

Q&A



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Questions?

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Native soils for overwintering bermudagrass

At the University of Delaware we currently have one Riviera bermudagrass soccer field on a sand-based field that is 2 years old and is performing superbly. We are getting ready to convert two of our cool-season practice soccer fields to bermudagrass. These fields are native soil (high clay content with poor drainage). My question is on the native soil fields without any amendments how will the bermudagrass establish, perform, and [survive] winter on the native soil fields as compared to the sand-based field?

Sam Jones

Sam, this is a great question. I'm glad Riviera is performing so well. I would have been a little skittish to recommend someone use bermudagrass that far north. With 3 months per year with average lows below freezing, I am sure you get your share of harsh temperatures that could potentially winterkill bermudagrass. Riviera has proven to be more cold tolerant than most bermudagrasses, so hopefully it will continue to meet all your expectations.

As for the question, native-soils fields are often much easier to get established in turf than a sand-based field. The heavier soil will hold nutrients and water better, so there is generally a greater margin of error for grow-in, except if you get a lot of rainfall and cannot get the water off the field. Hopefully you are allowing for the reduced internal drainage by using a bit more crown and also putting some perimeter drainage around the field to get excess water away from the sidelines/playing surface as quickly as possible.

Winter turf survivability in the native soil field should compare favorably to the sand-based field. Since there is a greater amount of water in the native soil profile it will cool down slower at night when the temperature drops. This is due to the specific heat of water being about four times that of air, plus air is a poor thermal conductor. Generally, soil thermal properties are very closely linked to soil moisture. For that reason, early season cold snaps normally cause more problems with sand-based fields than native soil fields. But once the cold temperatures arrive without adequate solar energy to promote warming during the day, it will not make as much difference.

In the spring, the characteristics that may have helped you in the fall can work against you in the spring. It can take a bit longer to warm up high-moisture holding native soils, especially if ice and shade are involved. I've seen shaded portions of fields keep an ice cover for a week longer than the sunnier portions. Remember, I'm talking about North Carolina winters and early springs, where it is still considered mild by many people's standards. Once the field has adequately warmed up, the thermal properties of water again gives the advantage to native soil fields. So, like in early fall, those late spring cold snaps may hurt the sand-based fields more than nearby native soil fields.

But there can be extenuating circumstances related to soil conditions that can reverse these responses, resulting in more damage to native soil fields. The amount of

traffic and any resulting damage to the plant and soil's structure can worsen the situation. The higher water content of native soils often results in more traffic damage, then muddiness, and perhaps sealing of the surface. Standing water is never good for turf health. And heavier soils compact easier from foot traffic or maintenance equipment than sandy soils. So, it is even more important with heavier native soils to stay on a good aerification program.

For an added bit of insurance invest in some good turf covers for the winter.

Fields should also not be allowed to dry out in the spring. Much of the late spring winterkill we see is often associated with desiccation of the turfgrass combined with freezing temperatures. Spring winds combined with low humidity and freezing night temperatures can do more turf damage than a severe mid-winter drop in temperatures when the turf is fully hardened to the cold.

You best bet for winter survivability is to practice good cultural practices—irrigation, fertilization, aerification, and pest control—and limit on-field use as much as possible during periods of high stress. For an added bit of insurance invest in some good turf covers for the winter. These not only reduce heat loss, they also help to keep people off the fields. But stay in this business long enough and you will likely get to experience winterkill. On the positive side, bermudagrass-growing weather follows right after bermudagrass-killing weather. So, my final suggestion is to have some seed ready to plant. ■