

FAIRWAYS WITH MOWERS: TWO OPINIONS

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One of the recommendations Stan Zontek made during his last USGA Green Section Visit to my golf course in July of 1984 was to aerify my fairways with Ryan Greensaires. When he made that suggestion during our conversation my jaw hit my chest and my remark was something like, "You cannot be serious!" I knew some Golf Course Managers were involved in this program, but I assumed it was merely a brief trend that would pass quickly. Stan doubted that and was firm in his conviction that our Club should seriously consider it. He spoke from the experience of many visits on golf courses that had realized excellent results.

There was (and is) no doubt we needed to do more aerifying than we had been, in spite of the use of lightweight mowers. In fact, these machines were leading to a "puffiness" that we'd never experienced with gang mowers, and it was giving me a fair amount of concern. They seemed more matted and I suspected some increase in the amount of thatch. Soil compaction relief wasn't a major consideration in deciding to go ahead with this program. The twice a year aerification with the Ryan Renovaire wasn't doing the job in firming up the fairway turf and controlling thatch.

If there was a reasonable method and appropriate implements available, I would have opted for topdressing alone, since the principal concern wasn't soil compaction. But neither exists, at least at a sensible cost. The thought of preparing hundreds and hundreds of cubic yards of topdressing wasn't a pleasant one, either. The need to biologically decompose some of the accumulated mat caused me to pause and at least give some consideration to what I envisioned as a slow, laborious and time-consuming job.



At times the Renovaire does a fairly good job of aerifying, although the number of cores and volume of soil are small.

A couple of other factors influenced me to decide to plan on the Greensaire procedure. The Renovaire we've been using for years is unpredictable in its results. Some aerifications were excellent and others were not. Results seemed dependent on a

soil moisture content that I couldn't define, predict or expect. We've gotten excellent penetration with a double set of 3/4" tines and poor results with a single set of the same tines, pulling only a 3" core. The best that could be said of the machine is that it is fast. Another consideration was the leveling effect of the volume of soil brought up by the Greensaires. Our golf course was built over sixty years ago and the grading on the fairways is less than desirable. As Roger Thomas pointed out in an article he wrote for a past issue of the GRASSROOTS, the lower heights of cut on golf course fairways are exposing some of these poorer grading jobs — unevenness that was disguised in the 3/4" to 7/8" range of the recent past. Finally, I gave serious consideration to Stan's recommendation simply because he never once gave me bad advice, and few people travel more widely and are more on top of turf management problems and practices than he is.

Once my decision was made, I proposed it to the Green Committee. They concurred. One of the Board members in particular applauded because of the improvement he'd noticed over time as a result of our aerification of the approaches or decks in front of putting greens with the Greensaires and 5/8" tines.

We started this past spring. Our intention was to do about half of the fairways with Greensaires and the remainder with either the Renovaire or the Terra 200. We purchased one new machine and one used machine to give us a total of four to work with on this project.



Four Greensaires bring up a tremendous amount of soil in a relatively short period of time.

We started aerifying our first fairway on April 15. I guess the main reaction any of us on the staff had was that it went so quickly. It was a fairway of about an acre and a half and we had it cored in about 2 hours, using the four machines. I should add that 2 of the machines were the newer Greensaire II models, and they are noticeably faster than the 2 older models. We consistently cored more than 3/4 acres per hour, which included fueling time.

One of Zontek's recommendations was to combine the coring with verticutting. The previously mentioned unevenness of our fairways precluded the use of our Aeroblade (too wide), so we used a Mataway. With the thatching reel running in reverse, it does a beautiful job of verticutting and of

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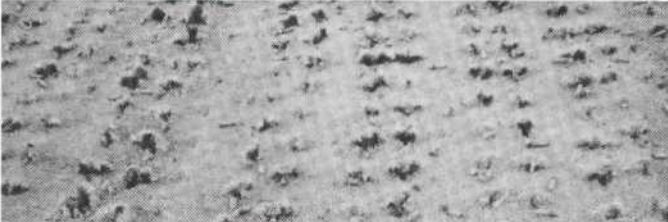
separating the soil from the thatch of the core. Also, it worked well in thinning out the grass plants to give an opportunity for some juvenile growth. But it is just too slow and took much longer than the actual aerification. We did not use Mataways this fall and instead broke the cores up using a 12' Fuerst rolling harrow. It does a good job if the cores are not allowed to dry too much and it is exponentially faster. The verticutting, although beneficial, was sacrificed.

