SPECIAL SAMPLE EDITION

The Stockman Grass Farmer

THE GRAZIER'S EDGE

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The informational foundation for a healthy planet and people through profitable grass-based livestock production.

Flexible Grazing Cells Work Almost Anywhere

By Jim Gerrish

MAY, Idaho: We use two basic grazing cell designs in our grazing management efforts all around the globe. The fixed design is the one most people are familiar with. This is where individual paddocks are created with permanent fences and water troughs or drinkers are installed in permanent locations. The paddock size is fixed as are the fence and water locations.

The alternative approach is the flexible design which uses movable fences and water tanks within a framework of permanent fences. We are increasingly using flexible designs in much larger applications and on much more diverse landscapes.

When I use the term permanent fence, I am still referring to electrified hi-tensile fencing. With all classes of cattle, either a single wire or two-wire permanent fence is all we typically use. With sheep or goats, the fence may be three or more wires. Rarely do we ever use a barb-wire fence in any application. Perimeter fences for sheep and goats may still be woven-wire to keep those wily rascals on the property.

Flexible grazing cells generally consist of a series of long narrow pastures that we describe as grazing corridors. The grazing corridors are further subdivided using movable electric fences. The fences can be placed anywhere within the corridor to create paddocks of varying sizes. We are using flexible fences to create flexible sized paddocks so that we have flexible management.

We like to place the permanent corridor fences as near to parallel as possible to make distance of portable fences used fairly similar and keep those distances to comfortable working lengths. A common example would be a quarter-section of land, which is a square 160 acres divided into four 40-acre strips. Each strip is 660 feet wide and a half-mile long. In this case the corridors are obviously rectangular.

Another example is a standard quarter-section center pivot set up with a near-circular fence located half way between the pivot center and the outer reach of the sprinklers. In this case we have two corridors, also 660 feet wide. They just happen to be round rather than rectangular.

For corridors less than 660 feet

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Kraut Creek Grassfed Operation Focuses On Soil Health, see story p. 6.

Fly Management Practices in Livestock Herds without Using Pesticides

By Greg Judy

CLARK, Missouri: We use a multi-prong approach with our management to limit the number of flies that attack our livestock. I will cover each of these practices in detail.

Hair coats. The first practice that has paid huge dividends is selecting cattle that have very slick oily hair coats. Flies hate landing on oily surfaces that make it tougher for them to take off when a swishing tail comes their way. The oily surface is an awesome defense mechanism for any cow. There should not be one trace of any winter hair coat left on your animals when you reach sum-

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Meadow Talk

Just One Thing

By Joel Salatin

For decades *The Stockman Grass Farmer* has faithfully come to our doorsteps offering ideas and suggestions of things we could do differently. Those of us looking for new ideas know that within these pages we will not be disappointed.

But sometimes all these ideas rattle around in our heads and paralyze us with choice. At the SGF Business Schools I share with Steve Kenyon, I lead with a series of assumptions, one of which is this: "The hardest thing to do in life is make a decision."

None of us wants to live in a rigid world, and yet being presented with options becomes its own struggle. Do I bale graze or deep bedding compost? Do I buy hay or make hay? Do I use red, speckled, or black cattle?

Avid readers of SGF know that our foremost grass expert, columnist Jim Gerrish, routinely answers questions with "It depends." I know this is the right answer, but it sure creates angst in the hearts and minds of folks looking for a recipe.

Experienced graziers know that we don't have definitives in this business; we have seasons, cycles, and unpredictable nuances.

In spite of all this, and the thousands of pages SGF devotes to helping us make decisions, I still get asked routinely: "What is the one thing I need to do?" It stems from a hundred different problems: soil fertility, cow fertility, profitability, weeds, water limitations, herd health. Name the perceived problem and we can go off on a half-day discussion.

Since I'm a simple person, I'd love a single, simple answer to all these questions. Of course, that would

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Flexible Grazing Cells

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wide, we can either use full-size geared reels or the so-called mini-reels that comfortably hold up to 660 feet of polywire. For corridors in the 660 to 1320 feet width, we generally use a standard geared reel holding up to 1320 feet of good quality braided polywire. These are the type of flexible grazing cells we have worked with for many years.

As the interest in high stock density grazing on rangeland has increased, so has the use of flexible grazing cells on much larger scale landscapes. In some parts of the USA and Canada, ranchers speak of how many sections or how many quarters they are grazing. It wasn't very many years ago that the idea of using polywire to manage a 10-section ranch (6400 acres) was almost unthinkable.

Thanks to grazier innovation and expanding opportunities with mechanized retrieval and dispersal systems, we see larger and larger landscapes being managed with movable polywire fencing. I recently saw an ATV-towable cart for dispensing and retrieving polywire fencing on a large ranch in Alberta, Canada. This unit allows a rancher to put up one mile of portable fence in as little as an hour. The fence can be reeled up and posts retrieved in an hour also. Suddenly the idea of going out and splitting a one-section pasture into four paddocks for more effective grazing is no longer a daunting task. Ten sections can easily become 40 or more paddocks.

For sheep and goats, many graziers still prefer using electric netting rather than multi-strand polywire or tape fences. To accommodate flexible use of netting in flexible grazing cells, we generally use three-strand fences for the corridor boundaries and place them at distances that are incremental to the netting rolls. For example, if you were using the 164 feet (50 meters) rolls, we would set our corridor fences at 160, 320, or 480 feet. Generally we limit a corridor to no more than three rolls wide. If corridors need to be any wider than that, maybe you should reconsider using multi-reels of polywire.

I might also report I am meeting more and more graziers who are using just a single strand of polywire to control sheep or goats. Train the critters well in a corral, keep the power level high, and don't let them get hungry. Those are the keys to successfully working small ruminants with just one wire.

The grazing cell also needs to accommodate portable stock water as well as portable fence. Our most common stock water strategy is placing a pipeline along every other fence line to allow access from the corridor on either side of the fence. We try, as much as possible, to

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Thank you for your interest in *The Stockman Grass Farmer Magazine!*

See pages 17-18 for our books!

We are the only monthly publication for professional graziers, those making a good living from pasture-based agriculture. If you are interested in more profit from your grassland produced in a healthy sustainable environment, that's what *The Stockman Grass Farmer* is all about.

More profit... from the grass up.

SGF is filled with real success stories each month that show increased profit does not come from buying more tractors, a bigger bull or more fertilizer. Increased profit comes primarily from knowledge of how to mesh your ruminants with the natural environment and building your ranch or farm from the grass up. Let the animals do what nature intended them to do!

A ranch built from the grass up is not only profitable but easy to operate, needing the barest minimum of machinery and labor. The quality of life produced by a correctly structured grassland farm is excellent. Want relief from the anxiety of dips in market prices? SGf can help give it. Many of our readers report production costs so low the market price barely matters.

A major editorial emphasis is the need to structure the grassland enterprise so that it makes money 10 years out of 10. Detailed marketing, budgets and financial analysis are unique and popular aspects of SGF.

Management-intensive grazing can increase your per acre production between 20 and 40 percent. An increased stocking rate is the most painless way to lower fixed costs. After the initial subdivision expense this increase is almost a pure profit for management and is why management-intensive grazing is becoming the skill that is separating the professional grazier from the rest.

We do not sell or give away our subscribers' names.

While per acre increase in stocking rate and gain are usually listed as the primary benefit of management-intensive grazing, a few others are:

1. A better return on total investment through a higher stocking rate, increased per head production and lower death losses from better animal observation.

2. A lower labor input due to a more even year long work load and no high peak periods due to massive haying or feeding.

3. A general conservation of the environment due to less over-grazing, better utilization of rainfall and fertilizer due to faster pasture cycling and the ability to preserve important preferred species of grass.

4. An increased sense of peace of mind on the part of the grazier. You can see your feed bank out ahead of you and by measuring the grass regrowth can make buying and selling decisions far in advance of the actual "crunch."

The Stockman Grass Farmer is published monthly, never less than 28 pages and usually between 36 and 40 pages. Wherever you live, you'll find articles of interest. SGF covers all of North America, including Canada and Mexico. Whatever your current species, if it grazes, you'll see it covered in *The Stockman Grass Farmer*.

SGF sponsors schools and seminars that allow you to personally meet and hear the ranchers and farmers who have successfully made the transition to for-profit grassland agriculture. We offer you the opportunity to network with other profit oriented graziers at our events and to read about them each month.

Get started grazing with a subscription to *The Stockman Grass Farmer Magazine*!

Flexible Grazing Cells

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design systems with pairs of corridors rather than having an odd number. Odd number of corridors leads to a higher investment cost per acre served.

Pipelines may be installed either above or below ground depending on climate, season of use, and water source. In the North pipelines are buried to prevent freezing while in the South they may be buried to keep water cooler. We install various types of quick-attach water access valves all along the pipelines to accommodate movable water troughs. Usually, we also put in a few strategically located year-around drinking points.

In a strictly seasonal grazing operation, burying lines isn't really necessary even in extremely cold climates. Using burst-resistant HDPE (high-density polyethylene) pipe instead of PVC almost eliminates the threat of broken pipelines, other than at weak fittings.

Draining the pipe at the end of the grazing season protects fittings as well. Many outfits in the North use this policy to avoid the costly burial of pipelines to 6-8 feet necessary to get it below the frost line.

If abundant spring or lake water is available, running a continuous flow of water through the pipeline will prevent freezing even at very cold winter temperatures. You just need to make sure the system doesn't get plugged up.

If you have wondered how large of a property you can manage with a flexible grazing cell, the answer is probably much larger than you ever thought. Proper layout of the permanent fence and stock water infrastructure and using the right portable tools allows more effective management of ranches measured in tens of thousands of acres. ■

Jim Gerrish is an independent grazing lands consultant providing service to farmers and ranchers on both private and public lands across the USA and internationally. He can be contacted through www.americangrazinglands.com. His books are available from the SGF Bookshelf page 18.

Fly Management

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mer heat.

Walk through your herd and see if you have any hairy animals that have not shed off. The hairy animals will be covered in flies and they will not be performing very well. It is almost like the cow is sending out a signal to the flies, come and suck all my blood out. In natural settings anything that does not shed off gets eaten by a predator. The animal gets thin, fails to reproduce and becomes food for a predator. This is nature's way of selecting for adapted animals that thrive in the natural environment in which they were born.

We call these cows fly magnets and they must be sold immediately no matter what. All they are doing is costing you money in the form of lost production and forage consumed. Worse than that is the fact that they are a huge breeding site for additional flies to repopulate and attack the rest of your good animals. Just by culling these animals from your herd, you have already made good progress in eliminating flies from your herd in the future.

Rotations. Next practice that really helps put pressure on flies is to manage your rotation such that you are distancing your herd from the previous cow pats. We constantly stay ahead of the fly hatch that is taking place in the manure pats by moving our animals forward each day with full plant recovery periods before returning to graze again.

In our area of the Midwest the fly hatch in the manure pats happens two to three days after the manure pat has been deposited on the ground.

If you take your foot and push open a two-day-old manure pat, there are hundreds of white fly maggots squirming around in the juicy mixture. This is the next army of flies that you are trying to out run with your grazing rotation. If animals are kept in the same area for two to three days, the fly population absolutely explodes over the whole herd.

Skip paddocks. If you do not have another empty farm to walk your livestock and to escape the fly pressure there is another method that definitely helps with fly pressure. Skip every other recovered paddock around your farm in your rotation and graze those paddocks that you skip on your return as

you come back across your farm. Every day you are putting a fresh un-grazed paddock between your animals and the previous grazed paddock with fly load on it.

The skipping paddock method has another huge benefit attached to it in the form of not having a huge long cattle drive from one end of your farm back to the other end where you started your grazing rotation. Because you skipped every other paddock on your first rotation across your farm, you have paddocks to graze on your return trip through the farm.

High energy plants. Grazing high energy plants that contain enormous amounts of oxygen is paramount to success. With our twice daily moves of animals through our farms we are leaving one half to two thirds of the plant. Our animals only select the best part of the plants. They trample or leave the rest of the plants. If we get in drought conditions, which seems to be happening more frequently, the longer grazed plants ensure that we have something in our pasture for our livestock's next rotation.

Don't make the mistake of leaving the herd an extra day to make them graze the paddock like you think it should be grazed. There are several bad consequences of leaving them an extra day. First and foremost is that fact that the animals will go back over the paddock and take a second bite off the plants that they grazed that first day. Now you have done serious harm to the health of the palatable plants within that paddock. By taking the second bite, these plants will need a much longer recovery period before they are ready to graze again.

The next bad consequence of leaving the animals an extra day is the fact that animal performance will plummet. All the high energy plant tips were harvested on day one. Now you're making the animals eat portions of the plant that contain very little energy. The final negative consequence of leaving the herd an extra day in the paddock is the fact that the flies have caught up with your animal herd and are sucking the blood out of them.

The high levels of daily animal performance ensures that your animals have the best immune system possible to ward off pests of all kinds. If an animal has a compromised immune system the flies will find that animal and attack it with gusto.

If your plants get mature and all go to seed because of lack of grazing pressure, animal performance will go down. Animals can select a perfect diet every single day if we allow them to with our management. Want an open cow? Limiting their daily consumption will accomplish this.

