

2018 EDITION

Impact Journal

A look at the key initiatives, ranchers, partners, and
animals driving the EPIC Food Revolution.



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Printed in the United States of America

Second Edition: December 2018

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LIZ HARROUN

Editor & contributor

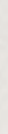


Liz seeks adventure and joy in her daily activities. After graduating with degrees in business and Spanish from the University of Texas, she eventually began pursuing her creative interests in the outdoor and wellness industries. Since ecology and nutrition have long been two of her most consistent fascinations, Liz officially landed her dream job when she started writing for EPIC. Outside of the office, you'll find her daydreaming in her garden, teaching yoga at local climbing gyms, and riding her bike to Barton Springs.



ANDREA ROMERO

Cover & interior design



A native of San Salvador, El Salvador, Andrea subscribes to Teddy Roosevelt's motto: "Speak softly, and carry a big stick." Never the first to speak but always quick to act, she's an accomplished designer and photographer who embraces every challenge that comes her way. Since starting at EPIC as a college graphic design intern, she has received her degree and become the company's creative lead. When she's not creating new designs or snapping photos, she's helping keep Austin weird, or hiking with her Boston Terrier, Lucy.

GUEST CONTRIBUTORS



CHRIS KERSTON

Chris Kerston has dedicated his life to helping connect innovative ranchers and farmers with progressive brands in ways that create true synergistic value for both sides. He managed ranches and farms full-time for nearly 15 years before joining the Savory Institute. Chris now utilizes innovative media production in concert with traditional marketing techniques to help ranchers share their stories and build long-lasting relationships with partners based upon common goals.



DONNIE VINCENT

Driven by nature, Donnie Vincent has consistently let the outdoors and his passion for adventure be the compass for his life. Deep in the heart of the wildest of terrain is where Donnie thrives. On his expeditions into remote wilds, in the lands where seemingly no one lives, he finds a wilderness and peacefulness that is all his own. The premier example of explorer, biologist, conservationist, and sportsman, Donnie takes a wider view of the topics he tackles while in the field, because to him, this is all a story worth telling.



STEVE ROSENZWEIG, PHD

Steve Rosenzweig is in a unique position as the only soil scientist at General Mills, and is possibly the only soil scientist at any major food company. He leads research and outreach projects on regenerative agriculture in General Mills' supply chains across North America. Steve received his B.S. degree in biology from SUNY Geneseo and a PhD in soil and crop sciences from Colorado State University. He began working for General Mills in 2017 and is based in Brookings, South Dakota.



TANIA TESCHKE

Tania Teschke is a writer and photographer who is passionate about French food and wine and who holds a diploma in wine science and tasting from the University of Bordeaux. Tania has learned from winemakers, home cooks, butchers, and chefs in France, while exploring the nutritional density and health benefits of an ancestral approach to food and lifestyle. She has compiled her knowledge into *The Bordeaux Kitchen*, a comprehensive, user-friendly guide to French cuisine. She currently lives in Switzerland with her diplomat husband and two daughters.



ISABELLA TREE

Isabella Tree is an award-winning travel writer and author. She runs Knepp Castle Estate with her husband, the conservationist Charlie Burrell, and is the author of *Wilding: The Return of Nature to a British Farm*, which is the amazing story of a daring wildlife experiment, the rewilding of their estate in West Sussex, the restoration of nature, and the astonishing recovery of flora and fauna.



DIANA RODGERS, RD

Diana Rodgers, RD, LDN, NTP is a “real food” nutritionist living on a working organic farm near Boston, Massachusetts that runs a vegetable and meat CSA. She is the author of two bestselling cookbooks and runs a clinical nutrition practice. Diana writes and speaks about the intersection of optimal human nutrition, environmental sustainability, animal welfare, and social justice. She is also the producer of the *Sustainable Dish Podcast* and is working on a new film project examining the environmental, nutritional, and ethical cases for “better meat.” She can be found at sustainabledish.com.



ALLEN WILLIAMS, PHD

Allen Williams is a sixth-generation family farmer, Chief Ranching Officer for Joyce Farms, and founding partner of Grass Fed Insights, LLC, Soil Health Consultants, LLC, and Soil Health Academy. He has consulted with more than 4,000 farmers and ranchers in the U.S., Canada, Mexico, South America, and other countries, on operations ranging from a few acres to over one million acres. Allen pioneered many of the early regenerative grazing protocols and forage finishing techniques and now teaches those principles and practices to farmers around the world.



VICTORIA KEZIAH

Victoria Kindred Keziah is managing director of Savory Institute's Land to Market program, the world's first verified regenerative sourcing solution. For 25 years, Victoria has worked as a brand and business strategist with a focus on sustainable and social innovation. She holds an MS in the emerging field of biomimicry—the emulation of nature's genius in human designs, systems, and strategies. She lives with her family in Boulder, Colorado, where she spends every possible minute in the great outdoors.



A Letter from Our Founders



Focus on the small things in life, and the big things will take care of themselves. Our survival depends upon paying attention to the subtleties in nature—from the patterns of insects and birds to the diversity of microscopic soil biology and plants.

At first glance, the ranchlands on which livestock production is dependent might seem empty and quiet. But when you stop and take a closer look, you will be amazed by the symphony of biodiversity and life present. On properly managed ranches, one tablespoon of soil can contain more organisms than humans living on the earth! The health of our soil is deeply connected to the longevity of our planet, the nutritional density of the food we consume, and the wellness of our bodies. Simply put, human health begins and ends with the microscopic organisms found in the soil. This reminds us that, if we focus on the small things in life, the big things will take care of themselves.

Today, over 75% of our remaining intact grasslands are managed by ranchers. These ecosystems are critical for creating wildlife habitat, recharging aquifers, producing food, and sequestering carbon from the atmosphere. For these reasons, it's easy to argue that proper management of grasslands is the most important tool we have to ensure the prosperity and health of our planet. Sadly, we are losing much of this delicate ecosystem every year to plowing, chemical spraying, and converting land into monoculture row crop agricultural production.

Our last line of defense in restoring these critical ecosystems depends on the individual families tasked with managing these sacred ranch lands. This is where all of us—the empowered consumers—become a critical part of the solution. By supporting a food production system that honors the complexity of nature rather than constantly fighting it, we are voting for nutrient-dense food, thriving and diverse ecosystems teeming with life, and a planet that can sustain our civilization.

Through our second edition of the Impact Journal, we are more excited than ever to share the stories of the pioneer ranchers and regenerative thought leaders that continue to inspire our business and fuel the food revolution that is enriching the health of our planet in astonishing ways. Within these pages, you will discover stories of perseverance, mission-focused business, and some of the game-changing individuals and organizations that we are honored to be affiliated with. You will learn about regenerative agriculture and how, despite the misguided common assumption, livestock production is the most important tool we have to enriching the health of our planet.

Most importantly, the second edition of our Impact Journal was created to celebrate our victories, recognize future challenges, and collectively accelerate our positive impact on the planet. We hope these stories give you a greater appreciation for the food on your table and inspire you to fight for honesty, transparency, and altruism in agriculture.

Thank you for joining this important food revolution, supporting our company, and incentivizing the ranchers we partner with to do the right thing. As you read the following stories, remember that through taking care of the small things in nature, the big things will take care of themselves.

Sincerely,

Katie + Taylor

Co-founders / Land Stewards

“ YOU, AS A FOOD BUYER, HAVE THE DISTINCT PRIVILEGE OF PROACTIVELY PARTICIPATING IN SHAPING THE WORLD YOUR CHILDREN WILL INHERIT. ”

JOEL SALATIN

THE STORY CONTINUES

We believe that the health of humans, animals, the soil, and the planet are all intertwined. One cannot thrive without the survival and robustness of the others. No matter how much technology progresses, we cannot outsmart the ecosystem into which we were born. That is why regenerative agriculture and the holistic management of animals are so vital to the health of our planet. These systems carefully consider how human practices can actually improve soil health, promote animal welfare, and support our own well-being—all of which contribute to the stability of our planet.

The food revolution has come a long way since EPIC was founded five years ago, and we are thrilled to be a part of it. Now more than ever, consumers are demanding high standards for how their food is raised and produced. They expect responsibility and transparency, and more companies are stepping up to meet these demands.

While grateful for this traction, we also realize how much more work there is to be done. Climate change remains a huge concern, and modern farming is degrading more soil by the minute. We are not ready to let up, because we understand that future generations are at risk of facing the repercussions of our actions today.

The Impact Journal, our annual manifesto, is meant to connect people with their food and the land they depend on. This is a connection that, we believe, people are desperately missing, whether they realize it or not. It's meant to make the issues of climate change and land degradation a little more real—not so that people live in fear, but so that they feel empowered to take action from a place of awareness.

If we join together in taking inspired action to restore order in the natural ecosystems, there is hope. Each purchase you make can either support the regeneration of the environment or lead to further degeneration. Thank you for considering where your food and other purchases are coming from as well as their effects on the planet. Thank you for taking the time to educate yourself on these topics so that you can spread the word to your family and community.

So now, friends, it's time to open our minds to new ways of thinking about consumerism and ecological restoration.



Roam Ranch

YEAR ONE UPDATE

Words by Liz Harroun



Katie Forrest, EPIC co-founder, looks out on the herd of 73 bison on ROAM Ranch

Last summer, EPIC co-founders Taylor Collins and Katie Forrest privately purchased 450 acres of land on the outskirts of Fredericksburg, Texas. ROAM Ranch is the materialization of their dream to own land for a regenerative farm that produces nourishing meat and heals ecosystems by mimicking the complexity of nature. They chose a piece of farmable river bottomland in the Texas Hill Country, a region that has been industrially farmed for the past century. Years of overgrazing and monoculture cropping had led to mineral extraction and biodiversity loss, which Taylor and Katie intentionally inherited with an eagerness to regenerate the land.

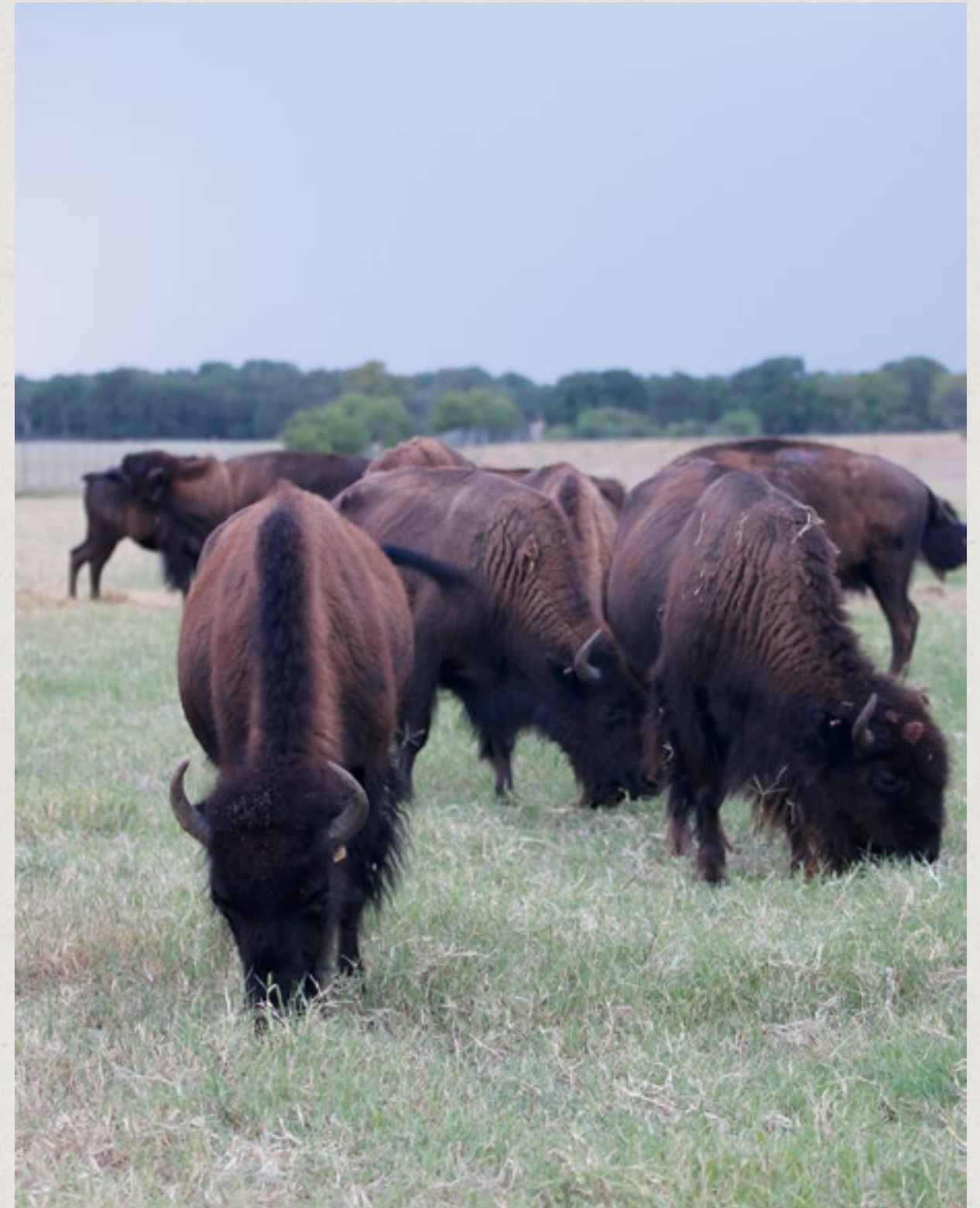
One year later, on this land that many would have deemed unsalvageable, dramatic shifts have already occurred. Taylor and Katie's original goals of providing a nourishing environment for animals, producing

wholesome food, and healing the soil are all well underway. Over 70 bison have been introduced and are holistically managed in a way that helps revive the grassland soil. Through planned grazing, the bison are strategically moved to different parts of the property, essentially mimicking the way wild herds of bison used to roam across the Great Plains. Because the bison are kept moving based on detailed, scientifically backed rotational grazing plans, a regenerative system prevents harmful overgrazing and over-resting. Rather than destroying the soil, the animals' hooves stimulate growth by aerating the soil, unearthing dormant grass seeds, and increasing the effectiveness of rainfall.

