree planting** as a part of the Conservation Reserve Program.

- **Regulate air and water pollution** from the largest, most polluting farms, including working with the EPA to set limits on agricultural greenhouse gas emissions.

- **Protect farmer data** by ensuring the right to port and remove data from digital agriculture platforms.

- **Prohibit the use of farmer data** gathered as part of carbon payment programs to speculate in futures markets or target farmers with personalized advertisements.

Additional thoughts

I’ve a couple of thoughts to add to the above.
One is that many *Graze* read-

continued on page 12

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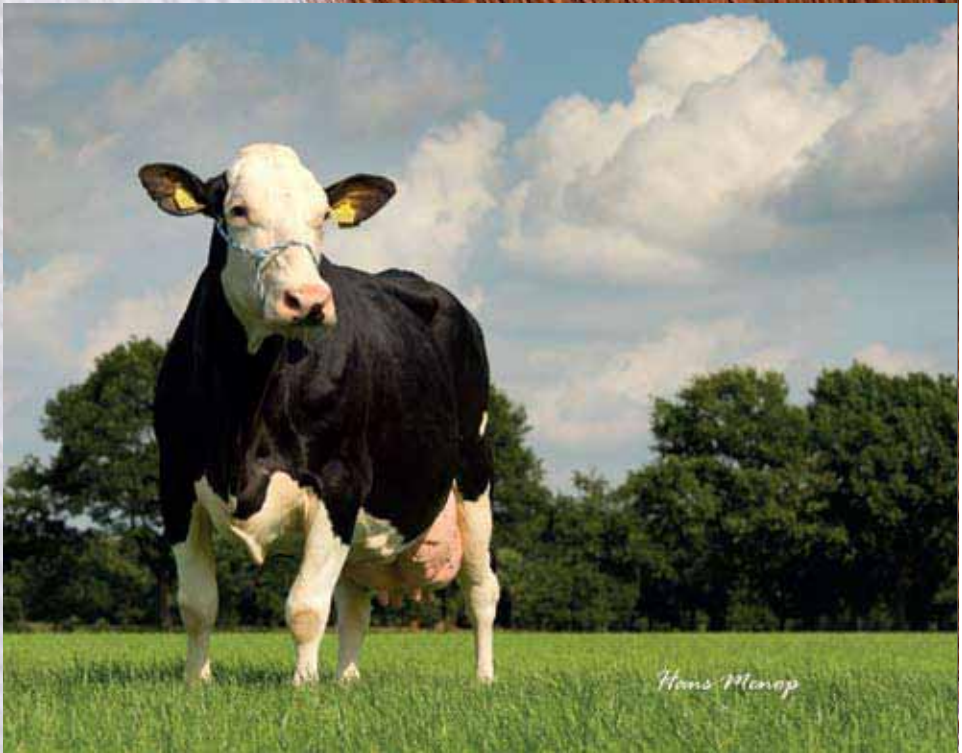
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Three hair sheep breeds to consider

By Janet McNally

An acquaintance called the other day to say that after being out of the sheep business for a long spell, he wanted to bring them back onto the farm. He asked what kind of sheep he should be looking for.

Concerned that it might be difficult to find shearers, he was specifically asking if he should consider hair sheep and, if so, which kind?

I knew his farm. Located in northern Minnesota, his assets are lots of lower-quality but relatively cheap hay, and abundant land to graze on.

Finding people to shear sheep is getting to be a bit of a problem in some parts of the country, especially in the areas where sheep have been expanding into where they were not common, such as the Southeast. Wool is also problematic in hot, humid areas.

But here in Minnesota — and I would say this is for all the northern tier of states — shearers are still reasonably easy to find, and our colder, drier climate is not so problematic.

I told him that wool sheep are still a very viable option, and that they offer greater genetic diversity and heavier body weights than the hair breeds.

That said, the price of wool is in the

dumpster, so hair sheep could make sense, even in northern Minnesota. More broadly, many graziers who are adding sheep to their cattle enterprises do not want to have to worry about shearing.

There are distinct advantages to non-shearing breeds, which is why they have become very popular.

I told my acquaintance that there are three hair breeds he might like to consider. I noted that they are quite different from one another in disposition, so he would need to consider his management style before jumping in.

Easy Care most productive

The most productive hair breed is a composite created at the U.S. Meat Animal Research Center in Clay Center, Nebraska.

Called Easy Care, this is a composite made up of one-half Romanov, one-quarter White Dorper and one-quarter Katahdin. This composite is a wool breed that sheds.

The objective was to develop a sheep that could raise a high-percent-age lamb crop on pasture without any intervention. For ewes exposed at 20 weeks of age, Easy Care produced 9.46 lbs. more lamb per ewe compared to Katahdins, and 5.94 lbs. more than Polypay ewes.

It is important to point out that this



Crystal Emshoff

Dorpers are known for their gentle dispositions and quality meat.

is a sheep that *must* be left alone during lambing. Romanovs have a very large flight distance that will most definitely test your shepherding skills.

Mike Wallace of Nelson, Nebraska, uses a very similar cross in his multi-species grazing business. In addition to Romanov, Katahdin and White Dorper, Mike's sheep also have St. Croix genetics. He has mastered the management needed for sheep with large flight zones.

Mike's neonatal lamb mortality rates are commonly 3-7% of lambs born, and his two- to six-year old ewes commonly drop 215%-240% lamb crops in his paddocks.

Here are some of Mike's recommended do's and don'ts for a successful lambing with Romanov crosses:

- Do *not* handle lambs until they are at least three months old.
- Do *not* intervene with bonding between lamb and dam.
- Do *not* pick up bummer lambs.
- Do *not* disturb the flock for the sake of an individual.
- Hardly ever assist a delivery.
- *Do* enter the lambing paddock to tally and remove deaths.
- *Do* feed the livestock guardian dog and prevent LGDs from interfering with lambs.



