# Roundup® PRO BIACTIVE®

Herbicide by Monsanto

the professionals choice

PRODUCT INFORMATION GUIDE

# Contents



MONSANTO imagine™


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# The Science of Biactive Technology

## Novel technology

Roundup Pro Biactive was developed following many years of exhaustive field and laboratory testing of a new surfactant system known as Biactivator adjuvant technology.

## Superior Performance

Formulated using the novel Biactivator technology, Roundup Pro Biactive is a complete product that contains two adjuvants. Alone they offer excellent benefits, but in combination the synergistic effect of these two adjuvant partners ensures an outstanding performance.

Retention, uptake and translocation are enhanced; so more glyphosate gets to the growing points providing superior long-term weed control. These Biactivators increase reliability over a vast range of applications and weather conditions, particularly rainfall.

This unique formulation is protected by patents unlike most other adjuvants. No other glyphosate-based products contain this patented formulation.

So, if it doesn't say Biactive on the can, it isn't Biactive in the can.

## Synergistic Activity

Monsanto has used two adjuvants in a special combination to enhance the performance of Roundup Pro Biactive. They are:

*A hydrophilic non-ionic humectant that extends the period of glyphosate uptake from the treated leaf.*

*A cationic Quaternary Ammonium Compound (QAC) which strongly binds to the leaf surface without damaging the plant cells allowing the active ingredient, glyphosate, to diffuse into the leaf with minimal stress to the plant. This ensures minimal glyphosate is locked up in the leaf ensuring maximum movement through the plant, boosting weed kill and improving reliability.*

## Use in the Environment

Besides providing superior control of a wide range of weeds, Roundup Pro Biactive has been developed by Monsanto with its commitment and concern for the environment firmly in mind.

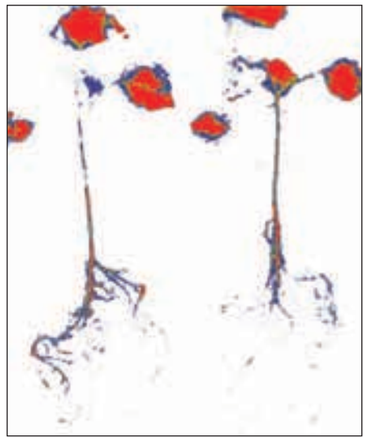
Roundup Pro Biactive has been specially formulated to offer an enhanced standard of operator safety. It is not a hazardous substance as defined by COSHH, when used in accordance with the label, and it does not carry a hazard symbol. In the environment, it provides up to 100 fold improvement in safety to some of the most sensitive animal species, when compared to older glyphosate formulations.

Glyphosate, the active ingredient in Roundup Pro Biactive, controls weeds by blocking the plant's enzyme system. These enzymes, which are present in plants, do not occur in humans, animals, birds or fish. Hence, Roundup Pro Biactive is safe to everything except green plants.

'If it doesn't say **Biactive** on the can – it isn't **Biactive** in the can.'

# Roundup Pro Biactive sets the highest standards

- **Unique Biactive formulation gets more glyphosate into the plant**
- **Highest levels of performance and safety**
- **Superior long term control of difficult perennial weeds**
- **Hazard free label - safer for the operator, public and pets**
- **Degraded by micro organisms or microbes in the soil**
- **Excellent rainfastness makes the most of those precious weather windows**
- **Preferred under COSHH (see page 24)**
- **You can use Roundup Pro Biactive with confidence in areas open to the public and animals, or even near water**



*These autoradiography pictures demonstrate from the red areas, how the plant on the left, treated with Roundup Pro Biactive has more penetration into the root system than a traditional treatment on the right.*

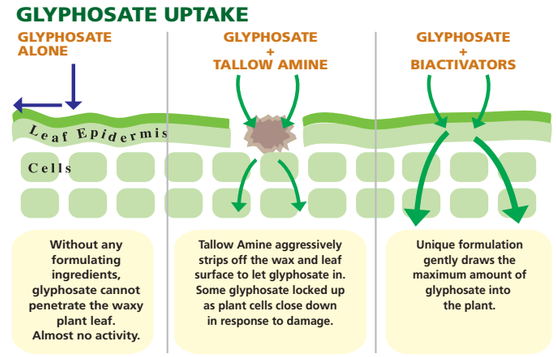
## People, Pets and Wildlife

People, pets and wildlife need not be kept out of treated areas. It is best not to walk in areas where the spray is still wet as transfer to other vegetation may lead to unwanted damage to other foliage. Once the spray is dry this cannot occur.



# How Roundup Pro Biactive Works

For any herbicide to function it must first break through the waxy surface of the leaf and enter the plant cells. This is achieved by developing a formulation containing an adjuvant or surfactant which breaks down the waxy cuticle. Differences in glyphosate formulations are brought about by the different surfactants they contain. Original Tallow Amine products have been superceded by Roundup Pro Biactive.




# Optimising results from Roundup Pro Biactive

Always using the correct dose rates, timings and application methods according to the relevant sections in this guide will ensure the best results, however there a number of other factors which can affect the performance of Roundup Pro Biactive:

## Stress

Target weeds can suffer stress from hot weather, freezing, die-back, water-logging or disease. Stress causes reduced metabolism and leads to reduction in transport to the growing points and inferior results.

Areas in close proximity to traffic can have particular problems in prolonged dry spells. Plants lay down thicker waxy cuticles to reduce moisture loss from the drought, plus debris and dust builds up on the leaf surface, physically preventing efficient uptake.

## Temperature

Moderate temperatures favour efficacy, 15-25°C, though low temperatures will still give good results but slowly. Hard or long-term frosts, (when the plants go floppy and the metabolism shuts down), or high temperatures causing scorch or stress will lead to poor uptake and poor performance.

## Relative humidity, dew, fog, rainfall

High humidity leads to good control provided run-off is minimal. So spray in the morning on dew or in fog as long as it dries out during the day. Avoid spraying in the evening as the risk of run-off and night rainfall is higher.

**Rainfall challenges performance most when the performance is restricted by other factors.**

## Light

Best results come from morning-lunchtime application because of the long light period before dark to move the herbicide throughout the plant. Anything which cuts out light will prevent the movement of the herbicide to the growing points and give poorer results. This includes burying, cultivation, application of lime or manure to treated plants within 5 days of spraying.

# Cleaning up weedy ground prior to planting or sowing

Roundup Pro Biactive can be safely used to remove unwanted vegetation before planting any species, including shrubs, ornamentals, vegetables and seeding down grass. The herbicidal effect is lost on contact with the soil and leaves no residues to affect subsequent plantings, however seedlings which germinate after application will not be controlled. Planting may take place 7 days after application for all species except grass seed which should be left 15 days before sowing.

DO NOT USE under polythene or glass because spray droplets may dry onto the roof and later cause damage by dripping back down onto newly planted crops in times of high humidity.

Tough perennials may take more than one application see difficult weeds section, p19. Weeds need to be actively growing at the time of treatment and should have the following minimum growth:

Perennial weeds – at least 4-5 leaves of 10-15cm in length; annual grasses – at least 1 leaf; Annual broad-leaved weeds – at least 2 leaves.

