Licence Application No. DIR 194

Proposed field trial of genetically modified perennial ryegrass

Submission by the
Invasive Species Council

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Document details

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About the Invasive Species Council

The Invasive Species Council was formed in 2002 to advocate for stronger laws, policies and programs to keep Australian biodiversity safe from weeds, feral animals, exotic pathogens and other invaders. It is a not-for-profit charitable organisation, funded predominantly by donations from supporters and philanthropic organisations.

Intellectual property rights

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Comments on Licence Application No. DIR 194

The Invasive Species Council recommends that the Gene Technology Regulator refuses the application for a licence to conduct a field trial of perennial ryegrass genetically modified for increased metabolisable energy content. We strongly disagree with the assessment that the 'risks to the environment from the proposed release are negligible'.

We recommend rejection of the application on the basis that the field trial is likely to pose an unacceptable risk to the environment based on the following rationale.

A. **Perennial ryegrass is a major environmental (and agricultural) weed in Australia**. It is, for example, a threat to the critically endangered ecological community, *Natural Damp Grassland of the Victorian Coastal Plains*, listed under the EPBC Act. Unspecified *Lolium* species are also a threat to several other threatened ecological communities: *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* (endangered), *Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions* (endangered), *Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community* (critically endangered). Many other threatened or declining ecological communities are likely to be susceptible to invasion by perennial ryegrass, a risk that could be exacerbated by the release or escape of the genetically modified variant.

B. **The genetically modified perennial ryegrass variety is likely to be even more invasive** than the existing naturalised variants of perennial ryegrass, due to the 'increased metabolisable energy content trait', as acknowledged in the risk assessment: … *theoretically possible that the traits could increase the competitiveness of the GM perennial ryegrass and provide a competitive advantage over … native vegetation. As a result, populations of volunteer GM perennial ryegrass could reduce establishment or yield of desirable plants.* The risk assessment also acknowledges that this is '*an area of uncertainty*'. In 2018, AgResearch reported that the GM ryegrass '*grew up to 50% faster than conventional ryegrass*'.

C. **The genetically modified perennial ryegrass variety is likely to hybridise with the existing weedy variants**, resulting in even greater invasive potential due to 'hybrid vigour', as acknowledged in the risk assessment: …*perennial ryegrass can hybridise with some other grasses that are expected to be found at the majority of the proposed trial sites. While some hybrid crosses are known to be sterile, perennial ryegrass hybridises readily with Italian ryegrass and annual ryegrass to produce vigorous, fertile progeny*.

D. **Escape into the environment of this GM ryegrass would, therefore, likely pose an unacceptable risk to the environment**, including to threatened ecological communities listed under the EPBC Act.

E. **The risk assessment has not comprehensively assessed the potential for environmental harm**. The assessment is inconsistent in acknowledging the potential for increased competitiveness of the GM variant (or vigorous hybrids) but then concluding under scenario 4 that the environmental risks are 'negligible'. The assessment should consider the potential consequences for threatened ecological communities of a more invasive ryegrass, including in communities where it is already invasive. It is mostly not relevant for the environment that the GM variant is '*expected*' to *'be susceptible to standard weed management practices',* because there is often little or no weed management in the natural environment, particularly in the vegetation

fragments on farms that often constitute the last precious remnants of an ecological community. The invasive risks will be exacerbated by greater propagule pressure if the GM ryegrass becomes a more popular pasture grass due to the genetically modified traits.

F. Despite the precautions specified in the risk management plan, **there is a significant risk that the GM ryegrass will escape into the environment**, particularly from sites where it is permitted to flower and set seed and where there is no requirement for a pollen tent (as proposed for the 'production of seed to use in Objective 3'). All it would take would be for one wind storm to spread the pollen over a vast area. Ryegrass pollen is notorious for spreading over large areas, as occurs regularly during springtime thunderstorms, sometimes causing asthmatic allergies in urban areas. A severe thunderstorm could presumably wreck a pollen tent. In addition, the risk assessment has acknowledged that '*there is no definitive evidence that the pollen control tents will fully control the flow of pollen*'. Escape can also occur due to a lack of vigilance or precaution by workers, which has been frequently demonstrated in biosecurity, and unanticipated events. Given the risks of escape, the risk assessment should acknowledge and investigate the potential impacts of the widespread establishment of GM ryegrass.

If the Gene Technology Regulator decides to approve this application, it should be referred for assessment under the EPBC Act as a potential controlled action due to the risks of escape and the potential impacts on threatened and declining ecological communities.

Recommendations

1. Revise the risk assessment to more comprehensively assess the invasive potential of GM perennial ryegrass or hybirds and their potential impacts on the natural environment, including on threatened ecological communities.
2. Refuse the Licence Application No. DIR 194 for a field trial of GM perennial ryegrass as an unacceptable risk to the environment.
3. If the regulator's intent is to issue a licence, make it conditional on the application being referred for assessment under the EPBC Act prior to proceeding with any trial.