

Make Soil Work for You

Optimizing soil health can help reduce inputs, increase available forage and improve the bottom line.

Many ranchers are in a “more is best” mindset — more production, more livestock, more income. Yet, maximizing your operation’s output doesn’t always maximize your profit, because this constant pressure to produce more sometimes overlooks the input side of the equation, as well as the potential negative effects of high production on soil and other resources.

At Noble Research Institute, we recommend that livestock producers make their goal to optimize instead of maximize production for the good of both soil health and ranch sustainability. Optimizing ranch production strikes the balance between inputs (direct costs, labor, equipment) and gross output (actual production and revenue), which makes the operation more profitable. And one way to optimize your land’s production is to put your soil to work.

Healthy soil stands as the cornerstone of a profitable regenerative ranch because it can help ranchers simultaneously reduce inputs and increase net margins. Often, you also can increase forage production within a few years of adopting regenerative management.

Save money by using what you have

The cost to buy and apply inputs for pasture fertility and weed control adds up quickly in dollars and labor hours. So, the low-hanging fruit for people with introduced pasture and grazed cropland to save money is to reduce inputs.

On Noble Ranches, we’ve learned first to make good use of what we already have. We have pulled routine applications of synthetic fertilizers and herbicides out of our management practices. We use some herbicide on invasive woody

plants, but it is very targeted and not a routine, annual application. Fertilizer and herbicides are tools we consider, but we strive to do without in order to best learn from this extreme position.

As we have learned to make do with what nature provides, there have been significant cost savings.

Some ranchers may be stuck in an endless cycle of applying fertilizer and chemicals to maintain pristine improved pastures. Yet, the cost of these added inputs isn’t just an ever-increasing fertilizer bill; it also takes a toll on the land. One of the myths around introduced pasture is if we just fertilize it and take care of the weeds, we can continue to perpetuate this indefinitely without detriment. But we just can’t put back enough of the nutrients being removed at the rate needed to have a highly functional nutrient cycle and healthy ecosystem.

Traditionally, cattle ranchers have spent a lot of effort and money on introduced pastures trying to keep them productive and pristine, weed-free monocultures. We came to believe that by applying nitrogen (N), phosphorus (P), potassium (K) and occasionally lime and other macro- and micro-nutrients, we could replace, mimic and enhance what nature does in native grazing lands. However, synthetic N, P and K are not the same amendments that nature and regenerative grazing provide to the soil; and the temporal benefits that come occur at the expense of soil health.

The regenerative ranching approach starts with simply using what you have. By beginning to manage your land to improve soil health and by maintaining plant materials to cycle and feed the organisms and the soil in addition to the

cattle, ranchers can stop using fertilizers and chemicals on their land. Instead, the natural processes — such as the water cycle, nutrient cycle, energy flow and community dynamics — work together to create a highly functional, self-sustaining ecosystem. When your soil works optimally, as nature intended, it produces more forages.

Increase green by optimizing soil health

Healthy soils produce more green — literally and figuratively. Healthy soils absorb more rainfall with less runoff. They also grow more forages over the year, which keeps the ground covered and protected.

Healthy soils add grazing days over a period of time, building carrying capacity, forage production or both, and therefore give us opportunities to enhance our stocking rate or better utilize our stocking rate with different enterprises.

More available forage is just part of the optimized ranching equation. Mindfully managing these forages is of the utmost importance to grow more grass throughout the growing season. Overgrazing can set back your stand of grass and hamstring livestock production. Pastures recover faster when not overgrazed, just as your lawn does when you don’t mow it too short.

If we take all the forage by grazing it short, recovery takes longer, and we may never reach the pasture’s potential because plants must regrow from the ground up versus just regrowing leaves. That pasture may never fully recover before we are ready to graze it again because the plants just can’t grow back fast enough.

Also, by preventing grazing livestock from removing too much forage from a field, you can keep the ground covered, thereby increasing organic matter, decreasing weed pressure and encouraging forage recovery and regrowth.

