Defending Against Patch Diseases

By John Daniels, agronomist, Central Region

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If you haven't already done so, there is still time to treat with a fungicide this fall to protect against patch diseases.

The adage, "an ounce of prevention is worth a pound of cure" has successfully been applied to many facets of life. The same can be true with regard to turfgrass diseases. With that in mind, many golf courses in the Central Region have already begun preventative fungicide applications for controlling *Rhizoctonia solani*, the causal agent of large patch disease, and *Gaeumannomyces graminis* f.sp. *avenae*, which causes take-all patch.

Large patch was prevalent throughout the transition zone for much of 2015. Extended periods of cool, wet weather in May and June were highly conducive for disease development. Large patch damage was observed not only on zoysiagrass but also bermudagrass. Poorly draining and/or shaded areas consistently had greater damage.

A fundamental component to limiting large patch on warm-season turfgrass is a well-timed fungicide application during the infection period. Large patch symptoms take time to manifest, so scheduling typically is based upon prior experience and monitoring soil temperature. Treatment is typically initiated during September or October when soil temperatures fall between 60-70 degrees Fahrenheit at a 2-inch depth. A follow-up application three to four weeks later in the fall may be warranted for swards with a history of loss. Treatments in the spring when plants are just coming out of dormancy also can be effective.

There are a variety of fungicide options available for controlling large patch including:

- Strobilurin (e.g., azoxystrobin, fluoxastrobin, trifloxystrobin, etc.)
- SDHI (e.g., flutolanil, penthiopyrad, fluxapyroxad)
- DMI (e.g., myclobutanil, propiconazole, tebuconazole, etc.)

For best results, apply a fungicide using a carrier volume of at least 2 gallons per 1,000 square feet to improve fungicide penetration through the thatch layer.

Similar to large patch, take-all patch is active during the fall and spring when soil temperatures range between 55-65 degrees Fahrenheit. Newly established – i.e., less than 10 year-old – creeping bentgrass putting greens with alkaline soil pH – i.e., pH greater than 7.5 – are prone to infection. In many instances, disease is not a major concern as plants with a deep and healthy root system are able to tolerate some infection. However, it would be prudent for those managing newer creeping bentgrass putting greens built with calcareous sands to apply a fungicide if they have a compromised root system. A follow-up application in the spring also may be necessary.

Chemical control options for take-all patch include the aforementioned strobilurin and DMI classes as well as thiophante-methyl. A higher spray volume of 2-4 gallons per 1,000 square feet combined with venting can improve results. Remember, take-all patch is caused by a root-infecting pathogen, so getting the fungicide to the fungus is crucial.

In addition to chemical control, acidifying nitrogen sources like ammonium sulfate should be used going forward. Regular applications of manganese also can help limit the severity of take all patch.

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