

25th ANNIVERSARY CELEBRATION!

On March 5-7, over 150 people came to HMI's 25th Anniversary Conference in Abilene, Texas hosted by HMI Texas. This event combined the HMI Texas Annual conference with HMI's celebration of its 25th year as a non-profit working to reverse the degradation of private and communal land used for agriculture and conservation, restore its health and productivity, and help create sustainable and viable livelihoods for the people who depend on it. We also used the opportunity to honor Allan Savory and Jody Butterfield as HMI's co-founders. To read more about the conference, also see the Board Chair article in this issue.

Thanks to HMI Texas for all their efforts and to all who came to celebrate and share in the learning!



Abe Collins spoke on carbon farming and how they are building six to nine inches of topsoil a year on his farm through planned grazing, Keyline, and a number of other management practices.

CONTINUED ON PAGE 2



Peggy Maddox as Director of Education at the West Station for Holistic Management and as the incoming President of HMI Texas offered her own rendition of Dr. Seuss' Oh The Places You'll Go in her tribute to Allan and Jody. Look for the next issue of IN PRACTICE for that text.



INSIDE THIS ISSUE BALE GRAZING



Tony McQuail of Ontario Canada has been experimenting with using horses to unroll bales for winter bale grazing.

LEARN MORE ABOUT THIS PROCESS, ON PAGE 9.

FEATURE STORIES

Thundering Hooves—Value Added Farming TONY MALMBERG	3
38 Years of Holistic Management on Carrizo Valley Ranch BY SID GOODLOE	6
Data Mine Grazing Affects Soil Moisture NICOLE FERRIN	7

LAND and LIVESTOCK

Simple Tools—Moving Round Bales TONY MCQUAIL	9
Waikaia Plains Station—Part II JIM HOWELL	11
Long Recovery Periods in Winter Rainfall Environments BRUCE WARD	14

NEWS and NETWORK

Book Review	10
From the Board Chair	15
Readers Forum	16
Development Corner	16
Grapevine	17
Certified Educators	18
Marketplace	20

In Practice

a publication of Holistic Management International

Holistic Management International works to reverse the degradation of private and communal land used for agriculture and conservation, restore its health and productivity, and help create sustainable and viable livelihoods for the people who depend on it.

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Africa Centre for Holistic Management

Tel: (263) (11) 404 979 • hmatanga@muweb.co.zw

Huggins Matanga, Director

The David West Station for Holistic Management

Tel: 325/392-2292 • Cel: 325/226-3042

westgift@bugbes.net

Joe & Peggy Maddax, Ranch Managers

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Holistic Management International, 1010 Tijeras NW, Albuquerque, NM 87102, 505/842-5252, fax: 505/843-7900;

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25th Anniversary Celebration

continued from page one



John Hackley as the outgoing President of HMI Texas also took an opportunity to present Allan and Jody with gifts from HMI Texas for their years of service to the Holistic Management network.



Jody Butterfield shared with conference participants the early years of Holistic Management.

Joe Morris (left) and Doc and Connie Hatfield enjoyed one of the many opportunities for socializing at the conference.



Thundering Hooves—

Value Added Farming

by Tony Malmberg

In the Pacific Northwest, Joel Huesby's ancestors have farmed and ranched for 100 years in the wake of Lewis and Clark's historical voyage down the Columbia River. As a boy, Joel Huesby worked for his uncle picking up hay bales in the Columbia Basin and riding summer ranges of the Blue Mountains. The family practiced traditional commodity production, primarily wheat, hay, and cattle. *IV PRACTICE* May 2005 told the story of how the Huesbys moved away from commodities toward adding value to their products. A big step in that adventure was to vertically integrate by slaughtering, processing, and marketing their products. They were working to balance volume, product quality, and their desired quality of life. They had just gotten approval on a federally inspected mobile slaughter facility as a means to achieve this balancing act. That story left us with Joel saying it was just beginning to payoff as a result of planning, and thinking on ways to move toward their holistic goal.

Cropping & Livestock

But I wanted to know “why” they made some of these early decisions, so I drove to Touchet, Washington for a visit. As I dropped out of the Blue Mountains and looked out across the Palouse Prairie and the Walla Walla valley, wheat fields stretched as far as the eye could see. Tractors were bigger than the farm house and windowless barns stared blankly—tottering in a last gasp before their demise. Biodiversity means a couple varieties of spring or winter wheat and the ever-present Russian thistle tumbling until captured by an occasional stalk of kochia. Fences disappeared along with any need to repair obsolete barns for livestock. Ephemeral streams are barely recognizable with uninterrupted crop rows crossing and stretching on to the next horizon.

No-till farming practice has stirred the standing dead stubble into the dirt, but the brittle environment is holding biological decomposition at bay. As I drive into the Huesby place I see a tractor smaller than the house and manure melting into the wheat stubble demonstrating an ecosystem at work.

Joel explained that we don't see livestock on wheat stubble anymore because years of breeding wheat for grain has resulted in a shorter stalk with higher lignin content to keep the wheat from lodging. Specialization has made the waste material nearly useless to a grazing animal. Joel's organic wheat has a more palatable stalk. His rotation practice follows spring wheat with winter turnips and the next spring with a high quality annual rye grass. By integrating livestock with cropping systems, Joel also benefits from weeds like lambsquarters, china lettuce, and kochia which add nutrients to the wheat straw forage, since he uses no chemicals, thus turning “lemons

into lemonade” with livestock. As a result, he takes 60 bushels of Certified Organic wheat per acre (which sells for about twice as much), from the fields and has five tons of a nutritious forage mixture left for livestock use, giving back organic matter and nutrients to the same land.

Risking Life

Joel honed his focus on life following a tragic car wreck. Another car crossed the centerline and a head-on collision killed one of his passengers and left Joel at the edge of life with little hope of ever walking again. Joel took this setback in stride, without blame or regret and simply vowed he would walk down the aisle at his wedding. He made that vow with two weeks to spare after a six-month process of recovery. Joel continues to overcome the “risk of death” by risking life. This unapologetic practice of meeting life on whatever terms it finds him permeates his being. He regularly punctuates a story with a humorous one-line analogy like “Stewardship to a preacher means passing the collection plate.” At times, Joel startles himself with his own cutting wisdom and bursts a spontaneous laugh mixed with a guffaw.

Joel always leaned toward a more natural approach with diverse community dynamics rather than the more standard specialization route and Holistic Management was simply a focusing of his previous approach to education. He attended Washington State University, took several Range Management courses, and got his degree in General Agriculture. He attempted to take as many 300–400 level classes as possible in different disciplines. He started a holistic approach to education in college and Holistic Management has directed that education toward a practice.

Joel and Cynthia went to their first Holistic



Emily, Cynthia, and Joel Huesby in front of a Concord grape vine that produced 50 quarts of grape juice.

Management seminar the same year Rachel, their first child was born. They had three more children, Emily, William, and Katelyn over the next six years. Ten years after the first Holistic Management class, they went to a multi-species grazing class, which introduced them to Holistic Grazing Planning, Holistic Land Planning, and Holistic Financial Planning. After their first course they went right home and developed a holistic goal. They have read *Holistic Management: A New Framework to Decision Making*. The best “take home” message of Holistic Management was testing decisions towards their holistic goal, the missing keys, and the planning processes, according to Joel.

Like the rest of us, his head hangs and his feet shuffle when talking about how well he has practiced Holistic Management. But also like the rest of us, Joel and Cynthia are more aware of their desired quality of life, the means of production they must have to achieve that desired quality of life, and the future resource base required to provide for this means of production.

Where's The Payoff?

The first step towards adding value to their farm diversity resulted from Cynthia bringing a couple of chickens to the local farmers market as advertising for on-farm pickup of processed chickens and selling them for \$1.75 per pound. Cynthia was motivated to do this after attending a Western SARE conference in Portland where she heard Joel Salatin speak, and by the desire to find a way to stay on the farm, make some money, and mostly because it was something she personally could do! This small act skewed the course of this

CONTINUED ON PAGE 4



Thundering Hooves—

Value Added Farming

continued from page three

century family toward multiple enterprises and leaping feet first over the Cascade Mountains and landing in the middle of Seattle's high-end specialty food market.

The future resource base necessary to achieve their holistic goal meant growing their customer base; they needed more volume to spread fixed costs. Like many of us seeking to expand an enterprise, the financial weak link becomes a ping-pong game between product and marketing. By this, I mean that when we address a marketing weak link, we may discover our product lacks the quality required to grow our market. This is what happened to Joel. Using someone else's custom butchering plant created a product logjam.

So what do you do? By addressing the marketing weak link, Joel clarified and better understood their customers' desire. To overcome the product logjam they purchased a Custom Exempt farm slaughter butcher shop and turned it into a federally inspected processing establishment. With this added complexity to their whole, they are able to manage a tension between their ever-changing marketing weak link and product weak link.

This is where we left the Huesbys' back in '05, with Joel saying things were just beginning to payoff. I asked him if they did. He told me they hadn't and that is the point they are at now, with things just beginning to payoff.

Joel explained as their volume grew, new problems began to stack higher than the local Blue Mountain horizon. As reported in the May, 2005 story, a gross profit analysis revealed that they needed to sell more than just two live chickens to make the direct marketing profitable. In fact, they needed gross sales of \$1,500 per farmers market to keep their marketing enterprise profitable. To do this they needed larger markets and headed west, over the Cascades.



Joel says it's amazing how much value can be created from sweeping out an old warehouse and moving in a little equipment. Of course the real value in the Thundering Hooves fabrication room is the employees who must have a varied skill set to handle the diversity of species and custom cuts.

All in The Family

Pulling back the Cascade Curtain wasn't as easy as it sounds. The Cascades present a formidable physical barrier of 2,600 feet (86m) of heavy winter snows, a geographical barrier of a 600 mile round trip, and a social barrier. The social barrier of connecting a conservative-country producer with a more liberal-city consumer mentality may have made cracking this market totally out of the question if it hadn't been for Keith and Clarice Swanson, Joel's sister and brother-in-law.

Keith was a high school English teacher and their marriage brought Clarice into an urban social and physical setting. With one foot in her country upbringing and another in her husband's native Seattle, Clarice began building a cultural and administrative bridge. She was instrumental in getting the King County health department to approve a variance, permitting meat sales at farmers markets. Clarice told the Thundering Hooves story and they became the first farmers to direct market meat in Seattle.

They began improving their marginal reaction with a strategy for each family member to attend four or five different farmers markets per week. By spreading one person over several farmers markets

they achieved their \$1,500 per person volume necessary to keep the marketing enterprise profitable. Even more critical was collecting the email address of customers and potential customers to serve as a core contact list to grow their market.

The Swansons purchased a neighbor farm house and moved back to the land and a more active role in ownership and management of the business. To better improve volume, Keith, director of Thundering Hooves marketing and communications, developed neighborhood-buying clubs, where they deliver every two weeks. Members login to Thundering Hooves website www.thunderinghooves.net and place their order for delivery. This tactic greatly improved their efficiency in two ways. First, they only deliver what has been sold. This eliminates the need for loading pounds of meat back into coolers and taking home again after a farmers market is finished. Second, they bring enough supply for what the buyers want and avoid turning customers away empty handed. The buying clubs also lengthen their season beyond the short farmer market window.

