SUSTAINABLE FARMING

INCORPORATING **AWA NEWSLETTER**

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WALK THIS WAY

HANDLING YOUR HERD

PLUS

NON-GMO OPPORTUNITIES

UNDERSTANDING YOUR BIRDS

REGENERATIVE: WHAT NEXT?

THE LONG VIEW

2019 was a tough year for livestock farmers. If Mother Nature wasn't busy throwing her worst at us, we were being beaten up for destroying the planet. And the media frenzy over hi-tech and plant-based food '$$$olutions' put real question marks in the minds of some of our customers about what we do.

2020 will be different. For starters, I believe people are beginning to see through the façade of the hi-tech 'silver-bullet' solutions for future food production as more searching questions are asked about the ultimate sustainability of lab-meat and plant-based foods. Or whether eating more highly processed commodities and synthetics or promoting a diet that excludes whole foods is a good idea for our health. Or if the vested interests behind this stuff are more interested in gaining market share than providing actual solutions.

While there is no question some people will eat and enjoy these new plant-based foods, Laurie Demeritt, CEO of the influential global market research company, The Hartman Group, says that many people want real food that's fresher and less processed: "You could say that everything that's happening in the [food] technology space is going dramatically in the other direction."

As a proponent of high-welfare, sustainable livestock systems, I actively welcome greater public interest in food and farming. We urgently need to change the way we farm and feed ourselves if we are to address the major societal challenges we face, such as climate change, diet-related ill health and our crumbling rural economies. And I believe the farming models you all employ are part of the solution.

One of the biggest positives we'll see in 2020 is the mainstream acceptance of new science on ruminant methane emissions. As we reported early last year (see 'An Inconvenient Truth' by Simon Fairlie, Spring 2019), new science from the University of Oxford shows that a faulty methodology for equating methane emissions with carbon dioxide emissions has significantly overestimated the climate impacts of ruminant methane, particularly when it comes to grassfed and pasture-based production systems. We anticipate this new metric (called GWP*) will gain momentum throughout 2020, putting high-welfare, grass-based farming in a far better light for media and policymakers alike. That's not to say it's 'business as usual' for meat production or consumption. Indeed, we cannot—must not—allow this science to be misinterpreted or misappropriated to justify the status quo.

So let's not get bogged down fighting in the trenches. We have much to offer and we should focus on communicating our benefits far and wide. We know people enjoy meat, dairy and eggs, and that's not going to stop overnight. But it is important that we help and encourage them to make the best choices—for themselves, the animals and the planet.

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NON-GMO A NO-GO

AGW drops equivalence with the Non-GMO Project Verified label

A Greener World (AGW) is no longer accepting equivalence with Non-GMO Project Verified.

The announcement follows concerns that the latest Non-GMO Project standards are "out of sync" with best practice—and consumer expectations—in relation to contamination from genetically modified ingredients (genetically modified organisms, or GMOs).

"As a nonprofit dedicated to transparency in food labels, we were disappointed with The Non-GMO Project's lowering of standards on GMO contamination of animal feed," says Andrew Gunther, AGW Executive Director. "We recognize that contamination of non-GMO products is a challenge, but we're never going to solve the problem by lowering our standards for what 'GMO' actually means. Where does that logic end?"

In 2019, The Non-GMO Project announced the latest version of its standard, which continued permitting the known GMO contamination of animal feed at levels of up to 5%, as well as intentional dilution of non-GMO feed with genetically modified feed (proposed "blending").

For context, the standards set by AGW for its Certified Non-GMO by AGW program—and other non-GMO certifiers across the globe are significantly more rigorous, permitting contamination at only 0.9%, and forbidding known contamination.

"Following input from stakeholders and an internal review, we determined that continuing to allow equivalence with a lower standard would put our program integrity—and that of our certified producers—at risk," says Gunther. "If eggs can be labeled 'Non-GMO' when the hens are knowingly fed GMO grains, this flies in the face of consumer trust and is completely out of sync with what the public expects from a non-GMO label."

AGW notified certified producers of its decision and has worked since to smoothly transition away from relying on equivalence with The Non-GMO Project, as well as making new applicants aware of the new policy.

"We made this decision regretfully," Gunther adds. "But when the choice is between the appearance of change and actual change, AGW will always choose the latter. We remain committed to working with producers to make verified non-GMO claims that consumers can trust."

SPAWNS

IN THE NEWS...

NEONIC BAN

The EU has banned the insecticide thiacloprid, citing human health and environmental concerns.

Manufactured by Germany-based chemical giant Bayer, thiacloprid is the fourth neonicotinoid insecticide to be banned in the EU since 2013. In a statement, the EU Commission said the decision was based on scientific advice from the European Food Safety Authority, citing "environmental concerns related to the use of this pesticide, particularly its impact on groundwater, but also related to human health, in reproductive toxicity."

HOTTEST DECADE

The past decade was the hottest ever recorded—and 2019 was the second warmest year on record—according to a report from the National Oceanic and Atmospheric Administration and NASA.

"Using climate models and statistical analysis of global temperature data, scientists have concluded that this increase has been driven mostly by increased emissions into the atmosphere of carbon dioxide and other greenhouse gases produced by human activities," says Steve Cole of NASA.

WORLD CHEESE AWARD

Lye Cross Farm was awarded a Bronze medal for its Certified Animal Welfare Approved by AGW, Certified Grassfed by AGW Sharp Cheddar cheese at the 32nd annual World Cheese Awards in Bergamo, Italy.

Lye Cross Farm was competing against over 3,800 entries from 42 countries at the world's largest cheese-only competition. The UK Bristol-based cheesemaker distributes their renowned AGW-certified cheeses across the UK, as well as at select retailers in the U.S.

WHAT'S COOKING!

A high-quality, eco-friendly apron is now available from A Greener World.

Made from eco-friendly 8 oz. organic black cotton and recycled polyester, the apron has a white A Greener World logo imprint on the front. With an adjustable neckline, two front pockets, branded brass rivets and cotton webbing ties, the apron is ideal for use at farmers' markets or home kitchens alike.

See page 21 or visit agreenerworld.org/shop-agw

IN THE NEWS...

AGW DIRECTORY UPDATE

"Our online directory receives thousands of visits every month," says Emily Moose, AGW's Director of Communication and Outreach. "Following recent crowd-funded improvements, we're promoting the updated online directory across our networks, so make sure your details are up to date! If you need to make changes, contact your FMOC."
See page 20 for contact details.

PLANT-BASED FOODS 'NO SLAM DUNK'

Consumer demand for plant-based food products is growing rapidly, but clouds are gathering on the horizon, according to a new report by leading international market research company, The Hartman Group.

Their report, *Food + Technology 2019: From Plant-based to Lab-grown*, explores the consumer tensions surrounding up-and-coming food technologies like lab-grown meat and cellular dairy, and warns that "giddiness over their growth has been suffused with tension."

According to the report, "many of these products rely heavily on innovative manufacturing, R&D and manipulation of otherwise unexciting ingredients like soy and wheat—the sorts of innovation and processing that consumers often say they want less of, not more of, in their diets."

