Roundup® BIACTIVE GL

Quality Performance Reliability

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Crop specific information

Roundup Biactive GL is a soluble concentrate containing 360g/l glyphosate, present as 441g/l (35% w.w) of potassium salt of glyphosate. MAPP number 17348
Compliance with the following conditions of use is a legal requirement.

FOR USE ONLY AS AN AGRICULTURAL/HORTICULTURAL /AQUATIC HERBICIDE

	Maximum individual dose (litres of product per hectare):	Maximum total dose (litres of product per hectare)	Latest time of application:
Permanent grassland (destruction), rotational grassland (destruction).	6.0	6.0 l/ha/year	5 days before harvest, grazing or drilling
Pre-harvest of wheat, barley, oats, combining peas, field beans.	4.0	4.0 l/ha/crop	7 days before harvest
Post planting and pre-emergence of listed cereals, potatoes, swede and turnips.	1.5	1.5 l/ha/crop	Pre-emergence
All edible and non-edible crops (stubble).	5.0 or	5.0 l/ha/year	5 days before the drilling or planting of the following crop.
	1.5	1.5 l/ha/year	2 days before the drilling or planting of the following crop or 24 hours before cultivating.
All edible and non-edible crops (destruction before sowing/planting)	5.0	5.0 l/ha/year	-
Green cover on land not being used for crop production (e.g. set aside)	6.0	6.0 l/ha/year	24 hours before cultivating
Natural surfaces not intended to bear vegetation, permeable surfaces overlaying soil, hard surfaces	5.0 litres/hectare	-	-
Enclosed waters, open waters, land immediately adjacent to aquatic area.	6.0 litres/hectare	-	-

NB. Each line in the table represents a new situation and where more than one situation occurs for the same crop it can be sprayed once for each situation. For example in winter wheat you can apply up to 1.5l/ha after planting but before emergence, another maximum of 4l/ha before harvest and up to a further 5.0l/ha in the autumn on the stubble.

Grassland renewal

Where permanent pasture may be classed as semi-natural areas , e.g hay meadows, they may be subject to the Environmental Impact Assessment Regulations, 2006. If in doubt consult Natural England before destroying permanent pasture. For spot treatment of grassland weeds see page 9.

Grassland rate

Situation	Roundup Biactive GL rate l/ha	Application timing and guidance
Short rotation Rye-grass	3.0	Treat annual weeds in June–October, when growth is 30–60cm, not dense and lacking mature seeds, or after 3 weeks re-growth after grazing/mowing. 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- to 2-year leys without mat, 5+ days after spraying, or long leys with some mat, in the spring following autumn application. Select the application rate which controls the least susceptible weed and grass species present in the sward from the grassland species table. For perennial broad-leaved weeds apply at the start of flowering but before seed is set. Provided seeds have not matured, treated seeds will be killed and will ensure minimum seed return.
Leys 2–4 years old with perennial grass weeds	4.0	
Long leys 4–7 years old with perennial broad-leaved weeds	5.0	
Permanent pasture	6.0	

Grassland species

Roundup Biactive GL Rate l/ha	Grassland weed species			
3.0	Annual Meadow-grass Common Chickweed Common Mouse-ear	Dock seedlings Italian Rye-grass Mayweed species	Meadow Fescue Meadow Foxtail Rough Meadow-grass	Speedwell species Timothy
4.0	Black-bent Broad-leaved Dock Cock's-foot	Common Bent Common Couch Creeping Bent	Creeping Soft-grass Curled Dock Perennial Rye-grass	Plantains Soft Brome Yorkshire Fog
5.0	Bracken* Common Sorrel Common Nettle Creeping Buttercup	Creeping Thistle Daisy Dwarf Thistle Perennial Sow-thistle	Red Clover Sedges Sheep's Sorrel Soft Rush	Spear Thistle Tufted Hairgrass Yarrow
6.0	Common Ragwort Hard Rush Heath Rush	Jointed Rush Molinia (Purple Moor-grass)	Nardus (Mat grass) Red Fescue White Clover†	Yellow Rattle Sheep's Fescue

* At full frond expansion. † White Clover is best cut in June and sprayed 1 month later.

