

FRONT LABEL

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# ROUNDUP® ULTIMATE

A foliar applied translocated herbicide for the control of annual and perennial grass and broad-leaved weeds before sowing or planting all crops.

For use pre-emergence and pre-harvest in cereals and certain other crops and for destruction of grassland.

For the control of emerged weeds in set-aside, stubbles and orchards.

Degraded by micro-organisms/microbes in the soil.

The (COSHH) Control of Substances Hazardous to Health Regulations may apply to the use of this product at work

A soluble concentrate containing 540 g/l glyphosate, present as 662g/l (48.7% w/w) of the potassium salt of glyphosate

Contents e 15 litres

MAPP Number 13081

PROTECT FROM FROST  
Store in a cool dry place

Imported

© Monsanto 2007 (MdB)  
Not for reformulation or repackaging.  
No licence is granted under any patent.

Lot number/production date:



**The Voluntary Initiative**

*This label has been produced according to the  
Crop Protection Association Voluntary Initiative (VI) guidance.*

**BACK LABEL**

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**ROUNDUP® ULTIMATE**

A soluble concentrate containing 540 g/l glyphosate, present as 662g/l (48.7% w/w) of the potassium salt of glyphosate

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National Chemical Emergency Centre: (01865) 407333**



Irritant



Dangerous for the environment

**IRRITATING TO SKIN.**

**VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.**

WEAR SUITABLE GLOVES.

THIS MATERIAL AND ITS CONTAINER MUST BE DISPOSED OF IN A SAFE WAY.  
USE APPROPRIATE CONTAINMENT TO AVOID ENVIRONMENTAL CONTAMINATION.

AVOID RELEASE TO THE ENVIRONMENT. REFER TO SPECIAL INSTRUCTIONS OR SAFETY DATA SHEET.

**To avoid risks to man and the environment, comply with the instructions for use**

**IMPORTANT INFORMATION**

FOR USE ONLY AS AN AGRICULTURAL/HORTICULTURAL HERBICIDE

**Crops/situations:**

Wheat (including Durum wheat), barley, oats, combining peas, field beans;  
Oilseed rape, linseed;  
Vining peas, sugar beet, swede, turnip, bulb onion, leek;  
Mustard;  
All edible crops (stubble), all non-edible crops (stubble);  
Grassland (destruction);  
Apple, pear; plum, cherry, damson;  
Green cover on land not being used for crop production

**Maximum individual dose:** }  
**Maximum number of treatments:** } Full details are given in  
**Latest time of application:** } the attached leaflet  
**Other specific restrictions:** } (Crop Specific Information – marked #)

**READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS  
INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF  
PRACTICE FOR USING PLANT PROTECTION PRODUCTS.**

## SAFETY PRECAUTIONS

### Operator protection

*Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:*

WEAR SUITABLE PROTECTIVE GLOVES when handling the concentrate and when handling contaminated surfaces.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES AND RUBBER BOOTS when using hand-held sprayers, hand-held rotary atomisers, weed wiper equipment or spot gun equipment.

*However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.*

WHEN USING DO NOT EAT, DRINK OR SMOKE.

WASH HANDS AND EXPOSED SKIN before eating and drinking or smoking and after work.

### Environmental protection

DO NOT CONTAMINATE WATER with the product or its container *[do not clean application equipment near surface water/avoid contamination via drains from farmyards and roads]*.

DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5m of the top of the bank of a static or flowing water body, unless a Local Environmental Risk Assessment for Pesticides(LERAP) permits a narrower buffer zone, or within 1m of the top of a ditch which is dry at the time of application. DO NOT ALLOW DIRECT SPRAY from hand held sprayers to fall within 1m of the top of the bank of a static or flowing water body. Aim spray away from water.

This product qualifies for inclusion within the Local Environmental Risk Assessment for Pesticides (LERAP) scheme. Before each spraying operation from a horizontal boom sprayer, either a LERAP must be carried out in accordance with PSD's published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for inspection for three years.



For guidance on reducing buffer zones see 'Additional Information on LERAPs' under the Company Advisory Information section.

### **Storage and disposal**

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.

KEEP OUT OF REACH OF CHILDREN.

KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.

RINSE CONTAINER THOROUGHLY by using an integrated pressure-rinsing device or manually rinse three times. Add washings to sprayer at time of filling and dispose of safely. Triple rinsed containers may be disposed of as non-hazardous waste.

### **Medical advice**

Medical guidance is available on a 24 hour basis by telephoning the National Chemical Emergency Centre on 01865 407333 or for doctors, from the National Poisons Information Service on 0870 600 6266.

## **DIRECTIONS FOR USE**

**IMPORTANT:** This information is approved as part of the Product Label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

### **Warnings**

EXTREME CARE SHOULD BE TAKEN TO AVOID SPRAY DRIFT AS THIS CAN SEVERELY DAMAGE NEIGHBOURING CROPS OR PLANTS.  
DO NOT MIX, STORE OR APPLY ROUNDUP ULTIMATE IN GALVANISED OR UNLINED STEEL CONTAINERS OR SPRAY TANKS.  
DO NOT LEAVE SPRAY MIXTURES IN THE TANK FOR LONG PERIODS AND MAKE SURE TANKS ARE WELL VENTED.

### **Restrictions**

A period without rain of at least 6 hours, and preferably 24 hours, must follow application of ROUNDUP ULTIMATE herbicide.

Do not spray on to weeds suffering from drought, water-logging, heat or frost, otherwise poor control may result.

Do not spray in windy conditions as drift onto desired plants or crops could severely damage or destroy them.

### **Weeds controlled**

ROUNDUP ULTIMATE herbicide controls most emerged grasses and broad-leaved weeds. Where re-growth occurs re-treatment will be necessary.

Apply ROUNDUP ULTIMATE herbicide once grasses and broad-leaved weeds have emerged and they have ACTIVELY GROWING green leaves

- PERENNIAL GRASSES must have full emergence of healthy, green leaf. (Common Couch, for example, becomes susceptible at the onset of tillering and new rhizome growth, which usually occurs when plants have 4-5 leaves, each with 10-15 cm of new growth).
- PERENNIAL BROAD-LEAVED WEEDS are most susceptible around the flowering stage.
- ANNUAL GRASSES AND BROAD-LEAVED WEEDS should have at least 5 cm of leaf, or 2 expanded true leaves, respectively. In set-aside, annual

grasses are best treated at full ear emergence, or before stem elongation. Application during stem extension phase of annual grasses e.g. Black-grass and Brome species on set-aside between the end of April and end of May, may result in poor control and require re-treatment.

- BRACKEN should be treated after frond tips are unfurled, but pre-senescence.
- OTHER SPECIES - recommendations for specific Areas of Use are given in the Recommendation Tables, pages 9-15.
- This product will not give an acceptable level of control of Horsetails (*Equisetum arvense*) – repeat treatment will be necessary.

### **Following crops**

Upon soil adsorption the herbicidal properties of ROUNDUP ULTIMATE are lost permitting the drilling of crops 48 hours after application.

## Crop specific information #

Crops/situations:	Maximum individual dose (litres product/hectare):	Maximum total dose (litres product/hectare)	Latest time of application:
Harvest management of winter wheat, winter barley, winter oats, spring wheat, spring barley, spring oats, durum wheat, combining peas, field beans	2.6	2.6 l/ha/crop	7 days before harvest
Post planting and pre-emergence of listed cereals, oilseed rape, combining peas, vining peas, field beans, potatoes, mustard, linseed, sugar beet, swedes, turnips, bulb onions and leeks	1.0	1.0 l/ha/crop	Pre-emergence (ensure spraying precedes ANY crop emergence)
Harvest management of oilseed rape and linseed	2.6	2.6 l/ha/crop	14 days before harvest
Harvest management of mustard	2.6	2.6 l/ha/crop	8 days before harvest.
Stubbles (of all crops)	2.6 or 1.0	2.6 l/ha/year or 1.0 l/ha/year	5 days before drilling or planting the following crop or  2 days before the drilling or planting of the following crop or 24 hours before cultivating
Grassland (destruction)	4.0	4.0 l/ha/year	5 days before harvest, grazing or drilling
Apple and pear orchards	3.3	3.3 l/ha/year	After harvest but before green cluster stage
Cherry, plum and damson orchards	3.3	3.3 l/ha/year	After harvest but before white bud stage
Green cover on land not being used for crop production	3.3	4.0 l/ha/year	24 hours before cultivating
<b>Other Specific Restrictions:</b>			
When applying through rotary atomisers, the spray droplet spectra produced must be of a minimum Volume Median Diameter (VMD) of 200 microns.			
Weed wipers may be used in any recommended crop where the wiper or chemical does not touch the growing crop.			
For weed wiper applications, the maximum concentrations must not exceed the following:			
(a) weed wiper mini - 1:3.5 dilution with water			
(b) other wipers - 1:2 dilution with water			