In a recent interview with foodnavigator-usa.com, Hartman Group CEO Laurie Demeritt says "the highly processed nature of some plant-based products runs counter to the trend towards simpler ingredients ... while the argument that they are by definition healthier than their animal-based counterparts is not a slam dunk."

"We know that consumers are looking for more real food that's fresher and less processed, and you could say that everything that's happening in the (food) technology space is going dramatically in the other direction," Demeritt adds. "There's a belief that plant-based is healthier, but as the category matures, those opinions could change ... There's still a question mark over how many of these products will be adopted long term."

Visit **hartman-group.com**

XUJAN

SUPERIOR FRESH

FIRST NON-GMO CERTIFICATION FOR SALMON

Superior Fresh is the first company to supply Certified Non-GMO by AGW salmon.

Located in Hixton, WI, the company's flagship aquaponics facility is the largest of its kind, producing organic leafy greens and farmed salmon while practicing ecologically sound water conservation and native prairie restoration in a closed-loop, zero-discharge system.

"In the absence of a USDA Organic standard for seafood, we chose to obtain the AGW certifications for Salmon Welfare and Non-GMO to assure our customers that we meet their standards," says Brandon Gottsacker, Superior Fresh President.

The announcement follows FDA's recent controversial approval of genetically modified salmon for human consumption—despite significant public opposition. AGW's Salmon Welfare Standards uniquely incorporate the RSPCA's globally-respected higher welfare salmon standards.

Visit **agreenerworld.org/certifications/salmon-welfare-certified**

WHEY UP THERE

AGN Roots is the first nutritional supplement company to offer a Certified Animal Welfare Approved by AGW whey protein powder, produced using the highest quality liquid milk sourced from independent farms certified by AGW.

"We are honored that AGN Roots Grass-fed Whey Protein is the first to receive AGW certification," says Bryan Roots, AGN Roots co-founder.

Visit agnroots.com

SKYNESHER

WHOLE MILK BENEFITS

Children who drink whole milk have 40% lower odds of being overweight or obese compared with children who consume reduced-fat milk, according to new research.

Published in *The American Journal of Clinical Nutrition*, researchers analyzed 28 studies from seven countries that examined the relationship between children drinking cow's milk and obesity. None of the studies—involving a total of 21,000 children—showed that kids who drank reduced-fat milk had a lower risk of being overweight or obese. Eighteen of the 28 studies suggested children who drank whole milk were *less* likely to be overweight or obese.

The findings challenge current international guidelines that recommend children drink reduced-fat cow milk instead of whole milk from the age of two to reduce the risk of obesity.

GOOD FOOD AWARD WINNERS

VALERIE LOISELEUX

Three Certified Animal Welfare Approved by AGW products received national recognition for their leading contribution to creating sustainable, delicious and vibrant food economies across the U.S. at the 2020 Good Food Awards at the San Francisco War Memorial and Performing Arts Center.

Green Dirt Farm, MO, won a 2020 Good Food Award for 'Fresh—Plain' cheese made with Certified Animal Welfare Approved by AGW sheep's milk. Working Cows Dairy, AL, won a 2020 Good Food Award for 'Rinske's Farmstead Cheese' made with Certified Animal Welfare Approved by AGW and Certified Grassfed by AGW cow's milk. Lady Edison, NC, was a finalist for a 2020 Good Food Award for 'Fancy Country Ham, 10 Month Reserve' made with Certified Animal Welfare Approved by AGW and Certified Non-GMO by AGW pork from the North Carolina Natural Hog Growers Association.

Winners were chosen from 417 finalists representing 43 states, selected from over 1,835 initial entries. Visit **goodfoodawards.com**

SCIENTISTS CALL FOR CONSENSUS ON SOIL ACTION

FLUXFACTORY

Disagreements among scientists over how much carbon can realistically be stored in soil is undermining vital actions to restore soils for improved agricultural and environmental outcomes, warns a group of leading scientists.

In *Nature Sustainability* (December 2019), an international group of soil scientists argues that ongoing disagreement about the effectiveness and plausibility of rebuilding soil organic carbon to combat climate change is making it challenging for policymakers to know whose numbers and knowledge to use, "undermining strong evidence for how soil carbon impacts other environmental and agricultural outcomes."

"The benefits of soil carbon go beyond climate mitigation," says Stephen Wood, associate research scientist at Yale. "Rebuilding soil carbon on agricultural lands is important to building sustainable and resilient agricultural systems. We need to make sure that the debate about how to mitigate climate change doesn't undermine efforts to build soil health for the many other things we care about, like agricultural productivity and water quality."

THE NEXT BIG CON?

We need to ensure the future of regenerative farming is in our hands, says Andrew Gunther

Andrew Gunther is Executive Director of A Greener World

The collection of practices and principles being described today as "regenerative farming" have huge potential to reverse the negative impacts of industrial agriculture. In fact, I believe the widespread adoption of regenerative farming is essential if we're going to feed future populations while protecting our soil, water and climate.

For decades, farmers in the West have been encouraged—or even forced—to industrialize, spreading ever-greater quantities of fossil-fuel hungry fertilizer and spraying billions of pounds of chemicals to control weeds and insects. To fulfil the ever-growing demand for so-called 'cheap' meat, they've invested in confinement farming systems where pain, fear and suffering are written off as acceptable costs; where routine antibiotics are essential to suppress disease; and where toxic fecal waste cannot be spread without poisoning the land, waterways and air.

Over recent years, a plethora of marketing initiatives have emerged to address growing public concerns about the human health, animal welfare and environmental costs of industrial farming. Yet most have done more harm than good.

The "Natural/All Natural" label claim epitomizes everything that's wrong with our food labeling laws. A meaningless claim developed by industry to con naïve consumers into believing they're paying more for better food, it has nothing to do with environmentally friendly farming or how animals are raised. The "antibiotic-free" label emerged to champion public fears about antibiotic abuse in food animal production. Yet most "antibiotic-free" products come from the very same industrial confinement farming systems—except the farmers are effectively paid to withhold essential medical treatments or risk losing their premium market, resulting in nothing but poor welfare and unnecessary suffering.

Even the trusted "organic" label is on the ropes. The major industrial agriculture corporations that dominate the organic market continue to confound the desire of more principled players to incorporate genuine rules to enhance welfare for the animals. As independent organic farmers are slowly priced out of business, I fear the organic label will soon end up as meaningless and soulless as the others.

What does this have to do with regenerative farming? Nearly all of these food claims started with a genuine desire to affect change. Yet most have been concocted or (eventually) co-opted by industry into nothing more than meaningless, money-making scams.

"Regenerative" is the new buzzword among environmentalists and food industry alike. I ask what it means and I receive countless variations, all rather vague. Sadly, I fear it's all shaping up to go down the same route.

If regenerative farming is ever to achieve its true potential we must legally define, validate and confirm that farming systems promoted under the word truly are regenerative; that the individual farm is progressing towards building healthy, biologically diverse soils that produce healthy food while enhancing the environment and the farmer's livelihood. Regenerative programs must be accessible to all and not simply an elite club, supplying only those who can afford it.

