

## **New Soil Test Results for New Grazing Methods**

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*“The only essential is organic matter and the herbal ley is itself the best builder of humus and thus fertility, in the soil, and healthy productivity in the animal. This will render the farmer, independent of the use of artificial manures and restore the capital back to the landlord.” ~ Newman Turner*

*“Organic matter on the soil surface has the ability to collect from the atmosphere ‘aerosols’ containing phosphates and calcium and it is the best means of maintaining and increasing essential available nutrients in the top soil.” ~ Sir Albert Howard*

Soil tests aren't always great motivators, but the ones I took in 2008 sure were. They showed stark organic matter differences between the paddocks up on the hill (2.5%) and the few behind the barn (5%). The results produced an insatiable appetite to change my grazing and land management in a way that I hoped would build healthier soils, plants, animals — and a healthier bank account.

At the same time, I was being exposed to a bunch of certified Holistic Management educators teaching ecosystem processes, Missouri grazier Greg Judy talking about tall/mob grazing and grazing consultant Jim Gerrish's stockpiling techniques and our USDA-NRCS soil guy, Ray Archuleta, dunked soil clods in water to show us the power of biological glue in holding soil.

This set in motion a plan to create soil fertility with grazing management, animal impact, hay feeding, biological monitoring and summer fallowing of problem paddocks. All of this was going to happen without any form of tillage and without compromising weight gains on the beef stockers I graze here.

Armed with a 12-month grazing planning chart, I experimented with longer rest periods (30-90 days instead of my previous 15-30 days), taller residuals, more frequent moves (up to three times a day, compared the previous average of every couple of days) and the art of trampling — all while grass-finishing steers. Man, did I waste a lot of grass in allowing those fatties "luxury" grazing. The change meant fewer head on my farm. But the grazing season was extended by 80 days and plant and overall biological activity soared, as did dung beetle numbers and wildlife goings-on. I monitored the fields by eye, camera, soil feel, recovery times and dart throws to the point of obsession.

Based on my nutrient management plan, each year a selected, low nutrient and organic matter paddock was fallowed until after the grassland birds had fledged (around July 20). This field had some or all winter hay feeding on it and in May with the grass coming on, I spread my bedding pack from my barnyard/sacrifice area on it. People were scratching their heads as I was covering

8 inch grass with manure. I then left it until the mob was sent out to graze and trample the prairie-tall forage into the substrate, which yielded a wickedly robust sward come September. I thought to myself how cool this will be for my organic matter numbers.

Planning for stockpiling forage to produce extended grazing is an art form in itself. It is all about balancing animal numbers with needed acres, timely rain and, admittedly, some luck around 60 days before the first frost. I was willing to bet those well-rested roots were contributing to fertility by going deeper in the soil profile to extract minerals and slough off food for the microbes.

Stockpiling, coupled with pre-set bale grazing and rolling out hay (both out on pasture), achieved winter fertility transfer without tractors and manure spreaders.

After three years of this major management shift, I admit to having been worried about doing another soil test last fall. Would the numbers provide vindication, or scorn for my mentors and I? I could see and feel there was a distinct change in soil structure — especially in the heavily fallowed, mob-grazed field. But would this show up in the numbers?

I tried to be meticulous in taking the samples. On each of my 20 main paddocks (ranging from three to seven acres), I took double the recommended cores to a depth of six inches, mixed very thoroughly and let them air dry before I carefully packed them for sending to the Dairy One Lab in Ithaca, NY. I'm not gonna lie: I wasn't exactly comparing apples to apples. In 2008 I had cheapened out on the soil test, getting reports on the bare-bones NPK stuff, pH and organic matter. This time I wanted more, so I paid \$500 to get a more in-depth profile.

Here's what the tests showed. Total farm organic matter level rose from 3.4% to 4.6%, with an increased CEC average of 11.5. The pH went down slightly, to 6.4. Phosphorus is still very low (?), while potassium, calcium and magnesium are all high. Base saturation average values were as follows: K, 2.5%; CA, 69%; Mg, 18%; Na, 0.2%; H, 10%. Aluminum was 631, sulfur was 11 and boron was 0.8. According to Jerry Brunetti's soil report ideals, all these ppm/percentage numbers are in or near the ballpark.

The worst fields from 2008 are showing a glow of health especially in this early season. They have more plant diversity and thickness, are greener and taller compared with other fields and provide season long vitality (more grazing days) especially in August which is typically our grazing bottleneck. Another attribute is how much hoof action and flooding rains these swards can endure without truly pugging.

Am I going in the right direction based on my goals? I think so.

How to interpret these tests? My gut tells me to spend money on amendments, as are salespeople. But if my organic levels are increasing and soil biological life is flourishing, will these help me make more money? I can appreciate that numbers establish trends, but I think there are other

factors that also warrant measurement, such as soil carbon levels, nitrogen fixation from legumes, diversity and depth of plant roots, the dynamics of organic matter and humus, and biological soil health tests.

I now realize how much I don't know about my soils. However, I am inquisitive enough to be wondering how Mother Nature built such a resilient prairie ecosystem without salt fertilizers, grain, plows, GMO seed and risk management plans. And since I am certified organic now, I am learning that the more I replicate what works in nature with her kind of tools, the closer I can get to a truly regenerative system. Now if I can just slow down long enough to observe it happening, instead of clouding the process with rash decision-making.