Tree Swallows. Our next line of defense against fly populations is our tree swallow bird populations. I had never seen a tree swallow in my life until I put up my first tree swallow bird house. Within two days a pair of tree swallows were nesting in it. An adult pair of tree swallows can eat 8000 flies per day. These guys enjoy eating flies and are the ultimate natural predator. It is pure joy watching them dart around the field over the top of our livestock picking off flies in the air.

These birds look like F-16 fighter jets in their aerial maneuvers. Insects have no defense against these agile birds. I went a little nuts on building and putting up tree swallow houses on all of our farms. We now have 450 tree swallow houses up on the various farms. Definitely getting some stares and coffee shop gossip about those crazy Judys with their bird houses! I kind of get a chuckle out of it because most folks really think we have gone to the birds. Before you try any tree swallow houses on your farm, google the nesting range of the birds to ensure that your farm is in it.

Chickens. While we are on the bird subject, we also have 550 laying chickens that are moved across the cattle farms. It is impossible to keep up with our cattle rotation with our chickens because we are moving the cattle mob over large areas very quickly. The fertility the chickens bring to our farm is mind boggling though. Former broomsedge ridges are now lush grass/legume forage mixtures. Am I concerned about the chickens eating the dung beetles? No. The dung beetles are mostly gone by the time the chickens are scratching through the manure pats. If you don't have chickens on your farm, brainstorm a way to get it done. Offer your farm for free to a young energetic couple looking to start their own egg laying operation.

The dung beetles certainly help with fly control, but dung beetle populations have been decimated across

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Fly Management

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the USA. We still have dung beetles but not like we did when I was a kid growing up on the farm. I remember going out to milk the family milk cow twice a day and seeing the enormous populations of dung beetles that thrived in our cow pats.

These guys were monsters that rolled up the dung in nice round balls and buried it in deep tunnels. We have never used any type of wormer on our owned cattle because it destroys dung beetle populations and does not allow the cattle to build up resistance to parasites. No fly tags or rubs are used against flies as well.

Folks, the fly control tools that I discussed in this article work. Don't get hood winked into thinking that your only option for fly control is purchasing something to pour on them or in them. Whatever you put on your animal ends up in the soil with devastating effects on your farm's soil life. You can do it, keep your money in your pocket not someone else's. ■

Greg and Jan Judy graze South Poll beef cattle, parasite-resistant hair sheep, pastured hogs, and layers on 1620 acres in Clark, Missouri. The farm includes 13 leased farms and three owned. All animals are direct marketed as meat and seed stock sales. Contact Greg at gtjudy4099@gmail.com or visit greenpasturesfarm.net. His books are available from the SGF Bookshelf page 18.

Kraut Creek Grassfed Operation Focuses On Soil Health

By Becky Gillette

GREENVILLE, Ohio: Jason Garber grew up on a farm that was primarily a commercial grain operation. His family also had some confinement hogs. After he graduated from high school, the family got into the trucking business hauling ag commodities. He later sold his shares of the trucking company to his family, and started fulfilling his dream to grass farm.

The farm they bought to live on was 35 acres, all in pasture.

"I wasn't sure what I was going to do with it," Garber said. "I've always been very health conscious, and aware of our food supply. My mother-in-law bought me a cattle book for Christmas and the author had referred to *The Stockman Grass Farmer Magazine*. I subscribed to SGF right away in 2008. I started reading that, gaining knowledge about soil health and how that affects livestock. The art of growing grassfed beef I learned primarily from SGF."

They named the farm Kraut Creek Pastures for the creek that runs through the pasture of the first farm they bought. They started growing grassfed beef and lamb. Later they added pigs and then got into doing some broilers and layers.

Garber is passionate about studying and understanding soil health.

"What I enjoy the most about the operation is the relationship between the soil biology and the end product, the nutrient quality of meat based on the density of the soil and just how God designed the soil to work if we allow it to," Garber said.

The biggest challenges have been summer heat and keeping a diversity of forages in the pasture.

Since the initial 35-acre purchase, they bought one more pasture farm and converted another to grass. They are grazing 145 acres now. The biggest challenges have been summer heat and keeping a diversity of forages in the pasture.

"I don't have good access to trees or shade structures at the current time," Garber said. "Just this past fall we planted about 100 black locust trees in the pastures and plan to do a lot more in the coming years to create shade for the livestock. Winters are usually pretty good. It is just the heat I'm not set up for."

For the grassfed beef, they are using a combination of Black Angus and some Devons bred to a Hereford bull from the Anxiety 4th genetic line, an old line of Herefords that goes back to the 1800s. The bull was purchased from Jim Lents in Oklahoma, whose herd has been closed since the 1880s.

"We wanted the Anxiety 4th line of Hereford because we thought it would add marbling and fattening ability to our cattle, which we feel that it has," he said. "The reason is the old genetics are more efficient on grass."

For the hogs, they have been running Red Wattles, but will be switching over to farrowing Berkshires for the next season. They didn't feel they had a quality source of Red Wattles like they used to. They chose the Berkshire breed for the superiority of its pH and tenderness. Garber said meat pH is an indicator of the meat's ability to retain moisture during cooking, resulting in a more desirable eating experience.

They also raise sheep. They started out with Katahdin hair sheep, and are now crossing the Katahdins with White Dorper. These F1 ewe lambs are then retained, and bred to Texel sires. Garber said they have a really good market for sheep.

For broilers, they are using Robust Whites, which is a cross between a Cornish Cross and a heritage bird. Garber said the reason they went that route is they can get the superior quantity of breast meat as a Cornish Cross, but also have the durability of a heritage bird. Currently they are using Golden Comets for layers, but are going to be switching to Barred Rock. Annually they produce about 800 broilers and usually have 100 to 150 layers.

The multiple types of animals raised complement each other.

"The cattle, especially, we can use to manage our pastures in terms of high-density grazing to increase soil health," Garber said. "We use hogs in areas where we need more forage diversity in our pasture. The sheep, we don't really have a set pattern. We look at everything and see what needs to be done. Next season we want to experiment doing some high-density grazing with sheep."

The only advertising they do is Facebook and word-of-mouth.

Meat Goating That Works

By Yvonne Zweede-Tucker

CHOTEAU, Montana: Meat goating could even be safer for humans than raising and marketing cows, horses, or pigs, as goats are smaller and less apt to accidentally injure a person than are larger species, even when all critters are worked quietly. Wait, I hear pro-beef friends arguing vehemently, but my counter-argument is to ask "wouldn't you like to get $2.76 per pound for your market animals right out of the pasture?"

Production kids (goat offspring) bound for a dinner plate need no finishing nor feedlotting to be fattened since goat fat tastes terrible and is NOT desired by consumers. Consumers are customers and are, by definition, right. Goat kids can be born in May and eaten in November, and should a doe or mother goat give you two male kids as her annual "drop," you could readily be selling 110% of her bodyweight five months after the kids are born and twelve months after last year's sale.

Am I picking on the male of the goat species by suggesting selling male kids for slaughter? Sort of, because less importantly than the fact that female kids do and should weigh a few pounds less than males at the same age, female kids can, in just a few more months, make more baby goats for your enterprise!

Male goats are so good at their role in reproduction that one male can successfully service 50-75 females in a single three and a half week heat cycle, every year for five to seven years. So, you could put the buck in right after Christmas, kid in late May, sell between Thanksgiving and Christmas, feeding hay in the winter if (like ours are) your pastures are snow-covered. Come May, here comes the next kid crop!

Ah, there's a weakness in the goat species: having a cloven hoof, goats don't dig through snow very well. The goats will make serious inroads on sage bushes growing in their pastures while being fed hay for the winter and then "kid out" and raise (without help needed or wanted) sets of twins and triplets (only very occasionally quads).

If a mother goat weighs 100 pounds, she needs 3.5 pounds of 13.5% protein hay per day. Yes, since she weighs 1/10th as much as would a 1,000 pound cow, she needs 1/10th as much feed.

Most of the goats in our herd are currently about 75% Spanish/25% Boer. The minority of pure Spanish goats are the most assertive and wary goats in the herd. In the interest of marital harmony and since Craig now does 100% of the outdoor work my desire to have all pure Spanish goats is perforce tempered with the reality of operating the herd sustainably (meaning that it will keep going because the spouses are in agreement!).

There needs to be two million more goats in the USA before we produce enough goat meat for current demand.

The Boer goat (Boer means farmer in Dutch) is the white/red-headed goat from South Africa. Since I'm being honest and biased, Spanish-breed goats typically live and can produce for ~12 years, and Boers for ~6. Yes, we've had a 13-year old doe give birth to a kid, but had to raise the baby goat ourselves as the dam could not make milk for it.

For Spanish goats, there is no grain needed, and as we have proven, animals can easily be selected to carry out profitable forage-only production. An early well-respected mentor told me that goats were very inefficient converters of grain, so using grain as a feedstuff would waste money.

What are the challenges to meat goating? I'll answer the first question of "how can you fence in a goat" immediately. Use an electric offset 8-10" up and 8-10" inside a (for example) barbed wire fence. Animals that have been raised with hot-wire already "know" that the world stops where the wire is. Those that you buy from the American Outback (Texas) or other physical-fence-only places you will have to introduce and train to electric fencing. Four lengths of Electronet in a square works very well if the charger is making the fence read "5 lights" (6,000 volts) or more.

The most important question: can meat goating be a good economic or financial diversification for your grass farming business? Yes, if:

- Your pastures have any brush, weeds or forbs growing in them that the centerpiece species does not select by preference.
- You have the cash or can sell one cow to buy 10 goats.

Eager Farmer Connects Experience, Education and Enthusiasm in Farming

By Carolyn Nation

SWOOPE, Virgina: Do you have a passion to farm, but no land? Do you need a mentor, but don't know where to find one? Are you looking for a place to gain practical experience?

Eagerfarmer.com can be the answer.

Sheri Salatin, Marketing Director of Polyface Farm, and daughter-in-law of Joel Salatin, wanted to do something for the scores of intern applicants that Polyface couldn't accommodate. Being internet savvy gave her the idea to match experienced managers and land owners with wannabe farmers.

"Browse the site," she invites, "for the best fit for you or if you don't see what you need place your own ad for the perfect partnership." Membership on the site is free, and ads cost $10-$20 a month.

"Our mission is to establish connections, kick-start partnerships and encourage healthy agricultural landscapes that span the generations." Farming opportunities span the USA and are open to foreign locations.

Since establishment in 2014, 600 ads have been placed from throughout the USA, Canada, Mexico, Australia, Afghanistan, Africa, Bolivia, Germany, Spain, St. Lucia and Turkey.

"Because the average age of the farmer is now reaching 70 years, my hope is that Eager Farmer will be a catalyst to keep our farms as farms and help young people who want to make a difference find a way to get started in the job of a lifetime!" she said. ■

Check it out. http://www.eagerfarmer.com/about-us/

• For carrying capacity, it is said that one can add one goat per cow to a pasture and only harvest more pounds of meat from the land, as goats and cattle are complementary rather than competitive grazers.

• You can put one off-set electric fence wire 8-10" in and 8-10" up inside current perimeter fences.

• You will keep a livestock guardian dog with the goats 24/7 to prevent non-paying customers (predators) from consuming the goats. The dog will require daily dog food and will pay for itself' if it prevents one goat kid from being lost per year. As a livestock guardian dog can be responsible for at least 100 goats, that's saving about half of one percent of your annual kid crop. Guardian behavior is instinctual, not trained in, as the dogs just want their herd/flock to be calm and happy.

• The goats can find shelter from cold wind/hail/rain. Goat bodies put fat around the internal organs, not under the skin, so a goat turning its tail to bad weather is not an effective sheltering behavior. Windbreaks and shelter will be sought by the goats as needed. A wind-still day for us with 20 below zero F ambient will find all of our goats outside, happily munching hay, whereas if it's 20 below zero and windy the goats will eat and then return to a windbreak/shelter as soon as possible.

• You understand that there needs to be two million more goats in the USA before we produce enough goat meat for current demand. ANY expansion of the demand, by letting mainstream Americans taste goat and thus understand how delicious, not to mention healthy, the meat is, will increase the 200+ million dollars leaving our shores annually to bring in goat meat for our citizens to eat. Two million is a LOT more goat market saturation, probably decades in the future.

• You wonder about opportunities and ask about them rather than immediately saying "that won't work here."

• If you use the Internet to search for information, please enter www.GetGoating.com to review the "Best Practices" information offered there. Yes, the information is biased, but it works! ■

Yvonne Zweede-Tucker and her husband ,Craig, raise goats in North Central Montana. She has written The Meat Goat Handbook *available at www.GetGoating.com, by email Yvonne@SmokeRidge.net or calling 406-403-4070.*

Five Management Decisions to Increase Profitability

By Dallas Mount

WHEATLAND, Wyoming: What items have the greatest impact on your ranch's profitability?

OK, let's take the ones off the table that you have very little control over, like weather and national market trends.

In my experience assisting ranchers in conducting economic analysis over the past several years, I believe these are the five areas that most cow-calf producers should have on their list.