Grassland application guidance

Water volume: 150-250l/ha, Droplet size: Medium-coarse (BCPC definition). Cultivation interval 5 days
Important Note: Poisonous weeds (including Ragwort, Hemlock, Hogweed, Water Dropwort and Bracken) can become palatable as they die back after treatment and must be removed or allowed to completely degenerate before re-grazing or conserving.

Pre-harvest

Do not use on any crops where seed may be saved for re-sowing.

Pre-harvest rate guidance

	Roundup Biactive GL Rate l/ha
Harvest management – cereals: Crop stems, leaves and annual grasses, Above plus annual broad-leaved weeds – **Standard rate** Above plus difficult annual broad-leaved weeds – Annual Sow-thistle, Cut leaved Cranesbill, Fat-hen, Orache, Fool's Parsley, Redshank, Pale Persicaria, Knotgrass and Black Bindweed High weed density	 1.0 1.5 3.0 3.0
Weed control – peas and beans: (Unsuitable for crop desiccation) Control of annual weeds and low-medium levels of Common Couch	3.0
Weed control – Common Couch: Low levels of Common Couch (<25 shoots/m^2), cereals only Medium levels of Common Couch (26-75 shoots/m^2) High levels of Common Couch (>75 shoots/m^2)	 2.0 3.0 4.0
Other perennials in all crops: Perennial broad-leaved weeds, other perennial grasses	 4.0

Pre-harvest application guidance

Application details	Water volume (Use the higher volume in dense canopies) Droplet size (BCPC definition)	**80-250l/ha** **Medium-coarse**
Harvest intervals	Cereals, peas, beans	**7+ days**
Timing	Grain/seed moisture 30% or less (see page 6)	

Timing – cereals

The penduncle test
When the penduncle, situated at the top of the stalk, immediately below the ear, starts to lose it'sgreen colour and turns brown, the moisture level should be ideal for spraying.

This test applies to wheat and barley.

The Thumbnail test
Collect 20 grains from various areas in the crop (taken from the centre of each ear). Carry out the following test: press the thumbnail firmly into the grain; if the indentation holds on all the grains, the crop is ready for spraying.

This test applies to wheat, barley and oats.

The split grain test
Cut the grains in half to confirm moisture content. If 75% of the grains have a dark brown pigment strand in the crease, as illustrated, the grain has reached 30% moisture. If all the grains are marked, moisture is less than 30%.

This test applies only to wheat.

Timing –Peas and Beans

1) Crops may be treated when the average moisture of the seeds is below 30%. At this stage pods of both crops will be mature.
2) In peas, the lower and middle pods will be dry and brown and the upper pods yellow and wrinkled, and seed rubbery. In beans, the stems are usually green/brown and the pods are black.
3) A minimum interval of 7 days should be allowed before combining

Stubbles and cultivated land

Species susceptibility guide for annuals in stubble and cultivated land

Weed	Weed size and other comments	Roundup Biactive GL Rate l/ha
Annual grasses: Volunteer cerals, annual grasses, Black-grass, Bromes, Meadow grasses, Wild-oats	Spray prior to stem elongation	1.5
Perennial grasses Common Couch 1-75 shoots/m^2 Common Couch >75 shoots/m^2 Other Perennial grasses	Minimum of 10-15cm of new growth	3.0 4.0 4.0
Most annual broad-leaved species: Charlock, Cleavers, Common Chickweed, Common Fumitory, Common Orache, Common Poppy, Dead Nettles, Fat-hen	Up to 15cm	1.5
Forget-me-not, Field Pansy, Groundsel, Mayweeds, Parsley Plert, Shepherd's Purse, Speedwells	Greater than 15cm	2.0
'Tough' annual broad-leaved species: Black Bindweed, Knotgrass, Pale Persicaria, Redshank, Small Nettle	Up to 2 true leaves 3 true leaves to 15cm Greater than 15cm	1.5 2.0 3.0
Volunteer oilseed rape	Up to 6 true leaves Greater than 6 true leaves	2.0 3.0
Volunteer peas/beans, clover species –	These species are not well controlled unless small and non waxed. Control in the following crop may be necessary, especially if no further cultivations take place.	3.0
All perennial broad-leaved weeds Including volunteer potatoes (autumn only)		5.0
Post sowing but Pre-emergence of crop Cereals, peas, field beans, turnip and potatoes	Tank mix as appropriate	1.5

Stubbles and Cultivated land application guidance
Water volume: 80-250l/ha, Droplet size: Medium-coarse (BCPC definition).
For cultivation intervals see page 9.

