



Dan Caudle, shown here in front of the BRIT building in Fort Worth, works with that organization and TCU Institute of Ranch Management Living Laboratory to assess how management practices affect a healthy rangeland.

Beneath the Cows

Plant, soil, and manure monitoring are easy, inexpensive, and provide valuable information for any cattle operation.

By Katrina Huffstutler

Editor's note: This piece is the fourth in a series of six on the Texas Christian University Institute of Ranch Management Living Laboratory. In this month's installment, we will focus on the plant and soil resources component of the laboratory and its practical application on any cattle operation.

When the Texas Christian University Institute of Ranch Management Living Laboratory was still in its earliest stages, Dan Caudle came on as an advisor through his volunteer position with the Botanical Research Institute of Texas. The retired rangeland management specialist for USDA Natural Resources Conservation Service (NRCS) was tasked with deciding how to best measure the health of those things just below (and above) the surface.

“The folks at the Texas Christian University Institute of Ranch Management and the Botanical Research Institute of Texas, along with Jon Taggart, were trying to work together to develop a long-term assessment of how his management practices — grazing management and all of the other management inputs he does — affect plant species composition, soil health, biodiversity,

and all those things that come into play with a good, healthy rangeland,” Caudle says.

“We had to figure out how we could quantify the changes in species composition over time and how we could document what was happening based on what Jon was doing.”

Once the protocols were developed, Caudle helped the graduate students involved in the project go through them: gathering data, clipping and weighing forages, and determining stocking rates based on production conditions at the time. These measurements were (and are still) taken at least twice per year, sometimes three or four. The collected information is then passed on to Taggart.

But this timely, science-based management style is not limited to the Living Laboratory and does not require a dedicated team of data collectors. Caudle says that any cattle raiser can take the same steps on their own operation and reap the benefits.

Look and look again

Throughout the year — not just during the growing season but also during dormancy — Caudle says

ranchers can monitor what is going on in each of their pastures as their cattle rotate through. He says while it may seem daunting, good monitoring is a daily job.

“While your cattle are grazing that pasture, look at it every day,” Caudle says. “The goal is to remove a certain amount of forage within the given grazing time for that pasture, and this will vary based on the intensity of the grazing program.”

Another tool that Taggart and many others use effectively, Caudle says, is monitoring the manure.

“It’s kind of humorous when you think about it, but you would be surprised what it can tell you,” he says. “The manure the animals produce can give you a good indication of the quality of the forage they are consuming. Is the stool runny, soupy, or hard and stacked up? Each of these characteristics means something that can help you more effectively manage your cattle and natural resources.”

There is even an app for that. It is called Cow Poop Analyzer, available on both Apple and Android devices at no charge.

Caudle says that looking at the manure can tell you as much or more than the grass itself will because when a rancher clips grass, he does so assuming that is what the cows are eating. But that may not always be the case.

“Sometimes the cow fools you,” he explains. “She does not always eat what you think she should.”

What we don’t know, we don’t know

The caveat to Caudle’s advice, of course, is that without accurate plant identification, any monitoring is useless.

He says there are two key times to identify which species of grass or forbs are present: before the cattle enter a pasture and after they have finished grazing it. This tells ranchers what they started with, and what the cattle have left behind at any given time of the year.

Caudle says plant identification can get tricky, especially when a plant may not have a seed head on it and the only identifying marks might be on the leaf or in where the hair is located. Fortunately for cattle raisers, there are multiple resources available to help.

He says that often the most practical place to look is at the local county Extension office or local USDA NRCS office. Both will be stocked with publications containing information about key forage plants in the area.

For ranchers located within about a 100-mile radius of Ardmore, Okla., the Noble Research Institute is another resource, with plant galleries online and in

What’s that plant?

Get help identifying the plants on your place at your local Extension office, or through one of the sites or books below:

nobleapps.noble.org/plantimagegallery

rangeplants.tamu.edu

plants.usda.gov/gallery.html

Range Plants of North Central Texas by Ricky Linex

Common Rangeland Plants of West Central Texas by George Clendenin

Grasses of the Great Plains: A Pictorial Guide by Chuck Coffey and Russell Stevens

Common Rangeland Plants of the Texas Panhandle by USDA NRCS *

*This book is out of print and harder to find

print publications. Of course, there are books, too, as well as a myriad of websites and apps.

It is also important to know your soil, Caudle says. For only \$12, ranchers can mail a soil sample to Texas A&M AgriLife Extension Service, and he says it is well worth the time and (little) money.

“Believe me, spending \$12 to get an analysis and learn what your soil is lacking — whether that is nitrogen, phosphorus, or calcium — you can make the cost back in a hurry when you know what is limiting your pasture from producing certain plants.”

He says while he generally works with ranchers whose cattle graze on native plants, those who use introduced species like bermudagrass can benefit even more.

“If you are fertilizing, then those soil samples that you send off for analysis are essential because they will tell you how much fertilizer is optimum and how much is needed,” Caudle says. “Then you are not wasting any by applying more than you need or by not applying enough. That will save you money in the long run.”

Find forms and instructions at soiltesting.tamu.edu/files/soilwebform.pdf.

To learn more about soil health, Caudle again recommends Texas A&M AgriLife Extension, USDA NRCS, and Noble Research Institute. Each organization has free information to access at their offices or online, or hard copies of publications available for purchase.

“Getting advice and doing research is always good,” Caudle says. “But nothing beats knowing for sure.” ■