

Checking the Back Forty



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Alfalfa Winterkill

There seems to be an abundance of alfalfa fields that are dead or parts of fields that are gone due to frost heaving (Figure 1a). Although you may not see plants heaved out of the ground, pull the crown out and you will see the root is severed.

There is always the temptation to want to reseed in the same field to keep the stand going. The concern over auto-toxicity is real but how it plays out is dependent on a number of factors. Here is a list of guidelines from Purdue University that I think summarizes the risks very well¹:

1. For least risk, wait at least one year before reseeding alfalfa into a field previously in alfalfa.
2. At a minimum, do not reseed alfalfa into a previous alfalfa field until at least two weeks after destroying the previous alfalfa stand using tillage.
3. If you are no-tilling alfalfa after killing the previous alfalfa stand with herbicide, wait three to four weeks before reseeding alfalfa.
4. In all cases, remove alfalfa forage prior to killing the stand in order to reduce the abundance of autotoxic compounds released to the soil from leaves and flowers.
5. Irrigation and rainfall leaches the toxic-causing compound out of the soil profile and reduces autotoxicity. Reseeding delays should be extended if dry weather occurs while old alfalfa stands are being destroyed.
6. Additional tillage prior to reseeding alfalfa mixes the soil and reduces autotoxicity.
7. Autotoxicity tends to disappear from sandy soils sooner than soils with a clay texture. Therefore, re-seeding delays should be extended on clay-containing soils.
8. Reseed a seeding failure promptly before autotoxicity can become a problem.



Top: Figure 1a.

Alfalfa crown heaved out of the ground.

Bottom: Figure 1b.

Tile lines are evident with healthier alfalfa.



(continued)

Alfalfa Winterkill *continued...*

Besides auto toxicity risk, let's not forget why we likely ended up with these dead areas of alfalfa, which is poor drainage. The tile line which is clearly visible in Figure 1b is what has been seen all spring when assessing the damage. To me the dead alfalfa is really a sign that alfalfa probably isn't the first choice of a forage crop to plant on these fields. No amount of fertilization, cutting management or variety selection was going to save this alfalfa on these fields this year.

Alfalfa grass mixes, where you encourage the grass to dominate early on, may be the best choice of species for these fields. Alfalfa may survive some years under the right conditions, but as the winter of 2019 has reminded, this wasn't one of them. That doesn't cure the current problem but for similar fields emphasizing the grass component in the future may make sure you have a crop to harvest.

Also, if you are thinking of reseeding, consider how much of a field is damaged and what life you have left in the stand at this point. If you haven't got new seedlings in yet either then maybe it is time to think about your crop rotation. **With that in mind, for any crop or rotation changes on land designated as Highly Erodible (HEL), be sure to check with your local NRCS office first to ensure that continued conservation compliance for USDA benefits is not impacted.**

Options may be to no-till corn into that dead alfalfa field and look to seed down corn ground end of July that was to be seeded next year. Planting other summer annuals like sorghum-sudangrass or sudangrass are another possibility. Cool season grass could be no-tilled in to extend the life of the stand but you won't get any yield this year and may need have it for several years to pay for the seeding.

¹*AY-324-W - Managing Alfalfa Autotoxicity*

Jeff Volenec and Keith Johnson, Department of Agronomy, Purdue University
<https://www.extension.purdue.edu/extmedia/AY/AY-324-W.pdf>

Corn planting and soil temperature

Don't worry about a soil temperature of 50°F at this point in the growing season. If it is dry enough to plant corn it is warm enough to plant corn. I dropped a thermometer in an unplanted corn field May 14. In the bare ground or residue it was 50°F. The air temperature at the time was 38-40°F. Given the rain might we have worried about imbibitional chilling injury of corn that was planted a few days before during a very brief dry spell on the weekend. This first 48 hours after planting when the corn seed is taking in water, imbibing, is considered critical². Soil and soil water temperatures below 50°F can lead to cells that are less pliable so as water comes in cells can rupture. The result can be damage to the coleoptile (shoot) and radicle (root) making them non viable and you may find a germinated seed but one that never emerges.

But moving forward, if it is dry enough to be in the field, that is a key because things like compaction and sidewall smearing matter, then it is time to plant.

²*University of Nebraska–Lincoln, Institute of Agriculture and Natural Resources*

Crop Watch, Chilling Injury in Corn and Soybeans, April 22, 2015

Jim Specht, Professor Emeritus, Department of Agronomy and Horticulture, Jenny Rees, Extension Educator, Patricio Grassini, Cropping Systems Agronomist, Nathan Mueller, Extension Educator
<https://cropwatch.unl.edu/chilling-injury-corn-and-soybeans>

Growing Degree Days (GDDs) and Corn Growth

Yes, it is a colder growing season especially if you look at May 1 to date. How much? Last year corn planted May 2, 2018 was emerged by May 10. Emergence is about 110-120 GDDs.

This year not knowing of any corn that was planted May 2 but going with the same scenario, if you look at GDDs to date we are at only about 70-80 GDDs depending on location. Given predicted temperatures it will take until May 21 to achieve 110-120 GDDs. This is using the 50/86 GDD model for corn with a base temperature of 50°F and no growth occurring above 86°F.

For GDDs: <http://climatesmartfarming.org/tools/csf-growing-degree-day-calculator/>