To further leverage this tactic Keith has devised a 20 percent discount for first time buyers. This allows his present customers to become his sales force and farm new customers. Keith says the buying clubs now move 55 percent of their meat, with restaurants and the meat shop accounting for 30 percent and 15 percent respectively.

Their customer, as defined in their future resource base, pulls the chain of production. Their weak link may change, but Joel is adamant about keeping the future resource base pulling and not trying to "push" a product not desired by their market. Joel snaps, "We are merchandizing a product that our customers desire. We are not dumping a commodity that only a few order buyers bid on." He goes on to explain this begins



The Huesbys have created healthy ecosystem processes with their integration of livestock and cropping, as evidenced by manure decomposing and litter incorporating into the soil.

with sound land management practices and ends with a marbled cut of meat. It means a steady supply stream and quality presentation. This level of vertical integration means different levels of specialization and committed employees. It didn't matter if many of these were family because whoever was providing this skill and commitment was part of their future resource base necessary to supply their product.

The Meat Cutting Business

Their holistic goal called for paying their employees \$10-\$16 per hour—better than the mega-volume, industry packing plants, but Thundering Hooves model requires more skill sets to make more than one cut from a carcass. In addition to knowing how to create several retail cuts and various steaks, they need to know how to fabricate and process turkeys, chickens, pigs, sheep and goats as well.

Joel explains the meat cutting skills can only be learned by working with a master. Their master meat cutter came with the purchase of the meat processing facility. The owner, Bill stayed on, with his 42 years experience of multi-species meat cutting. Joel said he is key to training and teaching the next generation of butchers for their business. It takes a minimum of two years for a butcher to become skilled in all cuts across species. Joel says many of the crew changes places so anyone can step in if someone is hurt or gone.

Bill also provides a critical link in communication between labor and management. In one case a consultant convinced Joel they needed to produce more product with less overhead. Joel began cracking the whip to speed up the processing chain and released an employee. Employee relations cracked as the rest began looking over their shoulder and wondering who would be next. Ramon, the best boner Joel has ever seen was the most offended. Bill brought the concerns to Joel's attention.

The employees' attitude changed. Alejandro said they no longer felt valued or trusted. Joel quickly learned to "eat crow," apologized and reinstated a work environment balancing the need for employees' desired quality of life with measurable productivity benchmarks. They shifted their compensation to an incentive based plan, which they are still refining. With more empowerment, employees have responded to new challenges.

Enter Christopher. A former Seattle sous chef, he speaks the chef lingo and yields his knife as an artist flashes a paintbrush. His artisan cuts deliver an idea-inspiring chef's potential, like Michelangelo's Sistine Chapel elevated the grandeur of future generations. His garlic-lamb sausage and standing rib roasts nurture Seattle's Slow Food dinners and wine tasting events. This

kind of attention beyond customers' needs has enabled Thundering Hooves to grow the best Pacific Northwest restaurant markets.

They must be getting something right about creating their desired quality of life because Chris Hyland, financial administrator and environmental director of Thundering Hooves, left a better paying job at the Army Corps of Engineers for this job. He was Project Manager for the recovery of in-stream flows in the Walla Walla river basin and for the restoration of salmon runs.

Joel explains, "The culture of the organization he left was something akin to perpetual study and constipation if you will. Chris wanted more sense of purpose and direction, where he could have a direct impact on environmental restoration. He found that with us."

Even with employees and owners giving up income for a better quality of life, they have more costs than commodity meat processors. Their lesser-volume business model meant giving up income for much of the offal. Combined with higher pay for skilled butchers, their costs were higher than the industry standard right at the get-go. Joel is quick to point out they are not competing against the big packing plants because they are marketing to a different customer. That market addresses a niche that appreciates quality, food safety, food security, community, ecology, the environment, local economy, and a community based work force.

Local Food Systems

Thundering Hooves benefits from a different customer base in other ways too. A 174-acre (70-ha) neighbor ranch came up for sale and the seller was negotiating with a "slash and burn" kind of guy seeking to divide the place into



Sign in front of Thundering Hooves Meat Shop to draw in customers. 55 percent of their customer sales is from neighborhood buying clubs.



Clarice and Veronica in Thundering Hooves cold storage room. Each row is a different species of meat. This level of organization is critical for effective customer service.

ranchettes. Joel wrote up a proposal and hand-submitted it to the Puget Consumer Cooperative Farmland Trust, to purchase the property and lease it back to Joel. They agreed and Thundering Hooves will have the opportunity to purchase the farm in 16 years, with a conservation easement protecting it from development and insuring it will be organic.

The changes since May of 2005 have been led by a need to develop their future resource base. A growing customer base, a committed employee base (6 family, 10 non-family), and a larger land base has positioned them to fine tune the balance in seeking their desired quality of life. Joel's religious faith drives his stewardship ethic to care for "that which is not ours," just as Holistic Management asks us "How must we be for the next 150 years to achieve our future resource base?"

Joel's desired quality of life assumes bigger is not better. They are searching for that "sweet spot" that will harmonize all aspects of their holistic goal. There is strong demand for these lessons. In the past two weeks Joel has received emails and phone calls from Alaska, Iowa, Massachusetts, Kentucky, California, Idaho, Washington, Nebraska, Vermont, and New Zealand. Joel says the tide of demand comes from people wanting to regain control of their food systems.

Joel believes this systems approach is the next paradigm shift in our nation's agriculture. If adding value to your products could fit into your holistic goal, get in touch with Joel who has vertically integrated a desired quality of life for all involved. Joel can be contacted for speaking engagements, consulting on business design, or his upcoming book.

*Joel can be reached at
joel.huesby@thunderinghooves.net.*

38 Years of Holistic Management on Carrizo Valley Ranch

by Sid Goodloe

My relationship with Holistic Management started after I had spent 10 years on a small abused ranch that I hadn't begun to pay off. Perhaps if I had understood Holistic Management things might have been different, but in the '50s and '60s cattle prices and weather were anything but favorable.

Out of Africa

The events that led up to that relationship began while I was managing the Fort Stanton Range Research Station for NMSU. I was asked to show two gentlemen from New York what we were doing on the station so they would have some idea of how to manage cattle in a semi-arid environment. I learned that they had a contact with the Range Management Division of the Ministry of Agriculture in Kenya to try to improve ranch management there.

I had read enough about East Africa to know that it supported some of the best cattle country in the world and I had dreamed of ranching there for years. When I was offered the chance to work in Kenya, I couldn't refuse.

I arrived in Kenya in January 1967 and spent the next 2 1/2 years as the Range Management Advisor for the Rift Valley Province. During that time I made two trips to Rhodesia to visit my friend, Aubrey Mountain, who was a Nuffield Scholar and had spent time with us on Carrizo Valley Ranch. Aubrey told me of a new approach to grazing management and, at a field day near Que Que, I met Allan Savory. The subject that day was Short Duration Grazing (SDG) and the enthusiasm of the ranchers in what it was

accomplishing indicated to me that a breakthrough in land management was unfolding.

I returned a year later and spent the rest of my time there talking to ranchers who were practicing Short Duration Grazing, and I got further information from Allan about the origin of this non-traditional grazing method. I returned to Kenya and with the help of Dr. Gene Payne of Montana State, who was in Kenya at the time, wrote an introductory description of SDG for the *Journal of Range Management*. It was published in November 1969.

I returned to Carrizo Valley Ranch in 1969 and immediately began to divide paddocks, not using the cell approach, but by topography and water availability. I used suspension fences patterned after the ones I had seen in Rhodesia, and in a few months time, had at least a start on this revolutionary grazing method.

I decided to use the money I had saved while working in Kenya to go back to Texas A & M for a Masters in Range Management. While there, I taught a lab for Dr. E. J. Dyksterhuis and became acquainted with Dr. C. L. Leinweber, the head of the Range Science Department.

Allan was finally able to make it to the United States in the '70s where he found a somewhat different climate in more ways than one. I

arranged for him to visit range personnel at several land grant universities in the western U.S. This created a great deal of interest and skepticism among range scientists and research personnel. How could anything more sensible than our 3-herd, 4-pasture system come from some unknown place in Africa? In fact, as you know, the skepticism continues today.



After 38 years of exploring a variety of land management tools, Sid and Cheryl have seen great improvement on Carrizo Ranch. Holistic Management has helped them integrate those tools in the context of their holistic goal. Above is what it looked like when they arrived and the right is what they now have.



First Steps

Meanwhile back at the Carrizo Valley Ranch, I was sticking to the basic principles of Short Duration Grazing and noticing a general improvement in range condition and biodiversity. In the late '70s SDG became the Savory Grazing Method, and later the Center for Holistic Management was created in Albuquerque. It was about 1980 when I first heard the term "Holistic Ranch Planning." I read about Jan Smuts and his belief that Nature operated holistically and I began to realize that I needed to look further down the road and consider all the natural resources available on Carrizo Valley Ranch. I had been focused mostly on beef production without planning how to use other sustainable sources of income. I needed to define my goals more clearly and move forward to attain those goals.

As far as the quality of life statement is concerned; it is pretty hard to beat ranch life as we knew it if you could make a living doing it! Part of my quality of life that was very important to me was to be able to have my family take part in all of the ranch activities such as branding in the spring, shipping in the fall, cattle movement, etc. Those goals have been reached, although I must admit jobs like fence-fixing, windmill work and other grunt work sometimes get put off until Cheryl and I decide to get it done.

Stockpiling Rain

My primary production goal was to grow as much grass as the rain would allow and control erosion. This led to the realization that there were too many invading trees that were not only suppressing grass growth, but causing sheet and gully erosion. It has taken 50 years to achieve that objective or goal and now we are able to keep much of the rain that falls on the ranch—on the ranch! I also realized that the cattle that were on the ranch at purchase didn't fit the environment, so in 1965 I changed to a breed that had no eye or udder problems and could handle the cold, snowy weather better. Our primary production goals have been met, although there is always room for improvement.

Our future resource base description describes us as being good land stewards, and over the years I have found that it requires at least five principles:

- 1) Know the history and climax condition of your ecosystems
- 2) Manage those ecosystems in a holistic



Cheryl and Sid Goodloe have diversified their income by direct marketing their beef and selling bunts and firewood.

manner—taking into consideration all parts as you plan for a profitable enterprise (in our case, livestock, wildlife, aesthetics and recreation)

- 3) Move animals—Short Duration Grazing, Savory Grazing Method, Planned Grazing—whatever you do—*avoid continuous grazing*
- 4) Monitor your land use and be flexible enough to change direction and re-plan
- 5) Share your experience with others (workshops and tours)

We have used a wide variety of vegetation manipulation methods to accomplish our landscape goal and sustain what we want to produce. They have included: chaining; dozing and piling; seeding; fire; hand grubbing; and herbicide. We purchased a small saw mill several years ago to utilize thinned Ponderosa. We were able to build a log home using our own timber and logs.

Considering all of the parts of our ecosystem brings us closer to a properly functioning watershed which, in turn, allows us to focus more intently on riparian rehabilitation. Our philosophy is to defer the riparian area during the growing season and flash graze it during the dormant season. This compliments our Planned or Short Duration Grazing in a small way. A lush riparian zone is also attractive to all forms of wildlife, and when combining that with uplands in near climax condition, fee hunting becomes a major player in the overall profitability of the ranch.

