

Grazing Bites

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I have driven down a lot of roads lately and observed pastures and crops across Indiana and several other states. Most pastures are thriving better than crops, at least the ones being managed well. In the areas where rain has never really completely stopped, forages, especially cool season forages like orchard grass and tall fescue, have not slowed down growth as much during what is normally a slump period or summer dormancy. If you haven't overgrazed, then there's a good chance your pastures look pretty good.



Compacted soils have a platy layered look, not a nice granular or cottage cheese appearance.

There is a lot more variability in the crops depending on when or if they even got planted. Plants quickly got accustomed to the frequent rains this year and some get lazy and don't put roots down as deep as normal. Well established perennials will do a better job of maintaining deeper roots than annuals or newly planted perennials under continued wet conditions. We need roots to go deep into the soil to be able to reach minerals and moisture under drier conditions. You maintain and support deeper roots in perennials by maintaining proper plant residual after any grazing event. That solar panel is critical for supporting the roots below ground. It all provides resilience for the system.

In some areas, after weeks and weeks of continued wet conditions, the rains stopped. This was especially true in parts of northern Indiana. Paraphrasing a good friend of mine in that area that has a dairy, he said: "...I was born in April of 1940, so I've seen a lot of spring and summers. We grazed until I was 25, then confinement until I was 49, then went to managed grazing and stayed there. In all of those 79 years, I cannot recall a more difficult spring and summer combination for farming in general and specifically grazing. Early spring was cold; then cold and wet. The amount of rain was not just the problem, but the frequency with a half to one inch every two to four days for two and a half months with no drying in between; just soggy wet fields with very little growth. It was impossible to plant crops or graze without creating problems. Corn and beans did not get planted until the middle of June at the earliest. Forages didn't grow, then they burst forth, and then went to head within two weeks. The fields were still wet, and we hesitated to potentially ruin a field by pugging it up even though we started earlier than we wanted to. Then it turned dry, and it did with a vengeance and growth had seemingly stopped and supplemental feeding has been a necessity seemingly all summer. Forages that normally have been consistently dependable struggled all spring and summer long."

I was glad to hear that they recently had an inch and a half of rain and forages turned a brighter green overnight.

The long continuous wet conditions this year have certainly added challenges. Cows eventually had to start grazing; hayfields had to be mown. There was a lot of activity done under very wet conditions. Those activities have had one major impact on all fields involved and an unintended consequence of most activities this year – compaction.

The most dominant physical issue in pasture soils is compaction. It's not hard to recognize. Have you ever tried to dig a hole or put a step-in post in the ground in an area where livestock have been concentrated during wet conditions? Once it dries out some, those soils are hard. What's going on? When soil is compacted, air space is pushed out. A viable healthy soil will normally be about 50% mineral with some of that organic matter, 25% air, and 25% water. Under compaction, water storage is reduced some, but air space is greatly reduced. Compaction creates dense platy layers that limit root growth. Compaction layers can be very shallow and are

often found in the very top portion of the soil profile. As a quick comparison, push a step-in post or tile probe in the ground in one of those areas utilized earlier this year under wet conditions and compare it to a fence row that didn't have that traffic. The difference is remarkable.

Compaction also affects the biological and chemical properties of the soil. Compacted soils tend to be more anaerobic and some graying of the soil can often be seen. That is, of course, caused by the lack of enough oxygen in the soil. Bacteria thrive under these circumstances, but it is much more challenging for earthworms and beneficial fungi. They exist in the pore spaces, so compaction directly impairs their ability to function. Plants depend on mycorrhizal fungi to exchange nutrients and this is one of the benefits of healthy soils; this synergy.

Compaction was almost unavoidable this spring and early summer. Pugged soil from grazing under very wet conditions added compaction. The first thing that comes to mind as a means to remedy compaction is some type of aeration. This is easier said than done and is usually very costly. I've seen a lot of para-plows used over the years to break up compaction in pastures. To be somewhat successful, this needs to be done under very dry conditions, so you get some fracturing of the soil. If done under moist conditions, even though it's a lot easier to do then, you tend to just move some of the horizontal compaction to vertical smearing. What appears to be improvements from such actions is quite often short term and the disturbance creates release of nutrients from oxidized organic matter.

Mercy, so what can you do? In the short-term, allow plants to have more residual after every grazing event and longer rests before being grazed again. Longer rests and more growth help to add organic matter to the soil and support increased root growth. Live growing roots can alleviate compaction over time and more roots and plant structure are more resilient. Keep grazing events short and keep them moving. In the long term, increase organic matter in your soils. Heavier soils, especially soils with more clay content are subject to compaction and the building of organic matter can help with compaction and certainly have other added benefits. Pasture management can help alleviate or reduce the effects of prolonged wet conditions, compaction, and certainly increase resilience for future events.

Where was I? Somewhere stuck between a challenging year and compaction that comes from it, I believe.

You may want to plan ahead and get fall seeded annuals planted early. Most of the common fall-seeded, cool season annuals can be planted now. My favorite mix is still spring oats, a brassica such as radish, rape, or turnips, and cereal rye. The oats will grow fast with ample moisture, yield well and can make some very decent hay or grazing throughout the fall. The brassica is a nice component and readily consumed by most grazing livestock. The cereal rye will come on stronger later and will overwinter and provide good cover for the next growing season and perhaps even some early spring grazing if soil conditions are favorable. Other fall seeded options would include triticale, wheat, and barley.

I would continue to look for opportunities and take advantage of planting annuals or cover crops that can also be grazed or hayed yet this year. Challenges are what make life interesting. Overcoming them is what makes them meaningful. Keep a positive attitude and keep on grazing!

Reminders & Opportunities

- **Purdue Forage Management Day** – August 7, 2019. Feldun-Purdue Agricultural Center. Register at <https://ag.purdue.edu/agry/dtc/Pages/Calendar.aspx> \$100 registration fee
- **Greener Pastures Field Day** – August 20, 2019. 5 p.m. CDT at E & F Farms, ECA Evanston Park, 11581 East County Road 1050 North, Evanston, Indiana. \$5.00 door fee, Dinner Provided, Reservations Due August 9th, Call Purdue Extension Office - Perry- (812)547-7084, Spencer- (812)362-8066, Dubois- (812)482-1782
- More pasture information and past issues of Grazing Bites are available at <https://www.nrcs.usda.gov/wps/portal/nrcs/in/technical/landuse/pasture/>