## Rates of use

Roundup Pro Biactive provides control of a wide range of established annual grasses, annual broad leaved weeds and perennial weeds.

| |
|---|
| Annual grasses and annual broad leaved weeds 3.0 l/ha |
| Perennial weeds 5.0 l/ha |

# Planning a Weed Control Programme for Weed-Free Areas

## Timing

The timetable needs to be flexible according to conditions rather than calendar. The first spray should not be done until weeds have emerged and are actively growing and this will vary from year to year according to the weather.

The graph below right shows spray windows as late April to mid-May for Spring treatment, with a subsequent optional spray in Summer, and a further spray in the period August to September.

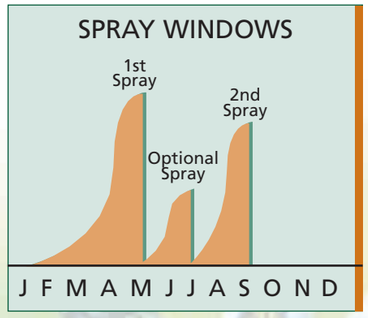
## Monitoring the Results

Inspection and evaluation is essential to assess the performance and check if you need follow-up treatments. Weeds sprayed with Roundup Pro Biactive do not show signs of die-back until 10 days have elapsed. It is important to be able to recognise early symptoms, so that treated weeds can be identified. Symptoms show first in Annual Meadow-grass, which takes on a yellow tinge a few days after spraying. Other grasses follow by turning first yellow, then reddish brown before they die.

Broad-leaved weeds will appear healthy at this time, however, if you look closely you will see the leaves will be turning white in the centre. Within a week the plant will be dead. Use this guide to monitor the progress and effect of the treatment. You should expect 95% kill of all weeds to occur with the 5 litre rate, approximately 10 - 21 days after treatment. Any seedlings that germinate after spraying will NOT be affected.

**A timetable based on the plan below is a good basis for formulating your programme.**

| | |
|---|---|
| **JAN FEB** | Survey and planning |
| **MAR APR MAY** | First Roundup Pro Biactive spray after weed emergence |
| **JUN** | Monitor weed control |
| **JUL** | Optional spray of Roundup Pro Biactive |
| **AUG SEP** | Second Roundup Pro Biactive spray |
| **OCT** | Monitor weed control |
| **NOV DEC** | Review and plan for next season |






# Weed Control in Amenity Vegetation

**Roundup Pro Biactive gives effective control of emerged weeds as a directed spray around ornamentals, trees and shrubs in parks, shrubberies, street plantings and roundabouts**

## Timing

Roundup Pro Biactive can be used at any time of year, provided that the weeds are green and actively growing.

Avoid spraying during acute drought, or when frost is on the ground.

## Spring

This is when the first flush of weeds emerge. Effective control of annual weeds can be achieved once the weeds are more than 1.25cm (1⁄2 inch) high.

Perennial weeds have larger, deeper roots, and need to be sprayed when they have a larger leaf area in order to kill the roots thoroughly.

Some perennial weeds will be controlled by a spring treatment, especially those that have overwintered and are actively growing. Others, such as bindweed, will need to be treated later.

## Follow up Treatment

Any weeds which emerge during the summer can be given a spot treatment as required. This is the best time to treat later emerging perennials such as bindweed.

## Autumn

Treatment in September, October or November will normally give good control until the spring flush of weeds in April or May.

Weeds treated in autumn will take longer to show treatment symptoms compared to those treated earlier in the year, because the speed of kill is temperature dependent.

## Weed Control in Bark Mulches

Before mulching it is important to control deep-rooted perennial weeds, otherwise they will grow up through the mulch. For best results, perennial weeds should be treated in summer or autumn with 5.0 l/ha of Roundup Pro Biactive prior to the application of at least 10cm, (4 inches), of bark. A minimum of 5 days must be left between spraying and covering with bark.

## Maintenance

Wildlife, pedestrian traffic and wind blow will reduce the thickness of the mulch allowing weeds to establish. Because of the high organic content, most residual herbicides will not be effective.

Roundup Pro Biactive applied as a spot treatment at a rate of 5.0 l/ha will give effective weed control in these areas.

## Caution

When using Roundup Pro Biactive it is important to avoid drift, especially onto green leaves and soft stems of desired plants and trees. If a shrub is sprayed accidentally, immediately prune the affected part to save the plant.

Take care to avoid the spray touching plants not intended for treatment. Use a sprayer hood when working close to shrubs, cultivated plants and trees.

Roundup Pro Biactive is not absorbed through mature bark, so it is possible to spray right up to mature trees. The green bark of immature whips will absorb the herbicide. Take care if young trees are not protected by a tree shelter.

## Rates of use

Roundup Pro Biactive provides control of a wide range of established annual grasses, annual broad-leaved weeds and perennial weeds.

| | |
|---|---|
| Annual grasses and annual broad-leaved weeds | 3.0 l/ha |
| Perennial weeds | 5.0 l/ha |

## Application

For knapsack spraying guide, details of low and conventional volume spraying, and CDA see page 15.

# Weed Control In Plant Free Areas

**Roundup Pro Biactive is approved for weed control in amenity and industrial areas. It can be used on paths, roads, fencelines, car parks and around buildings. It does not creep in the soil to affect untreated areas such as grass verges or trees.**

## Timing

Roundup Pro Biactive can be used at any time of the year as long as weeds are green and actively growing. Full control will not be achieved if weeds are suffering from drought stress or frost.

## Spring Application

The first flush of germinating weeds occurs in April and May. Spraying should not start until the weeds have at least 1.25cm (1/2 inch) of growth. At this stage, they will not have begun to cause any damage, and can be treated effectively.

Roundup Pro Biactive at 5 l/ha will also control any overwintered perennials and weeds germinating in spring.

## Follow up Treatment

If the weather is mild and moist after the spring treatment, it may be necessary to re-treat areas where new weeds have emerged.

## Autumn Treatment

Roundup Pro Biactive can be applied as late as October or November. The limiting factor is the first hard frost. Up to this time treatment will be effective, although symptoms will be slower to appear.

Autumn treatments should be 5.0 l/ha to eradicate damaging deep-rooted weeds. Experience has shown that a late autumn application can help to even out work loads in the spring, by removing weeds which would have overwintered. Spring treatment is not normally needed until after the first grass cuts.

## Treatment around Trees

Roundup Pro Biactive will not affect plants, trees or shrubs through their roots and can be used right up to trees, provided that care is taken to avoid spray drifting onto the leaves or soft stems of plants.

Roundup Pro Biactive does not penetrate mature bark, making it easier to use around trees.

## Tank Mix For Residual Weed Control

Roundup ProBiactive 450 will control emerged weeds, but has no residual effect. If long term weed control is required from a single application, Roundup ProBiactive 450 may be tank mixed with an approved formulation of flazasulfuron in certain areas. This will prevent seedlings establishing after application of the mix for up to 5 months. The mixture should be applied in 200 - 250 litres of water per ha.

Flazasulfuron can only be used on porous surfaces and is not approved for use on hard surfaces (except railway ballast). It should not be used near trees, shrubs or other desirable vegetation. See flazasulfuron label for full details.

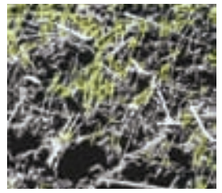




## Approved Uses Explained

Plant free areas can be classed in three ways. Roundup Pro Biactive can be used on all these, but flazasulfuron can only be used on natural surfaces not intended to bear vegetation and permeable surfaces overlaying soil.

