



**Roundup**<sup>®</sup>



**ENERGY**<sup>™</sup>

**Quick guide to weed control**



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## 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 10.

### Grassland rate

Situation	Roundup Energy rate l/ha	Application timing and guidance
Short rotation Rye-grass	2.4	Treat either before grazing/mowing with 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.
Leys 2–4 years old with perennial grass weeds	3.2	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.
Long leys 4–7 years old with perennial broad-leaved weeds	4.0	Select the application rate which controls/destroys the least susceptible weed and grass species present in the sward from the grassland species table.
Permanent pasture	4.8	Treated grass can be utilised as normal for grazing or conservation. 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.

## Grassland species

Roundup Energy rate l/ha	Grassland weed species		
2.4	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
3.2	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
4.0	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
4.8	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

<b>Application details</b>	Water volume Droplet size (BCPC definition)	<b>150–250/ha</b> <b>Medium–coarse</b>
<b>Grazing/Cultivation intervals</b>	Annuals Perennials	<b>6 hours</b> <b>5 days</b>
<b>Rainfastness</b>	Annuals (lower figure relates to grasses and seedling blw)	<b>1–4 hours</b>
	Perennials – Common Couch – Other perennials	<b>1 hour</b> <b>4 hours</b>

#### 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 and application guidance

	Roundup Energy rate l/ha
<b>Harvest management – cereals:</b> Crop stems, leaves and annual grasses, Above annual broad-leaved weeds – <b>Standard rate</b>	<b>0.8</b> <b>1.2</b>
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	<b>2.4</b>
High weed density	<b>2.4</b>
<b>Desiccation – oilseed rape, mustard and linseed:</b> Desiccation plus control of annual weeds and medium levels of Common Couch	<b>2.4</b>
<b>Weed control – peas and beans:</b> (Unsuitable for crop desiccation) Control of annual weeds and low-medium levels of Common Couch	<b>2.4</b>
<b>Weed control – Common Couch:</b> Low levels of Common Couch (<25 shoots/m <sup>2</sup> ), cereals only	<b>1.6</b>
Medium levels of Common Couch (26–75 shoots/m <sup>2</sup> )	<b>2.4</b>
High levels of Common Couch (>75 shoots/m <sup>2</sup> )	<b>3.2</b>
<b>Other perennials in all crops:</b> Perennial broad-leaved weeds, other perennial grasses	<b>3.2</b>

### Pre-harvest application guidance

<b>Application details</b>	Water volume oilseed rape All other crops Droplet size (BCPC definition)	<b>200-250l/ha</b> <b>80-250l/ha</b> <b>Medium-coarse</b>
<b>Harvest intervals</b>	Cereals, peas, beans Oilseed rape Linseed Mustard	<b>7+ days</b> <b>14-28 days</b> <b>14-21 days</b> <b>8-10 days</b>
<b>Rainfastness</b>	Annuals (lower figure relates to grasses and seedling blw)	<b>1-4 hours</b>
	Perennials – Common Couch – Other perennials	<b>1 hour</b> <b>4 hours</b>
<b>Timing</b>	Grain/seed moisture 30% or less (see page 7 and 8)	

## Timing – cereals



### The penduncle test

When the penduncle, situated at the top of the stalk, immediately below the ear, starts to lose its green 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.