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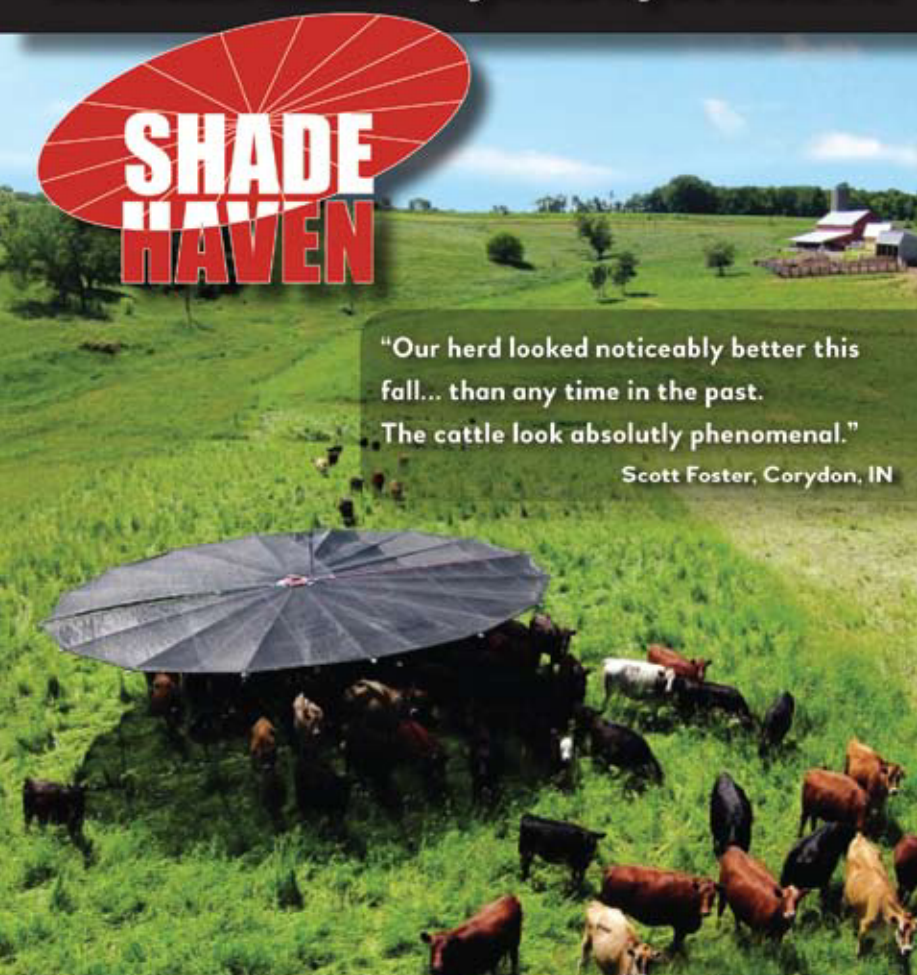
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• **Do** all of these things: feed salt and mineral, check and provide water (including for lambs), turn upright any cast ewes, free lambs that have become stuck, return wayward lambs on occasion.

Basically, do anything that will benefit the sheep, but do not disturb the flock.

As you might deduce, these Romanov-based composite/crossbreds are not for people who want to get their hands on sheep or who use an intensively managed lambing system such as drift lambing.

They will work best in a set-stock lambing system, and are a great choice for a productive, ultra-low input flock, such as when adding sheep to a beef grazing business where calving and lambing occur in a more extensive system.

Katahdins are smaller

The Katahdin is also a composite breed. Developed by Michael Piel in the 1950s, the Katahdin was made from crossing Caribbean hair sheep with British breeds (mostly Suffolk), and later adding some Wiltshire Horn to improve the carcass and shedding.

They have since become probably the most popular of the shedding breeds, and are relatively easy to find.

Production and disposition are fairly similar to wool sheep, but the Katahdin typically has a bit smaller body and is a bit more flighty than its

British breed ancestors. Within the Katahdin breed there have been concerted efforts to increase growth. Some breeders have been working on objective measurements of parasite resistance. Compared to the Easy Care, this is a breed that can be a bit more intensively managed, although it will be somewhat less productive.

Dorper meat quality tops

The third breed I recommended to my acquaintance was the Dorper. This breed was developed in the 1930s in a hot, dry climate of South Africa by crossing the Dorset Horn with a hair breed, the Persian Black Head. The resulting cross is a white-wool sheep that sheds.

Dorpers have distinctive black heads and necks. Further development created the White Dorper, which is entirely white.

The Dorper stands out for its outstanding carcass quality, flavor and tenderness. While the breed is going to be less prolific than the Katahdin and Easy Care, a higher percentage of Dorpers are going to make it to marketable condition from grass alone.

They produce a heavier lamb, making the Dorper a desirable choice for those who intend to direct-market finished lamb straight off grass. Dorper and Dorper-sired lambs routinely bring higher auction prices than the other non-shearing breeds due to their higher carcass quality.



Mike Wallace

Mike Wallace's sheep are similar to the Easy Care, but also include St. Croix genetics.

They are considerably calmer as well, making it an easier sheep to manage for novice flock owners. Dorpers are quite popular in the South.

There have been some complaints that the rams are slower breeders, meaning lambing season may be longer compared to wool breeds. This may be a problem only within certain lines.

Other considerations

It is important to note that all three of the breeds mentioned above are wool breeds that shed their fleece. Thoroughness of shedding can vary, generally being less thorough the farther north you go. Some family lines may also shed less thoroughly.

My experience has been that it is not worth trying to breed a wool flock over to shedding sheep, as this will require many generations of selection. If you no longer want to shear sheep,

the best approach is to start over with a shedding breed.

Parasite resistance can vary depending upon previous selection for this trait.

So if parasite resistance is an important trait, be sure to source your sheep from a farm that has made some selection for this.

All of that said, I still prefer wool breeds due to their genetic diversity, their ability to deal with cold weather, and their ability to produce heavier, high-quality carcasses.

Do your homework

At the same time, I can see why hair sheep are gaining in popularity. However, be sure to do your homework before jumping into the world of sheep that do not need shearing.

Janet McNally grazes sheep near Hinckley, Minnesota.

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Creating clarity: going beyond a handshake

By John Arbuckle

Farmers and ranchers are the best people I know. Really.

I'm not just saying this to "blow sunshine up your skirt", as my grandmother used to say. We get together and work out partnerships and deals, and most of the time it is fine.

That said, in operating our Singing Pastures marketing venture, we believe that clarity is great business practice.

A big step in the evolution of our farm business was implementing a Memorandum of Understanding (MOU) that we use with other farmers, co-packers and, when possible, wholesale customers.

An MOU is not the same as a contract. It is *not* legally binding. It is, however, a good step toward making your farm venture more professional, and it can be invaluable in creating clarity.

One advantage of an MOU is that it doesn't require that an attorney be involved. This is something you can draw up yourself with a simple template.

Simply put, an MOU is an agreement between two parties intending a common line of action. Basically, you are getting really transparent regard-

ing your responsibilities and those of the other person.

