Building robust environmental risk assessments of GM plants based on methodology to assess weeds
J. Smith*
Office of the Gene Technology Regulator, Australia

Currently, most GM plants encompass a handful of food crops with either tolerance to herbicide application or resistance to insect pests. Future GM plants are likely to include a broader range of plants (pasture species or trees) and diverse traits such as abiotic stress tolerance, production of novel chemicals, or use as biofuel. Recent developments in weed risk assessment methodology offer the opportunity to reinforce robust risk assessment of current and future GM plants.

Australia is host to more than 1200 major weeds. These include ornamentals, pasture species, trees and food crops. Experience has helped to determine key characteristics of plants that can lead to environmental harm or damage. These have been incorporated into a set of generic criteria that address the potential to be invasive (spread and persist) and cause harm. Criteria for invasiveness consider establishment amongst existing vegetation, reproductive ability, potential for long distance dispersal, and tolerance to existing management practices. Criteria for impact consider harms to other desirable organisms, ecosystem function and environmental quality of soil, water and air. These criteria have been validated by several studies.

Incorporation of advanced weed risk assessment methodology into the evaluation of GM plants:

- provides an efficient, structured approach to all types of plant and traits;
- is consistent with case by case comparative assessment;
- emphasises the relevance and importance of the receiving environment;
- indicates the degree of change that is significant;
- can be applied to unintended effects;
- can be used to address the consequences of gene flow, short and long term effects, changes in agricultural practices, ecosystem function and biodiversity; and
- acknowledges uncertainty.

This presentation will explore how contemporary weed risk assessment methodology can be applied to help meet the challenges posed by the regulation of existing and emerging GM plants.

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