**1) Natural surfaces not intended to bear vegetation**



Open soil

Grass path edges

Areas of soil around buildings or along fences

**2) Permeable surfaces overlaying soil**

Gravel drive

Aggregate drive

Sand school

Porous parking area

**3) Hard surfaces**

Streets & pavements

Block paving

Crazy paving

Concrete

## Rates of Use in plant free areas

The application rates are the same whether applied alone or in a tank mixture with flazasulfuron. Roundup Pro Biactive applied at a rate of 3.0l/ha provides control of a wide range of established annual grasses and annual broad-leaved weeds. In mixed infestations of annual and perennial weeds, Roundup Pro Biactive should be applied at 5.0 l/ha

## National Pesticieds Strategy

To ensure compliance with EU Directives on sustainable pesticide use and water quality status pesticide users must always follow Best Practice when using all pesticides. More details can be found at www.amenity.org.uk

| | |
|---|---|
| Annual grasses and annual broad-leaved weeds | 3.0 l/ha |
| Perennial weeds | 5.0 l/ha |

The risk of pesticdes entering the watercourse is the highest from point source contamination resulting from misuse during mixing, filling, washing and disposing operations but it is also possible from run-off from hard surfaces. In addition to using only the minimum rate required and following the label application recommendations, this particular risk from hard surfaces can be minimised when using Roundup Pro Biactive by:

- Spot treating weeds rather than blanket spraying
- Only spraying when rain is not forecast for at least 4 hours
- Not spraying over drains

## Application

For knapsack spraying guide, details of low and conventional volume spraying, and CDA see page 15.

# Weed Control for Trees and Forests

**Young trees need effective weed control if they are to thrive.**

Maintaining a weed free area at the tree base removes weed competition from young trees, allowing water and soil nutrients to be fully utilised, maximising growth.

Roundup Pro Biactive is the ideal herbicide because it leaves no harmful residues in the soil to check tree growth and development.

Trees planted in land pre-treated with Roundup Pro Biactive in the autumn, show improved survival and growth compared to trees which have not been weeded.

Forestry Commission trials have established that a 1 metre diameter weed free spot is enough for a transplanted whip, but a standard will require a 1.5 metre diameter weed free area to optimise growth.

Tree shelters make herbicide application easier by protecting the young tree from spray.

All young whips have immature bark, which can be penetrated if sprayed by Roundup Pro Biactive. Therefore the product should be used as a directed spray, and spray drift should be avoided.

## Pre-Planting, Re-Forestation

The best time to control weeds is before planting. This makes planting easier, ensures that the trees get a good start, free from weed competition, and reduces future weed control problems. Difficult weeds such as Rhododendron are more easily controlled at this time, because spraying operations are not restricted by the presence of young trees.

The excellent broad-spectrum weed control properties of Roundup Pro Biactive make it ideal for clearing weeds before planting all types of trees.

Roundup Pro Biactive has no residual effect in the soil, so it will not affect the trees through their roots. All tree species may be planted from 7-days after treatment.

Hand-held or tractor-mounted equipment may be used, and the choice of sprayer will normally be determined by the area to be covered and the ease of access for machinery or on foot.

Where trees are to be planted in lines, the herbicide can be applied in bands of 1 to 1.5 metres width. Alternatively, a circle of 1 to 1.5 metres diameter can be treated at each planting site. This technique is ideal where trees are to be planted irregularly, such as in amenity plantings.

## Timing

Trials show that pre-planting treatments help both tree survival, and increase growth after planting.

## Rates of Use

| | |
|---|---|
| Arable weeds | 4.0 l/ha |
| Grassland weeds | 5.0 l/ha |

## Water Volume

| | |
|---|---|
| **Hydraulic Sprayers** | **80-250 l/ha** |
| **Rotary atomisers** | **40 l/ha** |

## Note

Allow seven days for the herbicide to be absorbed by the weeds before planting or cultivating.



# Post Planting, Weeds Around Young Trees

**The aim is to treat weeds in a circle of up to 1.5 metres diameter around the base of the tree, so that the tree's root system does not have to compete with weeds for soil nutrients and water.**

It is important to ensure that the spray does not fall on the soft parts of the tree, such as leaves and green stems. One way to do this is to use a spray guard fitted to a knapsack sprayer. Accidental spraying of thick bark on established trees will not affect the tree as the herbicide does not penetrate mature bark. An alternative method is to use a hand-held weedwiper to treat the weeds, taking care not to let the rope wick touch any part of the tree.

## Tree Shelters

It is common practice to fit tree shelters around young trees at planting to provide protection against vermin damage and adverse weather conditions. Fitting tree shelters will improve survival and the growth rate of trees, but it is no substitute for effective weed control.

When trees are fitted with shelters, there is no need to use a spray guard or to direct the spray away from the tree, so weeds can be treated quickly and easily right up to the shelter.

Note that the spiral type of shelter, and those with holes, do not provide sufficient protection from the herbicide, and trees fitted with these should be treated as if they had no tree shelter.

## Timing

Apply between April and September, depending on the weeds to be controlled.

## General Advice

Best results are normally achieved by applying Roundup Pro Biactive to plants that are green and actively growing. A general guide is that the greater the leaf area the more herbicide reaches the roots and the more effective the control. Control will be reduced if the weeds are suffering drought stress, or not actively growing for any reason.

## Rates of Use

Site clearance and directed sprayers around young trees

| Weed Type | | Rate litre/ha Roundup Pro Biactive |
|---|---|---|
| Annual/perennial grasses and broad-leaved weeds | | 4.0 |
| Scrub - | Hazel<br>Oak<br>Sycamore<br>Willow<br>Tough Weeds | 5.0 |
| Heather - | Peat Soils<br>Mineral Soils | 4.0<br>6.0 |
| Rhododendron | | 10.0 (8.0)* |

**The rate shown in brackets may be used if Mixture B NF is added at 2% of spray volume.*

## Water Volume

**Knapsack Sprayers or hand-held weedwipers** **see page 15.**

# Special Techniques for Woodland Management

**Use of Roundup Pro Biactive can aid scrub clearance and prevent re-growth. Scrub can be difficult to control by mechanical means alone, because it can regrow quickly after cutting back.**

## Stump Treatment

By treating the cut stumps with Roundup Pro Biactive, the root system can be killed and regrowth prevented. This method is also suitable to prevent coppicing of crop trees after felling.

A water soluble dye should be added to identify treated stumps.

### Timing

Treat stumps immediately after cutting. This method may be used between November and March or April, depending on the season and location. Do not use this method during the period of active sap flow during the spring and summer.

### Rates of Use

| |
|---|
| **Deciduous species:** 10% solution of Roundup Pro Biactive in clean water |
| **Coniferous and evergreen species:** 20% solution of Roundup Pro Biactive in clean water |

### Special Advice

Apply at the time of cutting with a suitably adapted clearance saw such as the Enso attachment to rotary saws, or apply as soon as possible after cutting using a knapsack sprayer, spot gun or paint brush.

## Chemical Thinning

Treat standing timber without felling. This technique has the benefit of not requiring the stump to be freshly cut, it can be used where trees have already been cut back, or where the tree is to remain in place. It is also easy to see which areas have been treated.