You can also do that in a "handshake deal" where you talk about an arrangement and both parties agree. However, communication being what it is, when something goes wrong the human mind has a tendency to remember things in their own favor. This is almost never with malicious intent, as each party honestly believes their own story.

What went wrong

A small and simple example of what inspired us to make this change was a purchase order I created for a co-packer to make bacon. We had a pleasant phone call about it. I recall saying that we didn't want MSG as an ingredient.

But the co-packer did not remember. We ended up with MSG bacon and paying for processing even though we felt the other party had failed to follow our wishes. I had to find a different sales outlet for this bacon.

Drawing up an MOU brings a little extra work, but it will save you time in the long run because you can illuminate where you and/or the other party might have been making assumptions.

Like they say, "Good fences make good neighbors." The same could be said for "Good boundaries create good relationships."

While we have never felt that anyone was attempting to take advantage of us, there are simply so many details that go into creating a uniform finished product that there is value in articulating all the details in writing.

For example, when we put in a purchase order for the fabrication of bacon, our MOU will contain the specification sheet with a picture of a label, the exact weight of the package, the ingredient deck, the agreed upon processing fee, and any other relevant important details.

Below is a more specific example of what we put in an MOU. It is not the only way to do it.

Say that I want to buy pasture-raised pork from another farmer to put in our Roam Sticks (snack sticks). Here is a breakdown of what I might put in an MOU:

PURPOSE

The purpose of this Agreement is to build the foundations for mutually successful business processes. We feel it is our sacred duty to be a good neighbor and below you will find what we understand to be our (and your) responsibilities in that matter.

PARTIES & EXECUTION DATE

This Memorandum of Understanding (hereinafter referred to as the "Agreement") is entered into on xxxxx x, 2023 (the "Effective Date"), by and between: (Fill in the names and addresses of the two parties)

Next I detail the responsibilities of the buyer and vendor. Here are some things I would include in this type of MOU:

- Sale price

- Method of payment
- Payment terms (i.e., how long until the vendor gets paid?)
- Who is responsible for transportation
- Where "ownership" of the product takes place
- The expected carcass specifications and label claims
- What constitutes a "failed product"
- What happens with failed product. Is it returned to the seller? Who pays transportation?

This is by no means an exhaustive list. The purpose of an MOU is to think of all the details, and then lay them out on paper. This includes even the uncomfortable topics and worst case scenarios.

Then you sign and date it at the bottom.

We use MOUs for all the producers we buy from and co-packers we work with. We are working toward having MOUs for the wholesale accounts we sell to.

Our experience has been that creating an MOU doesn't make the relationship worse. It makes it better. Humans want to go into deals with good faith, and that counts for a lot.

If you can clarify the details, you have what we call a "clean deal". No one can come back and say "I didn't know" or "that's not what I remember". Your only investment is the time it takes to write up the MOU.

And as someone from my grandmother's generation might say, "An ounce of prevention is worth a pound of cure."

John Arbuckle manages pasture-raised pigs and markets pork products from his home at Springing Prairie Farms, LLC near Newcastle, Maine.

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McNair

continued from page 7

ers will not participate in any of the described environmental incentive programs. This is fine, but be aware that anything that rewards the row crop/CAFO status quo is going to make your life harder.

Your future is not assured just because you're doing the right environmental thing, because farms and companies with deeper pockets are going to be trumpeting that they're just as good as you.

Second, determining grazing's carbon footprint is just as difficult as with any other agricultural practice. On a nationwide basis, grazing methods, sward species, soil types, specific climates and other factors combine to frustrate attempts at coming up with formulae that could be used in carbon payment programs.

Governments in leading grazing nations such as Ireland and New Zealand are forging plans for emis-

sions targets (with lots of blowback from farmers), and research is taking place on some U.S. grass farms. But at least from my point of view, it's very doubtful that the near future will produce anything accurate enough to use as an viable foundation for carbon payments on a broad scale.

Which means that carbon needs to be just a piece of the environmental action. Grazing's positive impacts on groundwater, surface water, erosion and food quality are measurable and meaningful.

In a rational world, the holistic grazing package would prevail. Problem is, this is a world in which greenwashing fueled by virtually unlimited resources tends to carry the day.

That doesn't mean that you can't do well in this world. But the reality of greenwashing is not a good thing if you are concerned about the future health of our world.

Joel McNair is editor and publisher of Graze and has a small farm in southern Wisconsin.

Epigenetics and regenerative dairy grazing

The importance of matching animals and grazing management

By Derek Schmitz and Allen R. Williams, Ph.D.

In the two previous articles we have discussed what Derek has done on his farm to implement regenerative grazing and how he made that transition.

In this article, we would like to take things a step further and describe some of the changes in livestock that he’s seen on his regenerative journey.

The power of epigenetics

Epigenetics is defined as the study of changes in organisms caused by modification of gene expression rather than alteration of the genetic code itself. Most genes can have significant variation in the degree to which they express themselves.

Gene expression is influenced by environmental factors, including management, diet, dietary supplements, all types of pesticides, reproductive manipulation, climate extremes and more. These epigenetic influences start at the moment of conception for any individual. Epigenetic effects are also transgenerational, meaning they are passed from one generation to the next.

Every decision we make either positively or negatively affects the epigenetics of our livestock. Every time we use a “cide”, supplement heavily, or use excessive pharmaceuticals, we are negatively impacting individual animal epigenetics.

However, when we raise our livestock in nature’s image, we positively influence epigenetics, producing generational impacts.

This impact can be observed in Derek’s herd where two full sisters were developed differently. One was raised in a group feeding situation, fed milk for three months and 4 lbs. of grain/day through 12 months. The other sister, one year younger, was fed on a nanny cow for seven months.

Today, those two sisters are very different animals. The nanny-raised heifer has a lifetime higher body condition, is much more persistent in lactation, better overall health status and reproductive performance. Derek commonly sees this in his nanny raised calves.

As his regenerative journey continues, Derek sees that his cows and land “are becoming one.” The cows have become a part of the landscape, rather than just living on it, and this

is because of what Derek has been selecting for in his herd.

The cow that thrives best in the context of his system seems to weigh about 1,150 lbs. and can handle the cold well enough in his northern environment to not eat him out of house and home.

Careful use of artificial insemination (note that there are epigenetic stresses that happen with AI) has allowed him to incorporate the genetics that Derek has further developed by using home-bred bulls to “nativize” his cattle to his farm’s ecosystem. We would encourage other farmers to do this by selecting for truly superior grass-based livestock.

