LIAISON

Ⓗ – Herbicide

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

For use pre-emergence and pre-harvest in cereals and certain other crops, for destruction of grassland, and use in stubbles and orchards, and non-crop areas.

For control of emerged weeds in amenity and forestry situations.

Degraded by micro-organisms/microbes in the soil.

A soluble concentrate containing 360 g/L glyphosate, present as 441g/L (35.3% w/w) of the potassium salt of glyphosate

GROUP 9 HERBICIDE

MAPP Number 21199

Liaison

UFI: KPF1-E0Y7-K009-RH2Q

Contains 360 g/L glyphosate, present as 441 g/L (35.3% w/w) of the potassium salt of glyphosate.

WARNING

Causes serious eye irritation.
Toxic to aquatic life with long lasting effects.
Wash hands thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/ face protection.
Keep only in original container.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.
To avoid risks to human health and the environment, comply with the instructions for use.

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

CONTENTS:

20Litres

PROTECT FROM FROST

GB, 20L, F, 067F, 30473748b rA3

DIRECTIONS FOR USE

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

Warnings

EXTREME CARE SHOULD BE TAKEN TO AVOID SPRAY DRIFT AS THIS CAN SEVERELY DAMAGE NEIGHBOURING CROPS OR PLANTS.

DO NOT MIX, STORE OR APPLY LIAISON IN GALVANISED OR UNLINED STEEL CONTAINERS OR SPRAY TANKS.

DO NOT leave spray mixtures in tank for long periods and make sure tanks are WELL VENTED.

Restrictions

A period of at least 6 hours and preferably 24 hours rain-free must follow application of LIAISON.

Do not spray onto weeds which are naturally senescent, or where growth is impaired by drought, high temperatures, a covering of dust, flooding or frost at, or immediately after application, otherwise poor control may result.

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

After application, large concentrations of decaying foliage, stolons, roots or rhizomes should be dispersed or buried by thorough cultivation before crop drilling. Applications of lime, fertiliser, farmyard manure and pesticides should be delayed until 5 days after application of LIAISON.

TREATED POISONOUS PLANT SPECIES MUST BE REMOVED BEFORE GRAZING OR CONSERVING. Where Ragwort is present users should consult the Code of Practice on How to Prevent the Spread of Ragwort. Ragwort plants sprayed with this herbicide are more palatable and contain higher levels of toxins. Animals should be excluded from treated areas until any Ragwort has completely recovered or died and there is no visible sign of the dead weed. Do not include treated Ragwort in hay or silage crops.

Weeds controlled

LIAISON is a foliar acting herbicide which controls annual and perennial grasses and most broad-leaved weeds when used as directed. It is important that all weeds are at the correct growth stage when treated, otherwise some re-growth may occur and this will need re-treatment

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

- PERENNIAL GRASSES must have full emergence of healthy, green leaf. (Common Couch, for example, becomes susceptible at the onset of tillering and new rhizome growth commences which usually occurs when plants have 4-5 leaves, each with 10-15 cm of new growth).
- PERENNIAL BROAD-LEAVED WEEDS are most susceptible around the flowering stage.
- ANNUAL GRASSES AND BROAD-LEAVED WEEDS should have at least 5 cm of leaf, or 2 expanded true leaves, respectively. In set-aside, annual grasses are best treated at full ear emergence, or before stem elongation. Application during stem extension phase of annual grasses e.g. Black-grass and Brome species on set-aside between the end of April and end of May, may result in poor control and require re-treatment.
- BRACKEN should be treated after frond tips are unfurled, but pre- senescence.
- OTHER SPECIES - recommendations for specific areas of use are given in the Recommendation Tables, pages 2 – 9.
- This product will not give an acceptable level of control of Horsetails (*Equisetum arvense*) – repeat treatment will be necessary.

