

Controlling Swirling Grain on Ultradwarf Bermudagrass Putting Greens

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Objectives:

1. To investigate the cause(s) of the the off-types seen in ultradwarf bermudagrasses that produce a “swirling grain” pattern of growth.

Start Date: 2006

Project Duration: two years

Total Funding: \$6,000

Swirling grain on ultradwarf bermudagrass putting greens have been observed in the last several years on some Southeastern golf courses. These irregular shape swirling grain patches are off color and adversely affect mowing and putting quality. They are worse than the off colors of creeping bentgrass cultivars during winter months.

The exact causes and possible controls are not fully understood. This project is initiated to identify the cause(s) and determine the control methods of swirling grain on ultradwarf putting greens. To do this, we are collecting samples from several golf courses with swirling grain to examine leaf morphology, leaf orientation, shoot density, and nutrient concentration. We are also selecting typical leaf and shoot samples for examination at the cellular level for morphological dif-



Based on the observations of “off-type bermudagrass” on several golf courses, the most likely cause may be the combination of genetic variation and contamination.

ferences using both light and electron microscopy.

Our plan includes selecting one golf course to apply treatments including, but not limited to, the application of three levels of foliar iron and nitrogen in an attempt to ameliorate the swirling grain. On this same green, we plant to investigate

possible physical treatments to reduce and control of swirling grains which may include grooming, brushing, or light verticutting of various frequencies.

To date, we have conducted visits to about a dozen golf courses with the problem of “off type” bermudagrass both on fairways and putting greens during summer 2006. From these observations, the possible causes are: genetic mutation, contamination after establishment including invasion of the other types of bermudagrasses, different responses to fertility, chemicals (pesticides and PGRs), and water quality resulting in different color, and different soil types causing color differences.

Less probable causes, but still possible, include: morphological changes such leaf orientation to mowing impacts, cuticle thickness variation, and age of the turfgrass.

Summary Points

- Based on the observations, the most likely cause may be a combination of genetic variation and contamination.
- Since this swirling pattern most likely happens on golf courses after several years and newly sodded sites rarely report the swirling patterns, swirling pattern observed is related to the age of the turf.



The problem of “off-type” of ultradwarf bermudagrasses exhibiting a “swirling grain” continues to be a challenge for golf courses in southern states. Finding the cause(s) of this problem continues to be an important challenge.