GM CANOLA

A WEED MANAGEMENT OPTION

Herbicide-tolerant GM canola adds to the two existing herbicide-tolerant canola production systems available to Australian grain growers. The addition expands crop rotation options for growers.

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BEYOND THE FARM GATE

In 2010-11, approximately 60 million metric tonnes (mmt) of canola were produced in the world and around 10 mmt was traded internationally*. Canada dominates world canola trade in canola and approximately 90% of the area sown to canola in Canada is sown to GM varieties.

In the three years up to 2010, Australia produced an average of 1.6 million tonnes of canola annually. Each year, approximately 55% of this canola was exported with an average export value of 493 million dollars**. In 2010, approximately 8% of the area sown to canola in Australia was sown to GM varieties***.

Trading standards for canola are clearly defined and applied. Since the introduction of GM canola, Australia has continued to meet the needs of GM and non-GM canola markets.

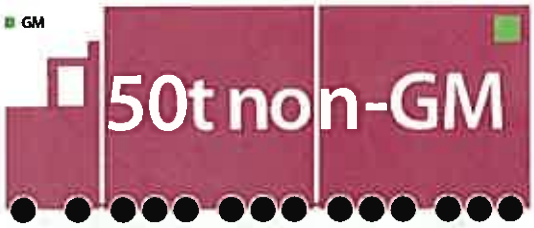
Countries such as Canada and Japan consider adventitious presence (AP) levels of less than 5% as non-GM, while the EU market has set an AP level of 0.9% which has been the basis for the 0.9% adoption in the Australian non-GM receival standards.

Seed companies have rigorous quality assurance processes in place to ensure the non-GM supply chain is not compromised.

Effective management of GM and non-GM canola on the farm is the key to ensuring growers can confidently deliver CAN1 – that is, non-GM canola.

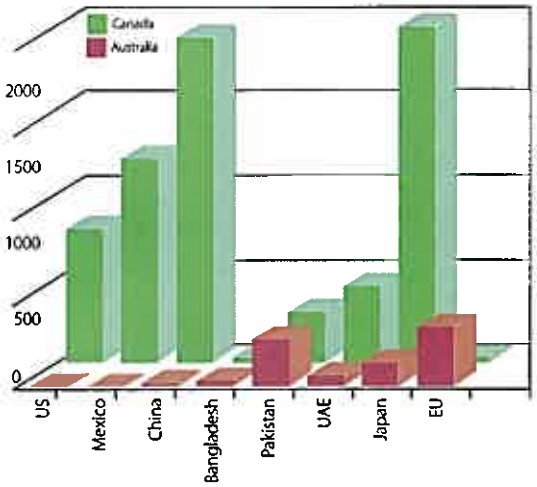
Management of storage segregation is the same as for separation of other grains; for example, segregation of feed barley from malt barley.

What does less than 0.9 % adventitious presence look like?



A 50 tonne truck of non-GM canola must contain less than 450 kg of GM canola to comply with the 0.9% threshold.

Export destinations for Australian and Canadian canola. Three-year average up to 2010, thousands of metric tonnes

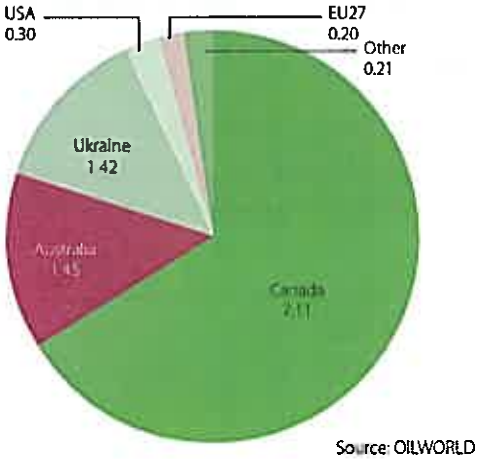


The Australian Bureau of Research Economics and Sciences reports that Japan and Pakistan have been the consistent major buyers of Australian canola. Other more occasional buyers of Australian canola are the European Union, China and Bangladesh.

WHAT ARE WESTERN AUSTRALIAN CANOLA RECEIVAL STANDARDS?

- CAN1 - Non-GM canola: This segregation is for Non-GM canola varieties only and must contain less than 0.9% adventitious presence of an approved GM canola.
- CAG1 – Canola (GM): This segregation is for all approved GM canola varieties as well as any Non-GM variety.

