

## Your details

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**Title**

Mrs

**First name**

**Last name**

## Submission details

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**I am making this submission as**

Other

**Submission type**

I am submitting on behalf of my organisation

**Organisation making the submission (if applicable)**

Turf Australia

**Your position in the organisation (if applicable)**

Market Development Manager

**Consent to make submission public**

I give my consent for this submission to be made public

## Share your experience or tell your story

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**Your story**

The reason for this submission is for the prevention of damage to homes and buildings in future bush fires. A recent independent study has confirmed that maintained natural turf is effective as a bush fire retardant. The attached document is the first release of the project outcomes and the final report will be available soon. This study should be

a serious consideration of all local and state government authorities in making changes and installing natural turf as a barrier to protect communities and provide a fire break.

## **Terms of Reference (optional)**

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The Inquiry welcomes submissions that address the particular matters identified in its [Terms of Reference](#).

## **Supporting documents or images**

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### **Attach files**

- Turf as fire retardant article TA mag Autumn 2020-1.pdf

# Levy-funded project finds living grass is a bushfire retardant

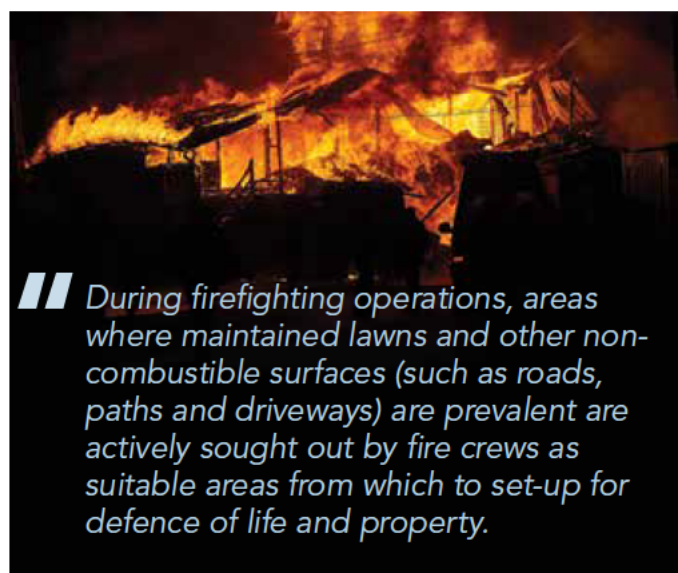


Image source: CSIRO

A strategic, levy-funded project into the bushfire protection benefits of Australian turf varieties has concluded with staggering findings. With the final results scheduled for wide release in the coming months, *Turf Australia* can share some of the initial findings exclusively.

**Hort  
Innovation**  
Strategic levy investment

**TURF  
FUND**



During firefighting operations, areas where maintained lawns and other non-combustible surfaces (such as roads, paths and driveways) are prevalent are actively sought out by fire crews as suitable areas from which to set-up for defence of life and property.

Conveying the benefits of living turf – A bushfire retardant’ (TU17008), is being finalised after seven months of research and analysis into the fire-retardant nature of living grass, particularly in comparison with synthetic grass.

The project lead consultancy, GHD, initially conducted a desktop study to provide a scientific, evidence-based assessment of current research and used that knowledge to guide the direction of the project.

The findings of the study, some of which are contained in this article, are available for use by the turf industry and individual growers to communicate the benefits of living grass in fire-wise landscape design. A series of factsheets will also be released for use in marketing materials, social media or above the line advertising.

## Research overview

The research has focused on the three most common turf varieties found in Australia: buffalo, couch and kikuyu. Owing to their different biological attributes, each has slightly different bushfire mitigation properties.

For example, as a grass that thrives in the summer, buffalo is usually at its greenest in the bushfire season when it is actively growing, making it a good choice for bushfire-prone areas.

However, despite the different properties of each grass, the study found that live turf, kept in short green condition is highly resistant to bushfire. This can be attributed to the very high moisture content in live green leaf blades.

During ignition experiments carried out in dry spring and summer conditions, conducted by CSIRO’s Bushfire Behaviour and Risks group in their “Pyrotron” (a state-of-the-art fire ignition and behaviour testing facility incorporating a wind tunnel in to simulate conditions from still air, to adverse windy conditions), none of the live turf samples ignited.

Turf samples in a live but visually obvious state of moisture stress did not ignite either. Only turf samples in a dead or near-dead condition, and subjected to some degree of oven-assisted drying, supported ignition.