After bison came pastured poultry, which are now producing roughly 3,600 eggs per month. While the eggs are delicious, the primary purpose for the birds is the

beneficial impact they have on the land. Their natural instinct is to scratch at compact bare soil; this unearths seeds and loosens the soil, allowing it to absorb rainfall more effectively. The birds are also fantastic fertilizers: Their manure has high levels of nitrogen, which is key for soil bacteria to thrive. Most importantly, they debug the pastures and break apart potential parasitic life cycles within ruminant manure. This ultimately eliminates the need for pesticides on the fields.

Right now, Taylor and Katie are producing pastured chickens, heritage turkeys, geese, chicken eggs, duck eggs, pears, and fresh produce from the garden. They also started an apiary on the land that houses 200,000 honeybees. They even hunt off their land. In fact, their livestock guardian dogs thrive on a diet of axis deer that are harvested from the property.





Pastured chickens find shade in the mobile range coop.



Taylor discusses future plans for ROAM with a neighbor.



Taylor, Katie, and their daughter, Scout, surrounded by the peaceful bison herd



Seventy-five heritage turkeys roam on the same pasture as the bison herd, providing natural fertilization with their manure.

Perhaps most importantly, ROAM has established itself as an educational center for regenerative agriculture and holistic animal management. ROAM has brought together educators, farmers, and the community for the noble shared goals of environmental stewardship and animal welfare.

There have been around 35 events hosted at ROAM over the past year, including the Impact Summit for General Mills' Natural and Organic Brands, a chicken butchery workshop available to the public, the Texas Bison Association 24th annual meeting, and the Savory Institute Land to Market Frontier Founders' Meeting. In all, over 350 people have come out to see the dramatic improvements that a deliberate regenerative system can have in just one year. EPIC employees can drive just outside the city to see a player in the revolution that they're tirelessly working on through their everyday efforts at the office.

ROAM has three times the amount of available forage from previous years, as well as triple the county average of animals per acre. So they've already proven that holistic management can have a huge impact, even in a short amount of time.

And this is just the beginning. Over the next year, they plan to introduce pigs and goats to the land—increasing the biodiversity of the ecosystem as well as broadening the animal impact. To increase their regenerative footprint, Taylor and Katie have purchased neighboring land. By the end of 2018, they will have increased their property to 900 acres, all of which will be managed holistically in order to revive the natural ecosystem.

They want to double the number of bison over the next year and continue to grow the herd as much as the land can tolerate. The heifers will be kept in order to continue to promote soil restoration, and the bulls will be harvested to

sell directly to consumers. Taylor and Katie are passionate about selling some of the meat they are producing locally. Community and education are key factors in a truly lasting impact, so sharing their production and story will continue to be a part of ROAM's mission.

Taylor and Katie's efforts prove that we can all make a difference. Whether you are passionate about restoring hundreds of acres of degraded land, or simply want to start a garden in your backyard, we encourage you to consider your relationship with the land on which you live. If we all do our part to treat the natural environment with the respect and care it deserves, it will continue to provide for many generations to come. ~~~





Soil is the Solution

WHY WE NEED TO FOCUS ON HOLISTIC MANAGEMENT IF
WE WANT TO SAVE THE PLANET

Words by Chris Kerston

A brightly colored hand-woven cloak, draped over a man's shoulders, blows gently in the breeze. It's as though it's making a silent statement of grit to a truly wild landscape and an immense blue sky that somehow looks too expansive to be real. With a deep stoicism, the man scans for hidden predators. He clutches a wooden spear: a tool that he made himself as a young man. He's never been apart from it. Night and day, it's by his side; it has become an extension of himself, and having it with him has become entangled with his identity. A herd of sienna-colored cattle graze carelessly a short distance away. For innumerable generations, this man's people have developed an unspoken mutualism with their grazing animals. The stock are first and foremost their companions, but they also accommodate his people with a nutrient-dense food source that nourish them through all four seasons. The animals' hides are utilized for both warmth and protection. They provide a source of fat to use for skincare and hygiene, and they yield an immense amount of bones that can be fashioned into all sorts of tools and jewelry. The livestock are essentially a veritable general store for this man's people. In return, the herders escort the animals to the best grazing ground and protect them from harm of all sorts—they have spent millennia learning how to kill any predator that threatens their herd.

On this particular day, the air permeates with the rich and pleasant smell of wet earth. The rainy season is coming to an end, and the rolling hills are emerald green. In a few weeks, when the dry season sets in, the range will turn to a bleached yellow ochre. Nothing grows in the dry season, and the cattle will have to survive on the dried-out, hay-like grass. But, for the time being, the grass is lush and full of protein here, and it's a favorite

spot of his herd. The herder will guide the animals here every few days during the growing season. The man notices that the lush grass in this place makes his cattle healthy and strong. It will help the herd maintain strength and vitality going into the hot dry summer.

This man is overgrazing.

While this kind of agriculture is inherently grass-fed and organic, by default, the man is unknowingly weakening the ecosystem on which he and his family depend. While unintentional, he is causing what scientists call "desertification," or rather, the degradation of land. From the earliest chapters of our story, humans have interwoven their narrative with grazing ruminants, following one another around on all six habitable continents to the extreme corners of the earth. This scene could be taking place anywhere in the world, and similar scenarios are taking place around the globe right now. This man's actions are being made with the absolute best of intentions, and whether he is Maassai, Sami, vaquero, gaucho, paniolo, shepherd, or cowboy makes no difference—**humans are predisposed to overgraze their livestock.**

There is a deep nuance here that begs to be explained. Both crop farmers and livestock producers have mismanaged our ecosystems for all of human existence. Nature is complex and, as much as we aim to grow beyond ourselves, our brains are predominantly linear in how they process challenges. We naturally gravitate towards siloed thinking and diminishing all scenarios to single variables. This reductionism leads to management that results in unintended consequences. Let's now fast forward to the current state of the world.



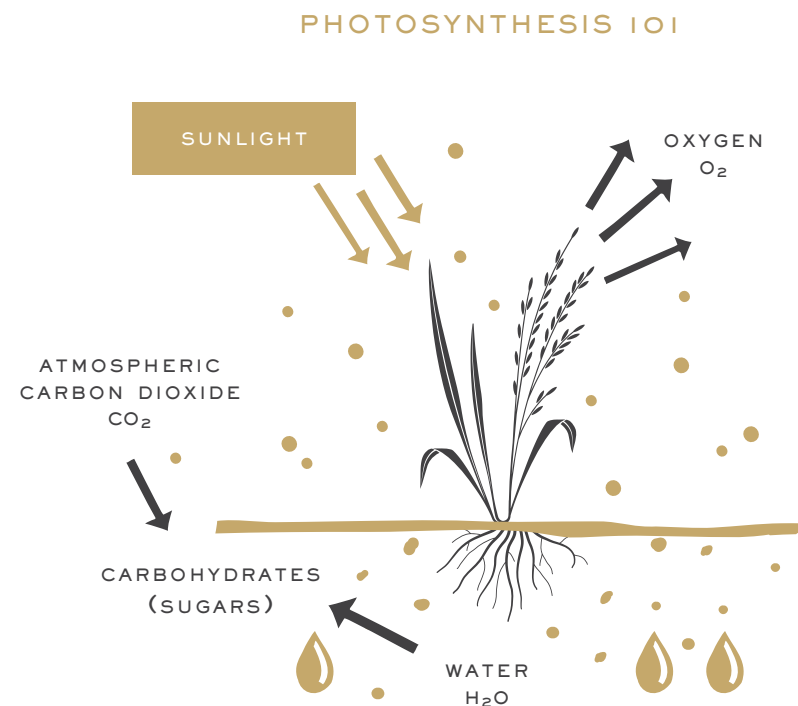
Taylor Nicole

The age of climate change is upon us. The planet is warming, and we are seeing a great increase of intensity of droughts, floods, hurricanes, and storms of all kinds. These effects are only going to get worse. Our atmosphere is harboring too high a quantity of greenhouse gases like carbon dioxide; our current levels are at 410 parts per million (ppm), and climate scientists widely agree that we need to be below 350 ppm.

Here's the real scary part: Even if we stopped all fossil fuel emissions tomorrow, there is already too much carbon baked into our atmosphere; our planet is still doomed!

Nearly all intergovernmental efforts centered on climate change focus solely on reducing emissions from burning fossil fuels. While this absolutely **MUST** happen, it does nothing to address the legacy load of greenhouse gases already in our atmosphere. Without a way to remove the existing carbon dioxide, civilization will still suffer catastrophic demise.

In order to deal with a global-scale problem of this magnitude, the solution must be biological. As we look to natural processes, we recognize that all life is made up of carbon that cycles between earth and its atmosphere. Utilizing the power of sunlight, through the process of photosynthesis, plants remove carbon dioxide (CO₂) from our atmosphere, then break the carbon away to mix it with the hydrogen (from water, H₂O) to form complex carbohydrates in the form of sugars (carbon + hydrogen). What's left over is oxygen, which is released back into the atmosphere. So, with the current overload of atmospheric CO₂, we need as much photosynthesis to happen as possible.



Grasslands happen to perform this carbon sequestration better than any other terrestrial ecosystem. It would seem as though a grazing animal would be the antithesis of this sunlight powered carbon-capture process. Every time something chomps on a blade of grass, the plant's solar collectors get damaged. The now-impaired plant is unable to perform this crucial process with the same efficiency. Surprisingly, this is actually when the real magic occurs. The grass plant responds to this shocking event of being decapitated by pulling up some of the sugars that it's made from its roots and then letting the bottom parts of its deepest roots die off. Those sloughed-off roots constitute organic matter that just got injected deep into the soil. They soon break down into humus, (like compost) and become part of the vast network of life and synergistic carbon-based trading in the soil—a new biological frontier that scientists are only beginning to understand. The energy from the carbohydrates is used to regrow the blade of grass. This is where we get into trouble, because from our human perspective, we see the blade of grass has regrown above the soil, and we assume the plants here have recovered. However, it takes

additional time for the root to regrow. If the grazing animal returns to bite again before the root has had a chance to regenerate, the plant will sustain legitimate trauma and either die or be severely stunted. This is referred to as breaking “the law of the second bite.”

In nature, we see grazing ruminants (animals with a rumen) stay almost perpetually bunched and moving. What keeps them bunched and moving is pressure from predators. Unfortunately, civilization has decimated the predator populations, and we have built too vast a network of imposing infrastructure for these wild herds of grazers to migrate effectively any longer. Additionally, there is a consensus among researchers that our current global herd of wild ruminant grazers is drastically lower than previous points in history. The solution to restoring our grasslands and fully leveraging them to reverse climate change is that we must now utilize our domestic grazers to pick up that slack.

The key to getting things just right with domestic grazers has everything to do with timing and the density of the

animals. If grazing animals stay on the same grass too long, then they bite the same plants repeatedly, which leads to land degradation and a minimal amount of carbon sequestration. If we rest grass for too long, we'll also see degradation, because as the plants age and die out, they turn to thatch (dry grass, like hay) that will shade out any future potential seedlings from surviving. Our massive ungulate friends are designed to provide the role of pruning and biological decay for the grass plants; they act as a positive catalyst and actually spark more growth. On the other hand, if we have too few animals on the land not moving often enough, then we will simultaneously see overgrazing occur on their favored plants, as well as undergrazing (aka over-resting) of plants that have lower palatability or have moved into old age.

It is imperative to our survival as a species that humans embrace the importance of grasslands and simultaneously understand that grasslands actually depend on being grazed as much as grazers depend on eating grass. In other ecosystems, the vast majority of dead vegetation falls to the surface of the soil and has to be worked from the top down by bugs and microbes. In grasslands, if we get the timing and density right, we are constantly pumping organic matter made from carbon that originated in our atmosphere (where it is harmful) into the soil, where it becomes a source of fertility, food for an entire web of soil life, and an incredibly strong sponge that holds onto water. That is why the most abundant crop-producing regions of the world are former grasslands, not forests.

So how does someone get the timing and density right with their livestock while also not falling into the pitfall of unintended consequences? A man named Allan Savory has been working on these issues for over 60 years. You

may have seen a TED Talk that he did in 2013 that has become one of the 75 most watched TED Talks of all time. He developed the process of holistic management, where a livestock farmer or rancher learns over time how to proactively plan their grazing, rather than simply rotating them haphazardly every few days. He or she uses a triple-bottom-line decision-making framework to help get the animals in the right place, at the right time, for the right reason, and with the right behavior. And the animals do not come back to the same area of grass until the plants there have had the opportunity to fully recover from their last time being grazed.

It has been proven that organic and 100% grass-fed ruminant production is better for the animal and better for the eater; what we can't say is that it is inherently better for land. So while civilization must rapidly re-embrace an animal agriculture that is both grass-fed and produced without synthetic chemicals, we have to also remember that these production systems were the default methods of agriculture until only about 100 years ago. During previous eras, humans still did a tremendous amount of damage to their supporting landscapes. It is estimated that over 20 civilizations have failed due to mismanagement of their grazing and cropping lands. In today's world, we are at risk of losing all of civilization due to the mismanagement of agriculture.

Properly managed livestock are THE solution.

With a shift in management and the framework to cultivate truly regenerative outcomes, our stoic pastoralist, striving to make a livelihood from his herd, can bring immense abundance to the land and realize a vibrancy the likes of which his community has never known before. ~~~



EPIC co-founders, Taylor and Katie, meet with Chris Kerston of Savory Institute (far right) and Will Harris of White Oak Pastures (near right), one of EPIC's suppliers.

Since its founding by a group of ranchers in 2009, we at the Savory Institute have been working tirelessly to restore the natural cycles of the grasslands around the globe. This methodology of Holistic Management has been scaled through an intentionally decentralized grassroots network of educators and practitioners, now further supported by Savory Hubs. These hubs act as field offices in a given region through offering peer-to-peer producer training and implementation support. They also spark innovation by facilitating a variety of other services to the local community that include research partnerships, policy work, consumer education, supply chain development, and product aggregation.