#Crop Specific Information

COMPLIANCE WITH THE FOLLOWING SAFETY PRECAUTIONS MARKED*

CROPS/SITUATIONS	MAXIMUM INDIVIDUAL DOSE (LITRES PRODUCT/ HECTARE):
Winter wheat, winter barley, winter oat, spring wheat, spring barley, spring oats, durum wheat, combining pea, field beans	4.0
Post planting and pre-emergence of listed cereals, oilseed rape, combining peas, vining peas, field beans, mustard, linseed, sugar beet, swede, turnip, bulb onion and leek	1.5
Oilseed rape and linseed	4.0
Pre-harvest of mustard	4.0
Stubbles (of all crops) all non-edible crops (stubble)	5.0 or 1.5
All edible and non-edible crops (destruction before sowing/planting)	5.0
Grassland	6.0
Apple and pear orchards	5.0

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perties of LIAISON are lost permitting the
ling of crops 48 hours after application.

CONDITIONS OF USE AND ALL
IS A LEGAL REQUIREMENT

MAXIMUM TOTAL DOSE (LITRES PRODUCT/ HECTARE/CROP/ ANNUM):	LATEST TIME OF APPLICATION:
4.0	7 days before harvest
1.5	Pre-emergence
4.0	14 days before harvest
4.0	8 days before harvest
5.0 or 4.0	5 days before drilling or planting of the following crop 2 days before the drilling or planting of the following crop or 24 hours before cultivating
-	-
6.0	5 days before harvest, grazing or drilling
5.0	After harvest but before green cluster stage

CROPS/SITUATIONS	MAXIMUM INDIVIDUAL DOSE (LITRES PRODUCT/ HECTARE):	MAXIMUM TOTAL DOSE (LITRES PRODUCT/ HECTARE/CROP/ ANNUM):	LATEST TIME OF APPLICATION:
Cherry, plum and damson orchards.	5.0	5.0	After harvest but before white bud stage
Green cover on land not being used for crop production	6.0	6.0	24 hours before cultivating
Non-crop including natural surfaces not intended to bear vegetation, permeable surfaces overlying soil, hard surfaces	5.0	-	-
Forest nursery, farm forest:			
• weed control	10.0	-	-
• stump application	200 ml/litre of water (20% solution of product in water	-	-
• chemical thinning (by injection)	2.0 ml per 10 cm diameter (or less) of tree	-	-

OTHER SPECIFIC RESTRICTIONS

When applying through rotary atomisers, the spray droplet spectra produced must be of a minimum Volume Median Diameter (VMD) of 200 microns.

Weed wipers may be used in any recommended crop where the wiper or chemical does not touch the growing crop.

When using weed wipers, the maximum concentrations used must not exceed the following:

(a) Weed wiper Mini 1:2 dilution with water
(b) Other Wipers 1:1 dilution with water

For stump application the maximum concentration must not exceed 200ml product (i.e. a 20% solution).

READ ALL OTHER SAFETY PRECAUTIONS AND DIRECTIONS FOR USE BEFORE USE

Application guide for hydraulic sprayers

EQUIPMENT	AMOUNT OF LIAISON	AREA TREATED	MEDIUM VOLUME AMOUNT OF WATER	LOW VOLUME AMOUNT OF WATER
Boom Sprayer	4 litres	1.0 ha	200 litres	100 litres
Knapsack Sprayer	80 ml	200 m^2	4 litres	2 litres

Mixing and spraying

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

a) Conventional Hydraulic Sprayers

Knapsack sprayers and tractor mounted or powered sprayers may be used. These should be capable of applying accurately 80-400 L/ha within a pressure range of 1.5-2.5 bars (20-35 psi).

Medium Volume Application (150–300 L/ha)
Avoid high water volumes (>300 L/ha) which may lead to run-off from the treated vegetation, resulting in reduced control. Low drift nozzles such as air induction and pre-orifice types producing a medium or coarse spray (BCPC definition) should be used to minimise the risk of drift.

e.g.	Knapsack	Hypro 1.2 – 2.4 Cooper Pegler Floodjet green, red
	Tractor	Hypro 04-F110, 08-F110 Tee Jet 11004, 11008

Low Volume Application (minimum 80 L/ha)
Low volume application can be achieved by reducing pressure and the appropriate nozzle selection. Low drift nozzles which produce a medium spray quality (BCPC definition) should be used to minimise the risk of drift:

e.g.	Knapsack	Cooper Pegler VLV 100 Hypro AN 1.0
	Tractor	Hypro AN 1.0

Filling the Sprayer

- **Knapsack:** Half fill the spray tank with clean water, add the correct amount of LIAISON and top up with water. Mix thoroughly.
- **Tractor Mounted:** To avoid foaming do not use top tank agitation. Half fill the spray tank with clean water, start gentle agitation, then add the correct amount of LIAISON. Top up the tank with water to the required level. Use of a defoamer may be necessary.