Healthy soil, plants, stock

Livestock fed highly diverse, high-forage diets grown in well-stewarded soils with a robust population of biology and vast mycorrhizal networks will be nearly problem free. I’m sure we can all agree that managing sickly livestock is the least favorite part of our profession.

As an industry, we need to quit pretending that large veterinary bills, sagging reproduction rates and calf-hood illnesses are a normal part of

doing business. Nature’s default is health, and when we stray from nature’s template and act as if the rules don’t apply to us, we will fail every time.

Average annual veterinary costs on most dairy farms are over \$150 per cow. But what if, by supplying phytonutrient-rich feed and building positive epigenetics, we could cut that cost in half? Or even by 90%?

For a 100-cow dairy, that cost savings represents a nice winter vacation to somewhere with a beach and fruity cocktails, not to mention a better quality of life. We understand that most dairy farmers reading this are already grazing and housing their cows comfortably and have realized some of these benefits. However, many have not yet reaped them.

Before Derek implemented adaptive grazing, he was content with his herd health costs and reproduction results, but only because he didn’t know they could be significantly better. Other than instances of high milk urea nitrogen (MUN) numbers causing some hoof problems, everything seemed okay.

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Wild Hill Jerseys

Wild Hill Cheese Pine

Cheese PINE is a unique young bull with a pedigree rich with high test and longevity. He is an own son of Butter Valley Cheese Yield, an iconic Phil Miller-bred bull over 3 decades old. PINE has at least three crosses to Cheese Yield. Notice that in PINE’s maternal line, 5 of 6 dams milked at least into their 9th year. Of PINE’s 6 direct maternal dams, we find only 1 record under 5% fat test (4.9%)!



aAa 462513 A2A2 born 8/26/2020
reg # 75811040

Sire: Butter Valley Cheese Yield
Dam: Wild Hill Cone Pine
VG-84%

3-08 305d 2x 13490 6.2 841F 4.4 598P
4-08 305d 2x 12640 6.3 800F 4.5 564P
5-09 305d 2x 13250 6.0 794F 4.4 583P
6-08 305d 2x 12250 6.7 819F 4.3 523P
7-08 305d 2x 15130 5.9 889F 4.0 602P

Maternal Grand Sire: All Lynns Louie Valentino

2nd Dam: Butter Valley Drill Cone VG-88%

7-05 305d 2x 14120 6.1 857F 4.1 574P
8-05 288d 2x 12810 6.1 785F 4.0 511P
9-04 302d 2x 10740 6.0 640F 4.1 445P

3rd Dam: Butter Valley Telmark Pine

1-08 305d 2x 13380 5.3 710F 3.9 528P

4th Dam: Butter Valley Herk Maple VG-80%

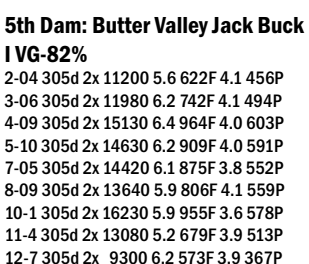
2-06 305d 2x 12480 5.9 732F 3.8 474P
3-04 294d 2x 9970 6.2 618F 4.1 407P
4-04 294d 2x 11830 6.2 732F 3.9 467P
5-03 305d 2x 12270 5.5 670F 3.8 463P
6-04 301d 2x 13040 6.0 782F 3.8 497P
7-03 303d 2x 16780 5.7 963F 3.6 610P
8-04 305d 2x 14000 5.7 797F 3.8 532P
9-05 295d 2x 11920 5.5 651F 3.7 443P
10-05 122d 2x 5230 5.3 277F 3.6 189P



Dam of Cheese Pine
pictured at 9 years of age



Daughter of Cheese Yield



5th Dam: Butter Valley Jack Buck I VG-82%

2-04 305d 2x 11200 5.6 622F 4.1 456P
3-06 305d 2x 11980 6.2 742F 4.1 494P
4-09 305d 2x 15130 6.4 964F 4.0 603P
5-10 305d 2x 14630 6.2 909F 4.0 591P
7-05 305d 2x 14420 6.1 875F 3.8 552P
8-09 305d 2x 13640 5.9 806F 4.1 559P
10-1 305d 2x 16230 5.9 955F 3.6 578P
11-4 305d 2x 13080 5.2 679F 3.9 513P
12-7 305d 2x 9300 6.2 573F 3.9 367P



Maternal sister to Cheese Pine
EX-90 - 5 year old

7-01 305d 2x 19840 5.9 1179F 3.8 755P
8-04 305d 2x 16270 5.2 852F 3.8 612P
9-05 305d 2x 14920 5.4 813F 3.8 563P
10-4 305d 2x 15100 4.9 740F 3.8 569P

Wild Hill Lady Super

Lady SUPER has a pedigree full of Wild Hill breeding. His dam and paternal grand dam are both scored Excellent and have high component performance in a grazing environment. We hear report of Lady SUPER siring healthy, vigorous calves.



aAa 432 A2A2 born 9/11/2019
reg # 67891021

Sire: Wild Hill Super
Dam of Sire: Wild Hill Topeka
Susie EX-91%

5-02 305d 2x 11230 6.4 724F 4.2 467P

Dam: Wild Hill Lady Girl EX-90%
2-11 305d 2x 11030 6.3 696F 4.3 476P
3-10 299d 2x 11900 6.5 779F 4.3 507P
4-09 305d 2x 12630 6.7 844F 4.3 537P
5-11 305d 2x 14850 6.4 957F 4.1 607P

Maternal Grand Sire: Wild Hill Impuls Jas

2nd Dam: Wild Hill Grin Girl VG-84%

3-11 305d 2x 15080 6.0 903F 3.9 592P



Dam of Lady Super
pictured at 7 years of age



9-month old daughter of Lady Super
raised on a no-grain diet



Dam of Sire of Lady Super
pictured at 7 years of age

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Graze

Grassfed organic forum

Issues for graziers shipping to the organic grassfed milk market.

How do you keep them cool?

Cheyenne Christianson

One of the benefits of northern Wisconsin is that we don't have nearly the heat as those in warmer climates. We seldom get above 90, but we can get a string of upper-80s and a few 90s with humidity. The cows are not happy when that happens. Milk production generally hangs in there the first few days if we have some shade, but after that we see a drop.

