

# Reading the Prairie

*An Application for the 2011 Leopold Award*



**I**f you watch Eric Arneson ride across the prairie, you'll notice he's frequently looking down. Watching the grass is a habit for this Chance, S.D. rancher – and one of the many reasons he saddles up whenever he can.

"It takes more time than jumping on a 4-wheeler, but I am able to see more when I ride," says the fourth-generation rancher.

Arneson, 42, has plenty to watch as he rides across his family's 21,000-acre ranch near Bison, S.D. Since relocating his family, cow/calf and backgrounding operation from Big Timber, Mont., in 2004, Arneson has devoted his resources to grassland restoration and conservation.

In the span of just seven years, he has implemented rest rotation grazing on 16,292 acres of range and pasture, maintained an existing cell grazing system, converted 2,500 acres of crop ground to perennial pasture/forage, installed a

well/pump house, 29 water tanks, 15 miles of pipeline, 6.5 miles of fence, planted 4,738 feet of windbreaks, and improved the riparian zone along Thunder Butte Creek.

"I recognize what the good Lord has given me and I want to take care of it," says Arneson, who says his mom and dad taught him the importance of conservation practices and grazing systems when he was growing up on his family's Montana ranch.

"Dad implemented many conservation and grazing management practices which helped increase production and reduce his livestock's footprint."



*Implementing a rest rotation grazing system increased Arneson's grass production by one third.*

Arneson had to leave the land his great-grandfather homesteaded when real estate development made expansion cost prohibitive.

"We couldn't compete with the movie stars. We had to make a decision – either continue working a day job and ranching, or create something the next generation could move on with," says Arneson of the decision which brought him, his late wife, Kam, and their three children to South Dakota.

Arneson's land sits where the town of Chance once stood. His horses now take up residence in what had been the community livery barn, built in 1901.

## **Buffalo knew what they were doing**

Growing up, Arneson learned to read and understand the prairie. He learned to identify plant species by participating in 4-H and FFA range judging, and in college, he signed up for as many animal and range science classes as he could.

When he first moved to Chance in 2004, the rangeland lacked species diversification.

"I looked at the way the land was historically used and could tell based on the predominant species in each pasture what time of year the pasture was grazed."

Grazed at the same time, year after year, the pastures not only lacked species diversification, but the presence of introduced species, like crested wheatgrass in some pastures, was an indicator to Arneson that the land had previously been overgrazed.

To turn this around, Arneson implemented a rest rotation grazing system. He turns his 700-cow herd out to graze in pastures he's sectioned off in 1,000-acre parcels. Depending

on the year and moisture availability, Arneson rotates his cows through a pasture about every three weeks, or the time it takes them to graze down half the grass.

Each year he rotates when the pastures are grazed, and every third year, some pastures are taken out of the rotation to rest.

He began implementing the rest rotation grazing system his first year on the ranch by grazing the pastures exactly opposite how they'd traditionally been grazed. He says the prairie responded immediately.

"Basically I rotate the cows to mimic what the buffalo did. They would wipe out an area and then stay away," he says. "I thought it would take longer than it did. By altering the grazing season, it only took a couple years to get the plant diversity balanced out. Ride through our pastures today and they are home to a very diverse grass species population."

Implementing the infrastructure for the rest rotation system required a hefty investment of time and money.

Working with Natural Resource Conservation Service and Environmental Quality Improvement Program (EQIP) cost share programs, he installed a well/pump house, 15 miles of pipeline, 29 water tanks, 6.5 miles of fence, and planted wind breaks on 16,292 acres of range and pastureland.

The investment paid off. Today, Arneson runs the same number of cattle - 700 cows and backgrounds up to 900 calves - on the land as the previous ranchers. However, because of the grazing systems he's implemented, the land produces more than a third more grass.

"I am glad that I can take care of the resource for years to come. I'm now producing enough feed for the livestock I'm running, and the wildlife, so in the leaner years, I will have a sufficient supply to get us through."



Along with rest rotation, Arneson also manages a cell grazing system on 2,845 acres of land that is surrounded by farm ground.

In the cell grazing system the cattle are moved through one of seven cells every seven days throughout the growing season.

“These acres lend themselves to this system. The acres in the cell grazing system are actually tillable acres that have never been broken. Our other acres are a better fit for rest rotation as they are much more fragile.”

To maintain species diversity, Arneson rotates up to 200 pairs through counter clockwise one year and clockwise the next. He begins the rotation in a different cell each year.

The cell grazing system was implemented by the previous owners as part of an EQIP contract Arneson took over when he purchased the ranch.