## RECOMMENDATION TABLES

AREA OF USE	TARGET WEEDS/ USAGE	CROP/SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE
PRE-HARVEST ARABLE CROPS	Common Couch	WINTER and SPRING WHEAT, DURUM WHEAT, WINTER and SPRING BARLEY and WINTER and SPRING OATS	1-25 shoots/m <sup>2</sup>	1.3	100-250 l/ha*	<p>Grain/seed moisture must not exceed 30% at spraying.</p> <p>Harvest intervals:</p> <p>CEREALS, PEAS, BEANS 7+ days</p> <p>OILSEED RAPE 14-21 days</p> <p>LINSEED 14-28 days</p> <p>MUSTARDS 8-10 days</p> <p>Use high clearance, narrow wheeled tractors, wide booms and crop dividers.</p> <p><b>DO NOT TREAT CROPS GROWN FOR SEED</b></p> <p>Where desiccating crops, check susceptibility of any weeds present.</p> <p>Do not attempt to desiccate OILSEED RAPE or MUSTARD crops with significant secondary growth, uneven maturity, disease or stress.</p> <p>Desiccate LINSEED when seeds are light brown and capsules brown; stems/leaves may be yellow/green.</p> <p>Effects on brewing and baking have not been tested. Consult grain merchant or processor before use.</p> <p>At Harvest management rates, ANNUAL NETTLE, VOLUNTEER POTATO, ROSEBAY WILLOW HERB and POLYGONUM WEEDS will not be susceptible. WHEAT crops, WHEAT VOLUNTEERS and BROAD-LEAVED WEEDS may require up to 14 days before harvest. Treated straw must not be used as an horticultural mulch.</p> <p>* Rotary atomisers may be used at a water volume of 40 l/ha. Ensure droplet diameter falls within the range 200-300 microns.</p>
			Up to 75 shoots/m <sup>2</sup>	2.0		
			Over 75 shoots/m <sup>2</sup>	2.6		
		OILSEED RAPE MUSTARDS	Up to 75 shoots/m <sup>2</sup>	2.0	80-250 l/ha #	
			Over 75 shoots/m <sup>2</sup>	2.6		
		COMBINING PEAS FIELD BEANS	Up to 75 shoots/m <sup>2</sup>	2.0	80-250 l/ha*	
			Over 75 shoots/m <sup>2</sup>	2.6		
		LINSEED	Up to 75 shoots/m <sup>2</sup>	2.0	80-250 l/ha*	
Over 75 shoots/m <sup>2</sup>	2.6					

AREA OF USE	TARGET WEEDS/ USAGE	CROP/SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE
PRE-HARVEST ARABLE CROPS (continued)	Perennial broad- leaved weeds and other perennial grasses	WINTER and SPRING WHEAT, DURUM WHEAT, WINTER and SPRING BARLEY and WINTER and SPRING OATS	All levels/species	2.6	100-250 l/ha*	# Use higher volumes for dense canopies.
		OILSEED RAPE MUSTARDS	All levels/species	2.6	80-250 l/ha #	
		COMBINING PEAS FIELD BEANS	All levels/species	2.6	80-250 l/ha*	
		LINSEED	All levels/species	2.6	80-250 l/ha	
	Harvest management	WINTER and SPRING WHEAT, DURUM WHEAT, WINTER and SPRING BARLEY and WINTER and SPRING OATS	Annual grasses, crop stems and leaves  Annual broad-leaved weeds	0.7	100-250 l/ha*	
				1.0		
	Crop desiccation and annual weeds, prior to direct combining	OILSEED RAPE MUSTARDS	All levels/species	2.0	80-250 l/ha #	
		LINSEED	All levels/species	2.0	80-250 l/ha	