### Timing

This method works from slightly earlier in the season, (ie October), so is especially useful before stump painting commences in November.

### Rate of Use

| |
|---|
| 2ml of neat Roundup Pro Biactive per hatchet cut |

### Method

Neat Roundup Pro Biactive is introduced straight into the phloem through a hatchet cut into the bark of the tree or stump.

A Spot gun with a solid stream nozzle is recommended. (It is advisable to make a second cut under the first to catch any surplus herbicide.)

One cut plus 2ml Roundup Pro Biactive is needed for each 10cm diameter of the trunk. Work out how many are needed and space them round the girth. Alternatively the concentrate can be introduced through an 8 mm drill hole, about 40mm long, aimed slightly downwards and rapidly towards the centre of the stem.

DO NOT OVERDOSE WITH EITHER METHOD

It is possible for collateral damage to occur tonearby tree where the product is overdosed and the treesare the same species which are intimately cinnected by mycorrhyzal fungi or root grafts.



# Post-Planting

## Overall treatments in specified conifers

### Timing

Overall application of Roundup Pro Biactive, may be made to certain conifers in the dormant season. Trees must be fully dormant and leader growth hardened. The timing of hardening of leader growth varies considerably between locations and years, from the end of July to October or later.

### Rates of Use

| | |
|---|---|
| Grass weeds | |
| Lowland areas | 1.5l/ha |
| Upland areas | 2 l/ha |
| Woody weeds | |
| Bracken, Birch | 2l/ha |
| Brambles | 3l/ha |

These recommended application rates refer to Forestry usage only. Inadequate control may result if used in other areas.

### Water Volume

| | |
|---|---|
| **Hydraulic sprayers** | **80-250 l/ha** |
| **Rotary atomisers** | **40 l/ha** |

### General Advice

Species safe to spray when fully dormant, (leader growth has hardened but before buds swell in the spring):

Corsican pine, Lodgepole pine, Scots pine, Norway Spruce, Sitka Spruce, Lawson Cypress, Western Red Cedar.

Douglas Fir and Noble Fir - safe to spray when fully dormant and leader growth has hardened but NOT in spring.

DO NOT OVERALL SPRAY trees being grown for ORNAMENTAL PURPOSES, including CHRISTMAS TREES.

Whenever dormancy is in question use a tree guard and direct spray away from leading shoots.

If overall application takes place after the optimum timing weed control may be reduced. It is advisable to spray a limited area of forest to test crop safety under local conditions before widespread overall application in subsequent years.

# Special Techniques for Woodland Management

## Rhododendron Control

**Rhododendron can be a troublesome weed, and is difficult to control effectively by conventional methods since it can regrow quickly after cutting back. Using Roundup Pro Biactive kills the roots, preventing regrowth.**

The leaves of this species have a thick, waxy cuticle, and in older bushes translocation is restricted.

Consequently a higher dose of Roundup Pro Biactive is needed than for most other woody weeds, and complete coverage of the plant is required.

Mature rhododendron is often so tall that spraying is difficult, and it is less susceptible to the herbicide. For this reason, it may be preferable to cut back the bushes with a brush saw. The cut stumps may be treated immediately, or left to regrow for 2-3 years before spraying the regrowth when it is at its most susceptible stage. By this time any seedlings will have germinated and will also be susceptible.

### Timing

Roundup Pro Biactive sprayed onto the foliage gives the most effective control of rhododendron between June and early September.

Cut stump treatments should be made during the dormant season from November to March, before the period of active sap flow starts in the Spring. Chemical thinning can also be used on Rhododendron, see page 12.

### Rates of Use

| |
|---|
| **Knapsack sprayers** 10.0 l/ha |
| Or spray 8.0 l/ha + Mixture NF at 2% of spray volume. |

### Water Volume

**Knapsack sprayers**

*Knapsack sprayers with standard, (200 l/ha output) nozzles - apply 5% solution of Roundup Pro Biactive in clean water as an even foliar coverage. Or use 400l/ha output nozzles and apply a 2.5% solution to just before the point of run-off.*

**Cut stump treatments**

*20% solution of Roundup Pro Biactive in clean water, applied to the freshly cut stumps with an Enso saw attachment, knapsack sprayer, spot gun or paintbrush.*

### Special Advice

The Micron Ulva may be used as an alternative to a knapsack sprayer for spraying rhododendron foliage. Use a solution of 2% Roundup Pro Biactive in clean water, applied at 50 l/ha total spray volume. Telescopic spray lances can be used to apply spray to inaccessible vegetation.

Rhododendrons: before and after treatment



# Sprayers and Water Volumes

## Knapsack Spraying

Roundup Pro Biactive may be applied in water volumes between 35 and 250 l/ha. Different nozzles are designed to deliver different water volumes.

Standard knapsack sprayers are supplied with a set of deflector nozzles of varying swath width but each with an output of 200 l/ha. This is the standard rate we use in the table below.

However, Roundup Pro Biactive works very well at low water volumes, enabling improved operator efficiency with less downtime for filling and less clean water to carry on site. The dilution rates will need to be adjusted pro-rata for nozzles of different outputs.

Calibration of the knapsack should always be carried out by individual users according to the procedures covered in the syllabus of the PA6 Certificate of competence in hand held spraying and the Code of Practice for Using Plant Protection Products.

Pressure 1.5-2.5 bars. Use low setting on knapsack fitted with low/high settings. Droplet size should be in the range of medium to coarse, (BCPC). These can be easily seen but are neither large enough to roll off the target leaves nor fine enough to drift onto non-target areas to cause damage. Use a sprayer hood to avoid damage to non-target plants in close proximity.

Once sprayed the leaves should have an even coverage of drops without running off.

*Using standard nozzles giving 200 l/ha at 1 bar pressure, a 20 litre knapsack covers 1000 square metres, when walking at 1 metre per second.*

| Rate per hectare | Equivalent dilution | Weeds controlled |
|---|---|---|
| **3 litres** | 1:67 or 15ml per litre of water | Annual grasses, annual broad-leaved weeds |
| **4 litres** | 1:50 or 20ml per litre of water | Arable weeds pre-planting of trees |
| **5 litres** | 1:40 or 25ml per litre of water | Most perennial weeds |
| **6 litres** | 1:33 or 30ml per litre of water | Floating aquatic weeds |
| **10 litres** | 1:20 or 50ml per litre of water | Rhododendron, Ivy Horsetail and difficult waxy-leaved plants |

### Special Advice

When operating in water or for very tall weeds, it can be difficult to get the spray nozzle to reach far enough. Use of telescopic hand-held lances which extend to give a spray range of up to 3 metres is recommended. Monsanto produces further guidance on knapsack nozzle selection and calibration.

Telephone 01954 717575 for more details.

Useful reference: Hand-held & amenity sprayers handbook - A complete guide to safe effective spraying. (BCPC Publications, Bear Farm, Binfield, Bracknell, BERKS, RG42 5QE Tel: 0118934 2727)

### Controlled Droplet Application

Roundup Pro Biactive may be used at spray volumes of between 10 and 20 l/ha through CDA equipment which produces droplets in the range of 200-300 microns.

### Markers

Some operators choose to apply Roundup Pro Biactive with markers which allows the product to be used with CDA sprayers.