Perennials
Allow volunteer potatoes to make ample top-growth before spraying in autumn. Perennials: Allow at least 21 days of new growth in the spring before spraying. Only partial control of perennials will be obtained in the spring.

Stale seedbeds
Cultivate top down to conserve moisture and consolidate well. Wait 10–20 days for weed growth. Cultivate immediately after harvest for volunteer oilseed rape, Barren Brome or Great Brome, Black-grass, Meadow-grasses, Wild-oats and cereal volunteers, but leave 1 month before creating a stale seedbed for Meadow Brome, Soft Brome and Rye Brome. To maximise out of crop control of resistant annual grasses encourage several flushes of seedlings and spray with the annual rate up to a maximum total dose of 5.0l/ha.

Other Uses

Weed Control around the farm

Roundup Biactive GL is ideally suited for vegetation management around the farm. To protect watercourses it is no longer allowed to blanket spray impermeable hard surfaces, but targeted spot treatment will give excellent control of emerged weeds.

Around the farm	Target	Weed	Application rate l/ha	Application guidance
Natural surfaces not intended to bear vegetation, permeable surfaces overlying soil	Weed control on permeable surfaces e.g. farm yards, roadside verges, footpaths across fields and along electric fence lines	Annual weeds	1.5	Overall application Do not use under polythene or glass.
		Perennial grasses and broad-leaved weeds	5.0	
Impermeable surfaces	Spot treatment of weeds on non-porous farm yards, roads and paths & along walls. E.g concrete Tarmac and paving	Annual weeds	1.5	Targeted application only when weeds are actively growing (normally March to October) and confined only to visible weeds. Do not overspray drains
		Perennial grasses and broad-leaved weeds	5.0	

Aquatic areas

Roundup Biactive GL can be used to control weeds growing both in static lakes and flowing streams as well as dry ditches and banks. Application may only be allowed to spot treat injurious weeds in Cross Compliance buffer zones and permission should be sought from the Environment Agency/SEPA or NRW before use in aquatic areas.

Aquatic areas	Target	Application rate l/ha	Water volume	Application guidance
ENCLOSED WATERS, (Lakes, ponds); OPEN WATERS, (rivers, streams and ditches); LAND IMMEDIATELY ADJACENT TO AQUATIC AREAS – (banks of any type of watercourse)	Emerged Weeds - Reeds, Rushes, Sedges, Grasses and Watercress	5.0	200-400 l/ha or hand-held equipment	Consult appropriate Environment Agency regional office before use. On water-lilies it is preferable to use a tractor or boat-mounted sprayer. During spraying do not exceed a pressure of 2.0 bars (30 p.s.i.). When using a tractor mounted sprayer do not exceed 8 kph (5mph). Addition of TopFilm® adjuvant may be beneficial on floating weeds
	Floating weeds -Yellow and white water lily	6.0	100-200 l/ha or hand-held equipment	

