



AMEGA DUO

MAPP 13358

Contains 540 g/l Glyphosate (acid equivalent) present as 715 g/L isopropylamine and ammonium salts

A foliar applied herbicide for the control of annual and perennial grasses and broad-leaved weeds before sowing or planting all crops. For use pre-emergence and pre-harvest in cereals, oilseed rape and certain other crops, destruction of grassland, and in stubbles, orchards, forestry, non-crop areas and on set-aside land.

Pack size: 1-20 Litres

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

PROTECT FROM FROST

Nufarm UK Limited
Wyke Lane
Wyke
Bradford
West Yorkshire BD12 9EJ
United Kingdom

Technical Helpline telephone number 01274 694714
24-hour emergency telephone number 01274 696603

This label is compliant with the CPA Voluntary Initiative Guidance



IMPORTANT INFORMATION

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

Crops/situations:

Wheat, barley, oats, durum wheat;

Oilseed rape;

Mustard;

Combining peas,

Post planting and pre-emergence on listed Cereals, Oilseed rape, Combining Peas, Vining Peas, Field Beans, Mustard, Linseed, Sugar Beet, Swedes, Turnips, Bulb Onions and Leeks.

Asparagus

All edible crops (stubble), All non-edible crops (stubble);

Grassland;

Natural surfaces not intended to bear vegetation, permeable surfaces overlying soil, hard surfaces;

Amenity vegetation

All edible and non-edible crops (destruction, before sowing/planting);

Apple and pear;

Plum and cherry;

Linseed;

Forestry (weed control), Forest (chemical thinning by injections), Forest (stump);

Green cover on land not being used for crop production;

Maximum individual dose: } Full details are given

Maximum number of treatments: } on the attached leaflet

Latest time of application: } (see Crop Specific Information)

Other specific restrictions:

When using with rotary atomizer knapsack sprayers the minimum water volume must be 20 L/ha.

The empty container must be returned to the supplier

The empty container must not be re-used for any other purpose

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

May cause long lasting harmful effects to aquatic life

To avoid risks to human health and the environment, comply with the instructions for 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 or applying the concentrate or when handling contaminated surfaces.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES AND RUBBER BOOTS when using hand-held equipment.

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

WASH ALL PROTECTIVE CLOTHING thoroughly after use, especially the insides of gloves.

WHEN USING DO NOT EAT, DRINK OR SMOKE.

WASH HANDS AND EXPOSED SKIN before meals and after work.

Environmental Protection

Do not contaminate water with the product or its container (Do not clean application equipment near surface water / Avoid contamination via drains from farmyards and roads).

Livestock must be kept out of treated areas IF RAGWORT IS PRESENT, FOLLOW THE GUIDANCE IN THE 'DIRECTIONS FOR USE'.

Extreme care must be taken to avoid spray drift on to non-target plants outside of the target area.

On emptying the container, RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times. Add washings to sprayer at time of filling and dispose of container safely.

Storage and disposal

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDSTUFFS.

KEEP OUT OF THE REACH OF CHILDREN.

OPEN CONTAINER ONLY AS DIRECTED

RETURN EMPTY CONTAINER to the supplier

Do not rinse out the container

Do not re-use the container for any other purpose

Product sold in bulk (650 or 1000 Litre) containers must only be transferred from the top of the container using the correct dry-break coupling system. Return the containers for re-use via your distributor.

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

TAKE EXTREME CARE TO AVOID SPRAY DRIFT

DO NOT MIX, STORE OR APPLY AMEGA DUO 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 12 hours and preferably 24 hours rainfree must follow spraying.
- 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.
- As AMEGA DUO takes a few days to fully translocate throughout a weed, applications of lime, fertiliser, farmyard manure and pesticides should be made 5 days or more AFTER application of this product.
- Keep stock out of treated areas for seven days to allow the herbicide to become fully effective.
- TREATED POISONOUS PLANT SPECIES MUST BE REMOVED BEFORE REGRAZING OR CONSERVING.