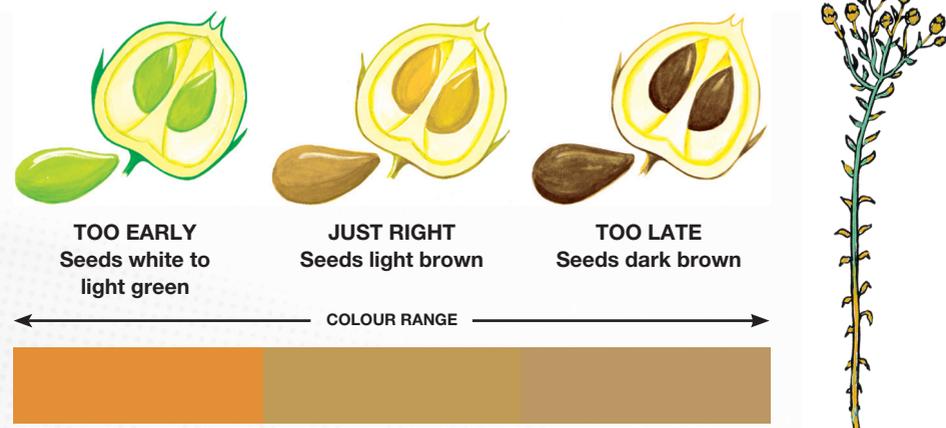
## Timing – oilseed rape



1. Select an area of the crop which is representative of the field as a whole. This may be pods in the middle of the main raceme or on the side branches depending on the canopy. Pick, at random, a total of 20 pods from the middle of the main raceme.
2. Open each pod. If a colour change from green to brown is seen in at least two thirds\* of the seeds per pod in at least 15 of the pods picked, the earliest correct stage for spraying has been reached.
3. Repeat the procedure in other areas of the crop to check that the assessment is applicable to the entire field. Spray within 4 days, unless the weather is very cool, then the window can be extended to 7 days.
4. An interval of 14–21 days is necessary before combine harvesting.

\* If approximately half of the seeds are turning brown, the crop should be ready to spray in 3 days, but repeat the procedure to check that the correct stage has been reached. N.B. Spraying too early will lead to poor desiccation.

## Timing – Linseed



- 1) Linseed grown for oil production should be desiccated at the brown capsule stage. Seeds are light brown and rubbery, lower leaves are withered but the upper leaves and stem are still green/yellow.
- 2) Confirm by sampling 40 seeds from four representative points in the field and at least 24 should be in the mid range.
- 3) An interval of 21-28 days is necessary before combine harvesting.

## 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 Energy application rate l/ha
<b>Annual grasses:</b> Volunteer cereals, annual grasses, Black-grass, Bromes, Meadow grasses, Wild-oats	Spray prior to stem elongation	1.2
<b>Perennial grasses</b> Scutch 1-75 shoots/m <sup>2</sup> Scutch >75 shoots/m <sup>2</sup> Other Perennial grasses	Minimum of 10-15cm of new growth	2.4 3.2 3.2
<b>Most annual broad-leaved species:</b> Charlock, Cleavers, Common Chickweed, Common Fumitory, Common Orache, Common Poppy, Dead Nettles, Fat-hen	Up to 15cm	1.2
Forget-me-not, Field Pansy, Groundsel, Mayweeds, Parsley Piert, Shepherd's Purse, Speedwells	Greater than 15cm	1.6
<b>'Tough' annual broad-leaved species:</b> Black Bindweed, Knotgrass, Pale Persicaria, Redshank, Small Nettle	Up to 2 true leaves 3 true leaves to 15cm Greater than 15cm	1.2 1.6 2.4
Volunteer oilseed rape	Up to 6 true leaves Greater than 6 true leaves	1.2 2.4
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.	2.4
<b>All perennial broad-leaved weeds</b> Including volunteer potatoes (autumn only)		4.0
<b>Post sowing but Pre-emergence of crop</b> Cereals, oilseed rape, mustard, linseed, peas, field beans, sugar beet, turnip, onion & leek	Tank mix as appropriate	1.2

## Stubbles and Cultivated land application guidance

<b>Application details</b>	Water volume Droplet size (BCPC definition)	80-250l/ha Medium-coarse
<b>Cultivation intervals</b>	Annuals Common Couch Other perennials	6 hours 2 days 5 days
<b>Rainfastness</b>	Annuals (lower figure relates to grasses and seedling blw)	1-4 hours
	Perennials – Common Couch – Other perennials	1 hour 4 hours

