



Roundup ULTRA[®] MAX

TECHNICAL GUIDE



ROUNDUPAG.COM.AU

INTRODUCTION



DEVELOPMENT OF ROUNDUP® BRANDED PRODUCTS

Since its discovery 40 years ago, glyphosate has continued to be at the forefront of weed control. Roundup products lead the way, now with Roundup ULTRA® MAX, the seventh generation Roundup liquid. Globally, Roundup branded products are the number one herbicide used in agriculture, trusted for their quality and performance. Today, they are registered in more than 130 countries and are approved for weed control in more than 100 crops.

HOW ROUNDUP WORKS

Glyphosate, the active ingredient in Roundup ULTRA MAX, works to control weeds by interfering with the synthesis of the amino acids phenylalanine, tyrosine and tryptophan.

Glyphosate inhibits the enzyme EPSP synthase in the shikimic pathway which leads to an accumulation of shikimic acid.

One of the reasons Roundup products are very safe to use is that EPSPS is found in plants, fungi and other microorganisms but not animals.

Once in the plant, glyphosate inhibits tissue growth in roots, leaves and stems. This leads to impaired photosynthesis and the ability to access water and nutrients.

The plant also becomes more exposed to saprophytic fungi which feed on dead organic material.

The effect of glyphosate is affected by dose, plant health, moisture stress, nutrient status, light intensity, development stage, leaf area, and application parameters such as herbicide concentration, droplet size and surfactants.





ROUNDUP ULTRA MAX

570g/L glyphosate (present as the potassium salt)

Roundup ULTRA MAX is the latest in Roundup technology offering advanced performance and flexibility. Roundup ULTRA MAX is the most powerful liquid knockdown on the market, specially formulated with a unique surfactant system. Made to the highest standards using Monsanto technical ingredient and specifications, it is fully loaded and ready to use.



FEATURES & BENEFITS



THE MOST POWERFUL LIQUID KNOCKDOWN.

With 570g/L glyphosate present as the potassium salt, this powerful formulation provides you with superior control of tough weeds with less weeds escaping, cleaner paddocks and fewer drums required.



COMMERCIAL 20 MINUTE RAINFAST OFFER.*

The unique surfactant system in Roundup ULTRA MAX ensures rapid uptake by the weed, delivering faster translocation to the roots leading to faster brown out. This is supported by our 20 minute commercial rainfast offer.*



QUALITY YOU CAN TRUST.

Roundup ULTRA MAX is made to the highest standards. Monsanto controls the manufacturing process from raw materials to formulated product and is certified by ISOs 9001, 14001, 18001 and 17025.

Higher manufacturing standards than regulations require, and tough test protocols relating to stability, consistency and surfactant, ensure you get the highest quality, every time.



FULLY LOADED. READY TO USE.

Roundup ULTRA MAX features a high load, low viscosity and low foam formulation, so you spend less time filling up and get your spraying done faster.



SOW WITHIN 1 HOUR OF SPRAYING.

In farming, timing is everything. You can be back sowing just one hour after applying Roundup ULTRA MAX.

* Roundup ULTRA MAX will deliver commercially acceptable weed control when it is applied according to label directions. As a rainfast offer, Sinochem Australia will replace up to 100% of your initial use amount of Roundup ULTRA MAX for re-treatment if a commercially acceptable weed control result is not achieved when applied at least 20 daylight minutes prior to a moderate rainfall shower. Contact your local agent or Territory Manager at Roundupag.com.au for claims. This offer is in addition to other rights available to the consumer under the law. The product label should be consulted before use of Roundup ULTRA MAX and where required seek professional advice.

FIELD TRIALS

Field trials confirm that Roundup ULTRA MAX delivers a great result without the addition of adjuvants*.

Independent trials across Australia demonstrated the effectiveness of Roundup ULTRA MAX on a range of weeds. Replicated trials were conducted in different regions, with and without the addition of adjuvants. The graphs identify that the use of additional adjuvants (LI-700® and Liase) does not significantly improve the performance of Roundup ULTRA MAX.

