

MONSANTO



ROUNDUP READY® CANOLA
GIVING MORE GROWERS
GREATER WEED CONTROL

2015 PRODUCT GUIDE



WHY ROUNDUP READY CANOLA?

BRENDAN I'ANSON



Brendan and his wife Tania grow 300ha of canola, 320ha of wheat, 100ha of barley and 120ha of lupins on their property in Rand, New South Wales.

“ Herbicide resistance is something we need to learn to live with and keep rotating chemicals around. Ryegrass was starting to dictate what I could sow and what I could do, so Roundup Ready technology helped me put it back in its box. Roundup Ready canola gave us that fit where we had a different chemical mix in-crop, and we could also use hybrids in the system, which I consider to be a bonus. ”

NEIL VALLANCE



The Vallance family manage 1,100ha of canola, 700ha of wheat, 400ha of barley and 60ha of oats on their Lake Bolac property in Victoria.

“ In 2013 we had one of our best ever canola years – we averaged 2.7t/ha across all canola with Victory 5002RR sown over 100ha averaging 3.5t/ha, Triazine Tolerant canola averaged 2.6–2.7t/ha and the Clearfield varieties were in between. The oil content was about the same across all varieties – 42–44 percent. The Roundup Ready canola performed well in weed control. We had good clean paddocks coming into harvest, and it’s given us the option to sow early. ”

JOHN STONE



John and his wife Kerry have a 5,400ha property in Borden, Western Australia. They crop 1,500ha of wheat, 500ha of barley, 500ha of field peas, 800ha of canola and 400ha of lupins.

“ We’re trying to protect the use of Select® into our legume crops, particularly in the field peas and lupins. We were struggling with it to be a viable chemical, so we had to diversify. Wheat crops coming out of Roundup Ready canola are cleaner. I definitely recommend trying it. It’s worth putting a foot in the door, because you’re going to have to use it one day. ”

More and more growers around Australia are choosing Roundup Ready canola with a record 870 tonnes of Roundup Ready canola seed purchased in 2014, meaning an overall sales increase of 55%. These numbers indicate growing acceptance of Roundup Ready canola as the crop of choice for many growers for a number of reasons. It not only delivers excellent weed control, it can also be an effective tool for managing herbicide resistance.

EXCEPTIONAL WEED CONTROL

The two key weed species in canola crops in southern Australia are annual ryegrass (*Lolium rigidum*) and wild radish (*Raphanus raphanistrum*). Both weeds can be particularly challenging in a winter cropping program as they may germinate throughout the winter cropping phase, produce high seed populations and are resistant to multiple herbicide modes of action.

Growers have included Roundup Ready canola in their rotations as it provides strong control of both annual ryegrass and wild radish, especially in paddocks where there is confirmed or suspected clethodim resistant ryegrass populations.

Monsanto recently compared the weed control of annual ryegrass and wild radish that can be achieved with Roundup Ready canola, Clearfield canola and Triazine Tolerant canola systems. Multiple trial sites across Western Australia, New South Wales and Victoria were selected for their varying annual ryegrass and/or wild radish pressure and suspected herbicide resistance. The treatments tested were typical use patterns for the three different herbicide tolerant canola systems:

- **Roundup Ready canola**
Roundup Ready Herbicide with PLANTSHIELD® by Monsanto 0.9 kg/ha @ cotyledon to 2 leaf, followed by 0.9 kg/ha @ 4 to 6 leaf.
- **Clearfield canola**
750 ml/ha Intervix® + 0.5% Hasten™ + 500 ml/ha Select® @ 2 to 6 leaf.
- **Triazine Tolerant canola**
1.1 kg/ha Atrazine PSPE followed by 1.1 kg/ha Atrazine + 0.5% Hasten™ + 500 ml/ha Select® + 1.0% Liase @ 2 to 6 leaf.

The trials showed Roundup Ready canola offers excellent weed control of the key winter weed species, annual ryegrass and wild radish, in paddocks with low to high weed pressure and in the situation of clethodim resistant ryegrass.

Growers can use Roundup Ready Herbicide with PLANTSHIELD by Monsanto knowing that it's safe with Roundup herbicides, well known and trusted for over 30 years.



Herbicide tolerant treated weed control trial, Calingiri WA 2013.

