

Improve Soil Health with Mob Grazing



Cattle mob grazing on a typical paddock at Sunnybrae Farms in mid-July.

by TAMARA SCULLY

Saskatchewan grazer Neil Dennis comes from a long line of pioneering innovators. His grandfather raised purebred cattle, sheep and racehorses. His father was one of the first to use an air seeder. Dennis himself is now a leader in promoting Holistic Management grazing techniques, and he has pushed the boundaries of high-density stocking on the 1,200-plus acres of the family's Sunnybrae Farms.

Today, the pastures of Sunnybrae Farms are thriving, with over 40 types of native plant species and a variety of legumes, none of which were ever seeded. The pastures boast a very high plant density, and water is retained in the soil with little runoff. The carbon content of the soil has dramatically increased over the past two decades, along with the microbial activity. Soil

warms up earlier in the spring, stays cool in the summer and produces well into the fall. Salt and mineral supplementation of the 800 to 1,000 head of cattle that call these pastures home has been greatly reduced, as the nutrient content of the forages has increased.

As the cattle benefit from the high level of pasture nutrition and the per-acre production of beef rises dramatically, the amount of time spent on farm work has decreased, Dennis said. Although the number of animals Dennis is managing has increased significantly since his early days of rotational grazing in the early 1990s, Dennis' success isn't simply measured in the increased carrying capacity of his land; it's also measured in the reduction of time spent managing the herd each day, and in the present economic viability of the farm, which was once almost lost to the bank. The

farm's success is firmly grounded in the health of its soil.

GROWING GRASS & BEEF

"I'm producing more than twice as many pounds of beef per acre as the neighbors," Dennis said. "It has taken me a lot of years. I didn't know what I was doing."

Ignorance didn't stop Dennis — rather it motivated him. After suffering financial difficulties, the threat of losing the family farm was looming. At the time, Dennis was rotationally grazing 300 head of beef cattle on thousands of acres, but achieving little financial gain.

"I was getting advice from conventional farmers on rotational grazing," Dennis said.

The thinking was that if the grass is there, the cattle will eat it. It wasn't working, the farm wasn't viable, and



Saskatchewan grazer Neil Dennis places posts without having to leave his 4x4 vehicle.

the stress was taking its toll. His wife, Barbara, eventually convinced him to attend a Holistic Management conference. Dennis was a reluctant and even adversarial participant. He didn't believe what the speakers were saying. As a result, Dennis spent many years attempting to disprove theories of managing the land by working in conjunction with Mother Nature, focusing on increasing soil health via animal interactions. But he couldn't do it.

He began by placing small sections of his pastures into different management protocols. Experiments, such as spreading seed on top of the ground at 1 pound per acre and using the cattle to trample it in, generated fantastic results. Previously non-productive pastures, filled with weeds, benefitted from stocking densities of 100 cow/calf pairs per 20 acres, and "all of this stuff started to pop up."

Other experiments, pitting pastures managed the way Dennis had been conventionally maintaining them up against small sections managed under the holistic approach, which he felt were certain to fail, ultimately

proved to Dennis that the practices of holistic grazing management did, in fact, work. Pastures treated with conventional practices of seeding and combining were sprouting weeds and falling prey to dry weather, but fields where intensively managed grazing was occurring no longer required seeding and were lush and green.

"Mother Nature was supplying everything I needed," Dennis said.

As Dennis returned to Holistic Management conferences ready to learn more and continued to manage additional land applying its techniques, his

farm thrived. Dennis soon became a sought-after advocate of the very practices he initially set out to disprove.

"MANAGING CHAOS"

There isn't one recipe for success, Dennis said, although the basic principle remains: change the soil health by changing the way you graze. The health of the plants, of the soil and of the livestock is interrelated, and is mutually influenced by a myriad of activities.

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"There is no one key thing that is the right thing," Dennis said. "You have to work with the whole system. Look at the whole picture. Watch your results. You are managing chaos."

Holistically, managing the pastures means making farming decisions to address the roots of the problems, not to treat the symptoms. Taking action to increase pasture fertility and carrying capacity without sacrificing animal gain is the objective.

Dennis advises producers to "keep your cattle full all the time. Keep in mind animal performance. Sometimes you are going to have to supplement early on in the system," he said.

This doesn't mean that you are failing. It means that while you build pasture health, you may have to maintain herd health with supplemental feeds. Eventually, with proper observation and management, they will gain on pasture alone.

In order to change soil health, the way in which the plants are managed has to change, Dennis explained. Grazing when the plants have 15-18 leaves, but no seed heads, allows the plant to capture increased amounts of solar energy, increasing the carbon stored in the soil. In addition, remember that the entire plant isn't created equal, he advised. Not all plant parts are as nutritious, and the plant's growing stage affects nutrition and palatability. Just before the plant is about to flower, it has increased sugar content, Dennis said. This is an important distinction when planning grazing rotations.