I try to plan ahead for heat as much as I can by saving some shade areas for grazing when heat is in the forecast. We have trees around the farm that give the cows shade to varying degrees. Most are on edges of pastures in old fence-rows that cows can get near for some shade and cooling effect from the trees. A couple of small clumps of trees give some relief when we are in the pastures that have them. We have one lot of scattered trees that cover about five acres for the cows, and a little larger area for the heifers. We limbed the trees to get better grass growth throughout to allow some grazing with the shade. I'm still working on this area to thin a few spots and increase productivity for more grazing. I try to time that pasture for hot days so the cows can have better shade. We break it up into a few parts, with more-open pasture nearby. The cows can go eat in the sun and then migrate back to the trees.

There is some nutrient transfer over time as the cows go to the same places. To address that we have put in a polywire 10 feet from the fence to push them out a bit along the tree edges. The larger areas don't seem as bad, as there is grass throughout and these can use the extra fertility. We also have a Shade Haven portable unit that provides more flexibility to keep cows out in the pasture and spread manure where it is needed. There are a lot of days we don't use it, but it comes in pretty handy when it is hot and we have no nearby trees.

Humidity is the worst for our herd. The cows do OK on a lot of the warmer days, but when humidity is high they clump up more and are not happy. On some of those days we bring the cows back to the hoop barn an hour or two early to cool down under cover and pick at the hay that's kept available for milking times. We have milked early to get the cows back on pasture sooner in the evening. We've also found that giving the cows an extra break in the afternoon helps get them out for more grazing. Make sure the pasture is prime quality so they'll want to eat it. Sometimes warm season annuals have helped, as the cows can fill up fast on millet or sorghum-sudangrass leaves. I don't know if there is much difference in the hot weather grazing performance of grassfed compared to grain-fed animals, but it seems that grain might generate more heat as it digests.

Cheyenne Christianson milks cows near Chetek, Wisconsin.

Epigenetics

continued from page 13

Once Derek fully understood the 6-3-4™ principles of regenerative grazing and intentionally began practicing adaptive grazing, his entire operation was transformed into a much more enjoyable and profitable enterprise.

For Derek, MUNs during the grazing season have dropped substantially and the cows are able to select a far more balanced diet from a wide diversity of plants. This has led to healthier animals, resulting in annual veterinary medicine costs dropping from around \$60/cow to less than \$5.

Hoof problems associated with rocket-fuel pastures and high MUN counts that cause acidosis are completely gone.

Many people blame mid-summer

hoof health problems on stones in the lane or on excess moisture, but these are usually not the causative culprits.

These health problems are likely caused by excess nitrogen in the gut due to grazing too highly vegetative pastures at the beginning of the grazing season. This can lead to subclinical stress, resulting in health issues four to six weeks down the road.

Quality milk, healthier calves

Another major change in Derek's operation has been an increase in components and milk quality. An increase of about 15% seems typical when farmers make the switch to adaptive grazing.

Somatic cell count (SCC) typically begins to drop as the cows respond to the more balanced and diverse feed that they have access to. The added

Matt Schlabach

Dry matter intake is the big driver in grassfed milk production, and heat stress can drastically lower production. Body condition and reproduction suffers as well, and somatic cell counts tend to rise. A day or two at 90 degrees or above doesn't seem to have a major effect on performance. But if this heat extends to three to five days and is accompanied by high humidity, we struggle to maintain milk production.

The first thing we do as it gets warmer is move the cows more often. This stimulates more grazing and gets them to spread out more. A good portion of our paddocks have trees somewhere along the edges. This can provide some relief, but these areas must be managed to minimize the mess that can be created. Silvopasturing looks intriguing.

On some of the hottest days we will bring them into the barn, which has decent airflow. We'll provide them with some quality baleage to help maintain performance.

Matt Schlabach milks cows near Morrisville, New York.

Andy Schaefers

Years ago I tried locking them out on pasture with water when it was hot, but they bunched up and made a mess even if there was no mishap with the water. I've decided it's better to let them come in and give them shade, water and air movement. The animal welfare audit will look better.

The cows go out and graze for an hour after morning milking, then come back for water and shade before going back out to graze in the late afternoon. The barnyard has an old-style barn on the east side (with a north-south ridge-line) that was converted to include a parlor and holding pen. A 40- by 115-foot barn with 68 freestalls is on the north side of the lot, and it has an east-west ridgeline. The south wall is mostly open, and there are six, four-foot fans on the north wall. A 20- by 80-foot mono-slope shed with one row of 21 freestalls is on the west side.

The old barn offers some shade early, while the mono-slope shed offers shade late in the day. At mid-day the freestall barn offers shade and air movement. The barnyard water is out in the sun, so cows will drink and then seek shade instead of hanging around the water. Production declines due to the combination of pasture maturity, heat and humidity, but that's just the way it is. I accept that.

Andy Schaefers milks cows near Garnavillo, Iowa.

Ron Holter

Summer heat and humidity are givens in the Mid-Atlantic region. Heat is not something we look forward to, but is something we must accept. There are different ways to deal with it. Portable shade? I like the concept, but don't like the cost and labor. Silvopasture? I like the idea, but have not gotten it done yet. Pulling cows off pasture and putting them under sprinklers and fans? I've done

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diversity and complexity that comes from adaptive grazing is key to allowing the cow to "self-medicate" through her plant grazing selections.

With the improvement in cow health, reproduction has also improved significantly, with first-service conception rates around 75% and pregnancy rates of 90%. This results in lower breeding costs, improved grazing efficiency, and tighter calving windows and heifer age ranges.

When cows are in vibrant health, they have calves that pop out, ready to take on the world. There are far fewer DOAs, and calves experience very few health issues.

When fed high-component milk (it doesn't have to be low SCC), these calves will be off like a rocket.

This is especially the case when this milk is fed directly from "the tap." The full potential of those calves will only be realized when they are fed on nanny cows or their own dams.

There are huge lifetime epigenetic benefits when heifers live with, eat with, and interact with a herd.

Regenerative management and adaptive grazing are not prescriptive approaches. By systematically applying the principles and practices of soil health and adaptive grazing, it's possible to milk a brighter, more profitable and enjoyable future on our dairy farms.

The management approach Derek has used over the past several years, combined with his keen observations and soil health-focused adaptive grazing practices, has transformed his farm. We're certain it can transform yours as well.

Derek Schmitz milks cows near Cold Spring, Minnesota. Dr. Allen Williams is a partner in Understanding Ag, LLC, based in Starkville, MS. He can be reached at 662-312-6826 and allen@understandingag.com.

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Fresh cows and the raw milk dairy

By Sarah Smith, Mark McAfee and Joseph Heckman, PhD

For farmers who are producing raw milk for direct human consumption, it is important to understand the risks related to fresh cows and does.