### Other Application Methods

**HAND-HELD WEEDWIPERS** - The hand-held weedwipers rope wick applicator may be used to apply Roundup Pro Biactive directly to weeds, using a concentration of 1 part of Roundup Pro Biactive to 2 parts of clean water.

The use of a hand-held weedwiper on tall vegetation can give effective control of the weed without damage to underlying ground cover. The Micro weedwiper is available from Micron Sprayers phone (01885) 482397 or Billericay Farm Services, phone (01268) 710237

### Stem Injection Equipment

Specialist injection tools are available and are useful for treatment of hollow-stemmed plants like Japanese Knotweed and Giant Hogweed in environmentally sensititve areas. The JK 100- injection system uses a needel to inject Roundup Pro Biactive directly into the stem. The technique is covered by the same chemical thinning method used in forestry. More details at http://www.cdae.co.uk/sis/index.html

**DYES** - Suitable dyes are available which can be added to the spray solution to enable sprayed weeds to be readily identified. Ask your Roundup Pro Biactive supplier for details.

All spray equipment should be checked and cleaned thoroughly before and after use, and should be callibrated regularly.

# Aquatic Weed Control with Roundup Pro Biactive

**Aquatic use means spraying in or on land immediately adjacent to a body of water, where the land immediately adjacent to is defined as the bank of the body of water. The body of water can be enclosed (ie ponds or reservoirs which do not drain to a watercourse) or open (i.e. rivers and streams which drain to a watercourse).**

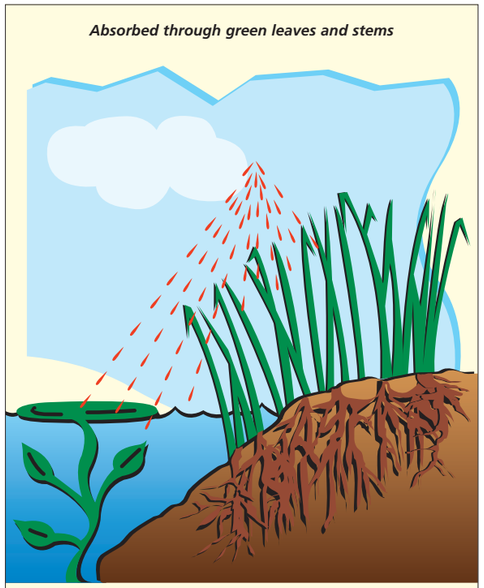
**All aquatic use of herbicides requires Environment Agency approval. Contact the local EA office before work begins.**

## Safety to the environment

Safety to the environment is an important consideration when treating weeds in and around water. Roundup Pro Biactive is particularly suitable for these areas. It gives effective weed control, and is quickly broken down in soil or sediment into harmless natural substances. It is non-residual, and does not harm animals, birds, fish, insects and other wildlife.

When Roundup Pro Biactive is used correctly, only a small proportion of the spray reaches the water. Any herbicide which enters the water is broken down by microbes. This was confirmed by monitoring sites after application. The amount of glyphosate found in slow-flowing water one hour after treatment, and in still water 12 hours after treatment, is barely detectable.

At these sites, the variety and number of micro-organisms showed no significant change during the year after treatment.




*degraded by micro organisms or microbes in the soil and water*

Evidence suggests that Roundup Pro Biactive has less effect than mechanical weed control on wildlife.

## Government Approval

The Department of Environment, Food and Rural Affairs imposes strict control on the use of herbicides in aquatic areas.

Glyphosate, the active ingredient in Roundup Pro Biactive, is one of only two active ingredients approved for such use.

Before granting approval, DEFRA considers extensive data on the herbicide's characteristics, including it's toxicology, degradation, persistence, and effects on invertebrates and fish.

Roundup Pro Biactive provides long-term control of aquatic weeds in ditches and drainage channels. It controls emergent and floating weeds including especially difficult to kill species such as reeds, rushes, sedges and grasses.

Roundup Pro Biactive has a favourable toxicological and environmental profile which is reviewed in other Monsanto publications. For copies please contact the Helpline on Tel: 01954 717575.

## Safety to operators and wildlife

Roundup Pro Biactive has very low toxicity to humans, animals, birds, fish and insects. It acts on an enzyme which is found only in plants, preventing the plant from making proteins. The World Health Organisation rates glyphosate, the active ingredient in Roundup Pro Biactive, as 'practically non-toxic', the lowest classification available.

There is no need to restrict public access after spraying with Roundup Pro Biactive, and correctly treated water may be used for irrigation.

## Caution

When used as directed there is little risk to spray operators, wildlife, or the environment. Roundup Pro Biactive may be used in waters stocked with fish, if used in strict accordance with the recommendations.

## Weeds Controlled

Roundup Pro Biactive controls emerged or floating weeds, but does not control submerged weeds or algae

## Timing

**Emergent Weeds**

Spray when the weeds are actively growing with a full emergence of green leaf at the flowering and up to die-back stage. For the control of watercress, the best results are from June applications. Bulrush from late July applications and for all the remaining species from mid-August to mid-September.

Leaf symptoms on the weeds begin with a grey/greening and then yellowing of the foliage usually appearing within 14-21 days of spraying in the early Autumn. Complete foliage desiccation usually occurs 30-40 days after spraying. At this stage the weeds can be cut and removed. During cold conditions leaf symptoms may not appear before natural die-back but no growth will occur in the season following spraying.

**Floating Weeds**

Spray when there is a maximum emergence of floating leaves. For the control of Water Lilies, the best results are obtained from applications made from mid-July to mid-August. From 7-21 days after spraying the foliage turns yellow, gradually disintegrates and sinks below the surface of the water. A few leaves may remain green until the end of the season but do not regrow in the following year.

Adjuvants must not normally be used with Roundup Pro Biactive in aquatic areas, but for floating weeds where wash-off can be a potential problem the addition of 475 ml TopFilm®, (a natural biosponge called Biocar® made from maize) may improve control of species where herbicide wash-off is a problem, e.g. *Hydrocotyle ranunculoides* (Floating Pennywort), *Myriophyllum aquaticum*, (Parrot's Feather), *Potamogeton natans*, (Broad leaved pondweed), reeds and rushes, *Nymphoides peltata* (Fringed water lily). TopFilm® is an approved adjuvant for use in water. See http://www.water-land.co.uk/Topfilm.htm

# Aquatic Weed Control with Roundup Pro Biactive

## Planning a Weed Control Programme

Weeds are sometimes defined as plants growing where they are not wanted. Water plants are usually wanted, and become weeds only when their growth is excessive.

Before taking action, the manager should define the objectives of weed control, consider the consequences, and choose the most appropriate method.

Inappropriate weed control, whether chemical or mechanical, can harm the environment, leading to: poor species diversity; changes in the pattern of silt deposition; de-oxygenation of the water; and poisonous weeds becoming more palatable to grazing animals. It can also let in invasive weeds which are more difficult and expensive to control.

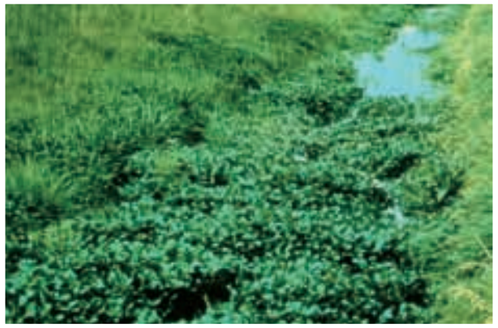
Guidance on managing aquatic vegetation with particular reference to wildlife is available from English Nature, Scottish Natural Heritage and the Countryside Council for Wales.

