

# Making ‘Badlands’ Better

Building soil organic matter is why this North Dakota producer likes bale grazing in the winter.

by Kindra Gordon, field editor



**S**outhwestern North Dakota is rugged Badlands country. Soils are fragile, grass species are limited and precipitation is sparse, averaging a little more than 10 inches (in.) per year. Near the tiny town of Rhame, John Lee and Ellen Njos bought their ranch in 1973, raising commercial-Angus cattle and a family of five children.

Early on, John Lee recognized that managing their grass and soil resources would be paramount to their success — and survival. Of their first decade ranching, he says, “We were depleting our resources, and I was concerned about that.”

In 1986, Njos attended a grazing management workshop being offered in Bismarck by Allan Savory, who was promoting intensive, rotational grazing. Njos attended — and returned home ready to make some changes.

“That’s where it started,” he says.

## First steps

Among their first changes were the addition of electric fencing and water developments as they began to experiment with rotational grazing. Given their remote, rugged range, Njos says, “Our biggest challenge is — and probably will continue to be — getting water to the cattle, especially in drought years. That’s what we have to work around. We’ve put in a lot of pipeline, and we also have an old truck that holds 4,000 gallons and semi-trailer for water storage.”

Today, their 4,600-acre operation has evolved from a combination of cattle and crops to solely raising cattle. Their daughter Angela, who previously worked as an accountant in Bowman, N.D., returned to the ranch a few years ago, after making

the decision to adopt two little boys from Ethiopia. She recently married Luke, who lost his wife to cancer and had four young children. The couple had a baby girl this spring, so they are raising seven active youngsters on the ranch.

The family focuses on grazing their cow herd for as many months as possible, which means bale grazing through the winter has become an important part of the operation. To optimize use of their land for grazing, they purchase most of their hay, but occasionally they will put up some bales if it’s an abundant forage year.

A typical grazing season begins in May on their introduced grass pastures — those with crested wheatgrass, Kentucky bluegrass or even cheatgrass. Yearling heifers are managed as a separate herd, while the mature cow herd is managed as one large herd with a stocking rate averaging about 230 head on 2 acres; cattle are moved three times a day. They will usually graze an introduced pasture once, but possibly twice, depending on the growing conditions that spring. If a native pasture has an area with several cool-season grasses, they will put poly-wire around those areas to graze them early, as well, in hopes of giving native grasses a chance to re-establish in those areas.

Njos explains that the high stock density results in increased manure nutrients on the pasture, along with hoof action to trample that manure and plant litter into the soil.

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“We mostly do this on our introduced grasses or former hayland that is an alfalfa-grass mixture,” he explains. As a result, Njos says they are seeing improvement to their soils and a regeneration of grass productivity, including more native species getting established.

During breeding season, the herd may

be separated into smaller groups for artificial insemination (AI). By mid- to late June when cattle are moved to native grass pastures, the rotation slows down to 2 to 4 days depending on growing conditions.

Njos notes, “Seldom do we stay in a pasture 10 days.”

Also, at least one or two native pastures are deferred for one entire grazing season.

“This allows native grasses to seed out, and we are seeing some species diversity coming in there, too,” he says.

## Bale-grazing tips

The Njos cow herd continues grazing into fall; steer calves are marketed as “natural” via an order buyer by mid-October. Heifer calves are kept for replacements and are usually left on the cows until December. By January, cows and weaned heifer calves will begin bale grazing.

Njos explains that in the fall they usually begin setting bales out on the introduced pastures where they plan to bale-graze come winter. Bales are placed about 25 to 30 feet apart. They aim to put out enough bales so that a tractor rarely needs to be started.

Electric fencing to separate the bales is also



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usually set up in the fall. They aim to have the herd bale-graze an area for about five days before moving on to fresh bales.

With five or six years of bale-grazing experience, the family has learned some tricks to make it work:

- ▶ They use a lightweight aviation cable that can be electrified. This works better, because Njos says they've learned that frost takes down the charge in polywire. They originally got their cable as "recycled" product from Canada, but Njos says now trade stipulations have made it difficult to get.
- ▶ Forage quality of the bale makes a difference. Njos says they've learned if the energy in bales is 60% total digestible nutrients (TDN), cows will eat most of the bale. However, when bales are 50% TDN, the cattle tend to leave more stems, or litter, on the ground. Because that litter can add organic matter to the soil, Njos says, they use the poorer-quality bales on poorer soils because they know the litter is beneficial. They also strive to buy hay based on energy content, and pay accordingly for higher- or lower-quality hay.
- ▶ They keep a reserve of bales on hand. "We don't put out all of our bales for

## Other adaptations

As John Lee Njos has focused on improving his range and pastureland during the past four decades, he's had to be open to making changes.

When they phased out cropland from the operation, they reseeded those lands to grass. Njos says his favorite species for their area include green needlegrass, western wheatgrass, slender wheatgrass and big bluestem. Because they are in an area with sage grouse habitat, they have been able to secure some cost-share funds for re-establishing grasslands.

Njos is also working to match cow size to their Badlands environment. Specifically, he's selecting for thick, deep-bodied cattle with a smaller frame. "That body type seems to allow them to do better with winter grazing," he explains.

Regarding their high stock density, Njos says it has been one of his favorite management tactics they've implemented.

"It speeds up the water cycle, mineral cycle and energy flow because cattle leave more nutrients [manure and plant litter] behind, and our soil has benefitted," he says. Their alfalfa stands include a mixture of grass. Njos says grazing at a high stock density has eliminated alfalfa weevil problems, which can be an issue in the area.

grazing, because we don't want any leftovers out there," Njos says. They try to place enough bales to graze through March, then if they are running short, they will start to place bales where they want the cattle to graze. About April 15 they begin calving. Usually on a hill in their winter pastures they'll make a spot for their reserve of stored bales. These are placed in rows butt to butt. The rows run north and south and are about 3 feet apart. Njos explains that they've found that this placement allows the sun and wind to help melt any snow between the bales.

"We have less spoilage," says Njos. An electric fence is put around the reserved bales, until they may be needed for the cattle in the winter or spring.

Njos says even in just a few years bale grazing has increased soil health, especially on their poorer soils.

"When you figure what you pay for fertilizer vs. hay, bale grazing has a pretty high value," he concludes.



**Editor's Note:** Kindra Gordon is a freelancer and cattlemaster from Whitewood, S.D.