b) Rotary Atomisers – for use in orchards

When rotary atomisers are used to apply LIAISON ensure that the droplet diameter falls within the range 200-300 microns for all uses.

c) Hand-held Wipers

LIAISON may be applied through the weed wiper mini. Use a concentration of 1 part LIAISON to 2 parts of water and add a scarlet dye if required. Care should be taken to avoid dripping onto wanted vegetation.

d) Cut Stump Application

Enso attachment to rotary saws: This technique is specific to scrub clearance in forestry. A water-soluble dye may be added to LIAISON to help identify treated stumps.

HAND-HELD EQUIPMENT: SPECIFIC GUIDANCE

e) Knapsack Sprayer Applicators

When used at a walking speed of 1 m/sec to apply a swath of 1 m width, most knapsack sprayers deliver 200 L/ha spray volume (or 10 litres per 500 m^2). To apply 4.0 L/ha of LIAISON, therefore, use a 2% solution (e.g. 200 ml LIAISON made up to 10 litres).

When used as above, knapsack sprayers fitted with low volume nozzles typically deliver 100 L/ha spray volume (or 10 litres per 1000 m^2). To apply 4.0 L/ha LIAISON in this case, use a 4% solution.

Filling the sprayer – hand-held machines
Stir the correct amount of LIAISON into the sprayer half filled with clean water. Top up with water, close the top and shake gently to ensure good mixing.

f) Spot Gun Applicators – for treatment of individual weeds

Apply 5 ml of spray to target weed using narrow cone TG-3 or TG-5 nozzle.

SPOT DIAMETER (METRES)	AMOUNT OF LIAISON (ML) PER 5 LITRES OF SPRAY SOLUTION FOR TARGETED DOSAGES OF		
	3.0 L/ha	4.0 L/ha	5.0 L/ha
0.3	20	28	35
0.6	85	110	140

Compatibility
Do not tank mix Liaison with adjuvants, pesticides or fertilisers except as advised by Bayer Crop Science. For up to date information on compatible products contact Bayer Crop Science (Telephone: 01223 226500).

LIAISON is compatible with Mixture B (ADJ 0161). Where conventional hydraulic sprayers are being used Mixture B may be added to the spray tank solution, at a rate of 2% of the final water volume, for all pre-plant and post-plant directed sprays only.

DO NOT APPLY WITH MIXTURE B TO EDIBLE CROPS, OR GRASSLAND WEEDS.

Do not tank-mix LIAISON when using rotary atomiser sprayers.

For hydraulic sprayers: maintain continuous agitation when using LIAISON in tank mixture.

For knapsack sprayers: mix thoroughly and use immediately when using LIAISON in tank mixture.

COMPANY ADVISORY INFORMATION

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

General Information

LIAISON is an advanced glyphosate formulation. To maximise the safe use of LIAISON to operator, consumer and environment, the label recommendations and the DEFRA/HSC publication "Code of Practice for using Plant Protection Products, 2006" should be adhered to.

LIAISON herbicide is a foliar-acting herbicide with broad-spectrum activity. It is taken up by foliage and translocated to underground roots, rhizomes and stolons, providing control of both annual and perennial grasses and broad-leaved weeds. LIAISON is rapidly adsorbed onto particulate matter in soils and water and is quickly degraded by the micro-organisms present in soil and aquatic bottom sediments. Upon adsorption, the herbicidal properties of LIAISON are lost, permitting drilling of crops within 48 hours of application. When used as directed, any water subjected to LIAISON spray drift may be used immediately for irrigation purposes. Until degraded, the active ingredient in LIAISON, glyphosate, is practically immobile in soils and is, therefore, unlikely to contaminate groundwater.

Symptoms on the weeds

Symptoms of treatment are generally first seen 7-10 days, or longer (if growth is slow), after spraying. These take the form of leaf reddening followed by yellowing and are usually quicker to appear on grasses than on broad-leaved weeds. Reaction of nettles is slow.