AREA OF USE	TARGET WEEDS/ USAGE	CROP/ SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE
STUBBLES, PRE-SOWING and PRE-PLANTING.	Common Couch	BEFORE ALL CROPS EXCEPT ORCHARDS	Up to 75 shoots/m <sup>2</sup>	2.0	80-250 l/ha*	Do not cultivate immediately before spraying.  For PERENNIAL weed control, allow: - 21+ days growth before spraying in spring - VOLUNTEER POTATOES to make ample top growth - 5 days before cultivating or drilling  For ANNUAL weed control, allow: - 24 hours before cultivating - 48 hours before drilling  Allow 7 days before planting trees
			Over 75 shoots/m <sup>2</sup>	2.6		
	Other perennial grasses; volunteer potatoes (autumn only)		All levels/species	2.6		
	Volunteer cereals and annual weeds	All levels/species	1.0			
	Perennial grasses and broad- leaved weeds	BEFORE ORCHARD PLANTING	Arable weeds	2.6		
			Pasture weeds	3.3		
POST SOWING/ PLANTING, PRE-EMERGENCE OF THE CROP	Volunteer cereals and annual weeds	LISTED CEREALS OILSEED RAPE, MUSTARD, LINSEED, PEAS,POTATOES, FIELD BEANS, SUGAR BEET, SWEDE, TURNIP, BULB ONION and LEEK	All levels/species	1.0	80-250 l/ha*	CAUTION - Ensure that spraying precedes ANY crop emergence.

AREA OF USE	TARGET WEEDS/ USAGE	CROP/SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE	
GREEN COVER ON LAND NOT BEING USED FOR CROP PRODUCTION EG "SET ASIDE"	Common Couch	BEFORE or DURING REMOVAL FROM PRODUCTION  e.g. prior to growing a set-aside mixture.	Up to 75 shoots/m <sup>2</sup>	2.0	80-250 l/ha*  or  Hand-held equipment  or  Tractor mounted weed wiper	<p>Before using on land taken out of production as part of a grant aided scheme, ensure compliance with the management rules of that scheme.</p> <p>Do not 'top' or cultivate immediately before application.</p> <p>For PERENNIAL weed control, allow:- - 21+ days growth before spraying in spring - 5 days before cultivating or drilling.</p> <p>For ANNUAL weed control, allow: - 24 hours before cultivating.</p> <p>Do not direct drill after set-aside.</p> <p>* Rotary atomisers may be used at a water volume of 40 l/ha. Ensure droplet diameter falls within the range 200-300 microns.</p> <p>Avoid applications during stem elongation as reduced control and re-spray is likely.</p> <p>Best control of annual grasses is achieved between full ear emergence and senescence.</p>	
	Perennial broad-leaved weeds and other perennial grasses		Over 75 shoots/m <sup>2</sup>	2.6			All levels/species
	Annual weeds:  - early autumn/ spring  - late spring/ summer		All levels/species	1.0			All levels/species
			All levels/species	2.0			All levels/species

AREA OF USE	TARGET WEEDS/ USAGE	CROP/ SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE
GREEN COVER ON LAND NOT BEING USED FOR CROP PRODUCTION EG "SET ASIDE" (continued)	Natural regeneration and cover crop destruction	AFTER SHORT ROTATION or LONG TERM REMOVAL FROM PRODUCTION	Annual weeds only	2.0	150-250 l/ha	
			Perennial grasses	2.6		
			Perennial broad- leaved weeds	3.3		
GRASSLAND (DESTRUCTION)	Short rotation Ryegrass, longer leys and permanent pasture	GRASS	Short rotation Ryegrass with annual weeds	2.0	150-250 l/ha*	Treat EITHER before mowing in June-Oct, when growth is 30-60 cm, not dense and lacking mature seeds, OR regrowth after grazing/mowing.  Select the application rate which controls/destroys the least susceptible weed and grass species present in the sward.  Grass may be conserved or grazed by cattle, dairy cows or sheep 5+ days after spraying. REMOVE POISONOUS PLANTS BEFORE GRAZING/MOWING.  ONLY direct drill grass and clover EITHER into 1-2 year leys without mat, 5+ days after spraying, OR long leys with some mat, in the spring following autumn application.  * Rotary atomisers may be used at a water volume of 40 l/ha. Ensure droplet diameter falls within the range 200-300 microns.
			Leys 2-4 years old with perennial grass weeds	2.6		
			Long leys 4-7 years old with perennial broad- leaved weeds	3.3		
			Permanent pasture	4.0		
			See weed table below			