The founders of EPIC Provisions, Taylor and Katie, had the vision to see the importance of properly managed livestock in environmental regeneration. From the beginning, they had a nutrient-dense product and animal welfare standards in place, but they knew they needed to do more to ensure that they were sourcing their products from landscapes that were being healed or regenerated. They had a strong desire to grow beyond the status quo and "run into the storm," as we often like to say. We have developed a very special and collaborative relationship with them. Together we have formed our new Land to Market program (see page 101) that specifically informs consumers of the health of the land from which the goods they are buying are being sourced. Very few have had both the audacity and patience to mount a truly holistic approach to their business, but Taylor and Katie have always driven the business with their personal convictions, and they truly lead by example, welcoming others into the movement.



Ecosystem Restoration through Regenerative Agriculture

Words and Photography by Steve Rosenzweig, Ph.D.

In the summer of 2013, I made my first scientific discovery. It wasn't particularly groundbreaking to the scientific community, but to me, it was a revelation.

I was studying soil in Kansas, happy to have landed an undergraduate research gig after being rejected from programs in more exotic places like China and Costa Rica. My experiment was to see what happens to the soil when a farm is abandoned and allowed to return to the native ecosystem, which in Kansas is the tallgrass prairie. I took soil samples from several fields that were side-by-side, each having been abandoned and allowed to recover for a different number of years. Just months earlier, I didn't even know that there were people who studied soil, but as someone who was concerned about humanity's impact on the environment, the research question interested me: If we leave nature alone for a few decades, what happens?

The transformation was profound. The farm soil, a pale and inert mass of dirt, turned into a black, crumbly, cottage cheese-like substance in the restored prairie. I had numbers to explain the difference. The 35-year-old prairie soil was 20% less dense, held over 50% more carbon, and had five times more living microbes than the farm soil. But the difference wasn't just quantitative—the prairie soil smelled better and had things crawling around in it that weren't there in the farm soil. After a hard rain, murky water ran from the farm field into a nearby stream, while the prairie soil absorbed every drop.

What I discovered was a case of regeneration: the self-healing property of nature.

Flying across the country at the end of the summer, back to my hometown in upstate New York, I looked out the window of the plane. For the first time, I realized how much of the land is dominated by agriculture. I imagined what it would look like if the entire landscape could undergo the restoration I had just witnessed. What would happen to the soil? The water? The birds? The people?

It didn't take long to discover that abandoning land isn't the only way to restore it. Just a few years after my first glimpse of ecological regeneration in the tallgrass prairie, I met farmers who were achieving the same results by practicing a completely different kind of agriculture.



If there was one realization that spawned regenerative agriculture, it was this: A farm is an ecosystem, no different from a tropical rainforest or a coral reef.

For centuries, farms have been managed like machines, optimized only to produce high yields of a single crop. But this style of management created wear and tear on the system, and parts of the machine have broken down. As a result, the act of farming today is a perpetual game of ecological whack-a-mole, with constant reliance on tillage and chemicals to handle the pests, weeds,



DEGENERATIVE



REGENERATIVE



nutrient deficiencies, flooding, salinity, and all the other ailments that have become rampant in agricultural systems. Tillage and chemicals are bandages to keep the machine running in the short term, but they only serve to worsen its condition in the long run. The farm can only begin to heal itself when the farmer ceases to manage it like a machine and starts tending to an ecosystem.

Regenerative agriculture is a path forward for all farmers, regardless of whether they are organic or conventional. It is extremely difficult for organic farmers to eliminate tillage, and equally difficult for conventional farmers to eliminate chemical use, but progress toward a system free of tillage and chemicals defines the regenerative journey. In rare instances, there may still be a place for tillage or chemicals as strategic tools on a regenerative farm, but by mimicking nature, regenerative farmers can handle most concerns through natural processes instead. As a result, the farm ecosystem thrives.

Consider the issue of weeds. In order to kill weeds, most farmers employ some type of tillage, which is a mechanical disturbance of the soil. In recent decades, some conventional farmers have transitioned to no-till systems, in which herbicides are used to kill weeds and the soil remains undisturbed. But no-till is only practiced on 20% of farm acres in the US, so the vast majority of conventional farms—and just about all organic farms—still rely on tillage. Farms that employ tillage and monoculture (only growing one type of plant) will have several months a year with bare soil and no living plants. Without living plants, bare soils are devoid of competition for light and water, causing weeds to flourish and creating a headache for farmers,

who then must spray herbicide or do more tillage to prevent the weeds from spreading and taking over the farm.

Regenerative farmers view weeds as a symptom of an unhealthy ecosystem—Nature’s way of trying to protect herself after being left naked and exposed to the heat of the sun and the destructive forces of wind and rain. The soil in natural ecosystems is never bare; there is always a thick layer of mulch and growing plants to keep it covered. Regenerative farmers can mimic nature by planting cover crops, which are diverse mixtures of plants that they don’t intend to harvest but are there to ensure the soil is covered at times when it would otherwise be bare. In addition to suppressing weeds, cover crops also feed the microbes in the soil, sequester carbon, and provide other services like flowers for pollinators.

It was only in the last few years that the complexity of natural ecosystems was codified into a few short, simple rules that any farmer can follow to farm regeneratively: minimize chemical and mechanical soil disturbance, maximize diversity of plants and animals, keep the soil covered, and maintain a living root in the soil throughout the year. These principles have laid the foundation for a new agricultural revolution, but there is no recipe for successfully implementing them. Transitions to regenerative agriculture are full of risk, hard lessons, and isolation as farmers deprogram the conventional mindset and reboot.



Chasing the satisfaction I felt witnessing the regeneration of the prairie soil in Kansas, I spent four



In this meter-deep soil core, the color changes from dark, organic matter-rich topsoil to red subsoil, where fewer roots have grown to add carbon.

years driving thousands of miles as a PhD student in search of regenerative agriculture. As part of my research, I collected and analyzed hundreds of soil samples from regenerative and conventional farms, and interviewed all types of farmers to understand the forces that drive each to farm a certain way. I heard many different stories, often spanning multiple generations, about how each farm came to be the way it is today. But I was surprised by how many farmers expressed a similar dissatisfaction with the current state of agriculture. Whether it was the economic pressure of dependence on expensive inputs, a concern over transferring a degraded soil to the next generation of farmers, or simply the boredom of repeating the same process year after year, a lot of farmers were looking for a change.

When I finished my research, it was clear to me that the change the farmers sought could be found in regenerative agriculture. Again, I had numbers to explain what I saw: Regenerative farmers had 20% more soil carbon, three times more beneficial soil fungi, cut chemical use by more than half, produced 60% more grain with the same amount of fertilizer, and made 80% more money than the most conventional farmers.

But again, it was the intangible results that hit me the hardest. The regenerative farmers seemed to have more fun. Every year they learned something new, and they became intensely curious. Weeds and pests weren't as big of a headache, and their farms were better able to withstand both droughts and heavy rains. The farmers saw wildlife and creatures in the soil they'd never seen before; a few of them even bought their own microscopes to identify the new soil life. Their farms had become thriving ecosystems.

After hearing the farmers' stories and analyzing the data, I believed in the promise of regenerative agriculture. It can pull carbon out of the atmosphere and fight climate change, keep nutrients cycling within the soil to protect our water, and alleviate the economic and psychological pressure of farming a degraded ecosystem. But it also became clear that being regenerative isn't easy.

Several regenerative farmers expressed to me a sense of loneliness. As I sat in one Colorado farmer's kitchen, he told me he quit going to the local coffee shop because the other farmers



“ IF THERE WAS ONE REALIZATION THAT SPAWNED REGENERATIVE AGRICULTURE, IT WAS THIS: A FARM IS AN ECOSYSTEM, NO DIFFERENT FROM A TROPICAL RAINFOREST OR A CORAL REEF. ”

would stop talking when he walked in. Another farmer, sitting in the back of a regenerative agriculture workshop in Minnesota, told me the best part of the workshop was just seeing that there were other farmers like him.

Social isolation is just one of a host of risks farmers encounter on the regenerative path. Completely changing farming practices is hard enough without skeptical bankers, resistant landlords, and all of the other obstacles farmers have to face if they want to try something new. Farmers who are trying to bring Nature back to the farm could use some help.

Today, I am in a unique position to support regenerative farmers. As a soil scientist for General Mills, I get to work directly with farmers who supply the ingredients for brands like EPIC, Nature Valley, and Cheerios. Every region and each crop presents unique challenges for integrating the five principles, but I help farmers experiment with practices like cover crops and no-till

on their own farms to figure out how the principles fit in their unique context. Each farm becomes a research lab for ecological innovation, and every growing season presents new surprises and new lessons. Working with universities and other partners in the food system, I'm helping to translate these learnings to the broader farming community, to engage farmers in ecosystem-thinking, and to accelerate the pace of regeneration.

It is daunting to consider the ways in which our fates are tied to the soil—how every spring, humanity itself depends on the ability of farmers to coax a plant from that mysterious world beneath our feet. It is an act that neither soil scientists nor scholars of ancient civilizations take for granted. But witnessing the process of regeneration is the antidote to such existential woes. Standing in a field, I feel a familiar sense of peace as the ecosystem hums around me. I know that agriculture is not “here” and nature “out there,” but that they are inseparable and harmonious.



SUPPLIER FEATURE

Capra Foods

Words by Liz Harroun



Craig and Maggy Jones, co-founders of Capra Foods

Since World War II, the sheep industry has been declining along with wool and lamb consumption in the U.S. Synthetic fibers have almost entirely replaced natural fibers for clothing production. Seasoned sheep producers suspect the decline in lamb meat consumption has to do with the meat fed to soldiers in World War II. Soldiers were fed rations of canned mutton, a fatty, salty product made from the meat of older sheep. When the men came home from war, they did not want anything to do with sheep meat in any form.

The amount of sheep in the U.S. has shrunk to one-tenth of what it was in the 1940s—from around 60 million to six million today. This has coincided with the introduction of antibiotics and factory farms to the beef, chicken, and pork industries—which made these industries more efficient and lucrative. Lamb simply couldn't keep up.

As Craig Jones drove us through the dry, vast lands of Goldthwaite, Texas in his pickup truck, he admitted that the past few decades have been a difficult time to be a sheep farmer. Craig is one of the three founders of Capra Foods, a collective of more than 120 lamb ranches in Central Texas. He told me that, even after the drastic decline in the industry, he knew there was opportunity to raise lambs differently—in a way that was better for business and the environment. Thanks to his tenacity, Capra Foods is now the top producer of premium Dorper lamb in the U.S. and has the only certified lamb program in the country.

We were in the heart of Texas, just two hours north of Austin, and vast pastures scattered with lambs surrounded us for miles. They had been in a drought, Craig explained, but sheep do really well on dry land. In fact, this land is too dry for most crops and even cattle, but the Dorper lambs thrive on the arid, rocky pastures.

Maggy, Craig's wife, was born into a family that had been raising sheep and goats in Goldthwaite since the 1930s. After meeting Craig, they moved back to the family farm in the early 1990s to take over the business. The decline in wool usage, lamb consumption, and overall sheep numbers had taken a huge toll on the industry. "The empty wool and mohair warehouses in Goldthwaite, and throughout Texas, are testaments to the enormous changes the industry has seen," Craig said. "Ranchers are resilient though, and we have transitioned in this part of the world to the Dorper meat sheep."

Craig realized that Dorper lambs, which are hair sheep with a much better taste profile, do really well in the Central Texas region. When he and Maggy took over the farm, they slowly made the transition to Dorper sheep. They started with small retailers, selling a few lambs a week, and received great feedback. Food service companies also came on as customers, but it was difficult to offer year-round farm-to-table meat from their single farm.

Even though both Craig and Maggy had grown up ranching, they realized that they were going to need help in order to create a sustainable business for 100% pasture-raised Dorper lamb meat. That's when they, along with their partner Mike Smith, started reaching out to other ranchers to create a network.

One of the major advantages of this network is that it makes the farm-to-table model much more feasible.

It's difficult for one single ranch to have their lambs come in at different times throughout the year to meet the demand of local restaurants. Being a part of a network allows ranchers to earn money throughout the year for raising their animals according to certain standards, and restaurant and grocery clients have access to a consistent year-round supply.

It took several years to convince other ranchers to join forces. Since Craig and Maggy had started raising hair sheep and goats about a decade prior, they were already confident that the Dorper lambs were well-suited to the region. In fact, there is no need to dock their tails or shear them since they are so adapted to the environment. However, since Craig and Maggy were among the few raising these breeds at the time, other farmers weren't so sure. Craig had to establish their trust and convince them that there would be a market for the premium meat he wanted them to start raising.

Initially, a small group of ranchers agreed to grow their sheep bigger than they usually do. Until then, farmers were growing their sheep to 70 or 80 pounds, and Craig asked them to grow the sheep to 100 pounds. It was risky, since there was not a significant market for these larger, pastured sheep at the time. They'd typically go to the feed yard or ethnic market before they got that big. However, Capra continued to build the market for the bigger Dorper lambs as they brought new ranchers on board, and have continued to experience growth since then.



The 100% grass-fed and pastured Dorper lambs raised on one of the farms in the Capra network are used for the EPIC lamb bars.





Capra Foods now has about 120 farms in the network. Their minimum standards include raising animals entirely on pasture, and without the use of antibiotics, growth hormones, and animal byproducts. New suppliers have to sign contracts agreeing to the upholding of these standards as well as to ensure animal welfare. The network is able to earn a premium for their practices, which range from 100% pasture-raised to 100% grass-fed and GAP Step 5 certified.

