

In Practice

a publication of Holistic Management International

MARCH / APRIL 2019

NUMBER 184

WWW.HOLISTICMANAGEMENT.ORG

The Evolution of Agriculture

BY ANN ADAMS

n a recent web article on the DakotaFarmer website, they quoted Holistic Management practitioner Gabe Brown as having predicted three major changes to agriculture:

- 1. An end to monoculture cropping systems in the next 10 years leading to wide spread use of polyculture crops.
- Introduction of handheld bio-nutrient food scanners that allow consumers to determine nutrient density of food in grocery stores as well as chemical residue on the food.
- Premiums for food produced with regenerative practices with various levels of certification based on the different kinds of practices the producer uses.

As Gabe mentions in this article, these changes are already taking place on the agricultural landscape, and growing consumer interest and demand for regenerative agriculture is driving market changes which in turn are driving production changes.

While some of these changes are in the infancy or early adoption stages, the growth in interest and investment in these areas is gaining momentum with larger players in the agricultural sector taking notice. With a growing ability to view and monitor soil life and health has come a greater understanding of soil and our role in its biological function.

There are many regenerative agricultural practices that people are exploring and touting as the best way to improve soil health. The choices, options, and responsibilities involved in regenerative agriculture can be overwhelming even for experienced producers, let alone for someone who is recently exploring transitioning to regenerative practices. It is for this reason that I have been thinking about how important is that we work to support and encourage all

our producers in these challenging times where changing production practices can be a huge financial and social risk.

Because we are hard-wired to be wary of change, I think change takes an incredible amount of courage. So much of our DNA is telling us that the status quo is the safe bet. You change things up, you get eaten by a tiger, and your DNA doesn't get passed along.

Even within the regenerative agriculture community, which probably has more than its fair share of early adopters, we harbor amongst us many who have dug our heels in along the way as we experienced changes in our own lives or businesses. There's always barriers to adoption of new practices, so we must find the ways to reduce or eliminate those barriers. Since, we have experienced some of the challenges of changed behavior and spoken to family and community members who are hesitant to change to new practices, we have first-hand knowledge of what some of those barriers and fear are.

Regenerative Practices...

- Cost too much money (Will the benefits be worth the investment or risk?)
- Take too much time (How can I afford the time to learn or implement new practices)
- Require new equipment or knowledge or skills (Is the ROI worth the risk?)
- Require new relationships (My neighbors aren't doing this and what will they think?)
- Require risk (What if I fail?)

It is very understandable that people who haven't made the shift to regenerative agriculture hesitate with this transition. So that is why it is so important that we have mentors in every community who have experience and can help remove as many of these barriers to adoption as possible for the success of everyone.

There's a saying: "Life is change. Growth is optional." I think the regenerative agriculture community is saying that growth isn't optional—

it's imperative. We need growing plants on the land to provide food, fiber, livelihoods, wildlife habitat, and a host of ecosystem benefits. We need growing families and communities with relationships with the land. This growth must be within the context of natural systems as we know Nature always bats last. But, the stories of farmers and ranchers like Gabe Brown demonstrate what incredible outcomes come from being on the same team with Nature, and working in harmony with Nature, so there is greater resilience and opportunities for all who rely on these natural resources. \

THE EVOLUTION OF AGRICULTURE

INSIDE THIS ISSUE

Like any industry, agriculture in the 21st century is evolving rapidly. Add the additional pressures of changing markets, land values, and weather, and the need to be ready to make changes to your operations is a constant pressure. Read how the Nerbas from Manitoba, Canada are improving their operation and productivity on page 8.





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a publication of Hollistic Management International

HMI educates people in regenerative agriculture for healthy land and thriving communities.

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HOLISTIC MANAGEMENT In Practice

(ISSN: 1098-8157) is published six times a year by: Holistic Management International 5941 Jefferson St. NE, Suite B Albuquerque, NM 87109

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Free Money Can **Be Expensive**

BY DAVE PRATT

etting government programs dictate your management and set priorities can be costly. The most obvious example is probably the emergency feed program. In drought impacted areas, this program incentivizes ranchers not to destock. The result has been severe overstocking during drought, when the impacts of bad management are intensified.

Even programs like EQUIP (Environmental Quality Incentives Program) which offers cost sharing to producers for practices that conserve natural resources can lead to some costly decisions. Consider the case of a producer I met at a cell grazing workshop. He told me that he was going to apply for EQIP funding for fencing and water development so he could start cell grazing. He said his ranch had too much bare soil, too few perennial grasses and a lot

He guessed that it might be possible to double the carrying capacity from 250 cows to 500 within 5 years. He was certain that the fences would improve utilization and push cows to areas that have been virtually untouched. That alone would enable him to carry 50 more cows immediately. He's probably right about the potential to increase the carrying capacity. Many Ranching for Profit grads who've implemented cell grazing have doubled the carrying capacity of their ranches, and the more degraded the ranch, the more room there is to improve.

He expected the project to cost \$100,000. His portion would have been \$30,000 with EQUIP picking up the rest. While he was eager to get on with the project, he'd missed the deadline for submitting projects and said that he was going to wait until next year to apply. Even then, the review and approval process would take time. He figured it could be two more full grazing seasons before they started building.

"But we'd be crazy to turn down \$70,000 of free money," he said.

It might be crazier to wait for the free money. To explain why, we need to make some guesses about how much carrying capacity will change and over what period of time. We know that he'll be able to increase the stocking rate by at least 50 cows in year one. Let's say the rate of increase is steady over the next four years and in five years the ranch is able to support 500 cows, 250 more than it supports now. Let's also guess that the gross margin of his cows is \$400/head.

Let's say he decides to wait for the free money. If our numbers are in the ballpark, the cumulative net return from his investment after five years will be \$90,000. If he doesn't wait for the free money, and instead funds the project himself, the cumulative net return from his investment after 5 years would be 200,000. Waiting for the free money cost him over \$100.000!

We can't know for certain if the project will produce these results. The point is, if the project is worth doing, it is worth doing on our own timeline, to our own specs, with our own money. If "free money" happens to be available for something you were going to do anyway, and you are comfortable participating in government programs, you might as well grab the cash. But if free money causes you to do something you weren't going to do, or alters your timeline for doing it, it could be a costly mistake. \

This article was part of Dave's ProfitTips series which you can find at: https:// ranchmanagement.com. You can also visit Ranch For Profits Youtube Channel at: ranching4profit.

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Circle H Farms—

Enhancing Soil Health and **Productivity**

BY KELLY SIDORYK

ositive impact on the land has been a major driver for Brian and Sonja Harper of Circle H Farms. In fact, Brian says their motto is "How does this affect our resource? The resource being the land." When they purchased their 500-acre farm in the early '90s the plan was to be a mixed grain and livestock operation. But they soon discovered with the light sandy and sandy/clay soils and drought they needed to switch strategies.



Brian Harper and daughter Kristelle examining manure using the cow poop analysis app.

Seeding the land, just outside of Brandon, Manitoba, Canada, down to perennial forages and setting up a traditional rotational grazing system was the first step. They also installed offsite water and lines and planted 5,000 trees. Improvement was made, but Brian felt they could do more. He had been in contact with Neil Dennis, from Wawota, Saskatchewan who was working with higher stock densities and encouraged Brian to do the same. They had also been working with Michael Thiele, a grazing club co-ordinator from southwestern Manitoba.

In 2014 Thiele presented them with an opportunity to participate in a project partially funded by the Commission of Environmental Cooperation (CEC), Ducks Unlimited (DUC) and Manitoba Forage and Grasslands. With Neil Dennis as the mentor for the project, they adopted High Stock Density Grazing (HSDG) or Adaptive Multi Paddock (AMP) grazing. "This turned out to be one of the best and the fastest ways to improve the soil health. With management of time and use of the animal density as a tool we are improving the water and nutrient cycles on our soils," says Brian.

They subdivided existing paddocks with poly twine and increased from 16 paddocks to 112. The duration of the graze is a few hours to a day. They are aiming for 60–100 days for plant recovery. The objective is to graze 50% of the plants and trample 50%. "The protective layer of trampled forage becomes like a sponge, holding and releasing water to the soil profile and reducing evaporation," Brian explains.

Stock density worked up from 60,000 pounds of beef per acre to between 100,000 and 120,000 pounds. Multiple day moves are facilitated with the use of Batt latches.

The 80-head cow herd is made up of three breeds known for forage efficiency—North Devon, Lincoln Red and Shaver Beefblend. Circle H markets breeding stock, and daughter

Kristelle is starting to direct market grass finished beef. Brian considers the animals to be a tool and is now looking as closely at what is going on with the microorganisms below ground.

Bale grazing is the winter feeding strategy. In order to have time to get away in the winter, the Harpers group the bales to allow for 21-day moves.

Part of the project also included benchmarking of monitoring data in 2014 and

then following up in 2017. The improvements in production and soil health were significant. Overall beef production increased by over 9,000 pounds. Carbon sequestration increased by 7.5 tons/acre/year. Through Brix monitoring the Harpers have also been able to see an increase in the quality of the grass. Organic matter has increased by 1% in only three years! The water holding capacity has also improved as well as nitrogen and phosphorus mineralization. Another study they are part of has indicated a significant increase in bird species and numbers over a continuous grazing program.

In order to enhance diversity they have interseeded a mixture of annuals into the forage stand with a John Deere Conservation drill after an early, severe graze. Conditions were quite dry in 2018 and results have not been what they hoped. But Brian is optimistic this strategy has potential.