**APPLICATION RATE FOR GRASSLAND DESTRUCTION**

2.0 l/ha		2.6 l/ha		3.3 l/ha		4.0 l/ha	
Annual Meadow-grass	Meadow Fescue	Black Bent	Creeping Soft-grass	Bracken**	Red Clover	Common Ragwort	Nardus (Mat grass)
Common Chickweed	Meadow Foxtail	Broad-leaved Dock	Curled Dock	Common Sorrel	Sedges	Hard Rush	Red Fescue
Common Mouse-ear	Rough Meadow-grass	Cock's Foot	Perennial Rye-grass	Common Nettle	Sheep's Sorrel	Heath Rush	White Clover*
Dock seedlings	Speedwell species	Common Bent	Plantains	Creeping Buttercup	Soft Rush	Jointed Rush	Yellow Rattle
Italian Rye-grass	Timothy	Common Couch	Soft Brome	Creeping Thistle	Spear Thistle	Molinia (Purple Moor-grass)	Sheep's Fescue
Mayweed species		Creeping Bent	Yorkshire Fog	Daisy	Tufted Hair-grass		
				Dwarf Thistle	Yarrow		
				Perennial Sow-thistle			

\* White Clover is best cut in June and sprayed one month later

\*\* At full frond expansion

AREA OF USE	TARGET WEEDS/ USAGE	CROP/SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE
ORCHARDS	Perennial grasses, broad-leaved weeds	APPLE, PEAR, PLUM, CHERRY, DAMSON	All levels of most species	3.3	200-400 l/ha	Spray AFTER autumn leaf-fall and BEFORE: Apples, pears - green cluster stage Stone fruit - white bud stage  Treat root suckers in late spring only.  Trees must have been established 2+ years.  Avoid contact with tree 30+ cm above ground.
	Root suckers		-	3.3		
IN-CROP (TRACTOR- MOUNTED WEED WIPER APPLICATION)	Bolters, weed beet, other weeds	ARABLE CROPS AND GRASSLAND SET-ASIDE	All levels	1:2 dilution with water for wick-type weed wipers  OR  1:3.5 dilution with water in hot, dry conditions.  For 'new generation' wipers consult the manufacturer for guidance.		Weeds must be 10+ cm taller, and wiper 5+ cm higher, than desired vegetation.  Wipe dense populations twice, in opposite directions. BOLTING BEET requires three applications, 2 weeks apart, from early July to early August.  Contact Monsanto or your distributor for specific recommended weed wiper applicators.  Treated POISONOUS WEEDS must be removed or allowed to completely degenerate before grazing or conserving.

## Mixing and spraying

ROUNDUP ULTIMATE mixes readily with water and can be applied in spray volumes ranging from 80-400 l/ha using tractor mounted, knapsack, rotary atomisers and hand-held sprayers. Specialised application equipment such as weed wipers and spot gun applicators may be used where indicated.

Correctly calibrate all sprayers under field or use conditions prior to application.

### a) Tractor mounted and powered sprayers

These should be capable of applying accurately 80-400 l/ha within a pressure range of 1.5-2.5 bars (20-35 psi).

Half fill the spray tank with clean water, start gentle agitation, and then add the correct amount of ROUNDUP ULTIMATE. Top up the tank with water to the required level. To avoid foaming do not use top tank agitation. Use of a defoamer may be necessary.

#### *Medium Volume application (150-300 l/ha)*

Avoid high water volumes (>300 l/ha) which may lead to run-off from the treated vegetation, resulting in reduced control. Nozzles such as Lurmark 04-F110, 08-F110 or Tee Jet 11004, 11008 producing a medium or coarse spray (BCPC definition) should be used to minimise the risk of drift.

