



Summary of the Risk Assessment and Risk Management Plan for Licence Application No. DIR 176

Decision

The Gene Technology Regulator (the Regulator) has received a licence application for the intentional release of a genetically modified organism (GMO) into the environment. It qualifies as a limited and controlled release application under the *Gene Technology Act 2000* (the Act). The Regulator has prepared a Risk Assessment and Risk Management Plan (RARMP) for this application, which concludes that the proposed field trial poses negligible risks to human health and safety and the environment and that any risks posed by the dealings can be managed by imposing conditions on the release.

The application

Application Number	DIR 176
Project Title	Limited and controlled release of white clover genetically modified for increased condensed tannins ¹
Parent organism	White clover (<i>Trifolium repens</i> L.)
Introduced genes	Introduced gene conferring increased condensed tannins in white clover: <ul style="list-style-type: none">• <i>TaMYB14-1</i> - transcription factor involved in regulation of the pathway controlling condensed tannin production from <i>Trifolium arvense</i> (Hares foot clover) Introduced marker gene: <ul style="list-style-type: none">• <i>nptII</i> selectable marker – antibiotic resistance gene from <i>Escherichia coli</i>
Genetic modification method	<i>Agrobacterium</i> -mediated transformation
Number of lines	Two events crossed into up to six lines
Proposed location/s	The trial is proposed to take place on sites selected from 55 LGAs in NSW, 35 in Victoria, 16 in WA and 11 in Qld
Proposed release size	Up to a total of 1 ha per year across a maximum of four sites per year, with a maximum of 0.3 ha on any single site in any year
Proposed period of release	From April 2021 until December 2026 (five and a half years)

¹ The original title for the application was “Limited and controlled release of *Trifolium repens* L. genetically modified for increased condensed tannins.”

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Principal purpose	To study the agronomic performance, nutritional analysis, compositional analysis, molecular analysis and genetic stability of the GM white clover under field conditions

Risk assessment

The risk assessment concludes that risks to the health and safety of people or the environment from the proposed dealings are negligible. No specific risk treatment measures are required to manage these negligible risks.

The risk assessment process considers how the genetic modification and proposed activities conducted with the GMOs might lead to harm to people or the environment. Risks are characterised in relation to both the seriousness and likelihood of harm, taking into account current scientific/technical knowledge, information in the application (including proposed limits and controls) and relevant previous approvals. Both the short and long term impacts are considered.

Credible pathways to potential harm that were considered included exposure of people or other desirable organisms to the GM plant material, potential for persistence or dispersal of the GMOs, and transfer of the introduced genetic material to non-GM white clover plants. Potential harms associated with these pathways included toxicity or allergenicity to people, toxicity to desirable animals, and environmental harms due to weediness.

The principal reasons for the conclusion of negligible risks are that the GM plant material will not be used for human food or animal feed and that the limits and controls will effectively minimise exposure to the GMOs.

Risk management

The risk management plan describes measures to protect the health and safety of people and to protect the environment by controlling or mitigating risk. The risk management plan is given effect through licence conditions.

As the level of risk is considered negligible, specific risk treatment is not required. However, since this is a limited and controlled release, the licence includes limits on the size, location and duration of the release, as well as controls to prohibit the use of GM plant material in human food and animal feed, to minimise dispersal of the GMOs or GM pollen from the trial site, to transport GMOs in accordance with the Regulator's guidelines, to destroy GMOs at the end of the trial and to conduct post-harvest monitoring at the trial site to ensure all GMOs are destroyed.