Weed resistance strategy

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

There are no known cases of weed resistance to glyphosate in UK. Strains of some annual weeds (e.g. Black-grass, Wild oats and Italian Ryegrass) have developed resistance to certain herbicides which may lead to poor control using those products. A strategy for preventing and managing such resistance should be adopted. This should include integrating herbicides with a programme of cultural control measures. Guidelines have been produced by the Weed Resistance Action Group and copies are available from the HGCA, CPA, your distributor, crop adviser or product manufacturer (Bayer).

Growers are encouraged to implement an anti-weed resistance strategy based on (a) good agricultural practices and (b) good plant protection practices by:

- Following label recommendations
- The adoption of complimentary weed control practices
- Minimising the risk of spreading weed infestations
- The implementation of good spraying practice to maintain effective weed control
- Using the correct nozzles to maximise coverage
- Application only under appropriate weather conditions
- Monitoring performance and reporting any unexpected results to Bayer CropScience Ltd

General Cautions

Take extreme care to avoid drift, particularly when using near or alongside hedgerows. The use of low drift nozzles such as 'air induction' and 'pre-orifice' nozzles are recommended.

New generation weed wipers

All sprayers should always be calibrated before use. This is essential when nozzles are changed or if a different dose of product is to be applied.

Unused Spray Mixture

Once LIAISON has been diluted in the spray tank, it should be used as soon as possible. However, if unexpected delays occur the diluted spray can be safely stored. Agitate well before use. Storage for longer than 3 days may result in reduced efficacy.

Sprayer Maintenance

Ensure the sprayer is in good working order and replace damaged, worn or malfunctioning parts before use. Carry out maintenance according to the instructions of the sprayer manufacturer.

Sprayer Hygiene

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

Disposal

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

The product must only be transferred and measured using a closed transfer system that meets or exceeds British Standard BS 6356 Part 9. If any doubt exists regarding equipment suitability contact the equipment manufacturer or your agronomist for further advice.

Remove the tamper evident plastic cap from valve unit fitted to the top of the IBC. Attach the coupler of the transfer system as instructed in the equipment manual to the IBC and operate using the equipment manufacturer's instructions to transfer the required amount of product. Remove the coupling after use and rinse the equipment in line with the instructions ensuring that the transfer system is clean and empty before placing in the storage position.

The container must be empty of product and left in a clean condition for collection. Do not attempt to rinse the inside – external clean only.

Trade Mark References

LIAISON is a Registered Trademark of the Bayer group.

All other brand names referred to are trademarks of other manufacturers in which proprietary rights may exist.

SAFETY DATA SHEET

Following the instructions on this Product Label for the specified uses should ensure that the product is used safely and efficaciously for those uses.

A full Material Safety Data Sheet is available on request. Telephone 01223 226500 or download from https://cropscience.bayer.co.uk/

LIAISON

This product is a soluble concentrate containing 360 g/L glyphosate, present as 441 g/L (35.3% w.w.) of the potassium salt of glyphosate

Bayer CropScience Ltd
230 Cambridge Science Park, Milton Road, Cambridge, CB4 0WB, UK.
Telephone: 01223 226500
Website: https://cropscience.bayer.co.uk/

For 24-hour emergency information contact Bayer CropScience Ltd.
Tel: 0330 678 3382 (24 hr)

National Poisons Information Centre UK: 0344 892 0111 (medical professionals only)

National Poisons Information Centre Dublin: +353 1 809 2166

COMPLIANCE WITH THE FOLLOWING CONDITIONS OF USE AND ALL SAFETY PRECAUTIONS MARKED* IS A LEGAL REQUIREMENT

FOR PROFESSIONAL USE ONLY AS AN AGRICULTURAL/HORTICULTURAL/FORESTRY HERBICIDE

Crops/situations:
Wheat, (including Durum wheat), barley, oats, combining pea, vining pea, field bean;
Oilseed rape, mustard, linseed;
Sugar beet, swede, turnip, bulb onion, leek;
All edible crops (stubble), all non-edible crops (stubble);
All edible and non-edible crops (destruction, before sowing/planting);
Grassland;
Apple, pear; plum, cherry damson;
Green cover on land not being used for crop production;
Farm non-crop areas including natural surfaces not intended to bear vegetation, permeable surfaces overlying soil, hard surfaces;
Forest nursery, forest (weed control, stump application and chemical thinning).

