

Tremendous Savings From GPS Spray Technology

Hidden Creek Golf Club
Clark Weld, superintendent

Egg Harbor Township, N. J. 08234

Issue

Even with a highly skilled staff, spray applications are vulnerable to human error. Uneven applications can lead to wasted resources, ineffective treatments and potential turf damage. Unfortunately, hiring qualified employees to perform spray applications is becoming increasingly difficult as maintenance budgets tighten and the search for experienced staff becomes more competitive. Superintendent Clark Weld was looking for a way to improve the consistency and quality of spray applications at Hidden Creek Golf Club and Global Positioning System (GPS) technology offered a potential solution.

Action

GPS applications have been common in agriculture since the 1990s, but only recently has the technology made its way into golf course maintenance. One of the most valuable applications has been using GPS for precision spray applications. By mounting GPS receivers to sprayers, golf courses can make accurate and precise applications to any mapped area of their property. This technology has the potential to reduce average product-use by as much as 25 percent.

Hidden Creek Golf Club hired a company with roots in large-scale agriculture to equip both of their sprayers with automated GPS capabilities. This equipment utilizes sub-inch GPS technology to guide automated steering and individual nozzle control, allowing the machine to make precise applications automatically. This technology was successfully incorporated into both a new sprayer and one dating from 2002.

Results

In the two years since installing the GPS equipment, Hidden Creek has sprayed 25 percent less product and Superintendent Clark Weld has reduced his chemical budget by approximately 38 percent. In addition, Weld now knows the exact amount of product applied per acre so there are no longer surpluses or shortages at the end of an application. The GPS equipment eliminates skipping and overlapping which has improved accuracy and reduced the risk of operator error. This has led to a noticeable improvement in turf health. Application efficiency has also improved. Prior to the GPS system, only one or two highly skilled staff members were experienced enough to spray fairways. The user-friendly GPS interface makes spraying the golf course a less technical task, allowing more employees to successfully make the applications.

The initial cost to equip both sprayers with the GPS technology was approximately \$90,000. An annual subscription of \$2,500 is also required to keep all the software up-to-date. Superintendent Clark Weld estimates that the GPS system paid for itself in less than two years through the reduction in products and improved accuracy.

Using GPS-guided spraying technology has been very successful at Hidden Creek, but there were challenges along the way. Some trial and error was required to effectively map the golf course and determine the most accurate and efficient spraying patterns. Close monitoring of the individual nozzle solenoids is also required as they may wear more quickly due to the frequent opening and closing directed by the GPS system. However, Clark Weld describes these as minor issues when compared with the benefits of the new technology.



Equipping the sprayers at Hidden Creek with GPS guidance, automated steering and individual nozzle control has improved the efficiency and quality of spray applications. The system paid for itself in less than two years through savings in products and labor.