An established ingredient in our holistic approach to natural resource use is a garden and orchard that furnishes fresh vegetables and fruit for us and our Saturday morning Farmers Market in Capitan. We also market grass fed beef for a growing clientele. Firewood is also a significant source of income as we return the overgrown areas to an open woodland or savanna.

We feel that if our way of life is to survive in a world drifting away from hands-on agriculture, we need to offer the public a chance to experience some of the history that made us what we are today. In October of this year we are marking our 20th anniversary of the Lincoln County Cowboy Symposium that includes everything western. We have the richest Chuck Wagon Cook Off in the country, western music, cowboy poetry, and 140 vendors.

There is one missing link in holistic ranching today. If we are going to do all the things that provide us a desired quality of life, an aesthetic, productive landscape and economic sustainability, *where is the permanence in what we have accomplished?* Do we want our grandchildren to someday drive by a new subdivision and say to their friends, “That used to be my Granddad’s ranch?”

Carrizo Valley Ranch is protected from that fatal end with a conservation easement that provides our heirs with the opportunity to continue ranching and raise their families in a rural environment where they will learn a work ethic, dependability, innovation, and a love for the land.

I consider myself extremely fortunate to have been exposed to the beginning of a new and dramatic approach to range and livestock management. Although I don’t always agree with Allan, his holistic approach has had a positive affect globally as well as on Carrizo Valley Ranch. It’s been a fun trip and I appreciate the ride. I have been able to connect the dots over a half century on a property large enough to offer meaningful results. I am very grateful for that opportunity.

Sid and Cheryl Goodloe live near Capitan, New Mexico. They can be reached at: sralt@hotmail.com.

The Data Mine

Grazing Affects Soil Moisture

by Nicole Ferrin

An article in the January/February 2007 issue of *IN PRACTICE* by Keith Weber, Director of Idaho State University’s (ISU) GIS Training and Research Center, discussed the GIS Center’s use of Holistic Management methods in land cover change research in southeastern Idaho. At that time, we had just begun a project studying the effects of various grazing treatments on rangeland health at ISU’s O’Neal Ecological Reserve, a study site located 30 miles south of Pocatello. This 250-acre (100-ha) reserve was donated to ISU’s Department of Biological Sciences by Robin O’Neal. During this four-year study (ending February 2010), total rest (TREST), rest-rotation (RESTROT), and holistic planned grazing (HPG) treatments are being used to determine the effects of each treatment on soil moisture content.

We are using soil moisture to determine rangeland health because, in a semi-arid area like southeastern Idaho, water is the limiting factor. Soil moisture typically has a direct relationship with soil type and ground cover (more plants means lower water content in the soils as it is all in the plants) and because of this, it was important that these two factors were consistent across our treatment pastures if we were to determine whether grazing treatments also had an effect on soil moisture. We wanted to know if animal impact (grazing, trampling, and breaking of soil crust) had a measurable effect on soil moisture and whether this effect was positive or negative.

In this study, we are using Geographic Information Systems (GIS), GPS, and remote sensing satellite imagery to examine specific drought effects relative to livestock grazing/rest treatments and bare earth exposure, and to model, monitor, and forecast rangeland health. Before beginning these various treatments, field data and two-inch aerial photography were used to determine pre-existing ground cover by estimating the proportion of shrubs, grasses, litter, and bare ground present before beginning the experiment. At that time, there were no differences in vegetation cover between the three planned pastures except for a higher shrub cover in what would ultimately become the TREST pasture. Our sampling also confirmed that the soil type was homogenous throughout the study area (it is a shallow, well-drained soil over basalt flows).

After collecting our preliminary data, we fenced in the treatment pastures during the summer of 2005. We then installed 36 soil moisture probes at a 3.9-inch (10-cm) depth,

CONTINUED ON PAGE 8

Grazing Affects Soil Moisture continued from page seven

with twelve in each pasture. These sensors have an accuracy of $\pm 2\%$ Volumetric (rather than Gravimetric) Water Content (VWC) after calibration. Soil moisture (%VWC) data was collected every six hours beginning in June 2006, calibrated to achieve a high level of accuracy ($R^2 = 0.997$), and used to calculate the mean soil moisture for each day and each week of the growing season. We also set up a weather station in the center of the study area to record rainfall, rain rate, temperature, wind speed and direction, humidity, and ultraviolet as well as total solar radiation inputs. Using these data, we could determine how the soil responded to rainfall in each of the treatment pastures.

The O'Neal study area had not been fenced up to and including 2005 and had been grazed uniformly (rest-rotation) as part of a BLM allotment with 300 head of cattle being allowed to graze for one month (in May) for over 20 years. After the areas were fenced, a 3,750-acre (1,500-ha) rest-rotation (RESTROT) pasture was formed which continued to be grazed by 300 head of cattle for one month (May of each year), the 27.5-acre (11-ha) holistic planned grazing (HPG) pasture was grazed by 125 head of cattle for six days (the first week in May), and no livestock grazed the 32.5-acre (13-ha) total rest (TREST) pasture. The two grazed pastures differed in both duration and intensity of grazing: the RESTROT pasture had a lower stocking density of 6 animal days per acre while the HPG pasture had a much higher stocking density of 36 animal days per acre.

Data from each growing season (April 1-August 30, 2006-2008) were used to make comparisons between pastures, within pastures, and between all effects. The study area was sampled annually, each summer, to determine vegetation cover. We used 50 randomly located plots per treatment with two perpendicular 10 meter transects per plot, and 100 observations per transect in order to sample the ground cover within various 10m x 10m satellite pixels. We used hoop sampling to make forage estimates, and collected photo points as well as satellite imagery.

Table 1: Soil Moisture between Pastures

Treatment	%VWC		
	2006	2007	2008
HPG	23.3	44.1	45.8
Restrot	19.7	34.8	34.7
Trest	19.2	31.9	29.8

2007. The daily average soil moisture of the sensor readings was used to determine the average water content for each pasture. There were, of course, some differences between the readings within the pastures, but the difference between pastures was much greater. In the first year (2006) the RESTROT pasture had a higher percentage of VWC than the TREST pasture, by a margin which increased in both 2007 and 2008 (0.5 to 4.9 %VWC from 2006 to 2008). The biggest difference, however, was in the HPG pasture, which had a significantly higher VWC than both of the other pastures. In 2006, it was 3.6 % higher than the RESTROT, and 4.1 % higher than the TREST pasture. This difference increased in 2007 and 2008, reaching 11.1 % higher than the RESTROT and 16 % higher than the TREST pasture during the 2008 growing season. See Table 1 and Figure 2.

Some of these differences in soil moisture can be attributed to environmental effects. For example, soils in week 2 (in the spring) were wetter than in late summer, week 18. Soils were also wetter most weeks in 2008 when compared with the same weeks in 2007 because it was a wetter year. The environmental effects on each of these pastures, however, have been the same, so we can conclude that the differences between pastures is a

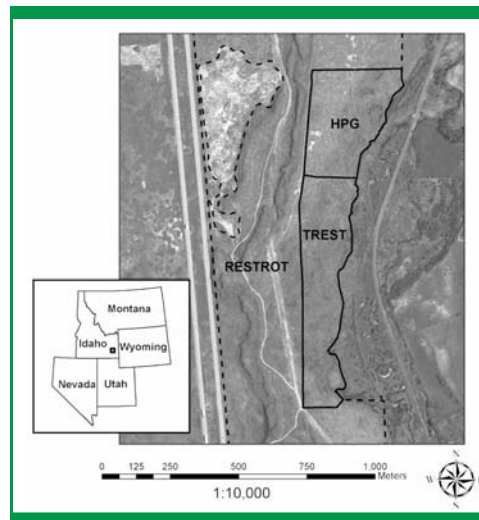
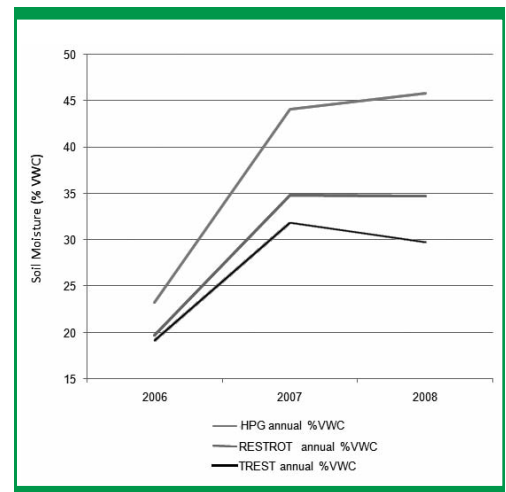


Figure 1.
Location of the O'Neal Study area in southeastern Idaho.

Figure 2.
Soil moisture levels in the three pastures from 2006-2008. Note: the low soil moisture levels shown in 2006 are because sampling began in the summer following the wettest part of the year.



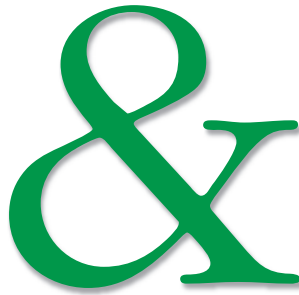
result of the treatment effects and that holistic planned grazing yields a higher water content in the soil compared to rest-rotation or total rest treatments.

Why the difference? We have attributed it to both litter and plant recovery time. In the HPG treatment pasture, there was more litter because the concentration of cattle was six times greater than that found in the RESTROT pasture. This litter affects soil moisture as the trampling of the cows breaks the crust of the soil and pushes plant litter into the soil. This litter acts as mulch, giving the soil more organic matter so that it can hold water better and also insulating the soil so that it is cooler and less water evaporates.

By grazing for a very short period of time in the HPG pasture, the plants were allowed time to recover, as the cattle only have time to eat the plants once, whereas, in the RESTROT pasture, the plants could be repeatedly eaten just as they were starting to recover. By allowing the plants to recover after being eaten once, they can reseed and send out stronger root systems. Six days of grazing at a high animal density appears to benefit rangelands, but extending the number of days of grazing will not give plants time to recover. As the lower soil moisture in the RESTROT pasture shows, overgrazing of plants can be detrimental to rangelands.

Nicole Ferrin works at the Idaho State University GIS Training and Research Center. This study was made possible by a grant from the National Aeronautics and Space Administration Goddard Space Flight Center and support from the Idaho Delegation. To learn more about the GIS Center's research, please visit <http://giscenter.isu.edu>.

LAND & LIVESTOCK



Moving Round Bales— *Meeting Place Organic Farm*

by Tony McQuail

This past winter feeding season we've done some experimenting with round bale feeding. We are in a non-brittle area, but I was persuaded to try feeding round bales and experimented with storing some inside and others outside where they were to eventually be fed. I was able to get pretty good utilization of bales stored inside which were placed up against a fence and had a portable fence positioned in front of the bales so that the cattle had to pull out mouthfuls and eat them without being able to push or trample the bales.

I also fed some of the bales that had been stored inside out in the field. Our snow came early this year, and I ended up skidding them out with the horses on a stone boat. The horses did a pretty good job of cleaning up the bales with just the strings off them but I also started experimenting with

unrolling them. When we started moving the cattle out to where we had stored the bales outside, I wanted to unroll the bales to spread the impact and the manure and litter over a wider area. I also wanted the animals to have feeding access to a limited amount of hay in a larger area so all animals would have access. When I had fed individual bales without unrolling them in the past, our clay soils had suffered from too much animal impact during thaw periods.