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

READ ALL OTHER SAFETY PRECAUTIONS AND DIRECTIONS FOR USE BEFORE USE

SAFETY PRECAUTIONS

Operator protection

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:
WEAR SUITABLE PROTECTIVE GLOVES when handling the concentrate and when handling contaminated surfaces.
WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES AND RUBBER BOOTS when applying by hand-held weedwiper, spot gun and hand-held controlled droplet applicator (CDA) equipment.
However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.
WASH HANDS AND EXPOSED SKIN before eating and drinking and after work.

Environmental protection

Do not contaminate water with the product or its container except when used as directed. Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads.

Storage and disposal

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDINGSTUFFS.
KEEP OUT OF REACH OF CHILDREN.
KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.
RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinse three times. Add washings to sprayer at time of filling and dispose of safely. Triple rinsed containers may be disposed of as non-hazardous waste.

RECOMMENDATION TABLES

AREA OF USE	TARGET WEEDS/ USAGE	CROP/SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME
PRE-HARVEST ARABLE CROPS	Common Couch	WINTER and SPRING WHEAT, DURUM WHEAT, WINTER and SPRING BARLEY and WINTER and SPRING OATS	1 to 25 shoots/m^2 Up to 75 shoots/m^2 Over 75 shoots/m^2	2.0 3.0 4.0	80-250 L/ha*
		OILSEED RAPE AND MUSTARDS	Up to 75 shoots/m^2 Over 75 shoots/m^2	3.0 4.0	100-250 L/ha#
		COMBINING PEAS FIELD BEANS	Up to 75 shoots/m^2 Over 75 shoots/m^2	3.0 4.0	80-250 L/ha*
		LINSEED	Up to 75 shoots/m^2 Over 75 shoots/m^2	3.0 4.0	80-250 L/ha*
	Perennial broad-leaved weeds and other perennial grasses	WINTER and SPRING WHEAT, DURUM WHEAT, WINTER and SPRING BARLEY and WINTER and SPRING OATS	All levels/species	4.0	80-250 L/ha*
		OILSEED RAPE AND MUSTARDS	All levels/species	4.0	100-250 L/ha#
		COMBINING PEAS AND FIELD BEANS	All levels/species	4.0	80-250 L/ha*
		LINSEED	All levels/species	4.0	80-250 L/ha
	Harvest management	WINTER and SPRING WHEAT, DURUM WHEAT, WINTER and SPRING BARLEY and WINTER and SPRING OATS	Annual grasses, crop stems and leaves Annual broad-leaved weeds	1.0 (+) 1.5 (+)	80-250 L/ha*
	Crop desiccation and annual weeds, prior to direct combining	OILSEED RAPE MUSTARDS	All levels/species	3.0	100-250 L/ha#
		LINSEED	All levels/species	3.0	80-250 L/ha
ALL EDIBLE AND NON-EDIBLE CROPS (DESTRUCTION, BEFORE SOWING/ PLANTING)	Vegetation management	-	Annual weeds Perennial grasses Perennial broad-leaved weeds	1.5 4.0 5.0	80-250 L/ha* or hand-held equipment (p. 15)
POST SOWING/ PLANTING, PRE-EMERGENCE OF THE CROP	Volunteer cereals and annual weeds	LISTED CEREALS OILSEED RAPE, MUSTARD, LINSEED, PEAS, FIELD BEANS, SUGAR BEET, SWEDE, TURNIP, ONION and LEEK	All levels/species	1.5	80-250 L/ha*