The argument for a coming together of likeminded organizations to set clear regenerative standards and procedures for validation is now overwhelming; the urgency irrefutable. If we fail, we will not only have handed another gift to the marketing "greenwashers," but we will have wasted what may be the last opportunity to rebuild our soils, restore and protect our waterways, ensure the highest levels of animal welfare and achieve fairness for both farmers and consumers.

GETTING A HANDLE ON THE HERD

In the first of a series, Dylan Biggs looks at the benefits of low-stress livestock handling techniques

TK RANCH

Depending on the circumstance and the animals, getting cattle to do what you want can be very easy, very difficult or nearly impossible.

I grew up working cattle on my family's ranch, TK Ranch in Alberta, using horses and dogs to help get the job done—a practice we continue to this day. When I was a kid in the 1960s, however, horses were broke, cattle were chased, and dogs and kids tried to help (but mostly just learned to stay out of the way). Back then, if livestock were not cooperating it was standard practice to show them—in no uncertain terms—who was the boss. I don't recall any other consideration for doing anything different.

A high-stress environment

One of my early memories was going with my Mom down a back road on a dark rainy night to check on my Dad. I was about seven. He was out on horseback bringing a heifer back to the yard. He was riding a big black gelding named Rowdy. I remember my Mom driving very slowly and Dad charging out of the darkness up to the driver's window. His slicker was shining from the rain and Rowdy was all lathered up. Both Rowdy and my Dad had the same wild look in their eyes. Dad was mad at this heifer for jumping fences to get away from horse and rider, and he wasn't going to let her get away with it. That was usually the way with my Dad: he had a short temper when it came to working cattle and he was mad more often than not.

Our own worst enemy

Handling cattle can be challenging, frustrating and even maddening. It isn't always a walk in the park. Some cattle are much more nervous than others and poor disposition can make it difficult if they run away as soon as they see you. An animal, or a herd of animals, consumed by fear is very difficult to control.

At the opposite end of the spectrum, extremely docile and tame cattle that totally ignore you can be equally impossible to move. They truly don't care what you are asking them to do and some will even get obstinate.

There are also situations where you are asking your cattle to do something new; or where they are faced with novel obstacles they aren't comfortable with, like crossing asphalt, bridges or railway tracks that makes moving them difficult.

In addition to the above, us humans also have a part to play. What I have learned in handling livestock over the last 50 years is that we can truly be our own worst enemies. It isn't that we lack the virtues of patience, compassion, understanding and good will (though there is variation in that regard!). The biggest obstacles we face are our impulses around cattle. The things we do without thinking, without conscious awareness, that result in us being at the wrong place, pressuring at the wrong time and in the wrong direction, and either over pressuring or under pressuring relative to what the animal is telling us.

Counterproductive impulses

For example, people often think if they get directly behind a beef animal it will move forward. Yet cattle have peripheral vision: they have a blind spot directly in front of and behind them. When an animal can't see what you are doing they will often stop and hook around to look. When you don't understand this biological fact then it's not unreasonable to think the animal is being difficult when they turn around instead of going forward. Once you understand this and adjust your position to being out from the hip instead of directly behind, then your ability to control that animal's direction changes dramatically for the better. In short, we need to understand and address our counterproductive impulses when working cattle so that we can start to get out of our own way.

Some of you may protest upon reading this. I can hear you assuring me that your cows come when they're called; that they willingly go through gates that you open when rewarded with fresh green grass or with the right feed in a bucket or on a tractor. I agree: those tactics can and do work.

What I ask you to recall, however, are the instances where no matter how sweet the feed, how green the grass or how lovely your voice that your cows refused to do what you asked. The times when they wouldn't cross the asphalt or go into the corrals. Or when your bull refused to leave the neighbor's cows. Or when a cow wouldn't go onto the trailer or truck, or into the barn. Or when she lost track of her calf and ran back.

What behavior did you resort to in order to get the job done? I expect you resorted to what you were attempting to avoid by leading them:

"Low-stress livestock handling can contribute to the wellbeing of your cattle, allowing you to handle them in all situations in a safe, calm, efficient manner—effectively minimizing the amount of stress you expose them to."

> “Manageability isn’t the only benefit. Using behavioral principles to reduce stress also increases productivity, faster weight gain, more milk and less disease and injury. Cows that are calm and relaxed are a lot safer, too, resulting in improved handler safety.”

arm waving, whistling, hissing, possibly yelling, use of a cane or a whip, running, chasing and so on. Sound familiar?

Trust and respect

The happy medium between wild cattle and excessively tame cattle are manageable cattle. Cattle that respect you enough to yield their position to you. That trust you enough to respond in a relaxed walk in a calm trusting manner.

You can move manageable cattle where and when you want using your movement and your position to create the right pressure at the right place at the right time. This is what effective herding or driving is all about. Once you learn these techniques you can calm wild cattle over time so they trust you enough that you can herd them under control. You can also get super tame cattle to respect you enough to be able to get them to go where you ask. An effective working relationship with cattle is built on trust and respect and they are two sides of the same coin. Without a balance between trust and respect, moving a herd or individual animals will always be more challenging.

A working relationship

The question for the cattle industry isn’t whether the job gets done, because it always gets done, day in and day out. The question is how the job gets done.

At the end of the day is everyone still in one piece? Was human and/or animal safety and welfare compromised at any stage? Are we all still talking to each other? The running joke in cattle circles is that the best test of a future relationship is to have the happy couple work livestock together. If the couple is still talking—and like each other—afterwards, it’s a positive sign the relationship will work. I remember my Mom and us kids going back to the house in tears on many occasions; this seems to be a universal experience on family farms across North America. Not to mention that, as kids, we all knew the corrals were a great place to hear all sorts of colorful language!

After working livestock, it’s also good to reflect on whether there are broken boards to replace, wires to mend, gates to fix or vehicles to repair. Most importantly: at the end of the day are the cattle calm and relaxed and prepared to do the whole thing over again? Or do they trust you even less and want to keep you at an even greater distance? All food for thought.

Low stress meat

For those of us who direct market beef, ensuring our cattle meet their end in a calm, unaffected state is important on a number of levels. This requires that the animals be sorted, loaded, hauled, unloaded, penned and, when the time comes, be quietly walked into the stun box.

How they respond to this handling pressure will be the sum of all of their past handling experiences. If an animal is upset and its final moments are filled with agitation and fear, then all of the time and effort we have invested into animal welfare, right back to its birth, will be at risk of being wasted. Meat quality is directly related to stress: just ask any seasoned hunter and they will tell you that a clean kill results in the highest quality meat. We all care about our animals or we wouldn’t be in this business. Knowing they had a good last day because they were calm and quiet makes the whole process more digestible, too.

It’s easy to blame the cattle when things go awry. It’s easy to lose our patience and get mad when we face time constraints and are pressured to get finished. But for all the lost tempers and foul language, I guarantee that not one lick of it actually helped to get the job done. Good livestock handling starts with us and in the final analysis we must take responsibility for the outcomes or nothing will ever change.

Further information

Dylan Biggs offers regular practical seminars on low-stress livestock handling, including: introductory one-day seminars; intensive two-day cattle handling clinics; advanced cattle handling clinics; and custom cattle handling clinics. Find out more at **dylanbiggs.com** or call **1-888-857-2624**. Watch Dylan in practice in a Canadian Centre for Health & Safety in Agriculture video: **youtube.com/watch?v=45jAC5PEqTI**

Dylan and Colleen Biggs raise Certified Grassfed by AGW beef cattle and sheep and Certified Animal Welfare Approved by AGW pigs at TK Ranch in Alberta.

