Australian Government
Department of Health
Office of the Gene Technology Regulator

Genetically modified (GM) crops in Australia

Overview

Three genetically modified (GM) crops are grown in Australia: cotton, canola and safflower. GM carnations have also been approved for growing or importing into Australia. Other crops are undergoing field trials.

This factsheet is an introduction to the regulation of GM crops in Australia. It is supported by a suite of factsheets with more detailed information for anyone with an interest in or concerns about GM crops.

- GM crops are genetically modified organisms (GMOs). They may only be grown, imported, and transported in Australia with the approval of the Regulator. Criminal charges may apply for unauthorised handling or use of GMOs.
- Three GM crops are currently grown by farmers in Australia: canola, cotton and safflower.
- There are also experimental field trials of a number of other GM crops / plants.
- GM crops may also be used as stockfeed under certain conditions.
- Some types of blue carnation are also grown.
- All GM crops grown in Australia (commercial and experimental) or imported GM grains are approved by the Regulator only if a scientific assessment shows that they are safe for people and the environment.
- All approved GM crops are listed in the GMO Record.

If you want to grow, transport or otherwise have any dealings with GM crops in Australia the crop must be authorised by the Regulator. Commercial licences are usually issued to companies, but give permission for all people in Australia to grow the GM crop. The ACT, South Australia and Tasmania have restrictions on growing GM crops due to marketing issues.

What GM crops are grown in Australia?

GM cotton

Cotton is grown commercially in several inland regions of New South Wales as well as central and southern Queensland. Almost all cotton grown in Australia is genetically modified to be resistant to insect pest attack and to tolerate certain herbicides. While cotton is grown primarily for textiles, cottonseed oil is also used in a wide range of foods including spreads and oils. Cottonseed is also fed to livestock. There are also trials underway of additional types of cotton.

GM Canola

Canola is grown for its seed, which is crushed for the oil used in margarine, cooking oils, salad oils and edible oil blends. After the oil is extracted, the by-product is a protein-rich meal, which is used to feed livestock. Canola is grown around Australia and is easily recognised by its vivid yellow flowers.

In 2017 about 21 per cent of the national canola crop was genetically modified. The types of GM canola licensed to be grown commercially in Australia are resistant to glyphosate and/or glufosinate herbicides and canola which can produce Omega-3 oil.

There are also trials underway of additional types of canola.

GM Safflower

Safflower is a minor crop grown in Australia for the edible and industrial oil markets. Commercial safflower production occurs mainly in New South Wales, Victoria and South Australia. After oil is extracted from the seed, the remaining meal can be used as stockfeed. Whole safflower seeds are also used for birdseed.

The first commercial GM safflower was released in Australia in 2018. The two GM lines approved for release have been genetically modified to increase the level of a particular oil, oleic acid, in their seeds. The GM safflower oil extracted from the seeds is intended for use in industrial oil production and animal feed. It is not intended for human consumption. High purity oleic acid has applications in industry as a replacement to petroleum-based precursors in the manufacture of plastics, lubricants or cosmetics.

Other crops in Australia

There are currently experimental field plantings in Australia of GM banana, barley, ryegrass, mustard, sugarcane and wheat. In the past there have also been trials of rice, clover, maize, poppy, papaya, pineapple and grapevines.

Contact us: ogtr@health.gov.au, www.ogtr.gov.au, phone 1800 181 030,
or post: Office of the Gene Technology Regulator MDP 54, GPO Box 9848, Canberra ACT 2601.

For each crop, risks were assessed by the OGTR and crops were approved for field trials only when the Regulator was satisfied that the trial was able to be managed in a way that protects people and the environment. To date, no commercial licences have been issued or requested for any of these crops in Australia. You can look up the risk analyses and other documents for each licence on the GMO Record on our website.

If you want to conduct a GM crop trial in Australia, you must be licenced by the Regulator.

GM Blue carnations

Four types of GM blue carnation are grown and sold in Australia. The Regulator has determined that these carnations are of such low risk that no licence is required. Three other types of GM blue carnation are also licenced for import into Australia but are not authorised to be grown here. Read more on the OGTR website.

GM crops around the world

While only canola, cotton, safflower and carnations are approved for commercial release in Australia, there are approximately 80 different types of GM crops grown worldwide. By volume most of these GM crops are modified canola, soybean, maize and cotton. Other GM commercially released crops include papaya, potato, squash and tomato. Australia has strict quarantine rules to restrict the import of plant materials. Additional safeguards apply to GM crops. See our factsheets on unintentional release and on stockfeed imports.

GM in foods

The OGTR does not regulate the use of GM products in food. This is the role of Food Standards Australia New Zealand (FSANZ). All GM foods and ingredients must undergo a safety assessment and be approved before they can be sold in Australia and New Zealand. Read more about FSANZ and their role in assessing the safety of GM foods at the FSANZ website.

Stockfeed and GM grain imports

Stockfeed from approved Australian-grown GM crops (currently canola, cotton and safflower) may be fed to livestock. Stockfeed from approved imports of GM grain may be fed to livestock. Livestock may not be fed material from GM crop trials.

Some GM grains (canola, maize/corn and soy) are occasionally imported into Australia for use as stockfeed but are not licenced to be grown and so must be treated to prevent germination (devitalised) by the importer before being distributed to farmers and fed to livestock. All grain imports must be approved by the Australian agriculture department. All GM seed imports – including canola, cotton, or stockfeed containing GM grain – must be authorised by the Regulator.

Some GM grains are also imported into Australia for processing into food for human consumption. Examples include the use of maize to make starch, syrup and flour, and canola to make oil. These uses are regulated by FSANZ. By-products of these processes may also be used as stockfeed.

See our factsheets on stockfeed and GM imports.

Risk analysis, regulation and penalties

The GM canola, cotton and safflower crops grown in Australia were approved for commercial release only when the Regulator found that the GM crops were as safe for human health and the environment as non-GM versions.

The decision of the Regulator to approve release of any GM crop is based on a comprehensive risk assessment and risk management plan for each application. You can access these documents and other details of the licences through the GMO Record.

The OGTR monitors scientific and other literature for any new information relevant to GM crops, and the Regulator has the power to vary, suspend, cancel or transfer licences.

All GM crops and other GM organisms in Australia must be authorised by the Regulator. Significant fines and even imprisonment can result from anyone having anything to do with GM crops which are not authorised. This includes growing crops, importing crops, transporting crops – even destroying GM crops without permission.

Related factsheets

Genetically modified (GM) canola in Australia
Genetically modified (GM) carnations in Australia
Genetically modified (GM) cotton in Australia
Genetically modified (GM) safflower in Australia
Genetically modified (GM) wheat trials
Stockfeed and genetically modified (GM) crops

Further reading

Genetically modified organisms in Australia
How are genetically modified organisms (GMOs) regulated in Australia?

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