



## Fusarium



**Description** *Microdochium nivale*: Fusarium patch is becoming more of a problem especially during wet springs. It is active during the temperature range of 1 to 15°C and requires more than 10 hours of leaf wetness for infection. Therefore, periods of cool and wet weather will promote disease development. Although there is nothing that can be done about the weather, there are practices that can be used to alter the turf microclimate (the immediate area surrounding the turf plant) so that leaf wetness periods are minimized as much as possible. The earliest symptoms are small patches (1.5-2 cm in diameter) of collapsed, water-soaked, olive colored leaves. This is a result of the enzymes produced by the fungus to break down plant cell contents for food. If the disease is not active, the leaf tissue will appear straw-coloured. In severe infections, the fungus may penetrate as far as the crown, but will usually not kill the plant. If the plant does die, it is more likely from subsequent winter injury or another cause.

**Disease Cycle:** If you are going to look for symptoms you cannot wait for the classic "text-book picture". See Figure 2. By the time the symptoms are that obvious, the disease has probably caused more damage than you're willing to accept. Therefore, catching disease development at its early stage is the way to maintain the upper hand. Symptoms that develop in the fall do not disappear very quickly because turf growth is slow at that time of year. Therefore, it may appear that fungicide applications applied in the fall are not giving good control, when in fact they are protecting turf from new infections. High inoculum levels at this time will increase the severity of pink snow mold. Consider that the fungus survives in soil, thatch and plant debris. Therefore it will be present in most places where turf is grown. So, given the right conditions, it will become active and produce mycelium and thousands of sticky spores which can be transported to healthy turf by foot traffic and machinery traffic. Now, the healthy turf will likely also have some *Microdochium nivale* spores and mycelium in the thatch, soil etc., but the level may be much lower, especially if there is a strong population of organisms suppressing it. However, if machinery or traffic drop a high concentration of spores on the leaves at the onset of cool, wet weather, you could expect disease development on this previously healthy turf.

**Control Measures:** Good control of Fusarium patch in the fall is important to keep inoculum levels low before snow fall. If there are numerous patches, and imminent weather conditions are favorable for disease development then a comprehensive protectant program may be required. However, spot spraying may be adequate if patch development is slow, and/or imminent weather conditions are not favorable for disease development. This would also be a good time to quickly review recent practices and determine if there were opportunities to have prevented the initial infection. Promote good

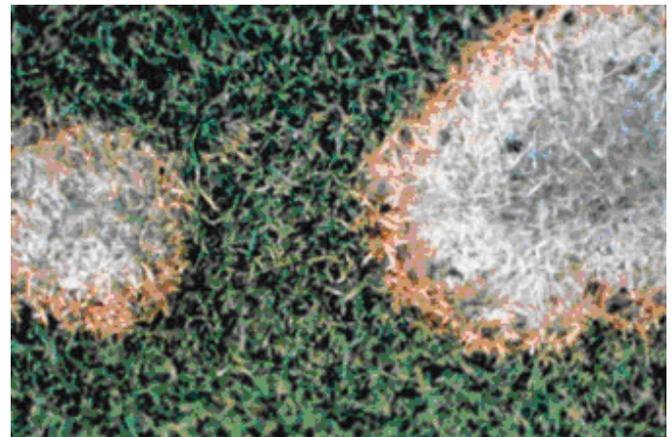


Figure 2 "Text-book picture"



air circulation and encourage morning sun exposure through judicious pruning of surrounding trees. Assess drainage and improve as required so greens drain properly. Watch for layers that may develop from regular tine aeration and break them up with occasional deeper aeration activity. Manage thatch levels. In addition to creating a stressful root zone environment, thatch holds moisture which increases humidity levels in the turf microclimate, especially where there is poor air movement. When irrigation is required, time it during the predawn-early morning period. Frequent sand top-dressing seems to help keep the crowns dry as well as discourage the buildup of thatch. This helps to reduce the atmospheric water vapor content in the turf microclimate. Remember to use as many preventive practices as possible to keep the leaves dry, monitor to catch the disease at an early stage, encourage a vibrant soil microbe population and carefully select and apply fungicides.



Information obtained through Virginia State University



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