Outside of exploring the different types of grass, the researchers looked at the role that grass could play within fire mitigation strategies within a bushfire context. According to state bushfire services such as the Country Fire Authority (CFA) or Rural Fire Service (RFS), maintained lawn is one of several 'low-fuel' ground cover/surface options that should make up the 'defendable space' around an important asset such as a home, factory or community facility.

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“ ... as a grass that thrives in the summer, buffalo is usually at its greenest in the bushfire season when it is actively growing, making it a good choice for bushfire-prone areas.

Operationally, within these fire services, it's common knowledge that live maintained turf areas mitigate surface fire spread and assist in providing defendable space to allow the defence of properties. According to Paul de Mar, project lead, GHD, the research conducted backs this anecdotal evidence with robust scientific evidence.

The report also touched on what impact, if any, water restrictions would have on the ability of natural lawns to retain its fire-retardant properties.

All but the most extreme levels of restrictions allow for some watering of lawns, whether that be on specific days, or only during twilight hours. In almost all cases, this should keep lawns alive, even if visibly under water stress. The good news is that ignition testing found that even severely dried out, but alive lawns, still retain most of the fire-retardant properties of lush, healthy lawns.

### Synthetic turf: Not a bushfire retardant

One of the core focuses of the research was to compare natural lawn with synthetic grass which is becoming more prevalent in homes and public space in parts of the country, owing to perceived though unjustified, lower maintenance costs.

Opposition to synthetic turf has come from numerous avenues. For example, Hort Innovation has commissioned research, undertaken by Seed Consulting which looks at its contribution to the Urban Heat Island (TU18000). The effect of synthetic grass on sports players is also well publicised. However, this is the first time a study has been conducted in Australia which explores how synthetic turf stacks up against natural turf in bushfire-prone areas.

Synthetic turf comprises a mixture of combustible plastics which have low melting and ignition points. Synthetic turf products are not all the same. Synthetic grass blades are typically made from polypropylene, or polyethylene, with some older generation products being made from nylon. There is a great deal of variation in the synthetic backing materials, in-fill material (including products with 'rubber crumb' made from recycled car tyres), adhesives and additives used, and in their flammability and combustion products.

Some but not all synthetic turf products are subject to fire testing, but the test methods commonly used are designed for flammability testing of indoor floor coverings (including carpets and carpet tiles), and the tests do not simulate outdoor settings exposed to direct sun and wind.

There have been numerous recent high-profile fire disaster events in which external cladding products containing the same types of combustible plastics that synthetic grass is made from, were centrally implicated in fire spread and engulfment. The 2017 Grenfell Tower fire in London is one such example – the cladding contained a polyethylene core – the main ingredient in many synthetic turf products.

Separate to the risks around ignition and fire spread it should also be

*Continued...*



*Above: Living turf was very difficult to ignite*

*Below: Green lawns around destroyed houses can prevent fire spread (source: ABC News)*



# RESEARCH & DEVELOPMENT

## Levy-funded project finds living grass is a bushfire retardant *(continued)*

considered that if synthetic grass does ignite or melt, it results in the release of harmful combustion products and smoke.

For example, many synthetic grasses are made from polypropylene or polyethylene, the smoke from which is considered toxic. Firefighters will not enter environments with such smoke without self-contained breathing apparatus. Many volunteer bushfire brigade units are not equipped with breathing apparatus, and thus unable to defend life and property in synthetic smoke contaminated environments.

### Final report

While the i's are being dotted and the t's are being crossed on the final report, Turf Australia is optimistic about what the full findings will mean for the industry, according to Jenny Zadro.

"Turf Australia and the Turf SIAP are reviewing all final outputs for this project and to say that the results are significant would be an understatement," Ms Zadro said.

"The fact that natural, living turf can act as a firebreak is significant and although fire authorities have anecdotally known this for some time, the fact that we can scientifically prove its value as a bushfire retardant is huge for our industry.

"Once the full results are released, we will be sharing all findings with growers via Turf Australia communications. We will also be releasing factsheets ready for external use. Growers should look to leverage this information in all conversations with customers and councils, particularly those in bushfire-prone areas. As a peak body, we too will be using this information to advocate for turf's value in those communities."

The findings of the research project will be released by the end of April. Stay tuned for updates and for advice on how to get the most out of this information. 🌱



*Living turf not sustaining ignition*