1. Fed feed. Most people agree that feed accounts for 60 percent of the annual costs of maintaining a cow. In my experience, the more the feed is made up of fed feed rather than grazed feed, the larger your total feed bill will be. I would challenge you to spend a substantial amount of management time trying to reduce your fed feed bill.

2. Replacement cost or cow depreciation costs. These can be hidden costs, since most ranchers don't write a check for cow depreciation or purchase outside replacements, but even if you raise your own replacements, they make up a major expense. Most ranches invest $150 or more per cow per year on this item. Investigating ways to lower this expense by either increasing the value of cull animals or decreasing the cost of developing replacements, or completely rethinking replacements can be time well spent.

3. Forage productivity and harvest efficiency. By improved grazing management, both of productivity and harvest efficiency of pastureland, and with the current value of forage, this can reap huge financial rewards. Sure, fences and stock water developments cost money, but they can often be paying investments.

4. Other land business ventures. This varies greatly from one ranch to another, but it is not uncommon for a ranch to generate more income annually from non-ag uses of the land business. How are you doing about marketing and managing these income generators?

5. Gross margin analysis by enterprise. This means taking the time to look at the projected profitability of each major enterprise on your ranch, and making decisions about which enterprises to grow and which to shrink or eliminate. A whole ranch gross margin enterprise analysis can seem like a daunting task the first few times you do it. It isn't that difficult, but there are lots of little steps.

Most operations of scale usually find $50,000 to $100,000 of annual value hidden away in the mess of traditional accounting. We need a way to look at the numbers on the place that allow us to make good management decisions. This is that tool.

Hopefully my list will challenge you to make your own list. Perhaps your items are quite a bit different from mine. ■

Dallas Mount lives in Wheatland, Wyoming, is with the Ranching for Profit School and runs a Management-intensive Grazing operation with his family. He has worked with the University of Wyoming Extension service since 2001, Email: dmount76@gmail.com.

Raising Heifers

By Dan Glenn

FITZGERALD, Georgia: Raising heifers can be demanding, frustrating, time consuming, and risky. But it can also build patience, hone your cattlemen's eye and instincts, and if done right, be enjoyable and profitable. I'd like to offer a few suggestions for what has and has not worked at our ranch.

Because we promote fertility, efficiency, and adaptability in our herd, post-weaning we make our heifers get their nutrition from the environment. They learn to forage aggressively from a sward that might include a healthy population of "weeds," adapt to the grazing times and pressures of the heat and humidity, and learn to follow our calls as we move them from paddock to paddock with our adaptive grazing regimen.

We do vaccinate and worm our heifers as calves prior to breeding, but once they wean their first calf, we only intercede with medicines if we observe an unthrifty individual, most of whom fall out of our program. We follow these protocols primarily for our customers and our own peace of mind. We want to see young cattle that can handle our ranch and cycle early and get bred on time without a lot of help.

By choosing not to supplement our heifers prior to breeding, there is a wider spread of performance, body condition, and health than if they were supplemented with an energy ration. We are okay with a higher percentage to be open at pregnancy check because we have found a value-added home for them.

When the heifers are typically between 55-60% of their adult weight, at around 14-16 months old, we expose them to our own home-raised, calving-ease bulls. This is a little lighter than many choose to breed, but we believe selecting for early maturity will pay dividends with a more fertile and profitable herd.

Most hay and baleage will not provide the energy necessary for a lactating heifer to grow, milk, and breed back.

This year we bred them for 60 days and 76% were confirmed bred. Of that group, 88% were settled within their first cycle. Those open now can be diverted to a grass finishing program, since they haven't been fed grain or supplements, and bring a greater premium than at any other time in their life. Had we supplemented them, we could have increased our conception rate, but we would

Sales are through the self-serve store at the farm. Customers buy on the honor system. Failure to pay hasn't been a problem. There are cameras in the store that can be accessed from his wife Jody's phone.

"We can watch them as they fill out the invoice and check out," Garber said. "We feel like we have a pretty good handle on it. We started out being there twice a month on Saturday and learned from customers we would sell quite a lot more product if they could come when they wanted. That is when we decided we had to move into a more convenient model. We'd gone to the farmers' market awhile until we built enough customer base we felt we could step out of the farmers' market.

"Generally, our customers seek us out because they are educated and looking for products such as ours. When we got into the butchering and feed sales, we decided not to push the meat marketing anymore because our time was kind of limited on that."

Along with his brother, Ivan, they opened The Butcher Block and Smokehouse, located about ten miles from their farm, about five years ago (www.theButcherBlockandSmokehouse.com. Previously it was the butcher shop they were using to slaughter their animals. The prior owners had a major inspection violation and the Ohio Department of Agriculture shut it down.

"At that point the owner decided he was going to sell it and that was when we bought it," Garber said. "The majority of our business is custom slaughter for like-minded direct marketers. That was one reason we wanted to get into it. We didn't feel there were any other shops in the area that understood the needs of direct marketers. And currently we are a USDA inspected slaughterhouse."

The third leg of Kraut Creek is Kraut Creek Natural Feed Company, a non-GMO feed company. Garber said the company was founded because of their belief that the country's food supply is being threatened by the heavy use of genetically modified grains. Their feeds are distributed through a growing network of dealers in six states.

Like with the butcher shop, they started the feed mill because of personal needs. They were unable to find quality, economical non-GMO feed.

"So, we paired up with Fertrell, an established company," Garber said. "They supply our organic minerals. They also formulate our feeds for us and then we manufacture and distribute from here in Greenville. Our feeds are Non-GMO Project Verified and also Non-GMO Certified through A Greener World. Our feeds are Animal Welfare Approved (AWA) as well. Our hogs and the chickens receive supplemental feed, but we also sell to other people. Selling feed takes the majority of my time. We ship all over to multiple locations as far away as Florida."

Garber's favorite tool for grazing is the Batt-latch gate release timer. You set the time on it and it releases a spring gate to allow cattle to move on their own.

"During the grazing season, if we are moving them eight times a day, we can set all the Batt-latches in the morning and don't have go back until the next day," Garber said.

Water has not been a problem. They have well or spring water available with hookups every 100 feet. As far as their drought plan, they avoid overstocking, pull ewes in at weaning and feed lesser quality hay, or selling off their lamb crop early. If there is extra grass, they bring in other animals to graze the grass.

The pastures are tall fescue based, but also have a fair amount of orchard grass, timothy, blue grass and red and white clover. "We keep trying to get more diversity into it," he said. "We are still using some annual grasses to improve the soil there in the farm we have converted from row crop, and eventually want to convert over to perennial pasture.

For more information on Kraut Creek, send an email to Jason@krautcreek.com, call 937-459-0618 or see the website https://www.krautcreek.com/ and https://www.krautcreekpastures.com. ■

Becky Gillette is a freelance writer and photographer from Eureka Springs, Arkansas, who is an avid organic gardener and proponent of buying local food.

What Have We Learned over Twenty Years Producing Grass-Finished Beef?

By Anibal Pordomingo

SANTA ROSA, Argentina: Markets, chefs and finally consumers dictate what pasture finished beef is. Interpreting the signals is not easy.

Previous experiences, expectations, culture, education introduce biases far more important than objectivity of scientific facts. Products become what they are appreciated to be or we want them to be, even if objectively they are not.

Like many, I did my search for the best piece of steak. After visiting with chefs, I realized that the best steak is not always the best looking raw steak, not even the most marbled or better aged.

I found correlation with animal age to be weak, and not well correlated with breed. In addition, to my surprise every chef seems to have his own technique validated by customer satisfaction. I believe now, some have the ability to turn a doubtful piece into a tender and tasty experience. Conversely, others can only be successful and reliable if starting with tender well-finished beef.

After watching chefs and listening to their remarks, I gathered 20 tips that I list below which could help producers to adjust their grazing systems and visions.

1. All cuts with intramuscular and outside fat are easier to grill than lean beef. Fat is easy to remove if in excess.

2. If too lean, it is easy to burn over dry pasture-finished beef. Moisture added on the outside does not solve the problem. However, chefs pointed out that marbling does.

3. Definitely there is seasonality in quality and flavor.

4. Fresh meat is always better than frozen.

5. Dry aging is preferred to avoid odd flavor, but drip loss is to be watched. Lean animals lose more moisture than fat ones during aging.

6. Pasture-finished beef is less reliable than grain-fed. Quality has to be closely watched. Many chefs value information on origin, animal category, fattening pasture, age and time at harvest, aging and freezing technology.

7. Searing the meat is relevant, but too hot and fast can over burn a crust and create undesirable flavors.

8. Some suggest that slow cooking initially can help with tenderness as long as fat is not short. Be aware that slow cooking can yield dry meat.

9. Salt seems to be a must prior to grilling and seasoning too. Recipes for flavoring techniques vary with every cook.

10. Cuts with the natural protection of layers of connective tissue, such as flank, should be cooked slowly to favor tenderness. High heat at the end completes the grilling with a crisp outside layer (reverse searing).

Fattening cattle without using grains is a difficult task, yet it is the core of pastured beef.

11. A visible crust but moistness is necessary. A dry outside layer is rejected.

12. Slow chilled meats tend to loose excessive water after thawing. Always use fast freezing chillers to freeze meat.

13. Steak size comes after tenderness, juiciness, flavor and color. Thickness is often more relevant.

14. Although people may know about the differences in cuts, tough meat is never appreciated. Before presenting a tough or unpredictable piece of meat, chefs advise to implement tenderization techniques.

15. At a restaurant, the customer expects grassfed beef to be remarkable. Therefore, it has to be.

16. A good steak creates the feeling about meat. People are more inclined to acquire grassfed beef for their own cooking after a good experience at a restaurant. A good, flavorful hamburger can create the same effect.

17. Hamburger grassfed meat should not be underestimated regarding quality. A significant fraction of the carcass goes to hamburger and they need to be good. This reflects more on the cooking side than on the meat itself. Adding fat to hamburger meat to adjust flavor is difficult with extra lean carcasses.

18. Outside white fat cover is considered from younger animals and often preferred, but excessive thickness is segregated against. Consumers do not segregate against a slight yellow tint on the fat (likely from grassfed) but brightness is central.

19. Prolonged shelf display can affect perceptions of an unfamiliar product. In particular, shelf life of extra lean beef is shorter that for marbled beef. Dark red and opaque meat is always rejected.

20. Selling a farm story and environment stewardship helps to sell but does not replace a poor eating experience.

For more than 20 years, we have worked on developing forage and management plans to produce quality grassfed beef, which as most agree, has to be tender, juicy, appealing in color and texture, with fat but not fatty, and consistent. From the animal side, there is consensus that early maturing, low frame (4) easy marbling, and naturally tender genetics help to accomplish the quality target. It is also understood that harvesting at two and a half years of age or younger is likely to capture consistent tenderness. Having then the time frame restriction, the challenge is on the pasture side.

Fattening cattle without using grains is a difficult task, yet it is the core of pastured beef. We can grow cattle on pastures and then decide to feedlot them. This is a financial issue more than a technical one. There is little restriction on animal growth and development. Unless severe, a feed restriction can be compensated for later.

Likewise, long hauling and weather are easy to deal with if we are just backgrounding cattle. Once the animals are a year old, forages can be poor quality speculating with compensatory growth. Fattening at a young age on grass does not allow for the luxury of low gains for long periods. Marbling shortens that luxury even more. ■

Dr. Anibal Pordomingo is both a grassfed researcher, renown world-wide educator and private grass finisher in the Argentine Pampas. He has spent a lifetime perfecting production systems that allow healthful grassfed beef to compete quality-wise with grainfed beef under harsh climatic conditions.

This is How We Roll… Here Come the Dung Beetles!

By Steve Kenyon

BUSBY, Alberta: We have a really crappy job and I would like to tell you a little bit about ourselves. We are known as a scarab beetle or commonly called a dung beetle. We have a very important job to do. We degrade dung!

Our family is rather large as there are over 5000 different species in the family Scarabaeinae. (We don't have common names and I never took Latin so you can call me the little red guy.) I live in Alberta, Canada, but I have lots of relatives. Locally, there is my cousin the long skinny brown guy, the big black guy, the golden boy, just to name a few of us. But we have family all over the world. I know that we don't normally communicate with humans but I feel that it is important to get my message out. I guess I am a little bit of a dung disturber if you know what I mean. I want to get your attention.

There are three basic types of us. I'm a dweller but I have cousins that are tunnelers and rollers. Dwellers hang out in the dung pat eating manure and we lay our eggs in and around the pat. Some of us eat the manure itself but some adults only suck the yummy juice from the pat and dehydrate it. We get our diet from the millions of dead rumen bugs that are expelled with the manure. We lay our eggs in the manure and our larvae will consume the manure as they become adults.

Now my cousins the tunnelers, just like the name says, will dig a tunnel down under the pat and will take a ball of manure deep down into the soil and lay their egg inside the ball. This is what the young larvae will feed on until they become adults.

The rollers seem to get all the credit because the large African elephant dung beetle is quite famous. He is a bit of a glory hog but we all do the same job. Rollers will form a ball of manure and roll it away from the pat until they find a suitable spot to bury the ball. Once the ball is buried, the male and female have a romantic encounter and deposit the larvae inside the ball.