## Managing for drought

The first years Arneson ranched in South Dakota were dry years. Familiar with drought cycles, Arneson designed his grazing and forage management plans and the ranch infrastructure with drought in mind.

“Drought is a part of the cycle in this area. We need to be prepared for the dry years as well as the wet.”

He builds up a grass bank each year by grazing only half the available forage and stockpiling hay. When the next drought cycle emerges, Arneson says that the extra hay he’s been using to background calves will go to his cows and he will sell his yearlings and preserve the herd’s genetics by keeping his cows.

## Water’s role in grazing management

When miles of pipeline and several water tanks were installed throughout Arneson’s land, he noticed an improvement in weaning weights.

“The cattle responded to the fresh well water. The calves picked up an extra 40 to 50 pounds because their mother’s milk production increased and the calves drank more water.”



*Converting cropland to pasture and hay ground saves on input costs and reduces erosion and nutrient leaching into Thunder Butte and Hart Creeks.*

Arneson explains that prior to providing fresh water the calves would not drink out of the stock dams because the water had become rancid during the drought.

Today, although the dams are full, he says his cows use them more as a place to cool off on a hot day. They walk to drink out of the tanks he has strategically placed throughout his pastures to help manage stocking rates.

“I have them placed to draw the cattle to different areas of the ranch so they evenly graze all the ground.”

In 2010 he installed rural water throughout his ranch to use in case of drought.

## Reclaiming 3,000 acres of cropland

When Arneson took over managing the land in 2004, 3,000 acres were farmed. After realizing the inputs required to harvest a crop, Arneson set about returning most of the cropland to permanent haying acres and native grassland.

“What producing grain was doing to the soil, and what it took





## More about Eric Arneson

*Eric Arneson is the father of Sydney, 15, Reed, 13, and Ian, 7. Today, as the co-owner of Arneson Ranch in Chance, S.D., he lives out his passion for conservation and raising livestock that he developed growing up on a ranch in Big Timber, Mont.*

*Arneson ranch is a family-owned ranch. Eric is the managing partner, his brother, Matt, and mom, Marlis, are financial partners.*

*Arneson is on the board of Indian Creek Lutheran Church, Bison School Board, Perkins County 4-H Rodeo Association, a volunteer on the Meadow Volunteer Fire Department and a member of the South Dakota Stockgrowers Association. Over the last 14 years, Arneson dedicated much of his time to find a cure for his late wife's cancer. He is a supporter of the American Cancer Society and the Susan B. Komen Race for the Cure.*

to produce a bushel of wheat, really went against the grain for me," says Arneson of the high input costs. "To me, this just wasn't sustainable for our operation."

He enrolled most of the acres in EQIP and CRP programs; planting acres to hay ground and a diverse mixture of native grass species. In both programs, Arneson worked with specialists to develop customized seed mixtures which enhanced species diversity and grassland quality.

Arneson no-till plants the remaining acres to grain crops for feed and scavenger crops like millet, and plans to use cover crops which don't require fertilizer, fix nitrogen in the soil, prevent erosion and help extend his grazing season.

The move from cropland to grassland not only makes his grassland more sustainable for livestock production, but also provides excellent wildlife habitat.

"The wildlife diversity on the land has increased dramatically. The way I see it, wildlife diversity is a good indicator of our current management plan – like a canary in the mine. When I see wildlife thrive, that's when I know that we've left enough that we can make it through the tougher years."

A portion of this crop ground ran along Thunder Butte Creek, which feeds several tributaries and other intermittent streams. By converting that land to permanent hay ground, Arneson is able to prevent erosion and leaching of sediment and nutrients into the creek.

An additional side benefit to seeding the creek bottom back to permanent hay ground is low-stress weaning. He puts nose flaps on the calves at weaning time and leaves them with the cows for almost a week and then turns the calves out on the hay ground along the creek for 60 days.

"They can't suck on their mothers but they get to stay with them until the physical attachment is gone. When we take them away from their mothers and turn them out on the creek bottom there is no bawling or shrink. It greatly reduces sickness at weaning."

## A living legacy

When Arneson left the mountains of Montana for the prairie of South Dakota, he and his wife, Kam, did so to preserve the way of life they loved for their children, Sydney, 15, Reed, 13, and Ian, 7. Today, the task is on Arneson's shoulders alone. Kam passed away in October after battling breast cancer for 14 years.

He says although meeting this challenge hasn't been without its obstacles, he will continue to work to create a more sustainable landscape and livelihood on the land for future generations.

"I think I got inoculated at birth to ranch and care for the land. I had no resistance. I have found great joy in caring for livestock, machinery, crops and the land. If you take care of it and look out for it, the land will care for you."

## Arneson Ranch