#### *Low Volume Application (minimum 80 l/ha)*

Low volume application can be achieved by reducing pressure and appropriate nozzle selection. Low drift nozzles which produce a medium spray quality (BCPC definition) should be used to minimise the risk of drift.

### b) Knapsack sprayers

Recommended delivery range is 80 - 300 l/ha. Half fill the spray tank with clean water, add the correct amount of ROUNDUP ULTIMATE and top up with water. Fill according to best practice as given on the CPA's Voluntary Initiative website ([www.voluntaryinitiative.org.uk](http://www.voluntaryinitiative.org.uk))

When used at a walking speed of 1 m/sec to apply a swath of 1 m width, most knapsack sprayers fitted with a Lurmark AN 2.0 or similar nozzle deliver approximately 200 l/ha spray volume (or 10 l per 500 m<sup>2</sup>). To apply 2.6 l/ha of ROUNDUP ULTIMATE, therefore, use a 1.3% solution, i.e. 130ml ROUNDUP ULTIMATE made up to 10 litres. Similarly, knapsack sprayers fitted with low volume nozzles such as Lurmark AN 1.0 typically deliver approximately 100 l/ha spray volume. To apply 2.6 l/ha ROUNDUP ULTIMATE in this case use 2.6% solution.

c) Rotary Atomisers

When rotary atomisers are used to apply ROUNDUP ULTIMATE ensure that the droplet diameter falls within the range 200-300 microns for all uses. The water volume must be 40 litres/ha.

Stir the correct amount of ROUNDUP ULTIMATE to control the particular target species into the sprayer bottle half filled with clean water. Top up with water, close the top and shake gently to ensure good mixing

d) Weed Wipers

Use a concentration of 1 part ROUNDUP ULTIMATE to 3.5 parts of water and add a water-soluble dye if required. Care should be taken to avoid dripping onto wanted vegetation.

e) Spot Gun Applicators

Spot gun applicators are for the treatment of individual weeds. Apply 4 ml of spray to target weed, using a narrow cone TG-3 or TG-5 nozzle.

Spot Diameter (metres)	Amount of ROUNDUP ULTIMATE (ml) per 5 litres of spray solution for target dosages of:		
	2.0 l/ha	2.6 l/ha	3.3 l/ha
0.3	13	19	23
0.6	57	73	93

**Compatibility**

Do not tank mix Roundup Ultimate with adjuvants, pesticides or fertilisers except as advised by Monsanto. For up to date information on compatible products contact Monsanto UK Limited (tel: 01954 717575).

**COMPANY ADVISORY INFORMATION**

This section is not part of the Product Label under the Plant Protection Products Regulations 1995 and provides additional advice on the product.

## **General Information**

ROUNDUP ULTIMATE herbicide is an advanced formulation containing the potassium salt of glyphosate. ROUNDUP ULTIMATE is taken up by foliage and translocated to underground roots, rhizomes and stolons, providing control of both annual and perennial grasses and broad-leaved weeds. ROUNDUP ULTIMATE is rapidly adsorbed onto particulate matter in soils and water and is quickly degraded by the micro-organisms present in soil and aquatic bottom sediments. Until degraded, the active ingredient in ROUNDUP ULTIMATE, glyphosate, is practically immobile in soils and is, therefore, unlikely to contaminate groundwater.

## **Agronomic Advice**

Applied pre-harvest of specified crops, ROUNDUP ULTIMATE provides, in addition to weed control, a diverse range of harvest management benefits accruing from uniform ripening of the crop. It is recommended for cleaning up weedy ground prior to planting or sowing.

Applications of lime, fertiliser, farmyard manure and pesticides should be delayed until 5 days after application of ROUNDUP ULTIMATE.

After application, large concentrations of decaying foliage, stolons, roots or rhizomes should be dispersed or buried by thorough cultivation before crop drilling.

To maximise the safety of Roundup Ultimate to operator, consumer and environment, the label recommendations and the DEFRA/HSC/NAW publication "Code of Practice for using Plant Protection Products" of January 2006 should be adhered to.