Capra represents how small farms can join forces in order to grow market influence as well as income for the farmers themselves. Thanks to the dedication of the Capra team, a dying industry was revived in the sparsely populated Edwards Plateau. Those of us here in Central Texas are grateful to have Capra in our backyard and look forward to continue seeing their influence grow throughout the region—which means more animals raised in the way Nature intends. ~



If You Want to Save the World, Veganism Isn't the Answer

Words by Isabella Tree

Veganism has skyrocketed in the UK over the past couple of years, from an estimated half a million people in 2016 to more than 3.5 million—5% of our population—today.¹ Influential documentaries such as “Cowspiracy” and “What the Health” have thrown a spotlight on the intensive meat and dairy industries, exposing the impacts on animal and human health and the wider environment.

But calls for us all to switch entirely to plant-based foods ignore one of the most powerful tools we have to mitigate these ills: grazing and browsing animals.

Rather than being seduced by exhortations to eat more products made from industrially grown soy, maize, and grains, we should be encouraging sustainable forms of meat and dairy production based on traditional rotational systems, permanent pasture, and conservation grazing. We should, at the very least, question the ethics of driving up demand for crops that require high inputs of fertilizer, fungicides, pesticides, and herbicides, while demonizing sustainable forms of livestock farming that can restore soils and biodiversity and sequester carbon.

In 2000, my husband and I turned our 1,400-hectare (3,500-acre) farm in West Sussex over to extensive grazing using free-roaming herds of old English longhorn cattle, Tamworth pigs, Exmoor ponies, and red and fallow deer as part of a rewilding project. For 17 years we had struggled to make our conventional arable and dairy business profitable, but on heavy Low Weald clay, we could never compete with farms on lighter soils. The decision turned our fortunes around. Now ecotourism, rental of post-agricultural buildings, and 75 tons a year of organic, pasture-fed meat contribute to a profitable business. And since the animals live outside all year

round, with plenty to eat, they do not require supplementary feeding and rarely need to see the vet.

The animals live in natural herds and wander wherever they please. They wallow in streams and water-meadows. They rest where they like (they disdain the open barns left for them as shelter) and eat what they like. The cattle and deer graze on wildflowers and grasses, but they also browse among shrubs and trees. The pigs rootle for rhizomes and even dive for swan mussels in ponds. The way they graze, puddle, and trample stimulates vegetation in different ways, which in turn creates opportunities for other species, including small mammals and birds.

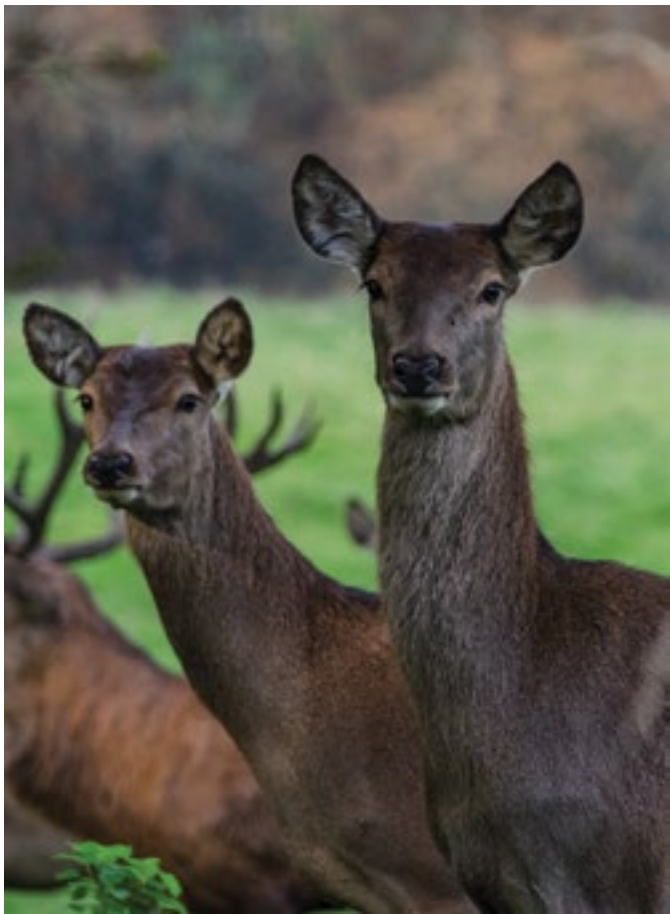
Crucially, because we don’t dose them with avermectins (the anti-worming agents routinely fed to livestock in intensive systems) or antibiotics, their dung feeds earthworms, bacteria, fungi, and invertebrates such as dung beetles, which pull the manure down into the earth. This returning of nutrients and structure to the soil is a vital process of ecosystem restoration. Soil loss is one of the greatest catastrophes facing the world today. A 2015 report from the UN Food and Agriculture Organization states that, globally, 25 to 40 billion tons of topsoil are lost annually to erosion, thanks mainly to plowing and intensive cropping.² In the UK, topsoil depletion is so severe that, in 2014, the trade magazine *Farmers Weekly* announced we may have only 100 harvests left. Letting arable land lie fallow and returning it to grazed pasture for a period—as farmers used to, before artificial fertilizers and mechanization made continuous cropping possible—is the only way to reverse that process, halt erosion, and rebuild soil, according to the UN Food and Agriculture Organization.³ The grazing livestock not only provide farmers with an income, but the animals’ dung,

“ NOT ONLY DOES THIS SYSTEM OF NATURAL GRAZING AID THE ENVIRONMENT IN TERMS OF SOIL RESTORATION, BIODIVERSITY, POLLINATING INSECTS, WATER QUALITY, AND FLOOD MITIGATION—IT ALSO GUARANTEES HEALTHY LIVES FOR THE ANIMALS, AND THEY IN TURN PRODUCE MEAT THAT IS HEALTHY FOR US. ”



¹ Petter, O. (2018, April 05). The number of vegans in the UK has soared to 3.5 million, according to a survey. Retrieved from <https://www.independent.co.uk>

² “Status of the World’s Soil Resources.” Food and Agriculture Organization of the United Nations, Intergovernmental Technical Panel on Soils. Retrieved fao.org



Isabella Tree at her home in West Sussex, where she and her husband manage 3,500 acres using traditional rotational systems, permanent pasture, and conservation grazing



urine, and even the way they graze accelerate soil restoration. The key is to be organic, and keep livestock numbers low to prevent overgrazing.

Twenty years ago, our soils at the farm—severely degraded after decades of plowing and chemical inputs—were almost biologically dead. Now we have fruiting fungi and orchids appearing in our former arable fields: an indication that subterranean networks of mycorrhizal fungi are spreading. We have 19 types of earthworms—keystone species responsible for aerating, rotavating, fertilizing, hydrating, and even detoxifying the soil. We've found 23 species of dung beetle in a single cowpat, one of which—the violet dor beetle—hasn't been seen in Sussex for 50 years. The number of birds that feed on insects attracted by this nutritious dung are

increasing. The rootling of the pigs provides opportunities for native flora and shrubs to germinate, including willow, and this has given rise to the biggest colony of purple emperors in Britain—one of our rarest butterflies—which lays its eggs on willow leaves.

Not only does this system of natural grazing aid the environment in terms of soil restoration, biodiversity, pollinating insects, water quality, and flood mitigation—it also guarantees healthy lives for the animals, and they in turn produce meat that is healthy for us. In direct contrast to grain-fed and grain-finished meat from intensive systems, wholly pasture-fed meat is high in beta carotene, calcium, selenium, magnesium, potassium, vitamins E and B, and conjugated linoleic acid (CLA)—a powerful anti-carcinogen. It is also high in

³ "Sustainability and Organic Livestock Modelling." Food and Agriculture Organization of the United Nations, Natural Resources Management and Environment Department. Retrieved from pastureoflife.org

“ UNLESS YOU’RE SOURCING YOUR VEGAN PRODUCTS SPECIFICALLY FROM ORGANIC, “NO-DIG” SYSTEMS, YOU ARE ACTIVELY PARTICIPATING IN THE DESTRUCTION OF SOIL BIOTA, PROMOTING A SYSTEM THAT DEPRIVES OTHER SPECIES—including SMALL MAMMALS, BIRDS, AND REPTILES—OF THE CONDITIONS FOR LIFE, AND SIGNIFICANTLY CONTRIBUTING TO CLIMATE CHANGE. ”

the long-chain omega-3 fatty acid DHA, which is vital for human brain development but extremely difficult for vegans to obtain.

Much has been made of the methane emissions of livestock, but these are lower in biodiverse pasture systems that include wild plants such as angelica, common fumitory, shepherd’s purse, and bird’s-foot trefoil, because they contain fumaric acid—a compound that, when added to the diet of lambs at the Rowett Institute in Aberdeen, reduced emissions of methane by 70%.⁴

In the vegan equation, by contrast, the carbon cost of plowing is rarely considered. Since the industrial revolution, according to a 2017 report in the science journal *Nature*, up to 70% of the carbon in our cultivated soils has been lost to the atmosphere.⁵

So there’s a huge responsibility here: Unless you’re sourcing your vegan products specifically from organic, “no-dig” systems, you are actively participating in the destruction of soil biota, promoting a system that

deprives other species—including small mammals, birds, and reptiles—of the conditions for life, and significantly contributing to climate change.

Our ecology evolved with large herbivores—with free-roaming herds of aurochs (the ancestral cow), tarpan (the original horse), elk, bear, bison, red deer, roe deer, wild boar, and millions of beavers. They are species whose interactions with the environment sustain and promote life. Using herbivores as part of the farming cycle can go a long way towards making agriculture sustainable.

There’s no question we should all be eating far less meat, and calls for an end to high-carbon, polluting, and unethical forms of intensive grain-fed meat production are commendable. But if your concerns as a vegan are the environment, animal welfare, and your own health, then it’s no longer possible to pretend that these are all met simply by giving up meat and dairy. Counterintuitive as it may seem, adding the occasional organic, pasture-fed steak to your diet could be the right way to square the circle. ~



⁴ “Scientists look to cut cow flatulence. Retrieved from phys.org/news/2008-03-scientists-cow-flatulence.html

⁵ Zomer, Robert, J, et al. “Global Sequestration Potential of Increased Organic Carbon in Cropland Soils.” *Nature, Scientific Reports*, 14 Nov. 2017.





Humane Hunting

A PHOTO SERIES

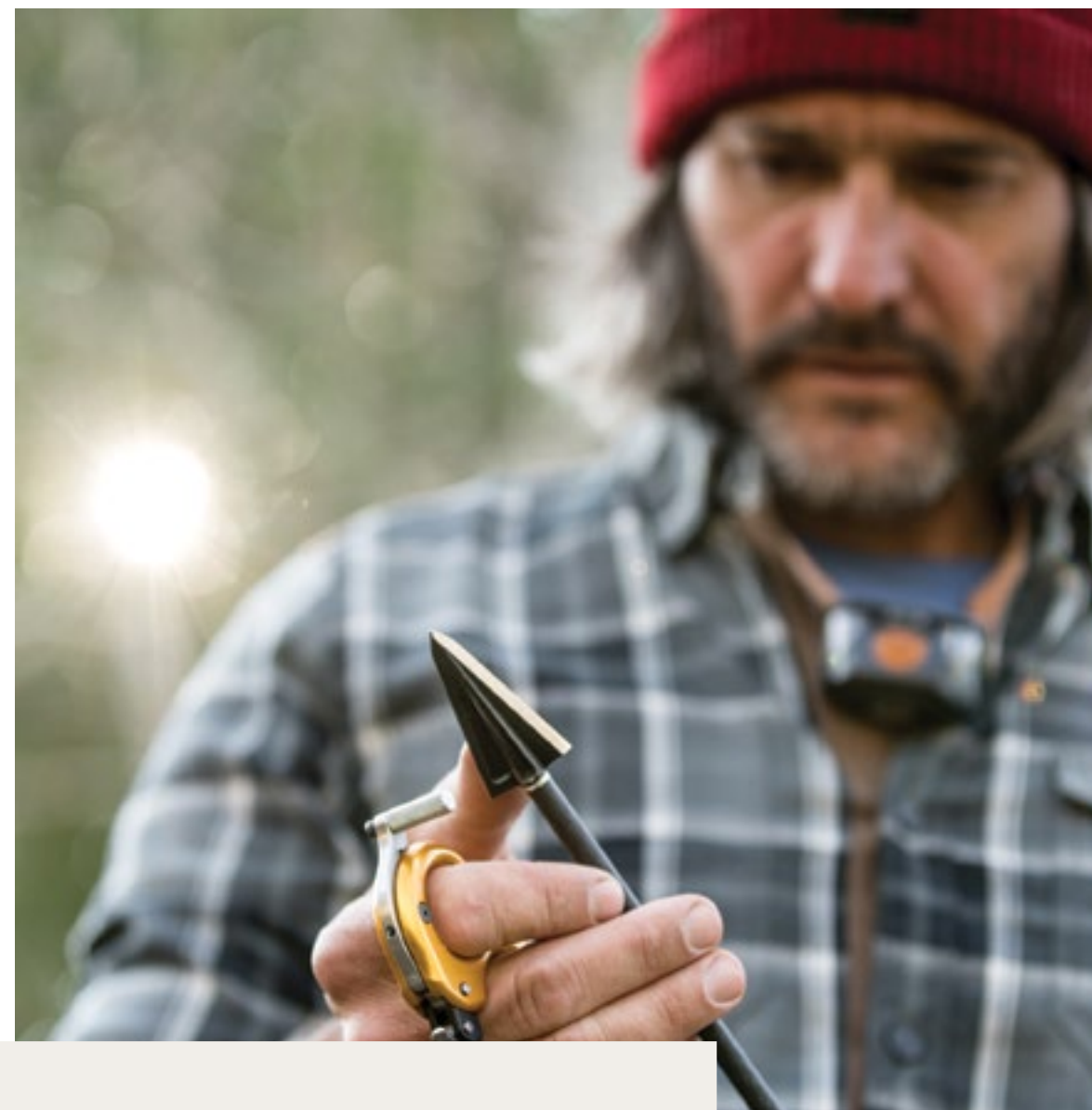
Quotes by Donnie Vincent • Photography by Sicmanta

Much like agriculture, hunting fosters a deep connection to Nature and respect for ecological balance. Hunters experience a much more intimate relationship with Nature than those of us who have never harvested an animal. When they hunt, they are at the mercy of the external environment—evolution and physicality rule in the wild. Moreover, conscientious hunters, like Donnie Vincent, feel strong compassion for the animals that they harvest. This photo series documents his first elk hunt, where Donnie follows, admires, empathizes with, and finally harvests a beautiful bull in Nevada. Donnie's adventures remind us of the importance of ancestral heritage, native respect, and the desire to live strongly—empowering us all to open our minds to the bigger picture and inspiring us to find our own adventure. And those are the stories worth telling.



