The Queensland Department of Employment, Education, Development and Innovation (DEEDI) is working together with Redland City Council on testing and evaluating a series of warm-season turfgrasses under simulated and actual wear conditions on community sporting fields. Pictured is the planting of phase two of the trials (foreground) and the surrounding turf (background) at the Redlands Touch Association in late November 2009.

Grass roots wear and tear

Winter is arguably one of the toughest times of the year for turf managers when sportfield usage is high and the recoverability of the turfgrass is low. It goes without saying that in order to provide the best opportunity to get through to spring, turf managers need to ensure they have the best quality turfgrass.

Choosing the appropriate species or cultivar is half the battle. However, neither the right grass nor a finely tuned management programme will overcome unrealistic expectations, poor growing environments or limitations due to improper construction techniques (Bever et al., 2006).

Persons involved in the design and construction of sports fields need to place greater emphasis on what variety of turfgrass should be planted. This decision should be influenced by research findings and not driven by cost, which can often be the case.

To assist those people involved in the development, funding (e.g., government agencies offering grant money) and management of community sporting clubs with additional information in choosing a suitable turfgrass for their facility, particularly if they experience high and/or frequent usage of their fields.

Phase one of the two-phase study involved construction and setup of trial sites at Redlands Research Station (RRS) and the Redlands Touch Association (RTA) between 7 and 12 January 2009. Eleven months later phase two of the trial began with construction of two additional fields at the RTA taking the number of fields under actual wear and assessment to four.

The turfgrasses being trialled at the RTA and/or RRS sites are made up of:
- Seven green couch (Cynodon dactylon) – TifSport, OZTUFF, Wintergreen, Hatfield, Conquest, Legend and Grand Prix;
- Kikuyu (Pennisetum clandestinum (Whitheet))
- Two blue couch (Digitaria didactyla) – Tropika and Aussiblue

WEAR TOLERANCE AND RECOVERY

In earlier simulated wear studies (Roche et al., 2009) conducted between 2006 and 2008 at RRS on eight Cynodon cultivars, the turfgrasses incurred higher levels of wear, damage and compaction to best simulate elite sportfield conditions. Given that the current trial conditions are different, inputs such as fertiliser are reduced and a sandy loam/clay soil type is being used instead of a USGA-type sand.

The wear being imposed by the DEEDI wear machine (based on the design of the GA-SCW Simulator (Carrow et al., 2001) developed in Georgia, USA) had to be finely tuned over time to replicate the damage being imposed by players at the RTA ground.

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QUEENSLAND DEEDI CALLS FOR CHEMICAL PHYTOTOXICITY TESTING EXPRESSIONS OF INTEREST

Over the last nine years Horticulture Australia Ltd (HAL), together with voluntary contributions (VCs) from the turf industry, has funded three consecutive research projects (HAL Projects TU00011, TU04006 and TU06008) in the Chemical Phytotoxicity Testing Facility for Warm-Season Turfgrasses at the Queensland Department of Employment, Economic Development and Innovation’s Redlands Research Station in Cleveland.

The phytotoxicity testing facility has provided chemical companies and the Australian turf industry with an invaluable testing site to evaluate the phytotoxic effects of selective turf pesticides on 28 warm-season turfgrass cultivars from 16 different turf species. From commencement in 2001, a total of 76 products consisting of 187 different treatments have been tested at Redlands. During the first three years, 39 products were comprehensively examined, resulting in the registration of 12 new products for the turf industry.

The current HAL Project TU06008, led by DEEDI senior research scientist Matt Roche, will be completed in May 2010. As such DEEDI is seeking expressions of interest from the turf industry in the form of voluntary contributions (VCs) to continue providing the industry with this resource from late 2010 and beyond. Following the success of this research and consequently the availability of new pesticides, and to develop additional options for a range of host grass/weed combinations, DEEDI is seeking to extend this work on a newly developed evaluation site at Redlands Research Station.

Further research into the lifecycle (including feeding habits) and safe, effective control of the mites is warranted. From observations made in the field, it seems that particular cultivars are resistant to the effects of two-spotted mites and cultivars with high total cell wall content (TCW), lignin and neutral detergent fiber (which are associated with wear tolerance, Roche et al., 2009) are not excluded from being attacked.

Phase two of the trial commenced wear applications in February 2010 to coincide with the Redlands Touch Association’s playing schedule. It is anticipated that results from phase one of the study will be published in time for distribution at the forthcoming Australian Turfgrass Conference and Trade Exhibition on the Gold Coast (21-25 June 2010).

ACKNOWLEDGEMENTS

Matt Roche is senior research scientist with the Department of Employment, Education, Development and Innovation (DEEDI). DEEDI gratefully acknowledge the management and playing facility of the RRA trial site by Darryl Hoffman, Redlands Touch Association and Laurence Blacka, Redlands City Council.

REFERENCES


DEEDI would also like to thank the support from the following organisations, clubs and business groups in funding or contributing to this trial: Horticulture Australia, Redlands City Council, Redlands Touch Association, Q Turf Machinery, Oz Tuff Turf, turf Forage, Turf Solutions, Turfworld, Twin View Turf, Caboolture Turf and Jimboomba Turf.

Further information on the Horticulture Australia project Traffic Tolerance of Warm-Season Turfgrasses under Community Sports Field Conditions (TU08018) can be found at www.deedi.qld.gov.au.

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