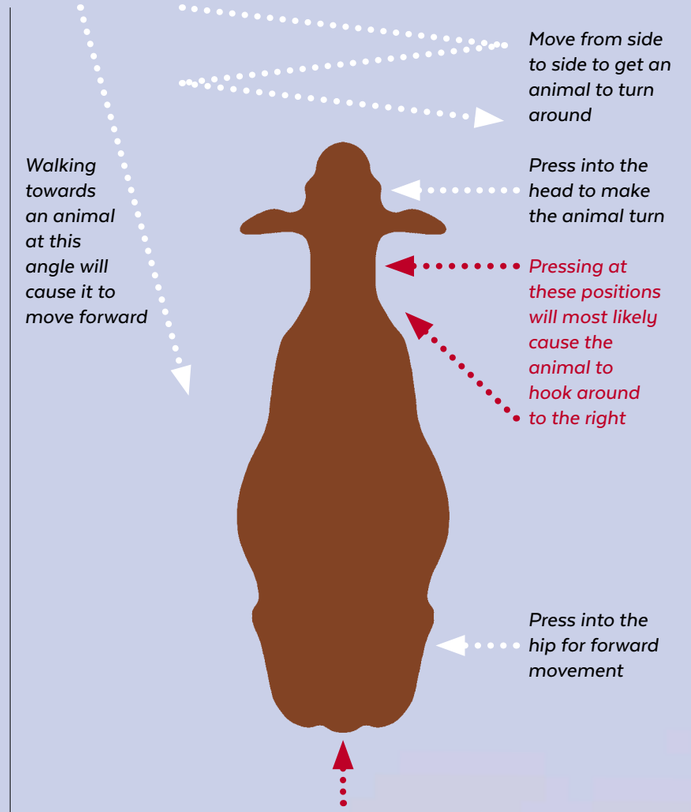
An insight into flight zones

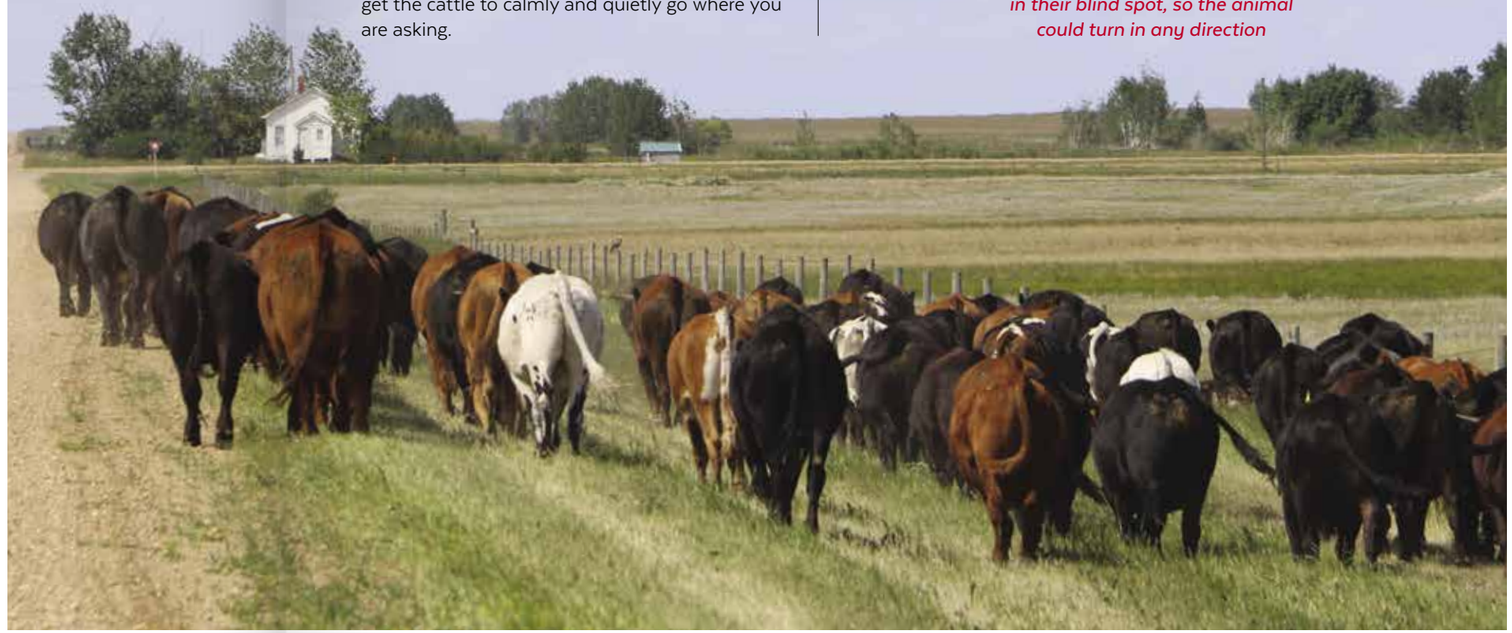
Flight zone and balance points are not static for every animal. It is something you have to learn and feel ...

Like you and I, cattle have their own personal space. A flight zone can be defined as the space surrounding an individual animal or a herd that, when penetrated, will cause an attempt to re-establish a comfortable distance from the intruder. Flight zones are not static; they will vary in size and shape due to a number of environmental conditions and circumstances. It is important to realize that the size of flight zones can change depending on the handling. You can shrink the flight zones of nervous cattle or increase the flight zones of quiet cattle that don’t want to move.

Low stress livestock handling is based upon strategic pressuring of the flight zone of individual animals or a herd. Ideally, a handler will never penetrate the flight zone so aggressively or so deep that the animals panic and take flight. Rather it is a process of applying and releasing pressure on the flight zone edge in a manner that gets the response you want. Pressure is equal to proximity, speed and body language.

Don’t confuse speed and body language. Remember: body language reflects your emotional state. You can be moving very quickly and yet still be calm and confident and you will get a totally different response than someone else moving at the same speed that is frustrated and angry. To make this work you need to develop a feel for the flight zone and an understanding of herding dynamics so you can be in the right place at the right time in the right manner. Having a feel for the flight zone will allow you to finesse the flight zones using your movement and your position to get the cattle to calmly and quietly go where you are asking.





TK RANCH

GOING NON-GMO

Demand for certified non-GMO products is booming—can you afford to miss the boat?

Over the last decade, the growth in demand for non-GMO (genetically modified organism) products has been nothing short of astonishing.

It is fair to say that most North Americans have been unwittingly eating GMO foods since the mid-1990s. According to *National Geographic,* around 65% of all processed foods on U.S. supermarket shelves—from pizza, chips and cookies to ice cream, salad dressing and corn syrup—contain ingredients from GMO soybeans, corn or canola.