“

The view this morning of the sunrise was incredible—it was better than caffeine for shaking off the grogginess from driving most of the night. I'm starting to see lots of antelope. It's so peaceful to see the bucks bedded near their does in the early morning light. It has me thinking about all of the sunrises and the elk that I'm not only going to see on this trip, but be fortunate enough to watch and experience, up close. I'm sure it will make me forget why I'm here. Excited!



“

I wish I could convey how much I'm enjoying watching this bull. His body is that of a potbellied heavyweight fighter, and when he tips his head back to bugle, his antlers seem to touch his tail. I'm a hunter; simply watching him is enough and truly embodies why I'm here. The days are getting noticeably shorter, however, and for the first time since arriving in beautiful Nevada, the nighttime air holds a familiar chill. Right now I'm content on learning this bull's behavior from afar, but change is coming.



“

After hearing a very impressive bugle a couple nights ago, I spotted a nice bull at this location in the photo (about 11,500 feet up). His bugle would echo throughout the entire canyon—it was incredible. After another 800-foot, four-point climb, I made my way up above the bull and his cows and was in what felt like the absolute perfect position, with the wind ripping in my face. I watched him through my scope for over an hour and, when the time felt right, I slipped in closer where I thought they were going to go. Unfortunately, they just disappeared on me. They definitely didn't smell me, and I'm pretty sure they didn't see me. Just not sure what happened. Regardless, it was an amazing day and experience! Time to find another bull.

My mind is still reeling from my trip to Nevada, my first elk hunt. I keep replaying this moment over and over in my head. My left leg had lost all feeling, so much so that I curiously wondered if this could be some sort of technique used for bush surgery. Trapped on my knees in a manner that only a child could hold for longer than a few seconds, everything was so damn quiet I didn't dare move beyond trembling. I was sure that I could hear ropes of his drool hitting the leaves, and just as sure that he could hear my heartbeat. Not twenty paces away for an easy ten minutes, this old bull and I tried to figure each other out. As he stared in my direction, I began to wonder if this was the bull that I had thought about all summer long. I don't know why I do this, although I enjoy the perspective, but I always wonder about the animal that I might kill: 'What is he doing right now?' and 'what has his life been like?' are questions I wrestle with often. Of course predator/prey relationships are simple engagements—they're life or death, like a light switch. But still I'm always thinking about our two stories, and mostly about if these stories will someday intertwine or, unknowingly, remain parallel, as if the other never existed in the first place.





SUPPLIER FEATURE

Joyce Farms

Words by Liz Harroun



Ron Joyce (center) with his two sons, Stuart and Ryan on the family farm

When Alvin Joyce started Joyce Farms in 1962, it was just him and his truck. He was buying dressed chickens from a farmer's co-op in Dobson, North Carolina and distributing them to small restaurants and independent grocery stores in the area.

What started as a one-man local chicken distribution company, however, grew to become one of the largest independently owned poultry distributors in the Southeast. Alvin's son Ron grew up seeing his father troubled that the chickens were consistently altered by producers. When Ron took over in the early 1990s, he decided it was time to take action.

"The flavor was disappearing, the texture was changing, quality was less important, and birds were getting larger—all in pursuit of lower production costs," said

Ron. "Our business was constantly being driven by price competition from the larger industrial poultry companies, many of whom started delivering directly to large-volume fast food restaurants. I realized one day that I no longer looked forward to going to work. The business was becoming more and more driven by price, and quality of product was taking a back seat."

Ron was saddened that no one was raising chickens naturally anymore, and he started transitioning to an antibiotic-free operation. However, he was eager to produce great-tasting and humanely raised birds, which called for much more than just getting rid of antibiotics and cages.

In 2002, Ron's search for the finest chicken in the world took him to France, where farmers have been cultivating slow-growing heritage breeds for

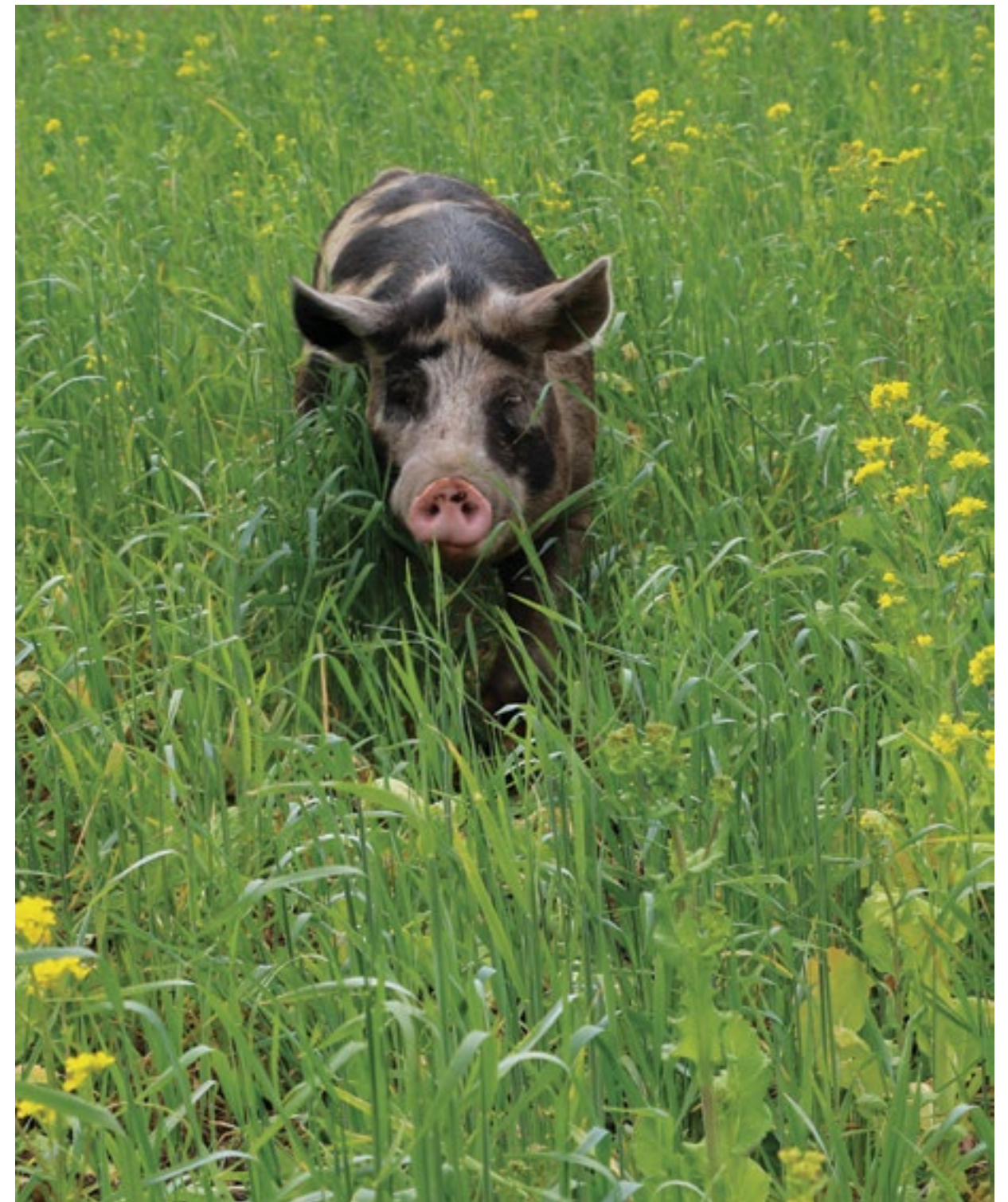


Ron discovered "Le Poulet Jaune," a naked-neck chicken breed, in France and started importing the genetics so that he could share this culinary treasure with the U.S.

generations. There, Ron discovered unique chicken breeds that offer better taste and texture than those we are used to here in America. He selected a naked-neck breed known in France as "Le Poulet Jaune" to take back to the U.S. by importing the genetics and raising them as close to Label Rouge standards as possible. These standards include ample outdoor access, clean conditions, and humane treatment of the chickens.

Ron branded these culinary treasures as Poulet Rouge. However, he quickly realized that taking pride in producing superior products no longer mattered in the U.S. commercial business. He started looking for alternative markets and discovered that the industrial producers were consistently disappointing American chefs. With a factory farming system that produced uniformly bland meats, chefs were no longer able to differentiate themselves and their establishments.

Decades ago, before the industrialization of meat, part of a chef's responsibility was to find farmers that produced the best meats available. Today, chefs in the U.S. are instead often tasked with making tasteless products flavorful by incorporating spices, sauces, and marinades. However, the heritage breeds that Ron had begun raising offer unique flavors and textures on their own, and he quickly found success in food service distribution. To this day, Joyce Foods is the only producer offering Poulet Rouge chickens in North America.



The Gloucestershire Old Spot, the oldest pedigreed spotted pig in the world, is known for the ability to thrive in pasture conditions. They produce succulent pork with generous fat and marbling.



Joyce Farms uses Scottish Aberdeen Angus cattle for their 100% grass-fed beef program.

So, what exactly is a “heritage” chicken? “Our definition of heritage chicken is a slow-growing breed that takes at least 81 days to reach an average dressed weight of three pounds without feed restriction,” Ron explains. “Heritage chickens generally have colored feathers, mate naturally, and are able to survive naturally outside in a pastured environment. I believe it is important to raise heritage livestock to preserve these animals that thrive in a pasture environment and have amazing flavor and other attributes not found in today’s industrial breeds. Once a breed is extinct, there’s no way to bring it back.”

Ron’s travels in France inspired him to implement more change based on European ways. He realized that we have very limited diversity of animal products in America compared to Europe. He recalls visiting local butcher shops as well as the Rungis Market outside of Paris in the middle of the night to watch the farmers bring in their diverse offerings. “We basically have one breed of chickens and turkeys in this country, all fast-growing, white-feathered industrial breeds, and very few other birds for the table,” Ron said.

He expanded his flock into game birds including guinea hens and pheasants, then later into black turkeys and capons. Each heritage bird is humanely and individually processed by hand at the Joyce Farms’ processing plant in North Carolina, which also serves as the company headquarters. Since they keep processing in-house, they can ensure more traditional and humane methods than industrial plants. Over the past few years, they have

invested heavily to replace chemicals in the plant with ozone for bacteria control.

With the help of Dr. Allen Williams, who has the same passion for beef as Ron does for poultry, Joyce Farms started a 100% grass-fed heritage beef program. They implemented a regenerative system and a scientifically backed grazing program for the selected Aberdeen Angus cattle, which produce excellent finishing and flavor with no use of grain.

Best of all, Joyce Farms’ regenerative practices are having a wider impact. Again with the help of Allen, their network of about a dozen family-owned farms are all in the process of converting to a regenerative system, even for their cash crops. Their regenerative agriculture program includes hands-on training with the farmers and education with the sales staff. Joyce Farms educates their distributor network and chef customers through farm tours, articles, and newsletters. They conduct free seminars at various food shows and sponsor farmers’ attendance at educational workshops and conferences.

What started as Ron’s simple desire to do things differently has evolved into a network of farms and educators making headway in the regenerative agriculture movement. We’re grateful for suppliers challenging the norm so that consumers can access delicious food produced in a way that is better for the land. ~~~





Chicken Liver Dip

Recipe and photography by Tania Teschke

I learned this recipe from my good friend and Bordeaux University wine course buddy, Malika Faytout, an organic winemaker in the Bordeaux region of Castillon. She says she still remembers me telling her on the first day of class when we met that I was writing a book called *The Bordeaux Kitchen*, an ancestral French cookbook with a wine chapter and food and wine pairings.

We sat next to each other in the first row throughout the academic year, and she ended up being the top student in our class of about 45 students. Luckily, some of her smarts rubbed off on me, and I was able to pass the course, too. Malika had decided to take the wine course to be able to play a more central role in her family's

organic vineyard, Château Lescaneaut. The vineyard is in the Castillon Côtes de Bordeaux appellation, next to Saint-Emilion, both of which produce fruity, bold Merlot-based wines—which, as it turns out, are a delicious accompaniment to the liver dip!

This chicken liver dip recipe is versatile in that you can eat it warmed, at room temperature, or chilled, with a variety of vegetables. This is a delicious way to eat nutrient-dense chicken livers. This recipe can be halved or doubled, depending on your needs. It can be served as a party dip, an appetizer, or as a meal. When Malika and I made this recipe together, it was spring, so we used local spring onions (oignon aillé). A scallion or peeled clove of garlic may be used instead of green onion.

SEASON	PREPARATION TIME	COOKING TIME	SERVINGS
Year-round	5 minutes	12 to 15 minutes	4

INGREDIENTS

2 tablespoons bacon fat (or duck fat)

15 whole chicken livers (12.5 ounces or 350 g)

1 tablespoon spring onion or garlic, minced

4 pinches of fine sea salt

1/3 cup water

3 teaspoons mustard

4 tablespoons red wine vinegar

1/2 cup extra virgin olive oil

Fine salt and ground pepper to taste

Fleur de sel for garnish

INSTRUCTIONS

Melt the fat in a cast iron skillet over medium-high to high heat. Add the chicken livers, green onion (or garlic), and salt. Allow the livers to stick a bit to the pan, letting them caramelize while stirring occasionally, for about five minutes. Reduce the heat to medium, stirring occasionally for an additional 7 to 10 minutes, until the livers are cooked through.

Remove the livers, allowing them to cool in a bowl for several minutes. Deglaze the pan with 1/3 cup water to loosen the caramelized material stuck to the pan, and add this liquid to the bowl of livers.