APPLICATION TIMING AND GUIDANCE
Grain/seed moisture must not exceed 30% at spraying. Harvest intervals: CEREALS, PEAS, BEANS 7+ days OILSEED RAPE 14-21 days LINSEED 14-28 days MUSTARDS 8-10 days Use high clearance, narrow wheeled tractors, wide booms and crop dividers. Where desiccating crops, check susceptibility of any weeds present. Do not attempt to desiccate OILSEED RAPE or MUSTARD crops with significant secondary growth, uneven maturity, disease or stress. Desiccate LINSEED when seeds are light brown and capsules brown; stems/leaves may be yellow/green. Effects on brewing and baking have not been tested. Consult grain merchant or processor before use. DO NOT TREAT CROPS GROWN FOR SEED. At Harvest management rates, ANNUAL NETTLE, VOL. POTATO, ROSEBAYWILLOW HERB and POLYGONUM WEEDS will not be susceptible. WHEAT crops, WHEAT VOLUNTEERS and BROAD-LEAVED WEEDS may require up to 14 days before harvest. Treated straw must not be used as a horticultural mulch. *Rotary atomisers may be used at a water volume of 40 L/ha. Ensure droplet diameter falls within the range 200-300 microns. # Use higher volumes for dense canopies. (+) For optimum results use an approved adjuvant at 0.5% spray solution as described in 'Compatibility' section.
Do not use in or alongside hedgerows Do not use under polythene or glass. Apply the annual weed dose at least 2 days before sowing/planting. Apply at perennial weed doses at least 5 days before sowing/planting. *Rotary atomisers may be used at a water volume of 40 L/ha. Ensure droplet diameter falls within the range 200-300 microns
CAUTION – Ensure that spraying precedes ANY crop emergence. * Rotary atomisers may be used at a water volume of 40 L/ha. Ensure droplet diameter falls within the range 200-300 microns.

AREA OF USE	TARGET WEEDS/USAGE	CROP/SITUATION	WEED INFESTATION	APPLICATION RATE L/HA
STUBBLES, PRE-SOWING and PRE-PLANTING	Common Couch	BEFORE ALL CROPS EXCEPT ORCHARDS	Up to 75 shoots/m² Over 75 shoots/m²	3.0 4.0
	Other perennial grasses; volunteer potatoes (autumn only)		All levels of all species	4.0
	Volunteer cereals and annual weeds		All levels of all species	1.5 (+)
	Perennial broad-leaved weeds		All levels of all species	5.0
	Perennial grasses and broad-leaved weeds	BEFORE ORCHARD PLANTING	Arable weeds Pasture weeds	4.0 5.0
GREEN COVER ON LAND NOT BEING USED FOR CROP PRODUCTION E.G. "SET ASIDE"	Common Couch	BEFORE or DURING REMOVAL FROM PRODUCTION e.g. prior to growing a set aside mixture	Up to 75 shoots/m² Over 75 shoots/m²	3.0 4.0
	Perennial broad-leaved weeds and other perennial grasses		All levels/species	4.0
	Annual weeds: • Early autumn/spring • Late spring/summer		All levels/species All levels/species	1.5 3.0
	Natural regeneration and cover crop destruction	AFTER SHORT ROTATION or LONG TERM REMOVAL FROM PRODUCTION	Annual weeds only Perennial grasses Perennial broad-leaved weeds Perennial broad-leaved weeds as listed below.	3.0 4.0 5.0 6.0+
PERMANENT GRASSLAND (DESTRUCTION) ROTATIONAL GRASS (DESTRUCTION)	Short rotation Ryegrass, longer leys and permanent pasture	GRASS	Short rotation Ryegrass with annual weeds Leys 2-4 years old with perennial grass weeds Long leys 4-7 years old with perennial broad-leaved weeds Permanent pasture See Weed Table on p. 6 – 7	3.0 4.0 5.0 6.0

