



Under the Microscope...

Victorian Golf Association - Turf Research Trials



The entomopathogenic nematode species *Heterorhabditis zealandica* has proven to be an excellent controller of Winter Corby grubs (above)

NMIT's Phil Ford outlines research conducted by the Victorian Golf Association's Research and Advisory Board, including the use of entomopathogenic nematodes for insect control.

Over the past eight years the Victorian Golf Association Turf Research and Advisory Board has conducted a wide range of trials including low input fairway grasses, couchgrass establishment methods, insect control with entomopathogenic nematodes (ENs), dusting of greens and other topics.

The board tries to tackle issues that are not being investigated by other organisations (eg: US research), and of immediate relevance to its member clubs. It also concentrates on the more environmentally sensitive issues, and has contributed greatly to the widespread adoption of couchgrass fairways, dusting programs and the use of ENs for insect control at Victorian golf clubs.

Entomopathogenic Nematodes

The VGA is very keen to promote the concept of 'insecticide-free golf courses'. All currently used chemical insecticides are nerve toxins, and therefore present a hazard to any organism that has nerves (eg: birds, fish, golfers and superintendents!).

Entomopathogenic nematodes (ENs) have no off-target hazard, and offer an environmentally

friendly solution to most insect problems.

Previous research by the VGA had shown excellent (near 100 per cent) control on Argentine Stem Weevil and African Black Beetle, with the Black Beetle data being presented at the International Turfgrass Conference in Toronto, 2001. The turf industry now routinely and successfully uses ENs to control these two pests as well as Billbugs, Red Headed Cockchafers, Argentine Scarab and various cutworm pests.

A more recent trial (October, 2003) compared the EN species *Heterorhabditis zealandica*, *Steinernema feltiae* and the insecticide cyfluthrin for control of the webworm pest *Oncopera rufobrunnea*, commonly known as Winter Corby grub. In the final assessment, not one living Corby grub was found alive in the *Heterorhabditis* replicate plots, indicating a 100 per cent kill rate on all three replicates.

The report for this trial hasn't been finalised yet, but will be distributed to Victorian clubs and posted on the VGA website in the next few months. The authors intend to present this data at the International Turfgrass Conference in Wales, 2005.

Evaluation of New Warm-season Grasses in Victoria

As well as reducing the need for insecticide use, the other big topic for Victorian golf courses is water. The single biggest gain in reducing turf water use is by switching from cool-season to warm-season grasses, so the promotion of couchgrass has been a high priority. But it's pretty clear that many of the 'standard' couchgrasses used in Victoria had been around for many years. Were there new cultivars to challenge the standard ones?

In 2002 the VGA began a collaborative project with Dr. Don Loch to evaluate many new grasses and cultivars in our climate.

In October 2002, turf students from Northern Melbourne TAFE planted replicated plots of 16 couchgrass varieties on a nursery area kindly offered by Richard Forsyth and Metropolitan Golf Club. They also planted single plots of the new ultradwarf couches, and various zoysias and seashore paspalums.

Very few of these grasses had been grown in Victoria before. This research is ongoing, but within the first summer it was obvious that several breakthroughs had been made, including:

- The emergence of three new couchgrass varieties (Conquest, CD and No.9) with extremely high quality and good winter colour retention in our climate. The 2003 winter was quite cold in Melbourne and the colour retention figures in comparison to Santa ana and Wintergreen were excellent. Santa ana and Wintergreen, grown in Melbourne since the early 1980's, were still in the top group.
- The excellent performance of the seashore paspalums in our climate. Sea Isle 1 and Sea Isle 2000 were good, but the Western Australian variety 'Velvete'™ (PBR TFWA02) performed even better. Its establishment rate was faster than any couchgrass, and its winter colour retention and turf quality were superior as well. This species has a remarkable salinity tolerance, but its performance here on normal town water show it to be a high quality turf species in its own right, with the salt tolerance a bonus.
- A hint of possibility for zoysias in our climate. Their establishment rate is extremely slow, although the varieties GGR and Zoyboy show some inclination to grow. But many varieties kept good colour over the winter, so it may be useful for a golf club to import zoysia turf from northern Australia for use in heavily shaded 'niche' areas.



The VGA couchgrass plots at Metropolitan Golf Club in Melbourne

The Metropolitan Golf Club trial will run for another two years, at which time a full report will be prepared. The excellent performance of Velvetene™ has led to the establishment of this grass at other locations last summer.

In October 2003, NMIT students planted a practice putting green and a fairway area at Kerang Golf Club. These plantings have two purposes – to evaluate the potential for seashore paspalum (Sea Isle 2000 and Velvetene) and the dwarf couches (MS Supreme, TifEagle, Tifdwarf and Santa ana) as a putting green surface at 3mm or so, and to compare the salt tolerance of seashore paspalum (Sea Isle 1 and Velvetene) and couch (Santa ana) in a highly saline area of fairway.

Another planting was done on the small fairway (the 'betting hole') at the Shearwater

Resort (Cape Schanck). Velvetene™ was line planted. In that deep, alkaline sand and using effluent water, this planting should present the seashore paspalum in its best possible light.

Superintendent Chris Grumelart reports that the grass is growing in well, and has used Kerb for *Poa* control in the establishment phase with excellent results and no injury to the paspalum.

More Velvetene™ plots were planted at Ballarat Golf Club. No offence to superintendent Geoff Powell, but the Ballarat site puts this variety in a much more challenging environment, exposed to winter frosts, compacted clay soil and some shaded areas. Geoff reports that establishment has been slow, with January and February being very cool. Will Velvetene survive a Ballarat winter? It will be interesting to see.



The VGA putting green plots at Kerang Golf Club. The Velvetene plot is on the left.

Many of the larger VGA projects have attracted dollar-for-dollar support from Horticulture Australia Ltd. Their ongoing support is currently under a cloud, however, as the turf industry doesn't have a formal levy system in place and Horticulture Australia's funding will increasingly favour levied industries (eg: strawberries, grapes etc).

Other funding sources are around, however – a submission has recently been made to Melbourne Water for some 'Smart Water' funded projects for next summer. The Victorian golf industry has already demonstrated a proactive approach to water saving, but there is no doubt further work on water issues has the potential to save many thousands of megalitres of potable water in the state.

The success of the board's research has led the VGA to increase its turf research budget for 2004. This will allow the board to consider some larger and longer term projects into the future, continuing to focus on grass roots issues of immediate relevance to Victorian clubs and their superintendents. 🙏