Mix the livers in a food processor (in batches if needed), adding the mustard, vinegar, and olive oil, until you reach the desired consistency. (This step should take about 30 seconds.) To increase the liquid consistency of the sauce, add a bit more water and/or olive oil. Adjust the seasoning with salt and pepper as needed. Top with fleur de sel for garnish.

Serve while still warm, chilled, or at room temperature with endive leaves, carrot and celery sticks, or homemade beet and sweet potato chips. I prefer eating the dip warmed or at room temperature.

CHEF'S TIPS

A reminder that a pinch (une pincée) is using three fingers. For fine salt, fleur de sel, pepper, and spices, this is slightly less than 1/8 teaspoon. For coarser grains of sea salt, it might be slightly more.

Fleur de sel is often used as a finishing touch, a chef's secret topping to a savory dish or dessert. The fine, white cubes are pleasing to the eye, delicate on the tongue, and add a subtle crunch.



Pâtés and dips are a great way to incorporate organ meats into one's diet. Not only are organ meats like chicken livers extremely nutrient-dense, their preparation also allows for more animal utilization.



More Meat, Better Meat

Words by Diana Rodgers, RD

Every time I watch a documentary on global warming, the idea of cutting down on energy consumption seems to get completely glossed over, and the takeaway is to *eat less meat*. I also hear this from the health community. When I was in school to become a dietitian, the constant message was that people are *eating way too much meat* and getting more than enough protein.

Meat has long been considered “evil.” In fact, corn flakes were invented by John Harvey Kellogg to stop those “frisky” feelings thought to come from eating meat and other spicy foods. It seems like the guy was on a mission to end sex all together, which he felt was at the root of many health issues like epilepsy and cancer.

Today, eating a plant-based diet is still associated with being “clean” and “pure.” From the perspective of vegetarianism, red meat is often denounced as the worst of all meats—an illogical stance. How is eating chicken a “cleaner” choice than beef? If you’ve ever raised chickens, I’m sure you’ll agree that they are not cleaner, purer, or any better of a choice than a cow, sheep, or lamb. Chickens are actually quite dirty and are cannibals; they will peck each other to death if stressed—and CAFOs are pretty stressful on chickens.

Environmentalists say that beef is destroying the environment, and health advisors are saying that it’s killing us. As a real food dietitian who lives on a working farm, I understand the importance of properly raised herbivores in helping to sequester carbon, improve the water-holding capacity of land (making rainfall more effective), and increase the biodiversity of their ecosystem. I tend to talk about the nutritional benefits of meat to environmentalists and the importance of regenerative agriculture to the nutrition crowd. There doesn’t seem to be a lot of overlap in these two areas. Am I really the only one who thinks that being “pro-planet” and “pro-better-meat” is possible?

There seems to be a big disconnect. You have to give up meat if you want to be an environmentalist. I think the general assumption that we’re eating too much meat is actually a result of feeling guilty about eating meat in general. Because if you look at the data, we’re not actually eating that much meat at all!

Here is the science regarding protein and meat consumption that is often unclear or completely left out of the discussion.

HOW MUCH PROTEIN DO WE ACTUALLY NEED?

According to the US Dietary Guidelines, the RDA (Recommended Daily Allowance) for protein is 0.8 grams of protein per kilogram of bodyweight. This amount indicates the minimum amount to avoid loss of lean muscle mass.

The current RDA for protein intake is explained in the Dietary Reference Intakes by the Institute of Medicine, which bases protein intake recommendations on nitrogen balance studies.¹ Nitrogen balance is the difference between nitrogen intake and excreted nitrogen. It's difficult to measure and varies greatly between individuals. It's very easy to underestimate adequate protein levels based on these studies.

Translating the RDA of 0.8 grams of protein per kilogram to the general public is difficult, so the folks who put together the U.S. Dietary Guidelines decided to give actual numbers to people. They based the numbers on a reference man weighing 70 kilograms (154 pounds) and a reference woman weighing 57 kilograms (125 pounds). So, if you look up “How much protein should I eat?”, the numbers you'll often find are 56 grams a day for men and 46 grams per day for women. The problem with this measurement starts with the fact that the average weight of men and women in this country is way above these references.

The Center for Disease Control and Prevention lists the average American man as 88.6 kilograms (195.5 pounds) and the average woman as 75.6 kilograms (166.2 pounds).²

That's a big difference from the above “ideal” man and woman! According to the 0.8 grams of protein calculation, the average American man needs 71 grams of protein per day, and the average American woman needs 60 grams, at minimum. This still represents a relatively low protein intake as a percentage of overall calories.

There's another protein guideline called the Acceptable Macronutrient Distribution Range (AMDR). The AMDR is defined as “a range of intakes for a particular energy source that is associated with reduced risk of chronic diseases while providing adequate intakes of essential nutrients.” The recommended range for protein according to the AMDR is 10–35% of caloric intake.³

The USDA recommends about 2,000 calories per day for average, moderately active women and about 2,600 calories per day for moderately active men. Using 10–35% of calories from protein, the reference woman would need 50–175 grams of protein per day, and the reference man would need 65–228 grams of protein per day. This is a very large range! This makes the recommendations of 46 grams for women and 56 grams for men below the AMDR range. So, given this context, are we still eating too much protein?

And if things weren't confusing enough, I looked at “MyPlate” recommendations, which are intended to break down the U.S. Dietary Guidelines into simple terms to be used as a mass teaching tool. Here is what they recommend for intake from “protein foods”:

Children

2-3 years old: 2 ounce equivalents

4-8 years old: 4 ounce equivalents

Girls

9-13 years old: 5 ounce equivalents

14-18 years old: 5 ounce equivalents

Boys

9-13 years old: 5 ounce equivalents

14-18 years old: 6 1/2 ounce equivalents

Women

19-30 years old: 5 1/2 ounce equivalents

31-50 years old: 5 ounce equivalents

51+ years old: 5 ounce equivalents

Men

19-30 years old: 6 1/2 ounce equivalents

31-50 years old: 6 ounce equivalent

51+ years old: 5 1/2 equivalents

You'll see that the protein recommendations are listed as “ounce equivalents.” MyPlate says that “one ounce of meat, poultry, or fish; 1/4 cup cooked beans; one egg; one tablespoon of peanut butter; or 1/2 ounce of nuts or seeds can be considered a one-ounce equivalent from the protein foods group.”

However, the ounce equivalents really don't provide equal servings of protein. One ounce of chicken or roast beef equals about eight to nine grams of protein; one ounce of fish is about six grams; and one egg has six grams. For the non-meat options, one tablespoon of peanut butter has four grams of protein, and



1/4 cup of cooked beans has 4.2 grams of protein—and plant-based protein is not absorbed as well as animal protein. If a woman following the above guidelines ate the recommended five-ounce equivalents of protein, they would average about six grams per ounce, for around 45 grams per day.

MyPlate also recommends three cups of milk or dairy substitutes for men and women. When you add the dairy in, the average woman is getting about 27 more grams of protein on top

of the protein foods group. However, many people in the world are lactose-intolerant, and milk is not part of the dietary guidelines of most countries.⁴

There is also a small amount of protein in grains and vegetables, which can add on a few more grams. So, when you add dairy and other foods to the protein foods group, the MyPlate recommendations actually equal about 75 grams of protein for the “average” woman and 81 grams of protein for “average” man. This is

at the lower end of the AMDR of 10–35%. For a woman, 75 grams of protein on a 2,000-calorie diet is only 15% of calories from protein and 12% for a man on a 2,600-calorie diet. Also, the guidelines say that we should limit our sugar intake to less than 10% of calories. How is protein basically at the same nutritional status as sugar? No wonder nobody trusts nutrition advice anymore.

¹ “Dietary Reference Intakes Tables and Application.” Institute of Medicine of The National Academies, January 2018.

² “Body Measurements.” Centers for Disease Control and Prevention, National Center for Health Statistics, 3 May 2017.

³ Trumbo, P., et al. “Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein and amino acids”. J Am Diet Assoc. 2003 May;103(5):563.

⁴ “What Is Lactose Intolerance?” The Physicians Committee, 15 Aug. 2011, www.pcrm.org/health/diets/vegdiets/what-is-lactose-intolerance.

IS EATING MORE PROTEIN IMMORAL OR UNHEALTHY?

According to the Dietary Reference Intakes by the Institute of Medicine, “the current state of the literature does not permit any recommendation of the upper level for protein to be made on the basis of chronic disease risk,” and “high protein intake had no detrimental effect on protein homeostasis.”

In my clinical practice, when I recommend about 100 grams of protein a day, largely from animal sources, I sometimes get push back. Some women tend to think it’s “gross” to eat that much; they think it’s too “heavy” or feel guilty for eating so many animals. Most men don’t argue quite as much—when I tell them to eat meat, they are pretty excited.

It’s important to understand that a meatless diet is not a bloodless diet. Many animals lose their lives in the process of farming vegetables. Birds and butterflies are poisoned by chemicals, rabbits and mice are run over by tractors, and vast fields of mono-cropped vegetables displace native populations of animals that once lived on the forest or prairie that was destroyed to make way for crops. The farming of vegetables is not humane to rabbits.

If you equate the life of a rabbit or chipmunk as equal to that of a cow, and are truly looking to kill the least amount of lives to feed your own, then I would argue that killing one cow or bison that lived on pasture is actually causing less death than the number of animal lives that are lost by modern row cropping techniques. The principle of least harm may actually require the consumption of large herbivores (red meat).

Others have heard that meat can cause cancer and is harmful to the kidneys. The fact is, in healthy people, increased protein intake has no harmful effect on the kidneys at all. The kidneys simply adapt. While low-protein diets can be therapeutic for those with kidney disease, this does not mean that a high-protein diet causes kidney disease.

There are several hunter-gatherer cultures that eat lots of meat; however, just because they’re eating meat doesn’t mean their diet is only protein. One study of an Eskimo population found that when they were eating an “all-meat” diet, their protein intake was only 44% due to high fat intake.⁵ During times of plenty, they would consume four to

eight pounds of meat a day, with a daily average food partition of about 280 grams of protein, 135 grams of fat, and 54 grams of carbohydrate, mostly derived from the glycogen of the meat eaten. Early American explorers survived for extended periods of time only on pemmican, a food made of dried lean meat mixed with fat, with a protein content of 20–35%.⁶

Protein is the most satiating of the macronutrients, and intakes of 15–30% of caloric intake can be quite helpful in regulating appetite by increasing leptin sensitivity as well as inducing weight loss, and increasing blood sugar control.⁷ Diets with more protein have shown beneficial effects on weight loss, HbA1C levels, and blood pressure in patients with type 2 diabetes.⁸ Increased protein seems to be the key to a successful, hunger-free diet, as studies have shown weight loss to be successful in both low-carb and low-fat diets when protein was between 22–25% of total calories.

⁵ Heinbecker, Peter. “Studies on the Metabolism of Eskimos.” *The Journal of Biological Chemistry*, 1928, 80: 461-475.

⁶ Speth, John D. “Early Hominid Hunting and Scavenging: the Role of Meat as an Energy Source.” *Journal of Human Evolution*, Elsevier, June 1989.

⁷ Weigle, et al. “A High-Protein Diet Induces Sustained Reductions in Appetite, Ad Libitum Caloric Intake, and Body Weight despite Compensatory Changes in Diurnal Plasma Leptin and Ghrelin Concentrations.” *Oxford Academic, The American Journal of Clinical Nutrition*, 1 July 2005.

⁸ Dong, J Y, et al. “Effects of High-Protein Diets on Body Weight, Glycemic Control, Blood Lipids and Blood Pressure in Type 2 Diabetes: Meta-Analysis of Randomised Controlled Trials.” *PubMed, U.S. National Library of Medicine*, 14 Sept. 2013.



“ IT’S IMPORTANT TO UNDERSTAND THAT A MEATLESS DIET IS NOT A BLOODLESS DIET. MANY ANIMALS LOSE THEIR LIVES IN THE PROCESS OF FARMING VEGETABLES. ”

GUIDE TO OPTIMAL PROTEIN SOURCES
FROM A NUTRITION & ENVIRONMENTAL PERSPECTIVE

Wild Game, Wild Seafood from Sustainable Stocks, Responsibly Managed Herbivores like Bison, Beef, Goat and Sheep	
	"Standard" Grass-fed Herbivores, Pasture-based Eggs, Poultry & Pork, Grass-fed Dairy
Grass-fed, Organic Grain-finished Beef	
	"Organic," Soy-free Poultry, Pork, Seafood, Dairy and Eggs, plus "Typical" Beef
Legumes: Beans, Lentils, Peas, Nuts	
	"Typical" Poultry, Pork, Seafood, Dairy and Eggs
Tofu and Fake Meat-like Products	
	Low Protein Vegetables Like Broccoli and Processed Grain Products Like Bread, and Pasta

Created by Sustainable Dish

WHAT ARE THE DANGERS OF EATING TOO LITTLE PROTEIN?

Your body needs protein, and if you don't get it through diet, your body will start breaking down your muscle and other tissues in order to get it. This leads to muscle wasting and weakness. Immune function can decline because protein is required for antibodies.¹⁰ You also need protein as enzymes and to carry oxygen to tissues, so low protein intake can cause

lethargy. Low-protein diets are associated with hair loss, brittle nails, cold hands and feet, poor bone health, and weight gain.¹¹ B12 deficiency (a vitamin only available in animal protein) has been shown as an independent risk factor for coronary artery disease and serious neurological disorders in infants of vegan mothers.^{11,12}

SO, HOW MUCH PROTEIN SHOULD YOU EAT?

In summary, we are being told to eat 0.8 gram of protein per kilogram of bodyweight. We're also being told by MyPlate that nearly 60% of our dietary intake of protein should be in the form of dairy or soy milk products. It's incredibly confusing to determine how much meat to eat—the recommendations don't really seem to be based on much science, due to the inaccuracy of nitrogen balance studies and the vast ranges from the ADMR.