Continuous learning and curiosity are characteristics of the Harpers, and they had attended many workshops and field days. In 2015 they took a Holistic Management course from Don Campbell where Brian says the



The Harpers work to get more trampled grass to grow more grass and improve soil health.

pieces fell into place. "Cattle and grazing is the easy part, but the people and finances are so important." It had helped to be increasing production while decreasing costs. Both Brian and Michael Thiele reference doing more on an existing land base that has a high value. The expansion they are focusing on is in pounds/ acre not overall acres.

"I strongly believe that in regards to regeneration of our lands that we have only seen the tip of the iceberg. Healthy soil produces nutrient dense foods, and having nutrient dense food promotes healthier people," says Brian. "With management of time and use of animals as a tool we are improving the water and nutrient cycles of our soils."

Their practices have not gone unnoticed. In 2002 they were named Conservation Farm Family by the local conservation district. In 2007 they were also recognized as Manitoba Grazier of the year. Most recently, they received The Environmental Sustainability Award (TESA) from the Canadian Cattlemen's Association.

Michael Thiele comments "Brian understands systems and recognizes that a farmer is not separate from nature. He has a regenerative philosophy and is trying to increase photosynthesis on his operation." That regenerative philosophy has kept Brian focused on improving land health which has led to improved land resilience and productivity—valuable assets to have in challenging times. \

Enonkishu Conservancy—

A Holistic Approach to Land Conservancy

BY ANN ADAMS

n the northern edge of the Maasai Mara-Serengeti ecosystem sits the 6,000-acre Enonkishu Conservancy. The name for the conservancy was developed from the local Maa language and translates to "Place of Healthy Cattle." The habitat of this area includes wooded acacia savannah with open plains on flat plateaus, riverine acacia forest and rocky hills which provide a diverse habitat for browsing and grazing ungulates and predators. The conservancy was first developed in 2009 by Tarquin and Lippa Wood who are also the founders of the Mara Training Centre and the inspiration behind all the enterprises that help fund Enonkishu.

The land had been under intensive crop production and overgrazed

by livestock and the forest and wildlife habitat that remained was under threat of being cleared for more cultivation. Through various fundraising efforts, Tarquin and Lippa and the resident Maasai community created the Enonkishu conservancy. They wanted to use livestock as a way to improve the health of the land and the wildlife habitat. They had heard about Holistic Management from numerous sources and they reached out to the Savory Institute for help. The Savory Institute provided the initial training through Holistic Management educator Richard Hatfield. With support from WWF they managed to raise funding to train the community in Sustainable Rangeland Management on a regular basis over a two-year period. Enonkishu partners with the Mara Training Centre, which is now a Savory Hub, to help train other conservancy communities in better livestock and rangeland management using Holistic Management.

There are 32 conservancy members from the local Maasai community, 12 of whom own livestock and have an agreement with

Enonkishu management to care for their herds in exchange for land lease fees. Additionally, Enonkishu hires herders, night guards, maintenance workers and a herd manager to provide the management of the livestock herd so that the holistic grazing plan can be implemented. Recent monitoring has shown that the grazing plan areas are averaging a

Enonkishu consists of manager Rebekah Karimi, Forage Assessment Manager Musa Kiseer, and Albert Cheruiyot, a ranger dedicated to the management of data generated quarterly. The leadership team is all ably assisted by numerous staff, herders, rangers, and volunteers. Rebekah first visited the Maasai Mara as part of a study abroad program with Michigan State University.



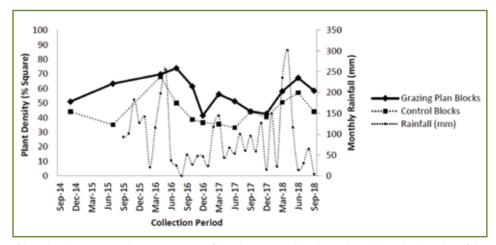
Wildlife and livestock both benefit from Holistic Management in Enonkishu Conservancy.

14% increase in productivity and land health as compared to the control areas.

Developing Management and Monitoring Protocols

Besides the Woods, the leadership team for

She had studied conservation biology and was looking for job in Kenya because she was a Kenyan citizen and wanted to make a larger contribution to conservation than what she could find in the USA. She returned to Kenya in June 2017 to begin managing Enonkishu as she



Plant density measured as percentage of quadrat covered in plants throughout the duration of the biomonitoring shows higher plant densities in the grazing areas versus the control areas.

was attracted to the vision of the conservancy.

By that time, Enonkishu had been implementing Holistic Management since 2014. They had begun collecting biomonitoring data in 2014, but there were some data collection consistency issues in those early days. However, by 2016 they were monitoring their 14 transects each quarter. Each transect consists of five one-meter squares, and they evaluate indicators such as organic matter, plant cover, plant diversity, and animal activity. In addition, they have implemented the Ecological Outcome Verification designed in partnership with the Savory Institute. They have found the best time of year to conduct the intensive monitoring is prior to the influx of wildebeest and other ungulates which usually come through the conservancy around July.

Likewise, Enonkishu was struggling with consistent implementation of the grazing plan. "But in January 2018, we decided to hire our own herders," says Rebekah. "Before that time, we advised the herders, but they worked for the conservancy members who owned the livestock. Once we hired the herders and put all cows into one herd managed collectively, that made all the difference. We could actually see the difference on the land right away. We found that every quarter we had a 2-3% increase in forage



Cattle have sustained adequate condition even with three months of no rain in 2018.

production, and that difference continues to grow each quarter, regardless of rainfall."

In addition to managing the cattle belonging to the conservancy members, Enonkishu has raised donations to purchase 157 heifers to use for rangeland restoration, as well as improve the genetics of the local cattle by crossing the local Zebu cows with Boran bulls. With improved genetics the effort to engage the community in viable ranching enterprises rather than subsistence farming is also more likely. The cattle purchases are also part of the "Herds

for Growth" project which will help Enonkishu diversify revenue, and increase the value and quality of the local meat. The idea is that this project will serve as an example to neighboring conservancies. With time, Enonkishu hopes to donate cows to these conservancies and set up grazing plans and implement monitoring and training protocols as well. The conservancy has a big vision of expanding its reach in the future by managing monitoring operations in neighboring conservancies (Olchorro Oiroua



Mobile bomas, if not constructed properly, are vulnerable to being knocked down by frightened cattle. Proper construction of these bomas is critical for animal safety.

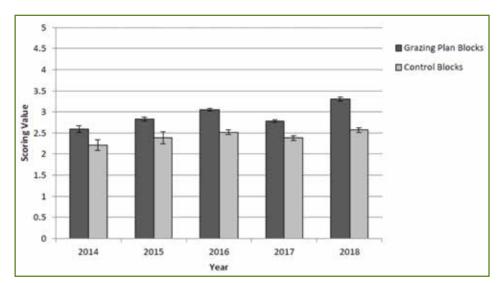
Enonkishu Conservancy

Conservancy which has 13,000 acres and Lemak Conservancy which has 17,000 acres), which have no physical barrier and therefore share wildlife and wildlife habitat.

circumstances as they arise. They understand they are managing the cattle for the whole of the conservancy—the soils, plants, animals (wildlife and livestock), and people. For example, the presence of lions in one area required the herders to move the herd to another grazing area because the cattle did not want to graze in

landowners believed that the maximum amount of cattle the land could sustain was 300. However, over the past three years of better management practices, with the improved pastures and ground cover, this number has increased to a cap of 800. The cooperative revised their former strategy, determining that more goats could be helpful in slowing down bush encroachment, but the total number of SAU in goats will be capped at 500. Rainfall is 700-1000mm (28-40 inches) per year, but vastly fluctuates year to year.

In order to be a member of Enonkishu conservancy. Maasai must own land within the conservancy boundaries and abide by certain parameters like capping livestock numbers to an appropriate carrying capacity identified by the conservancy with its grazing plan and also abiding by the rules of no wood harvesting or the development of permanent structures or fences. While, Enonkishu leases land from the 32 conservancy members, livestock-owning members then pay a management fee for each cow the team manages. This fee is deducted from the land lease payment. Monies are used to pay the herd manager and to pay two maintenance works to move the mobile bomas and maintain the water troughs and cattle dip. The focus is to preserve natural springs and keep livestock out of those natural sources so the water troughs are critical. Enonkishu has nine grazing blocks/paddocks and there are four human-made water sources.



The data for comparing the grazing versus control areas show that the average score of up to 19 biological monitoring parameters throughout 13 bio monitoring sessions is greater in the grazing areas. The years 2014 and 2015 had one session each, while 2016 and 2017 had four quarters of data and 2018 includes three quarters' sessions. Error bars indicate standard error of data collected each year.

A key component to effectively protecting the livestock from the numerous large predators

that call Enonkishu home is the mobile bomas (corrals) which are strategically placed in areas of the conservancy where there is erosion and bare ground. This additional animal impact has helped improve ecosystem function in those areas. With improved grazing planning has come increased wildlife numbers which also means more revenue for the Maasai through increased tourist traffic wanting to view the wildlife.

Enonkishu employs nine local Maasai herdsmen who have been trained in Holistic Management and understand the importance of their work to the outcomes desired on the land by the conservancy and the community as a whole. The herders meet to discuss the grazing plan and how they need to adapt to changing

the area that had been planned. When the conservancy was newly formed,



Mara Training Centre's Monitoring Officer, Musa Kiseer, teaching representatives from the Mama Simba branch of Ewaso Lions about sustainable rangeland management during a conservancy visit.