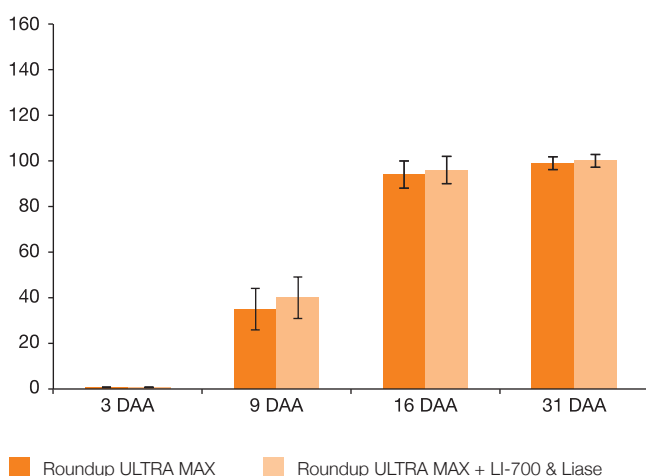
Trial design: randomised complete block
 Replications: 4
 Trial conducted by Peracto Pty Ltd

* Assumes water hardness is not a problem.

WESTERN AUSTRALIA

Site: Wundowie, Western Australia
Weeds targeted: Capeweed (*Arctotheca calendula*)
Crop: Pasture
Date: Spring, 2013

Capeweed % Brown-out (Growth Stage BBCH 65)

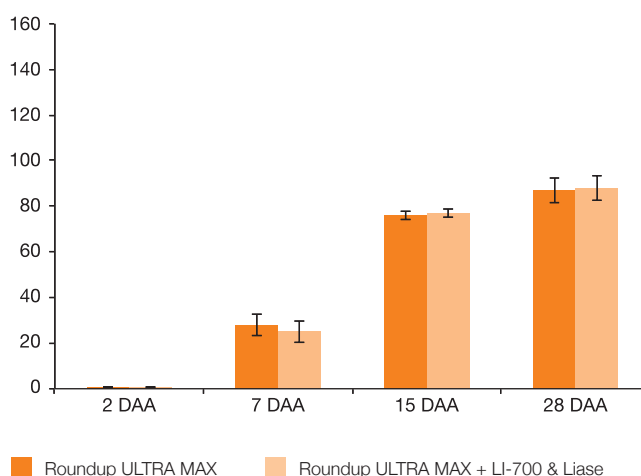


LSD (5% level)	3 DAA	9 DAA	16 DAA	31 DAA
	-	9.2	6.1	3.0
Label Rate (720g ai/ha), Water Rate 70L/ha.				
LI-700 0.25%, Liase 2%				

SOUTH AUSTRALIA

Site: Arthurton, South Australia
Weeds targeted: Barrel medic (*Medicago truncatula*), annual ryegrass (*Lolium rigidum*)
Crop: Fallow
Date: Spring, 2013

Overall % Brown-out



LSD (5% level)	2 DAA	7 DAA	15 DAA	28 DAA
	-	4.6	1.8	5.4
Label Rate (630g ai/ha), Water Rate 100L/ha.				
LI-700 0.25%, Liase 2%				



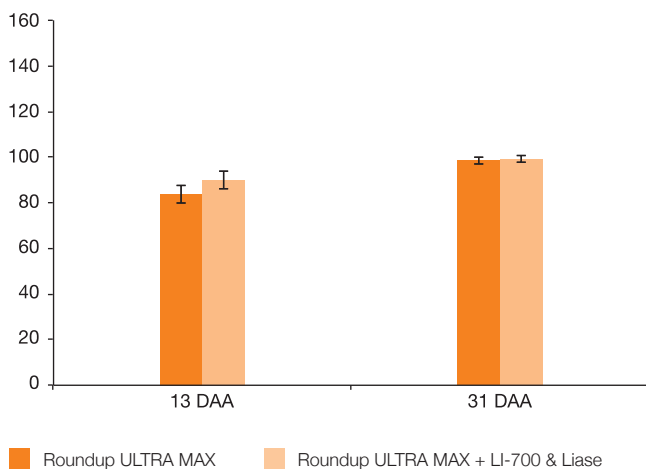
VICTORIA

Site: Miepoll, Victoria
Weeds targeted: Annual ryegrass (*Lolium rigidum*)
Crop: Fallow
Date: Spring, 2013