WEED RESISTANCE STRATEGY

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

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

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

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

WEEDS CONTROLLED

AMEGA DUO is for use in tank-mix only with authorised adjuvants. DO NOT use AMEGA DUO ALONE unless stated.

AMEGA DUO is a foliar acting herbicide which controls annual and perennial grasses and most broad-leaved weeds when used as directed. It is translocated from treated vegetative growth to underground roots, rhizomes or stolons.

PERENNIAL GRASS WEEDS MUST HAVE A FULL EMERGENCE OF HEALTHY, GREEN LEAF WHICH IS GROWING ACTIVELY AT THE TIME OF APPLICATION. COMMON COUCH REACHES THE SUSCEPTIBLE STAGE OF GROWTH WHEN TILLERING AND NEW RHIZOME GROWTH COMMENCE WHICH USUALLY OCCURS WHEN PLANTS HAVE 4-5 LEAVES EACH WITH 10-15CM OF NEW GROWTH.

THE MAJORITY OF PERENNIAL BROAD-LEAVED WEEDS ARE MOST SUSCEPTIBLE IF TREATED WHEN THEY ARE GROWING ACTIVELY AND AT, OR NEAR, FLOWERING STAGE.

ANNUAL WEEDS SHOULD BE GROWING ACTIVELY, WITH GRASSES HAVING AT LEAST 5 CM OF LEAF AND BROAD-LEAVED WEEDS AT LEAST 2 EXPANDED TRUE LEAVES WHEN SPRAYED.

It is important that all weeds are at the correct growth stage when treated, otherwise some re-growth may occur and this will require re-treatment.

This product will not give acceptable levels of control of horsetails (*Equisetum arvense*). Repeat treatment will be necessary.

Weeds become less susceptible to AMEGA DUO when their growth is restricted by natural senescence or by drought, frost, high temperature, a covering of dust or flooding. Reduced control will result if such conditions occur at, or immediately after, spraying.

TANK MIXTURES

AMEGA DUO can be tank-mixed with any authorised adjuvant approved for use on the specific crop:

Do not tank-mix this product with fertilisers.

Grassland Treatments

Application rate – 2.0 l/ha + approved adjuvant

Chickweed, mouse-ear	Mayweed species	Ryegrass, Italian
Dock seedlings	Meadow-grass, annual	Speedwell species
Fescue, meadow	Meadow-grass, rough	Timothy
Foxtail, meadow		

Application rate – 2.67 l/ha + approved adjuvant

Bent, common	Cocksfoot	Plantains
Bent, creeping	Couch, common	Ryegrass, perennial
Bent, black	Dock, broad-leaved	Soft-grass, creeping
Brome, soft	Dock, curled	Yorkshire fog

Application rate – 3.33 l/ha + approved adjuvant

Bracken**	Nettle, common	Sowthistle, perennial
Buttercup, creeping	Rush, soft	Thistle, creeping
Clover, red	Sedges	Thistle, dwarf
Daisy	Sheep's sorrel	Thistle, spear
Hairgrass, tufted	Sorrel, common	Yarrow

Application rate – 4.0 l/ha + approved adjuvant

Clover, white*	Nardus (Mat grass)	Rush, heath
Fescue, red	Ragwort, common***	Rush, jointed
Fescue, sheep's	Rush, hard	Rattle, yellow
Molinia (Purple Moor-grass)		

* Correct stage of growth at treatment is important. White clover is best cut in June and sprayed 1 month later.

** At full frond expansion.

*** 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.

Forestry Treatments

These recommended application rates refer to use in forestry areas only. If used in agricultural or horticultural situations inadequate weed control will result.

Application rate

Lowland Britain – 1.0l/ha + approved adjuvant

Upland Britain – 1.33 l/ha + approved adjuvant

Bent, black	Hair-grass, tufted	Soft-grass, creeping
Other Bent species	Hair-grass, wavy	Vernal, sweet
Cocksfoot	Meadow grasses	Wood Small-reed (Bush grass)
Couch, common	Moor-grass, purple	
Fescues	Oat-grass, false	

BREAKDOWN AND FOLLOWING CROPS

All edible or non-edible crops may be sown or planted at specified intervals following the use of this product.