This careful attention to detail also can save on supplemental feed costs. Noble Ranches have been able to feed little to no hay by using regenerative grazing for soil health. Not only does it help the pasture rest and recover, but it also ensures cattle always have nutritious forages available to graze. Our ranch managers hope to feed hay only in icy or other extreme conditions by making the most of their forages year-round and keeping their soil healthy.

Add profitability with new forage strategies

Having plenty of available forage for cattle grazing is certainly a goal most of us share. But what if our management decisions were made based on what is best for our land instead of just our cow herd? While it's natural to focus on cattle production, by pivoting our decision-making process to become more land-centric, we may have more opportunities to make money.

A simple example of this land-centric approach would be stocking fewer cattle to ultimately realize more profits as we manage the ranch with fewer added inputs. Another option is to look beyond cattle to adding a complementary grazing species, such as sheep or goats, as an added income source. Or review your marketing strategy based on available forage supply. If you have ample forage, you might be able to capture more added value by backgrounding your calves on grass to heavier weights instead of selling them at weaning.

It's easy for us to put a value on a cow because we sell its calf, but we've got to value the land and treat it well, so it sustains us into the future.

Observe and learn from real-world results

I've seen producers become more profitable when they manage their ranch for optimal soil health. On one of our Noble Ranches, we saved about \$50,000 on fertilizer when the staff started

managing the 3,000 acres of bermudagrass pastures for soil health.

They also saved more than \$15,000 by not spraying the weeds on that ranch. I'll admit, that means the ranch isn't always pristine or picture pretty. The pastures were admittedly weedy, yet through regenerative grazing, we used many of the weeds or forbs as a forage, taking advantage of their usually higher crude protein and energy levels. As the soil cover increased over time, we had fewer but even more diverse forbs, and those pastures yielded 30-40% more grazing days — weeds and all — by using regenerative grazing.

Another example is a rancher who weathered the 2011-2012 drought by being mindful of his land's wellbeing. After monitoring winter rainfall leading into the spring, he could see there would likely be a drought. So, he pared down his cow herd by a quarter, selling older pairs and problem cows for good money before the market reacted to the coming drought.

He said, "I'm going to get rid of everything that is older, has bad udders, is a poor performer, anything ugly, I don't like or has ever looked at me the wrong way."

With a lighter stocking rate, this rancher made it through the drought with plenty of available forages. In fact, that year ended up being one of his most profitable, and it put him in the position to buy the heart of his neighbor's cow herd when his neighbor no longer had the forage needed to sustain cattle during the drought. Caring for his land rewarded him greatly with a profitable year during a challenging time, plus new, improved genetics to continue to build his cow herd.

Ultimately, managing land in a regenerative fashion with a focus on what's below the ground can yield more significant profit, and these management decisions can be implemented slowly and steadily over time to improve both the ranch and the bottom line. We recommend starting with low-cost

Photo courtesy of Rob Mattson/Noble Research Institute



Healthy, thriving introduced pastures are not monocultures.

improvements with the potential for big returns, such as temporary fencing to manage grazing livestock more intensively to optimize soil health.

One common misperception about regenerative ranching is that you have to put in a lot more infrastructure right away, but it's always best to start with what you already have. Then put your first dollars where you're going to get your biggest return — in a manageably sized area in your more productive pastures. Step into regenerative grazing and soil health management at a scale that you can manage successfully.

The most crucial part of managing your ranch is constantly evolving and bettering your practices to optimize soil health (see Evaluate Soil Health, Page 18). The big thing is we never stop learning. As an industry, we have spent most of our time looking at the cow. We have got to begin looking not only at the cows but also at the pasture and below ground. We have to look at the soil and help it work for us. **BA**

Editor's Note: This is part of a continuing series of articles about regenerative ranching from Noble Research Institute, long trusted by beef cattle producers for supporting beef cattle producers with research, education and mentorship. Look for more in future issues of *Baldy Advantage* and *Hereford World*, as well as in special 1881 podcasts, at Hereford.org. Additional regenerative resources and past articles in the series are also at Noble.org.

Hugh Aljoe is director of ranches, outreach and partnerships at Noble Research Institute, which will provide more about getting started with regenerative ranching in the September issue of *Hereford World*.