

The challenges of couch control

Controlling couchgrass invasion can be a persistent management headache for golf course superintendents who maintain bentgrass greens. In this instalment of Tech Talk, John Geary looks at some of the control strategies they can possibly implement.



There are numerous weed species which have the potential to invade bentgrass putting surfaces with *Poa annua* generally considered the number one enemy of most golf course superintendents. For many greenkeepers, however, couchgrass infestation is of equal importance with the removal of couchgrass from bentgrass seen as one of the most challenging in all turf management. The major concern of greens infected with couchgrass is the uneven ball roll which affects the smoothness, consistency and overall quality of the putting surface. This is due to its coarse texture along with couchgrass having different growth characteristics, which under favorable growing conditions is very aggressive.

PAST RESEARCH

While in recent years strategies have been developed aimed at suppressing and or eradicating couchgrass, the most comprehensive study into managing and eradicating couchgrass from bentgrass putting surfaces under Australian conditions was undertaken by the Australian Turfgrass Research Institute between 1990 and 1993.

Part funded by the Horticultural Research and Development Corporation (now known as Horticulture Australia) the primary researcher was Dr. Peter Martin with the final report titled TU012 – ‘Development of ecologically based management procedures for controlling the invasion of bentgrass’. While the report is some 17-years-old, the detailed recommendations for couch control are still as valid today as when written and it is highly recommended interested readers download the full report which can be accessed via the AGCSA’s environmental web portal or via the following link <http://environment.agcsa.com.au/files/u6/TU012.pdf>

The trial highlighted a number of significant points, including:

- Infestations can be categorised into three types:
 - On the edge of the green, usually as an extension of fairway or collar couch;
 - Circular infestations in the central part of the green (the degree of infestation is largely due to hole changing); and

- Random infestations in other parts of the green.
- Relatively limited surface infestations are accompanied by the development of an extensive network of rhizomes within the top 5cm of the soil;
- The vast majority of couchgrass invasion is via roots in the form of rhizomes within the top 5cm of soil;
- The spread of couchgrass can be difficult to identify due to couchgrass developing long, persistent rhizomes which often travel ahead of the visible infection;
- Rhizomes have buds every centimetre or so along their length and each bud can develop into a new shoot. If the rhizome is broken or cut, even the small pieces can form new plants, provided they have at least one bud and are buried;
- During the warmer months couchgrass patches are easy to identify, however during the cooler months couchgrass patches can be hard to detect due to the tendency of the bent outcompeting the couchgrass;
- Use of ineffective sprays, hole changing, cultivation practices (coring, slicing, scarifying etc) and hand weeding all have the potential to increase the infestation by breaking up of the rhizomes into shorter pieces, stimulating the buds to develop into surface shoots;
- The efficacy of Tupersan varies widely depending on the couch cultivar with some types surviving repeated applications over several years; and
- Couchgrass can be difficult to control with the smallest bit of rhizome left alive in the green being able to re-infect the whole green within two years.

SOIL BARRIERS

Assessments were carried out on the use of soil barriers with Dr. Martin concluding that the soil barriers are effective in greatly reducing the frequency of infestation from the edge of the green. In practice, however, clubs who have installed root barriers have had varying results.

The first point to make is they can be fiddly and time-consuming to install while it is imperative the barrier is deep enough not to interfere with mowing and importantly ball roll. Some superintendents have also expressed concerns having experienced couchgrass rhizomes piercing holes through commonly used root barrier products.

USE OF SELECTIVE HERBICIDES

Extensive testing was also undertaken on a range of selective herbicides and growth regulators to assess their effectiveness in either eradicating or suppressing couchgrass. It was concluded that while there are a number of herbicides with proven activity against couchgrass, all were deemed as too harsh to be used on bentgrass and in many cases *Poa annua* which is often found in bent greens.

The findings also reinforced long-held beliefs by many that the efficacy of Tupersan (active constituent 500g/kg siduron) varies widely depending on the couch cultivar with many Australian couchgrasses being notably resistant, surviving repeated applications over several years.

The research went one step further indicating that the use of Tupersan causes dieback of the central parts of rhizomes near vertical shoots while distant parts of the rhizome are unaffected. In effect, the use of Tupersan breaks up rhizomes into shorter segments which only exacerbates the problem by potentially increasing the severity of the infestation.

In recent years trials using several selective herbicides and growth regulator combinations such as fenoxaprop, fluroxypyr, Trinecapac-Ethyl and ethofumesate have been undertaken, however, control/suppression can be highly variable and dependent on the couchgrass variety.

It should be noted that fenoxaprop and fluroxypyr are not registered for use on bentgrass, with Tupersan being the only turf-registered product in Australia to control couchgrass within a bentgrass sward.

Dr. Fred Yelverton, who recently toured Australia courtesy of Bayer Environmental Science, advocates a slightly different approach, suggesting prevention is the most effective way of managing couchgrass encroachment.

His recommendations include weekly trimming around the greens perimeter with a mechanical edger to impede any stolon growth, stressing good hygiene practices such as blowing all debris off the green is vital to ensure no couchgrass material is left behind to infect the greens surface.

He also recommended Tupersan is best used as a suppressant and that it should be used at half rates, one month apart both in spring and autumn. The aim of the programme is to suppress any new growth while also giving the bentgrass a competitive edge. Needless to say the timing of application(s) is critical and should be timed to coincide with spring green-up and when soil temperatures start to decline in April-May.

ONGOING BATTLE

Talking with superintendents across the country it is clear that the use of selective herbicides/growth regulators is ineffective in providing any meaningful long-term control. Kingston Heath Golf Club superintendent Martin Greenwood has battled with couchgrass encroachment over the past 10 years and has reverted to stripping a 900mm width of turf cover around each green (two sod cutter widths – see photo right) and removing the existing soil to a depth of 300mm deep. This is then replaced with clean sand and freshly cut turf free of any couchgrass contamination.

A number of clubs in Sydney are addressing the issue by installing a collar of seashore paspalum of varying width around the putting green perimeter. Shaun Probert, superintendent of Ryde-Parramatta Golf Club, states that the main benefit is providing a buffer zone between the fairway turf which consists of kikuyu and the greens turf. Maintenance practices such as mechanical edging and removal of debris is still required on a weekly to bi-weekly basis during the growing season.

To keep greens free of couch Dr. Martin stresses that constant vigilance is necessary, recommending the manual removal of plant material for greens with small amounts of couch infestation. Good hygiene measures such as screening topdressing material and thoroughly cleaning all machinery prior to greens use is also recommended.

For greens with moderate infestations the findings suggest hole changing as the biggest contributor to distributing couchgrass throughout the green surface. Therefore it is important practitioners carrying out hole changing duties examine each plug for any contaminated soil and discard if necessary. During periods of high temperatures when bentgrass is growing slowly it is also a good practice to not over fertilise which is simply feeding the couchgrass during its optimum growing conditions.

For greens severely infested with couchgrass the options are limited and other than living with the problem, reconstruction is the recommended path to follow. 🙏



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