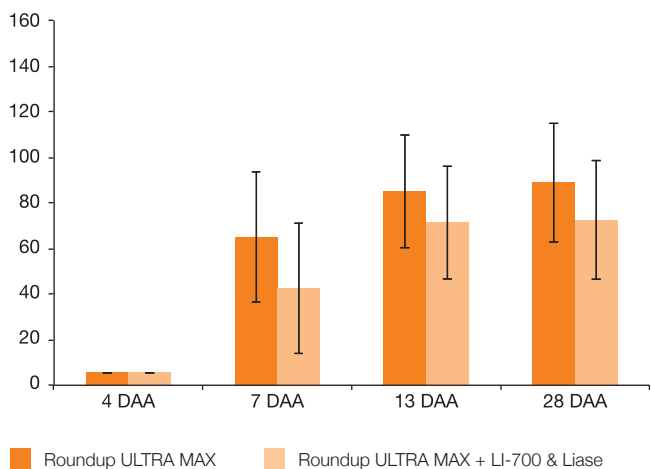
QUEENSLAND

Site: Gatton, Queensland
Weed targeted: Sow thistle (*Sonchus oleraceus*)
Crop: Fallow
Date: Spring, 2013

Mean Ryegrass % Brown-out



Mean Sow Thistle % Brown-out



LSD (5% level)

13 DAA	3.951	31 DAA	1.449
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Label Rate (684g ai/ha), Water Rate 80L/ha.

LI-700 0.25%, Liase 2%

LSD (5% level)

4 DAA	-	7 DAA	28.6	13 DAA	24.9	28 DAA	25.9
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Label Rate (450g ai/ha), Water Rate 70L/ha.

LI-700 0.25%, Liase 2%

TANK MIXING ORDER

Water hardness is a measure of calcium and magnesium, and is shown as parts per million of calcium carbonate (CaCO₃). At high levels (higher than 250ppm) it has been shown to decrease glyphosate activity as the calcium or magnesium ions bind to glyphosate making it biologically inactive.

If using hard water, add ammonium sulphate prior to adding Roundup ULTRA MAX. This will ensure the negatively charged sulphate anions bind to the positively charged cations (calcium and magnesium) that would have otherwise bound to the glyphosate molecule.



STEP 1

- Fill the spray tank to at least 70% full.
- Commence agitation.

STEP 2

- Add any water conditioners (avoid dirty water).
- Hard water – Ammonium Sulphate (2%).

STEP 3

- Add Roundup ULTRA MAX – the most powerful liquid knockdown on the market.

STEP 4

- Fill the spray tank and go.

TANK MIX PARTNERS

When tank mixing additional products with Roundup ULTRA MAX, the following order is recommended:

- 1** Fill the spray tank to at least 70% full. Commence agitation.
- 2** Add any water conditioners (avoid dirty water). Hard water – Ammonium Sulphate (2%).
 - Add any **WDG (Water Dispersible Granule)**, or **Dry Flowable** products. Allow at least 10 minutes for complete dispersion.
 - Add any **SC (Suspension Concentrate)** products.
 - Add any **EC (Emulsifiable Concentrate)** products.
 - Add any **SL (Soluble Liquid)** products.
 - When mixing Roundup ULTRA MAX at low label rates, with some tank mix partners at high rates, the addition of a non-ionic surfactant at 0.2% may assist with maintaining a stable tank mix, especially with high water volumes.

- 3** Add **Roundup ULTRA MAX**.

- 4** Fill the spray tank and go.

Roundup ULTRA MAX is fully loaded with Monsanto's patented surfactant system, meaning no additional surfactants or anti-foaming agents are required. Other glyphosate formulations may require the addition of surfactants and adjuvants.