Countries exporting canola in 2010/11 (millions of metric tonnes)



Source: OILWORLD

* Oilworld, www.oilworld.biz/app.php?ista=1645e45abbe66f9ddf83d22e2fadd95d

**ABARES

*** Area sown to canola in Australia 2010-11 was 1,591,000 hectares (Source Australian Oilseeds Federation September 2011 Crop Report). Area sown to GM canola in 2010-11 was 133,333 hectares (Source Australian Oilseeds report on 2010/11 season).

MANAGING GM CANOLA ON FARM

To use a GM canola herbicide-tolerant production system, growers are required to meet certain requirements that are outlined during a grower accreditation course. Growers who choose to plant GM canola must sign a licence and stewardship agreement which outlines the stewardship and commercial obligations.

ADVENTITIOUS PRESENCE IS THE UNINTENTIONAL MIXING OF TRACE AMOUNTS OF SEED, GRAIN OR OTHER PRODUCTS OF ONE PLANT VARIETY WITH ANOTHER VARIETY.

Key points of the licence agreement:

- maintain a minimum five-metre separation between GM and non-GM canola;
- a 400m buffer zone is required on all sides of a non-GM canola crop to be saved for non-GM canola seed;
- declare the status of grain, hay, straw or other materials in all transactions;
- keep adequate paddock records; and
- control volunteers.

In all other respects, selecting and using a GM canola herbicide-tolerant production system is no different to the inclusion of any other new variety – from choosing a variety that optimises rotation benefits to sharing information with neighbours about weed management strategies in adjacent paddocks.

Volunteers and stray grains

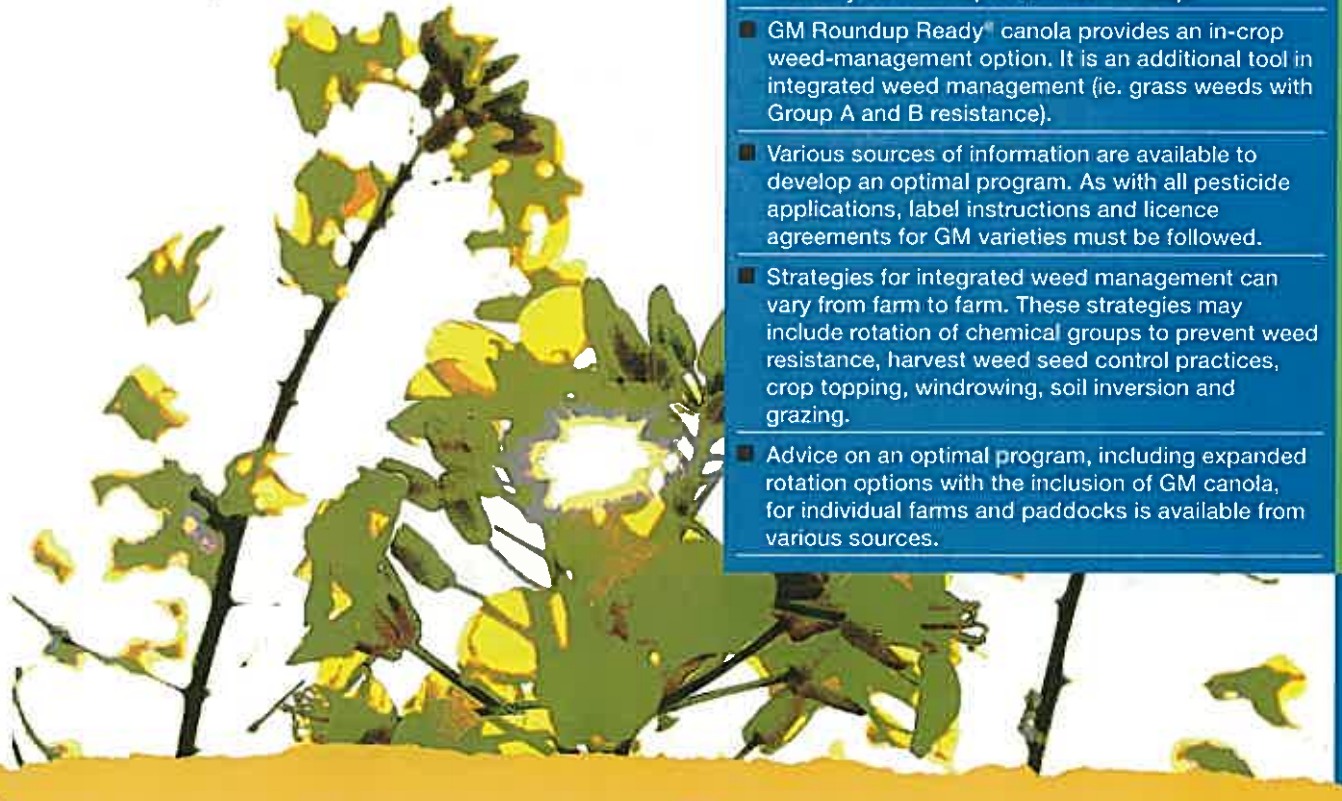
- Volunteers from any of the herbicide-tolerant canola production systems can easily be controlled with broadleaf herbicides from different herbicide groups. Ensure herbicide labels are read and followed, and licence terms adhered to.
- The spread of volunteer plants can be minimised by confining seed-handling activities to the paddock in which the GM crop is grown. Swathers, harvesters and, where possible, trucks should be cleaned down in the paddock as well.
- Canola can be easily removed from other grain crops by cleaning but avoiding accidental mixing of different grains in the first place is the best approach.