Allowing plants to grow to their optimal potential before re-grazing a pasture means longer rest periods. Longer rest gives the plants more time to develop an extensive root system, and this root system increases microbial activity in the soil. When animals graze plants, the roots release exudates which feed the soil microbes. Longer rest also increases the palatability of the forage. Grazing high and allowing much longer than traditional rest periods keep both animals and plants thriving. Remember that recovery times are based upon growing days and vary depending on the climate and the weather.

"If you figure a long recovery, double it and add some more, you are likely close" to maximizing pasture potential, Dennis said. "Recovery time corresponds to grazing days, not just by the calendar days."

When Dennis first started rotational grazing, he was using 30-60 day rest periods. But even with a 60-day rest, the cows wouldn't graze much of the pasture. They won't eat where they can still smell urine, Dennis said. He increased the rest period to a minimum of 80 days, and the cows grazed everything. The increased rest period also helps to break the parasite cycle. Typically, internal parasites are recirculated through the pasture, completing the cycle when the parasite crawls up the stalk of grass to be consumed by the grazing herd. With a longer rest period, the parasite cannot complete its lifecycle. Flies, too, are compromised when pastures are left longer between grazing.

STOCKING DENSITY

With higher stocking densities, the increased trampling action of the herd keeps a mulch base on the soil. This in turn retains soil moisture and has a cooling effect on the soil, which keeps the soil microbes thriving. Having litter in contact with the soil is extremely important to soil health. By grazing forages high and utilizing high density stocking, a healthy litter cover can develop, Dennis said.

As the soil becomes more conducive to microbial activity, it stays green longer throughout the year due to temperature moderation. It develops denser growth and is able to retain more water. As an example,



Using a Batt-Latch allows grazer Neil Dennis to set his gates to automatically release, allowing his cattle access to fresh pasture without manual labor.

Dennis states that in his pastures today, any rain received from mid-July onward stays in the soil for next season's use, rather than running off as it typically would in a conventional farming system.

"You're using the animals as a tool," Dennis said. "When you change your soil health, your plants start growing differently."

Another added benefit to high stocking densities is the effect which the density has on the animals' grazing behaviors. When cows are in herds of increasing numbers their behavior changes; the animals are more apt to eat everything, not selectively choose their favorite forages when they feel they are competing with their neighbor for the forage. This helps prevent selective overgrazing, keeping the roots of desirable plants productive. In contrast, when preferred plants are

grazed at the expense of less palatable species, they are put under stress, which allows the non-grazed plants an advantage. Non-selective grazing also helps to eliminate noxious weeds, as these less desirable forages are also consumed, rather than left in the pasture to set seed.

"Everything gets hit the same," Dennis said. "They grab a little bit of everything, so their neighbor doesn't get it."

MOB GRAZING RESULTS

Invoking Temple Grandin's research, Dennis said that cattle raised on pasture in high-density herds do better at feedlots, with increased gains due to better feed conversion. Dennis raises stocker cattle – about 800 head the past few years, but well over 1,000 in years prior – and grazes them all together during a 100-120 day grazing season. The stocking density varies from 100,000 pounds per acre to more than 1,000,000 pounds per acre. Stocking over 200,000 pounds per acre is generally considered ultra-high density stocking. Dennis is a leading grazer in this area.

"You don't go with one stocking rate. You've got to bounce all over the place," he said. "Read the land."

Dennis has a contract with one supplier of yearling calves, where he takes "whatever they bring me," although he reserves the right to reject any animals he doesn't think will be

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successful. He also manages a cow/calf herd on separate acreage. These animals are on pasture year-round, bale grazing in the winter. Dennis utilizes all his land for permanent pasture. He no longer makes his own hay, preferring to purchase it. He needs no equipment, with the exception of a 4x4 farm utility vehicle, unlike his conventional farming days.

Pastures at Sunnybrae Farms have seen an increase in their carbon content from a low of 2 percent, when Dennis began his holistic experiments several decades ago, up to about 10 percent in many fields today. Along with this increase, Dennis has been able to decrease his need for mineral supplementation by 90 percent and salt by 50 percent.

The herd typically received molasses and canola oil supplementation to help meet their energy needs, but with the increase in pasture health the cattle are able to meet their protein needs completely from pasture. The sugar supplementation helped to balance out their energy needs, keeping them in optimal health, he said.

Increasing soil health through mob grazing also appears to increase the sugar content and energy available from the pasture. In an experiment where he ran 120,000 pounds of animal weight per acre in one paddock, and 600,000 pounds of weight per acre in an adjoining paddock, Dennis found that the Brix level in the forages was increased where the animal density was higher. This increase in Brix level persisted over at least 5 years, even though he only stocked at the higher density for one grazing episode and subsequently kept the stocking densities the same on each paddock.