## 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 of 4l/ha.

## Tank mixes physically compatible with Roundup Energy

Physically compatible, keep agitation running	Compatible only with continuous agitation	Physically Incompatible
Absolute, Afalon 450**, Artist, Banastar, Banastar +Centium*, Burex 430 Blazer, Butisan S, Centium, Chikara*, Crystal +Defy, Crystal +Hurricane, devrinol, Devrinol+ Centium Crystal (Ice/Trooper), Crystal + Blazer, Crystal + Stomp, Crystal + Stomp 400, Duplosan KV*, Fiesta T, Firebird, Flight/Orient, Gamit, Hurricane SC, Kerb Flowable, Legion, Lexus, Lexus + Crystal, Lexus + Liberator, Lexus +Stomp, Liberator, Liberator + Hurricane, Liberator + Defy, Lingo/Linzone, Liberator + Stomp, Linuron 500, MCPA*, Mesh, Metric, Most Micro CS, Microbor, Newtron, Nimbus, Novall, Omex suspension fertiliser, Orient, PDM330, PicoPro/Galivor, Podium, Quirinus, Ralos, Sencorex Flowable, Sencorex WG, Shark* Pyramin DF, Stomp Aqua, Stomp 400, Springbok, Springbok +Centium, Sumimax, Sunfire, Sunfire+ Defy, Sunfire + Hurricane, Tanaris/TopKat, Tanaris/TopKat + Centium, Venzar Flowable Volcan Combi	Cadou, Defy, Defy + Stomp 400, Katamaran Turbo, Katamaran turbo +Butisan S, Katamaran Turbo +Centium, Goltix Flowable, Nimbus CS, Nirvana, Nirvana + Centium, Stomp 400, Takron, Takron + Goltix Flowable, Vigon, Vigon+ Defy, Vigon + PicoPro/Galivor	Bacara, Butisan S + Centium, Goltix WG, Graduate, Kula, Kula +Vigon, Liquid Fertiliser, Magnum, Oryx, Skirmish, Stomp 400 + Centium

\*Antagonism when used at high rate \*\* Add tank mix partner to the tank first

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 1,000m<sup>2</sup> 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;** 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:** 1:1.5 dilution with water or 1:3 in hot dry conditions
- **New generation types** e.g. rotary, carpet, brush or pressure pads: 1:12 to 1:25 dilution

## Crop specific information

Roundup Energy contains 450g/l of glyphosate. MAPP Number 12945

**Compliance with the following conditions of use is a legal requirement**

Crop or situation:	Maximum individual dose (litres/ha):	Maximum total dose (litres of product/ha/crop or situation/annum):	Latest time of application:
Winter wheat, winter barley, winter oats, spring wheat, spring barley, spring oats, durum wheat, combining pea, field bean	3.2	3.2	7 days before harvest
Post planting and pre-emergence of listed cereals, oilseed rape, combining peas, vining peas, field bean, mustard, linseed, S. beet, swede, turnip, bulb onion and leek	1.2	1.2	Pre-emergence
Oilseed rape and linseed	3.2	3.2	14 days before harvest
Mustard	3.2	3.2	8 days before harvest
All edible crops (stubble), all non-edible crops (stubble)	4.0 or 1.2	4.0  3.2	5 days before drilling or planting the following crop.  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)	4.0	–	–
Grassland	4.8	4.8	5 days before harvest, grazing or drilling
Apple and pear orchards	4.0	4.0	After harvest but before green cluster stage
Cherry, plum and damson orchards	4.0	4.0	After harvest (post leaf fall) but before white bud stage
Green cover on land not being used for crop production	4.8	4.8	24 hours before cultivating

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 1.2l/ha after planting but before emergence, another maximum of 3.2l/ha before harvest and up to a further 4l/ha in the autumn on the stubble.

## Conditioning Hard Water

The activity of glyphosate can be reduced in hard water areas where dissolved Calcium, Magnesium and other cations bind with the glyphosate. Where a water quality issue is diagnosed the problem can be overcome by the addition of a proprietary water conditioner.



# Roundup<sup>®</sup>

## ENERGY<sup>™</sup>

### Sum up

- Fast uptake and symptoms
- High levels of long-term weed control
- Excellent consistency in a wider range of weather conditions
- Rainfast in just 1 hour on annuals and Common Couch
- Turnaround in 6 hours for annuals and 2 days for Common Couch
- No hazard symbols – Less risk for the operator and the environment
- Powerful formulation with 25% more glyphosate per litre
- Less packaging, handling and waste than 360 formulations
- Packed in easy-pour, 'anti-glug' containers

### Back up

For further information contact the Monsanto Technical Helpline on 01954 717575  
e-mail [technical.helpline.uk@monsanto.com](mailto:technical.helpline.uk@monsanto.com) or visit our website at [www.monsanto-ag.co.uk](http://www.monsanto-ag.co.uk)

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