WATER VOLUME	APPLICATION TIMING AND GUIDANCE
80-250 L/ha*	Do not cultivate immediately before spraying. For PERENNIAL weed control, allow: – 21+ days growth before spraying in spring – VOLUNTEER POTATOES to make ample top growth – 5 days before cultivating or drilling For ANNUAL weed control, allow: – 24 hours before cultivating – 48 hours before drilling Allow 7 days before planting trees * Rotary atomisers may be used at a water volume of 40 L/ha. Ensure droplet diameter falls within the range 200-300 microns. (+) For optimum results use an approved adjuvant at 0.5% spray solution as described in 'Compatibility' section.
80-250 L/ha* or hand-held equipment (p. 13) or tractor mounted weed wiper (p. 13)	Before using on land taken out of production as part of a grant aided scheme, ensure compliance with the management rules of that scheme. Do not 'top' or cultivate immediately before application. For PERENNIAL weed control, allow:- – 21+ days growth before spraying in spring – 5 days before cultivating or drilling. For ANNUAL weed control, allow: – 24 hours before cultivating. Do not direct drill after set aside. Avoid applications during stem elongation as reduced control and re-spray is likely * Rotary atomisers may be used at a water volume of 40 L/ha. Ensure droplet diameter falls within the range 200-300 microns. Best control of annual grasses is achieved between full ear emergence and senescence. +Only for weeds listed as per grassland destruction application rate table.
150-250 L/ha	
150-250 L/ha	Treat EITHER before grazing/mowing in June-Oct, when growth is 30-60 cm, not dense and lacking mature seeds, OR re-growth after grazing/mowing. Select the application rate which controls/destroys the least susceptible weed and grass species present in the sward. Grass may be conserved or grazed by cattle, dairy cows or sheep 5+ days after spraying. REMOVE POISONOUS PLANTS BEFORE GRAZING/MOWING. If Ragwort is present, the guidance in the 'DIRECTIONS FOR USE' must be followed. ONLY direct drill grass and clover EITHER into 1-2 year leys without mat, 5+ days after spraying, OR long leys with some mat, in the spring following autumn application.

APPLICATION RATE FOR GRASSLAND DESTRUCTION			
3.0 L/HA		4.0 L/HA	
Annual Meadow-grass	Common Chickweed	Black-bent	Broad-lea
Common Mouse-ear	Dock Seedlings	Cock's-foot	Common
Italian Rye-grass	Mayweed species	Common Couch	Creeping
Meadow Fescue	Meadow Foxtail	Creeping Soft-grass	Curled Do
Rough Meadow-grass	Speedwell species	Perennial Rye-grass	Plantains
Timothy		Soft Brome	Yorkshire

* White Clover is best cut in June and sprayed one month later. ** At full frond expa

AREA OF USE	TARGET WEEDS/USAGE	CROP/SITUATION	WEED INFESTATION
ORCHARDS	Perennial grasses and broad-leaved weeds Root suckers	APPLE, PEAR, PLUM, CHERRY OR DAMSON	All levels of most species -
IN-CROP (TRACTOR-MOUNTED WEED WIPER) APPLICATION)	Bolters, weed beet, other weeds	ARABLE CROPS AND GRASSLAND SET ASIDE	All levels
NATURAL SURFACES NOT INTENDED TO BEAR VEGETATION, PERMEABLE SURFACES OVERLYING SOIL. ALL SITUATIONS (DESTRUCTION, BEFORE PLANTING).		Including farmyards roadsides, paths, and along fences and walls	Annual weeds Perennial grasses and broad-leaved weeds
HARD SURFACES	Vegetation management	Including farmyards roadsides, paths, hard surfaces and along fences and walls	Annual weeds Perennial grasses and broad-leaved weeds

	5.0 L/HA		**6.0 L/HA**	
ved Dock	Bracken**	Common Nettle	Common Ragwort	Hard Rush
Bent	Common Sorrel	Creeping Buttercup	Heath Rush	Jointed Rush
Bent	Creeping Thistle	Daisy	*Molinia* (Purple Moor-grass)	*Nardus* (Mat grass)
ock	Dwarf Thistle	Perennial Sow-thistle	Red Fescue	Sheep's Fescue
	Red Clover	Sedges	White Clover*	Yellow Rattle
Fog	Sheep's Sorrel	Soft Rush		
	Spear Thistle	Tufted Hairgrass		
	Yarrow			

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APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE
5.0 5.0		Trees must have been established 2+ years before spraying. Spray AFTER autumn leaf-fall and BEFORE: Apples, pears – green cluster stage Stone fruit – white bud stage Avoid contact with tree 30+ cm above ground. Treat suckers in late spring only.
	1:1 dilution with water OR 1:2 dilution with water in hot, dry conditions. For 'new generation' wipers consult the manufacturer for guidance.	Weeds must be 10+ cm taller, and wiper 5+ cm higher, than desired vegetation. Wipe dense populations twice, in opposite directions. BOLTING BEET requires three applications, 2 weeks apart, from early July to early August. Contact Bayer or your distributor for specific recommended weed wiper applicators. POISONOUS WEEDS and grazing/mowing interval – See GRASSLAND section.
1.5 4.0–5.0	Hydraulic sprayers (boom and knapsack) at water volumes 80-400 L/ha or rotary atomisers* at water volumes 40 L/ha or hand-held equipment. See Mixing & Spraying section.	
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FORESTRY/FARM FOR