Occasionally, a slight check to crop growth may occur, particularly after direct drilling, when crop seeds germinate amongst a mass of decaying foliage, stolons, rhizomes or roots. Thorough cultivations are necessary to disperse or bury the decaying organic matter.

Consolidate loose soils and ensure crops are adequately fertilized and appropriate measures are taken to prevent insect and fungal damage to the following crop, especially where following grassland.

CROP SPECIFIC INFORMATION

IMPORTANT INFORMATION			
FOR USE ONLY AS AN AGRICULTURAL/HORTICULTURAL/FORESTRY/INDUSTRIAL HERBICIDE			
Crop	Max individual dose (L product/ha) + approved adjuvant	Max total dose (L product/ha / crop situation / annum)	Latest time of application
Winter wheat (including durum wheat), winter barley, winter oats, spring wheat, spring barley, spring oats.	2.67	2.67	7 days before harvest
Oilseed rape	2.67	2.67	14 days before harvest
Linseed	2.67	2.67	14 days before harvest
Mustard	2.67	2.67	14 days before harvest
Combining Peas	2.67	2.67	7 days before harvest
Post planting and pre-emergence of listed cereals, oilseed rape, combining peas, vining peas, field beans, mustard, linseed, sugar beet, swedes, turnips, bulb onions and leeks	1.0	1.0	Pre-emergence
Asparagus	3.33	3.33	Pre-emergence of the crop
All edible crops (stubble), All non-edible crops (stubble)	2.67 or 1.0	2.67 1.0	Five days before drilling or planting of the following crop Two days before drilling or planting of the following crop
Grassland	4.0	4.0	Five days before harvest, grazing or drilling
Natural surfaces not intended to bear vegetation, permeable surfaces overlying soil, hard surfaces	4.0	-	-
Amenity vegetation	3.33	-	-
All edible and non-edible crops (destruction, before sowing/planting)	4.0	-	Before planting or sowing
Apple and pear orchards	3.33	3.33	After harvest (post leaf-fall) but before green cluster
Plum and Cherry orchards	3.33	3.33	After harvest (post leaf-fall) but before white bud
- Forest (Weed control) - Forest (Chemical thinning by injection)	6.67 1.33 ml product per cut per (+) 10 cm diameter (or	-	

- Forest (Stump)	less) tree (+) See 'other specific restrictions' (+)		
Green cover on land not being used for crop production	3.33	3.33	

Other specific restrictions

When using with rotary atomiser knapsack sprayers the minimum water volume must be 20 L/ha

The empty container must be returned to the supplier

The empty container must not be re-used for any other purpose

(+) AMEGA DUO does not need to be mixed with an authorised adjuvant

Weedwipers may be used in any crop where the wiper does not touch the growing crop.

Maximum concentrations used must not exceed the following:

Weedwiper mini	1:3.5 dilution with water
Other wipers	1:2 dilution with water
Stump treatment	13.33% solution in water

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

PRE-HARVEST WHEAT (including DURUM WHEAT) BARLEY AND OAT

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Common couch	Up to 25 shoots/m ²	1.33	Hydraulic sprayers 80-250 l/ha
	26 to 75 shoots/m ²	2.0	
	Over 75 shoots/m ² In direct drilled crops	2.67	
Perennial broad-leaved weeds, other perennial grasses	All levels of all species	2.67	
Harvest Management	Annual grasses, Cereal stems, Cereal leaves	0.67	
	Annual broad-leaved weeds	1.0	

Application Guidance: Apply when the moisture content of the youngest crop grains is below 30%, not less than 7 days before harvest and up to 14 days before harvest for volunteer wheat and wheat crops. Use high clearance tractors with narrow wheels and crop dividers. DO NOT TREAT CROPS GROWN FOR SEED. Straw may be used for all purposes except as a horticultural mulch. After harvest, chop/incorporate or remove straw as required. Normal cultivations may be made after straw removal.

