

DIAGNOSTIC REPORT

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Chip Lafferty
Rye Golf Club
330 Boston Post Road
Rye, NY 10580

Dear Mr. Lafferty,

On May 21, 2015 I visited Rye Golf Course to examine potential injury occurring on your greens. After visiting numerous greens, it was obvious that the bentgrass on all of your greens had turned an unusual shade of purple and appeared to be under significant plant growth regulation. Purpling is not an uncommon symptom when the plant growth regular (PGR) Proxy is applied to creeping bentgrass in cool weather. This chemical is used to minimize the production of seedheads in annual bluegrass, thus improving playability. Because your greens are a mixture of annual bluegrass and creeping bentgrass, it must be applied to both grasses simultaneously with the result that creeping bentgrass may temporarily turn slightly purple. This color change is usually subtle and plants grow out of it in 2-3 weeks, although cool weather will slow the recovery process. At the time, I assumed that the purple color of the turf was a result of the Proxy application and the lengthy recovery was a result of cool weather and the use of the additional PGR Primo, which is commonly applied on a biweekly basis to 95% of the greens in the Northeast. No fungal pathogens were observed in the roots of either of these samples. A small number of root-knot nematodes were found but their levels appeared to be trivial and root depth was easily 3 inches (which should be considered very positive). Roots were healthy, white and growing vigorously.

On June 1, 2015, I returned to Rye Golf Course upon your request. When I arrived, I was stunned to see that between 40-60% of the creeping bentgrass on your greens appeared to have been killed with an herbicide. In addition, it appeared that 100% of the ryegrass in collars had been killed. It was extremely apparent by the pattern of damage that whatever chemical had killed the turf was applied by a boom sprayer during normal greens pesticide/fertilizer applications. Only greens were affected (and approaches where greens sprays were applied) and damage followed straight lines. However, none of the pesticides or fertilizers applied during the past two months were capable of the damage observed. The material that killed the turf was specific to ryegrass and bentgrass and left bluegrass completely unharmed (an extremely unusual level of specificity). It seemed certain that one of the chemicals used on your greens was contaminated with an herbicide or other unidentified toxin. Unfortunately, because so many different materials were used on your greens, it was unclear which material was responsible for the damage.

Upon further investigation and a visit with the superintendent at Woodway Country Club, Jaime Kapes, I discovered that he experienced very similar damage to his turf. The difference however, was that Mr. Kapes sprayed only a single material on his greens before and up to when the damage was observed: Alt 70. Alt 70 was also used at Rye Golf Club. Alt 70 is a generic version of a fungicide called Signature. The product is extremely safe for turf even at levels that exceed the legal limit. I have never worked with Alt 70 but I have worked extensively with Signature and never observed any damage from that product on any type of turf. In addition, superintendents in other states have used Alt 70 in previous years and never observed damage related to its use (2015 was the first year Alt 70 was registered in New York State). It now appears that at least four other golf courses experienced similar damage after spraying Alt 70 this spring, suggesting that the current batch of the material is possibly contaminated.

Unfortunately, the potential contaminant in Alt 70 is concentration dependent and while Woodway only made two applications of the material and is seeing quick recovery, Rye Golf Course made 4 applications of the material and is seeing much more significant damage. ***It should be noted that a correlation between users of Alt 70 and the observed damage is not incontrovertible proof that Alt 70 is contaminated or the cause of the observed damage. It is possible that another pesticide/fertilizer is responsible for the damage.*** However, it is absolutely certain that the damage observed at both Woodway and Rye Golf Club was caused by a material sprayed onto the greens in the last 6 weeks. In order to determine if Alt 70 is the definitive cause, I have recovered the remaining stock of Alt 70 from Woodway Country Club (none was left at Rye Golf for testing) and will be running trials at the University of Rhode Island to determine toxicity of this lot of Alt 70 on URI's fungicide research greens. This trial should take 3 weeks to complete and will begin on June 5, 2015. I will forward my results when the trial is complete.

It is also still unclear how much damage has occurred at Rye Golf Club. Whatever the source of the contaminant material, it appears highly water-soluble. Aeration holes (where sand channels would allow for rapid water movement) are generally unaffected and the turf in these locations is in good health. Swales and other low areas on greens are more severely affected. It is possible that the significant rain from May 30 to June 2 has flushed the herbicidal material from the soil and recovery of damaged areas may begin. Some areas will not recover but it is impossible to determine the level of recovery until it begins. Recovery is well underway at Woodway Country Club, although admittedly, they have had fewer chemical applications to their greens and have a much higher proportion of annual bluegrass, which appears immune to the contaminant.

My advice is to wait at least a week before proceeding on any course of action. I would also suggest closing the golf course during that week. In the absence of golf traffic, turf will recover more quickly than if it is under foot. This week will allow for an assessment of potential recovery. If new plants begin to emerge from damaged areas and new roots begin to develop, the steps necessary for remediation will be reduced.

I cannot provide an opinion as to the best course of action for your golf course. There are many considerations that play a role in the decisions you will make in repairing the damage to the course and my expertise is only in the area of turfgrass culture and agronomy. Secondly, I believe that an additional week should be taken before any decisions are made.

Following a week of recovery, the course will have 3 options: 1. Do very little and allow for natural recovery, minimizing golf course closure to a few weeks or less. It is still unclear how viable this option is but if significant improvement is observed in the next week, this would be the most desirable option. However, the course will still be under significant stress until the fall and playing conditions will have to be managed accordingly. This option assumes that the herbicidal contaminant has produced mainly cosmetic effects and the turf is still relatively intact. 2. Aggressively overseed and verticut the greens, following up with additional core aeration and topdressing. This option would likely require at least 3 weeks of golf course closure and possibly more. Unfortunately, it is unclear if overseeding will work given the presence of the herbicide in the soil. Seedlings are often very susceptible to herbicide damage and because we have no way of knowing what material has caused the damage, we have no way of knowing if seedlings will survive. 3. Resod all of the greens. This option will result in complete recovery but is extremely expensive, extremely labor intensive and it is unclear how long the course will be closed. Depending on weather conditions, the course may not be playable for 3-5 weeks. Even when the course does become playable, conditions will not return to optimal until the fall as the sod settles in and acclimates to its new conditions.

In summary, the damage caused at Rye Golf Club is significant but it was also completely unforeseeable. The damage was certainly caused by the application of a contaminated product and multiple courses in the area have had a similar experience. I believe we know which product was responsible for the damage but further testing needs to be undertaken before I can confirm the causal agent. Finally, it is still unclear what course of action should be taken going forward but I would counsel at least a week of recovery and reflection before a final decision is made.

Nathaniel Mitkowski
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