It seems that 100 grams of protein on a 2,000-calorie diet is a very reasonable place to start, and many of you are eating much more than 2,000 calories a day. This means

beef up your protein, folks. Most Americans report eating between 1,800 and 2,500 calories per day (and self-reported data is usually on the low end) so this means, at 20% of calories, intake for Americans should really be between 90 and 125 grams of protein per day. If you're getting this from meat, that looks like around 12–16 ounces of meat a day. Break that between three meals, and this is **four to six ounces of animal protein per meal.**

Factory farming is not the answer, but in my personal opinion, if we all had more exposure to sustainable food production, there would be far less confusion about what is right. If

everyone had the experience of working or living on a small-scale organic farm that integrated pasture-based animals, then the answers to these questions would be much more clear. We are part of nature. As much as we like to avoid the thought, life is not possible without death.

The next time someone says to you that we need to eat "less meat, better meat," consider that "more meat, better meat" might be the best approach to promote human and environmental health. ~~~

¹⁰ Ströhle, A, and A Hahn. "Nutrition and Bone Health: What Is the Evidence?". PubMed, U.S. National Library of Medicine, June 2016.

¹¹ Westerterp-Plantenga, M S, et al. "Dietary Protein - Its Role in Satiety, Energetics, Weight Loss and Health." PubMed, U.S. National Library of Medicine, Aug. 2012.

¹² Romain, M, et al. "The Role of Vitamin B12 in the Critically Ill—a Review." PubMed, U.S. National Library of Medicine, July 2016.

SUPPLIER FEATURE

First Light Farms

Words by Liz Harroun



First Light co-founders Jason Ross, Greg Evans, and Gerard Hickey

About a third of New Zealand's land area is used for raising livestock. Raising animals is a way of life there, including for the founders of First Light Farms, who never even considered operating in a way that prioritized theoretical efficiency and profit at the expense of the welfare of the land and animals.

Back in 2003, when co-founders Jason Ross, Greg Evans, and Gerard Hickey were dreaming up their revolutionary meat company, they called it Pipeline. Their idea was to directly connect producers with consumers—an unprecedented example of transparency in the meat industry. The three men formed an ideal trio for starting a business as their skills spanned the supply chain: Jason is the foodie who travels the

world to find like-minded partners; Greg loves operational efficiency; and Gerard's passion is the land and farming.

"Our mission was not to be grass-fed, because over here grain-fed does not exist," said Jason. "That's not how we do it. Our purpose statement is 'to lead by example—showing the world how to produce beautiful meat, the right way. By people who care, for people who care.'"

First Light officially began in 2003 with grass-fed venison. Unlike in the U.S., where venison farming is rare, New Zealand is the number one source for farm-raised venison worldwide with approximately 2,000 farmers raising around one million deer.¹ First Light chose a small network of farmers who

specialize in producing young red deer and who value the same standards of quality that the company was founded upon.

In 2008, they became the first producer of grass-fed Wagyu beef in their groundbreaking efforts to produce a juicy, marbled grass-fed option. Ten years later, they remain the only producer of grass-fed Wagyu. Why have others not entered this market, even as pastured meats grow in popularity? Well, it's not as easy as it sounds. Sure, First Light had the advantage of being in New Zealand, where the lush grassland and consistent rainfall are dependable year-round. But producing a revolutionarily tender, complex beef from 100% grass-fed cattle took both ingenuity and patience.

¹ The NZ Deer Industry. Retrieved from www.deernz.org.



First Light started by working with farmers of grass-fed red deer.

“A traditional grass-fed steak, no matter the breed, can be dry, chewy, or tough, and it’s unfortunately a function of variability that comes with grass-fed production of beef,” explained Jason. “So all these people gravitating back to eating naturally can get disappointed with that function of the taste and texture.”

In order to change that, they found an animal with genetic marbling—Japanese Wagyu cattle. In 1994, a Japanese family brought Wagyu cattle to New Zealand because they could save money on feed by utilizing cow-calf operations. Raising cows on feedlots in New Zealand and then airfreighting them to Japan for processing was more cost-effective than keeping the whole process in Japan. However, five years into this venture, deflation and quarantine issues in Japan took a huge toll on profitability. The Japanese family asked First Light for help, but First Light did not want to support the feedlot

process. When First Light asked the Wagyu producers to start raising the cattle on grass, they declined. However, when the Japanese family ran completely out of money a couple of years later, they had little choice but to hand over the genetics to First Light so that they could figure out how to raise the cattle on pasture.

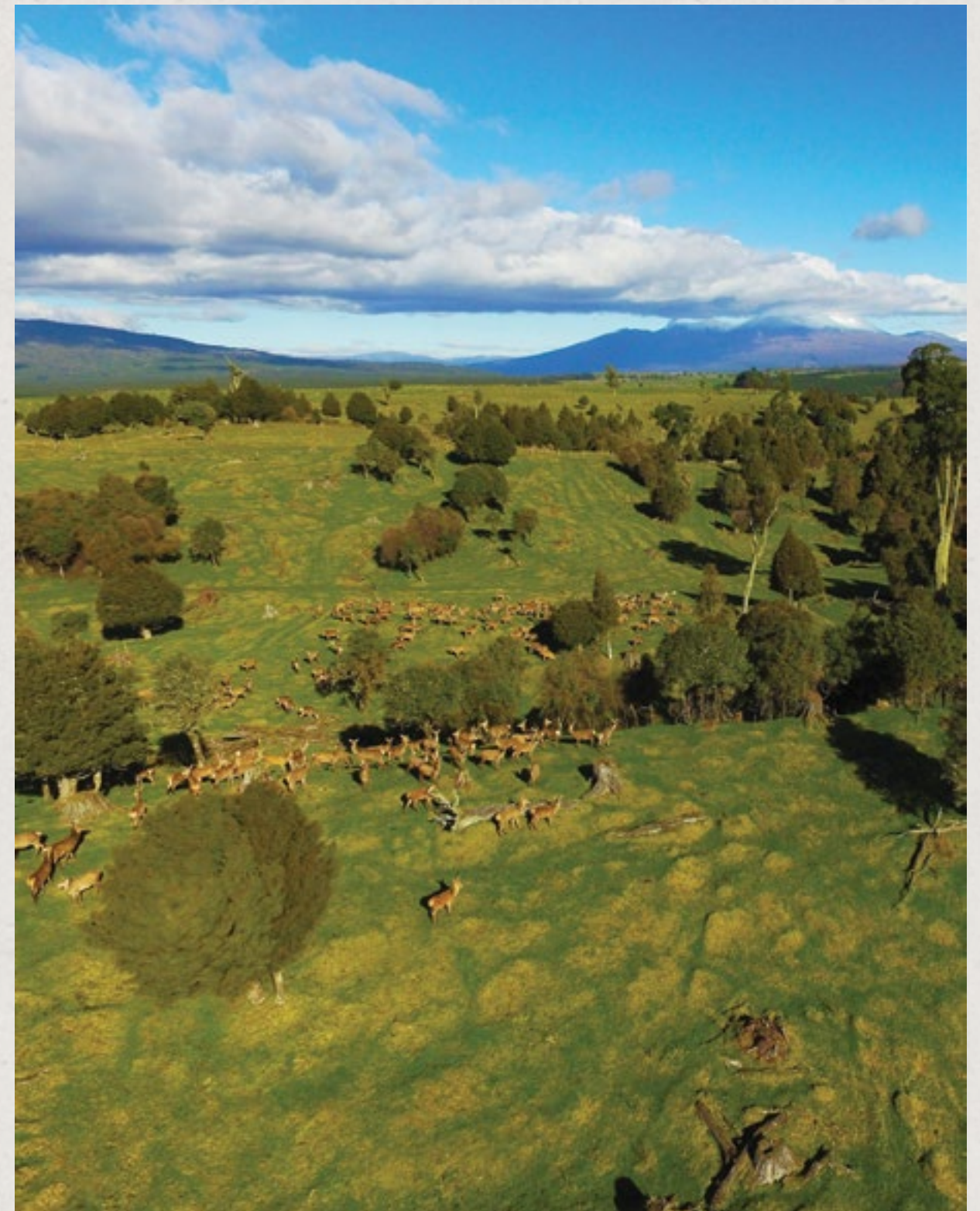
The past 500 years of traditional Wagyu genetics has consisted of breeding the cattle to stand around and eat corn. First Light set out to unwind these genetics without losing the marbling, which is the result of fat dispersing between the lean muscle fibers. It took no less than five years of experimenting with breeding and genetics before First Light felt they had perfected what they had set out to produce: a tender, juicy, and 100% grass-fed Wagyu steak.

Jason explained that the year-round quality grass and consistent rainfall found in New

Zealand was important. Also, they sought out farmers who are specialists at farming grass and creating protein off that grass. “So you need red-hot farmers, fantastic grass, and the right genetics,” said Jason. “Good luck to the next company that comes along and tries to replicate that.”

Earlier this year, First Light was awarded a gold medal in the World Steak Challenge for their Wagyu rib eye, proving that producing complex, superior meat from grass-fed, humanely treated animals is possible—no antibiotics, hormones, or GMOs needed.

Another recent win is that First Light’s Wagyu production was just accredited as Certified Humane by the Humane Farm Animal Care Program, a non-profit organization dedicated to improving the lives of farm animals in food production. Standards include access to wholesome and nutritious feed, appropriate environmental





design, responsible planning and management, conscientious animal care, and considerate handling and slaughter.

While New Zealand has not adopted CAFO (Concentrated Animal Feeding Operation) agriculture in the way many other parts of the world have, that doesn't imply that all animals are being managed in symbiosis with nature. In fact, throughout history, many civilizations have done a tremendous amount of damage to the land even while utilizing organic and grass-fed agriculture. However, with environmental stewardship embedded in the founders' DNA, First Light is working to better understand what they can do to leave their land in a better place for future generations. They hope to prevent soil degradation from overgrazing as well as serve as an example in New Zealand by educating others of the potential risk.

"For us, the right way is a holistic view," said Jason. "It includes everything from how we husband the soil and animals to the care and attention we give when showing someone how to cook the perfect steak." ~~~

After years of trial and error, First Light finally discovered how to produce Wagyu cattle completely on grass, without losing the genetic marbling

My Road to Regeneration

Words by Allen R Williams, Ph.D



In 1840, my ancestors moved from Virginia to rural South Carolina, where I was born into a multi-generational farm family. The farm was quite diverse, with multiple species of livestock, large gardens, crops, fruit trees, and even a general store. I've come to understand how special of a place it was.

Upon graduation from high school, I entered college at Clemson University, majoring in animal science. I was intent on coming back to the family farm and staying there for the remainder of my life. However, fate stepped in when a major professor persuaded me to go to graduate school. I ended up getting a master's degree at Clemson and then a PhD at Louisiana State University—both in animal genetics. From there, I felt obligated to go into academia. So, I spent 15 years teaching and researching topics including animal breeding and genetics, reproductive physiology, experimental statistics, ultrasound technologies, reproductive technologies, meat science, beef production, and livestock production. Since I was the rare scientist that worked across disciplines, I was able to formulate a broader perspective. I was good at what I did: I earned multiple teaching and research awards and gained what all college faculty dream of—tenure. I was there for life, if I wanted to be.

Fifteen years later, fate stepped in once again, and my experiences started to inspire another very radical idea in my mind. I noticed that the vast majority of the research we were doing at the university was focused on the symptoms of issues within agriculture, not the root cause. We never really seemed to solve the problem, but simply tested and created products that farmers and ranchers used to cover the symptoms (much like today's medical and pharmaceutical industries). The realization started to

creep in that many of the products I was testing—including pharmaceuticals, ultrasound and reproductive technologies, microchips, and feed supplements—were not even around while I was growing up. Our livestock back on the family farm stayed healthy and performed without all these “necessary” supplements. Our crops grew and yielded without all the synthetics. As a scientist, I began to ask myself why we suddenly needed so many of these supplements, synthetics, and amendments to make a living in agriculture. Why were farm net profit margins shrinking so much that children were no longer able to come back to the farm and make a decent living?

The answer struck me fully between the eyes. For the past several decades in agriculture, it has been all about the chemistry of soils, feed additives, amendments, and synthetics. We had failed to recognize the significant role of biology. Biology is the common thread that holds everything together and through which everything functions. We were ignoring biology and, in our arrogance, believing that chemistry and technology held all the answers to our problems. In the interim, farmer share of the food dollar was continuously shrinking, and farm debt was steadily rising. Meanwhile, multi-billion dollar industries servicing these farms were growing rapidly.

I knew at that moment that I either had to succumb to “the system” or make a very difficult decision to leave the solid security of a tenured faculty position and strike out on my own. My wife had just given birth to our first child, Christopher. That made the decision even more agonizing. Together, we decided that I must pursue my dream of building an agriculture that relied less on chemistry and more on what nature provides in abundance—sunlight, water, soil, and biology.

So, in 2000, I resigned from the university and started raising livestock and consulting. I did not know whether I would succeed or fail, but I knew I had to try. In the intervening years, I have learned far more than I ever did as a professor. Much of it I learned the hard way. There were tough financial lessons, failures on the farm, and failures at consulting. However, with each failure, my determination strengthened, and I became doggedly persistent. I knew, both in my heart and in my scientist mind, that regenerative agriculture practices would work. After all, they had worked for the thousands of years preceding recent history.

In the years since leaving the university, I have had the privilege of being on thousands of farms and ranches in the U.S., Canada, Mexico, South America, and other countries. I have experienced wildly different environments, production systems, and challenges. These experiences shaped and molded my perspective and allowed a unique insight into potential solutions to the issues we face today in agriculture.

Over the past 18 years, my partners and I have been able to implement practices and track progress made on many farms and ranches that transitioned to regenerative principles and practices. These include our own farms.

We have a large number of on-farm case studies that show the myriad benefits of regenerative agriculture, two of which I'll share with you. The following examples are two of many success stories from my consulting:

Seven Sons is a farm located near Fort Wayne, Indiana. They conventionally farmed row crops for many years, although the patriarch and matriarch, Lee and Beth, were

barely getting by on their 1,500-acre farm of corn and soybeans. Their seven sons, for which the farm was appropriately named, were interested in coming back to the family farm, but there was not enough profit margin to allow even one son to join the family operation.

