

## RESEARCH &amp; DEVELOPMENT

# Environmental benefits of turf easily highlighted...

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Turf growers know the environmental benefits of turf and often make them a critical part of their marketing and promotion initiatives.

Research, however, to backup these environmental claims can sometimes be difficult to find. But now following a Horticulture Australia (HAL) levy-funded project, turf growers can access documented evidence for their marketing campaigns. Liz Mechan explains.

**T**he environmental benefits of turf to customers and potential customers as a marketing tool has long been promoted, but until now, the hard evidence to back up those claims has been littered through documents far and wide. Collating and reviewing that data has identified more research options for the industry, but also highlighted that areas such as soil erosion, carbon capture, oxygen generation and cooling the urban environment are key areas the industry should be marketing.

The Australian turf industry commissioned a comprehensive review of turf's environmental credentials. The study, *A Review of the Environmental Benefits of Turf (TU12017)* was conducted by Laura Hewitt and Shane Holborn from the private research provider, BioScience Australia Pty Ltd.

While not undertaking any new research to support or dispel claims, the project conducted a review of literature in Australia and internationally in order to distil a comprehensive list of the environmental benefits of turfgrass (see *Table 1*).

"The review incorporated all available refereed scientific and non-referred industry journal and magazine articles to identify key environmental claims," BioScience Australia director, Shane Holborn explained.

"These claims were then critically assessed in terms of whether there was sufficient supporting scientific information and, conversely, where further research is recommended.

"The final results can be used as a practical guide for the industry in order to support marketing claims, build new markets, increase existing markets and also to inform future levy investment decisions into areas where insufficient evidence exists to support claims."

Shane said the reviewers, in assessing the environmental functions of turf grass, identified key areas where turf is well supported and widely recognised as providing significant benefits; areas where there is solid evidence but less recognition for turf grass as an environmental solution, and areas where turf's capabilities are obvious but lack rigorous or consistent quantitative results and therefore warrant further attention.

"The review was undertaken to assist the turf industry to better market its product into environmental markets and to assist in prioritising future research investment," he said.

The study identified four key areas turf had claims of benefits in:

- **Atmosphere quality:** such as carbon sequestration, oxygen generation and air quality improvement.
- **Water quality:** such as rainwater entrapment, filtration and purification, flood control and runoff reduction.
- **Land quality:** reduced nutrient loss, heat island effect alleviation and erosion control.
- **Other environmental benefits:** included reduced noise and glare pollution and increased biodiversity via habitat creation.

WHILE NOT UNDERTAKING ANY NEW RESEARCH TO SUPPORT OR DISPEL CLAIMS, THE PROJECT CONDUCTED A REVIEW OF LITERATURE IN AUSTRALIA AND INTERNATIONALLY IN ORDER TO DISTIL A COMPREHENSIVE LIST OF THE ENVIRONMENTAL BENEFITS OF TURFGRASS.

The superior erosion control properties of turf can be clearly seen in the clean runoff from the turf strip (pictured) compared to the dirty runoff from coir log control strips (opposite top and bottom).





The critical analysis of data available backs up many of the current environmental benefit claims, however, Shane said strong scientific data is lacking in some areas particularly in relation to warm season grasses under Australian climate and conditions.

“While it is evident from the extensive literature reviewed that well-managed, natural turf grass has numerous environmental benefits, uncertainty about the extent of these benefits still exists. Further research must be undertaken to determine the scientific evidence to support these claims and ensure the full environmental benefits of turf grass are identified and the extent of these benefits are known,” he added.

From the analysis of the data available, however, some of the greatest areas the industry can capitalise on are in the land and erosion control area, as well as air quality and cooling in urban areas which have the potential to provide large market growth for the industry across the country.

Within the review, Shane said there was evidence to support the claims: “Turf grass has the ability to reduce the movement of soil and nutrients as well as possessing a high capacity to absorb excess nutrients in marginal or ‘polluted’ water sources. This represents an opportunity to build on a currently underdeveloped market for the use of turf as a nutrient sink and should be further investigated.”

Similarly, the use of turf grass for erosion control has been well documented in the literature. However, Shane said “... the use of turf grass as a natural source of erosion control could be further researched when it is used in place of artificial or man-made erosion control methods”.

“The available research results should also be well communicated as this represents a substantial and growing market opportunity for the industry.”

Shane concluded that “... the Australian turf industry has some important and well supported environmental stories to tell”.

Results of the research are available via the HAL website [www.horticulture.com](http://www.horticulture.com)

**Table 1: Summary list of the environmental benefits of turf grass.**

Atmosphere quality benefits	Water quality benefits	Land quality benefits	Other benefits
Air pollution control/air quality improvement	Water filtration and purification (phytoremediation)	Reduction in nutrient movement & loss	Noise and glare reduction
Oxygen generation	Water run-off reduction	Erosion control	Fire prevention
Dust prevention & stabilisation	Rainwater harvesting & entrapment - groundwater recharge	Soil improvement and restoration	Biodiversity and ecosystem services
Carbon sequestration and sinks		Biodegradation of synthetic organic compounds (phytoremediation)	
		Alleviating heat island effects	

