N.D. rancher builds biological capital

By **ALAN NEWPORT**

OVER the past 40 years, Gene Goven has proven the real financial value of biological capital on his ranch in Turtle Lake, N.D.

Since Goven changed his entire management style in 1982, his soils and forage have improved so much he has increased stocking rate by 345% and his daily gain on heifers and steers combined by just over one-half pound per day from birth to 205-day adjusted weaning weight.

Goven once was a traditional manager using continuous stocking and grazing. In 1986 he attended a holistic management course, which taught him to analyze decisions differently and to manage grazing with planning and monitoring. Prior to that he was managing cattle first instead of grass first.

His result has been development of a grazing system that more closely matches natural systems, and that has led to more productivity from the land and livestock and more resiliency in his production systems. This is a renewable form of capital.

For example, 2008 was a serious drought year for Goven and many others in the Northern Plains. Goven says the 13-month period from July 1, 2007, to Aug. 1, 2008, was the driest in the 110 years of records for his area. He had received only about 2 inches of rainfall by mid-June, yet by the time the season was through he ran as many cows as any other year and still protected the fall greenup of his native cool-season grasses.

In April 2008 he had reduced his normal intake of cattle and stocking rate by about 30%, but some timely moisture in September and October allowed him to boost his fall grazing significantly, particularly on the multiple-species cover crop he puts on his crop ground.

Keeping tabs

Goven has monitored the true attributes of his landscape with help from the Natural Resources Conservation Service and North Dakota State University scientists. Together they have watched the soil and forage change and get stronger.

Goven operates mostly as a custom grazier. He says he plans for drought every year and focuses on soil health. And every year he finds people who run out of forage and need what he always produces.

TRUE GREEN: Gene Goven is proving healthy land is better than money in the bank because it can produce more wealth, even in the worst drought year on record in his part of North Dakota.

Credit due

"It's all about the soil," Goven says, sounding a bit like an old-time farmer.

His management has helped the forage grow stronger, which has allowed more mobile and capable biological soil life, which has built soil fertility. All those things have provided more water-capture and water-holding capacity in the soil.

The sum of all these parts isn't as great as the whole effect, he explains. Every symbiosis is additive with another in a healthy biosystem.

An example of this can be seen on one of the high knobs of his ranch, which was nearly all heavily capped with algae in Goven's continuous grazing days. Back then, the few grass plants present had roots penetrating only 3 to 5 inches into the thin, tan soil.

Today NRCS and NDSU have documented that grasses on the knob send down roots four to 10 times as deep. The soil is nearly all covered in actively growing grasses or litter, and when Goven digs a spade in, he turns up soil with a surprising amount of dark color from the surface well into the root zone. The gray calcium-based color begins about 5 or 6 inches down.

"That light color used to run all the way to the surface," Goven says.

"Carbon is black," he adds, "so the darker the soil the more carbon it holds and the more organic matter you have.

"Duane Beck says 100 pounds of dried soil with 1.5% to 2% organic matter will hold 35 to 40 pounds of water, and 100 pounds of dried soil with 4% to 5% organic matter can hold 165 to 190 pounds of water," Goven says, quoting South Dakota's no-till guru.

Goven and the scientists he works with also have demonstrated tremendous improvement in his soils' ability to take up water. Before 1982, the average infiltration rate was 0.8 inch per hour. About eight years ago, it was scientifically quantified at 6.2 inches per hour. Goven's own data now shows some areas are up to 10 inches per hour.

In the old days, Goven's thin hilltop soils once produced only 400 to 500 total pounds of forage per acre per year. Goven says he now leaves a minimum of 1,000 pounds of forage behind after the final grazing.

Managing soil life

"It took me a long time to realize you don't build the soil up, you build it down," Goven says.

He learned long ago that properly timing grazing and recovery can dramatically affect grass health and therefore soil richness and health. As he learned some principles — such as waiting until he has three leaves on western wheatgrass and porcupine grass before the first grazing, thereby helping those preferable forages to compete against Kentucky bluegrass — he began to understand how he was building root mass in the soil and therefore increasing carbon.

As the soil and soil life have thrived under Goven's management, they have paid him handsomely with more beef, more wildlife and a longer grazing season — 230 to 270 days now vs. 150 to 180 days in years gone by.

"We're staying green longer — we're getting up to three weeks additional growing season," Goven says.

Diversity pays

He boasts perhaps a bit more than 1,000 species of plants, according to the range scientists with whom he has worked.

A partial inventory of range plants from one paddock in 2001 by a trio of range scientists showed a desirable and natural ratio of about three forbs to one grass plant.

Most of the roughly 30 permanent paddocks on his 1,500-acre ranch never see cattle more than seven days a year, and they typically get 80 to 90 days of recovery time in the growing season between grazings. Those 30 paddocks sometimes become many more when Goven subdivides them with temporary fence.

Most years, Goven grazes conservatively in the spring and summer, then takes in additional cows in the fall. He always manages and monitors to see such things are not damaging his predominantly cool-season forages, which are highly dependent on fall photosynthesis and storage of carbohydrates in their roots.

Goven explains that planned grazing plans when, where and why to graze and makes certain that plan succeeds.

Other perks

The grazing plan itself has paid Goven dividends, even above the biological capital he has built into his soil and plants. When fly populations begin to build, he uses his biological planning and monitoring to alter his grazing plan and leap forward (or backward) at least a quarter mile and leave the fly larvae behind.

The strength of his sod and the ability to control the grazing habits of his stock let Goven control most weeds, even invasive species, with only little and occasional herbicide use and expense.

When everything is right with the soil life, Goven says, the litter on the soil surface should smell good and a little musty.