We may approach our work a bit differently, we may take our meals from different animals but we all do the same job in the end. Our job is to eat dung, and then we die. Isn't there more to life than that, you say? Yes, yes there is! I am here to tell you that what we do is a very important job for you as a producer.

Let me "break it down for you." In the process of degrading the dung, we are also helping to control parasites and pathogens for your livestock. If we can degrade the dung pat and have it completely gone, the parasite life cycle is disrupted and/or the pathogen has no place to live. Flies are always a big concern. We are a natural fly control. If the dung pat is degraded quickly, then the fly larvae has no place to call home.

We also dig around in the soil. We improve air and water infiltration to help keep soils healthy. Tunnelers are really good at this. You want more rain? Well we can help you hold on to the rain you already receive. Did you know that water is the most important nutrient for any crop? We improve the infiltration and can help reduce the runoff and evaporation from your soil.

We also help fertilize your crop. We move nutrients from the dung pats around in the soil providing many different root systems access to the needed fertility. So we are not just feeding our young, we are also feeding the plants.

Livestock have a bad reputation for emitting high volumes of methane gas. You know the whole greenhouse gas thing? Well, if you allow us to do our work in a well managed pasture situation, we greatly reduce those emissions and actually help the plants reverse this issue by sequestering more carbon. We don't really like the feedlot thing. It's not really a great environment to work in so we tend to stay away. Give us an nice healthy well managed pasture and we are the work crew for you.

We miss the good old days. In ancient Egypt, we were kind of a big deal. We were protected and worshiped as representing Khepri, the god of the rising sun. Still today, our cousins the rollers actually roll their dung balls in relation to the sun. This made them believe that we had a hand in allowing the sun to rise again each morning.

Those days are gone and now we are not treated with the same respect. However, if we put our size into perspective, you would show us a lot more respect today. Did you know that we are the strongest critter on the planet? We can move over 1100 times our own body weight! Second place goes to the leaf cutter ant. Compared to us he is a light weight and can only move a mere 50 times his body weight. What can you move as a mere human?

We do love our work. And we would love to come work for you. All you need to do is give us room and board. We need food, water and shelter and working conditions that are desirable. For food, we need lots of dung that is free from contaminants. We just like poop, straight up, with no additives or preservatives. We also need water. We need lots of residue left on the soil surface to keep our environments moist. And shelter, we need a roof over our head with very little disturbance. Give us these few simple things and we will work tirelessly for you, we will never take a sick day and we will work until we die. How is that for a dedicated employee? Can I send you a resume?

Thanks and God bless. ■

Steve Kenyon ranches in Busby, Alberta, Canada, and can be reached at skenyon@greenerpastureranching.com. Www.greenerpasturesranching.com or on Facebook at Greener Pastures Ranching.His book, Calendar of a Year Round Grazier *is* *available on p. 18.*

have had a higher percentage fall out during future breeding seasons and sold for cull cow prices.

For this type of development program, one expensive lesson learned is that once they are confirmed bred, they must be given a rising plane of nutrition to and through calving. Our heifers graze annual mixes such as pearl millet, sunn hemp, cowpea, and crabgrass in the summer. They have spring oats with T-raptor hybrid brassica in the fall, and ryegrass with crimson clover, arrowleaf clover, and hairy vetch in the winter and spring.

We believe mixes promote soil and animal health and plant them exclusively for annual production. We also use perennial pastures to develop our heifers and fill our forage chains. These include mixed swards of hybrid and common Bermuda, bahiagrass, and plenty of "weed" grasses and broadleafs.

However, if the forage chain breaks down at any time through lack of dry matter production, declining energy levels at the end of the season, or during the transitions from season to season, we will supplement in order to give these heifers a chance to wean a decent calf. Our first choice of supplementation is our best baleage or hay. However, it's important to test these to know what they are providing, and most importantly, their relative feed quality, or RFQ. Most hay and baleage will not provide the energy necessary for a lactating heifer to grow, milk, and breed back.

We have used products such as soy hull pellets, sometimes mixed with cottonseed or cottonseed meal, or even alfalfa pellets, but all these can be expensive. Whatever supplement you have access to, use it efficiently and only when necessary.

In the past, after breed up, we continued to make them work with a mixture of good and mediocre forage. Grazing management cannot take a day off. One week of good grazing doesn't make up for a week of poor grazing management. When young growing animals get behind, it's hard for them to catch up.

When heifers calve undersized and at a BCS at or under 6.0, dystocia rates have typically been a few percentage points higher than necessary, but most importantly, the heifers lost condition rapidly post-calving and struggled to grow, milk, and cycle. Eventually, they weaned a sub-standard calf, got bred back at lower rates, and were slower to reach full mature size and ability. We had the right intentions, but did not supply the heifer with what she needed to do her job. Heifers simply need a little more energy than some environments can supply to wean a good calf, because their requirements are greater than at any other stage of their lives.

By raising heifers in this manner, we offer ourselves and our customers more profitable replacement females that should get bred on time and stay in the herd longer than most conventionally raised heifers. These heifers bring a small premium over those conventionally raised because of this process, and it's easier to cull those that didn't work since they can go directly into a value-added market. At the end of the day, we are proud of the girls who graduate into the herd, raise a decent calf, and make our pockets a little less empty. ■

Dan Glenn is the owner and operator of Deep Grass Graziers, which focuses on breeding cattle for reproductive longevity. He raises replacement heifers, bulls, and grass finished beef on forages in south Georgia. You can reach him at dan@deepgrassgraziers.com, or www.deepgrassgraziers.com

Tips on Purchasing Bulls

By Kit Pharo

CHEYENNE WELLS, Colorado: When purchasing bulls, the most important factor to consider is the program behind the bulls.

Bulls that are produced in a program that aligns with your long-term goals are worth a whole lot more than bulls coming out of a program that does not align with your long-term goals. This is so obvious it should go without saying.

However, I have visited with hundreds of cow-calf producers who say they want to produce efficient, 1100 to 1200-pound cows that can wean at least 50% of their own weight for many years without being pampered, only to find out they are buying bulls that were produced by 1400 to 2000-pound cows that must be pampered to stay in production. How is that going to work?

It is unfortunate, but most bull programs do not align with any commercial cow-calf operations. Most bull programs are high-input operations with big, inefficient cows that require extra feed and care.

I just heard of an extremely high-input outfit that sold over 400 way-overfed Diesel Bulls for an average price of $14,000. Unbelieva-BULL! Why would anyone pay that much for a bull that is guaranteed to fall apart?

Decide where you want to take your program, and purchase bulls that will take you there. As always, we suggest you keep the next generation of your family in mind. Be careful that you do not allow your judgement to be swayed by the wrong things. Pretty is as pretty does, and the proof is in the pudding! ■

Kit Pharo is a no-nonsense seedstock producer in Eastern Colorado. He shares his philosophies and opinions in a quarterly newsletter and weekly emails, from which these tips appeared. To receive Kit's free and very opinionated newsletters and weekly emails, call 800-311-0995 or send an email to Kit@PharoCattle.com.

The Grass Farmer Network

GRAIN-FINISHING TO ALL GRASS

Dear SGF:

I have been subscribing to SGF a few months and I thoroughly enjoy it! I have been rotationally grazing calves on grass, then grain finishing them and selling them to friends and neighbors as locker beef. After learning the benefits of grassfed beef, I would like to grass-finish one for our family, but I have some questions.

In general, will a steer finish on grass as well/efficient/fast as a heifer, or vice versa?

The group that I have now were born September 2017, and weaned May 1, 2018, and are enjoying their summer rotationally grazing. Will spring-growing orchardgrass/clover/alfalfa pasture have the proper nutrients to finish one of these calves by next June or July?

I'd appreciate some advice. Thanks for a great magazine!

Jedd Martin
Eureka, Illinois

Joel Salatin answered: Generally heifers flesh out easier and sooner than steers (girls are usually ahead of the boys, after all). Most people find it easier to finish a heifer than a steer, although the heifers are smaller. You may be able to finish by June or July, but usually grass finishing requires more than 23 months, at least east of the Mississippi. You can speed it up with annuals.

MOVING FENCE AROUND TREES

Dear SGF:

Hi! I would love it if you could address one or all of these questions in future issues:

1. How to move fence in silvopasture without the trees getting in the way of the moving fence,
2. How Gallagher's tumble wheels can be used most effectively, or a comparison of using them with traditional step in fence posts,
3. Given equal stocking rate, does the shape of the pasture affect how effectively the mob utilizes and impacts grass; in other words, does a long narrow slice improve utilization over a square pasture of equal area? Thanks.

Hilary Elmer
Lowell, Vermont

Any linear type fence, whether single or multiple strand or netting, can easily be threaded among trees. Tumble wheels are problematic because the wire does not disconnect from the wheels. The wheels work best on even, unobstructed terrain with similarly-sized paddocks. The more square or round a paddock, the more evenly the animals graze.

ALUMINUM WIRE

Dear SGF:

In the September issue of "Meadow Talk," Joel mentioned he uses aluminum wire. Could he give more information about this wire? Maybe give size and where to find this. Thank you for a very informative magazine. Really miss Allan!

Fred Lovitt
Williamsburg, Kentucky

I use Never-Rust brand and purchase it through Jeffers Livestock (1-800-533-3377). Permanent is 12.5 gauge and portable (temporary) is 17 gauge. It also comes in 9 and 14 gauge.

REMEDY FOR BLOAT

Dear SGF:

I was wondering if you had any information on bloat control in an intensive grazing program, other than bloat blocks etc. I was thinking of using a Dosatron with dish soap but wanted to know if anybody has tried this approach. Thanks.

Steve Wood
Sheridan, Montana

Dr. Anibal Pordomingo replied: The bloat-guard or poloxaline-based detergents in liquid form are to be delivered mixed in the water. The flow regulated system needs to be where concentration is maintained fairly constant in the drinking water for the animal. The delivery devices can be many, most are simple flow regulators. The mentioned one I do not know if it allows for soap (bloat guard detergent) to flow into the water in a consistent rate with water flow (concentration regulated indirectly), then the system can work. We use simple systems; they need to work in most weather and be protected from animal impact (cattle, birds. others). The base detergents mixed with the water are a good solution for bloat prevention.

EDITOR'S NOTE: We would love to hear from you! Send us your questions and comments. Tell us what articles you would like to see more of. Email: sgfsample@aol.com or mail to; SGF, PO Box 2300, Ridgeland, MS 39157.

Bawling livestock need something; you need to figure it out and give it to them.

Happy Cows Don't Bawl

By Tina Williams and Richard McConnell

BOLIVAR, Missouri: Richard's cows used to bawl. When we first met, he rotated his cows every three days. On the second day of three, his cows would hear his truck coming home from work, and they would gather at the gate and start bawling. Richard asked Dad (Bud Williams) about this.

Dad gave his first usual answer, "Well, do you like this?"

To which Richard replied, "No, I don't like it."

So, Dad told him to "drive them away from the gate." Richard said they would just beat him back to the gate, and Dad told him that was ok, just drive them away again. Richard could see the discussion was just going in circles, so he gave in.

The Wednesday after that visit and Dad's suggestion, sure enough, the cows were standing at the gate bawling when Richard drove up from work. So, he went out to prove Dad wrong. He went to the gate the cows were standing around bawling and drove them back out into the paddock they were currently grazing.

He turned to walk back to the gate and, as he anticipated, several of the cows ran around and beat him to the gate. Several of the cows followed bawling all the way. But, Dad had said to drive them away again, so Richard did.

This time most of the cows stayed in the middle of the pasture, and only a couple of the really serious ones came back to the gate, though they didn't beat Richard. Some of the other cows wandered toward to the gate, but the main group was still in the middle of the pasture thinking the situation over. Richard went back to the gate and drove them all back to the middle of the pasture for the third time and turned and walked back to the gate.

Those cows NEVER again stood bawling at the gate and never bawled over moving again. They learned, through the discipline of those three drives, that Richard would tell them when to move, they could be happy where they are, and there was just no need to be hanging around upset and bawling. This would turn out to be the last time Richard tried to prove Dad wrong!

We believe bawling is a sign that the minds of the animals, for whatever reason, isn't right or that something is wrong with their situation. One of Dad's favorite sayings was, "Give them what they need." Bawling livestock need something; you need to figure out what it is and then give it to them, and they will quit bawling.

One day we moved our cows to a new paddock. After about three hours we heard them bawling. At first we just ignored it. Then we remembered they don't usually bawl, and maybe we needed to figure out what they needed and give it to them! When we got to the paddock we found we hadn't turned the water tank on. They needed water! Just think though, if you are used to your animals bawling, would you even have noticed this and went to check it out?

When we visit a place for a consultation, the first thing we do when we step out of the car is listen. If the livestock are bawling, we know right off something is wrong needing our attention. Or, the opposite is also true. We've

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Grazing Tips

By Allen R Williams, Ph.D.

STARKVILLE, Mississippi: In 2017 I wrote a series of articles in SGF on the Principles of Adaptive Grazing (June, July and August). These are all principles that have been proven to work well in every environment that we have worked in.