COMPATIBLE TANK MIX PARTNERS

HERBICIDES

Formulation type (code)	Example products	Active ingredients
Water Dispersible Granule (WDG)	Ally®	600g/kg metsulfuron methyl
	Archer® 750	750g/kg clopyralid present as potassium salt
	Associate®	600g/kg metsulfuron methyl
	Glean®	750g/kg chlorsulfuron
	Logran® 750WG	750g/kg triasulfuron
	Logran® B Power	200g/kg butafenacil + 520g/kg triasulfuron
	Monza®	750g/kg sulfosulfuron
	Nu-trazine 900DF	900g/kg atrazine
	Nugran®	750g/kg triasulfuron
	Oust®	750g/kg sulfometuron methyl
	Sakura® 850WG	850g/kg pyroxasulfone
Dry Flowable (DF)	Express®	750g/kg tribenuron methyl
Suspension Concentrate (SC)	Nu-trazine 600	600g/L atrazine
	Simazine Hi-Load 600	600g/kg simazine
Emulsifiable Concentrate (EC)	Avadex® Xtra	500g/L triallate
	Boxer Gold®	800g/L prosulfocarb + 120g/L S-metolachlor
	Comet® 400	400g/L fluroxypyr present as the methylheptyl ester
	Estercide® 800	800g/L 2,4-D present as the ethyl ester
	Estercide® Xtra 680	680g/L 2,4-D present as the 2-ethylhexyl ester
	Garlon™ 600	600g/L triclopyr present as the butoxyethyl ester
	Goal™	240g/L oxyfluorfen
	Hammer®	240g/L carfentrazone-ethyl
	Hotshot™	10g/L aminopyralid present as trisopropanolamine salt + 140g/L fluroxypyr present as methylheptyl ester
	LVE Agritone®	570g/L MCPA as the iso-octyl ester
	Spotlight Plus®	Carfentrazone-ethyl
	Starane™ Advanced	333g/L fluroxypyr present as the meptyl ester
	Stomp®	330g/L pendimethalin
	Stomp® Xtra	455g/L pendimethalin
	Striker®	240g/L oxyfluorfen
	Surflan™	500g/L oryzalin
	Surpass® 475	475g/L 2,4-D present as the dimethylamine + diethanolamine salts
	Triflur Xcel®	600g/L trifluralin
	TriflurX®	480g/L trifluralin
	Soluble Liquid (SL)	Kamba® 500
Soluble Liquid Glyphosate (SL-G)	Flame®	240g/L imazapic present as the ammonium salt
Aqueous Concentrate (AC)	Lontrel™	300g/L clopyralid present as the trisopropanolamine salt

INSECTICIDES

Formulation type (code)	Example products	Active ingredients
Emulsifiable Concentrate (EC)	Chlopyrifos 500	500g/L chlorpyrifos
	Astound® Duo	100g/L alpha cypermethrin
	Dimethoate	400g/L dimethoate
	Fenitrothion 1000	1000g/L fenitrothion
	Imidan®	150g/L phosmet (an anti-cholinesterase compound)
	Karate®	250g/L lambda-cyhalothrin
	Lorsban™ 500	500g/L chlorpyrifos (an anticholinesterase compound)
Aqueous Concentrate (AC)	Talstar®	250g/L bifenthrin
	Le-Mat®	290g/L omethoate (an anti-cholinesterase compound)



Roundup ULTRA MAX may be tank mixed with the herbicides, insecticides and adjuvants mentioned in this guide. Read and follow all label directions, restraints, plantback and withholding periods, and safety directions for the tank mix products. When mixing Roundup ULTRA MAX with multiple tank mix partners a minimum water volume of 50 L/ha is recommended and local advice should be sought. Do not allow tank mix partner concentrates to come into contact with each other. Always flush pump lines and mixing chambers with water between products. Contact your Sinochem Australia agent for further details.



TIPS FOR MAXIMISING PERFORMANCE

Correct mixing order	To ensure effective emulsion or suspension, it is critical that the correct mixing order is followed, as is good in-tank agitation when application/spraying is occurring. WDG or Dry Flowables need to be added to water first to enable them to disperse into individual particles. Ten minutes should be allowed for complete dispersion.
Annual seedlings (growth stage)	Apply Roundup ULTRA MAX when annual seedlings are at the 2-leaf stage or older. 1-leaf seedlings have limited translocation to roots and may not be controlled.
Rate selection (plant age vs plant size)	Be aware of false breaks where plants may have germinated and then cease growing as soil moisture levels decline. These weeds may look small above ground but may have well developed root systems as they chase moisture.
Dust & wheel tracks	Dust will de-activate glyphosate. Do not apply Roundup ULTRA MAX to dust covered plants. Slow down when spraying in dusty paddocks.
Jar tests	To overcome potential costly and time-consuming problems, it is recommended a jar test be undertaken prior to tank mixing as an effective way of pre-screening mixes. This can be done prior to spraying by substituting mL with L/ha rates and mixing the same ratio and order as specified in the guide.
Spraying stubble	To maximise herbicide penetration through stubble, use high water rates with coarse droplet size and reduce speed while travelling in the same direction as the stubble was sown.
Stress	Periods of extreme climatic conditions (too hot, too dry) will induce stress on weeds. In response, weeds will “shut down” making the penetration and translocation of pesticides difficult. Only spray actively growing weeds using rates based on weed age and not weed size.
Water rates	A spray volume of 80 L/ha or less is recommended for broadacre application and 200 L/ha or less for application in orchards and vineyards. Water containing suspended clay or organic matter (e.g. from dams) may reduce performance.

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