## **Effects of Weather**

See Directions for Use (Restrictions).

ROUNDUP ULTIMATE will remain efficacious at low but not freezing temperatures however the onset of symptoms will be delayed.

A covering of dew may reduce efficacy where run-off occurs. Reduced control is likely where weed growth is impaired by natural senescence, drought, high temperature, a covering of dust, flooding or severe/prolonged frost at, or immediately after, application.

## **Symptoms on Weeds**

Symptoms of treatment are generally first seen 7-10 days, or longer (if growth is slow), after spraying. These take the form of leaf reddening followed by

yellowing and are usually quicker to appear on grasses than on broad-leaved weeds. Reaction of nettles is slow.

### **Additional Information on LERAPs**

Roundup Ultimate is a highly concentrated formulation and because of its high activity on algae it triggers LERAP B rating. This means a Local Environmental Risk Assessment will have to be carried out if there is watercourse near the field to be sprayed. There are opportunities to reduce the buffer zone from 5m down to 1m according to the equipment used and the rate applied. Even with standard equipment, the buffer can be reduced to 1m at a quarter dose and on watercourses >3m wide at half dose.

Consult DEFRA booklet for full details 'LERAPS -HORIZONTAL BOOM SPRAYERS A STEP-BY-STEP GUIDE TO REDUCING AQUATIC BUFFER ZONES IN THE ARABLE SECTOR'.

The reference rate to be used for reducing aquatic buffer zones for set-aside is 3.3 l/ha, grassland 4.0 l/ha and all other crops 2.6 l/ha.

The CPA's 'Best Practice Guide' (LERAP Scheme – Operator Guidance) from the Voluntary Initiative library (see [www.voluntaryinitiative.org.uk](http://www.voluntaryinitiative.org.uk)) gives further guidance.

### **Weed Resistance Strategy**

There is low risk for the development of weed resistance to ROUNDUP ULTIMATE.

Strains of some annual weeds (e.g. Black-grass, Wild oats and Italian Ryegrass) have developed resistance to herbicides which may lead to poor control. A strategy for preventing and managing such resistance should be adopted. This should include integrating herbicides with a programme of cultural control measures. Guidelines have been produced by the Weed Resistance Action Group and copies are available from the HGCA, CPA, your distributor, crop adviser or product manufacturer (Monsanto).

Growers are encouraged to implement a weed resistance strategy based on (a) Good Agricultural Practices and (b) Good Plant Protection Practices by:

- Following label recommendations
- The adoption of complimentary weed control practices
- Minimising the risk of spreading weed infestations
- The implementation of good spraying practice to maintain effective weed control
- Using the correct nozzles to maximise coverage
- Application only under appropriate weather conditions

- Monitoring performance and reporting any unexpected results to Monsanto UK Ltd (Tel: 01954 717575)

## **Sprayer Hygiene**

It is essential to thoroughly clean-out spray tanks, pumps and pipelines and nozzle or disc assemblies, with a recommended detergent cleaner, between applying this product and other pesticides to avoid contamination from pesticide residues.

## **Disposal**

Follow the guidance on the disposal of surplus spray solution, tank washings, concentrate and containers as given in Section 5 of the DEFRA/HSC/NAW publication "Code of Practice for using Plant Protection Products" of January 2006.

## **Environmental Information Sheet**

An Environmental Information Sheet for this product is available from the CPA's Voluntary Initiative website ([www.voluntaryinitiative.org.uk](http://www.voluntaryinitiative.org.uk))

## **Trade Mark References**

ROUNDUP®, Monsanto® and the vine symbol are registered trade marks of Monsanto Technology LLC.

ULTIMATE™ is a trade mark of Monsanto Technology LLC.

All other brand names used are trade marks of other manufacturers in which proprietary rights may apply.

Monsanto does not warrant that the purchase or use of equipment mentioned in this document will not infringe any patent or trade mark registration.

## **MATERIAL SAFETY DATA SHEET**

A Material Safety Data Sheet is available on request (telephone Monsanto Technical Helpline 01954 (717575) or can be downloaded from the Monsanto website: [www.monsanto-ag.co.uk](http://www.monsanto-ag.co.uk)