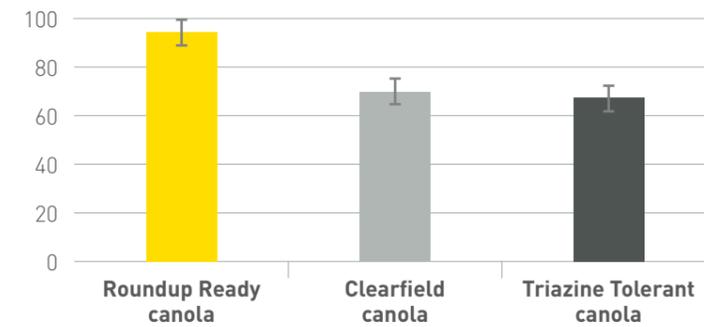
WESTERN AUSTRALIA



Calingiri, WA

HERBICIDE TOLERANT SYSTEM WEED CONTROL

% annual ryegrass control



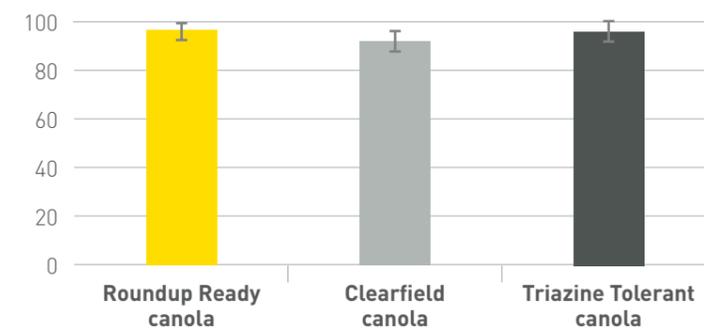
ROUNDUP READY CANOLA PROVIDES SIGNIFICANTLY HIGHER WEED CONTROL IN SITUATIONS WHERE THERE ARE HIGH POPULATIONS OF RYEGRASS RESISTANT TO GROUP A AND B HERBICIDES.

The Calingiri site had a high density of ryegrass with suspected clethodim resistance. Multiple germinations of this population occurred during the growing season. This population density, resistance status and multiple germinations of ryegrass simulates the situation many growers throughout southern Australia would be encountering. At this site Roundup Ready canola delivered significantly greater ryegrass control, in comparison with Triazine Tolerant and Clearfield canola by the end of the growing season.

Corrigin, WA

HERBICIDE TOLERANT SYSTEM WEED CONTROL

% wild radish control



ROUNDUP READY CANOLA IS AS EFFECTIVE ON WILD RADISH AS RESIDUAL HERBICIDE SYSTEMS.

Low to moderate pressure of wild radish was present at the Corrigin trial site with one main germination event occurring during the growing season. Canola paddocks throughout southern Australia and especially Western Australia will often have wild radish present as the dominant weed species as was the case at this trial site.

Two applications of Roundup Ready Herbicide with PLANTSHIELD by Monsanto achieved high levels of control equivalent to the residual herbicide systems.

Error bars – least significant difference at 0.05.

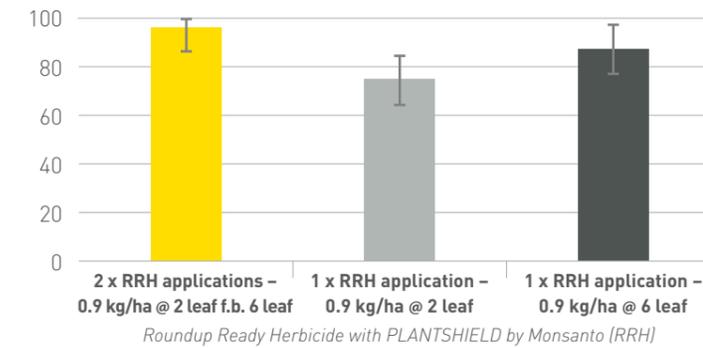
NEW SOUTH WALES



Monteagle, NSW

ROUNDUP READY CANOLA SPRAY USE PATTERN COMPARISON

% annual ryegrass control



APPLYING TWO APPLICATIONS OF ROUNDUP READY HERBICIDE WITH PLANTSHIELD BY MONSANTO.

The Monteagle site demonstrated that two sprays of Roundup Ready Herbicide with PLANTSHIELD by Monsanto prior to the 6 leaf stage achieved higher annual ryegrass control, relative to a single application at the 2 leaf or 6 leaf stage in a moderate population of ryegrass. The early spray application in a two spray strategy is also critical to minimise early weed competition, therefore maximising yield potential.

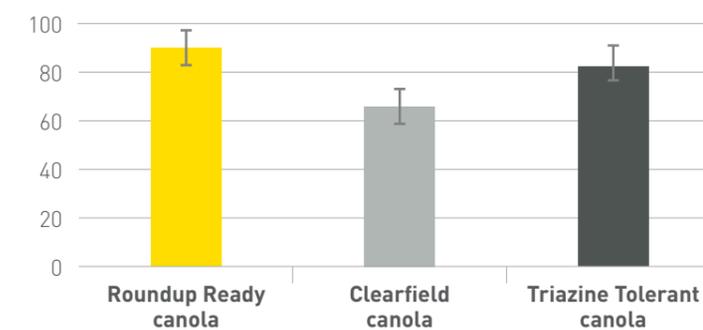
VICTORIA



Goroke, VIC

HERBICIDE TOLERANT SYSTEM WEED CONTROL

% annual ryegrass control



GROUP B RESISTANCE IS WIDESPREAD ACROSS VICTORIA. ROUNDUP READY CANOLA ACHIEVES HIGHER LEVELS OF CONTROL THAN CLEARFIELD.