Integrating Wildlife and Livestock Successfully

Over 25 different wildlife species live and/ or travel through Enonkishu including impala, wildebeest, zebra, giraffe, warthog, gazelles, eland, elephant, topi, hartebeest, cape buffalo, dikdik, waterbuck, spotted hyena, cape bushbuck, hartebeest, jackal, klipspringer, leopard, various monkeys, lion, fox, cheetah, hyena, hippopotamus, and more frequent sightings of African wild dog. The diversity and quantity of these species have continued to increase as the land has improved. Rangers patrolling the area complete counts on a daily basis using both handwritten forms as well as wildlife counting apps on smartphones.

The staff and community are excited about the increase of all species (including predators) as this ecosystem comes to life. But having these predators in close proximity to domesticated livestock certainly has its challenges. The mobile bomas must be placed correctly so if there is a lion attack in the middle of the night, the cattle can't breakdown the fencing. Likewise, night-time herders have found that more herders with brighter flashlights help to keep the lions away. Last year, blinking predator deterrent lights were also implemented



Rebekah Karimi (second from left) and Lippa Wood (second from right) with visiting researchers at Enonkishu.

then allowed the lions to take down the cattle as they left the protective enclosure and ran wild in the night. Efforts have been taken to emphasize the importance of proper construction of the bomas with herders and night guards also

Maasai herders are employed by Enonkishu. Here they are performing a traditional dance for some recent visitors.

to further protect the livestock at night. Unfortunately, these lessons have been learned at the loss of livestock.

Last year, eight cows were lost in a lion attack on a mobile boma. The boma had a flat side in its construction which resulted in the frightened herd knocking one side down, which inspecting daily to ensure the security of the herds. Management also hired an additional night guard to ensure that there are always two on duty. With these measures in place, additional visits by lions did not lead to further cattle losses.

Partnerships for Success

Enonkishu depends on the partnership of many entities. For example, in November 2017, a team from Michigan State University visited the Mara Training Centre and trained Albanus Mutiso and Musa Kiseer on the monitoring protocols now being used to measure rangeland health. They also partner with the Kenya Wildlife Services which help provide wildlife expertise and ranger support for dealing with poaching pressure.

Likewise, in 2018, a team of researchers affiliated with the Serengeti Lion Project and the Whole Village Project came to learn about the Enonkishu model of promoting the coexistence of livestock and wildlife. They worked with Enonkishu to place camera trap grid transects and learn how to monitor the impact the Mara Training Centre and Enonkishu is having on the community.

The conservancy's four water points were constructed using funds donated by the MAMASE (Mau Mara Serengeti Sustainable Water Initiative) in 2017. The result of having these water points that allow cattle to drink away from eroded areas is that banks along the Mara River have begun to heal and wetlands within the conservancy have expanded. In addition, the MaMaSe project funded the refurbishment of a cattle plunge dip.

Of course, the greatest partnership is with the local Maasai community, engaging them as conservancy members, rangers, herders, and staff. Given that the Maasai have a culture of livestock husbandry and a desire to sustain the





Nerbas Brothers—

Holistic Ranching in Manitoba

BY HEATHER SMITH THOMAS

Arron Nerbas, of Nerbas Brothers Angus, near Shellmouth in western Manitoba, says that originally his dad and uncle farmed together, and that's where their ranch name came from. "My grandfather Rudy actually started the operation. He homesteaded here in the 1950s; his father had earlier homesteaded about 15 miles away, in Saskatchewan. My dad, Gene, is still involved with our ranch and my mom, Cynthia, is the financial bookkeeper even though she's not involved with the day-to-day ranch work. The daily management is me, my brother Shane, and my

dad. My brother and I came back to the ranch, so we are the third generation."

While Arron's grandfather and father had a more diversified operation—a small amount of grain, some pigs, chickens and a dairy cow, in more recent years Arron's father transitioned the business to a cow-calf beef operation.

"My brother and I both went to university in Winnipeg (taking agricultural courses) and then we both worked on other jobs. and later came back



The Nerbas Family

to the ranch," says Arron. "Our family slowly added to the land base, doing it strategically." They focused on getting adjoining land to aid them in their grazing operation. They rent a fair amount of land (1,500 acres) so they have about 5,500 acres total in forage production (owned and rented) for hay and grazing.

Arron and his wife Amber have two girls, Emerson (age 10) and Hailey (age 7) and Arron's brother, Shane and his wife, Sacha, have two boys, Cash (age 5) and Kane (age 3). Both wives work full-time off the farm which works well for both families. With Arron's daughters, Emerson and Hailey, now showing some interest in the cattle operation, there may be a fourth generation working on this farm in the future.

200% Production Increase

Arron says he and his brother Shane took a Holistic Management course in 2005, and their parents took it the following year. "The way we operated our farm was already following a lot of the holistic principles; we were spring calving, range feeding, etc. and didn't have to change dramatically in what we were doing, but Holistic Management brings a lot more discussion to the table. It's not just about the livestock or the land. It involves your financial planning as well, and ties everything together,"

he explains.

"When we took that course we implemented a lot of different things that complemented what we were already doing. We are firm believers in holistic principles and it's not really that complicated. It just involves breaking things down and simplifying them rather than being caught up in the paradigm of conventional agriculture. The holistic way of looking at things tied

into what we were doing and helped us refocus and also realize we were going in the right direction," he says.

Having all the partners of the operation on the same page and all of them taking the course was also very important. "When you have discussions, even on a daily basis, it just helps you see the big picture and realize that the end goals are the same for everybody," Arron says.

"With Holistic Management, one thing we implemented shortly after we took the course, and something we were not doing a good enough job on, was the management of our grazing lands in terms of rest and recovery. Utilizing a grazing plan was very important to us, to make the land healthier long-term. In doing that, we've increased our production on our grazing land over two times what we had originally," he says.

"We were not planning our grazing as much as we should have been. With today's land prices, this increase in production was the equivalent of getting free land; we had the additional production without having to go out and buy more land." Land is so expensive that it's hard to buy more land, so why not just focus on what you already have and improve it?

The Nerbas family put up more cross-fences, increasing their paddock numbers and made sure they had the water resources to handle it. "We began moving our cattle through the multiple paddocks in a planned fashion. This is one of the main things that has helped us get to where we are today," he says.

Developing Efficient Cattle Genetics

With that increased production and labor capacity, the Nerbas have been able to expand their cattle herd from the 250 cows Gene had. "When my brother and I came home, we expanded to about 600 cows and have been at that number for about 12 years," says Arron. "This is a pretty comfortable number for us, based on the land resources, people resources, etc. I don't think we will grow the herd any bigger unless something changes that would make sense to do so. My dad, is nearing retirement age. There's no point in expanding if he isn't going to be working, because then we'd need to have a hired man. We can generate enough income with what we are doing now, so we are comfortable with the numbers we have now."

In earlier years the beef cattle on the ranch were Angus or Angus crosses of some type, and a long time ago they used some Hereford bulls. There hasn't

been anything but Angus on the ranch now for the past 25 years, however. The commercial cows are practically straight Angus because they've been bred that way for so long, with no other breeds introduced.

The Nerbas herd includes a small herd of registered cattle, started some years back with the idea of producing bulls for the commercial herd. The commercial cows are like purebred Angus, just without papers, and the registered herd are almost like commercial cows with a pedigree, because they are all managed the same.

"The only difference between them is that the registered cows have pedigrees and lineage, and we use these cattle to influence and introduce new genetics over time," Arron says. Knowing the lineage can help when selecting a complementary or completely new bloodline.

Their registered Angus herd was started in the early 1990s. "It wasn't as if we had the intention to get into the purebred business. We bought some purebred Angus heifers as 4-H heifers and our purebred herd grew from there. We were not really finding what we wanted for herd bulls at that time so we decided to find some bloodlines we liked and breed our own, and it grew from there," Arron says.

The Nerbas Brothers are now trying to provide their bull customers with bulls raised the way those customers run their own cattle. "We are very transparent about how we develop the bulls, and if this fits with the system our customers want, that's great. We are not trying to compete in

the mainstream market; that's not our goal. When you have smaller-frame cattle and you are not feeding them like a feedlot animal, there is no point in trying to compare numbers," he says.

People who are not familiar with smaller-framed cattle and how these cattle are raised will also not really know what they are looking at when they see these grass-efficient cattle. There are more and more producers today, however, who are recognizing this value and trying to move their herds in this direction.

"Here in Canada, the way the industry has gone in the past 10–15 years, some things are changing. When we had Bovine Spongiform Encephalopathy (BSE) there was some consolidation of herds and many people with small herds got out of the business. The average herd size



Emerson and Hailey Nerba each are developing their own cattle herd as they consider their role in the family business.

here, for instance, has gotten larger. The tendency then changes to lower-maintenance type of cattle. A lot of the guys with only 50 cows were calving in January, and in a small herd you can make that work, but it's a lot harder to calve out 300 cows in January," Arron says.

"So our beef industry has changed a bit, and there are more producers looking for a different type of animal that fits a different system. We realize, however, that we are still kind of a niche provider and our cattle don't appeal to everyone, and we're OK with that. We are just trying to find the customers who are looking for what we are providing. This is how we target our product and what we are trying to do," he explains.

When this works for people and they are happy with the kind of bulls they can get from a forage-based operation, word of mouth helps; likeminded producers seek them out and become bull customers. "We don't have a production sale; we just sell our bulls off the farm on a first-come private treaty basis. When you sell that way, a prospective customer might come to your place and spend four hours with you and not buy a bull. That takes up your time and is the disadvantage of marketing bulls this way. When you have a sale, you have a lot of prep work and expense that goes into it, but when you are done it is finished," he says.

"Years ago we put ads in the paper and guys would come look at our cattle, and often our bulls weren't really what the guy was looking for,

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yet we still had to spend four hours with him. It's better if we can market ourselves in the right way, to the right type of customer." Then there's more chance that those customers will buy a bull or two because they already know—and are interested in—what this ranch is doing and this type of cattle.