As planned, we did about half the fairways this spring with the Greensaires and the remainder with either the Renovaire or the Terra 200. This fall we reversed the process so that all of the fairway turf was cored with a Greensaire in 1985.

We did not notice as much wear on the machines as we had expected. Part of it may be that four of them were used, but we also used those same machines to aerify greens and tees in 1985, so they did have a lot of individual hours. We changed engine oil about every ten hours and greased the machines after approximately five hours of operation. The engine oil level was checked with each fuel fill.



The finished product of the Renovaire can be quite good, or . . .



It can be terrible, as shown here. We stopped with this fairway.

An operational report of lessons learned would include the following key points:

1. Results are much better in the spring than in the fall. Rooting of the turf is better, the turf is tighter and the coring is much cleaner.

2. During the 1985 season, myself and staff were able to clearly identify those fairways which were aerified with the smaller machines. Better uniformity, less visible stress in areas normally weak due to uneven water distribution from our manual center row irrigation system, and substantially less need for handwatering. Remember, this is a comparison of fairways in the same reason — healthier turf with less water.

3. We didn't see the need for as extensive machine lubrication as has been reported elsewhere by others.

4. The procedure offers a great opportunity for corrective applications of phosphorus, potassium, sulfur, gypsum, etc.

5. It's an excellent preparation for the overseeding of bentgrass into *Poa annua*.

6. Cross-sectional cuts of the turf reveals excellent incorporation of soil into the thatch, my prin-

cipal goal in the first place.

7. I offer this as only a curious observation — we used substantially less nitrogen fertilizer in 1985 than in any other previous season. A lot of theories could be advanced to explain this, but I'll resist doing that and instead see if it continues to the upcoming seasons.

A couple of other observations are worthy of comment. We asked Bill Milward for a demonstration of the Terra 200 this spring and took a careful look at it and the job it did. Obviously, it falls somewhere between the Renovaire and the Greensaire in terms of soil brought to the surface, speed and surface disruption. I think it has a place on our golf course and hope to purchase one for use in 1986 for fall aerification.

Although soil compaction relief was not the reason I initiated this program, it most certainly is a tangible and important result of it. Anyone who knows or even pretends to know anything about golf course turf knows the value of aerification in correcting and improving problems of soil compaction and surface crusting. Use of the Greensaires does more than any other implements to improve the oxygen-carbon dioxide relationship in the soil. It increases the rate at which oxygen will move into the soil and carbon dioxide from root respiration will move out of the soil. Poorly drained and compacted soils restrict this exchange and there is a reduced ability of plants to take up water and nutrients important for healthy turf. The result is weak and thin turf that is more disease susceptible and, for *Poa annua*, more wilt prone. Evidence of the value of aerification can be dramatic as we have all seen in the form of dense root growth in aerifier holes and more vigorous top growth above them. The top growth is especially evident in the spring when the green tufts stand out from the surrounding turf. The value of aerification has been proven experimentally in the laboratory and in the field. Differences in turf quality have been quantified and correlated with aeration. And most important of all, it has been noted in the field of play.

Measuring the cost/benefit ratio of aerification has made the decision to continue using Greensaires on our fairways next year an easy one. We will continue the program with the knowledge that the result is better turf for the players. Noting that I've never seen a turf that has been over-aerified, I'm convinced that the substantial number of holes and the volume of soil removed make these machines and this process an important management improvement at our Club.



The Terra 200 is between the Renovaire and Greensaire in quality and quantity of cores.