Despite long-term public consumption of GMO foods and increased awareness and understanding of GMO technology in North America, the proportion of consumers actively avoiding GMOs has almost tripled since 2007, with 46% of consumers now saying they avoid them. According to The Hartman Group—a leading international food and beverage market research company— more than one-third say that "no GMO ingredients" is an important factor when selecting which food or beverage products to purchase.

In terms of sales and market growth, Grand View Research suggests the global non-GMO food market was worth US $947.8 million in 2018 and that the market will continue to expand at a compound annual growth rate of 16.5% between 2019 to 2025. This is not a one-off prediction: leading industry analyst Technavio also predicts the global market for non-GMO products will reach US $1.1 billion by 2023.

Consumer concerns

Today's consumers seek out non-GMO products for a variety of reasons, including environmental sustainability and health, as well as concerns about corporate control and greater transparency in food production. But The Hartman Group suggests consumer avoidance of GMOs actually reflects a much broader shift in modern food culture, where consumers now seek food that is "closer to its natural form and less changed by human manipulation." They want "food grown in fields by people who feel a connection to the earth, not designed and created in laboratories." Indeed, this apparent rejection of 'hi-tech' sustainable solutions should trouble supporters of lab-grown meat and GMO crops working in the advocacy sector.

Environment: The potential direct and indirect environmental impacts of GMOs are a significant driver. Widespread adoption of herbicide-tolerant crops has resulted in the loss of wildlife habitat and farmland biodiversity. Predictions that GMO crops would spread beyond farmland or share genes with wild relatives have already been realized. Similarly, farmers in many regions are struggling with GMO 'superweeds,' some resistant to multiple herbicides. To combat resistance, the industry has released a new range of GMO crops resistant to older, more toxic herbicides such as Dicamba and 2,4-D—the very products the technology was supposed to replace. Recent research indicates that widespread use of glyphosate, the active ingredient in Monsanto's RoundUp, may also negatively impact soil microbiology or even prevent the uptake of certain nutrients by plants.

Human health: The potential health impacts of GMOs are a key consumer concern, especially potential allergenicity and fear of other unintended consequences of recombinant genes. Nevertheless, there is little scientific consensus that GMO foods currently present an immediate health risk and proponents keenly point to the safety record of the mass consumption of GMO crops by millions of consumers since the mid-1990s. But while the (often extreme) predictions about the health impacts of GMO technology have failed to materialize, the regulatory assumption that GMO food is 'substantially equivalent' to its conventional counterparts and the lack of independent, long-term safety testing of GMO crops is still highly contentious and has resulted in significant suspicion over industry influence.

Animal welfare: While the debate about GMO crops has tended to focus on potential public health and environmental impacts, the imminent mass production of GMO animals raises novel animal welfare concerns. Over the last two decades, research on GMO animals for agricultural use has increased dramatically in laboratories across the world; from chickens genetically modified for immunity to avian flu to dairy cattle engineered to express antibiotics in their milk to combat mastitis. While genetic modification does not automatically result in welfare issues for the individual animal, there is sufficient scientific evidence regarding welfare concerns associated with the application of GMO technology on livestock, as well as the ethics of genetically modifying animals simply to address problems that are either directly or indirectly the result of intensive farming systems.

Corporate distrust: Finally, consumers often cite skepticism of the agriculture/biotechnology industry as a major concern about GMO products.

GM ANIMALS

2020 will see the commercial production and marketing of the first GMO animal in North America. AquaBounty's AquAdvantage® salmon is modified to include a gene from Chinook salmon which provides the fish with the potential to grow to market size in half the time of conventional salmon. This permits shorter production cycles and increased efficiency of production. Critics fear the marketing of GMO salmon will open the flood gates to other GMO animals for human consumption, although research suggests it is likely to further heighten consumer concern.

LABELING FARCE

In 2022, new U.S. laws will require the labeling of GMO food ingredients. But many foods will be exempt and food companies will also be able to use inaccessible QR codes or the little-known phrase, "bioengineered food."

According to The Hartman Group, while consumers appear to accept potential benefits of GMO technology in human medicine, for example, they express concerns about the monopolization of global food and seed production by a handful of multinational corporations and view the "primary uses of GMOs as motivated by corporate self-interest and not the greater good."

Non-GMO opportunities

With a rapidly growing market for non-GMO products, driven by a desire for greater transparency in food production and strong evidence that many consumers are rejecting hi-tech, lab-based food solutions, it is clear there are now significant opportunities for farmers/ranchers and food processors alike to market food products using a trusted, verified non-GMO label claim.

Developed at the request of farmers and consumers seeking a meaningful non-GMO label, Certified Non-GMO by AGW guarantees food is produced without the use of genetically modified feed, supplements or ingredients, and comes from animals raised according to higher animal welfare standards using sustainable agriculture methods. Available as an 'add-on' certification to AGW-certified farmers and ranchers, Certified Non-GMO by AGW is the only non-GMO label that includes meaningful animal welfare standards for meat, eggs, dairy and fish. Certified Non-GMO by AGW is also available to feed producers, packaged goods and a range of other products at risk from contamination by GMO ingredients.

Trust is king

When it comes to making food choices, market research shows that trust and transparency are an increasingly important issues for today's consumers. Yet other well-known non-GMO programs have set tolerance levels for GMO contamination at levels of up to 5%, as well as permitting the intentional dilution of non-GMO feed with GMO feed ingredients. Such policies will only set to undermine consumer trust in non-GMO certification. For context, the standards set by AGW are significantly more rigorous, permitting contamination at only 0.9% and forbidding any known GMO contamination.

It is clear that consumer demand for non-GMO products is only going to grow. "It's not something that's going away," says Steve French, managing partner for the Natural Marketing Institute. "It's part of this larger movement of clean label and transparency."

CERTIFIED NON-GMO BY AGW

WHAT THE AGW LABEL OFFERS

- ✓ Requires animal welfare certification
- ✓ Requires slaughter assessment
- ✓ Prohibits more than 0.9% contamination
- ✓ Prohibits knowingly allowing GMO animal feed
- ✓ Standards that cover breeding stock
- ✓ Requires pasture and range for livestock
- ✓ Requires country of origin labeling

"NON-GMO"

NON GMO Project VERIFIED

NON GMO CERTIFIED BY NSF

HOW OTHER LABELS COMPARE

- ✗ Does not require welfare certification
- ✗ Does not require slaughter assessment
- ✗ Allows more than 0.9% contamination
- ✗ Knowingly permits GMO animal feed
- ✗ Does not cover breeding stock
- ✗ Does not require pasture and range for livestock
- ✗ Does not require country of origin labeling

For more information about Certified Non-GMO by AGW, visit ***agreenerworld.org/certifications/certified-nongmo-agw***

EAT PLAY SHOVE

Jen Gravley Burton offers some off-season insights for pastured poultry producers

The very traits that help our birds thrive on pasture can trigger calamity during the winter months. Understanding what is behind these behaviors can help you adapt for winter wellness and bolster health and wellbeing during the milder months.

Eat

It is said that top predators live by the principle "eat or be eaten." For poultry, "eat and don't get eaten" is probably more accurate. Most poultry are omnivores, persistently combing the range for insects, worms, small rodents and other prey in addition to plant-based foods.