Since that time, I have been asked for helpful tips and applications for those who are either getting started with adaptive grazing or for those who want to take their grazing to the next level. Here are several tips that will help you progress on your path to soil health and abundant grazing.

PROTECT YOUR SOIL TEMPERATURE AND SOIL MOISTURE

This is my #1 priority and has the greatest impact on soil health and forage growth. If you remember the Principle of Compounding, soil moisture and temperature produce a host of compounding effects, either positive or negative.

Protecting soil temperature and moisture involves keeping sufficient plant cover and shading on the soil. This sounds really simple, and it should be, but reality is most grazers allow their livestock to graze far too close and expose the soil to the evaporative powers of the sun and heat.

To truly protect your soil moisture and temperature, you will need to keep a minimum of five to six inches of forage growth on the soil, at all times. It is far too easy for soil to heat up during the active warm season grazing season. It is common in set stock grazed pastures for the livestock to graze down favored areas too tightly and to leave areas that are less favored either ungrazed or lightly grazed.

Thermal images of pasture plants and soil can show soil temperatures well above 100 degrees F. Even less than six feet apart, soil in one area can register 87 degrees F (an area ignored by cattle) with another area grubbed down tight measured 133 degrees F.

Why is this so important? At a soil temperature below 90 degrees F sufficient soil moisture is preserved and reserved for plant growth and regrowth, and for microbial support. Once soil temperatures reach 100 degrees F, then 85% of soil moisture is lost through evaporation and no longer available for plant growth and microbial support. Only 15% of the original soil moisture is now available. Not only do the plants need moisture, but the microbes in the soil depend on water for survival. They travel through the soil on films of water.

Once soil temperatures reach 115 degrees F, microbes begin to break down and at 140 degrees F the microbes die. Don't think that soil temperatures never get that high. It is actually far too easy for that to happen in the heat of the summer. Table 1 illustrates what

Continued on p. 20

Table 1

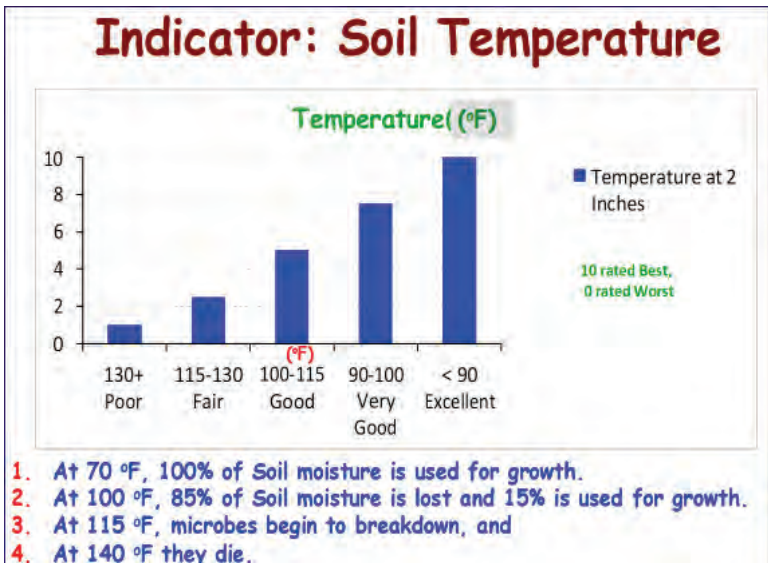
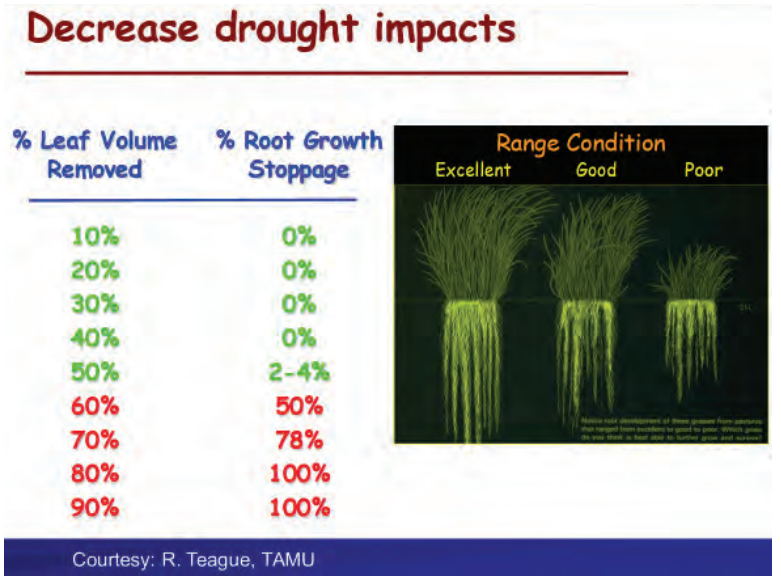
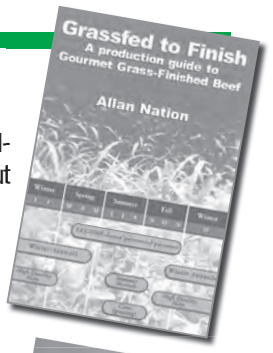


Table 2



The Stockman Grass Farmer Bookshelf

By Allan Nation



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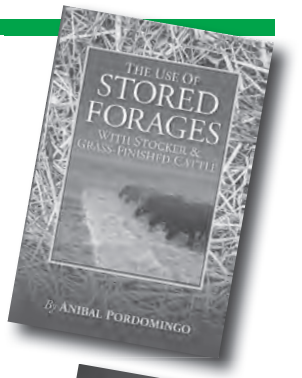
By Anibal Pordomingo



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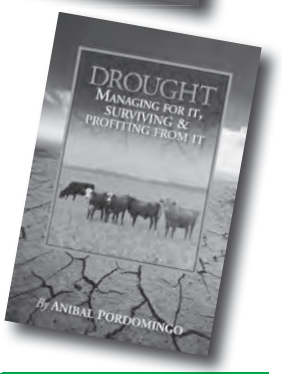

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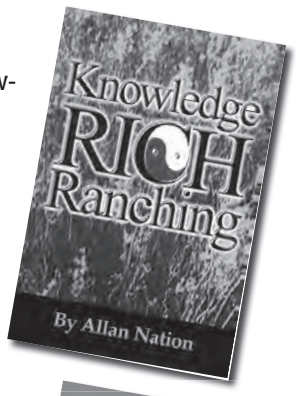

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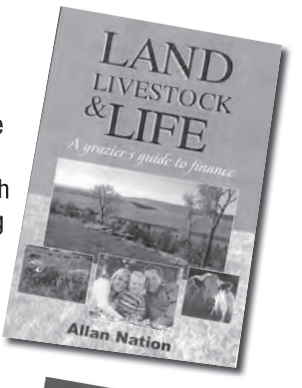

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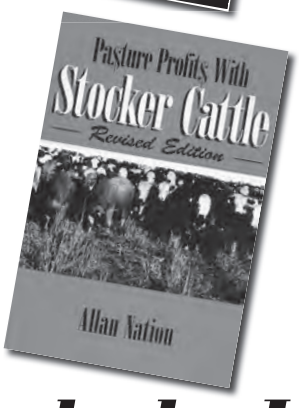

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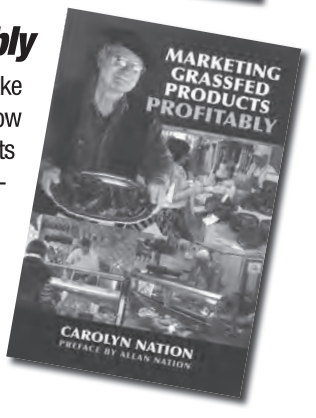

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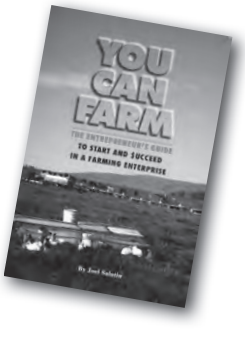

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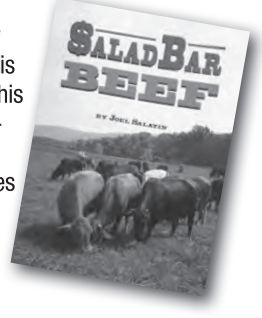
368 pages. $30.00. 1 lb.



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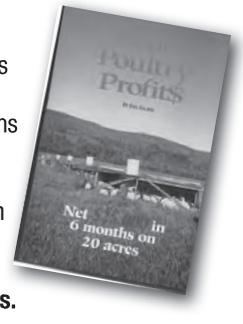
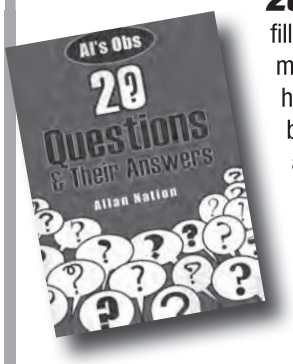


If you enjoyed Allan's Obs, these books are for you!



20 Questions

fills readers' requests for more Obs. Each chapter can help teach grass farmers how to become more profitable. Allan applies business ideas to the production of pasture based livestock.

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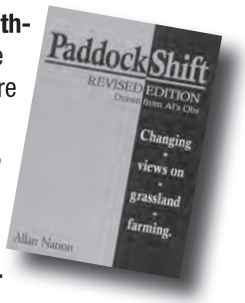
Paddock Shift, Changing Views on Grassland Farming

is a collection of **Allan Nation's monthly Observations**. These essays were selected for their timelessness and are as relevant today as they were when first written. Condensed and revised, PADDOCK SHIFT is now available in two formats. We can email you a PDF.



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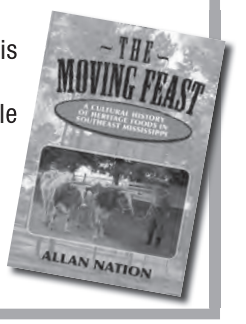
The Moving Feast

describes how the agricultural practices, climate, land and human culture influenced what our ancestors ate. ***Stockman Grass Farmer*** readers who were intrigued by the two-part food history from Al's Obs will find ***The Moving Feast*** even more insightful and entertaining. He writes, "I am hoping that this "Heritage Food" movement that is starting in the Deep South will grow and spread across our country. People everywhere once fed themselves without petroleum inputs by working with what God gave them in their locality. We can do that again."



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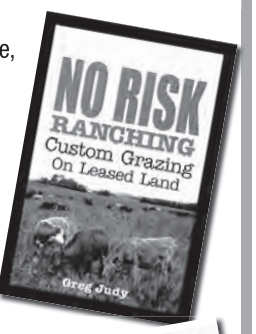

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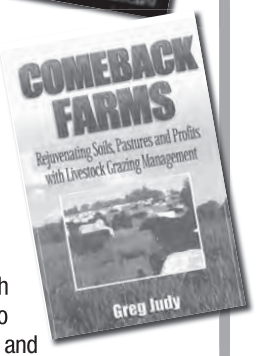
Rejuvenating soils, pastures and profits with livestock grazing management. Takes up where *No Risk Ranchin*g ended. Expands the grazing concept on leased land with sheep, goats, and pigs in addition to cattle. Covers High Density Grazing and fencing gear and systems, grass-genetic cattle, developing parasite-resistant sheep.



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By Joel Salatin

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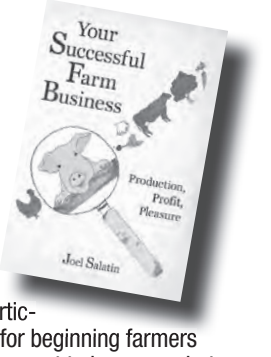
Production, Profit, Pleasure

Joel offers fresh views into his beliefs and farming methods so that anyone who is determined and passionate about their dream can achieve the same kind of success they see at Polyface today. He describes the theme of this book to "articulate the common threads of success for beginning farmers and what made a farmer thrive." If you want to improve what you are already doing or itching to get started, this book is for you!



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Rejuvenating Depleted Soil with Cover Crops and Livestock

By Heather Smith Thomas

SALTCOATS, Saskatchewan: When you want to rejuvenate tired fields, there's a certain path to follow in order to get the soil biology back into proper balance.

This includes getting more carbohydrates/sugar back into the soil to wake up the soil biology, which results in healthier soil and more forage. "As soon as you get the soil biology back into balance, everything else falls into place," said Kevin Elmy of Friendly Acres Farm near Saltcoats in east central Saskatchewan.

He often consults with and gives presentations for producers regarding ways to improve their pasture production and to work on regenerative agricultural management systems. He does some public speaking during the winter at meetings devoted to cover crops and soil health.

"Jay Fuhrer gave a presentation at an organic meeting in Saskatoon, Saskatchewan, in November 2018 and one of the things he talked about is how important this balance is. He told a story about a family farm and said grandpa was a great farmer. He could throw any kind of seed at the ground and get a bumper crop. The dad was also a pretty good farmer, but not quite as good as the grandpa, but he got good crops. The son, however, was struggling to make it work. Fuhrer explained that it all goes back to carbon in the soil. Grandpa had high carbon, the dad had medium carbon, but by the next generation it was dwindling. It's important to manage the carbon," Elmy explained.