After trying various ways of unrolling the bales we came up with a fairly low cost approach for this year. I bought a hardened steel digging bar and got some large steel washers which I filed out so that they would fit on the hexagonal shaft of the digging bar. I used a chainsaw file and created six little half circles around the inside of the washer which lets it slide onto the shaft but not turn. I use two light logging chains on the shaft and have a spreader between the chains and the double tree

CONTINUED ON PAGE 10



Here is the bale partially unrolled. The sleigh is in the back ground—the doubletree they are pulling has a logging hook on it which attaches to a chain on the sleigh so it is quick and easy to unhook them from the sleigh and then use the same double tree and hook to attach to the chain on the bale. When it is finished rolling out, we just unhook from the chain and put the horses back on the sleigh. We take off the hose clamp and washers from the point side and then slide the digging bar out of the bale core put the washers and clamp back on the bar and toss the bar, chains and spreader back in the sleigh.



Here is the point of the digging bar pushed through the bale. The chain hook is slipped over the bar, then the steel washer followed by a plastic fence insulator "nut" which was a good size to go on the bar and provide a little extra washer between the steel washer and the water hose clamp which I tighten down with my pocket knife screwdriver blade to keep everything from slipping off the digging bar. On the other side of the bale at the start of the process of pushing the bar through, I position a washer on the bar—then the chain hook and push the point into the center of the bale.



Moving Round Bales

continued from page nine

connected to my horses. The 2" x 4" (50 mm X 100 mm) wooden spreader holds the chains apart, which reduces the bale running up on the chains or getting tangled in them. (This does work best on level ground)

I have an old hay knife which I use to cut the strings on the bale and in a couple of inches—then I peel back the layer of hay which has gotten musty and frozen in our moist climate. This makes it much easier to pull the bale and get it rolling. If I don't cut this layer and get it loosened off the bale, the bale is often frozen down and doesn't come easily. The bales unroll if I pull in the opposite way from which they were rolled up. The bales stored outside often have frozen edges which makes it necessary to stop and pull that apart to keep the hay unrolling.

Our mentor, Don Campbell, also had this suggestion as a way to make a low cost bale unroller. "When I was using horses, I had a U-shaped piece of two-inch (50-mm) square tubing that hooked to the sleigh by a pin through the bench. The U was long enough to reach the middle of the bales. There were holes at the end of the tubing where I could push pins into the bale. This worked very well for rolling bales. When we didn't want the bale to roll, we had a piece of metal we laid on the ground. It was hooked to the sleigh. The bale rolled on this, and we could move the bale with no unrolling. This is a poor description (the picture I tried to draw was even worse), but you are creative and this might give you some ideas." The rigidity of his device would be an improvement over the chains and not having to push the pins all the way through the bale would also be a help. Having it attached to the sleigh would keep it from running up on the horses.

This coming year I'm planning to store any round bales inside a shed and move them to where I want to feed them as I need them. We are just too blessed with moisture to get away with the field storage used on the prairies but it was an interesting experiment. I'm also curious to see how the areas respond to the increase in winter manure, urine, and trampled hay. Maybe if they respond really well I'll be less anxious about the hay that is spoiled by our wet weather and see it as a soil amendment rather than lost feed. If this proves to be the case, then infield storage might look more appropriate.

Always something to monitor and a paradigm or two to challenge with Holistic Management.

Tony McQuail can be reached at: mcqufarm@burontel.on.ca or www.meetingplaceorganicfarm.ca.



A regular T-bar post pounder made out of an old hydraulic cylinder and an 8-inch (200-mm) solid steel plug was used to pound the posts into the frozen soil under the snow.



After the fence posts were placed, then two people were used—one to drive the horses and one to hold the roll of wire—control the tension as it was paid out and put it in the insulators.

Book Review

by Ann Adams

Revolution on the Range: The Rise of a New Ranch in the American West

By Courtney White

Island Press • pp.228 • ISBN 1-59726-174-2
\$24 • www.quiviracoalition.org

Having read a number of Courtney White's essays in both the Quivira Coalition newsletters and in other publications, I was curious to read *Revolution on the Range*. I was glad I did. Not only did I learn more about many folks within the New Ranch/Holistic Management movement, I also deepened my understanding of why so many of us are involved in this journey to heal the land.

The "revolution on the range" referred to in

the title is a new way of engaging with the land. As Courtney points out, the conflict between ranchers and environmentalists about land health is not one of ethics, but of approach. Both parties have a land ethic from which they operate, but the environmentalists tend to prefer the tool of rest while ranchers prefer the tools of grazing and animal impact. However, with new information about how to improve the application of those tools through the principles and practice of Holistic Management, ranchers having been getting consistently good results for over 25 years.

The meat of *Revolution on the Range* begins with a tour of four ranches that epitomize The New Ranch: The James Ranch near Durango, Colorado; The Allen Ranch near Hotchkiss, Colorado; Twin Creek Ranch near Lander, Wyoming; and Red Canyon Ranch near Lander, Wyoming. These holistically managed ranches set

the stage for the environmentalist that assumes ranchers could care less about land health. The "revolution" is good management practices; it is the desire for thriving communities where adult children can make a living alongside the matriarchs and patriarchs and people don't have to choose work over family.

Not since *Beyond the Rangeland Conflict* and *The Gardeners of Eden* has someone articulated the stories of these land stewards with such competence and passion. If you have someone on your shopping list that you want to educate about the important work of healing land with livestock and reducing the environmental conflict in the Western U.S., this is the book to buy. The quote from Rumi in the prologue of *Revolution on the Range* says it all: "Out beyond the ideas of rightdoing and wrongdoing is a field. I'll meet you there."

Waikaia Plains Station—Part 2

by Jim Howell

Since writing Part One of this story (which appeared in the previous issue of *In Practice*—“On Waikaia Plains Station—Developing a Cuisine of Stewardship”), two more months have elapsed and the learning has definitely continued. I’ll delve into those details shortly, but to briefly recap—my family and I are in Southland, New Zealand, collaboratively managing Waikaia Plains Station, along with Andrew and Felicia Bowmar, the current generation of Bowmars entrusted with the stewardship of this incredible place.

As alluded to in Part One, this corner of New Zealand is endowed with a combination of attributes that, in my experience, is unequaled (in terms of profitably raising livestock) anywhere else on earth. Here in Southland, free sunshine rains down on a uniquely blessed landscape capable of producing prodigious amounts of the world’s highest quality forage. It’s basically flat or gently rolling, doesn’t get too cold or too hot, and enjoys possibly the world’s best livestock production infrastructure (from great roads to excellent export markets to extremely helpful stock agents). Compared to countries in much of Africa or South America (and, in many respects, even the United States), conducting business is just incredibly simple, efficient, and organized. It is a privileged environment in which to truly thrive via the capture of free sunshine.

Economics & Markets

So, with that background and recap, let’s delve into how things are going. From 2002 through last year’s growing season, most of the farm’s protein production left in the form of grass-finished bull beef and finished lambs. Currently we continue with a small herd of 400+ ewes, but our primary enterprise is now “dairy support” grazing.

What’s dairy support? It encompasses the growing out of dairy replacement heifers on contract, as well as the custom grazing of dry dairy cows through the winter. We are primarily engaged in the former, with about 3,050 heifers (both coming yearlings and bred coming two-year-olds) currently on hand, plus about 150 dry cows.

How did we arrive at this decision? Well, when Bruce Ward and I came on our first visit exactly a year ago (March of 2008), Andrew didn’t want us to feel boxed in by past practices, and asked us to objectively analyze a range of potential livestock enterprises. We looked at both owning sheep and dairy bull beef, but also evaluated growing bulls out on contract with the processing company, where they own the animals and pay a grazing fee based on weight gain. We also worked through the economics of the dairy support opportunities, which a year ago, at the peak of the global bubble in milk prices, were looking exceptionally good. At the time, bull beef finishing looked awfully good as well. The Waikaia Plains weak link last March (early autumn in the southern hemisphere), however, was a severe lack of forage due to an unusually dry summer in 2007-08, and a stocking rate that wasn’t adjusted in time to build a wave of grass going into winter.

So, we elected to largely destock most of the remaining bulls on the farm through the balance of the fall of 2008, let the grass grow as much as possible, and restock at a conservative stocking rate the following spring. Our projections indicated that bull beef still looked like the most economically promising alternative, and conversations with our stock agent indicated that, due to the extreme lack of forage over most of the South Island, we’d still be able to source



Three month old calves are received in early December and then grown out exclusively on pasture to 21-23 months of age, at which point they return to their owners as in-calf springing heifers, ready to begin milking. As you can see, most dairy animals in New Zealand are crossbreds of Friesian, Jersey, plus a little Ayrshire and Brown Swiss.

young bulls at the right price in late winter/early spring. Well, things didn’t exactly turn out that way. Young bulls got red hot and were largely snapped up by late June—long before we ideally were ready to load back up.

Our next most profitable looking option was this dairy support opportunity, so Andrew got on the phone with a handful of stock agents that deal in that industry, and we realized that the numbers were even better than we’d projected. Not only were the prices being paid for dairy heifer grazing higher than we’d projected in our previous scenarios, but information provided by our stock agents indicated that the amount of daily dry matter we had to allocate to these heifers was substantially less than we’d assumed. This meant that each pound/kilogram of forage dry matter, when put through a dairy heifer, could actually generate a gross profit as good as or better than our dairy bull projections, and on top of that, we wouldn’t have the risk of laying down hundreds of thousands of dollars of borrowed money in order to buy bulls. And even more appealing, if we booked the heifers through a reputable stock agency (and paid them a commission), they would invoice the heifer owner and guarantee an on-time payment to us. It seemed like a heck of a good deal to me.

Once Andrew put the word out, opportunities started to materialize immediately. Through the late winter and early spring, the farm initially stocked up with about 1,000 heifers just completing their first year of age. Since we’ve been here (starting in mid-October, the beginning of the spring explosion of pasture growth), we’ve brought on an additional 800 yearlings and 1,200 freshly weaned heifer calves, plus 150 dry cows—essentially all on contract through three different stock agencies. The heifer calves arrive at three months of age, just weaned off milk and meal, and are expected to carry on growing on pasture alone. Most of these calves arrived at an average weight of about 220 pounds (100 kg), but ranged from 120 to 290 pounds (55 to 130 kg).

We then grow them out to 21-23 months of age, at which point they return to their owners as 880-990 pounds (400-450 kg) springing heifers ready to begin milking. From the date we receive them to the beginning of

CONTINUED ON PAGE 12

their first winter (typically December through April—June through October in the northern hemisphere), our custom grazing fee has been NZ\$5.50 to \$6.00 per heifer per week (net to us, after paying the stock agent's commission). That's right—these fees are per week, not per month!

From May till the following May, the price/week goes up to \$9.00, and then if the heifers are kept through their second winter to 23 months of age, the price goes up to \$15/week in May, and \$25-30/week in June and July. Those are the current prices anyway—the New Zealand dairy industry has been severely affected by the global downturn in milk prices, which is starting to trickle down to guys like us that grow out heifers. For the coming season, our stock agents think that our yearling grazing fees will drop to between \$7.20-8.50/week, net to us (all of these prices are in New Zealand currency, which, over the past year, has ranged from US\$.50-.80 per NZ dollar).