"Our goal with our cattle and with everything we do is to be efficient, so we want to attract people who have a sincere interest and are like-minded in terms of what we are doing. We want a cow that can basically do everything you want her to do, and do it on her own, because cattle can do this if you have the right type of genetics," he says.

"These cattle can succeed nicely if you set them up to succeed in the right system. Cattle can do so much on their own, but you have to let them do it." This often means letting them adapt to more natural conditions without pampering them, and letting Nature help you sort and cull them. Genetics is only one component of that system, and the other part is selection pressure.

"You first select the phenotype that you think will work for you, and then put those cattle to work in your system. You keep finetuning the selection and culling, based on how they perform. Some of the cattle will do it better than others. The bulls we are selling have already gone through this process. It's not just genetics. We have already put the selection pressure on the cows that produced those bulls; they are the result of several generations of selection," Arron says.

"The real reason we have been able to double our production is because of the cows. We have manipulated the system to

only allow the cattle on a certain piece of land at a certain time, but they are actually doing the work. Their impact on the forage species and the ground is what makes it more productive over time. We are just guiding the animal impact and putting it where we need it, making the cows do the work," he says.

The Angus cattle the Nerbas Brothers started with were fairly efficient cattle, but bigger framed than the cows they have now. "The purebreds we started with were good cattle; they had the right structure and type that we wanted, but were bigger than what we wanted. They were a good base to start with, however, and slowly over time we have changed the type a little bit and reduced the frame score and mature weight because we believe a smaller cow is a little more efficient in our type of system," Arron says.

The smaller cow weans off a greater percent of her own body weight than a larger cow. "This is the important thing. With the forage resource you can only have x number of big cows, or 20% more cows that are smaller. We think it is more efficient with a smaller animal. Our cows today weigh about 1,250 pounds on average.

"Our cattle have to travel a lot so they need some athleticism and cannot be as compact and short-legged as the cattle of the 1950s. But we are trying to go back to the moderate type—the opposite trend from where cattle have gone in the past several decades when people thought bigger was better."

Winter Bale Grazing

The Nerbas have found that bale grazing is a good way to winter their cattle. "We bale graze in winter, and our goal for winter feeding is to bale graze for only about 120 days," says Arron. "We want the cow to be out grazing, herself, for about two thirds of the year, with less reliance on hay. We generally don't have a lot of ups and downs in temperature (thawing and freezing) which can make it challenging to take strings off frozen bales, but we take all the strings off the bales in October. We do a podstyle bale grazing system, setting the bales out ahead of time, and then giving the cattle 21 days' feed at a time."

"We strip all the twines and net wrap off those bales prior to freeze-up and then the bales are ready to go. We just move the cows into that area and they are fine for the next three weeks. This works very well in our



The Nerbas Brothers work to provide their bull customers with bulls raised the way those customers run their own cattle. They use Angus genetics with selective pressure to focus on developing efficient cattle.

climate and in our management system. It takes about 1.5 minutes per day to feed 600 cows, and that's without a tractor. That's the average time it takes me to move those cows every 21 days," he explains.

The cattle are also very content with this feeding system and are not stressed, or waiting to have feed brought to them every day. "We've never had any health issues. The cattle take care of themselves," he says.

Some of the hay is put up on their own place and some is purchased. "Right now we are purchasing about two thirds of what we need, and making about 1,000 bales ourselves. We have made some changes in our operation over the past 10 years. We have some hay land in a valley and it was prime hay production, but there has been some flooding in that area that made it unpredictable. The hay grass species have been flooded out over time and the forage has reverted to a wild type hay. So now we are only haying some of that land and grazing the rest. We need better forage than that for winter hay for our cows. Even if we wanted to hay all of that ground, it's a coarse type of hay that would need to be supplemented with protein," he says.

"We made the choice to outsource and purchase some better quality hay and just feed some of our poor-quality hay to mix with it. The nutrient import on that purchased hay really helps. When you bale graze you are building soil, over time, and it really helps improve the production on poor-quality pastures." The areas selected for bale grazing are generally the pastures that need to be improved. Site selection is based on the places

where more organic matter and fertility is needed.

"The primary reason most people start to bale graze is to reduce labor when feeding cattle in the winter, but a larger benefit is the soil improvement and increased forage production. When you are factoring in the costs of production or wintering cost of the cows you really should deduct a portion of the cost of the bales—in terms of fertilizer and improving the land. People need to also recognize that benefit," Arron says.

"The way we do it now, our waste is minimal. We found that if you do the bale grazing right, and

balance it with the right type of cows and the right type of feed, they clean up most of it. We experimented with green feed and more grassy type hay, but found that an alfalfa-grass mix works best and they eat nearly all of it. The green feed is stringier and they waste more. The bales tend to pop and break apart more, and after the cattle have tromped, pooped and bedded on that hay they don't clean it up as well. The bales that are good quality grass-alfalfa tend to hold together better and also the cattle eat into them without pulling out so much hay, and the bale looks like an apple core. They eat in around all the edges, leaving sort of a muffin/mushroomshaped top, and then that falls down and they clean it up, too," he says.



Winter bale grazing has proven to be an excellent way to winter cattle, leading to better cattle health, less labor, and improved soil fertility.

"You do need to be careful that the quality isn't too good (too much alfalfa in relation to the grass) or the cattle will sometimes eat too much and won't be as efficient. You need the right balance of alfalfa and grass. We think our waste is under 10%, which is very minimal for bale grazing. We make the cattle clean it up. The last few days in that area, they are sifting through frozen manure piles with their noses and eat what they didn't eat before." They are still quite full and content, but clean up most of the hay before they are moved to the next group of bales.

Over the years the Nerbas have made management decisions that allow them to partner with Nature in a way that has led to increased production and enough profitability for the next generation to come on board and begin the transition of the business. The key to this paradigm shift is the role of the cattle in this business. "We look at our cows as not just cows, but also as our machinery and employees because they harvest the feed," says Arron. With every mouthful of feed, we want to reduce the need for machinery as much as possible. Every time you put a piece of machinery between the cow's mouth and the forage, it costs time and money." \

Blue Ranch—

Improving Pastures in the Texas Panhandle

BY HEATHER SMITH THOMAS

The Blue Ranch is an historic ranch that has made great strides in restoring some of the native grasses of this area in a few short years, according to Mike Turner, the present manager. "The owners of this ranch are Rex and Susan McCloy. Their family had a farm and ranch in Moore and Hutchison Counties for about 110 years. They have also ranched in New Mexico for several years. They purchased the Blue Ranch in north Texas in 2013. Their manager who runs the New Mexico ranch had already had some experience with rotational grazing systems back in the late 1970s and early 1980s so he had a lot of input on developing the infrastructure for this ranch, along with some other consultants," says Mike. With Mike's background in Holistic Management and his interest in managing a ranch to improve land productivity and health, the change to manage the Blue Ranch was a dream come true.

Restoring a Ranch

"The owners also worked with the Natural Resource Conservation Service (NRCS) on pasture designs and layouts of fences and water," says Mike. "They started working on this project in late summer of 2013 and I came on board in 2015. My background was with NRCS; I had been designing grazing systems and conservation plans prior to coming



Ranch owner Rex McCloy and manager Mike Turner

back into the private sector. I worked with HMI (Holistic Management International), on projects with the Dixon Foundation when I was still with the NRCS; my last duty station was in Cook County (Gainesville, Texas).

"I worked with HMI and went through a couple of their training programs and worked on some of the Dixon Foundation ranches in Cook County, and saw how their practices and principles were put in place. I had also managed a ranch in south Texas with a grazing system that was initiated in the late 1970s and is still functioning. It was the old wagonwheel style rotational system on 6,000 acres," says Mike.

"When I got involved with the Blue Ranch I came up here and looked

at the operation and felt it would be a good fit for me. From a practical standpoint, I knew that I could manage the operation because they'd already put in the infrastructure. One of the first things that I did was put the cattle herds together. There were two herds on this ranch when I got here and I put them together to run as one herd unit, to create more animal impact with more cattle on smaller pastures," he says.

Now the cattle are utilizing more of the forage. "They are not just cherry-picking preferred plants; they are getting a little bit of everything," says Mike. "This ranch had been seriously impacted by the drought of 2010–2012 and was just starting to green up when it was purchased in 2013 but was still in pretty bad shape. In the past few years I have watched the forage species and grasses change dramatically."



Mike Turner had experience with Holistic Management before coming to the Blue Ranch and has worked to combine herds and improve grazing management on the almost 20,000 acres he manages.

For the last 100 years the ranch had been managed with traditional ranching practices—with 50 to 100 cows per pasture and continuous grazing, with no rest for the plants. "When the McCloys purchased the ranch, there had been another outfit before them that owned it for about five years and ran 2,000 to 3,000 yearlings on it. Those owners had taken out most of the interior fences; there were very few fences on this place when Rex and Susan purchased this ranch," says Mike.

Having no old fences was a blessing in disguise; the new owners basically had a blank canvas to work with and could put in the type of infrastructure they wanted. "On a cost basis, conventional fencing versus the two strands of electric fence we put on the ranch was guite different. We've put in about 115 miles of fence, so far, and most of it is high tensile two-strand electric fence. Each one of our cell centers (water troughs) services two to five pastures. The ranch is 19,500 acres, and currently runs about 1,000 animals. We have 530 pairs right now," he says.

"I think this ranch could run about 800 cows (1,600 units) when we get it back into shape. We are just taking baby steps now, however, to get there. I told the owners we should not try to stock it too heavily the first couple years, until we find out what the ranch is really capable of supporting," he explains.