Communication and records

- It is important to inform farm staff and contractors of the variety and status of canola being handled and to ensure that grain in silos and trucks is clearly identified.
- Always keep good farm records.

HOW CAN HERBICIDE-TOLERANT CANOLA BENEFIT MY CROPPING SYSTEM?

- Herbicide-tolerant canola production systems, including triazine tolerant, imidazolinone tolerant and GM varieties, allow a herbicide that would normally kill the crop to be used in-crop.
- GM Roundup Ready® canola provides an in-crop weed-management option. It is an additional tool in integrated weed management (ie. grass weeds with Group A and B resistance).
- Various sources of information are available to develop an optimal program. As with all pesticide applications, label instructions and licence agreements for GM varieties must be followed.
- Strategies for integrated weed management can vary from farm to farm. These strategies may include rotation of chemical groups to prevent weed resistance, harvest weed seed control practices, crop topping, windrowing, soil inversion and grazing.
- Advice on an optimal program, including expanded rotation options with the inclusion of GM canola, for individual farms and paddocks is available from various sources.



COMMON QUERIES

How does the cost of planting GM canola compare?

Growers understand the profit drivers for their own businesses and appreciate that GM herbicide tolerant canola can improve weed control, enable dry planting and improve the yield of cereal crops within the rotation. The staged introduction, mixed seasons and use of canola as a rotation crop have not allowed for thorough cost comparisons or economic analysis.

The evidence is that growers plant GM canola because it provides benefits to their businesses. Growers are advised to talk to GM canola growers in their area, agronomists and advisers about a gross margin analysis for canola varieties relevant to their farm.

What is the process for growing GM canola?

Growers must attend a grower accreditation course before they purchase GM canola. It includes assistance to promote good stewardship of the product, including prevention of the build-up of herbicide-tolerant weeds, controlling volunteers, grain-supply-chain integrity, optimising crop agronomy and meeting regulatory requirements. Following accreditation, GM canola growers are expected to maintain records and may be involved in random audits.

Technology service providers – a network of trained professionals – are available to provide assistance to GM growers.

Where can I get GM canola seed and its associated herbicide?

Six companies are currently licensed to sell GM Roundup Ready® seed. These are Pacific Seeds, Pioneer, Nuseed, Cargill Australia, Canola Breeders and Bayer CropScience. Seed is available from these companies or local resellers.

How does GM canola impact on the risk of weeds acquiring glyphosate resistance?

Resistance-management strategies have been developed for GM Roundup Ready® canola to ensure the longevity and effectiveness of the product. These include using the appropriate application rates, rotating herbicides and herbicide-tolerant crops with different modes of action through the paddocks, and monitoring and testing weeds for herbicide resistance.

The strategies are outlined during accreditation and built into the crop management plan compiled by the technology provider to ensure the technology's sustainable use in Australian cropping systems.

Herbicide-tolerant GM cotton varieties have been used in Australia since 2000 and comprise almost 100% of the national cotton crop. The technology has remained effective due to the resistance-management strategies employed by the industry and growers.

Useful resources

Agrifood Awareness Australia	www.afaa.com.au
Australian Glyphosate Sustainability Working Group	www.glyphosateresistance.org.au
Australian Herbicide Resistance Initiative	www.ahri.uwa.edu.au
Australian Oilseeds Federation	www.australianoilseeds.com
Bayer CropScience	www.bayercropscience.com.au
Cargill Australia	www.cargill.com.au
Canola Breeders	www.cbwa.net.au
Department of Agriculture and Food, Western Australia	www.agric.wa.gov.au
National Variety Trials	www.nvtonline.com.au
Office of the Gene Technology Regulator	www.ogtr.gov.au
Pacific Seeds	www.pacificseeds.com.au
Pioneer Australia	www.australia.pioneer.com
Nuseed Australia	www.nuseed.com.au
Food Standards Australia New Zealand	www.foodstandards.gov.au

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