Freshening is a time of tremendous change and udder inflammation as the udder moves into the production of colostrum and milk. During this time of transition while the milk supply is being established, there is a higher likelihood of mastitis and pathogens being present in the udder or teat canal.

Although pathogens in carefully produced raw milk are rare, they are still an important consideration, and we encourage all raw milk farmers to take pathogens seriously.

On-farm data

Our understanding of the increased pathogen risks in fresh cows/does is largely based on many years of test data from RAW Farm in California.

This dairy was founded by RAWMI Chairman Mark McAfee over 20 years ago, and it operates on a different scale than most raw milk dairies. RAW Farm is milking over 900 head of cattle and serving thousands of

customers with distribution to more than 580 stores in California. With this relatively large scale of raw milk production, RAW Farm has implemented some unique risk management strategies to ensure that the milk they provide is ultra-low risk.

RAW Farm utilizes daily pathogen testing as part of their risk management strategy. After detecting a positive E coli 0157:H7 sample in a fresh cow's milk years ago, RAW Farm started performing more frequent testing on fresh cows as a subset group, and individual fresh cows as needed.

The overall test dataset shows that although pathogen detections are still rare, nonetheless fresh cow milk is more likely to test positive for pathogens than milk from cows with a well-established supply and any udder inflammation resolved.

Based on this experience and having identified that fresh cows have elevated pathogen risk, RAW Farm does not use this milk for fluid raw milk products, such as milk or cream, for 30 days. Instead, this milk is used for aged cheese and butter. Pathogen tests are then performed for each fresh cow before the milk is used for direct human consumption.

Delay five to seven days

We would not expect small-scale farms to undergo the same rigorous, expensive protocol. Our general recommendation is for raw milk producers to ensure that milk from fresh cows and does is not used for direct human consumption for at least five to seven days after freshening.

After that period, we recommend that intentional methods be used to ensure there is no inflammation or mastitis present. Some methods that have been used successfully include udder inspection for signs of inflammation, and testing for problems such as mastitis, coliform, pathogens and somatic cells.

Several types of on-farm mastitis tests are available, including 4-Way California Mastitis Test, Mas-D-Tec and Udder Check. When combined with visual inspection, these tests serve as a verification step prior to using the milk for direct human consumption.

You may wonder what to do with the milk during the the initial withholding period. Right after freshening, the colostrum should ideally be fed to calves/kids that will benefit from its immune-system boosting properties.

Once the colostrum has cleared, and assuming the milk looks healthy,

this milk can be used for making inherently low-risk foods such as butter or aged cheeses. Due to their low moisture content, low pH and added salt, 60-day aged cheeses and salted raw butter are unlikely to harbor pathogens.

Another risk management strategy is to make sure fresh cows/does are milked last to ensure that any potential pathogens do not contaminate milk from other animals. After milking the fresh cows/does last, the milking machine should be rigorously cleaned, with special care taken for any complex parts such as valves.

Managing the increased pathogen risks for fresh cows/does need not be complicated. Just as for other potential risks, we recommend that farmers acknowledge the risk and make a plan for how to handle those risks.

This will reduce the likelihood of anything going wrong, for the benefit of both the customers and farmers. With proper risk management, low-risk raw milk is achievable.

Sarah Smith is director and board secretary for the Raw Milk Institute. Joseph Heckman is a professor of soil science at Rutgers University and also on the RAWMI board. Mark McAfee owns the world's largest raw milk dairy (RAW Farm in California), and is the founder and chairman of the Raw Milk Institute. RAWMI can be reached at www.rawmilk-institute.org; contact@rawmilk-institute.org; and 559-846-9732.



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Fake meat sales, investment declined in 2022

U.S. sales of plant-based “meat” were down 1.2% in 2022, and individual unit sales fell by 8.2%, according to statistics from the SPINS market analysis firm and reported by the Good Food Institute (GFI) and the Plant Based Foods Association.

A September 2022 study from Deloitte found that at 47%, the share of consumers who sometimes bought plant-based meat decreased 3% from a year earlier.

GFI, which promotes plant-based meat alternatives, issued a report stating that there are 136 companies

in 31 countries working on fermentation processes to produce animal-free proteins. These include both biomass fermentation companies, which make animal-derived analogs from fungi, and ones using precision fermentation, which creates animal-free proteins similar to those in dairy and eggs.

In addition, GFI said there are 156 cultivated meat companies located in 26 different countries. However, investments in the alternative protein space were down last year, with \$2.9 billion raised — less than 2021’s \$5.1

billion and 2020’s \$3.2 billion. GFI said that governments should invest billions of dollars in alternative proteins as a way of combating environmental degradation.

“The growth opportunities for this nascent industry are significant,” said GFI vice-president Caroline Bushnell.

FDA OKs plant ‘milk’

The FDA has issued a preliminary ruling that oat, soy and almond drinks can keep “milk” on their labels.

But the FDA added that the packaging for plant-based drinks make clear nutritional differences between their products and cow’s milk. The labeling recommendations are voluntary, but industry experts predicted that most companies would comply. The agency plans to issue a final decision after a period of public comment.

Organic milk sales declined in February

USDA reported that sales of organic fluid milk declined 3.2% in February compared to February 2022.

Whole milk sales climbed 6.4%, but the reduced-fat categories suffered a 7.2% sales drop for the month. Total organic milk sales for the first two months of 2023 were up 1.0% compared to the same period in 2022, according to USDA.

Farmer conservation demands not met

The Institute for Agriculture and Trade Policy says that farmer demand for federal conservation programs is not being met.

The report says that in 2022, roughly three in four farmers who applied for the Environmental Quality Incentives Program (EQIP) and the Conservation Stewardship Program (CSP) were rejected, even though USDA awarded around 3,000 more contracts nationwide in 2022 than in 2020.

Pests resisting biopesticides

An international study involving scientists in the United Kingdom, Brazil, and Sweden concluded that insect pests are evolving resistance to biopesticides, and that this resistance is likely to increase as use of biopesticides becomes more widespread.

In order to slow the development of resistance, they recommend planting a wider diversity of crops and using multiple biopesticides.

Grassfed organic forum —

continued from page 14

that, but don’t like the mess and the extra labor to clean that mess.

The best way we have devised to help the cows deal with heat and humidity is to develop the kind of resilient cow that can handle the heat. The Jersey cow that is kept outside all year adapts to the environmental stresses of each season. The first heatwave of the year sets them back a bit, but after this they seem to handle the heat fairly well. We do not see the signs of open-mouth panting that we used to see when we had Holsteins. And it is my opinion that a 100% grassfed cow is able to handle environmental stresses better than a grain-fed cow.