"I think we are conservatively stocked right now. 2018/19 is a tell-tale year to show how our management is going to work, because we are in a drought. In mid-September 2018, we only had 6.9 inches of rain for the year and normally we'd have about 16 inches. The cows were a little thin;

they looked like they'd been on a ranch that only had six inches of rain, but we still had some ground cover in all the pastures, whereas in previous years we had a lot of bare ground," says Mike.

Improving Soil Health

As management practices have changed, Mike has seen the ecosystem processes shift in response. "Many of the pastures have a lot of fragile type soils and one of the things I'm seeing now, due to more animal impact and hoof action, is a lot of transitional grasses coming back in. We are seeing a lot of short grasses, which may not be the ideal situation in the big scheme of things, but they are covering the ground and providing armor for the soil, so we are making progress," he says.

This ranch is fortunate to have two streams—Running Water Creek and Big Blue Creek. "These are both live water creeks, so we are one of just a handful of ranches in the Texas Panhandle that actually have live water. As we graze those pastures, running cows through them a couple years in a row, I started noticing the eastern gamma coming back. In 2016 we had a wet spring so the eastern gamma really grew. We had about two to five acres on a little hillside at first, and now we have close to 30 acres of gamma grass in that area that has a fairly high water table. It's exciting to see that kind of growth coming back in," he says.

"We just have to manage the grass so that the seedbank can have a chance and express itself. The eastern gamma grass coming back is one accomplishment I am really proud of because we graze those areas, and the eastern gamma and many of the other tall species grasses are the ones that are generally grazed out on any ranches that are continuously grazed. We are fortunate in that there were still some remnants of these tall grasses on some of our watersheds," says Mike.

"All it needs is rest, and animal impact at the right time, helping Mother Nature. I always tell people that Mother Nature really doesn't need us; we need her more than she needs us, and we just need to be careful not to get in her way. If we can work with her rather than against her we can do a lot more with our pastures," he explains.

"I've watched this ranch transition over the last four years and gain more desirable species," says Mike. When I first got here we had a lot of perennial forbs and woody plants, but through our grazing systems I am now seeing areas where the more desirable grasses are showing up. We've opened up some of the canopy of brush, which helped. We were able to purchase the interior part of the ranch (that the previous owners had held onto) a couple years ago, and immediately put 500 pairs on that section that hadn't been grazed for about 15 years. This knocked down a lot of the dead growth and decadent material and we also got into some of the wooded canopy at the bottom of the ranch. Now we are seeing good results, with all the tall grass species coming back. We have Indian grass, switchgrass, eastern gamma grass, big bluestem, etc. all coming back in more abundance than in prior years.

"We are trying to mimic what the buffalo did. About 200 years ago, this part of the Texas Panhandle was a large area for buffalo to congregate. What people don't realize is that when the buffalo were here they grazed it completely (until it was basically denuded) and then left—and didn't come back until it recovered. I don't graze it down that much with our cattle, however, and try to leave enough growth so that there's enough plant material left for the next growing season, to provide ground cover.

"I try to leave enough material through the growing season and into the fall and dormant period to have ground cover in case we get some extreme weather—and excessive rainfall. We haven't had a really bad episode since I've been here, but the old-timers we go to church with, who have ranched here for many years, have told us that this year might be the one. I hope we are prepared for it if it happens."

Mike has been amazed at how resilient the ground is, if it has adequate cover. "The first year I came here, in 2015, it was a wet year," says Mike. "The average annual precipitation in this region is 19 inches and we had 32 inches that year. It was a great year to move onto a new place because there was a lot of grass. Seeing this much grass, a person might think they didn't have enough cattle on this place. Historically this ranch ran about 400 cows and in recent years we have increased that stocking rate by about 35%, to about 500 cows. The most I've had here were 600 cows in one herd unit, along with replacement heifers. We've been carrying about 300 to 400 replacement heifers or steers on the ranch for the past two years."

Creating Profit Through Vertical Integration

While increasing carrying capacity is one way to increase profit, Mike has also worked to improve genetics as well as vertically integrate their operation. "We run an Angus-based cow herd, heavily influenced with

Gardiner genetics," says Mike. "Between all our various operations we run about 2.200 mother cows. We are vertically integrated in the beef industry. The owners have a 6,000-head feedlot in Morse. Texas, so we have the opportunity to grow out all of our own calves and harvest them. We sell all the calves on a yield and grade basis because we know what the genetics are and can depend on these cattle being good quality.

"We have DNA-tested all of our cows and replacement heifers, so we know exactly what we have and how they will perform in terms of the meat produced. The owners

have a very good business sense and know how to generate a little profit from each segment of the operation. To me, that's what it's all about—to be able to be profitable in each segment. We are not trying to go after big dollars, but just making every part work. Then there is not any one part that is a drain on the system; they all contribute, in a systems approach. It really helps when a person can look at it from the big picture view. I know that what we've done with this ranch is helping."

The cows start calving about the 25th of March. "We Al all of our cows; they all get one round of Al and then we turn bulls in with them," says Mike. "We can still have some inclement weather at the start of calving, but green grass is just around the corner. We've had some years that it greened up nicely at calving time but I've also seen a year when we got six inches of snow—two years ago on Easter Sunday. Some of those late winter storms can be a problem."

All the cows on the ranch are bred starting the end of May through the first of June. "We breed 2,200 cows in a 45-day period, starting at our ranch in New Mexico, then at the farm operation in Stinett, and then this ranch. The Blue Ranch is the last one on the schedule for the Al breeding, but is the largest herd. This keeps us busy," he says.

"At branding time we synchronize all of our cows and use Controlled Internal Drug Release (CIDRs) and lutalyse, with standard heatsynchronizing protocol, and the following week we pull the CIDRs and give shots and start breeding cows. On this ranch we breed 550 to 570 cows in 72 hours. It's a marathon, so we are glad we have good help," he says.

"I have one full-time employee here, and we can get most things done. We are still fine-tuning the operation, but at branding time we can usually run 500 cows through one chute and 500 calves through another chute at the same time and we'll be done in six hours. Usually I have thee crews running—a sorting crew stripping cows from the calves, and a calf branding crew and a cow vaccinating crew," says Mike.

"We have to be efficient because we are only allotted a certain number of days to do it all because we are using help from the farm operation. But when breeding season comes around everyone knows that this will be the top priority for that time and everyone gets into high gear. Between all the divisions and the managers we try to coordinate these things and not try to be doing it all at once—so we can share help. For a four-week period of time everyone has something going," he says.

> The calves are then weaned about the 10th of October. "I built a new set of corrals on the south end of the ranch this year so this was the first time we used them. We gathered all the cattle and gave pre-weaning shots mid-September and had about eight more pasture moves until weaning, and then we used fence-line weaning," he savs.

Mike has been fenceline weaning for 20 years, on other ranches before this one. "We have very few health issues or death losses with this method." says Mike. "It takes a little longer for the cows to

quit bawling than the calves because the calves are not too worried. We are constantly moving the cattle to new pastures and the calves become a little more independent than in a conventional continuous grazing system, and they are ready to wean. By that time probably 80% of their diet is forage rather than milk." The calves are also accustomed to being handled in a planned grazing system, used to people, and happy to go to new grass.

"I keep the cows from their calves by the fence for up to four or five days and by that time they are done bawling, and they can be more completely separated. Then I background the calves for 45 days. They often go to wheat pastures on our farm operation; we usually try to have the wheat up and growing by the first of November, on quite a few of the pivots," he says.

Last year Mike took all the replacement heifers from the different operations and backgrounded them here at the Blue Ranch. "We generally have 400 heifers and 400 steers to carry through winter and into spring. They are out on range pastures and I use the nutritional balance analysis system through Texas A&M's research lab. This gives us an idea of what our forages are, nutritionally, and we can then supplement as needed. Multiple times a year we'll take fecal samples to send for testing, to give us



With improved grazing has come an increase in many of the taller prairie grasses like eastern gamma grass.

a baseline of where the cows are nutritionally, and also what our grass is doing," says Turner.

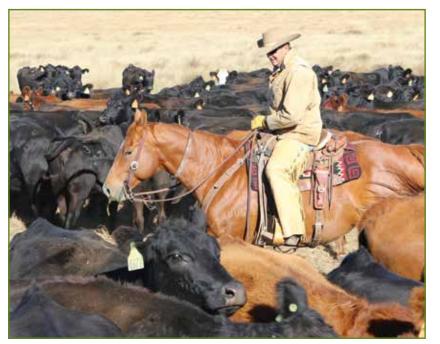
"On a recent analysis results our grass was about 6.72% protein, and normally at that time it should be closer to 9% protein. The grass in 2018 was showing effects of the drought. When we supplement our protein we use whole cottonseed, and sometimes have used cottonseed cake in the past. We work with a nutritionist and determine what commodities we can use and how much we need to feed, to get us to a daily balance to meet nutritional needs for energy and maintenance on the cows," he explains.

"In 2017 whole cottonseed was about \$130 per ton so we could justify buying an old Army truck and putting a feeder wagon on the back of it, and this worked really well for feeding the cottonseed," says Mike. "I usually supplement the cattle until just after green-up in the spring, getting

them through the transition period when they are eagerly chasing the green grass and start losing some weight. Our cattle feeding and management is a pretty good system but there is always room for improvement."

Creating Wildlife Habitat

Mike lives on the ranch with his wife and son. "My wife Shani stays at home with our son Ethan who is 5 years old. He's now in school but they both help me sometimes on the weekends. We utilize Holistic Management in our grazing programs, to benefit wildlife habitat as well as the cattle. The wildlife here have really benefited from our improved grazing management," he says.