At those prices, Waikaia Plains still makes an excellent profit. And at those prices, other livestock enterprises (such as growing out beef steers or bulls on contract, or finishing lambs) begin to compete with dairy heifer grazing. So based on supply and demand and the ease with which most New Zealand graziers can shift from one class of livestock to another, we see this \$7-8/week per yearling as the likely floor.

Resilience and Balance—From the Soil Up

And this brings us to the rest of the story. Remember that we're striving to develop a grazing model that is holistically resilient. Under our current production model at the above grazing fees, the farm is economically bullet proof, but what about ecologically or socially? If we followed the typical New Zealand model of industrial pastoralism, based on high fertilizer inputs, massive amounts of forage conservation in the form of silage, baleage, and hay, extensive use of forage crops (mainly brassicas—turnips, swedes, rape, and kale) for winter grazing, and frequent "pasture renewal" (which means plowing perennial pasture and starting over every five to six years with the most recent cultivars of ryegrass and white clover)—then these grazing fees would just barely cover costs, at best. It is assumed in New Zealand that all those things have to be done to maximize forage dry matter production per hectare, and to maintain these high levels indefinitely.

But, as alluded to in Part One of this story, those assumptions are seriously flawed, and following such a model creates all sorts of problems, from biologically inert soils, to rampant soil erosion, to ground and surface water contamination, to the destruction of biodiversity, to suboptimal animal performance, to nutritionally inadequate food. But, if you elect not to do all those things, some other positive model must fill in to replace all of this tinkering and meddling and inputting.

Andrew and I just attended a seminar by Jerry Brunetti, the Pennsylvania-based agricultural consultant and founder of Agri-Dynamics. Brunetti made a fascinating observation. He said that as he gets older (and presumably wiser), he is starting to believe that if we can manage for healthy, balanced soil biology (which includes high humus levels, and the right ratios of bacteria, protozoans, and fungi), then we don't need to get too worried about anything else. He then qualified this belief by stating that, when it comes to really understanding and manipulating specific soil parameters, "We have no idea what we're doing, but we don't have to understand what we're doing, because 'nature' knows what it's doing. We don't have to 'put it together,' because it 'already is together'".

The only thing we have to really and truly focus on is building soil humus levels. If the humus is building, then we can rest assured that nature will eventually put Humpty Dumpty back together again. Yes, he acknowledges that there are inputs we can inject that can speed or enhance this process, but these inputs probably aren't necessary as long as we're sequestering lots of carbon into the soil, and thus building humus.

Simply Complex

Well, that is just absolutely great news for those of us engaged in grass-based livestock production, because that is exactly what we are uniquely positioned to do. So, if we don't fertilize and make silage and continually replant our pastures, what do we do? The answer is simple—we let the grass grow good and tall, and we periodically harvest and trample it with a whole bunch of animals, over a short intense grazing period, and then we let the grass grow good and tall again. Yes, it sounds simple, but actually making it happen is possibly one of the more complex endeavors in which human beings can elect to participate.

For example, here on Waikaia Plains, perennial grasses, if allowed to get too tall, eventually lodge over and trap all the carbon in a somewhat inert layer of thatch. This hinders the carbon from getting back into the soil, and hampers energy flow by shading growth points and newly emerging tillers. So, recovery periods have to be long enough to allow the forage mass to build, but not too long. From the animal's point of view, she needs a diversity of vegetation structures and species from which to select her daily nutrient needs. Ideally, there can't be too much stem relative to leaf, and vice-versa. From an animal health point of view, the more forbs the better, but if we have too many forbs by volume, we might be giving up a certain level of pasture production and therefore income generation.

And speaking of production, to the extent we can maintain a high ratio of leaf within the pasture sward (post-grazing), the more energy we will capture during the following recovery period. But, we don't want a pasture sward composed of 100% leaf, since that will tend to create a protein excess for the animal, with a whole list of negative metabolic impacts. We also won't have any stemmy material to add to the litter bank. Since we have animals which



These yearlings (called "Rising Two's" in New Zealand) are thriving on grasses that have gone to seed in mid-January. This is an old sheep paddock (now fenced into the Technosystem), dominated by browntop (same as redtop in the US), dogstail, and Yorkshire fog. These are "unimproved" species, and are considered low production, "rubbish" grasses by the high input New Zealand pastoral model. But, if allowed to express themselves, these grasses can be fantastic producers, and actually fill a valuable niche by producing extremely well in the middle of summer, when many of the more cherished grasses, like perennial ryegrass and cocksfoot (orchard grass), slow down significantly. The cattle also love the seedheads, and brix readings indicate that browntop seeds (nasty stuff according to the conventional mindset) contain the highest concentration of soluble sugars as any other component of our pasture sward.

range in age from little weaned calves to massive dry cows, we obviously have a range of specific nutrient demands on any given day of the year, so that's another balancing act. From the point of view of optimizing animal production and therefore income generation, we want to put most of our forage production through the animal, but we also need a significant amount of material to go straight back onto the soil surface to create a protective layer of litter, as well as to feed earthworms and other soil life.

We also are attempting to build a level of pasture mass which enables us to winter via direct grazing alone, and our level of harvest per grazing period, and subsequent recovery periods from springtime onward, have a direct bearing on this wintertime pasture sward, and the associated potential winter stocking rate (which is the time of the year that our forage is the most valuable). And, since we're custom grazing lots of animals, we have lots of customers—11 at the moment—and to the extent we can keep the animals in ownership groups, the simpler it makes our lives. All of the above has to be managed within the vagaries of precipitation and highly variable growth rates through the growing season. And that's just scratching the surface. It's a lot of balancing, but if we can get the balance right, the result is resilience.

So, again, the idea is simple—the application is hard. But, our observations to date indicate that we're making progress. Part One introduced the Technosystem, which is the fencing and stockwater infrastructure within which we manage the variables of timing, frequency, and intensity of grazing and animal impact in an effort to balance all these factors and management considerations. In the process, we hope to continuously build humus levels, and through the years reap the compounding benefits of a vibrant, living soil.

Daily Moves Made Easy

Within the context of holistic planned grazing, we have started to manage with recovery periods, and pre- and post-grazing pasture masses, which are absolutely sacrilegious to the dominant New Zealand paradigm described above and in Part One. Since about the 1st of August (1st of February north of the equator), we have been managing with 60-day recovery periods (warning: none of this is meant as a recipe—remember, Southland is Southland, not Missouri, New York, Alabama, or Mongolia). The Technosystems were stocked (or, as we say, “loaded”) progressively, starting with those that had been destocked for the longest time, and therefore having received the longest recovery period (beginning the previous autumn). Until about the 1st of November, this kept our early spring pasture mass in a prime range to really capture a lot of sunlight, and our newly arrived heifers performed very well.

As the days lengthened and spring and summer advanced, our grass started to go reproductive, and we elected to continue on with the 60-day recovery period. At that point, most of our neighbors were “shutting pastures up” for silage and haymaking. We just kept letting the grass grow. Our pre-grazing pasture masses started to develop to incredible levels, with some accumulating up to 6,200 lbs of dry matter/acre (7,000 kg/ha) after just 60 days of recovery. Once seedheads started to appear, the animals immediately skimmed these high-energy sources upon entering a new break, but also had masses of high-protein leaf, and lots of balancing roughage in the form of stems. I honestly don't think I have ever witnessed such thriving and contented animals.

We have been moving the animals twice a day, which means that over the course of our 60-day recovery period, the animals are moved 120 times. Each Technosystem is comprised of 10 to 14 lanes, with two lanes allocated to each mob, so five to seven mobs (of 40 to 150 head, depending on the size of the Technosystem, size and intake of the animals, and our desired level of harvest) per Technosystem. Of the farm's 2,300 acres (930 ha), 1,250 acres (500 ha) is fenced into Technosystems, and on these 1,250 acres, we currently have 38 mobs altogether. As the animals mature and daily forage demand escalates, we adjust our stocking rate in each Technosystem to



These cattle have just moved onto their new half-day break, with the previous night's break in the foreground of the photo. These pasture masses (both pre- and post-grazing) are typical of our management since about mid-November (this photo was taken in mid-Jan.), when the grass really started growing and going to seed. Much of the fibrous residual left behind eventually works its way back onto and into the topsoil, and along with the prodigious amounts of dung and urine produced at each grazing period, will gradually build our soil biology and ecological resilience. This residual also provides valuable roughage to balance the high protein/high energy regrowth that will be present 60 days later, when the cattle return in early autumn.

maintain our pasture masses in the desired range, and to maintain optimal levels of animal performance (on yearlings, our daily gains through the spring and summer have cruised along at 1.9 to 2.2 lbs/day or .85-1.0 kg/day, and our pregnancy rates have averaged 95 percent). We have an additional one to three herds (all moving according to their own grazing plans) in the 1,000 acres (400 ha) outside the Technosystems, and basically, these herds grow and contract as we adjust stocking rates within the Technosystems.

We have specially rigged vehicles that enable us to drive over and under all the hotwires, and when we move a mob, we drive under the wire, stop when the wire is resting on the top of our vehicle, let the animals move under the wire, then move on to the next mob. When Andrew and I are working together, it takes us 45 minutes maximum to move everything, so an hour and a half a day. When working by ourselves, therefore, twice a day moves take three hours total. It's fun, easy, safe, and enables us to see all of our animals twice a day. We have a casual worker who shows up for a few hours once or twice a week. He primarily takes care of maintaining the farm lawns and gardens and miscellaneous other projects, but for the most part, Andrew and I do all the work, and because the daily routine is pretty easy and simple for one person to handle, we all can get away from the farm and take plenty of time off. So, yes, our model works socially as well.

That's it for this time. By the time I write Part Three, two months from now, we will have made it through the current growing season and will be immersed in our winter grazing plan. I'll share some more observations and insights on our grazing management, elaborate a little more on the financial, production, and ecological monitoring results to date, and maybe hint a little at what the future might hold.

Long Recovery Periods in Winter Rainfall Environments

by Bruce Ward

Recovery is a universal concept. Humans rarely make their best decisions when under work-load induced stress, especially when accompanied by lack of sleep. Have you ever noticed that the work effectiveness of young parents drops off when their sleep patterns are disrupted by non-sleeping infants and toddlers? Our working animals need recovery time, so that they can deliver useful performance. And our pastures need recovery periods in order to rebuild their root reserves, depleted following the act of grazing.

I grew up in summer rainfall zones where the predominant species were native or introduced warm-season perennial grasses and legumes. During the winter these were augmented by native annual and perennial medics, or by imported annual and perennial clovers. Over the last 15 years I have spent much more time in the winter rainfall regions of Australia and New Zealand, where the pastures are almost exclusively cool-season annuals such as annual rye grass, sub clovers, and various other annual legumes. Typically, these pastures also contain high components of barley grass (*hordeum leporinum*) and other low successional annual species. In this article I am basically referring to the so called “Mediterranean” environments and their near relatives.