Breeds that are well-suited for pasture are successful foragers because they are innately driven to explore. They turn over leaves, investigate new discoveries by pecking, scratch at freshly turned soil and generally chase things that run away. All of these urges help them find food. But what about safety and social skills?

If size, speed and protective armor are the best defenses against predators, then the picture looks pretty grim for poultry. Geese and turkeys wield their modest size somewhat effectively. Turkeys and guinea fowl are passable sprinters for short distances. Chickens have a pointy beak, if nothing else. All in all, most poultry would be 'sitting ducks' if they did not specialize in other tactics to avoid being eaten. What are their options? For farmed fowl, the best bet is to avoid being noticed.

It is normal for ill or injured animals to separate themselves from their group. But for highly vulnerable prey animals, any sign of weakness becomes a beacon for predators. While flock animals like poultry and sheep sometimes choose to self-isolate when distressed, they are more likely to suppress signs of discomfort and seek safety by hiding within the flock. Birds on range use trees, flatbed trailers and housing to hide from aerial predators. When hiding does not work, the backup plan is to move out of reach. Birds may escape into or onto housing and other structures, which offer refuge in the form of obstacles and elevated roosts. While most of their attackers wield sharp teeth or powerful claws, the best weapon of farmed birds is a small pointy stick—and they have to literally stick their neck out to use it. So you can see why these birds are strongly motivated to move to safety! Even in the absence of predators, birds that cannot act on these natural impulses experience stress as a result.

From the farmer's perspective, make sure to provide suitable cover (natural or man-made) in the range for birds to hide and explore. Deterrents such as flashy hanging pie tins or CDs, electric fence, motion-activated lights, noisemakers and scarecrows may cause predators to hesitate rather than enter a pen or coop. Guardian animals can also add a strong measure of additional security.

BIRD SENSE

Larger or faster poultry breeds may range farther from the safety of their housing. Compared to smaller birds, geese and turkeys are more likely to stand their ground against a predator. Roosters and guinea fowl spend more time scanning for threats than most hens do. Producers can take advantage of these different traits by locating the most vulnerable fowl in the safest areas, placing larger birds nearby (ask your vet about disease risks) and allowing guineas to free range as an "early warning" system.

"Most poultry would be 'sitting ducks' if they did not specialize"

MIKE SUAREZ (x2)

Play

Much of what we call "play" can be viewed as practice for adult life. Even before they can walk without wobbling, hatchlings begin to forage. The habits they learn in their first days and weeks can last a lifetime—and bad habits can bring a lifetime of trouble.

If you give chicks materials they can manipulate, they will quickly learn to peck at wood shavings, leaves, grasses and vegetable matter. If not, their preferred target may become other chicks. For both the aggressors and their victims, it appears that early experience is predictive of future social encounters. Studies have shown that when goslings experience early isolation, or when young chickens get pecked in their first social encounters, they seem to give up on behaviors that help foragers flourish. Bullied birds tend to abandon attempts to access better resources and are more likely to end up with low status in the flock. Youngsters that peck other birds, on the other hand, tend to achieve more dominance in future interactions, and a higher place in the pecking order.

While forming lifelong social habits, lively chicks benefit from enrichment. Consider placing sticks on the floor as perches, or hanging bits of string to divert their attention away from milder birds.

WINDY N RANCH

SIZE MATTERS

The wild relatives of pastured turkeys live in very small groups, not large flocks. Researchers have determined that each turkey can recognize only a few other individuals. When kept in larger groups, turkeys peck and fight much more than other poultry—perhaps because they cannot recognize group members and therefore never settle into a true pecking order. Safe spaces away from the group are crucial to domestic turkey wellbeing.

Ensure that they are not learning to compete for feed, water, warmth, clean air or prime hiding places. If, for example, water is plentiful but half the waterers are in a drafty location, chicks will compete for access to their favorite source. Exact needs may vary from one chick to the next, so provide a range of temperature zones. If the warmest and coolest zones are sparsely used, your birds are probably comfortable.

Shove

Standing tall, flapping wings noisily, chasing and strutting in circles around another bird are all dominance behaviors. Running away, keeping the head low and hesitating or waiting to approach a feeder, waterer, nest or doorway are deferential behaviors offered by lower-status birds.

Once the pecking order is sorted out, birds tend to avoid repeat altercations by honoring established rankings. But they can only do this if they can recognize each bird in the flock. If group size exceeds their memory capacity, or if new birds are added, confrontations will continue to occur.

Keep ambitious birds busy with litter and enrichments. Add or move perches; supplement with appropriate treats such as vegetables; hang a forage bundle, toy ball or rope. Make sure hanging objects are sized appropriately so that exuberant birds cannot turn them into wrecking balls. Minimize competition by distributing food, water, perches, nests and exits, and make sure your birds can scout all of these from a distance.

Small entry/exit popholes minimize heat loss and drafts, but can represent ambush zones from a bird's perspective. Narrow openings, obstructions and poor lighting can prevent low-status birds from seeing a clear, safe path, making the pophole a highly stressful place.

Observe behavior: If your birds hesitate or spend extra time scouting or sprint past obstacles, you may need to improve coop layout—or the birds may simply need more space.

How does the indoor foraging and roosting environment affect your poultry? Excessive dust and ammonia can damage the respiratory system, adversely affecting health and growth. Research shows that when birds are unable to escape sub-freezing temperatures, they eat more, grow less and may suffer respiratory damage. Dominant birds select the safest, warmest, freshest spots, so assess thermal comfort and air quality where the meek birds spend their time.

Stress

Remember, too, that low-status individuals also endure the highest day-to-day stress—and direct pressure from dominant birds is only part of the picture. Feather damage and small body size make these birds more prone to heat loss, yet they are relegated to second-choice feed and perch spots. As a result, low-status birds are often forced to choose between safety and comfort. Feisty birds may flourish, but health and behavior at the bottom of the pecking order reveal how well you are meeting your flock's needs.

Observation

While most animals instinctively suppress signs of pain and suffering, flock animals such as poultry are experts at hiding their discomfort. Do not rely on physical signs of distress in flock animals; day-to-day observation of behavior is your best assessment.

Pay particular attention to low-status birds and record your observations. Obvious physical injuries, such as pecking wounds or frostbite, are signs that your winter management falls considerably short of meeting the flock's physical and behavioral needs. When rearing young birds, prevent pecking by providing appropriate alternatives. Eliminate competition among adult birds by ensuring adequate access to important resources, safety and comfort.

Poultry health and welfare depend on a complex web of factors, with each bird acting on its most urgent individual needs. Poorer pastures, closer quarters, cold weather and other challenges of the winter season can exacerbate stress, reduce immune function and threaten productivity. The point is not to achieve the bare minimum, so that every choice your birds make hinges on survival and stress management. Rather, our goal is to provide a robust safety net that will sustain health and welfare in the face of changing weather, wildlife disease and other challenges.