## Rates of Use

Roundup Pro Biactive herbicide MAY BE USED for the control of aquatic weeds in the presence of fish if used in strict accordance with the recommendations in this section.

| Target Weeds | Roundup Pro Biactive | Volume of Water for hydraulic sprayers |
|---|---|---|
| Emergent Weeds | 5.0 l/ha | 200 - 400 optimum 250 |
| Floating Weeds | 6.0 l/ha | 100 - 200 |

For further details on sprayers and water volumes see page 15.



**Emergent Weeds include:**
**Bulrush, Common Reed, Creeping Bent, Reed Canary Grass, Reed Sweet Grass, Sedges, Soft Rush, Watercress, Whorlgrass**

**Floating Weeds include:**
**White Water Lily, Yellow Water Lily**

## Application

Any knapsack sprayer, tractor-mounted or boat mounted sprayer may be used provided it is capable of applying the appropriate spray volume accurately and at the correct pressure, to achieve a 'medium' or 'coarse' quality spray, (BCPC definition).

Avoid high water volumes which may lead to run-off and loss of chemical.

Applications made in flowing water should be sprayed against the direction of flow.

Roundup Pro Biactive must be applied as a directed spray to green, actively growing weeds and drift must be avoided.

Applications must be made before the leaves of the weeds have started to die back.

Hand-held weedwipers may be used to apply Roundup Pro Biactive directly to weeds, using a concentration of 1 part of Roundup Pro Biactive to 2 parts of clean water.

When operating in or near water, it can be difficult to get the spray nozzle over weeds growing at a distance from the bank. Consider using a telescopic hand-held lance which extends to give a spray range of up to 5 metres. These lances are also useful for spraying tall bankside weeds such as Giant Hogweed and Japanese Knotweed.

All spray equipment should be checked and cleaned thoroughly before and after use, and should be calibrated regularly.

With a boat-mounted sprayer, use the slowest forward speed to cause minimum disturbance to the leaves of the weeds. When disturbed by the wash, water lilies may require retreatment.



# Difficult Weeds

**Some weeds have a reputation for being difficult, often because they have extensive root systems like Japanese Knotweed or Bracken, or very waxy leaves like Rhododendron. Roundup Pro Biactive, because of the effect of its double wetter system, which enhances leaf penetration and translocation, is effective against almost every weed. It is important that the product is applied at the correct dose and in the correct way.**

The following advice will help you to achieve effective control.

## Japanese Knotweed
(Fallopia japonica)

Japanese Knotweed was introduced to the UK in 1825. As with many such exotics it was widely planted as a garden ornamental but even by 1905 the invasive nature of the plant was becoming clear. Quite rightly, Japanese Knotweed is regarded as the most invasive plant in Britain and is scheduled under the 1981 Wildlife and Countryside Act such that it is an offence to plant or cause it to grow in the wild. Further to that legislation, under the Environment Protection Act (1990) Japanese Knotweed is classified as 'controlled waste' and must be disposed of at a licensed landfill site in accordance with the Environment Protection Act (Duty of Care) Regulations 1991. Spread is via fragments of roots and stem, (often referred to as propagules), which are transported from the original parent plant either naturally, along rivers and watercourses, or with human assistance, as plant material or as fragments in soil. Pieces of rhizome as small as 1cm can produce new plants and the cut green stems readily regenerate too. Japanese Knotweed can colonise most habitats and is able to grow through walls, tarmac and concrete, but it has become infamous mainly due to spread along watercourses.

This weed establishes dense tall stands and it can be difficult to achieve even product coverage. Treatment from the end of flowering but before die-back gives the best control, usually September to the end of October. Special equipment can be invaluable in providing the reach needed to cover the plants. Extending lances which can stretch to 15-20 m, fed by either a pump action or compressable knapsack make it easier to achieve accurate product application. Where it is impossible to spray at flowering Roundup Pro Biactive can be used as part of an eradication programme when the stems are a minimum of 1m and preferably 1.5m high in early summer. Whatever the timing, use a rate of 5l/ha with a medium spray quality and ensure good coverage of the upper and lower leaf surface.

Japanese Knotweed can also be treated via the National Trust stem filling technique and with suitable direct stem injection equipment. For more details contact the Helpline on 01954 717575

# Difficult Weeds

## Giant Hogweed
(Heracleum mantegazzianum).

This weed can rapidly colonise river banks. Its height makes it difficult to spray and its sap contains a dangerous chemical which can cause serious burns espcially in strong sunlight. 5 l/ha sprayed just after flowering is very effective. The use of expanding lances can help reach tall and inaccessible plants. Choose nozzles which provide a medium to coarse spray. Do not spray to run off. Alternatively use a specialised injection tool to inject 2mls per stem which minimises damage to surrounding vegetation. Follow up is necessary to treat seedlings and avoid colonisation. This can be done at the roseete stage using a narrow band nozzle.

## Himalayan Balsam
(Impatiens glandulifera).

Another bankside coloniser, this annual weed is easily controlled just after flowering with an application rate of 3-5 l/ha. Spray before seeds set as teh weed spreeds via a large number of explosive seed pods.

## Dandelion and other compositae.

These weeds should be sprayed once the rosette is fully developed at 5 l/ha.

## Horsetail
(Equisetum Arvense)

This weed is very hard to control. Foliar applications made before July are ineffective. Spraying at 5 l/ha after July will control the top growth. Weedwiping or stem injection methods can be successful, see detailed notes available from the Technical Helpline on (01954) 717575 or download from www.mondanto-ag.co.uk

## Common nettle
(Urtica dioica).

Best treated just after flowering at 5 l/ha. Well established stands can be strimmed down in autumn then sprayed in spring once top growth has reached half a metre.



## Common Ragwort
(Senecio jacobaea)

The yellow, daisy-like flowers are seen everywhere in the UK on waste ground, on neglected and overgrazed pastures, in gardens, and on railway and motorway embankments. The primary source of contamination is seed spread on the wind from uncontrolled plants on neighbouring land. Ragwort is poisonous to cattle and horses as a growing plant, when conserved in hay or silage, or when dying after cutting or spraying. Landowners have a legal obligation to control Common Ragwort and prevent its spread under the Weeds Act, 1959. This Act was amended in 2003 to enforce adherence to the new Ragwort Code of Practice. This Code requires owners and land managers to set up Ragwort Control policies.

Once established the Ragwort is naturally a biennial plant forming a rosette of leaves close to the ground in its first year, running to seed the following June-October and then dying. However, cutting or incomplete pulling can cause the perennation of the plant such that it branches and becomes enlarged. Seed production is prolific and plants cut in flower will still produce viable seed.

Roundup Pro Biactive may be used to effectively control and eradicate Ragwort as a spot treatment with a carefully directed knapsack sprayer fitted with a sprayer hood or guard.

## Rate

Use Roundup Pro Biactive at a rate of 5.0 l/ha in 150 -250 l/ha water.

Apply from when they have produced a flowering stem but before seeds are set. Plants in the first year rosette stage may also be spot treated but they may be hard to spot amongst taller grasses.