Falling Short

As I began moving around these areas I quickly discovered that received wisdom included the following key components:

1. One should approach the expected autumn (fall) seasonal break with low soil cover.
2. One should apply phosphate-based fertilizers each year, to support maximum sub clover productivity.
3. One should keep post grazing residuals low, as more mature (but still growing) vegetation compromised individual animal productivity.
4. One should set aside pastures for hay production, in order to fill the feed shortfall that, under this regime, usually commences between 30 and 45 days after the longest day.
5. In addition, one should either produce or buy in oat or lupin grains to further subsidize this annual feed deficiency.

I also discovered that this model was rapidly sending people broke.

At the time, on average, people were spending on fertilizer a bit more than A\$100 per live calf, per year. They were selling the calves for about A\$250. The residual A\$150 fell short of their remaining variable and fixed costs by more than A\$100 per calf. Something had to change and fast.

Kicking the Fertilizer Habit

Working with a group of farmers we began to analyze the situation. The farmers quickly figured out that fertilizer is, at its core, an external energy input. They then began questioning what conditions might be required in order to totally replace fertilizer with solar energy. Every one of them had a horror story about a friend or neighbour who had ceased applying fertilizer. Each could recount how, in the absence of other management changes, these people still ended up losing the farm. So whilst they were concerned at losing money per calf each year, they were really concerned about losing the farm and looking like “poor farmers” in the eyes of their peers. After all, given a choice, it seems to be human nature that with the exception of a few, most



Adequate recovery periods are critical in “Mediterranean” environments. Using a cage to protect a pre-grazed level of plant growth can help you determine when grazed plants outside the cage look like the ungrazed plants inside the cage.

people would rather fail conventionally than succeed unconventionally. I was lucky enough to be working with the exceptional few.

My farmer group then thought about three things as one “whole”:

1. Increased post closed-season grazing residuals
2. Releasing the vast quantities of unavailable phosphate they knew just had to be in the soil
3. Capturing more solar energy by respecting the power of the plant growth sigmoid curve.

Post Closed-Season Grazing Residuals

The farmer group decided to deliberately leave high levels of trampled, dry plant material on the soil surface following their closed season grazing. I recall the first time this was tried, and how Rupert Richardson and his wife, Megan Christie, thought they were in danger of becoming dairy farmers, shifting electric fences on a daily basis in the non-growing season! Despite many obstacles, not the least of which was poor dry-season electric fence performance due to low electrical conductivity in their sand-rich soils, they persevered. At the next seasonal break, the annual pastures literally shot out of the ground, as it did for a number of other farmers as well, who each adopted this approach.

Releasing Unavailable Minerals

What the farmers created was a safe summer environment for microbes who rapidly began to multiply in the autumn (fall) as soil moisture levels rose. These microbes quickly began decomposing the above ground residuals and, of course, the root organic matter within the soil. In the process of converting

plant organic matter into humus, the microbes began releasing quantities of otherwise unavailable minerals, especially the locked up phosphate.

For about 11 years now, despite no further applications of fertilizer, available mineral levels have remained more or less constant. Importantly, plant productivity has not yet been compromised, although, on the basis of “could be wrong,” this is carefully monitored

Capturing More Solar Energy

The key to all of this has really been long recovery periods relative to conventional local practice. Generally the minimum-maximum guidelines adopted lie in the order of 40 to 100 days, and for almost all of the growing season, planning occurs around the maximum guideline. The good operators are using pasture cages to judge movement from minimum to maximum and vice-versa, and I would say they are essential. The cages come in a variety of forms. Some people have purchased old shopping trolleys, whilst others constructed five-sided cages (open at the bottom) made of weldmesh. These cages are usually about two feet by two feet by two feet (60 cm x 60 cm x 60 cm) with a two-inch vertical pipe welded on one corner. The pipe is slipped down a steel fence picket to secure its location.

The rule people adopt is that when the recovering pasture outside the cage more or less resembles the one graze old material within the cage, recovery is complete. Prior to the stock moving into a paddock containing a pasture cage, the cage is moved onto freshly recovered material, and the process is repeated.

Carrying Capacity

We found there has been virtually no incidence of decreased carrying capacity. Individuals were prepared for declines of up to 30 percent in carrying capacity before they would have been financially worse off than with the previous annual fertilizer program. Some people have substantially increased carrying capacity, largely due to the massive volume of feed grown per acre/hectare, capitalizing on the inherent power of the upper section of the sigmoid curve of plant growth.

Animal health costs are generally lower. Hay making has stopped in most

situations, and people now are more adept at quickly adjusting stocking rate to carrying capacity. In many cases there has been a drop in the proportion of breeders carried in the herd or flock. There has generally been a reduction in the number of sheep carried, in favor of more cattle, who seem to deal with the higher residuals more comfortably, and are easier to contain at the higher densities required to obtain good trampling effects.

I would not call this approach true ultra-high density holistic grazing. The densities are not actually very high, but they are maintained by back fencing in both the growing and non-growing season. It may well be that stock densities will need to increase though, as in the last season or two there has been a shift in plant composition on several properties. To date carrying capacity has not been effected, but is being monitored

Recovery Period Is the Driver

Above all, the success these farmers have achieved is due primarily to extending their recovery periods. The learning for me has been: recovery periods allowed for annual pastures should be far longer than most people previously thought (and as an aside, I now suspect it is shorter for perennial grasses than was preciously believed).

Adherence to long, growing season, maximum recovery period guidelines means:

- Animals consume a more balanced pasture during the growing season. This is monitored by pH testing of urine, which is almost always now in the neutral zone.
- There is an increased total mass of pasture produced, no doubt in large part due to increased microbial activity; and there are
- Much higher post grazing residuals left in the non-growing season.
- Above all, the problem of profitability has been addressed. I venture to suggest that some of these farmers—especially the specialist beef producers—now rank in the lowest 10 percent in terms of cost per kilogram of beef produced.

Bruce Ward is an Australian-based Certified Educator. He may be contacted at blward@holisticresults.com.au

Planning for the Next 25 Years

I want to offer a large and most sincere thank you to HMI Texas for combining their Annual Conference Gathering with HMI's 25th Anniversary Celebration. HMI and HMI Texas have many cooperative projects and look forward to more collaboration in the future.

At our Spring HMI board meeting we tackled some important issues and I want to share some of our accomplishments. Due to changes in our non-profit status, we are now a “private operating foundation” and no longer a public charity; we have been required to make some changes in the way we do business. One of these changes included our funding process for The Africa Centre for Holistic Management (ACHM). After tackling a small mountain of paperwork, we have funding headed for ACHM and are looking forward to strengthening the ACHM organization and increasing our cooperative efforts.

The board is continuing to make changes to allow Allan to spend more time in Africa and to slowly reduce his HMI responsibilities. We still lean on Allan for advice and counsel especially in Africa and on the ACHM learning site. In addition, Jody Butterfield, a co-founder, continues to be both on staff and on board committees.

The Board also reviewed the recommendations from the West Ranch Task Force and supported a significant investment in the basic ranching facilities and the ability of the West Ranch to be an exemplary Holistic Management learning site. Stay tuned for more exciting information on West Ranch projects.

These Board efforts will enhance HMI's ability to grow and expand the influence of Holistic Management. At the Gathering we not only celebrated 25 years and honored Allan and Jody, we also enjoyed the premier showing of the

“The First Millimeter: Healing the Earth” PBS video that focuses on how Holistic Management practices are healing the land in Zimbabwe, Mexico, Australia, and in the USA. The video does a fantastic job of connecting the land and our children's children's future. The video reminded me how important the Holistic Management concept envisioned by Allan and Jody is to the future of all of us. We are deeply indebted to them for their vision. The HMI Board is committed to the success of HMI and its ability to work with the Holistic Management network to spread the vision and practice of Holistic Management around the world.

Ben Bartlett

Ben Bartlett
Board Chairman

Development Corner

Grasslands Carbon

In early December 2008, with a grant from the **Blackstone Ranch Institute, HMI** and the **Los Alamos National Laboratory (LANL)** convened the Grasslands Carbon Working Group, an ad-hoc group of experts in the fields of soil carbon science, farming, carbon trading, and policy development. The group of 17 participants met for a four-day meeting outside of Santa Fe, New Mexico, for the purpose of sharing information, developing collaborative research and management projects, and acting as advocates for grassland soil carbon in the social and political sphere. All who participated agreed to be part of an ongoing working group and have committed some time to prepare papers and continue the research. HMI will continue to coordinate group communications and keep track of any research papers and policy recommendation that are generated by the group. Special thanks go to the Blackstone Ranch Institute for seeding this important effort! For further information, please contact Frank Aragona, HMI's Data & Documentation Coordinator, at frank@agroinnovations.com.

The PBS Documentary — It's Here!

Barely a year after filming started for "The First Millimeter: Healing the Earth," the film premiered on March 5th, at HMI's 25th Anniversary Conference in Abilene, Texas in front of a highly critical and engaged audience. The response was enthusiastic to say the least; Certified Educators and practitioners are excited about the possibilities this documentary creates for their own work and for getting the word out to neighbors and others in the community. Just in time for Earth Day, the Albuquerque PBS station aired the documentary on April 22nd and producer Anthony Tiano is busy marketing it to other PBS stations across the country. Please visit our website www.holisticmanagement.org for a schedule of broadcasts in your area. A theatrical-length version will be entered in key U.S. and international film festivals and a series of private screenings are in the works for outreach and fundraising purposes. To order your very own copy, please go to our website or call Mary Girsch-Bock at the HMI office (505/842-5252). A nominal fee of \$25 will be charged for private use; if you'd like to arrange a public screening in your community, please contact our Senior Director of Philanthropy, Jutta von Gontard via e-mail: juttavg@holisticmanagement.org.

Reader's Forum

I just received the March/April 2009 issue of *IN PRACTICE* and read Tony Malmberg's article on "A Holistic Approach to Economic Crisis" and felt motivated to write a letter to the editor.

If I understood correctly, Malmberg proposes that we take money from producers by taxation (Federal borrowing is ultimately a tax) and give the money to local banks so that the producers (a.k.a. taxpayers) can borrow their own money at interest and then pay the government's debt. Since, in the author's model, money is introduced into the economy by loans, then where is the extra money going to come from to pay the interest? From more loans, of course. This unavoidably demands exponential growth of debt is *not sustainable!* It is also the root of the problem.

If, instead of borrowing, the U.S. government were to create its own U.S. treasury notes (perfectly legal and historically a sound practice) and spend them on infrastructure and other governmental responsibilities, there would be no debt, no interest, and little inflation. The creation of treasury notes amounts to a tax; but without debt and interest payments, the tax burden is much smaller. The creation of treasury notes is inflation, but without the obligation to make principal payments and interest payments on government debt there is no need to continually create more and more. The improved infrastructure and reduced taxes (hopefully along with a reduction in foolish bureaucratic regulation of private business) will create an environment in which business, agriculture, and the economy will strength and stabilize *sustainably*. The improved economic environment will result in healthy private investing and fewer borrower defaults with no fear of shrinking money supply. And this proposal gets closer to the real root of the problem.

I am pleased with *IN PRACTICE*. Please keep up the good work.

— Greg Penn, Ava, Missouri

Economic Crisis Response

You and I may disagree, but through my Holistic Diagnostic Analysis, I determined that bailing out these big financial institutions would be an action that mimics and exacerbates past mistakes. So I proposed a statement of purpose, and an action (policy), which I tested toward a holisticgoal.

