

The Triplex "Ring"

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THE ADVENT OF THE triplex putting green mower in the late 1960s brought with it great expectations for reducing labor costs while at the same time improving the quality of putting green turf. For many of the golf courses that use triplex mowers, this dream has been at least partly realized: the number of hours needed to mow the greens has been greatly reduced and turf quality has not suffered significantly. For others, however, the triplex mower has been a mixed blessing. Though time spent mowing greens has been reduced, extra effort has been needed to cope with new problems associated with the use of the triplex. For example, the wear and compaction caused by turning the

As the season progresses, the triplex "ring" becomes evident at the outer perimeter of the putting green.



triplex mower off the green after each pass may demand that the collars be aerated and topdressed more frequently and hand-watered regularly. Collars are often scalped when units are lowered too quickly or raised belatedly at either end of the pass. There are also the mechanical malfunctions, when individual units on the triplex refuse to rise upon command and when hydraulic lines leak or burst, creating unsightly turf damage which may last for weeks or months.

Perhaps the most common problem associated with the use of the triplex mower is a condition which could be entitled, for lack of a better term, the "triplex ring." It is best described as the ring of weak, scalped or dead grass around the perimeter of the green, in the area where the triplex mower makes its final cleanup pass. The reasons for this problem are easy enough to appreciate. This perimeter ring is the only area to receive double traffic each day the greens are mowed, once when the mower is making its straight passes across the green and again when it makes the cleanup cut. It is also the only part of the green where the mower travels the same path every day, thereby compounding the wear and traffic problems imposed upon it as compared to the other turf areas on the green.

Finally, the cleanup pass is the only time that the mower is actually turning on the green itself, a situation similar to turning mowers at the ends of fairways and tees. In each case, the mower creates downward and lateral pressures during the turn which combine to produce greater wear and soil compaction than if the machine were traveling in a straight line. The sudden turning of a golf cart on wet fairway turf is a more dramatic illustration of this principle.

There seems to be no single solution to the triplex ring situation in many instances, but there are a number of practices which when combined can help to alleviate the problem.

Mowing Practices

Sometimes the triplex ring syndrome can be completely resolved by modifying mowing procedures. To begin with, insist that the mower go more slowly



Tire abrasion weakens permanent turf and Poa annua quickly takes advantage.

as he makes the final pass around the green with the triplex. A fast-running vehicle will do much more damage during a turn than a machine that is moving slowly.

Because the symptoms of triplex ring will tend to be more pronounced during stress periods, especially during the summer, any practice or schedule which relieves the severity of the wear or decreases the number of times the perimeter area is cut during that time will help reduce turf damage. If the grass is not growing too fast, skip the cleanup pass every other day or bring the final cut in from the edge by six to 12 inches every other day so that the tires do not always travel in the exact same path. Consider using hand mowers on the greens which exhibit triplex ring symptoms, especially during stress periods. There is no doubt the triplex mowers produce more wear and compaction on the perimeter of the green than do the single-unit mowers. It's a

rare case when all 18 greens on a given golf course display triplex ring symptoms, however, so the time needed to mow a few of the worst greens with hand mowers is usually not prohibitive. A good alternative would be to use the triplex to mow the green but use the walk-behind mowers to make the cleanup passes, a practice which many clubs use successfully for all 18 greens throughout the season. Other alternatives would involve mowing every other day with hand mowers or using triplex mowers only on weekends. Some golf courses use the triplexes only during the spring and fall, when the labor supply is likely to be at its lowest point.

Finally, raising the cutting height slightly during stress periods can help, but this should be something of a last resort. If a program of light, frequent verticutting is used to groom the greens, be sure that a perimeter pass is *not* made with the verticutting units.

Cultivation and Cultural Management

Getting back to the basics of turfgrass management, the development of a strong, healthy grass is the best way to resist triplex ring damage. Avoid overwatering and overfertilizing at all costs. Too much water and nitrogen can create a weak, lush turf which is more susceptible to wear injury. Wet soils also compact much more readily, inhibiting root development and resulting in a weakened turf.

To overcome the effects of compaction and wear in the perimeter ring, aerate the soil more frequently. If the greens are already aerified once or twice during the season, then aerate the perimeter ring area by itself several other times. Aerating (coring) achieves positive results even when done in the middle of a stress period, so don't hesitate to aerify if triplex ring symptoms begin to appear. If chronic soil compaction problems are related to the texture of the soil in the greens as well as to the use of the triplex mower, then begin modifying the soil in the greens by topdressing with a compaction-resistant

material, one containing a high percentage of sand. Have the topdressing material tested by a soils laboratory in order to insure proper infiltration rate, pore space and bulk density.

Design and Environmental Factors

Most of the time the symptoms of triplex ring will not appear uniformly around the perimeters of all the greens. Weakness or injury is most likely to develop in areas of the perimeter ring where other stress factors also come into play. Sharply contoured greens often develop this malady, especially where the mower makes its sharpest turns during the cleanup pass. Sometimes this problem can be resolved by recontouring the green so that sharp turns are eliminated.

Triplex ring symptoms often manifest themselves on greens only in entrance and walk-off zones, especially when traffic is restricted to narrow passageways by steep banks, sand bunkers or other obstacles. If the area around the green can be redesigned to provide several different entrance and exit

channels, very often the triplex ring will disappear.

The presence of trees near a green may create enough extra turf stress to produce visual symptoms in the area of the perimeter cut. Too much shade, poor air circulation and tree root competition all weaken the resistance of the turf to the additional wear of the triplex mower. Removing or thinning some of the nearby trees in order to improve sunlight penetration and air circulation will usually help alleviate the problem. The trees should be root-pruned by digging a trench between the trees and green, placing tarpaper or some other heavy-duty material in the trench and backfilling.

There are many types of stresses which may have a detrimental effect on the health and vigor of putting green turf. By carefully investigating the causes of this stress, adjusting mowing and cultural programs accordingly, and creating a favorable environment for plant growth, some of the problems associated with the use of the triplex putting green mower can be eliminated.

More frequent aeration is required on collars and the outside perimeter of the green.