"To see where your soil is, look at the fence-line and compare that soil to the soil in your field. What's the depth of the A horizon (the top part of the soil, usually the darker part darker due to higher organic matter) and what does the aggregation look like? These are benchmarks you can use, to see if your side of the fence is coming or going and whether you are inadvertently overgrazing or mismanaging the grass. This will be reflected in your soil in the field versus what it is at the fence-line."

In Ohio it's been estimated that about 50% of the carbon in the soil is gone compared to what it was prior to breaking it up for farming. "I think the numbers in Saskatchewan would be similar.

"I was recently in Alberta talking to some ranchers about rejuvenating tired pastures and told them we need to change our perspective. We are actually not cattle producers; we are grass managers. We grow grass to feed our cattle, and the cattle are our best tools for managing the grass, and also for solving the problems of over-cropping on a farm," said Elmy.

"I like Jay Fuhrer's illustration about ideal grazing. He takes a grass plant and balances it on his finger, and said, 'There's 50%, and that's what you should be leaving, when you are grazing.' Some of the feed tests he's taken from the top 50% of that plant versus the bottom show that the top half has far superior feed values. If you are taking just the top half (the best nutrients) and leaving the bottom half to enable that plant to fully recover (and recover more quickly) you will have better feed quality for the cattle and more production from the cattle and the pasture and the farm," said Elmy.

"One of the things that Clayton Robins in Manitoba talks about is never grazing perennial forages in August, September, or October because that's when those plants are trying to set up for overwintering. This is where annual crops come into the picture to fill that gap. They are not going to overwinter and you can graze those acres very hard," he said.

The challenge for many livestock producers is that they don't grow crops. This is when it's great to partner with a neighbor who farms. Many farmers don't own cows and don't want to own cows, but livestock can benefit their land coming in to graze at the right time to help improve soil fertility.

"I haven't seen very many livestock producers who are long on feed, so this is a great opportunity to partner with someone who grows crops. The farmer doesn't need to learn how to raise or manage animals but knows how to grow things. The cattle producer knows how to manage his cattle but doesn't know how to seed and harvest. Partnering with someone who does can be a win-win situation if you can find a farmer who wants to diversify his cropping system and reduce the chemical load on the land and reduce the fertilizer needs," he explained.

When you bring cattle in, it solves a lot of the issues that we face in modern agriculture. The cattle do the trampling and leave litter and natural fertilizer, which is much better than chemicals. "On our farm we haven't bought nitrogen for 11 years, and this year I won't be buying any phosphate or potash. By having cattle on the land at the proper time, my inputs for growing crops are greatly reduced and farming is fun."

In consulting as an agronomist, he said he is more of a psychologist than anything else. "People call me up with questions and ask if certain ideas are possible. They wonder if anyone has ever done this or that, and need some assurance. They may think they don't have enough time, or don't get enough rain or maybe have some other situation that might hold them back from trying something new. I ask them if they know where La Crete, Alberta, is in northern Alberta, just an hour drive from Northwest Territories where many producers are doing these things successfully. I tell people that the hardest change is between your ears, getting your mind around it," said Elmy.

"Gabe Brown said that if you haven't made any mistakes on your farm, you haven't tried enough new things. We have our crop tour here at our farm every year and I show people some of our mistakes and tell them that 'doing this particular thing doesn't work!' This is the risk. If conditions are right, something might work, but if not, you need a plan B or C." ■

Heather Smith Thomas ranches in Salmon, Idaho and is the author of Horse Tales, Cow Tales, *and* Ranch Tales *available at heathersmiththomas.blogspot.com*

Happy Cows

Continued from p. 15

driven up to a 28,000 head feedlot and not heard one bawl. We visited a dairy with about 400 head under one roof and the only sound was the robotic milker whishing, the fans, and the birds chirping outside. And we've driven up to a 200 head background yard where the bawling was deafening. Two mornings later when we got up to leave, there wasn't one sound!

"What about bawling during weaning?" This is a pretty obvious situation where the bawling is a sign that their minds aren't right and that you need to intervene. Drive the calves, drive the cows, and take the stress off them. Let the calves know you are there to provide the things their mamma used to provide and that you will take great care of them. The bawling will quickly be replaced with happy, "normal" animals eating, drinking, and growing.

"What about bawling when I'm feeding them hay or grain, isn't this normal?" No, this is not normal.

We use the example of the Black Friday Sales to explain what's going on in the minds of your livestock when you encourage excitement into their feeding. The people lined up at Wal-Mart to try and buy one of the ten 99 inch TVs for $250 are not in a calm and happy state of mind. They are excited and stressed. Their minds are not right!

The mind of the cow should be concentrated on her calf first and all else second.

Your livestock do not need to act like those shoppers. There's no need to lay on the horn and encourage them to run up with excitement leaving their calves. They can come with just one or two blasts of the horn at a nice walk with their calves by their sides.

This is very important. The mind of the cow should be concentrated on her calf first and all else second. If she gets so excited that food or bawling or your truck are first in her mind, both she and her calf will suffer. Drive your feed truck in an "S" rather than a straight line (if you feed on the ground) so they don't get to following right behind the truck but will go across the "S."

After feeding, get out and walk around in them for five minutes or so to get them all eating and into a proper mental state. You will find this will settle their minds and allow them to concentrate on their calves first and feeding second.

Livestock do not need to bawl. This is not a normal behavior. This is a sign they are unhappy and they need something from you. Go figure out what it is and then do it! ■

Richard McConnell and Tina Williams (daughter of Bud Williams) consult and teach schools on Livestock Marketing and Proper Stockmanship across North America. Reach them at www.handnhandlivestocksolutions.com or 417-327-6500.

Allen's Grazing Tips

Continued from p. 16

happens as soil temperatures heat up.

So, applying the Principle of Compounding, what are the negative compounding effects of grazing too tight and allowing soil temperature to rise significantly?

1. Excessive loss of soil moisture.
2. Reduced soil microbial activity and potential die-off.
3. Loss of at least a portion of the soil aggregate.
4. Reduced future water infiltration and greater runoff/erosion.
5. Increased compaction of the soil.
6. Increased plant root growth stoppage.
7. Slow plant recovery.
8. Increased presence of potentially undesirable plants (weeds).
9. Soil microbial populations tend to shift to bacterio-centric.
10. Greatly decreased forage biomass production.
11. Reduction in desirable plant species diversity.
12. Reduced earthworm and beneficial insect population.
13. Reduced animal performance.
14. Increase in input costs.
15. Loss in plant available soil minerals.
16. Livestock water and shade requirements increase.

Table 2 indicates what happens to plant recovery potential when varying percentages of plant leaf volume are removed as a result of livestock grazing. When we allow our livestock to remove up to 50% of plant leaf volume then plant root growth stoppage is only 2-4%. However, when we allow our livestock to remove just 10% more, up to 60%, then plant root growth stoppage jumps sharply to 50%. Go above 60% and plants will experience 80-100% root growth stoppage. Again, if that happens when it turns off hot and dry, you are in real trouble.

We looked at the negative compounding effects of failing to protect soil temperature and moisture. What are the positive compounding effects if we do a good job of protecting soil temperature and moisture?

1. High levels of soil microbial activity.
2. Increased plant available minerals ready for plant uptake.
3. A balanced soil microbial population.
4. Increased soil aggregation.
5. Greater water infiltration and retention.
6. Reduced runoff and erosion.
7. Faster plant recovery from prior grazing.
8. Increased plant species diversity and complexity.
9. Greater forage biomass production.
10. Ability of desired plant species to out-compete undesirable plant species.
11. Enhanced earthworm and beneficial insect population.
12. Better animal performance.
13. Lower input costs.
14. Building of soil carbon and organic matter.
15. Reduced need for shade and water for livestock.

Simply protecting soil temperature and moisture will reap huge benefits.

As before, this is not a definitive list, but are several of the major benefits of protecting soil temperature. If you do nothing else, simply protecting soil temperature and moisture will reap huge benefits and allow you to move your operation forward in a positive manner. The reduction of supplemental feed and hay costs will be significantly reduced, as will livestock health issues.

Protection is simple - leave plenty of ground cover and plant leaf material after each grazing so that root growth stoppage is minimized and the soil is shaded. The best way to achieve this is through careful daily observation of grazing impacts and frequent livestock movement. ■

Allen Williams is president of Grass Fed Insights, LLC and one of the founding partners in Soil Health Consulting, LLC, and a partner in Joyce Farms, Inc. He is also a 6th generation family farmer. He can be reached at allenwilliams@joycefarms.com or 662-312-6826.

Big Bellies, Big Butts, Bare Backs and Bald Udders

By Steve Campbell

PARMA, Idaho: Recently I was talking to a group of land stewards that were touring the ranch in Australia where I was a guest.

The end of the tour found the group across the fence from a herd of two thousand cows with calves. The landowners asked me if I would spend a few minutes going over a few of the concepts that we had been talking about the previous two days.

Starting off with phenotype (or shape) was easy with so many examples just across the fence. A "wedge" shape cow is the most fertile for many reasons. Starting with the shoulders (small part of the wedge), she should be shorter here on the topside than at the hook bones.

Sex hormones shut off long-bone growth. The earlier in life and the more estrogen a heifer calf is producing, the more she should look like she is walking downhill while traveling on level ground. From the side view this would create the top part of the wedge.

On the bottom side, the heart girth (taken around the smallest circumference behind the front leg) should be equal to the topline (measured from pin bone to poll). To give the cow (or heifer) a wedge look, her flank circumference needs to be larger than the girth measurement by a minimum of two inches, but a plus four-inch, six-inch, or eight-inch flank is even better.

Moving to the rump of the cow, she needs to have a rump at least two and a half inches wider than it is long. The length is measured from the back of the pin bones to the front of the hook bones. The width is measured at the widest part of the rump area (usually the stifle muscle on each side).

Michael McDonald of Nebraska (God rest his soul) found that the best indicator of fertility in a cow or heifer was how much wider the rump was than its length. Kenneth Redman found that those old cows that had given us ten calves in a row had a wider rump than the average cow in the herd. With this wide rump, a view from the top of the cow is going to also give us a wedge-shaped look.

Next, my explanation turned to hormonal activity and butterfat. That short leg up front was created by high production of estrogen. Two other places we would see early estrogen expression is in hairs standing up in the adrenal whorl and the stifle muscle developing early. In most cases, higher hormonal activity is expressed in an early-shedding animal with a uniform haircoat. If your heifers all shed late and have hair sticking every which direction, it is time to take a serious look at the feed and mineral quality provided to your animals.

The bare backs I alluded to in the title is a reference to early shedding. Dr. Jan Bonsma said that if he could use only one of all of the indicators he knew for selecting which animal he would eat that year, it would be the one that shed its winter haircoat the earliest. That animal had the best glandular function in her environment and would be the most healthful for him to eat.

We can use this to our advantage IF we start observing what we look at. That early-shedding heifer will typically have fewer flies than her herdmates. She will maintain body condition easier/better.

One of the big keys to heifers and cows getting pregnant is the ability to gain weight between calving and breeding. That bred replacement heifer must be able to eat enough for two. Late shedding first calf heifers typically are the ones who breed back late or come up open in the fall. Part of this is glandular function, but in a number of cases it is related to a phenotype that hinders the heifer's ability to gain weight during lactation before joining her with the bull.

Butterfat in the heifer can be observed in a number of ways the day she is born (These are not listed in order of importance): 1) an adrenal hair whorl located in the shoulder blade area or further forward, 2) extra teats, 3) an area around the teats that has shorter, nappy, lighter hair color than the rest of her body, a precursor to a bald udder later in life, 4) the correct outline of her escutcheon showing high butterfat when she is milking, 5) the presence of vertical folds in the hide, and 6) a small diameter cannon bone and a pointed poll. In the mature cow, a bald udder is the number one indicator of butterfat. The more of the previously enumerated characteristics we see, the more likely we are to have a high butterfat-producing cow.

I summarized my talk by saying, "You need a cow with a big belly, a wide butt, a bald udder and a bare back."

Any one animal might "prove" these comments incorrect. However, one hundred cows with all of these traits will give you more and better-quality calves than one hundred cows that have few or none of these traits. ■

Steve Campell is a consultant and speaker whose motto is "Making your herd's genetic code fit your zip code." For more information on Linear Measurement, "The Three Keys to Easy Keeping Cows" or other articles on his website (tailormadecattle.com) contact him at 208-315-4726 or email trianglec3@gmail.com.

Keeping Healthy Soil

It has long been known, but some still need to learn that management of soils must target soil conservation and soil health.

Grazing lands provide one of the best opportunities to protect our soils from erosion, improve or maintain optimum levels of organic matter, provide needed habitats for soil microbes and other organisms, improve soil quality, increase infiltration of precipitation, facilitate cycling of nutrients to maintain soil fertility and contribute to carbon sequestration. This advice given many centuries ago still applies today. ■

This is an excerpt from Forage Livestock Quotes & Concepts *compiled by four grazing experts and is available at www.foragequotebook.com.*

Anna's sheep have the benefit of grazing on some of the finest perennial orchard grasses in the Northwest.