Mike Turner sorting cattle. With two teams at branding time, they can sort and brand 500 calves in six hours.

"To me, that is a major part of it all, and a sign that things are moving in the right direction. I am seeing more does and fawns than what we've had in years past. Numbers are coming up, and we are starting to harvest some really good bucks. We just started selling a few deer hunts in the last few years, so it's still a work in progress on the quality and quantity that we will be harvesting, but hunting is another enterprise that is working for this ranch," says Mike.

"The cattle have really benefited from the areas we opened up. The canopy at the bottom of the ranch was really thick and brushy. It was good habitat for wildlife but it wasn't a healthy habitat. Now that we've opened up some areas in there I am seeing more corridors where the animals are traveling through it and utilizing more of it. This is helping the wildlife as well as the cattle and giving them a good buffer zone," he says.

"We've done some riparian zone restoration projects where we channeled some water that historically has been a huge bog, and put it back into the original stream bed. We are drying up some bottomland that is becoming more grazeable, but this has also allowed the watershed

to flow better. Now we are seeing a lot more water flowing through our place than what we saw in the past, because now it is not so overgrown with cattails. The cattails are a grass, and beneficial, but anything that becomes too much in abundance (crowding out everything else) is too much," says Mike.

"My granddad used to tell me that too much water is drowning. We've opened up some of those areas that were supersaturated and not growing anything but cattails and are now seeing more variety of species," he says.

"We have a lot more mule deer coming through the ranch and bigger bucks, so we are now looking at the income side from the wildlife. We are not doing high fencing and canned hunts like some ranches, but we are able to utilize hunting as part of our income because this is another resource that the ranch has available. Multiple enterprises can be helpful, and we are also looking at some other things. We are in a fly zone for migrating birds and we also have a resident group of bald eagles that roost here on the ranch in the winter," he says.

Mike is passionate about this restoration work and is pleased at what they've been able to accomplish "I am a grass nerd and I love seeing what we've been able to accomplish thus far on this ranch. This was one of the reasons I took this position and left my job with the NRCS, because I could see the potential and what the benefits might be here on this place. Now I've seen the progress and have had the opportunity to see how this ranch has changed in the past four years, and I am looking forward to seeing what the future holds," he says.

Change is not without controversy, however. "These are old historic

ranches in the Panhandle and there were rumors circulating as far as New Mexico about how we had ruined this ranch with our fencing and it's not a historic ranch anymore. The upside of it all, however, is that now a lot of the old-timers who were saying that, are now saying they like what we are doing. They can see the results. Many people have told me they've now seen more grass on this ranch than the previous owners had in the 100 years that they owned it, and this tells me that what we are doing is positive. We may not be doing everything right, but we are definitely doing something positive," says Mike.

"We did a range inventory in 2016 and it showed that we are getting closer to what the ecological site description and climax species were on this ranch originally. In central Texas, where I was from, if you had a 30% index that was pretty good, but we are probably closer to 65% or better up here right now. This improvement is very gratifying, and it's neat to see, but I am just one of the cogs in the wheel, making this work," says Mike.

Together, all those involved with improving grazing management and infrastructure at the Blue Ranch have helped begin the process of restoring almost 20,000 acres of tall grass prairie in the Texas Panhandle.



Chispas Farms—

Making a Living with an Heirloom Market Garden

e've all read the dire statistics about the aging trend

BY ANN ADAMS

in agriculture. In New Mexico the average age has now reached 60 years. The good news is there is a 50% increase in farmers under the age of 34.

Casey Holland is one of those new young farmers committed to learning how to make a

living farming in New Mexico while also taking

care of the land she farms.

Casey grew up in Deming and not with an agricultural background. As she explored what she wanted to do with her life in college, she studied sociology and was learning more about climate change. She knew she wanted to do something that made a difference and helped solve societal and environmental problems. As part of her program works she had to do a community partnership. She got connected with some community gardens in this program and realized that this type of community farming could indeed contribute to solving these big problems. As she began to work on other farms, she found that farming was some of the most important work that needed to be done and there weren't a lot of people skilled at it.

To that end, Casey began apprenticing at various farms around the South Valley since 2010. She spent the most amount of time at Red Tractor Farm, a two-acre vegetable farm in Albuquerque's South Valley. Red Tractor had a 40-family CSA and also sold into the Downtown



Chispas Farms uses a combination of cover crops, interplanting, and mulch (like this heavily mulched garlic) to reduce bare ground and improve soil fertility.

nto the Downtown
Growers Market as
well as being part
of the Agri-cultura
Network. She
apprenticed for five
years until the farm
went through some
transitions and Casey
decided it was time to
be the lead farmer and
the opportunity arose
at Chispas Farms.

Chispas Farms is located in the heart of Albuquerque and

on the edge of the South Valley along the Bosque. The four-acre farm has been in production since 2001. Certified organic in 2006, Eli Burg and Amanda Mione were the co-head farmers at Chispas from 2004 to 2016. Casey started farming on her own there in 2017 and hired lan Colburn in 2018. They specialize in growing over 120 varieties of heirloom fruits and vegetables and use regenerative practices such as crop rotation, cover cropping, integrated pest management, and seed saving.

At Chispas, Casey and Ian work an average of 36 hours during the seven-month growing season and they get one weekend off each month from the market. They then work half-time through the rest of the

year but get paid the same amount in those months so they don't have to get another job in the off-season.

Casey acknowledges that she has been blessed to find this opportunity to work at Chispas Farms. The owner has offered a five-year lease for the farm at no cost (and of course she has access to a lot of free, nutrient-dense food). He has also provided a no-interest loan for Casey so she could purchase necessary start up equipment and infrastructure. This type of subsidy has been critical to get new farmers and ranchers into an agricultural industry that has heavy startup costs-an impediment for younger producers that must be addressed. With her no-interest loan Casey invested in infrastructure such as cold storage, wash station, tool storage, and a BCS with three implements. She was able to make enough profit the first year to begin paying back that loan.

In turn, Casey has added a lot of value to Chispas Farms as she had her hands full

when she moved to the farm in May 2017. The place had experienced a certain amount of neglect, and she spent a lot of time growing sorghum cover crops to improve soil fertility as well as tearing down dilapidated animal pens to make space for the outdoor community dining room. In addition, she set up a chicken coop, compost bin, outdoor classroom and a produce washing station. "I learned a lot about soil fertility at Red Tractor," says Casey. "I wanted to experiment more at Chispas with the crop rotations and the cover crops to rehabilitate the soil. We also add amendments like compost and bone meal and blood meal and gypsum. We are really only farming one acre at Chispas and I make sure we have a winter cover crop on it so it isn't just fallow."

"At Chispas I now have the opportunity to take the whole farm to the next level with the whole four acres. We're looking at things like wildlife habitat even for this urban farm. The sorghum is grown not just for soil fertility but also for the seed to feed birds. I'm going to be putting in more perennial crops like figs, grapes, fruit trees and shrubs, flowers, herbs, and a perennial/forest. I also want to plant clover and alfalfa into some areas as we bring on livestock. Right now the community area is about an 1/8th of an acre, but we may expand that. We really want to



Casey Holland and farm partner, Ian Colburn, at one of Chispas Farms' community dinners.

bring on animals (chickens and milk cow) to provide more value-added production and for pest control, fertilizer, and cover crop grazing.

Has all that focus on soil fertility paid off? During the peak season, production on the vegetable production area was 1,000 pounds/acre/ week which is a lot more than Casey had seen in the previous season.



These rows of basil are next to pollinator plants to attract pollinators.

This production enabled her to pay herself and her cofarmer, lan, the wage she had calculated in her financial plan as well as have some profit left over to begin paying off her loan.

Her vision for Chispas in the coming years will be a closed-loop system

where she won't have to buy any inputs. This year she spent \$2,400 on compost. Once she gets the soil biology functioning with her cover crops, her need for compost and amendments will lessen which will increase overall profit for the farm. She also wants to move to no-till or conservation tillage as another goal for the farm. To that end she will be experimenting on how she can use animals to till and prepare the soil. She will continue to use flail mowing to incorporate cover crops and then do either a light till or rake to tuck in seed. Right now she is only tilling where there are beds and using mowing to manage the walkways.

Engaging the community as part of her farming is a critical piece of the puzzle for Casey. Whether that means growing heirloom varieties to help support a diverse seed population of non-hybridized plants, participating in a CSA program, engaging with the Agri-Cultura network that provides food to low-income families, or offering community dinners to bring people together around local food, Casey knows community and farming must go together and there is mutual benefit for all. "When we do community meals we've gotten a lot of different people involved including high schools and their cooking classes who participate and share food," says Casey. "Our community provides values in so many unanticipated ways. For example, one of our CSA members gave us a free cow and we just have to pay any vet bills. We can use that cow to provide some animal impact on our cover crop and non-crop areas.

"To me this community involvement is a critical part of my quality of life. Regenerative agriculture is about building resilient communities and people are connected in really important ways to this effort. I also have found that by focusing on social concerns I take a deeper look at what I need for that quality of life. For example, I now make it a policy to take a weekend off each month even if that means paying someone to take my place at the market. That's what I need to sustain this work given the size of farm I am running. "

Casey acknowledges that there are many challenges to farming. "You aren't always going to know what will work, so you have to be being willing to try something as an experiment. I can see how those small experiments over the years have changed into standard operating procedure today, like flail mowing rather than pulling plants out by the roots which we used to do and which resulted in soil carbon loss. We

also looked at our tomatoes at the end of the season and decided that instead of taking them to the dump, which is what everyone says you have to do, we were going to use our flail mower to incorporate them. We also decided to experiment with planting our cover crop seed by broadcasting the seed, but we've found we still need to do a light till to disc it in."