To stimulate eating, we give the cows fresh grass several times during the heat of the day. We milk at 3 p.m. and have a sprinkler over the holding pen to cool them, so they do get a break in the middle of the afternoon. There is a little production decline at these times, but we think in terms of optimum production for our farm and labor, not maximum production. So the loss of milk is accepted.

Ron Holter milks cows near Jefferson, Maryland.

Calendar....

Sept. 11-13

Grassfed Exchange Conference, Hershey, PA. **Contact:** 402-533-0573; info@grassfedexchange.com. **See ad, page 6.**



“A product that has proven itself.”
— Shelby Biasini

At NY Farm Show (left), Chuck Worden of Udder Comfort congratulates longtime customer Shelby Biasini and her family. Their award-winning cows (above) make award-winning high quality milk for award-winning cheese (right).

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“We also put Udder Comfort on udders and belly area daily for a week before calving and continue 2x/day as needed after calving. It takes edema out much faster than anything else,” she explains.

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Conversations with the land

Baseball, and what we need to regain

By Jim Van Der Pol

It must have been 25 years ago, in the midst of the major changes we were making here, that I noticed this piece in the “50 years ago” column of my hometown newspaper, the Clara City Herald:

“Sunday last the hometown boys traveled north to challenge the Louriston lads to an afternoon of baseball.”

Louriston is my township. For the Clara City group to play baseball here 75 years ago would have meant going to the Buffalo Lake park, seven miles mostly north of here.

First they had to travel the nine miles from town north to this farm, meaning that they went a total of more than 15 miles mostly on gravel since my road was not blacktopped until a full decade after the end of World War II. I would have been in diapers at the time, most likely.

The reason this event is clear in my mind is that I have built it into being with the help of first memories and imagination. That gravel road out front is the road my mother was told by the doctor in town not to take me home on, but rather to travel to the

hospital for an emergency appendectomy at age two.

In spring and early summer the road was generally dotted with potholes. Dodging them, the group from Clara City must have traveled to the park in a motley assembly of Chevy sixes and Ford flathead V-eights, along with the occasional Buick or DeSoto piloted by one of the local silver spoon types.

None of them would have started playing before noon, as we were a religious bunch in those years. Some still are. And the Louriston lads would have had to be home by five to milk the cows.

The park and ball diamond were adjacent to Shakopee Lake (Buffalo Lake was just north), and it tended to be low and mosquito plagued. Shakopee was fed by Shakopee creek from the lakes area north of Willmar.

The changes

Great efforts were afoot that would change that system. Dredge

boats were being pulled and winched through the lowest areas in this wet prairie to get rid of the sloughs and allow in the moldboard plows.

This is when the ditch system came through my farm, draining Lake Eppie, just two miles east of here and the source of sunfish and crappies in the boyhood of my late neighbor to the east. Only the steeper parts of its banks, which still impede tractor traffic, are in evidence today.

Shakopee Lake is now considerably silted in, consequent to its new role as settling pond for unwanted water from acres of surrounding farmland.

No longer are farm boys instructed to cut the meadow hay by their fathers, as described by a friend from those years: “Go out and cut around the slough. When the tractor wheels start bringing up water, quit and come home. That is as much as we will get this year.” Those sloughs are mostly gone today.

The cows those boys would have milked are now fed in a dozen or so groups of 10,000 cows at factories built in a line just north of here and milked by immigrant men and women.

The ball diamond is pretty soggy most of the year now, and the ball diamond in town, where the locals might have traveled for a return engagement, has been converted to a recreation area.

In my youth, summers were baseball, watermelon and scraping the cow manure off our shoes after running the bases. Now, at least here where I live, we don’t play baseball anymore, certainly not the way we did formerly when every respite from work was filled up with one pickup game or another.

Now we travel a hundred miles to the Twins game, pay to park the car, pay to get in, and eat too much junk food while we watch overpaid professionals play our game.

The loss

It is difficult for me to write this description of life here 75 years ago without generating anger at the loss of



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it. And this loss, as ever, is due both to greed on the part of powerful players and careless disregard by most of the population. Let the loss of baseball represent all the other loss.

What could change

But the imagination still lives. And these days my imagination is taken up by musing about what needs to happen in our farming to bring it to a better state.

Start with what we know. Farming must “perennialize” far beyond what it is currently. Our soils tell us that, erosion tells us that, climate change tells us that.

Our tillage systems cause the soil to bleed carbon to the air. Crop chemicals, which we use to substitute for tillage, cause a poisonous fog to hang over the land for most of the production year.

Our cancer rates tell us what is happening there. A cover crop regime, good and welcome though it would be, will not by itself bring the necessary change. And it is evident, as the *Graze* editor pointed out last issue, that a row crop economy is nothing like as good as it is sold as being.

In my lifetime, virtually nothing has been done in the way of breeding better perennial plants, although work in this direction is starting at the University of Minnesota and other places.

More farmers need to be involved to avoid some of the inevitable dead

ends. Farmers will generate what is needed, or it will not happen.

What is the connection between climate deterioration and population level, and what effect does a fading population have on creative, on-the-ground solutions to human and natural issues? Let your mind play with that.

We know that for us to have more acres in perennials, many of those acres must be harvested and put to economic use. How well does that happen if we confine huge numbers of cows, 10,000 per unit, to 25 acres of pavement, and under super-simplified management?

And if they are not so managed, how are they maintained and milked? And by whom?

How do we produce hogs and chickens with proper regard to land use? Currently chicken is the holy grail of land animal meat production because of its efficiency in converting grains to meat. Is that the proper measure?

Or should we be planning pork and poultry production more as an adjunct feature to grass-based ruminant production? Should chicken and pork need to fit into the main ruminant production system with an eye toward minimizing agriculture’s impact on the land?

Remember that consumers fear beef and are suspicious of dairy and eggs, but love chicken meat. Eating

We have one problem, and it is us.

chicken makes some folks feel virtuous. These are the people we sell to. We need to be talking to them.

And what about wild places? What is the need for places on our land and, for that matter, in our hearts, that are not overly disturbed and left to make their own futures? Can we do without this, or do we suffer much in its lack?

How much can we domesticate without causing the development of the industrial approach where we and all we hold dear are mere widgets in an industrial paradise?

This is not something our baseball-playing forbears needed to concern themselves with. But we do.