Sheep Grazier of the Next Generation

By Lydia Kyle

EAGLEVILLE, California: Born and raised in the small, unincorporated ranching community of Eagleville, California, Anna Estill has been inundated with agriculture for her entire life. Her family owns a large ranch in Northern California and Nevada operating on both government and privately owned land. Historically the family has run both cattle and sheep on the ranch, and Anna took to raising sheep from a young age.

Now a 21-year-old college student at the University of Nevada, Reno, she operates her own flock for the purpose of selling meat and breeding stock in the regional area. Though Anna feels that her sheep business is more of a hobby at this point in life, her company, ALE Sheep Company, proudly boasts 85 head of Rambouillet Suffolk cross ewes. Estill manages her flock and markets their products both remotely while at university and directly when spending vacations at the family ranch.

With roughly eighty percent of the Estill ranch being certified organic, Anna's sheep have the benefit of grazing on some of the finest perennial orchard grasses in the Northwest.

Unlike the huge bands of several thousand, the sheep of ALE Sheep Company are just the right size to utilize forage across all areas of the ranch. "Because the ranch is so big, I use them a lot for weed control," said Estill, "they can easily utilize whatever needs to be grazed at a specific time." The small flock can often be found grazing alongside cattle to help diversify forage management or in the alfalfa pivots where the cattle are too large to effectively graze.

Though the Estill's sheep are a great asset for resource management on the family's ranch, marketing is a top priority for ALE Sheep Company. Surprise Valley, California, the small niche community where Anna was raised, has embraced the local food movement with full gusto and ALE Sheep Company has been proud to offer lamb as part of that new trend.

As a young, local livestock producer, Estill has been met with open arms by the community and she offers her lamb products through the local Food Hub where community members can order locally grown or raised products online for weekly pickup in the little town of Cedarville, California.

However, Anna is thinking a bit bigger than her hometown when it comes to her products. "I really want to get into the restaurant scene," she said. Being in Reno, Nevada, attending university has opened a new platform for Estill to market her lamb products and she has seen some success in the urban restaurant landscape. ALE Sheep Company lamb products can be found in several restaurants and Estill continues to beat the street to find more consistent and reliable customers for her lamb.

Though Estill is a vibrant and powerful saleswoman, she notes that it is not always an easy sell when it comes to lamb. "It's hard because not a lot of places serve lamb right now," she said.

Because of the lack of lamb in the restaurant world, Anna sees education as one of her biggest roles as a young producer. Studying Agriculture Education at UNR, teaching comes naturally to Estill and she is eager to educate the world about the wonders of the humble sheep.

"My broad goal is to help people see that sheep are an amazing animal," she said, noting the multi-purpose abilities of sheep through grazing, meat, and fiber production. While Anna's sheep do not produce wool suitable for fiber production, her mother is actively involved in her own company which focuses on fine wool production that encompasses regenerative practices.

Meat production is Anna's niche though, and she feels called to make lamb a household favorite in the United States again. Often using hashtags like "#MakeLambGreatAgain" on her social media platforms, Anna is passionate about wanting "to make people want to eat lamb again!"

As the new generations of farmers, ranchers, and managers arise we can only hope that the future will be bright, and for the sake of ALE Sheep Company that there will be more lamb on the menu! ■

Lydia and Kenneth Kyle are raising their family on an organic ranch in Northern California. The Kyles maintain regenerative practices on the historic land that has been in Lydia's family for four generations. Lydia enjoys dabbling in pasture poultry, and her idea of fun is milking the family cow every morning.

How to Deal with Pugging Pastures

By Victor Shelton

INDIANAPOLIS, Indiana: I have seen a lot of pugged pastures recently. Pugged meaning soil trampled into consolidated mud by hooves.

Overwintering areas take a major beating but are worse under almost constant wet conditions. Winter feeding of hay creates the churning of soil from livestock hooves. The overabundance of nutrients and organic material in these feeding areas are often a mess by the end of winter and both producers and livestock can't wait to stay out of it.

These overwintering areas are ideally designated areas, not entire pastures or pasture systems. Destruction of the sod is bad enough on small units but is devastating over large areas. Heavily pugged fields can have up to 75% reduction in desirable forage yield. These areas usually have less legumes, more erosion, a loss of nutrients, potentially horrible weed problems from opening up the seed bank, are extremely rough to walk or drive on, and may increase some livestock health issues.

When we talk about pastures, it is usually recommended that you change the field that you start the season with every year to help maintain forage diversity and to not accidently stress the same fields over and over the same time periods. When it comes to overwintering areas, it's probably best to determine the best location and continue using it every year.

An ideal location is away from any water bodies and close to equipment when possible. The area will need to have an all-weather watering facility and ideally some heavy use area rock pads to make life for both you and the livestock a little better. The portion that doesn't have a pad, will normally get torn up.

So, what can you do with these damaged areas? First of all, these areas will need to dry up and that may not happen until after the livestock are back out on pastures again. Once dry enough, animal waste and any remaining decomposing hay should be cleaned up and ideally spread on a field that could use the organic matter and nutrients. These overwintering areas quite often have some perennial forage remaining and trying to survive the turmoil. Unless animal units are very low, trying to maintain perennials on these sites can be difficult. A mixture of annuals and perennials is best, but just annuals can also work.

If you decide to seed something early (March-April), a mix of oats and or annual ryegrass, and red clover can be used, and you certainly could add a little tall fescue at the same time if you want to provide some longer lasting security. If you cannot get around to planting until later (May-early June) due to weather, row crop planting, or just procrastination, then warm-season forages might be better. These species could include Japanese or Pearl millet, sorghum-sudangrass, sudangrass, cowpeas, and perhaps a

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forage crabgrass.

If you don't plant anything in these overwintering areas, then nature will usually fill the void with species you and the livestock may not really appreciate, including those that tend to thrive or like higher nutrient and organic matter levels such as barnyard grass, prickly pigweed, jimson weed, goose grass, and ragweed.

No-till drilling is still ideal, but over seeding can be fairly successful as long as there isn't too much competition and it's done as early as possible.

It is important to remove excess manure from the area if possible. If you have too much organic matter on the site, especially leftover hay that hasn't broken down, then it will tie up nitrogen for the forages that you are trying to grow. Adding legumes in the mix can help provide nitrogen to help break this matter down. If the site happens to be heavy in nitrogen from feeds, then excess nitrates could also be an issue.

Once the site is cleaned up and the "product" taken and spread on a field(s) needing the nutrients, then only level the area if needed. Any other disturbance, especially with tillage tools, will alter the structure of the soil to the depth of the tillage tool used. The disturbed depth will be softer and more prone to disturbance and future pugging until the natural structure of the soil is restored. No-till drilling is the preferred method of planting.

Once planting and growing, the cover can be utilized for grazing when needed or left to build bulk and provide some protection for the next winter use. If planted to a warm-season forage mix, the stand could be part of your contingency plan for later in the year if it turns hot and dry. It is actually good to lightly graze it once in awhile to promote tillering and root growth and to keep more vegetative for forage quality.

How valuable this is to the operation is somewhat dependent on the size of the area and what the rest of your forage-to-animal balance looks like. Vegetative cover on the site is certainly valuable for reducing erosion, recycling nutrients, reducing nutrient leaching, and in some cases, feed for livestock.

Let's move on to damaged pastures. Damaged pastures can have similar problems as the overwintering areas. The more damage or disturbance (or the barer the soil is), the higher the risk of erosion (even on pasture) and the chance of not only annual weeds, but perennial weeds. Heavy disturbance in pastures promotes ironweed, cockleburs, Carolina horsenettle, thistles and whatever has been lying around in the latent seedbank. If the pasture had good desirable forage cover prior to the disturbance, then what is left is going to be competitive with anything that you plant with it due to the already established plants and their energy reserves.

Light disturbance or less than 20% of the ground disturbed may not need any help and if allowed a little extra rest, will most likely fill itself back in. Heavier disturbance could benefit from some intervention, even if it is only temporary. Redtop, annual ryegrass, timothy, and clovers all make good "fillers" and if not out competed by existing perennial forages, can certainly add diversity and hopefully help provide enough growth quick to reduce undesired plants.

No-till drilling is still ideal, but over seeding can be fairly successful as long as there isn't too much competition and it's done as early as possible. All the previously mentioned species have a small slick seed that is more capable of reaching the soil than coarser seeds except annual ryegrass. I include annual ryegrass because the success rate is still pretty high if enough disturbance or bare ground is present even if the planting method is a bit precarious.

If you have two fields that could be rotated occasionally (every four to five years) that are used for winter feeding, established sods, especially with tall fescue, usually hold up a little better. ■

Victor Shelton is an NRCS State Grazing Specialist in Indianapolis, Indiana.

Meadow Talk

Continued from p. 1

reduce conversations, seminars, and maybe even the need for SGF. But the idea of a single, simple, comprehensive answer, especially for newcomers to this genre, is tantalizingly intriguing, don't you think? Wouldn't it be cool to be able to give one profound answer? Kind of like Jesus, when asked if we should pay taxes, and He responded: "Render unto Caesar the things that are Caesar's, and unto God the things that are God's."

The answer was so profound nobody dared ask Him any more questions. That's the kind of wisdom I want. So when I saw the book titled *The ONE Thing: The Surprisingly Simple Truth Behind Extraordinary Results,* by Gary Keller, I picked it up. His basic thesis is that until you boil down your conundrum to one thing, you will never really get to solutions. He says "extraordinary results are directly determined by how narrow you can make your focus."

In other words, forget all the ancillary stuff and get laser focused. He adds: "extraordinary success is sequential, not simultaneous." Looking at a line of dominoes and trying to figure out which one to hit first is paralyzing. Find the one in front and hitting that one makes the whole chain reaction work.

Keller drills down on what he calls the "six lies [as in untruths] between you and success:

1. Everything matters equally.
2. Multitasking.
3. A disciplined life.
4. Willpower is always on will-call.
5. A balanced life.
6. Big is bad."

I wish I had time to go into all these like he does, but you can read the book and get the whole enchilada. One more wonderful tidbit and then I'm going to applications: "magic happens at the extremes." In other words, trying to stay in balance is a recipe for turmoil. This is one of those provocative business books that has you smiling and saying "ouch" at the same time.

As a result of decades of being asked "what would you do about X?" and experiencing my own annual epiphanies - that still occur, by the way - what could I tell SGF readers ONE THING to do that would change everything? That would speak to the broad range of issues with which all of us struggle? Have I piqued your interest? Are you waiting with baited breath? Have I strung you on long enough? Okay, okay, drum roll, please.

"MOVE 'EM EVERY DAY."

That's my answer. I've played with it some over the last couple of years, probably even with some of you reading this column, to see how it fits. "I've got this weed, see, and most people spray it . . . . " Answer: "Move 'em every day."

"I wish I had more clover in my pastures; what seeds and planting techniques do you recommend?" "Move 'em every day."

"What genetics should I be using?" Answer: "Move 'em every day." Have I lost you here? What does moving them every day have to do with genetics? Oh, lots. If you move them every day, those big heavy hard keepers won't hold up. They won't like the walking; they won't rebreed.

I can feel the push back from some of you who might think the one thing is genetic selection. Others might think the one thing is summer annuals. You can make your case and I'm certainly glad to entertain your answers to this in our letters section - and I love your feedback, by the way. Anyone who wants to weigh in on this, please do.

But I find that the every day move accomplishes more things, by default, than any other one thing I can suggest. Again, I'm glad to entertain your answer. Here is my defense of the

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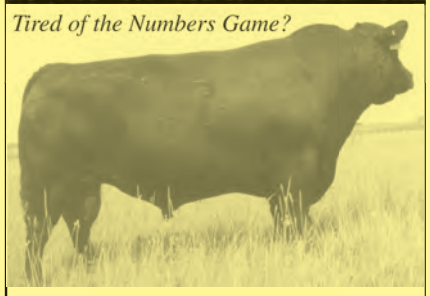

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Meadow Talk

Continued from p. 23

"move 'em every day" answer.

1. Control. We farmers love to buy seeds, equipment, and genetics, but getting control of the stock is the pivotal point of leverage. If you can't put the herd or flock (including poultry) in exactly the spot you want them to be in for only a 24-hour period, none of the management-intensive grazing advantages can be accomplished.

Control means fences, alleyways, access, and even good working pens. By moving them every day, you'll see the animals and be able to notice the limp, the scruffy, the wormy. Timing is everything. A problem not dealt with early becomes a nightmare if left to proliferate. The best way to keep up with animal health is to look at all of them every day and that happens when they're going into their next paddock. Even if you're not going to intervene, it's still good to know what's going on out there.

Few things are as enjoyable as disciplined animals. When they have a routine they become more docile, more relaxed. Every day moves build faith between animal and caretaker; this two-way relationship creates trust. Yes, I want my cows to trust me. My steaks taste better when they do.

The point is that if you're having to spend a lot of time fencing and wrangling to move the animals every day, you simply won't put up with that inefficiency. You'll build whatever infrastructure is necessary, or do whatever it takes - perhaps a herd dog - to make moving them enjoyable and efficient. Moving can be poetry or a problem; good control systems make the difference.

