Agronomy "Crib" Notes

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Dealing with Wet Spring Soils

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The past few Indiana winters and springs have been excessively wet, which is especially problematic for row crop farmers. The first thing to understand is that in these situations you have no control over the weather; the timing, amount and intensity of any given rain event, etc. is completely out of your control. So, what can you do to achieve some level of control to get crops in the ground and growing? A "Plan B" for soil management is a good start. ***First, how can you deal with wet soils right now?***

Is it Too Wet to Plant?

Even if the surface is dry, take a small amount of soil from 2 to 4 inches down from the wettest part of your field in your hand. If you can squeeze it between your thumb and fingers and make a ribbon, it's probably too wet. If you make a ball of soil and drop it on the ground and it doesn't break, it's too wet. If you drive your tractor in the field and mud sticks to the tires and ruts are deeper than one inch, it's too wet. Planting in these conditions will increase compaction from your equipment and side-wall compaction in the planting slot – all of which will end up costing you more in the long run.

Planting Under Less Than Ideal Conditions

If planting cannot be avoided, here are things to consider:

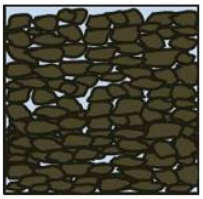
- Reduce the down pressure on the planter to a minimum that still gets the seed at the proper depth.
- Make sure your disk openers are sharp and adjusted with the correct spacing.
- Check the down pressure on the gauge wheels - you should just be able to turn the gauge wheels with some force when the planter is in the soil.
- Pay attention to the closing wheels, look to see if the soil covering the seed trench is crumbly or cloddy. Spiked closing wheels may help reduce sidewall compaction/smearing from the disc openers which will reduce root development.
- If you have row cleaners, run them high and let the sharp disk openers do their job (Operating too deep will uncover wetter soil and make planting harder).
- Lastly, planting your crop is not a race and you only get one real chance to do this right. Take your time and keep your speed down. Get out of the planter and check your soil conditions and seed trenches often. Waiting a few extra days for better conditions will minimize potential yield reductions from uneven emergence and poor stands that come from planting when it is too wet.

What Else Should You Consider This Spring?

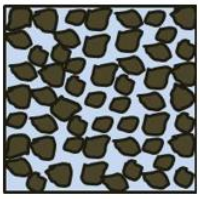
Prevent Compaction

When soils are wet, traffic and tillage increase compaction. Don't be over confident that flotation tires or tracks will prevent compaction. Compacted soils do not drain correctly since the pore spaces are reduced, which further reduces rain water infiltration downward into the soil profile, and surface water either runs off as erosion or ponds in the field. Prevent any compaction when possible.

Fields with soils that are higher in clay content may need some extra attention because they are more susceptible to compaction. Remember that an ideal soil composition is made up of 50% mineral and 50% open space, which will be a mixture of air and water.



Compacted Soil Aggregates



Normal Soil Aggregates

If the field has ephemeral gullies or surface crusting, avoid tilling the whole field to fix these issues. If reshaping or grading ephemeral gullies is absolutely needed, only work the minimum area needed. Since these eroded areas may experience a yield hit anyway, consider seeding spring oats to reduce the chance of these issues recurring during the growing season.

Since tilling anytime under wet conditions can cause compaction, no-till planting can be a solution. Consider that soil will support the weight of a planter long before it is dry enough to be tilled. If time is an issue, you may be better off just planting the crop through the crust. The seedlings should be able to come up through the planter slot.

What's Your Best Long-Term Contingency Plan Moving Forward After This Year's Harvest?

Improve Soil Infiltration

Natural recovery from compaction can be slow, taking years to decades or more. Cycles of wetting, drying, shrinking and swelling can break down shallow compacted layers, but deep compaction persists longer.

Growing roots are the best route to recovery because they help to break up compacted layers by forcing their way between soil particles. Plants with large taproots are more effective at penetrating and loosening deep compacted layers, while fibrous root systems can break up compacted layers near the surface and eventually work their way down deeper. Roots also add valuable organic matter to the soil and hold the soil open which can make the soil more resistant to compaction.

The use of cover crops after harvest is a good way to add more roots to the soil and increase organic matter. To get the most benefits, cover crops need to be planted early enough to achieve good growth. The earlier these annuals are planted the more potential root growth. The live growing cover crops will also continue to utilize and pull water from the soil until terminated.

Remember, tilling the soil may help you feel like you are doing something to help dry it out, but in reality, it does more harm than good. Tillage does not increase infiltration, but instead results in crusting and compaction. Use of minimal tillage, or ideally no tillage, can provide some solutions for wet soils. Limit tillage to only where and when absolutely necessary, e.g., fertilizer applications or field leveling.

Follow a Soil Health System

Fields that are consistently following a soil health management system (which includes no tillage, cover crops, nutrient management, and high residue crops in the rotation) tend to have better soil conditions, improved infiltration, and drier planting conditions. The soils under these systems are functioning like they are supposed to - with water infiltrating downward into the lower soil profiles for availability later in the season by the crops. Put a plan together to start your soil health journey this fall!

Additional Resources

Prior issues of this publication are located at http://www.in.nrcs.usda.gov/technical/agronomy/agronomy.html