The Goroke site in Victoria featured a mix of a low population of annual ryegrass and low and patchy populations of sowthistle and vetch (only the ryegrass data is presented). Under these conditions, Roundup Ready canola achieved greater final annual ryegrass control compared to Triazine Tolerant canola and significantly greater control than Clearfield canola.

Error bars – least significant difference at 0.05.

A TOOL FOR MANAGING GROUP A AND GROUP B HERBICIDE RESISTANCE

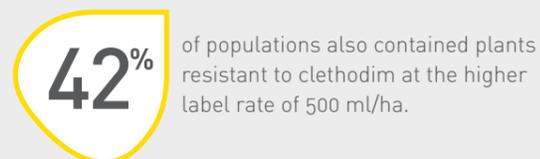
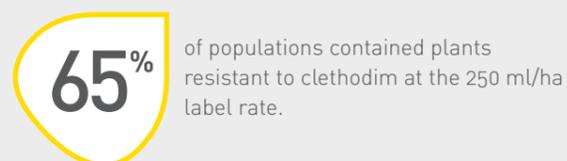
Group A and B herbicides are widely used across Australia in many cropping rotations. The extensive use of Group A and B herbicides is increasing herbicide resistance to these modes of action across the country. Roundup Ready canola growers have greater flexibility with their Integrated Weed Management plan. They can apply Roundup Ready Herbicide with PLANTSHIELD by Monsanto, a group M herbicide, in-crop in the canola part of the rotation.

Roundup Ready Herbicide with PLANTSHIELD by Monsanto can take the pressure off Group A and B herbicides so they can be used in key rotation crops including wheat, barley, oats, lupins and triticale.

Increasing instances of Group A and B herbicide resistance

WESTERN AUSTRALIA

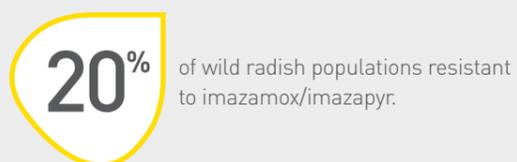
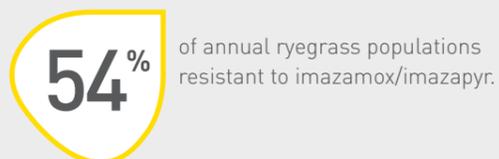
The Australian Herbicide Resistance Initiative (AHRI) recently released the results of a study which found the following frequency of resistance in annual ryegrass populations.



Atrazine and trifluralin levels were similar to the 2003 survey. For more information on AHRI studies visit www.ahri.uwa.edu.au.

NEW SOUTH WALES AND VICTORIA

A recent (2013) study by Dr. John Broster (Charles Sturt University) found the following frequency of resistance in southern New South Wales and Victoria.



Managing glyphosate resistance

Over reliance on glyphosate before, during and after the canola crop will increase your chance of resistance developing on your farm.

There are a range of herbicides with different modes of action to glyphosate which can be used in a Roundup Ready canola crop in a winter cropping rotation. By adding targeted use of one or more of these alternative herbicides and cultural practices you can maintain excellent weed control while reducing the risk of glyphosate resistance developing on your farm, saving you time and money in the future.

For clear recommendations for weed control practices in a Roundup Ready canola crop, as well as for post-harvest weed and volunteer control, download the Roundup Ready canola Weed Management Guide from roundupreadycanola.com.au.

High performing hybrid varieties

Recent NVT data proves Roundup Ready canola is on average yielding 7.6% more than Triazine Tolerant varieties and 6.7% above Clearfield varieties. The data also revealed the fact that Roundup Ready canola varieties have on average greater than 1% higher oil content than Clearfield varieties and Triazine Tolerant varieties.