The family decided to make a radical decision to transition from conventional row crop farming to multi-species livestock farming and direct marketing. Before making the transition, they attended conferences such as the Grassfed Exchange and ACRES for education. They sought help and advice from farmers who had already transitioned to regenerative practices. Then, they made their decision. They sold much of their farming equipment to help finance the transition, and the seven sons worked like Trojans to turn the farm around.

Today, the farm that could not support even one of the sons now supports eight families—Lee and Beth, plus their seven sons and their families—as well as a number of full-time and part-time employees. This is all on just 550 acres (they released their leased acres that comprised the original 1,500 acres they used to farm). They raise and market grass-fed beef, pastured poultry, pastured eggs, pastured pork, and pastured lamb. The same acres that once barely got Lee and Beth by now generate more than \$5,000 per acre in gross revenue on an annual basis. They produce \$993 per acre in grass fed beef, \$890 per acre in pastured pork, and a staggering \$3,741 per acre in pastured eggs.

Gabe and Paul Brown farm and ranch in central North Dakota. In the early 1990s, Gabe was on the verge of losing his farm due to a string of very bad years full of hail storms, drought, and other challenges. At the time, Gabe

“ **BIOLOGY IS THE COMMON THREAD THAT HOLDS EVERYTHING TOGETHER AND THROUGH WHICH EVERYTHING FUNCTIONS. WE WERE IGNORING BIOLOGY AND, IN OUR ARROGANCE, BELIEVING THAT CHEMISTRY AND TECHNOLOGY HELD ALL THE ANSWERS TO OUR PROBLEMS.** ”





Adaptive grazing and multi-species livestock were two of many transitions that Gabe and Paul Brown made on their ranch.



Dr. Allen Williams educates farmers on how to successfully implement regenerative agriculture practices.

was farming conventionally. His banker had cut him off from annual operational loans, so Gabe was forced to either quit farming or make a significant transition.

Gabe quit plowing and started no-till practices. He transitioned from the production of commodity grains and beef to introducing complex cover crops, adaptive grazing, multi-species production of livestock and crops, and direct marketing. Today, Gabe has added 6% additional soil organic matter to many areas of his farm, witnessed soil water infiltration rates increase 20 fold, slashed his input costs by over 70%, and seen a fivefold increase in net margin per acre—all without the use of synthetic fertilizers in over a decade.

Gabe likes to say that when he was farming conventionally, he used to wake up every morning thinking about what he needed to kill (pest insects, weeds, fungus, etc.). Now he wakes up every morning thinking

about what life can be added to the farm. Beneficial insects, pollinators, birds, and other wildlife have exploded on Gabe's farm. Life in abundance is very evident. Today, Gabe and his son Paul are actually reducing their total acres farmed because profit margins are so good that they no longer need to farm as many acres to make a good living.



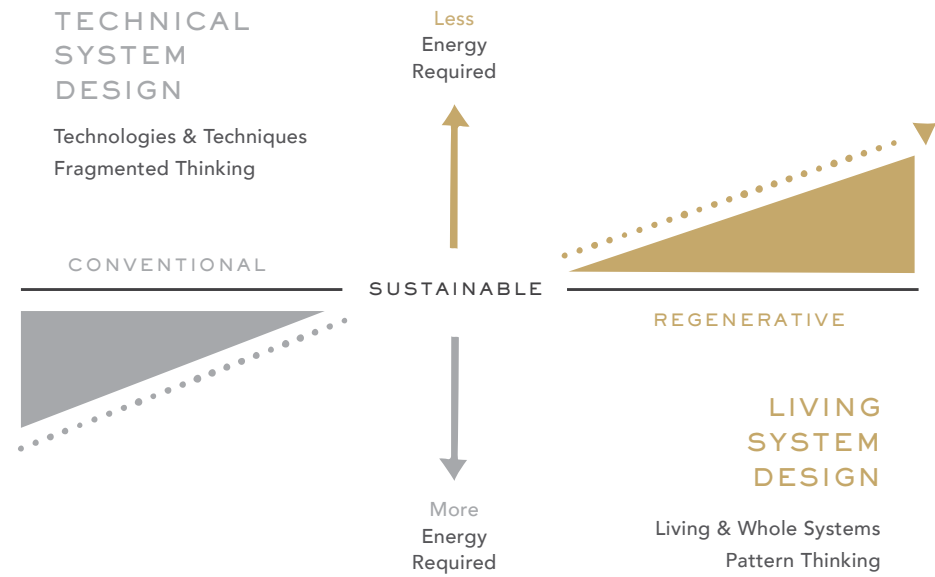
These frequent success stories demonstrate why I feel like I'm making a more tangible difference working alongside farmers than when I was in academia. Personally, I've never been as excited about farming and ranching as I am now. We have learned that farming in synchrony with nature yields huge dividends on many levels. Regenerative farming produces healthy soils, healthy plants, healthy animals, healthy ecosystems, and healthy people. What's not to like about that? And so, my journey continues. ~~~



The Science Inside the Land to Market Program

Words by Victoria Keziah • Photography by Judith Crispin

This year has provided striking glimpses into the future of food and fiber production. A groundswell of inquiry into what’s “beyond sustainable” has emerged from all points in the supply chain, from farmers to brands to end consumers. There is a good and simple reason for this: We are all beginning to realize that sustainable food production just isn’t enough. Sustainability translates to stasis. Living systems don’t rest in a steady state. Instead, they churn through the process of birth, growth, death, decay, and back to birth again. In other words, they regenerate. This is the spirit behind the term “regenerative agriculture”—or the meeting of human needs while managing for ecosystem health, resilience, and, of course, regeneration. Seemingly overnight, this unlikely buzzword has become the talk of the trade.



Soil core samples are collected as a part of the EOv protocol.

While this is a positive change, it’s up to organizations like the Savory Institute to ensure that the term “regenerative agriculture” doesn’t become just another trendy claim in a sea of labels. Regeneration is not a trend—it’s an imperative. No matter what hat we wear in our everyday lives, we are all land stewards. Our everyday actions can have very different outcomes: either we emit excess carbon, or we absorb it. Either we retain water, or we evaporate it. Either we enrich soil, or we erode it. Either we create natural habitat, or we curtail it. Either we extract from life, or we contribute to it. It’s this simple arithmetic, calculated on a finite planet, that will account for the future of all species—including our own.





This sober logic has informed the development of Savory's Land to Market™ program, which connects conscientious brands directly to supply from farms and ranches that are verified to be regenerating. The “science inside” this program is the protocol called Ecological Outcome Verification™ or EOVTM. Savory's global network of field professionals deploy EOVTM in

their regions, collecting data on participating farms and ranches. This data is comprised of key indicators of land regeneration, including soil health, biodiversity, and ecosystem function. Those ranches with positively trending data receive Ecological Outcome Verification and are entered into the Land to Market supplier roster. Participating brands and retailers access this supply and share the

story of regenerative agriculture with their customers, thereby raising demand and awareness about the need for regenerative sourcing. Land to Market is a full-circle solution that begins and ends with the regeneration of the land.





EOV is designed to keep all of us—brands, land managers, and consumers—honest about the impact we are having on living landscapes. Based upon tangible outcomes rather than an inventory of farmer practices, EOV gives the land a voice of its own. Is more water retained than before or less? Is the soil more fertile than previous years or less? Is the forage more abundant or less? These are the outcomes that, in the aggregate, point to regeneration.

These outcomes also drive the questions that passionate farmers ask to inform their real-time, daily management decisions. EOV is built for farmers first, providing fast

feedback loops around news they can use and respond to, such as plant litter incorporation, dung decomposition, soil capping, and presence of desirable plant species. These “leading indicators” give farmers a chance to take speedy corrective action in their land and livestock management. It’s these little pieces of intelligence that ladder up to the positive changes we seek at the macro level, such as food security, water retention, and carbon sequestration. Without managing for small, sequential change at the farm level, monumental progress is impossible.

Listening to the land at this level also requires

cultural and contextual sensitivity. There is no catchall scenario for how quickly a land base will improve or for which measures will change most quickly. Every landscape emerges from its own unique set of operating conditions, be they animal, mineral, botanical, or cultural. Given this reality, EOV is built to be contextually relevant. Each participating farm or ranch is evaluated against a “reference area” in its surrounding ecoregion, with calibration against that area’s unique flora and fauna, precipitation rates, topography, and soil characteristics. This approach allows land managers to embed themselves in their wider ecosystem, and

ultimately contribute to the resilience of the land they call home.

EOV has been years in the making, with input from scientists, agronomists, and land stewards around the world. Ovis 21, a Savory Hub, has led to the creation of the scientific methodology, in collaboration with scientists at Michigan State University (MSU), another Savory Hub, and with input from additional colleagues and research institutions. Pablo Borrelli of Ovis 21 and Dr. Jason Rowntree of MSU are taking the lead in aggregating and analyzing the emerging data from the participating Hubs and their producer

networks. They will be joined by other research institutions and scientist groups in Savory’s global network, with the goal of creating one of the largest global databases for monitoring grassland health and associated ecosystem services on all continents—from the South African veld to the Argentine pampas to the Texas prairie.

In the final analysis, if EOV teaches us anything, it will likely be what Savory Institute has espoused all along: that life is complex, and that we are an inextricable part of that complexity. To be successful with regenerative agriculture, we must recognize our place in the

circular dance between animal and plant, between death and life, between taking and giving back. EOV will help all of us—land managers, brands, and consumers—become better dancers. Farmers will learn from and respond to their land in real time. Brands will evolve their sourcing and storytelling to account for what truly matters. And consumers, when they reach for products carrying the EOV seal, will know that they are supporting an upward trend, and not a fleeting, superficial one. Instead, their purchases will support the enduring health of the land that feeds and clothes them. ~~~



“ULTIMATELY, THE ONLY WEALTH THAT CAN SUSTAIN ANY COMMUNITY, ECONOMY OR NATION IS DERIVED FROM THE PHOTOSYNTHETIC PROCESS — GREEN PLANTS GROWING ON REGENERATING SOIL.”

ALLAN SAVORY

PARTING MESSAGE

The Ring of Horns

Words by Liz Harroun

At EPIC, we realize that we have a whole lot to learn from Nature. The earth provides us with all of the food, medicine, shelter, and wisdom we need. Over the past century, due to industrialization and the booming world population, it's become clear that we cannot outsmart Nature. We cannot dominate our natural environment—because we are just a small part of the system.

Nowadays, the human species is often incentivized more by profit, efficiency, and results than by our biological instincts. Most mammals in the wild, however, prioritize the survival of their species over themselves. For example, when there is a threat (such as a predator), bison instinctively gather their young and form a circle around them, creating what we call the “ring of horns.” The bison face outward with their horns locked close to the ground, and nothing gets in or out alive. There are accounts of grizzly bears and packs of wolves getting annihilated in this extraordinary display of defense.

Our 2018 battle cry (our internal guiding motto) is the “ring of horns”—signifying the protection our core values, mission, and legacy with each decision we make. The ring of horns represents those of us taking a bold, courageous stance to protect future generations from the danger of environmental destruction—the result of industrial farming.

This extends far beyond EPIC's company culture. We need you—our supporters and partners—to join us on the front lines. We know it's not always easy to vote with your dollar by supporting regenerative farmers or to serve as an activist for these important yet unappreciated principles. At times, it might feel inconvenient or even vulnerable, because you're going against the current mainstream ideology. But when we understand that we are forming a movement—a circle of like-minded people who are committed to protecting Nature for years to come—we remember the importance of our individual efforts.

You are not alone in your desire to protect your children and their children from today's societal ignorance. If we continue to circle together, as a herd, we will grow stronger in our ability to avert and even reverse ecological damage. Soon, with our fortitude and courage, we will be invincible. The land and future generations will be safe within our ring of horns. Thank you for joining us—your involvement is needed and appreciated more than you know. When we courageously come together to protect our future, no one can stop us. ~~~

EPIC BY THE NUMBERS 2018

2,233,000 LBS OF PASTURED-RAISED AND GRASS-FED MEAT PURCHASED



70 CONFERENCE PANELS EPIC EMPLOYEES HAVE PARTICIPATED IN TO EDUCATE PEOPLE ON REGENERATIVE AGRICULTURE + + + + +

10 NEW PRODUCTS LAUNCHED
92% HERITAGE EMPLOYEE RETENTION SINCE ACQUISITION

85% OF WHOLE ANIMAL UTILIZATION WITH BISON & BEEF PRODUCTS


1,560 MINUTES INTERVIEWING LEADERS IN WELLNESS, AGRICULTURE, AND BUSINESS ON THE MEATCAST

L AN EPIC PRODUCT IS SOLD EVERY TWO SECONDS

425,000 LBS OF REGENERATIVELY MANAGED ANIMAL MEAT PURCHASED




10 EGG SUPPLIERS CONVERTED FROM CONVENTIONAL TO CAGE-FREE



\$225,000 DONATED TO GRASSLAND REGENERATION EFFORTS

1 NEW COUNTRY NOW SELLING EPIC

15% GROWTH IN EPIC'S 100% GRASS-FED BISON SUPPLY

1,400,000 LBS OF NON-GMO VERIFIED CHICKEN SOURCED



5,000 EPIC BARS MADE FROM ONE BISON

\$1.4 MILLION INVESTED TO HELP CREATE A SUPPLY CHAIN FOR 100% GRASS-FED BISON



80 MILES COLLECTIVELY WALKED BY EPIC EMPLOYEES TO CLEAN TX HIGHWAYS THROUGH ADOPTION EFFORTS

LEGACY GOALS

- 1) Improve and convert over 1,000,000 acres of conventional agricultural land to grasslands.
- 2) Support the Savory Institute in efforts to positively impact one billion hectares by 2025.
- 3) Provide accessibility to high-quality animal protein and reclaim pastured meat as a superfood.

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