Tank mixes physically compatible with Roundup Biactive GL

Physically compatible	Compatible only with continuous agitation	Physically incompatible
2,4,D*, Bacara, Basagran SG, Blazer, Bullet, Cadou Star, Centium, Chikara, Crystal, Crystal+Defy, Defy, Defy +Lexus, Duplosan KV*, Firebird, Flight/Orient**, Gamit 36, Graduate, Hurricane SC, Lexus, Lexus+Firebird, Lexus+Liberator, Liberator, Liberator+Hurricane, Magnum, MCPA, Mesh, Movon, Movon +Defy, Movon +Lexus, Movon+PicoPro, Nimbus, Nirvana, Nirvana+Centium, Nortron, Novall, PDM 330 EC, PicoPro**, Pistol, Pyramin DF, Shark, Springbok/Muntjac, Springbok+Centium, Stomp 400, Stomp Aqua, Sumimax/Guillatine, System50/Sunfire, Teridox, Tolerex 90 WDG, Vigon	Afalon, Buckler, Butisan S +clomazone, Crossfire, (chlorpyrifos 480g/l), Defy+Stomp,Defy+ Tolugan, Devrinol, Dursban WG**, Elk/Katamaran/ Turbo/Shadow, Fiesta T, Flexidor 125, Goltix WG, Kerb Flo, Liberator+Defy, Linuron 500,Metric**, Oryx, Vigon+Defy, Vigon+ Lexus, Vigon+ PicoPro, Vigon+Stomp Aqua	Artist, Butisan S, Carbetamex/Crawler, Goltix Flowable, Kula, Lexus+Crystal, Lexus+Stomp, Liberator Stomp, Liquid fertiliser, Sencorex WG, Volcan Combi

*Antagonism when used at high rates (see label recommendations) ** Minimum of 200 litres water
This list is valid at the time of printing. Please phone the Technical Helpline to check for any updates.

Application methods for selective weed control

Knapsack Sprayers; A full 20l knapsack sprayer with standard deflector nozzles giving 200l/ha output will cover 1,000m2 when walking at 1m/sec. Use 20 ml/l water or 400ml/20l water to control perennial weeds. At least 10-15cm of new growth is required.

Weed Wiping; Weed wipers may be used on any recommended crop where the wiper or chemical does not touch the growing crop. Weeds must be >10cm taller and the wiper >5cm higher than desired vegetation. Wipe dense populations twice, in opposite directions

- **Hectacare or Microwipe rope types:** 1:2.25 dilution with water or 1:1.5 in hot dry conditions
- **New generation types** e.g. rotary, carpet, brush or pressure pads: 1:10 to 1:20 dilution

Cultivation intervals and rainfast properties

	Rainfastness		Cultivation intervals	
Roundup Biactive GL	Annuals	1-4 hrs*	Annuals	6 hrs
	Common Couch	1 hr	Common Couch	2 days
	Broad-leaved crops	4 hrs	Other perennials	5 days
	other perennial weeds	4 hrs		

*Lower figure relates to grasses and seedling broad-leaved weeds

Conditioning hard water

Roundup Biactive GL does not have a label requirement for the general addition of extra surfactant, however the addition of an Approved water conditioner can be beneficial at lower glyphosate rates in certain situations.

Hard water areas
The activity of glyphosate can be reduced in hard water areas where the dissolved Calcium, Magnesium and other cations bind with the glyphosate. A suitable water conditioner will sequester these cations leaving the glyphosate available to the plant.This effect is more noticeable at lower application rates or in higher water volumes because the spray solution is more dilute.

Drift retarding
The Roundup Biactive GL formulation is specifically designed to minimise the proportion of driftable particles at application. Where small grass or broad leaved weeds are the target and the finest specified application category is desired, the use of flat fan nozzles is recommended. Roundup Biactive GL produces 33% less driftable fines than generic glyphosate.

Technical Support

For further information contact the Monsanto Technical Helpline on 01954 717575, e-mail technical.helpline.uk@monsanto.com or visit our website: www.monsanto-ag.co.uk

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Quality Performance Reliability

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- **Powerful New liquid formulation - 360g/L glyphosate designed for the grassland farm**
- **Fast uptake for reliable long-term weed control**
- **Consistent performance in a wide range of weather conditions**
- **Rainfast in just 1 hour on annuals and Common Couch**
- **Monsanto supports a cultivation interval of just 6 hours for annuals (2 days for Common Couch)**
- **Can be used post-planting, pre-emergence of a wide range of crops**
- **Compatible with a large range of residual pre-emergence herbicides**
- **Low drift formulation**
- **No hazard symbols – highest level of safety for the operator and the Environment**

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