Ragwort can also be controlled using a hand-held or tractor/quad bike-trailed weed wiper to allow selective control of taller plants in grass or turf. Application is typically 1 part Roundup Pro Biactive to 10-20 parts water, according to weed-wiper manufacturer's instructions.

Or spray overall as part of a reseeding operation to establish a new grass sward.

Herbicide-treated plants often become more palatable as they die back and as Ragwort is poisonous dying plants must be removed from the field or stock excluded until the plants have completely degenerated. This takes at least 4 weeks. Ragwort plants can be cut or pulled 5 days after spraying, allowing grazing to recommence. Any remaining roots will die off. Always wear gloves when handling plants, even when they are dead.

# Difficult Weeds

## Bracken
(Pteridium aquilinum)

Bracken, Pteridium aquilinum, is widely distributed throughout the UK being by far the commonest fern. Today bracken in the UK covers over 8% of the country, an area of 11,000 sq.km and is spreading at 1-3% per year. Bracken spores are carcinogenic, the plant harbours ticks which infect all livestock including humans and spread Louping 111 as well as the more serious Lyme disease.

## Rate

Overall spraying is appropriate for large areas and thick stands. Apply at a rate of 5.0 l/ha in a water rate of 150-250 l/ha as soon as the fronds have fully expanded, usually early July-August. Treated fronds will die back within four weeks of treatment, the Roundup Pro Biactive being translocated down into the rhizome network killing both frond forming and storage rhizomes.

Large areas, especially scattered populations or patches in grassland, moorland or heathland, may be effectively controlled using tractor/quad bike-trailed weed wiper.

Trailed rotary weed wipers, such as the Logic Contact 2000, or pressure pad weed wipers like the Micron WeedSwiper or C-Dax Eliminator make efficient selective application of Roundup Pro Biactive, possible over large areas. Application is typically 1 part Roundup Pro Biactive to 10-20 parts water, according to the weedwiper manufacturer's instructions.

The Bracken should be 'wiped' at full frond expansion but before they start to turn brown and die back. Optimum control is achieved during July/August. Later timing up to mid-Sept can still give satisfactory results but must be pre-senescence of the foliage. Do not treat when the fronds are wet or rain is imminent. Always ensure a height differential of 10cm between the bracken and the grass to maintain selectivity.

The best levels of control are seen where Roundup Pro Biactive is used as part of a long-term management programme with 2-3 treatments over a period of up to 5 years.

If the Bracken is being controlled in an area accessible to livestock the animals should be kept away from the treated area whilst spraying and for 7 days where spraying is overall, and until the spray has dried on the leaf where spot treatment or wiping is carried out. However, it must be noted that treated bracken may become palatable and is of course poisonous. So it may be prudent to exclude stock until the foliage has completely died down if the bracken takes up a large proportion of the available grazing area.



## Ground Elder
(Aegopodium podagraria)

Ground Elder is a common weed of disturbed ground, gardens and flowerbeds. It is deep rooted, tough and persistent and a planned programme of treatment is required.

Roundup Pro Biactive should first be applied when the weed is about to flower in late May, using a rate of 5.0 l/ha. Applications before this time will kill off the top growth but it will rapidly regrow.

Regrowth is possible in the autumn or in the following season, and this should be sprayed when there is a good emergence of green leaf and shoots (30-40cm tall), at a rate of 5.0 l/ha.

On waste ground and in amenity situations the addition of Mixture B NF at 2% of the spray solution will aid leaf wetting and uptake into the Ground Elder leaves and shoots.

As this weed frequently occurs among desirable plant species the spray lance should be fitted with a sprayer hood or guard when working close to shrubs and cultivated plants. Alternatively applications may be made using a hand-held weed wiper. The rate of application is 1 part Roundup Pro Biactive to 2 parts of water.

| Problem | Dose Rate | Application tips |
|---|---|---|
| Ground Elder (overall spray) | 5 l/ha, or in waste ground & amenity situations 5 l/ha + Mixture B NF @ 2% spray volume | Allow to fully grow and spray as weed is about to flower, typically May. Spray any regrowth at 5 l/ha. Use a sprayer hood. |
| Ground Elder (hand-held weed wiper) | 1 part Roundup Pro Biactive in 2 parts water | Useful method when working amongst desirable plants & shrubs. |

**Monsanto produce more detailed briefing notes on the following weeds:**

- Rhododendron
- Giant Hogweed
- Japanese Knotweed
- Himalayan Balsam
- Nettles
- Ground Elder
- Common Ragwort
- Bracken
- Horsetail
- Tough Herbaceous & Woody Weeds.
- Bamboo
- Bindweed
- Duckweed
- Hemlock Water Dropwort
- Ivy
- Thistles

Please telephone the Helpline on 01954 717575 to request or download from www.monsanto-ag.co.uk

# COSHH Safety Assessment Roundup Pro Biactive

## INTRODUCTION:

The Control of Substances Hazardous to Health Regulations, (COSHH),2004 come under the Health and Safety at work Act 1974 and as such give a legal duty to anyone working with hazardous substances to evaluate the risk to health and to eliminate or adequately control such risks.

**HAZARD – The intrinsic potential of a substance to cause harm.**

**RISK - The likelihood of harm being caused in the actual circumstances of use.**

Many pesticides are classed as hazardous and so a COSHH assessment should always be carried out. In gaining Approval under FEPA from the Pesticide Safety Directorate the hazards of a pesticide are evaluated and appear on the label, but it is the way the product is used which determines the risk involved and is the reason why each use needs a separate assessment.

*Roundup Pro Biactive has no hazard rating, but its use must still be evaluated under COSHH.*

*You should always choose the safest product available.*

*By carrying out a COSHH assessment you demonstrate you have thought through fully the safety aspects of your weed control operations. You must know why you have chosen Roundup Pro Biactive rather than any other method of weed control.*

The following information about Roundup Pro Biactive will help in conducting a COSHH assessment. Monsanto recommend the Crop Protection Association Plain Man's guide to COSHH (CPA,1989) to work through the process. Once written it will only need to be repeated if circumstances change, however it must be reviewed at least every 5 years and preferably annually. More details are included in the Code of Practice for using Plant Protection Products.

## PRODUCT DETAILS

480g/l Isopropylamine salt of N-( Phosphonomethyl), glycine = (Isopropylamine salt of glyphosate),

| | |
|---|---|
| **Containing 360g/l of glyphosate** | **41% w/w** |
| **Surfactants** | **16** |
| **Water** | **43%** |

CAS No. 3841-94-0 EINECS No 254-056-8
MAPP number 10330

## PRODUCT TOXICITY KEY FACTS

A Full Material Safety Data Sheet is available from your distributor or from Monsanto.

## SUMMARY

**Hazard Rating** - None

**Acute Oral Toxicity:**

World Health Organisation (WHO) toxicity rating – not classified. Roundup Pro Biactive is practically non-harmful by ingestion.

**Acute Dermal Toxicity:**

World Health Organisation (WHO) toxicity rating – not classified. Roundup Pro Biactive is practically non-harmful by skin absorbtion.

**Acute Inhalation:**

No risk in normal use situations.

**Sensitisation:**

No sensitising potential. i.e. No allergic reaction.

## OCCUPATIONAL EXPOSURE STANDARD

Roundup Pro Biactive is non-hazardous, there is no OES and no specified need to monitor the health of users of Roundup Pro Biactive herbicide.

