Weekly Article

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Healthy Soils Equal Healthy Cattle

Hello, my name is Richard Purdin with OSU Extension, Ag and Natural Resource Educator, and Community Development Educator for Adams County. I hope to better inform local producers and the public of the latest news in the world of agriculture. The Autumn season marches on as we get closer to meeting old man winter and all his wrath. The mild temperatures and dry weather have continued well into the beginning of November, but some changes could be just around the corner with very cool air coming from our friends to the north. Corn and soybean harvest continues across the county with many producers wrapping up harvest and cleaning the combine for winter storage. As I make my rounds across the county, I would estimate that 85-90% of the soybeans have been harvested and 70% of the corn has been harvested. This is a common theme for the whole state, Cheryl Tunner, state statistician with the USDA NASS Ohio field office reported that as of October 31st 87% of soybeans have been harvested and 56% of corn has been harvested. Cheryl also reported that 93% of the winter wheat has been planted but only 57% has emerged. The drier than normal weather has been nice for getting row crops harvested but has presented challenges that could have very long-lasting effects, from grain transport issues down the Mississippi river, increase field fires, dried up springs, deteriorated pastures, and a concerning low water table. On the bright side, November is the month of thanksgiving and honor to our veterans who made it possible to live in the most productive and free country in the world. This past weekend I had the great opportunity to attend Baxla Tractor Sales Open house/customer appreciation event, there I was able to talk to many producers about issues, concerns, and opportunities in agriculture. I had a few questions regarding livestock health and forage quality. This got me pondering about the continuous, never-ending struggle to find the balance of raising quality forage that can provide all or at least the majority of livestock nutritional needs. Of course, I had to research and learn more.

Sometimes I tend to overthink things as many of us do! In the grand scheme of it all, it all starts with the soil. Soil health is often overlooked and only considered a medium for plant growth but in reality, it is so much more than that, healthy soil truly makes healthy plants in turn make healthy livestock and humans.

- **Soil must be alive to be healthy-** The key to soil health is the life that lives within it, bacteria, microorganisms, insects, and even small mammals all play critical roles in making soil a living thing. Life in the soil plays a critical role in breaking

down manure, and plant residues, this is supplied from the organic pool. When farmers take soil samples one of the many overlooked factors is soil organic matter.

- **Three parts of Soil Organic Matter-** The three main parts of soil organic matter consist of Living, dead, and very dead. Roughly 15% of soil organic matter is made up of bacteria, fungi, actinomycetes, and protozoa, this is considered the living portion of the organic matter. Another 15% includes dead microbes, dead plant roots, and crop residue, this is food for the living organic matter portion. The very dead portion of organic matter includes humus with makes up the remaining 70%.
- **Healthy soils = more nutrient availability-** As soil becomes healthier water holding capacity, cation exchange capacity (nutrient holding capacity) PH buffering, and chelating of micronutrients. When these factors improve microbes can do their job better by releasing nutrients to growing plants. Healthy soils create a relaxing environment for plants, with fewer stresses such as water, nutrients, compaction, and diseases.
- **PH levels play a key role-** Acidic soils less than 6.0 have major issues with toxic levels of aluminum and prevention of nutrient uptake by plants. When Soil PH levels are maintained between 6.0 and 7.0, plants will take up critical nutrients such as Phosphorus Potassium, calcium, and magnesium and store them in the plant cell wall structures. Forages that have adequate nutrients will have better nutrient content for livestock.
- **Calcium and Magnesium levels are critical for forages and livestock-** Calcium and Magnesium are critical nutrients for beef cattle and often an added supplemental expense in the spring and fall seasons. Domonic lime can be a good lime source for forages because it provides both calcium and magnesium to the soil which will be taken up by the plant. Calcium plays a critical role in skeletal growth, milk production, and the enzyme system. Magnesium plays the same critical role with the addition of muscular control and nerve impulses. Therefore, when cattle get down due to grass tetany, they have uncontrolled muscle movement and little nerve impulses.

In summary, supplemental minerals will always be needed on a cattle farm but relying on them solely for your livestock's nutrition is not rational or economical. Look at the soil as more than a medium for plant growth and something to drive your tractor on. Grazing management and other soil conservation practices can help create healthier soil which equates to healthier cattle and that means a healthier bank account!

Dates to remember

- NRCS EQIP Cost Share Program sign up deadline is November 18th Call (937) 544-2033 to make an appointment.
- 2022 Buckeye Shepherds Symposium- December 3rd OARDC Shisler Conference Center.

Ag Educator Words of encouragement – "If you tickle the earth with a hoe he will laugh with a crop" – **Douglas Jerrold**