2018 was Casey's eighth season as a farmer. While that timeframe is still considered a "beginning farmer" (10 years or less is the USDA definition of beginner farmer), Casey has outlasted and performed most aspiring farmers. Because there are few formal mentoring programs for young and beginning farmers, the path for an aspiring farmer is daunting.

Casey had to create that path by seeking out individual mentors and in doing so she developed a skill set that now allows her to mentor farmers as a part-time job and she has also shared her knowledge with other young farmers through her work with the National Young Farmers Coalition. However, as part of her commitment to regenerative



Casey uses a flail mower to incorporate her cover crops although she is also working to integrate the covers with a milking cow and laying hens.

agriculture in New Mexico, Casey is now involved as a mentor and instructor for the Albuquerque Grow the Growers Program that is located at the Gutierrez-Hubbell House.

The Grow the Growers Program is a comprehensive farm training and business acceleration initiative designed to attract new and emerging farmers into professional food production. New Mexico State University Extension and the Bernalillo County Open Space have collaborated on this project with Holistic Management International providing Whole Farm Planning training to the participants. This program provides the formal structure that many trade schools provide for other trades and has been developed to increase the success rate of new farmers not only coming into agriculture but staying in agriculture. Casey's passion for her mentoring work with the Grow the Growers Program is an extension of her passion for building a community of farmers who in turn can feed their communities, make a living with this work, while taking care of the land for generations to come. W

From the Board Chair

BY WALTER LYNN, HMI BOARD CHAIR

o Your Strawberries Taste Red? is a new novel coauthored by Walt Davis and Tony Winslett to be released in the first quarter of 2019, and it's a great read. Walt and Tony are neighbors in the southeast Oklahoma town of Calera, and this is their second novel they have written together. The first book was published in 2014—The Green Revolution Delusion: A False Promise. Walt has been a special part of Holistic Management; he is a past president of Holistic Management of Texas and Oklahoma Land Stewardship Alliance and he brings that knowledge and experience to bear in both novels.

Walt and Tony use *Do Your Strawberries* to convey the tie in of regenerative agriculture, food and our health. They ask us to think about the root cause of our society's health issues as the story unfolds. In December 2018, the 2017 National Health Expenditure Data was released. As a share of our nation's Gross Domestic Product, health spending accounts in 2017 was 17.9%, and health spending has been over 17% since 2009. Nobody seems to be questioning why that amount is so high.

The story in *Do Your Strawberries* is developed around an Austin, Texas young widow, Abby Henson, and her daughter. She loses her husband to a heart attack at 41 years old. She and her nine-year-old daughter are sitting in the Austin hospital waiting room and they receive the tragic news from a young staff doctor. The family had been trying hard to follow a low-fat diet recommended by their former doctor when they lived in Oregon before moving to Austin. Abby's husband had been prescribed a statin drug, and all three in the family were still overweight. Abby goes through a period of anger and doubt about the past medical advice her family had received. Furthermore, Abby's daughter has gut and stomach problems and Abby takes her daughter to a recommended pediatrician in Austin, but she also

doubts his medical advice.

A former coworker reaches out to Abby for some needed connection and change of scenery because of the loss of her husband. The two had worked as investigative reporters earlier in their lives. The coworker provided the much needed ear for Abby and she coaches her friend to start finding the truth about her food purchases for herself and her young daughter.

The reconnection with coworker starts the self-discovery for Abby. She is connected with a former VA Hospital Contract Nutritionist, Ada Wolle, who operates her own small south Texas farm. Ada shares a list of suggested references with Abby. Abby, at first, is very reluctant to embrace this new information. But she continues to investigate and research

Abby then revisits Ada and this starts the paradigm shift for her on the prior medical advice and diet she has followed. She starts to understand the vested interests in the pharmaceutical and food industry. Revisiting Ada also leads Abby to connect with an organic farmer to broaden her knowledge of the possibilities for her and her daughter. She later becomes an advocate of nutrient dense food with her own highly rated Austin radio show. But, her passion for better food is sometimes attacked by the call ins to her show, and big money steps in and attempts to quelch her passion—an attempt that is ultimately overcome.

I think the book has a great message about converting our world's extractive agriculture to a regenerative process to impact the biological capital in land, our families, and communities. A re-education and change in attitude must occur by the medical profession, government agencies, universities, agricultural producers, and consumers to work toward this goal and *Do Your Strawberries Taste Red* can help encourage this change. \(\psi\)

Do Your Strawberries Taste Red? will be available in March 2019 at: http://waltdavisranch.com/books.

Enonkishu Conservancy

CONTINUED FROM PAGE 7

natural resources for livestock and the wildlife, the potential for improved economics for the community through this effort in integrating livestock with conservation is a critical role model for conservancies in Africa.

While there have been learning opportunities over the last four years, the monitoring results at Enonkishu are showing that consistent grazing implementation is now yielding impressive results for this conservancy. Holistic Management has helped engage the community in this effort, as well as helping to direct management in appropriate action, and shifting paradigms about how this ecosystem can be restored. "Conservation biology is so holistic, so the integration of Holistic Management into the conservancy's practices was very natural," says manager Rebekah Karimi. "We have to look at different revenue streams to sustain the conservancy so Holistic Management has helped enhance our planning of that diversification in the context of conservation biology."



Herders meet often to discuss grazing issues and challenges and determine any necessary adjustments to the grazing plan.



HMI Partners on NM Zone Grant

MI is pleased to announce that we have partnered with the Quivira Coalition and the Western Landowners Alliance (WLA) on the New Mexico Collaborative Zone Grant (NMCZG) funded by a cohort of funders in New Mexico. The Quivira Coalition is the lead organization on this grant and we learned we were one of three awards



Three different planning grants were awarded in the Food and Agriculture sector of the NM Collaborative Zone Grant funding.

in the area of Food and Agriculture. Funders in the NMCZG are the McCune Charitable Foundation, Nusenda Credit Union Foundation, the Santa Fe Community Foundation, the Solidago Foundation, and the Thornburg Foundation.

This Zone Grant is a planning grant for our three organizations to continue the work that HMI began with developing the New Mexico Coalition to Enhance Working Lands. For this collaboration, Quivira, HMI, and WLA will act as lead facilitators of planning work that will engage over 30 organizations working together to enhance the health and productivity of New Mexico working lands. Currently, our structure consists of a steering committee, including representatives from these lead organizations, as well as representatives from the Rio Grande Water Fund, NRCS, NM Department of Agriculture, and the NM Association of Conservation Districts.

By a variety of measures, many of New Mexico's working lands are in poor condition, particularly given recent droughts. Rates of soil erosion are among the highest in the nation, the majority of grasslands are thought to be below expected ecological site condition, forests are at high risk of fire, insects and disease, many wildlife species are imperiled, and water shortages threaten New Mexico's environment, economy and way of life. The state's future is dependent on the wellbeing of its land, natural resources, and agricultural capacity. No single organization or state agency can adequately address these challenges, most of which are closely interrelated.

Accelerating improvements in the health of working lands in New Mexico will require increased coordination among the people, agencies and organizations best positioned to advance change. It will require shared metrics for evaluating the health of working lands, new sources of funding, improved public policy, and most of all, a shift in culture from extractive to regenerative land use.

This collaboration seeks to achieve the following:

- Shared baseline knowledge of land health in New Mexico
- · Shared goals emerging from clear picture of factors impacting land health in New Mexico
- · Shared narrative regarding need to improve land health in New Mexico and how it impacts our communities

- · Increase efficiency and effectiveness of work through improved coordination
- · Tools for large scale collaboration including funding, policy, science, communication, and organizational capacity
- Reduce historic biases and narratives that exacerbate distrust and impede discourse around land health
- · Leverage increased financial and technical resources

In this planning grant we will develop a plan to support and better connect a community of practice around resilient land management practices. Generating a collaborative framework with shared goals for measuring land health, this community of practice can work even more effectively towards resilience of land, water, and people in the state.

Thanks to the Thornburg Foundation for their support of this initiative. We will learn if we received the two-year implementation grant in the fall of 2019.

Online Intro Course Supports Improved On-Farm Decision Making

HMI's Online Learning Series Getting Started Introduction to Holistic Management course had 31 participants from the United States, Canada, Great Britain and Australia. This course focused on key Holistic Management planning concepts and principles to help participants manage their farm/ranch for the triple bottom line (social, environmental, and financial sustainability) and more effectively manage resources. HMI Professional Certified Educator, Elizabeth Marks, taught and facilitated the course and incorporated some new strategies to encourage student discussion through break out sessions and enabling participants to communicate via microphone. Participants were excited to learn how to improve their ability to observe, understand, and make decisions based on what they can control. Through these new skills participants now have the knowledge and tools to improve their ability to work with nature and to increase productivity.

Thanks to Greenacres Foundation for their scholarship support of this program.

Featured Participant

"I really wanted to take the Introduction to Holistic Management course to explore how these practices could be incorporated into relationships between grazers that lease public land and conservationists that protect these open



Ali Haynes

spaces. I found the tools and guidance offered in this course and HMI's philosophy are a perfect companion for fostering collaborative relationships among these parties. The Testing Questions and practical approach to managing a business with a triple bottom line were particularly insightful. Beyond using what I learned for my career goals of becoming a grassland manager on the conservation side, I was able to apply the class material to make informed decisions about matters in my personal life as well. I love the holistic approach, getting to see how others apply these tools and feeling part of a larger community. Thank you so much for the work you do and allowing me to be a part of it."