You can now compare variety performance and gross margins across the herbicide systems, based on NVT data, using our variety comparison calculator – visit roundupreadycanola.com.au

The 2015 season brings five new high performing Roundup Ready canola varieties:

SEED COMPANY	VARIETY
Bayer Crop Science Phone: 1800 636 001 Website: www.bayercropscience.com.au www.bayergoldenage.com/canola	IH 30 RR IH 50 RR IH 51 RR NEW IH 52 RR NEW
Cargill Australia Phone: (03) 9268 7200 Website: www.cargill.com.au	Victory V5002RR
Dyna-Gro Seed Available from Landmark Email: enquiries@dyna-groseed.com.au	DG550RR NEW
Nuseed Australia Phone: 1800 993 573 Website: www.nuseed.com.au Email: info@au.nuseed.com	GT Viper GT Cobra Nuseed GT-50 Nuseed GT-41 Monola 513GT Monola G11 NEW
Pacific Seeds Australia Phone: (07) 4690 2666 Website: www.pacificseeds.com.au Email: info@pacseeds.com.au	Hyola 404RR S Series Hyola 600RR Hyola 525RT NEW S Series Hyola 725RT NEW
Pioneer Hi-Bred Australia Phone: (07) 4637 3600 Website: www.yseriescanola.com Email: pioneer.australia@pioneer.com	43Y23 RR 44Y24 RR 45Y25 RR 44Y26 RR

Subject to availability in 2015. For a current variety list visit www.roundupreadycanola.com.au/varieties

Triazine Tolerant Roundup Ready canola – The new kid on the block

Triazine Tolerant Roundup Ready canola (TT-RR) is a new herbicide tolerant canola system which combines triazine tolerance and Roundup Ready technology. Monsanto and Pacific Seeds have worked in conjunction to combine these two herbicide tolerances through hybrid breeding techniques.

For more information on TT-RR contact your Monsanto Regional Business Manager or Pacific Seeds Territory Manager.



Roundup Ready canola website

www.roundupreadycanola.com.au has been designed to be a support and advice tool for canola growers. The site features interviews with canola growers across Australia, Integrated Weed Management tools and resources, product pipeline information and industry news.

Compare variety performance across herbicide tolerant systems

Monsanto have created a canola calculator to make your cropping decisions easier. Use the calculator to compare canola varieties across the Roundup Ready, Clearfield and Triazine Tolerant systems, using NVT data. Compare the yields and oil content and enter expected costs for your farming operation to see expected gross margins for selected varieties.

How to access Roundup Ready technology

You can access Roundup Ready canola through your chosen Technology Service Provider (TSP). There's one simple fee for your Roundup Ready canola technology,

**Subject to verification and provided amount of replant seed is equal to, or less than, the original seed purchased.*

which is \$7.20 (ex. GST) per kilogram this season. This will be invoiced by your TSP at the point of purchase. Plus, if your Roundup Ready canola crop needs to be replanted,* Monsanto will waive the technology fee on the seed purchased for replanting. To find your local TSP or a delivery point, visit www.roundupreadycanola.com.au/where-to-buy-and-deliver.

What is a License and Stewardship Agreement (LSA)?

Growers wishing to grow Roundup Ready canola need to sign a License and Stewardship Agreement (LSA) and gain accreditation. This does not cost anything and there is also no obligation to plant a crop.

A LSA gives you the right to purchase and plant Roundup Ready canola seed in accordance with the license terms, the Roundup Ready canola Crop Management Plan (CMP), and all the relevant regulatory requirements of the Australian Pesticides and Veterinary Medicines Authority (APVMA) and the Office of the Gene Technology Regulator (OGTR). Growers must sign a LSA and be accredited prior to taking delivery of Roundup Ready canola seed.

TO FIND OUT MORE ABOUT ROUNDUP READY CANOLA, VISIT WWW.ROUNDUPREADYCANOLA.COM.AU OR CONTACT YOUR LOCAL TECHNOLOGY SERVICE PROVIDER LISTED BELOW.



Don Benn

New South Wales and Victoria
Regional Business Manager
0407 283 304
donald.benn@monsanto.com



Keryn McLean

Rowcrop Commercial Lead
0409 536 446
keryn.mclean@monsanto.com



Ben Funnekotter

Western Australia
Regional Business Manager
0418 378 613
ben.funnekotter@monsanto.com



Mark Dawson

Sales Lead
0428 106 090
mark.m.dawson@monsanto.com



Matthew Hayes

Glyphosate and Canola Technical Specialist
0409 030 786
matthew.hayes@monsanto.com



Tony May

Technology Development Lead
0428 619 418
anthony.may@monsanto.com

FOR FURTHER INFORMATION EMAIL CANOLA@MONSANTO.COM OR CALL 1800 069 569

MONSANTO



Monsanto Australia Ltd (ABN 86 006 725 560), 12/600 St Kilda Rd, Melbourne VIC 3004. Post: PO Box 6051, St Kilda Rd Central, VIC 8008. Copyright ©2015 Monsanto Australia Limited. All Rights Reserved. Roundup and Roundup Ready are registered trademarks of Monsanto Technology LLC, Monsanto Australia Limited licensee. All other marks are the property of their respective owners.