LIAISON can be used for sit

AREA OF USE
FORESTRY: - PRE-PLANTING
FORESTRY: - POST-PLANTING (DIRECTED) IN CONIFERS & BROAD-LEAVED TREES
FORESTRY: - POST-PLANTING (OVERALL DORMANT SEASON IN CERTAIN CONIFERS – CONIFER RELEASE)
FORESTRY: - STUMP APPLICATION FOR CHEMICAL THINNING
FORESTRY: - CHEMICAL THINNING BY INJECTION OF TREE STEMS

ESTRY WEED CONTROL

e preparation and for weed control in planted out trees

TARGET WEEDS/USAGE	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE
Arable land, planting, replanting, & grassland areas	Arable weeds Grassland weeds	4.0 5.0	Hydraulic sprayers: 80-250 L/ha or rotary atomisers: 40 L/ha*	All tree species may be planted 7 days or more after treatment. *Where rotary atomisers are used their droplet diameter must fall within the range 200-300µm.
Clean-up around trees with knapsack applicators	Annual/perennial grasses and broad-leaved weeds	4.0	Hand held equipment. Knapsack: Apply as a 2% concentration or Weed wiper mini: apply as a concentration of 1 part LIAISON to 2 parts water (see Mixing & Spraying section)	It is ESSENTIAL to use a TREE GUARD for all applications made in the growing season. Treat bracken after frond tips are unfurled but before senescence. Treat heather late August to end September. All other woody weeds are treated June to August, before leaf senescence but after new growth of crop has hardened. Application using a weed wiper is not suitable. (*) For improved control of Rhododendron apply 8.0 l/ha LIAISON, adding Mixture B (ADJ 0570) at 2% of spray volume. Application using a weed wiper is not suitable.
	Woody weeds: Bracken/Beech Brush/Brambles Sycamore/Oak Hazel/Willow/Ash (excluding Rhododendron)	3.0		
	Heather (peat soils) Heather (mineral soils) Rhododendron (*)	4.0 6.0 10.0		
Grass weeds: - Lowland areas - Upland areas	Black Bent, Cock's-foot, Common Couch, Creeping Soft-grass, False Oat-grass, Fescues, Meadow-grasses, other Bent species, Purple Moor-grass, Sweet Vernal-grass, Tufted Hair-grass, Wavy Hair-grass, Wood Small-reed (Bush grass)	1.5 2.0	Hydraulic sprayers: 200-250 L/ha or hand-held equipment – see 'Mixing and Spraying' section	DO NOT OVERALL SPRAY trees being grown for ORNAMENTAL PURPOSES, including CHRISTMAS TREES. Species safe to spray when fully dormant and leader growth has hardened: Corsican, Lodgepole and 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. 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. These recommended application rates refer to forestry usage only. Inadequate control may result if used in other areas. Caution: The timing of hardening of leader growth varies considerably between locations and between seasons. It may occur as early as the end of July or be delayed to October or later. To avoid damage to Lammas growth, sprays should be directed away from leaders.
Bracken Beech & Birch Brambles	All levels of all species All levels of all species All levels of all species	2.0 2.0 3.0		
Deciduous trees Coniferous trees	All species All species	10% solution of LIAISON in water 20% solution of LIAISON in water		Apply the solution to saturate the rim of the newly cut surface, with a suitably adapted clearing saw, spot gun or paintbrush. Treat as soon as possible after felling, in the period November to March/April. Do not apply in the period of active sap flow in the spring/early summer. Do not cut trenches or drill holes and fill with the solution or use undiluted product. Note: for ease of identification of treated areas a suitable, commercially available, water-soluble dye may be added to the prepared spray solution
Coniferous and deciduous species	-	2 ml neat LIAISON per cut per 10 cm diameter (or less) of tree		Use a hatchet to cut one notch in trees up to 10 cm diameter and apply 2 ml of the solution to each cut. Use two or three notches in trees over 10 cm diameter. Do not treat in the period of active sap flow in the spring/early summer.