2. Water. Plenty of good water delivered to each paddock is inherently necessary if they enter a new paddock every day. You won't be lollygagging around with heavy, cumbersome water trailers or long alleys to a creek. With every day moves, you'll see quickly the need to develop piping systems to deliver water to portable tanks.

For some reason, water development seems to be the least romantic partner in this grass farming thing, and yet it is right up here at the top. Water brings life to a functional grass farm. Whether it's developing a well or spring, putting in a ram pump, building a pond, installing a windmill or solar pump, real time clean water is never far behind when an outfit goes to daily moves.

3**. Vegetation.** Whether the problem is weeds or the goal is more pasture diversity, few things respond faster to fast moves than the type, quality, and quantity of vegetation. I'm not opposed to planting seeds or non-routine mowing, but I've watched more vegetative transformation with aggressive high

Continued on p. 27

How to get Better Production - without Fertilizer

By Paul Schneider Jr.,
AG-USA

The nutrients are already there

Elaine did not apply any fertilizer to her field two years in a row - none. In July of the second year they put out a $20 application of MycorrPlus.

After applying MycorrPlus, Elaine's phosphorus and potassium went from half-way up the chart on her soil test to the very top.

A friend of mine who owns a laboratory in McCook, Nebraska told my dad, "In an acre of good farm ground there is 4,500 pounds of phosphorus and 3,500 pounds of calcium. It is there, but it is mostly tied up and unavailable to the plant."

He further explained that 200 bushels of corn only uses 2.5 pounds of calcium. So 3,500 pounds of calcium is enough for 1,400 years! Around 97% of the nutrients in the soil are tied up. Using them does not mine the soil. No, there is plenty! We are just making available some of the wealth of nutrients that is there.

Increasing production in good soil

Mike is a skilled farmer/gardener in Newnan, Georgia. Mike agreed to put out a $40 application of MycorrPlus as a test on a portion of his pasture, with a control on each side. That fall when we cut it, the MycorrPlus portion of the field yielded 73% better than the control areas on either side.

No fertilizer, better yields

Mark, a customer in Nebraska, put out a biological and 10 gallons of fish/acre on his corn and sunflowers one year, but nothing but a quart of MycorrPlus the next year. His corn yielded 20% better, and his sunflowers were up 25%. Our microbes freed up nutrients. He saved a lot on fertilizer!

Greatly increased organic matter

A farmer in Oregon has used Soil Balance, the soil building component of MycorrPlus, for 8 years in a row.

When he started, his organic matter was just 0.4%. Each year his organic matter went up around 0.5%, and after 8 years his organic matter AVERAGED 4.7% over all his fields. The only thing that he used to increase organic matter was the Soil Balance applications.

What causes increased organic matter

When balance is restored to the soil, including nutrient balance, pH balance and microbial balance, and no chemical phosphorus or potassium are used, the plant will see the soil as a good investment and sequester huge amounts of sugars to feed the microbes.

The plant literally "farms" the microbes in the soil, and the microbes, in turn, do a wonderful job of feeding the plant. The sugars sequestered by the plant are liquid carbon, and carbon is organic matter. This type of carbon will stay in the soil and increases year after year, no matter the type of soil. More organic matter means improved CEC!

Guarding against sapping insects

Bruce Tainio of Tainio Technologies explained that when the Base Saturation is balanced, the plant generates a frequency of 7.5 to 32 hertz. When hydrogen is high and calcium is low in the Base Saturation, this frequency goes up. The higher frequency is like a dinner bell to sapping insects.

To demonstrate this, Bruce took a potato field that was out of balance and used foliar applications to balance half of the field. Then he released 2,000 potato bugs on each half of the field.

On the balanced half, the potato bugs just walked away, but not on the out of balance half. They tore into those plants.

We have a Georgia customer whose soil test showed high calcium, but in the Base Saturation hydrogen was high and calcium was low. In just 4 months MycorrPlus brought hydrogen down and raised calcium (see below) resulting in better yields AND no dinner bell!

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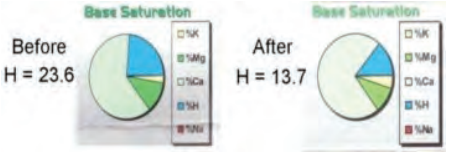

Jordan's farrowing pens are portable, cost effective and tough.

Adaptable and Portable Gear for Pigs

By Jordan Green

SHENANDOAH VALLEY, Virgina: Tackling the problem of feeding, watering and sheltering pastured pigs is essential to scaling up an enterprise and controlling costs. We need a change of mindset and innovative solutions.

FEEDING - When feeding hogs, ask the following questions. Is the feeder for free access or rationed feeding (limited access)? How easily must it move? What size pigs is it intended for and how many?

For more stationary positions perhaps the typical 60 - 80 bushel bulk feeder works well enough but on pasture, problems with clogging, denting and covering the base with debris is common. In addition to frequent movement being a paramount factor, farrowing operations also deal with sows. They should not have continual access to feed. Their feed must be rationed; otherwise they would be one thousand pounds in the first 18 months and unable to breed.

With eight to ten segregated groups of sows with eight to twelve head each my cost would be staggering on a per sow basis if each group had a $1,500 feeder. Big sows have tremendous lifting and pushing power; they can tear up almost anything.

Portable, tough, adaptable and cheap, the tire feeder satisfies these criteria. Utilizing free, old truck tires from a local tire shop, cut out the side wall on one side. This can be done with a razor blade, sawzall or hand held jigsaw - contrary to belief, tires have no steel in the sidewall beyond the bead. Bolt the tires with carriage bolts (not screws) and big washers to a pallet base of heavy lumber with some skids underneath. A 24-inch wide and 96-inch long base mounts three such tires.

Cost per three tire rig? About $20 in hardware if using farm sawn boards or $50 if buying lumber. After about a year of abuse the sows rip the tire right off the base. That's ok. Simply cut off the bolts and mount a new tire.

I recommend a ratio of one tire per two sows, and it's easy enough to add more units if the group is too crowded at feeding time.

WATERING - Sows' heads are too big for the typical 80 gallon drinker. Nipple drinkers are difficult to move and smart sows simply sit there holding open the toggle and run water everywhere. While they might like the swimming-pool-sized mud bath they can create with unlimited water, your landlord and the ecology certainly won't appreciate the excavation. Sows routinely flip over basic troughs or belly flop into them.

After years of dealing with the flipped troughs and belly flops, an enclosed fifty gallon trough under a hinged "cage" that only allows access on the ends and is mounted on a large enough pallet base that the sows must stand on the "floor" to access the water has largely solved the issues. Their own weight keeps the flipping from happening. By making the mounting platform wide enough that the sow must stand on it in order to drink, she can't flip the trough while standing on its base.

The standard 80-gallon drinker works well enough for under 400 lb hogs but must be kept very level. Using the same heavy pallet and a float valve with a long stick carrying the hose out of the paddock eliminates tipping and hose chewing.

SHELTERING - My farm is located in Virginia. Sheltering here is for shade eight months out of the year and for weather the other four. In addition to weather differentials, my farrowing operation must accommodate multiple sizes: piglets, feeders, finishers, breeders and farrower. All shelters need to be portable and low cost.

During warm months shade is the primary concern. Fortunately, my farm has trees and brushy areas to rotate the pigs through; most hot afternoons the sows dig in under multi-flora roses and cedars, neither of which is a particularly desirable plant.

The temperature difference is remarkable stepping from an open field to a shaded glen. Except for the occasional small tarp tied between trees to shelter a new nest of piglets on a rainy night, hogs need no real shelter beyond trees and brush during the warm season.

For pigs on the pasture, several shade wagons built on old hay wagon chassis get the job done. Adaptable, multi-species, and with anything "chewable" built high enough to keep the pigs from reaching and yanking, these wagons shelter every animal but cattle. Cost is about $600 per wagon.

The big concern is outdoor farrowing during the winter. I don't recommend attempting this if you're a novice. Get some mastery under your belt before attempting winter outdoor farrowing. Because a commercial farrowing operation must tackle inventory flow, however, winter farrowing is practically a must for ultimate success.

From adapted stock, newborn piglets can take being cold, being wet, and some rough weather but they cannot take all three together. For farrowing below 40 degrees Fahrenheit in the elements, the piglets need a legitimate

shelter.

Again, portable, cost effective and tough are the criteria. After years of trial and error, I designed my own winter farrowing shelter. Built for the wear and tear sows give, incorporating a collapse/stack feature for needed mobility, these shelters have come through three winters now with little additional modification or repairs.

When it's time to move, a helper and I can break them down and move the whole set up elsewhere on the farm in a morning. Cost is about $260 in material each.

CONTEXT - The successful pastured pig producer must conform gear to the unique context of their farm. Producers in the deep south have heat stress and shade considerations as a higher priority than a producer in the northeast or midwest where protection from biting winter winds and deep snow is the norm.

This is where each herdsman must know his context. What is the primary purpose of the gear (shading, sheltering or heat capturing), what is the movement considerations (fairly static in buildings, field mobility on location, or portability down the road), what is the size of the hog (piglets, weaners, feeders, finishers, breeders, farrowers) and what are the extremes of weather most likely to be a negative factor (wind, cold, heat, floods, mud)?

With experience and a creative mindset, a cost effective set of gear, well designed for a unique context can be developed for efficient production of pastured pork. ■

Jordan and Laura Green and their children pasture farrow on leased land in Virginia's Shenandoah Valley on J&L Green Farm.

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density moving than anything else.

As Greg Judy and Gabe Brown have so aptly pointed out, mob moving management changes soil, soil life, soil temperature, organic matter, water retentive capacity, pathogenic breakdown; goodness, we're just discovering all the benefits of landscape exercise through tightly managed livestock. I'm a farmer too, and I know how easy it is to get fixated on a certain issue. Some weed, or some lack of legumes, or soil that dries out fast. We have a hundred issues to solve.

Yes, we can subsoil. We can plant seeds. We can spray manure tea. We can mix up milk and honey and spray that with Bahamian jazz blasting from electromagnetic foliar applicators. But what good is all that razz-ma-tazz without moving the cows every day? All of this other stuff comes AFTER we've done the one thing. The one thing finances all these refinements.

4. Health. The bacteria in the digestive system must adjust to the vegetation coming in. Daily moves keep the type of vegetation entering the gut as close to similar as possible. If the animals stay in one paddock for four days, the type of forage entering the gut on day four is quite different than that entering it on day one. That gut microbial adjustment represents efficiency slippage.

If every day the animals eat similar leaves and stems, it creates a more constant inflow of material. If animals like one thing, it's routine. If we put all the stress-reduction factors on a white board and picked the top one, it would be routine. That trumps diet, weather and handling. Moving them at the same time every day is important too. We aim for 4 p.m.

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5. Shelter. When paddock size shrinks to accommodate a one day move, we sometimes don't have a good shade alternative on a hot day. That means we either have to plan shade-available safety valves in our grazing plan, or we have to develop more shade. That leads directly to silvopasture, portable shade structures, and more heat tolerant genetics. Some or all of these may be appropriate, but I guarantee you that a herd of black angus cows on a 95 percent humidity day at 100 degrees Fahrenheit at 2 p.m. on a south western slope in July in Virginia will not be happy. Some will die. I've been there and done that.

As paddocks shrink, all the amenities necessary for stress-free production move up the to-do list. It won't be okay to just watch all the manure pile up under that clump of trees on the back 40. Suddenly you'll need to be pro-active about comfort and democratized fertility, and that's a good thing.

6. Testing. Finally, I suggest that daily moves force us to test ourselves every day. Cow-day and allocation discussions routinely make people's eyes glaze over. It shouldn't. It should be as common as inches to a carpenter and bushels to a wheat grower. If you're moving once a week, you'll get four tests a month: did they get enough? Are they happy? How fast is the sward recovery?

But if you move every day, you're getting tests 30 times in a month. That means your skill level, your progress, will advance seven times faster than the farmer moving weekly. For that reason alone, every day moves are worthwhile. Want to become a skilled grazier? Want to advance quickly to the head of the class? Move 'em every day.

With all that said, sometimes I don't move them every single day. I might need to be gone overnight. But it's rare, really rare, for our animals not to move every day. Virtually every innovation on our farm, every step of progress, germinated directly from a nearly cultish commitment to one thing: move 'em every day. If you have a better one, I'm all ears. Let's call 'em in. "Cooowwweeeees!" ■

Joel Salatin is a full-time grass farmer in Swoope, Virginia, whose family owns Polyface Farm. Author and conference speaker, he promotes food and farming systems that heal the land while developing profitable farms. Follow his blog musings at www.thelunaticfarmer.com. To contact him, email polyfacefarms@gmail.com or call Polyface Farm at 540-885-3590.

Allan Nation's JOURNAL JOTTINGS

EDITOR'S NOTE: We share these items from notes Allan Nation wrote while reading.

The topography of your farm will determine the best kind of livestock to have.

Sloping land is best for sheep. For flat land run cattle. Goats can navigate stony uplands. If you have mainly woods get pigs. ■