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applying late season N to ensure rapid spring recovery from winter injury and disease.

Q: Is K2SO4 really that much better as a source of K than KCl? Grant County

A: The issue of K2SO4 vs KCl boils down to concerns about foliar burn, soil salinity, and blacklayer formation. Soil salinity problems arise primarily from irrigation with low quality water high in soluble salts. Fortunately, we don't have this problem in Wisconsin. Thus, concerns about the relative contributions of the chloride and sulfate forms of potassium on salinity are misplaced. Sulfate, in and of itself, does not cause blacklayer. The culprit is impeded drainage that leads to development of anaerobic conditions within soil. Once these conditions develop, then microbial reduction of sulfate can occur, leading to formation of black metallic sufides and phytotoxic hydrogen sulfide gas. In the absence of impeded drainage, blacklayer will not form and the source of potassium applied is of no consequence. This leaves us with the issue of foliar burn. Three common sense practices will eliminate this potential problem; only apply the fertilizer to dry turfgrass, keep the rates below the recommended maximum of 2 lb K/M per application, and water the fertilizer in after application. If these practices are followed, there are no valid reasons for selecting K2SO4 over KCl as the material of choice for turf fertilization.

Q: My putting green soil tests consistently show low K levels despite ample K additions. Simply put, I'm not making any progress. Do Ca or Mg levels in these sandy greens (80/20) have anything to do with this? Oneida County

A: Yes, exchangeable Ca and Mg are involved, but there's more to it than that. In 80/20 mixes cation exchange capacity arises almost entirely in the organic matter. The negatively charged sites on the organic matter that attract cations have a strong preference for cations that can form chemical bonds through partial sharing of electrons. Potassium cannot do this, but Ca and Mg can. The result is that Ca and Mg are more strongly held by the cation exchange sites and relatively large amounts of the potassium remains in the soil solution where it is subject to leaching loss. It is this feature of 80/20 mixes that prompts the recommendation that over the course of every season you apply as much K as you do N. Research has shown that in a typical 80/20 mix you cannot expect to hold the soil test K levels at much above 250 lb/A or 125 ppm. If your try for higher levels, the excess potassium leaches away. Recognition of this problem is what has prompted the recommendation that K be applied as many as four different times during the growing season. Alternatively, you can fertilize regularly with a fertilizer whose N:K ratio is near 1:1 or periodically apply a high K fertilizer. Decreasing the levels of Ca and Mg is not an answer to the problem. To decrease the amounts of Ca and Mg you would have to acidify the soil. When you do this the cation exchange capacityalso decreases. Thus, the potential exists for reducing even further the amount of exchangeable K that can be held in the soil.