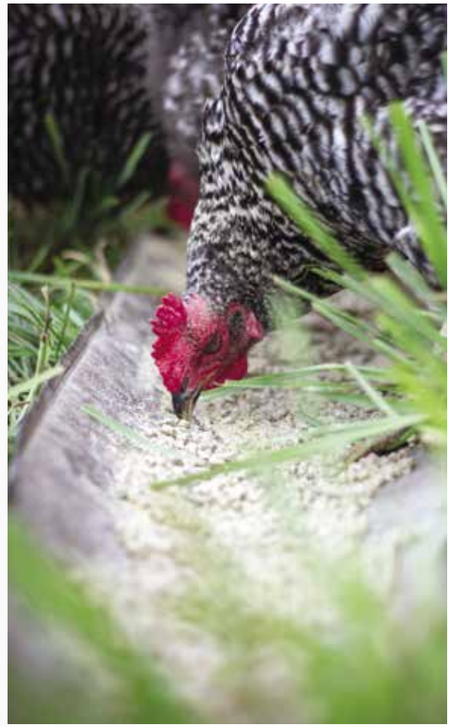
If your birds seem like they do not need everything you are offering, that's great! If they congregate in one roost area, ignoring 90% of the structure you have painstakingly built … if you regularly find five birds crowded into a single cubic foot nest (which is exactly like all the other nests, as far as you can tell), then it is likely that you are meeting many of their needs, much of the time. Well done.

Although the constraints brought by the winter season can feel harsh, this is also a rare chance to resolve issues that are often harder to spot during the growing season. Addressing winter wellness issues will pay dividends by providing a measure of health insurance for your flock year-round.

Jennifer L. Burton DVM is a veterinarian and educator with a special interest in the intersection of food animal medicine and public health

"Day-to-day observation of behavior is your best assessment"

"The point is not to achieve the bare minimum"



MIKE SUAREZ

HUNGER STRIKES

Omnivores forage more aggressively when they crave nutrients. Seasonal declines in feed quality and available prey can create a stronger urge to peck. Ensure consistent availability of complete and balanced feed, with particular attention to the essential amino acids, methionine and lysine. Remember that growing and laying birds have additional nutritional requirements, so ensure you feed according to life stage needs.

GEORGIA RANNEY, KINDERHOOK FARM

Breeds suitable for pasture are successful foragers because they are driven to explore

GEORGIA RANNEY, KINDERHOOK FARM

Make sure to provide suitable cover (natural or man-made) in the range for your birds

MIKE SUAREZ

The habits that chicks learn in their first days and weeks can last a lifetime—good or bad!

MIKE SUAREZ

Following livestock with chickens will help reduce biting fly larvae and other pests

BOVINE BLOAT

MIKE SUAREZ

Acute bloat is often fatal and farmers must take precautions to minimize risks

Bloat is over-distension of the rumen caused by the accumulation of fermentation gases in the rumen. Primary bloat or frothy bloat usually occurs as an outbreak in several animals on pasture containing high levels of leguminous plants, in particular clover. Secondary or gaseous bloat is rare and usually the result of a physical obstruction of oesophagus in individual animals.

In primary bloat, froth forms in the rumen and natural eructation (belching) is prevented. Without intervention, gas rapidly builds in the rumen and death can occur from the depressive effect of rumen distension on the heart and lungs or absorption of toxins from the rumen.

Risk factors

The main risk factor in pasture bloat is the rapid ingestion of immature/fast-growing legumes in pre-flowering stages. Bloat has long been recognized as a major problem in countries like New Zealand, where clover forms an important part of the pastures.

Ingestion of only the most succulent parts of the plant in set grazing systems is another important risk factor, while frost and growth of alfalfa at low temperatures has been shown to increase bloat risk. Research also suggests that high applications of nitrogen fertilizer can be another causal factor.

Wetness of the pasture is often cited as a risk factor, although it is more likely due to the lush forage growth brought on by wet and favorable weather.

Research suggests young animals are generally more susceptible than older animals, and that some animals are more genetically disposed to risk.

BEST PRACTICE

- Always introduce cows slowly to new pasture
- Ensure access to long fiber during the grazing season
- Check cows regularly when grazing
- Be aware of risk periods and train staff accordingly
- Establish a routine procedure for risk situations
- Treat clinical cases immediately by stomach tubing and administration of oil or anti-bloat agents and remove other animals
- Do not graze risk pasture again for 10 days

Control and prevention

Grazing management should concentrate on pastures and animals most at risk: flush, pre-flowering, clover-rich pastures in the spring and autumn, and young animals that are kept in for the night. Close observation during at-risk periods is essential.

All personnel should be aware of risk periods and clinical symptoms. Consider establishing a routine for risk periods—for example, keep animals housed or ensure housed animals have good fiber intake (hay or silage) before turn out and before grazing at-risk pastures after milking or in the morning. Silage and hay aftermaths with a high clover content pose a high risk and cattle should be turned out onto pasture as soon as possible after cutting. Strip grazing can also help when the risk is significant, while precautionary drenching with anti-bloat agents is another option.

Treating bloat

If clinical bloat does occur, all affected animals (including those with mild/sub-clinical symptoms) should be treated with oil or anti-bloat agents to prevent further suffering. Remove other animals immediately and provide hay or straw.

Do not attempt to drench distressed animals without a stomach tube, as this can easily lead to aspiration pneumonia. In severe cases, where the animal is lying down and death is imminent, emergency surgery (rumenotomy) by a veterinarian is essential.

Article adapted from Farm Health Online. For more information about practical, science-based advice on high-welfare livestock management, visit ***farmhealthonline.com***

Certification news

REMOVING LIVESTOCK

Tim Holmes looks at emergency vs planned removal of animals from pasture

Sometimes it is necessary to remove your animals from pasture for welfare reasons. AGW's farm standards account for this reality (see section 7.5). There are two types of exclusion: Emergency and Planned. For an operation to maintain compliance, however, you must be able to justify removal based on one or the other. Let's define the two types of removal.

Emergency removal

Emergency removal is defined as something that is far outside of the norm; something that happens less than one year in three. Likely causes include extreme weather conditions such as wildfire, ice storm, excessive rain, flood, blizzard, tornado or hurricanes. Disease outbreaks and state or national government requirements could also qualify.

A good example of an emergency removal would be if you lived in an area that has frequent snowfall, but where you have to remove animals from pasture following an extreme snowfall event that rarely occurs more than once every 10 years. If removal from pasture during an emergency exceeds 28 days the farmer must put into place a written plan for animal management (see below).

Planned removal

The other type of removal is planned. Examples for planned removal include known seasonal conditions that make pasture unsuitable for some animals, such as wet and muddy conditions, snow- and snow-covered pastures, or extreme cold that would affect animal welfare or mortality. Unacceptable reasons would include removal from pasture to make management easier or removal from pasture when there is no risk to animal welfare; or removal of animals on a set date each year.

Any plan to remove animals from pasture must be justifiable and meet conditions outlined in the AGW standards—and must be covered by a written pasture exclusion plan. The key to the exclusion plan is that the farmer should be able to describe the triggers that cause them to remove and return animals to pasture. The plan needs to demonstrate:

- Rational and realistic reasons (triggers) for removing animals from pasture based on the condition of the land and animal welfare—not on set dates.
- How animal welfare will be maintained when animals are off pasture.
- All housing and other facilities used when animals are off pasture meet or can be adjusted to meet AGW standards (e.g. space to enable animals to fulfill their behavioral needs.
- Triggers to return animals to pasture.