CREATIVE GRAZING

Dennis has been rejuvenating a different portion of his pastures with a “deep massage” technique, beginning in 2006. He allows the pasture to develop seedheads. The next spring, he brings the cattle in when the new grass is at a height of about 2 inches. He allows them to graze it off, then begins bale grazing them in the field. He puts out bales in a roll/


skip/roll pattern across the paddock. After the cattle have eaten all they are going to eat, Dennis goes back and rolls the skipped spots. The pasture is then rested for 120 days.

Keeping the bale grazing density high, rather than spreading the animals out over larger acreage, ultimately results in a much greater plant density the next season, which translates to an increase in grazing ADA (animal-days/acre), Dennis said. This method has also increased the plant diversity of the land.

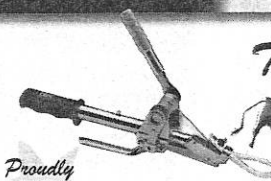
“There is always seed that falls out,” of the baleage, Dennis said. Although it “would take 100 years of bale grazing” to rejuvenate all of his 1,000-plus acres, Dennis continues this practice on a new section of land every year.

Another grazing method used by Dennis is skim grazing. If a field is to be grazed twice in a season – although most of Dennis’ paddocks are only grazed once – he begins with a quick skim graze, where the cattle only consume about 40 percent of the plant top growth. In experiments where Dennis compared the result of grazing 40 per-

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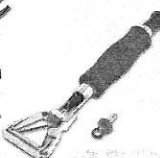


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cent to grazing 80 percent of the plant, keeping the stocking density the same, the land with the 80 percent plant grazing was not able to recover in time for a second grazing that same season. It had died back, while the 40 percent grazing left the other paddock lush and green with new growth, ready to be grazed a second time.

“You lose production in the fast-growing part of the season” when more of the plant is grazed, Dennis said. “It shuts the plant down.”

CONTINUING EDUCATION

Winter in Canada means extreme cold and lots of snow coverage, but Dennis no longer corrals and beds down overwintering cattle. When he previously did so he had problems with frozen testicles, and the corrals became extremely mucky. Now, all cattle remain on pasture, using the woods for shelter. They are bale-grazed and water is supplied via innovative delivery methods which Dennis has designed to prevent the water from freezing in the below-zero temperatures.

Dennis, as is befitting of his family legacy, has never stopped experimenting. Not only does he regularly continue to experiment with different practices on small sections of his acreage, he is continually developing ways to manage his production more efficiently. Dennis uses an automatic solar-operated Batt Latch from Novel Ways of New Zealand. The latch automatically opens gates to let the cattle move from paddock to paddock at the prescribed time. Dennis no lon-



Soil profiles on Sunnybrae Farms.

ger moves his cattle: his cattle move themselves.

“I couldn’t do what I do without that latch,” Dennis said.

He has designed a fencing system where he can drive over the fencing, to push it in place, as well as a reel carrier, for the moveable fencing, which attaches to his vehicle. All of these innovations mean that Dennis now only spends one or two hours each morning setting out the fencing for the day’s paddocks. Then, the 800-plus head of cattle basically move themselves. What used to take hours each day – moving the herd throughout the day to fresh paddocks – now takes about eight minutes. Other innovations in the pasture include the use of insulated lifters to raise the fence for access to the cattle and bungee cord gates in alleys to control the direction of cattle movement.

Alleyway design is of the utmost importance to Dennis, and alleyways on his farm are 28 feet wide. Alleys are key to water access in all of the paddocks and provide a way to skip a paddock’s rotations, if necessary, without running the cattle through it. He’s recently designed a better load-

ing chute, too, to make it easier for the trucks. Dennis never stops thinking about ways to make grazing easier, increase pasture productivity, promote herd health and work in synchronicity with Mother Nature.

Keeping good records is one of the most important steps to successful grazing management, Dennis said. Because he has dyslexia, this was challenging. He developed a color-coded system for his grazing spread sheets, where colors are used in conjunction with numbers.

“You’ve got to have some records to go back on,” Dennis emphasized. The better records, the more information can be gleaned and put to use.

While Dennis has experimented on small parcels of his land – and continues to do so – in order to test out theories of soil and plant health and the impact the animals have on it, he has also learned just as much from others. He emphasized the importance of regularly meeting with a group of other Holistic Management practitioners. He phones anyone who may have information he might find useful.

“Networking is the key to this whole thing,” Dennis said. “I find that people are very helpful.”

These days, with his cattle and pastures all but maintaining themselves, Dennis continually shares his production techniques, the results of his grazing experiments, his ongoing innovations and his

passion with groups around the United States and Canada. He has been a mentor to other producers and has been a conference speaker for over a decade.

Dennis’ grazing strategies have saved Sunnybrae Farms. They’ve decreased the time spent on farm work, while substantially increasing farm productivity. Dennis has time, each day, for at least one nap.

NEED MORE INFORMATION?

For more information contact Neil and Barbara Dennis, Sunnybrae Farms, P.O. Box 8, Wawota SK SOG 5A0, Canada. Call 306-739-2896 or email sunnybrae@rflow.com.



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