## CHRONIC TOXICITY: ACTIVE INGREDIENT – GLYPHOSATE

The results of longer term studies which assess the risk of long term low dose exposure, show that glyphosate is:

**NOT MUTAGENIC**
**NOT CARCINOGENIC**
**NOT TERATOGENIC**
**NO REPRODUCTIVE EFFECTS**
**NOT A CHOLINESTERASE INHIBITOR**

The data from extensive studies confirm that if used according to the label instructions, Roundup Pro Biactive does not constitute a hazard to human health.



# Practical Guidance to Avoid Exposure

**Try not to walk through the spray swath during application or through treated vegetation.**

## PERSONAL PROTECTIVE EQUIPMENT

1. **BEST PRACTICE IS TO WEAR THE FOLLOWING MINIMUM PERSONAL PROTECTIVE EQUIPMENT WHEN HANDLING THE CONCENTRATE AND SPRAYING USING CONVENTIONAL SPRAYERS.**

   Protective coverall ( e.g. Tyvek disposable overall)
   Rubber Gloves
   Rubber boots

2. **IN ADDITION TO 1. WHEN USING THE STEM INJECTION TECHNIQUE**

   Face protection (Face shield)

## DISPOSAL OF PESTICIDE WASTE

### STORAGE OF UNUSED CONCENTRATE

Unused product should be stored only in the original container. It will keep for several years in a suitable chemical store.

### UNUSED DILUTED SPRAY

Ideally plan not to have any left over, or use later in making the next batch of diluted spray.

Once diluted the active ingredient will start to break down and lose activity within a few days.

Surplus spray should be sprayed out onto an untreated area where it will have a beneficial herbicidal effect, but not on Tarmac or concrete.

### EMPTY CONTAINERS

Triple rinsed empty cans of Roundup Pro Biactive are classed as non-hazardous waste. They should be stored safely until transferred to someone authorised to handle waste. A more detailed sheet on disposal is available from the Technical Helpline on (01954) 717575 or downloaded from www.monsanto-ag.co.uk

## IN CASE OF SPILL OR ACCIDENT

**First Aid:**

**Skin;** Wash with water

**Contaminated clothing;** Remove and wash before reuse.

**Eye contact;** Rinse with plenty of potable water/sterile eye wash solution.

Wearing gloves and a coverall, wash away small spills with plenty of water. For larger spills surround the area with sufficient absorbent, non-combustible material such as sand bags to prevent entry into drains. Then sweep or shovel into suitable Aluminium, plastic, plastic-lined steel, stainless steel or fibreglass containers, label and seal. Containers should be collected by an appropriately authorised /licensed specialist waste disposal operator.

## FURTHER INFORMATION

### INCIDENT REPORTING:

Any incident involving humans or pets should be investigated as soon as possible.

Telephone 01954 717575 during office hours or the National Chemical Emergency Centre,

01865 407333 at other times.

## PUBLIC INFORMATION

Monsanto produce a Public Information Guide, to show concerned members of the public as well as a poster which reassures the public that the spraying being carried out is very safe. Please telephone 01954 717575 to order.

# How to answer queries about safety from members of the public

**When people see spraying being carried out by men in protective suits they can sometimes believe the product must be harmful to the environment, by law anyone applying pesticides, however safe, has to wear minimum prescribed protective clothing. This does not mean there is a danger from the operation. Here is a typical question asked of operators and contractors together with Monsanto's reply. This can be used as a basis for answering such queries in conjunction with the public information leaflet.**

## Q

*The council have sprayed streets all around my house. Aren't pesticides are harmful and dangerous for the environment? If you spray the pavements and roads surely it will damage wildlife and get into the water? Why can't you use non-chemical methods to keep the streets clean?*

## A

Your council has chosen Roundup Pro Biactive for its favourable environmental characteristics, these along with the effectiveness of Roundup herbicide, have combined to make it one of the most widely used and trusted herbicides in the world for more than 30 years.

Glyphosate, the active ingredient in Roundup Pro Biactive, controls weeds by blocking the plant's protein production system. It stops the production of an enzyme, which is present in most plants but not in humans, animals, fish or insects. Glyphosate is not absorbed to any extent through skin and even when treated foliage is ingested by animals the glyphosate passes through the digestive system un-metabolised. Indeed Roundup-treated grass has full registration to be made into silage and fed to cattle, sheep etc.

Glyphosate degrades in the environment and does not accumulate. When used according to approved uses, it has no negative effects on wildlife.

Roundup Pro Biactive is so safe to aquatic life that it has been approved for use in aquatic areas to control weeds that invade and can even block watercourses.

Mechanical methods of weed control such as the use of strimmers need to be carried out 2-3 times more often because they are not as effective at killing weed roots. This means councils bills could cost up to 20 times more per season for mechanical methods compared to a Roundup Pro Biactive programme. There are other reasons too – such as the devastating effect of strimming on all other fauna in treated areas, not to mention the danger to the public and operators from flying debris and the increased carbon footprint from petrol engines.

Monsanto are committed to minimising the environmental impact of herbicide treatments as well as maximising their effect on killing target weeds.




# Support Services

**Monsanto recommendations are made with 35 years of technical experience, we guarantee to manufacture a consistent formulation and give excellent after-sales support.**

**As part of our after-sales support we have additional support material available on request.**

- **Public Information Cards – a pocket sized card for operatives to use with the general public when explaining about Roundup Pro Biactive (also available as an A4 flyer)**
- **Spray Notification Poster – for use in areas prior to spraying**
- **Fact Sheets on – Paddock care, Calibration of knapsack sprayer, COSHH notes, Dilution chart, Weedwipers, Disposal, Stump Treatment**
- **Regulatory Items – Environmental Impact Assessment, Spray record form, COSHH record form**
- **Briefing Notes on – Rhododendron, Giant Hogweed, Japanese Knotweed, Himilayan Balsam, Nettles, Ground Elder, Common Ragwort, Bracken, Horsetail, Tough Herbaceous & Woody Weeds, Bamboo, Bindweed, Duckweed, Hemlock Water Dropwort, Ivy, Thistles**

## Advantages of Roundup Pro Biactive

- **Unique Biactive formulation gets more glyphosate into the plant**
- **Highest levels of performance and safety**
- **Superior long term control of difficult perennial weeds**
- **Hazard free label - safer for the operator, public and pets**
- **Biodegrades in soil and water**
- **Excellent rainfastness - make the most of those precious weather windows**

**For any technical queries contact our Technical Helpline on 01954 717575**

**or email: technical.helpline.uk@monsanto.com**

**web: www.monsanto-ag.co.uk**

**includes free downloads of literature, various Fact Sheets and other relevant information.**

**Monsanto UK Ltd. PO Box 663, Cambourne, Cambridge CB1 0LD.**
**Facsimile: 01954 717579**

Roundup® PRO BIACTIVE®
Herbicide by Monsanto

- Unique Biactive formulation gets more glyphosate into the plant
- Highest levels of performance and safety
- Superior long term control of difficult perennial weeds
- Hazard free label - safer for the operator, public and pets
- Degraded by micro organisms or microbes in the soil and water
- Excellent rainfastness - make the most of those precious weather windows

MONSANTO imagine™

RPB450 - 0311PIG