The tendency here has been to farm (mine) our places so that we can escape north 30 or 40 miles to play at the lakes. This again is something we must have spent money on — in some cases very much money, since public areas are becoming increasingly scarce.

I am becoming convinced that our host of farming problems are solved in the better understanding of ourselves, in the cooling of the rage we all feel, in the lowering of rates of family abuse and addiction and suicide and self-destructive behavior.

Maybe it is not so much that we have a huge inventory of problems to work out, but that we have one problem, and it is us. We destroy our own wellbeing and allow ourselves to be vulnerable to being exploited.

And our land suffers the lack of us.

Jim Van Der Pol grazes and markets from his farm near Kerkhoven, MN.

Research: pesticides limit sequestration

Researchers at the University of Turku in Finland conducted two independent studies.

Each showed that carbon sequestration and plant resilience, as well as forage pasture yield, can be increased though key adjustments in agricultural management.

One study found that reducing the intensity of mowing and cutting the plant higher resulted in higher overall

pasture yield with greater root growth. The other study found that soils that were polluted with pesticide showed less root growth in plants, limiting their carbon sequestration potential.

“This demonstrates a tremendous limitation to the potential carbon binding and storage belowground when soils are polluted by pesticide,” said Dr. Benjamin Fuchs, a spokesman for the group.

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7H014250	LEGACY ♀	Frazzled x Yoder x Liquid Gold	\$936	82	0.21	0.08	99%	1.5	3.7	4.7	2.0	2.5	7.3	2.51	3.3	98	95	99
7H014578	FOXCATCHER ♀	Panther x Foxsong x Supersire	\$634	119	0.06	0.05	99%	1.4	2.3	2.1	1.9	1.9	5.5	2.76	2.0	100	96	100
14H014220	RIVETING ♀	Frazzled x Profit x Rodgers	\$620	89	0.08	0.05	99%	1.0	2.5	4.2	2.3	2.3	6.7	2.59	4.3	105	92	102
7H014438	GODDARD ♀	Blowtorch x Delta x Supersire	\$540	167	0.10	0.03	99%	0.2	1.8	0.3	1.6	1.8	5.5	2.74	1.5	103	94	104

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Code	Name	Pedigree	Graz-PRO\$	CFP	Fat %	Pro %	Y Rel.	DPR	CCR	HCR	SCE	DCE	PL	SCS	Mast	Z Mast	Z Calf Liv	Z Cow RD
DEWDROP	GAMEPLAN ♀	Gameday x Legacy x Rolan	\$1,107	138	0.36	0.15	80%	1.3	3.9	3.1	2.1	2.2	7.9	2.50	4.6	99	99	97
14H016157	DEEBO	Massey x Polymer x Everest	\$1,097	103	0.28	0.11	79%	3.0	4.2	3.0	1.8	1.6	8.0	2.55	5.1	107	100	102
14H016393	ORGANIC ♀	Massey x Pursuit x Achiever	\$1,096	123	0.21	0.10	80%	3.2	5.3	3.9	1.8	1.2	9.8	2.54	5.4	104	103	104
14H016177	WARHAMMER ♀	Gameday x Legacy x Matters	\$1,092	139	0.30	0.08	80%	2.6	4.6	3.6	1.6	1.8	8.1	2.62	3.0	102	96	105
14H016373	CICADA	Greycup x Big Al x Resolve	\$1,061	151	0.30	0.12	79%	0.8	2.5	1.3	2.1	2.3	8.0	2.53	4.2	108	104	100
7H016163	BURGOON	Massey x Renegade x Superspring	\$1,028	131	0.29	0.11	80%	1.7	3.2	1.8	1.7	1.5	7.4	2.54	6.5	111	107	101
14H016072	DETROIT ♀	Gameday x Option x Bandares	\$1,028	140	0.28	0.09	81%	1.9	3.8	3.8	1.8	1.8	7.0	2.59	3.7	102	95	96
7H016151	BRINKLEY	Conway x Legacy x Jodandy	\$998	145	0.37	0.13	81%	1.8	2.7	2.3	2.1	1.9	5.5	2.78	1.8	102	95	99
14H016397	MUDHONEY-P	Entice-P x Jared x Burley	\$967	124	0.31	0.10	80%	1.8	3.5	2.4	1.8	1.6	6.2	2.83	2.8	103	98	101
14H015865	PERLE ♀	Moonshiner x Lionel x Achiever	\$960	159	0.27	0.08	81%	0.7	2.4	2.9	1.9	1.6	6.6	2.57	3.9	106	100	100
14H016272	DEWDROP ♀	Gameday x Acura x Samuri	\$954	165	0.28	0.11	80%	0.3	2.3	4.3	1.7	2.6	6.7	2.58	4.6	107	102	100
7H016396	FELIX ♀	Drive x Eisaku x Hal	\$954	159	0.27	0.08	80%	1.9	3.9	3.5	2.3	1.9	7.1	2.62	3.5	106	98	101
14H016220	NUCLEAR	Regal x Legacy x Jodandy	\$943	122	0.21	0.10	80%	1.3	2.1	2.5	2.0	1.8	7.4	2.59	4.2	100	99	95
14H016036	BART	Massey x Renegade x Superspring	\$940	153	0.31	0.13	80%	0.5	2.5	2.8	2.3	2.3	6.1	2.63	4.0	104	101	103
14H016334	ADELANTO	Regal x Legacy x Imax	\$938	147	0.23	0.10	80%	1.0	3.4	3.2	2.2	2.6	7.4	2.55	4.2	105	97	94
14H015903	CLOUD	Extra-P x Rome x Pizazz	\$935	144	0.18	0.11	80%	1.2	2.4	1.8	1.6	1.7	6.4	2.73	1.0	101	105	102
7H016203	TUBES	Drive x Try Me x Drago	\$935	125	0.14	0.07	79%	2.7	4.1	3.5	1.5	1.8	7.5	2.71	1.3	97	97	103
14H016189	AGAVE	Gameday x Legacy x Achiever	\$933	149	0.36	0.07	80%	0.7	2.2	2.7	2.2	2.6	7.3	2.55	1.9	94	99	101
14H016187	INFLAME	Gameday x Legacy x Rockstar	\$929	134	0.33	0.11	80%	1.4	3.2	3.2	2.4	2.4	6.6	2.60	2.9	104	102	99
7H016114	ROBBIE^ ♀	Gameday x Legacy x Rolan	\$925	147	0.27	0.09	80%	0.4	1.9	3.2	1.9	2.8	6.8	2.65	1.9	94	101	100

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