—Ali Haynes, California

CO Business Planning Course

n December 2018, 14 participants completed a Whole Farm and Ranch Business Planning course in Durango. This workshop series included holistic decision making, financial planning, business



WFRBP Durango

planning and marketing. The course was sponsored by the SW Colorado Small Business Center (SBDC) and HMI. Cindy Dvergsten, an HMI Certified Educator, was the instructor. Participants worked on their plans to start or grow a variety of agriculture and related enterprises including:

- Startup of ranch stay plus guided outdoor bike packing adventure business.
- · Expansion of an existing on-farm restaurant.

- · Improve management of small-scale pork enterprise.
- · Startup of a small-scale produce enterprise.
- Startup of a hay and beef cattle enterprise.
- · Expansion of and existing on-farm retail market place.
- Growth of a small-scale produce and livestock operation.
- · Growth of a marketing and distribution cooperative.
- Startup of agritourism activities on a ranch.
- Improve management of a horse-based enterprise on small scale ranch.

Participants will receive follow up support through the SBDC. Some will be preparing formal business plans for financing through the Farm Service Agency and other lenders. One participant plans to enroll in a local business accelerator program. All participants expressed satisfaction with the course and indicated improvement in most areas of decision making, financial and business planning.

Thank you to our sponsors for making this event possible including: Whole New Concepts, LLC and the SW Colorado Small Business Center.

Book Review by ANN ADAMS

The Carbon Farming Solution: A Global Toolkit of Nourishment: What Animals Can Teach Us About Rediscovering Our Nutritional Wisdom

By Fred Provenza Chelsea Green Publishing

he holidays provided a little extra time for reading and I had the pleasure of reading Fred Provenza's recently published book, Nourishment: What Animals Can Teach

Us About Rediscovering Our Nutritional Wisdom. For those of you not familiar with Fred he is a professor emeritus of Behavioral Ecology at Utah State and has written/co-authored such books as Foraging Behavior and The Art & Science of Shepherding, all based on his more than 30 years of work in this field.

I had known that Fred had broadened his perspective and scope in writing this book, but I was really excited as I immersed myself in *Nourishment*. From the very first lines, I knew this was a book that I could share not only with farmers and ranchers, but also foodies and people interested in nutrition. Fred has taken so much of the current science about nutrition (human and animal) and made it accessible and interesting to a broader audience. Moreover, he has expanded the conversation about nutrition by bringing in all his knowledge about animal science and how animal nutrition is such a critical foundation to our knowledge of nutrition as a whole. So much nutrition writing is about just the chemistry, and Fred is able to bring in the biological and behavioral components to help people see that we must come to nutrition from a whole systems approach.

Nourishment makes the reader really question how we have moved as a species from trusting our "gut" to being misled by every diet fad touted in the media or encouraged through the marketing practices of numerous food companies. More importantly, my own experience makes me believe that with increased knowledge of nutrition we have

the ability to shift that trend back to being able to discern what we want and find the sources of food that will feed and heal us.

In *Nourishment* Fred uses the term "wisdom body" to articulate our internal wisdom that allows our bodies to utilize the feedback we get from flavor in our food at a cellular level when the food is nutrient dense. I am not convinced that everyone will tap into that wisdom body, but I believe there is a growing number of people who will continue to grow this body of knowledge about how nutrition is supposed to function. In this way, there is some hope for our evolutionary course.

Fred's prose is filled with past and current experiences observing nature and living with its cycles. That prose is perhaps what I enjoy most about this book. He paints scenes of the natural world, interpreting the intricate relationships through his observations. He writes of his early years working on a ranch where ranch life revolves around the natural cycles of planting, growth, harvest, and dormancy. These early days informed his career choice but also his constant connection to the land—his love, admiration, and desire to better understand these natural systems.

In the end, what Fred encourages us all to do is get in touch with our own "wisdom body," our own authority, and to not depend on outside authorities who tell us what we should eat. Each body is different and requires different nourishment at different times in its life cycle. How can we create a society that encourages that exploration rather than just expecting everyone to eat the same diet? Such a society would certainly require a far more complex and resilient food system and that system would likely require far more people involved in it than are currently doing so. In this way, *Nourishment* is a radical text, asking us just how dependent we have become on a food system that has been created to feed us for profit more than for health and how willing we are to take our nourishment into our own hands.

To learn more about Nourishment or to purchase a copy, go to: https://chelseagreen.biz/product/nourishment/

Certified **Educators**

The following Certified Educators listed have been trained to teach and coach individuals in Holistic Management. On a yearly basis, Certified Educators renew their agreement to be affiliated with HMI. This agreement requires their commitment to practice Holistic Management in their own lives and to seek out opportunities for staying current with the latest developments in Holistic Management.



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* These associate educators provide educational services to their communities and peer groups.



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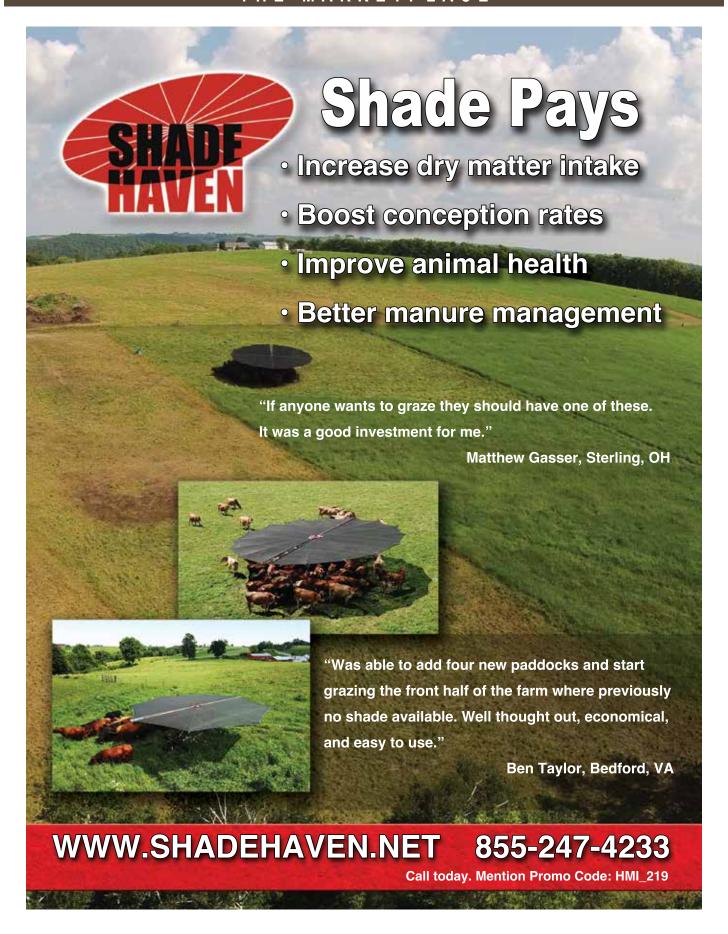
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Navigating Uncharted Waters with Holistic Management

BY KELLY SIDORYK

I was recently telling the story of what first drew me to Holistic Management over 30 years ago. I said it was the people. I realized in

sharing that story that the people are still what draws me to Holistic Management today. Holistic Resource Management, as it was then known, and its focus on finances, land and livestock and people was the first approach I had heard of in the agriculture world that did in fact incorporate the human aspect. It was even referenced as our most under-utilized resource. With Don and Betty Green as my mentors, I embarked on the degree program through the Center for Holistic Resource Management (now HMI).

At that time there were two core courses offered, each five days in length. One focused on land, livestock and finances, and the other on Building the Effective Organization (BEO). Members of our operation attended both.

In our family operation we transitioned from a feedlot to a forage based yearling and cow-calf outfit. Electric fence, paddocks, moving cattle, developing water and grazing plans were just some of the initial steps. Then a few years in, we spent some time returning to further development of our holistic goal and financial plans. Along the way, there were mistakes and challenges. But most importantly, we had continuous learning along with what seemed like constant change and meeting many, many great people.

Holistic Management was not a magic bullet but a process of developing a shared vision and improved decision making and planning. People travel along the path at different speeds with different focuses. Some get more immersed than others, but I do believe that all who have taken the training have changed some paradigms.

The concept of sustainability has evolved to one of regeneration and focus on soil health. People from all types of agriculture operations find value in Holistic Management.

One aspect on the human side that I find becoming more and more important all the time is that of succession or transition to the next generation. This applies not only to ag operations but businesses and organizations in many forms. Who will take over and what do they need to best do so, if they in fact want to? Things will change, of that

we can be 100% certain. The Holistic Management process of developing a shared vision and an inclusive planning and monitoring strategy is an excellent approach to succession planning—no matter what type of business.

The openness to this idea, certainly helped in our operation with the sudden passing of my dad, Dennis Wobeser. The transition was not perfect, and we did not have everything in place, but the fact that leadership and decision making had long been shared made the day to day running of the operation as smooth as it could be. In some ways I feel like this was a gift. I want to share it with others to help them navigate the unchartered waters and have the conversations that few want to

have the conversations that few want to have. It is some of the most important work we can do for our families and those we care about.

And it was Holistic Management, the organization and the people involved, that have contributed greatly to me being at this point. I have also had the honor of being part of the HMI board and working and learning from some great board members and practitioners. HMI continues to grow and develop and make significant contributions as we evolve as an organization with our own practice as Holistic Management. I am proud to be a part of the Holistic Management journey as a practitioner, Certified Educator, and board member. We can all work to share this gift with others.



From left to right: Leah, Carter, Kelly and Mike Sidoryk, Tess and Colin Wack.