Other examples

Sacrifice pasture is an unvegetated area or area where animal activity has denuded more than 20% of the vegetation, but where animals are still being kept, usually for management or welfare reasons. Deliberately keeping animals on denuded lots will obviously require acceptable justification and a Pasture Exclusion plan.

Deep snow covered pastures generally do not meet AGW's requirements for access to pasture, although this will depend on the depth of snow, the length of time of coverage (more than or less than 28 days) and the species/breed of animals. A light sprinkling of snow is not a problem, while some animals or breeds will dig through a few inches of snow and still get access to vegetation. Some snowfall may be deep but short lived. These scenarios would rarely justify exclusion from pasture. However, deep snow that will remain on the ground for months will count as exclusion from pasture and require a written pasture exclusion plan.

If you have a question about removing animals from pasture—and whether it is an emergency or planned removal—please get in touch. We would be happy to discuss potential scenarios with you.

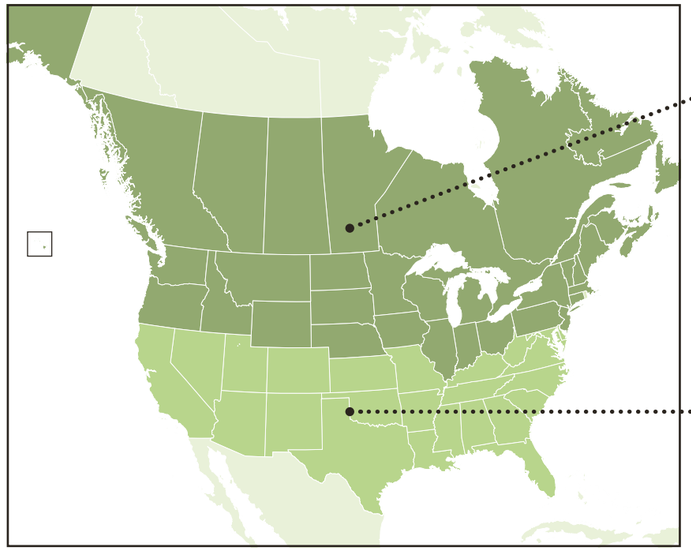
Tim Holmes is Director of Compliance with A Greener World

A GREENER WORLD

From advice on applying, label design and technical support, we're here to help ...

Your regional point of contact

From Alaska to Wyoming, Alberta to Saskatchewan, our outreach team offers a one-stop shop for farmers, ranchers and food businesses!



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AGW LAUNCHES NEW ONLINE DIRECTORY ARE YOU ONBOARD?

We've relaunched our Online Directory, making it even easier for potential customers to find high-welfare, sustainable products across North America—and beyond!

AGW's Online Directory is the most popular area of our website, helping shoppers across North America find local suppliers of Certified Animal Welfare Approved by AGW, Certified Grassfed by AGW and Certified Non-GMO by AGW meat, eggs, dairy and fiber products and Salmon Welfare Certified by AGW fish. So make sure your listings are up to date!

If you have new products or new outlets, update your listings today by contacting your regional coordinator (see above) or call **800-373-8806**.

Promoting A Greener World

AGW is proud to offer low-cost branded promotional materials to help raise awareness of your certification and better communicate the wider benefits of your farming practices. Every purchase also supports our work to educate and inform consumers—and helps keep your certifications affordable.

For more promotional materials—and to place an order (with shipping)—visit agreenerworld.org/shop-agw

For shipping to Canada, call 202-446-2138

AGW APRON $25
- Perfect for farmers' market or the kitchen
- 8 oz organic cotton/recycled polyester
- Black fabric with white imprint A Greener World logo
- Adjustable neckline, two front pockets, brass rivets, cotton webbing ties

NEW SHELF TALKER $5
- Sold in packs of five
- Printed on premium silk stock with wipeable coating
- 4¼" x 2¾"
- EZ-peal adhesive for shelf mounting
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Certified Animal Welfare Approved by AGW producers only

BASEBALL CAP $20
- Low-style cotton twill with Velcro strap
- Khaki crown/strap and navy visor/button
- Made in the USA by Workers United

NEW CERTIFIED NON-GMO BY AGW STICKER LABELS $5.70
- Full-color 1" x 1" high-quality stickers
- Long-life adhesive
- 1,000 stickers per roll

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- 1" x 1" high-quality stickers
- Long-life adhesive
- 1,000 stickers per roll

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- French version
- 1" x 1" high-quality stickers
- Long-life adhesive
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- Ideal for farmers' markets, farm stores and other events
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VINYL BANNER $15
- Ideal for farmers' markets/displays
- 18" x 24" with corner grommets
- Full color imprint
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HIGH ON THE HOG

ARCHWAY FARM (x2)

Mark Florenz and his family are bringing an old New Hampshire farm—rich with agricultural heritage—back to life by producing the highest quality Certified Animal Welfare Approved by AGW pork. Archway Farm pork products are sold direct from the farm and wholesale to markets, restaurants and food establishments in the region.

How did you get into farming?
Although I've been involved in farming most of my life, when our two boys were young we decided to have one of us stay home and not work. As the boys have gotten older, however, what was a homestead operation evolved into a full-time commercial farm. We now operate a farrow-to-finish hog farm with around 100 mixed heritage breed pigs throughout the year on around 15 acres of pasture and woods. We met AGW's Katie Amos at the 2017 New England Meat Conference and felt there was a very close fit with our philosophy, and AGW would help us better market our products.

Describe a typical day
We always have twice daily chores. In between that, we might be juggling kids, going to the butcher, delivering pork, updating social media, tracking finances, fixing fence or working on larger farm infrastructure projects.

Who are your customers?
We sell direct through our farm store as well as wholesale to local restaurants, grocery stores and specialty markets.

Sustainable farming principles: why do they matter?
The modern food industry places so little value on the contribution of farmers. Without some larger purpose and guiding principles it's easy to get sucked into a 'bigger-is-better' race to the bottom.

What's the benefit of being certified by AGW?
AGW is a quick and easy way for us to demonstrate our commitment to animal welfare and the environment.

What are your business plans for the future?
We will continue to explore ways to connect directly with more customers, especially through partnerships with other producers, butchers and retailers.

What is the biggest threat to the sustainable farming movement?
To become more than a niche market and truly make an impact, the sustainable farming movement needs more farms producing and marketing at a larger scale. With scale, however, comes the risk that the fundamental purpose behind the movement will get co-opted the same way certified organic has been.

What do you love most about what you do?
I love the variety of what I do, as well as the connection it gives me to my community.

If I was President I would ...
take climate change seriously.

AT A GLANCE

Farm: Archway Farm, Keene, NH
Certification date: October 2017
Size: 80 acres
Soil type: Sandy loam
Altitude: 550 feet
Annual rainfall: 45 inches
Enterprises: 100 mixed heritage breed pigs (Certified Animal Welfare Approved by AGW).

www.archway.farm

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"Our AGW certification gives customers an idea of what we're doing on the farm without them having to come out. Since we got certified, we've had a 20% increase in sales. People love it!"
TIMOTHY HAWS, Autumn's Harvest Farm, New York

COVER PHOTO: TK RANCH

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MIKE SAUREZ

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