I was not proposing more debt than our government already proposes to spend in addressing this most critical situation. I was proposing the debt be directed by a holisticgoal and testing decisions toward our desired quality of life as a nation.

I see two options for you. First, you can offer an alternative Statement of Purpose. Second, you can offer a different proposed action and test that towards a holisticgoal you feel speaks to the needs of the nation as a whole using my proposed action as a comparison in the marginal reaction test, just as I used the government's bailout action as an alternative in the marginal reaction test.

Our purpose as Holistic Management practitioners is to test decisions and plan toward our holisticgoal. As Allan Savory so insightfully says, "It's simple but it's not easy."

— Tony Malmberg, LaGrande, Oregon

Send Letters to the Editors to HMI, 1010 Tijeras Ave. NW, Albuquerque, NM 87102 or anna@holisticmanagement.org. Letters may be shortened for space consideration.

The GRAPEVINE

news from holistic management international — people, programs & projects

Staff Changes

The beginning of 2009 has seen a number of staff changes.

Several staff members were promoted to new job titles including Executive Director **Peter Holter**, who now with Board approval is Chief Executive Officer for HMI. **Jutta von Gontard** is now Senior Director / Philanthropy, and **Kelly Bee** is Chief Financial Officer.

Shannon Horst resigned as Senior Director of Strategic Initiatives with HMI and will continue as a contractor on key projects. HMI offers many thanks to Shannon in wishing her well in the future as she finds time to pursue her many



Mary Girsch-Bock

new Educational Products and Outreach Assistant. Prior to joining HMI, Mary worked as a freelance writer for a variety of publications including *Journal of Property Management*, *New Mexico Business Magazine*, *Legal Assistant Today*, and

interests.

Development Assistant, **Marisa Mancini**, left HMI to pursue graduate studies. But, **Mary Girsch-Bock** has joined Holistic Management International as the

The CPA Technology Advisor.

In 2007, Unlimited Publications released Mary's book; *Carcinoid Cancer, Zebras, and Stardust*, about Mary's sister's struggle with the rare form of cancer. Mary remains active in the Carcinoid community and contributes a portion of her book profits between the Carcinoid Cancer Foundation and The Zebra House project in New Orleans.

Mary grew up in Chicago, but has called many places home, including Las Vegas, Crowley, Texas, Clovis, Albuquerque, and Rio Rancho, N.M.

In 2005, Mary, her husband Shannon, and their son Jared moved to Crowley, Texas, but soon were homesick, and returned to New Mexico in October of 2007, when Mary took a job with a local sports team. But the desire to find meaningful work continued to grow, and eventually brought her to HMI. "The idea of making a difference is important to me," says Mary, who says she's very excited to be a part of HMI. Welcome, Mary!

Washington State Holistic Management Conference

by Doug Warnock

Nearly seventy people spent several days in Richland, Washington in mid-February focusing on sustainable agriculture for the Pacific Northwest. Farmers, ranchers, agri-business people, consultants, educators and agency representatives came together at the "Creating a Sustainable Future for Agriculture in the Pacific Northwest" conference.

An array of speakers at the conference talked about the things they are doing to enhance the sustainability on their farms, ranches and businesses including:

- **Dick Coon**, who has been practicing planned grazing for 25 years, is one of several people involved in the Beefing Up the Palouse Project. Its goal is to evaluate the feasibility of converting land from the Conservation Reserve Program (CRP) to a holistically managed resource using livestock.
- **Joel Huesby** and his family own and operate a certified organic farm business, Thundering Hooves.
- **Karl Kupers** converted a farm from a traditional dryland wheat operation to a diversified no-till sustainable operation.
- **Kathy Panner** is a member of Oregon Country Beef—Country Natural Beef.
- **Gary Wegner** who helps dairy farmers cycle nutrients from their farms while protecting the environment.

On the last day, conference attendees made individual commitments for specific tasks and programs that they would do to promote and enhance the future sustainability of agriculture in the Pacific Northwest.



Jeff Goebel presenting on how to make change happen.

Doug Warnock and Don Nelson, with his plaque from HMI.



Kathy Panner's presentation on the history and growth of Country Natural Beef and Umpqua Lamb

Certified Educators

To our knowledge, Certified Educators are the best qualified individuals to help others learn to practice Holistic Management and to provide them with technical assistance when necessary. 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, to seek out opportunities for staying current with the latest developments in Holistic Management and to maintain a high standard of ethical conduct in their work.

For more information about or application forms for the HMI's Certified Educator Training Programs, contact Ann Adams or visit our website at: www.holisticmanagement.org.

◆ These educators provide Holistic Management instruction on behalf of the institutions they represent.

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

UNITED STATES

CALIFORNIA

Bill Burrows

12250 Colyear Springs Road
Red Bluff, CA 96080
530/529-1535 • 530/200-2419 (c)
sunflowercrmp@msn.com

Richard King

1675 Adobe Rd.
Petaluma, CA 94954
707/769-1490
707/794-8692 (w)
richard.king@ca.usda.gov

* Kelly Mulville

P.O. Box 323, Valley Ford, CA 94972-0323
707/431-8060; 707/876-3592
jackofallterrains@hotmail.com

◆ Rob Rutherford

CA Polytechnic State University
San Luis Obispo, CA 93407
805/756-1475
rrutherford@calpoly.edu

COLORADO

Joel Benson

P.O. Box 4924, Buena Vista, CO 81211
719/395-6119 • joel@outburstllc.com

Cindy Dvergsten

17702 County Rd. 23, Dolores, CO 81323
970/882-4222
hminfo@wholenewconcepts.com

Daniela and Jim Howell

P.O. Box 67, Cimarron, CO 81220-0067
970/249-0353 • howelljd@montrose.net

Byron Shelton

33900 Surrey Lane, Buena Vista, CO 81211
719/395-8157 • landmark@my.amigo.net

Tom Walther

P.O. Box 1158
Longmont, CO 80502-1158
510/499-7479 • tagjag@aol.com

GEORGIA

Constance Neely

635 Patrick Place, Atlanta, GA 30320
706/540-2878 • cneely@uga.edu

IOWA

◆ Margaret Smith

Iowa State University,
CES Sustainable Agriculture
972 110th St., Hampton, IA 50441-7578
515/294-0887 • mrgsmith@iastate.edu

LOUISIANA

Tina Pilione

P.O. 923, Eunice, LA 70535
phone: 337/580-0068
tina@tinapilione.com

MAINE

* Vivianne Holmes

239 E. Buckfield Rd.
Buckfield, ME 04220-4209
207/336-2484
vholmes@umext.maine.edu

MICHIGAN

* Ben Bartlett

N4632 ET Road, Traunik, MI 49891
906/439-5210 (h) • 906/439-5880 (w)
bartle18@msu.edu

* Larry Dyer

604 West 8th Ave.
Sault Sainte Marie, MI 49783
906/248-3354 x4245 (w)
906/253-1504 (h)
dyerlawr@msu.edu

MONTANA

Wayne Burleson

322 N. Stillwater Rd.,
Absarokee, MT 59001
406/328-6808
rutbuster@montana.net

Roland Kroos

4926 Itana Circle
Bozeman, MT 59715
406/522-3862
kroosing@msn.com

* Cliff Montagne

P.O. Box 173120
Montana State University
Department of Land Resources &
Environmental Science
Bozeman, MT 59717
406/994-5079
montagne@montana.edu

NEBRASKA

Terry Gompert

P.O. Box 45
Center, NE 68724-0045
402/288-5611 (w)
tgompert1@unl.edu

UNITED STATES

Paul Swanson

5155 West 12th St., Hastings, NE 68901
402/463-8507
swanson@inebraska.com

NEW HAMPSHIRE

◆ Seth Wilner

24 Main Street, Newport, NH 03773
603/863-4497 (h)
603/863-9200 (w)
seth.wilner@unh.edu

NEW MEXICO

◆ Ann Adams

Holistic Management International
1010 Tijeras NW
Albuquerque, NM 87102
505/842-5252
anna@holisticmanagement.org

Kirk Gadzia

P.O. Box 1100,
Bernalillo, NM 87004
505/867-4685
(f) 505/867-9952
kgadzia@msn.com

NEW YORK

Phil Metzger

99 N. Broad St., Norwich, NY 13815
607/334-3231 x4 (w)
607/334-2407 (h)

John Thurgood

15 Farone Dr., Apt. E26
Oneonta, NY 13820-1331
607/643-2804
jthurgood@stny.rr.com

NORTH DAKOTA

Wayne Berry

1611 11th Ave. West
Williston, ND 58801
701/572-9183
wberry@wil.midco.net

OREGON

Andrea & Tony Malmberg

P.O. Box 167, LaGrande, OR 97850
541/805-1124
Andrea@LifeEnergy.us
Tony@LifeEnergy.us

PENNSYLVANIA

Jim Weaver

428 Copp Hollow Rd.
Wellsboro, PA 16901-8976
570/724-7788
jaweaver@epix.net

TEXAS

Christina Allday-Bondy

2703 Grennock Dr., Austin, TX 78745
512/441-2019
todaya@sbcglobal.net

Guy Glosson

6717 Hwy. 380, Snyder, TX 79549
806/237-2554
glosson@caprock-spur.com

Peggy Maddox

P.O. Box 694, Ozona, TX 76943-0694
325/392-2292
westgift@hughes.net

TEXAS

Chandler McLay

P.O. Box 1796, Glen Rose, TX 76043
303/888-8799 • mclay90@gmail.com

R. H. (Dick) Richardson

University of Texas at Austin
Section of Integrative Biology
School of Biological Sciences
Austin, TX 78712
512/471-4128

WASHINGTON

Craig Madsen

P.O. Box 107, Edwall, WA 99008
509/236-2451 • Madsen2fir@gotmsky.com

Sandra Matheson

228 E. Smith Rd., Bellingham, WA 98226
360/398-7866 • mathesonsm@verizon.net

Doug Warnock

1880 SE Larch Ave., College Place, WA 99324
509/540-5771 • 509/856-7101 (c)
dwarnock@charter.net

WISCONSIN

Andy Hager

W. 3597 Pine Ave., Stetsonville, WI 54480-9559
715/678-2465

Larry Johnson

W886 State Rd. 92, Brooklyn, WI 53521
608/455-1685
lpjohn@rconnect.com

* Laura Paine

Wisconsin DATCP
N893 Kranz Rd., Columbus, WI 53925
608/224-5120 (w) • 920/623-4407 (h)
laura.paine@datcp.state.wi.us



INTERNATIONAL

AUSTRALIA

Judi Earl

73 Harding E., Guyra, NSW 2365
61-2-6779-2286
judi@holisticmanagement.org.au

Mark Gardner

P.O. Box 1395, Dubbo, NSW 2830
61-2-6884-4401
mark.gardner@vbs.net.au

Paul Griffiths

P.O. Box 3045, North Turrumura, NSW 2074,
Sydney, NSW
61-2-9144-3975 • pgpres@geko.net.au

George Gundry

Willeroo, Tarago, NSW 2580
61-2-4844-6223 • ggundry@bigpond.net.au

Graeme Hand

150 Carroona Lane,
Branxholme, VIC 3302
61-3-5578-6272 (h) • 61-4-0996-4466 (c)
graemeh1@bordernet.com.au

Helen Lewis

P.O. Box 1263, Warwick, QLD 4370
61-7-46617393 • 61-7-46670835
helen@insideoutsidemgt.com.au

