

Declining Bermudagrass – Look Under the Hood

Have you ever noticed that the first thing we do when we have car troubles is lift the hood to take a look. Now if you know something about auto mechanics that seems to be the natural thing to do. After all, most of what makes a car go is under there. I, for one, being that I am not a mechanic, rarely get much out of looking under the hood, but I know that the engine and all that other stuff under there is a practical place to start. The same can be said for our forages. The hood in this case is the soil. So when plants aren't "working," the obvious place to start looking is the soil.

Over the years I have been asked why bermudagrass hay fields that just a few years ago were strong and robust are thinning out. To look under the hood is to take a soil sample. You might not be an agronomist, but the soil test can paint a pretty good picture of what might be the problem. In many cases of declining bermudagrass, the answer lies in low potassium levels and/or low pH.

A deficiency in potassium (K) will result in poor stress tolerance, reduced winter hardiness, decreased disease resistance, and diminished rhizome and stolon production. Soil test K levels should ideally be in the high category. If the soil test levels are low or even on the low side of the medium range, K deficiency may occur during periods of water stress. The plant absorbs K from the soil by drawing in water from the soil that contains K. During drought stress, K absorption may be decreased. Thus, even if the soil test indicates an adequate level of soil test K, a drought effectively reduces the amount of K available to the plant.

Bermudagrass, especially the hybrid varieties, utilize large quantities of K – almost as much as nitrogen. I have often heard it said that bermudagrass is a luxury user of K which means that it will respond to added K even though soil test might seem adequate. When we take hay off a field, we are removing quite a bit of K, as much as 40-50 pounds per ton of hay. Over time, it's easy to see how potassium deficiencies can sneak up on us. It is also important to remember that soil test-based recommendations are NOT meant to result in a build-up of nutrients in the soil over the long term. Soil test recommendations are based on what the crop needs for that growing season.

Low soil pH causes a problem in several ways. First, toxic levels of soluble Al can occur in soils where the pH has dropped too low. This effectively burns back the fine root hairs and prevents root growth. Low soil pH also reduces the availability of many of the other nutrients, such as P, K, Mg, Ca, and others. In effect, low soil pH starves the plant of water and other nutrients. This starvation stress is what ultimately contributes to bermudagrass decline. As you might imagine, when low soil pH is coupled with low K, the rate of bermudagrass decline is even more rapid.

Finally, the sudden presence of weeds that have not been present may be the first indicator that bermudagrass is weakening. Thinning grass gives weed seeds an opportunity to thrive. All too often though we look to herbicides as the answer, but if poor fertility is the cause of declining forages, killing weeds will only be a band aid that will have to be reapplied on a recurring basis.

For these reasons, it is recommended to soil test annually for hybrid bermudagrass hay fields.