

Understanding soil salinity and sodicity after winter

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After a tough winter, there are a lot of questions about dead turf near sidewalks and roads, salt affected soils, and what should be done to fix them.

Historically, we've applied salts like sodium chloride or table salt, to melt snow and ice. Now many are moving to other salt products that are sometimes mixed with sand because they are marketed to be safer. These new ice melt products are still salts, but can contain elements like calcium and magnesium or even things like beet juice. All of these products work because they lower the freezing point of ice and cause it to melt.

These products can be lethal to our lawn and landscape plants for a couple of reasons:

- 1) Sand and gravel can physically bury plants and it should be removed.
- 2) They increase soil salt levels. We call this soil salinity. As the salt levels increase, it makes it difficult for plants to extract water from the soil. At high salinity levels, the salt can suck water out of the plants and be lethal. Even sodium free ice melt products can do this because most still contain another salt. Summer fertilizer burn and dog spots are other examples of damage from high soil salinity.
- 3) Ice melt containing sodium can have negative consequences on soil structure. Clay minerals in fine-textured soils form aggregates (clumps) that help with soil aeration and drainage. Sodium causes these aggregates to break down and it reduces these large pore spaces much like mechanical compaction. For turf managers with sand and sand-based soils, good news, these soils don't have soil structure and won't have sodicity issues, just possibly salinity issues.

So what should we do about soil salinity and sodicity issues?

- 1) Salinity is the most common issue following winter. The only way to treat it is by leaching the salts past the plant roots. Natural rain and snow melt in spring generally fix the salinity issues from ice melt products. If you live in a drier region, supplemental irrigation can help leach the salt. If you suspect your soil or irrigation water has salt (or sodium) issues, consider submitting a soil and/or water test.
- 2) Fine textured soils with sodicity challenges should be confirmed with a soil test. If significant sodium is found (5% or greater ESP), application of gypsum will help to displace the sodium. Note: adding gypsum will not help with salinity issues because gypsum is a salt. In fact, it will actually make salinity issues worse. Application of gypsum will not improve soil compaction if those soils don't have sodium issues. Instead, cultivation like aeration and natural freeze/thaw cycles will relieve compaction.

If the turf has been damaged by sand or salt, now is a good time to resod or reseed. When seeding in the spring, use a starter fertilizer that has mesotrione in it to help control annual weeds like crabgrass. With some rain, time, and patience, these salt affected areas can make a full recovery.

For more information about soil test interpretations of salinity and sodicity, view this [NebGuide](#). A Backyard Farmer summary of this report can also be viewed here: https://youtu.be/NmvVnSC1_N8.

Bill Kreuser, Assistant Professor and Extension Turfgrass Specialist, wkreuser2@unl.edu