AUSTRALIA

Brian Marshall

P.O. Box 300, Guyra NSW 2365
61-2-6779-1927 • fax: 61-2-6779-1947
bkmrshl@bigpond.com

Bruce Ward

P.O. Box 103, Milsons Pt., NSW 1565
61-2-9929-5568 • fax: 61-2-9929-5569
blward@the-farm-business-gym.com

Brian Wehlburg

c/o "Sunnyholt", Injune, QLD 4454
61-7-4626-7187
brian@insideoutsidemgt.com.au

Jason Virtue

Mary River Park
1588 Bruce Highway South
Gympie, QLD 4570
61-7-5483-5155 • Jason@spiderweb.com.au

CANADA

Don Campbell

Box 817 Meadow Lake, SK S9X 1Y6
306/236-6088 • doncampbell@sasktel.net

Len Pigott

Box 222, Dysart, SK, SOH 1H0
306/432-4583
JLPigott@sasktel.net

Kelly Sidoryk

P.O. Box 374, Lloyminster, AB S9V 0Y4
780/875-9806 (h) • 780/875-4418 (c)
kjsidoryk@yahoo.ca

KENYA

Richard Hatfield

P.O. Box 10091-00100, Nairobi
254-0723-506-331
rhatfield@obufield.com

Christine C. Jost

International Livestock Research Institute
Box 30709, Nairobi 00100
254-20-422-3000; 254-736-715-417 (c)
c.jost@cgiar.org

Belinda Low

P.O. Box 15109, Langata, Nairobi
254-727-288-039
belinda@grevyszebratrust.org

MEXICO

Arturo Mora Benitez

San Juan Bosco 169
Fracc., La Misión
Celaya, Guanajuato 38016
52-461-615-7632 • jams@prodigy.net.mx

Elco Blanco-Madrid

Hacienda de la Luz 1803
Fracc. Haciendas del Valle II
Chihuahua, Chih 31238
52/614-423-4413 (h) • 52/614-415-0176 (f)
elco_blanco@hotmail.com

Ivan A. Aguirre Ibarra

P.O. Box 304, Hermosillo, Sonora 83000
52-1-662-281-0990 (from U.S.)
51-1-662-281-0901
Rancho_inmaculada@yahoo.com.mx

NAMIBIA

Usiel Kandjii

P.O. Box 23319, Windhoek
264-61-205-2324
kandjiu@nampower.com.na

Wiebke Volkmann

P.O. Box 9285, Windhoek
264-61-225183 or 264-81-127-0081
wiebke@mweb.com.na

NEW ZEALAND

John King

P.O. Box 12011
Beckenham, Christchurch 8242
64-276-737-885
succession@clear.net.nz

SOUTH AFRICA

Wayne Knight

P.O. Box 537
Mokopane 0600
theknights@mweb.co.za

Jozua Lambrechts

P.O. Box 5070
Helderberg, Somerset West,
Western Cape 7135
27-21-851-5669; 27-21-851-2430 (w)
jozua@websurf.co.za



SOUTH AFRICA

Ian Mitchell-Innes

P.O. Box 52, Elandslaagte 2900
27-36-421-1747
blanerne@mweb.co.za

Dick Richardson

P.O. Box 1853, Vryburg 8600
tel/fax: 27-082-934-6139;
Dickson@wam.co.za

SPAIN

Aspen Edge

Apartado de Correos 19,
18420 Lanjaron, Granada
(0034)-958-347-053
aspen@holisticdecisions.com

UNITED KINGDOM

Philip Bubb

32 Dart Close, St. Ives
Cambridge, PE27 3JB
44-1480-496-2925 (h)
44-1223-814-662 (w)
philipbubb@onetel.com

ZIMBABWE

Sunny Moyo

Africa Centre for Holistic Management
P. Bag 5950, Victoria Falls;
sunnyachm@africaonline.co.zw;
263-13-42199 (w)

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Dennis Holistic Grazing Event

JULY 6-13, 2009



Join guide, Terry Gompert, UNL Extension Educator, on a Wawota, Saskatchewan, Canada Tour, Seminar, and/or Holistic Grazing Training. You are welcome to join us in all or part of this event.

■ **GRAZING PLANNING**

Wawota, SASK
JULY 6-7, 2009
8 a.m. to 6 p.m. daily

(This training will also be held August 17-18, 2009 in Newport, NE)

■ **BIOLOGICAL PLANNING AND MONITORING**

Wawota, SASK
JULY 8 & 9, 2009
8 a.m. to 6 p.m. daily

(This training will also be held August 19-20, 2009 in Newport, NE)

■ **MOB GRAZING SEMINAR & BARBECUE**

Wawota, SASK • Community Forum (Rink)
JULY 10, 2009 • 11:00 a.m. to 6 p.m.

(lunch and barbeque included in fees)

Speakers include:

- NEIL DENNIS of Wawota, SK, Canada
- ABE COLLINS of St. Albans, VT, USA
- KIRK GADZIA of Bernalillo, NM, USA
- TERRY GOMPERT of Center, NE, USA

■ **DENNIS RANCH TOUR • Wawota, SK**
JULY 11, 2009 • 8 a.m. to 4 p.m.

What you will see:

- Mob Grazing (multi-day moves)
- Holistic Decision Making
- Grazing Toys
- Land Health Evaluations & Monitoring

(THE TOUR IS LIMITED TO 200 PARTICIPANTS)

■ **HOLISTIC GOAL TRAINING**

JULY 13, 2009 • Wawota, SASK

For more information or registration, contact:
UNL Extension in Knox County
P.O. Box 45, Center, NE, 68724
Email, knox-county@unl.edu
Phone: 402-288-5611
Fax: 402-288-5612

Directions and details will be sent after registration is received.



Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska-Lincoln cooperating with the Counties and the United States Department of Agriculture. University of Nebraska-Lincoln Extension educational programs abide with the nondiscrimination policies of the University of Nebraska-Lincoln and the United States Department of Agriculture.

The Science & Art of Grass Finishing

Saturday, May 30, 2009

From 8:00 am to 8:00 pm

Courthouse Annex Meeting Room,
CENTER, NEBRASKA



THE SCHOOL IS LIMITED TO 40 PARTICIPANTS

I EXPECT THE CLASS TO FILL FAST, SO DON'T DELAY!

Contact the UNL Extension Office in Knox County to register at 402/288-5611 or email knox-county@unl.edu.

Dr. Anibal Pordomingo, Argentina Grassfed Researcher and Expert, and **Terry Gompert**, UNL Extension Educator, will conduct an advanced grass finishing school.

Participants must have a certain degree of grass finishing experience. The school will be appropriately divided between pasture talk, lecture presentation, and discussion.

The scheduled date is probable, but could move and be adjusted to meet Anibal's schedule. Tuition is \$200, two meals are included in this fee.

PRINCIPLES OF SOIL FERTILITY

Understanding Soil Tests and Nutrient Relationships

Program: Each day from
8:00 a.m. – 5:00 p.m.
Holiday Inn Express,
St. Louis, Mo.

July 27-29, 2009

TOPICS INCLUDE:

- SOIL TESTS AND THEIR USE
- BUILDING SOIL LIFE
- N-P-K NEEDS AND MATERIALS
- LIMING AND PH
- SULFUR, TRACE ELEMENTS, AND COMPACTION

COST: \$650 per person, includes lodging (Sunday through Tuesday night and breakfast next morning), plus lunch each day. Dinner is not included.

FOR INFORMATION, COURSE REGISTRATION AND MOTEL RESERVATIONS, call 573/683-3880, or see the Courses and Meetings page at www.kinseyag.com.

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For consulting or educational services contact:

Kinsey Agricultural Services, Inc.

297 County Highway 357
Charleston, Missouri 63834

Ph: 573/683-3880, Fax: 573/683-6227
Email: neal@kinseyag.com

—OPTIONAL TOURS—

(REGISTER BY JULY 17 TO ASSURE LODGING, TOUR SEAT AND LUNCH)

THURSDAY, JULY 30

All-Day Farm Tour to farms using the program in Southeast Missouri

Cost: \$125/person and includes motel room for Wednesday night and transportation from the motel and return and lunch Thursday.

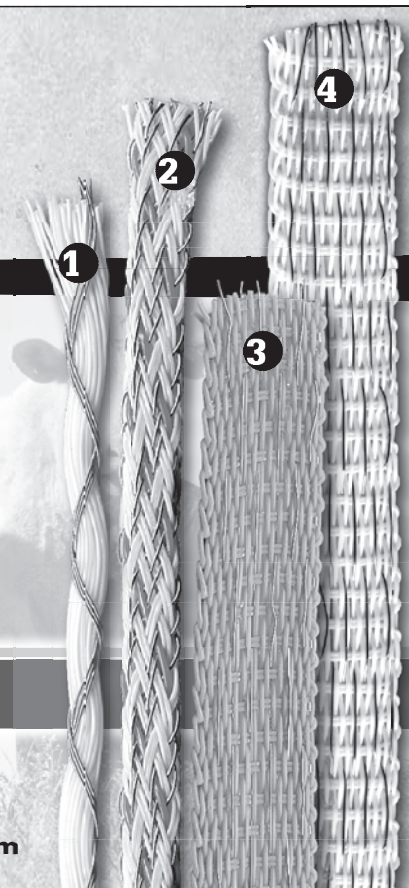
FRIDAY, JULY 30

Soil Test Lab Tour and Lunch

Cost: \$125/person and includes motel room for Thursday night and transportation from the motel to lab and return. Arrive back at motel by 2:30 pm.

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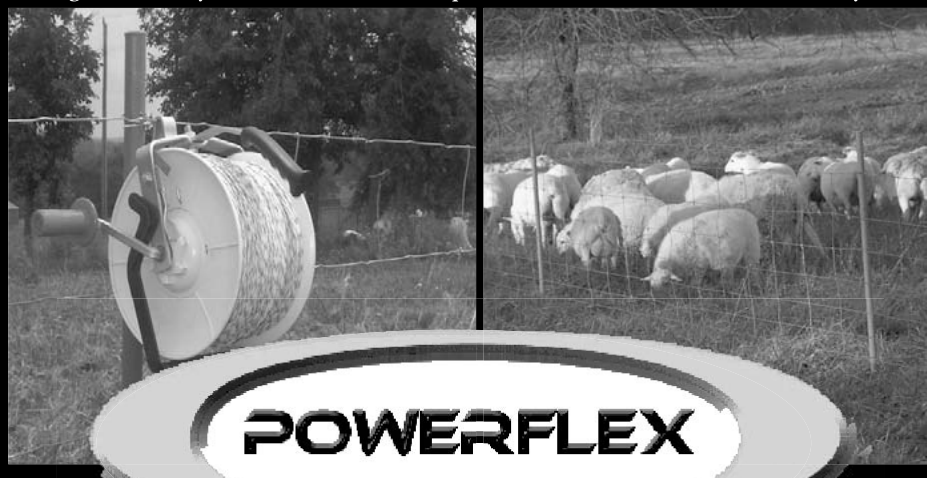
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