NB If dull weather persists after application, allow up to 14 days before harvest – particularly on broad-leaved weeds. Annual nettle, Vol. Potato, Rosebay willowherb and the Polygonum weeds will not be susceptible at Harvest Management rates.

PRE-HARVEST OF OILSEED RAPE AND MUSTARDS

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Crop desiccation prior to direct combine harvesting		2.0 (+)	Hydraulic sprayers only 100-250 l/ha
Common couch	Up to 75 shoots/m ²	2.0	
	Over 75 shoots/m ²	2.67	
Annual weeds	All levels of all species	2.0	

Perennial broad-leaved weeds, other perennial grasses	All levels of all species	2.67	
---	---------------------------	------	--

(+) AMEGA DUO does not need to be mixed with an authorised adjuvant

Application Guidance: Apply when crop seeds have under 30% moisture content. Apply to standing crops at these intervals before harvest: Oilseed rape – 14-21 days, Mustards – 14 days. Use high clearance narrow wheeled tractors using wide booms and crop dividers. DO NOT TREAT CROPS GROWN FOR SEED. For effective combining: DO NOT treat crops with significant levels of secondary re-growth. DO NOT treat late maturing areas of crops affected by pigeon damage, poor drainage, etc. Crops suffering from stress factors, disease, extreme heat or drought may not mature evenly following treatment. After harvest, chop/incorporate or remove straw as required. Normal cultivations may follow after straw removal.

PRE-HARVEST OF PEAS FOR COMBINE HARVESTING

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Common couch	Up to 75 shoots/m ²	2.0	Hydraulic sprayers 80-250 l/ha
	Over 75 shoots/m ²	2.67	
Annual weeds	All levels of all species	2.0	
Perennial broad-leaved weeds, other perennial grasses	All levels of all species	2.67	

Application Guidance: Apply when crop seeds have under 30% moisture content. Apply 7 days or more before harvest. This treatment cannot be used as a crop desiccant. Use high clearance tractors with narrow wheels and crop dividers. DO NOT TREAT CROPS GROWN FOR SEED.

PRE-HARVEST OF LINSEED

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Crop desiccation prior to direct combine harvesting		2.0	Hydraulic sprayers only 80-250 l/ha
Common couch	Up to 75 shoots/m ²	2.0	
	Over 75 shoots/m ²	2.67	
Perennial broad-leaved weeds, other perennial grasses	All levels of all species	2.67	

Application Guidance: Apply when crop seeds have under 30% moisture content. At this stage seed is normally light brown and the capsules are brown; the stems and leaves may be green to yellow/green. Accurate measurements of moisture content must be made. Apply 14 days or more before harvest. Where application takes place in the autumn, it must be checked that weeds are still susceptible, see earlier section on timing of application and weeds susceptibility. A delay of up to 28 days after spraying may be necessary prior to combine harvesting. DO NOT TREAT CROPS GROWN FOR SEED.

POST SOWING/PLANTING AND PRE-EMEGENCE OF THE CROP

Crop Situation	Weed Infestation	Rate (L/ha) + approved adjuvant	Water volume
Cereals Oilseed Rape Mustard Linseed Peas Field Beans Sugar Beet Swede Turnip Bulb Onion Leek	All levels of all annual weed species	1.0	Hydraulic sprayers only 80 – 250 L/ha

Application Guidance: Ensure that spraying precedes ANY Crop emergence

POST SOWING/PLANTING AND PRE-EMERGENCE ASPARAGUS

Target weed	Weed infestation	Rate (l/ha) + authorised adjuvant	Water volume
Annual weeds	All levels of all species	1.0	Hydraulic sprayers: 80-250 l/ha
Perennial weeds		2.67	
Perennial broad-leaved weeds		3.33	

Application Guidance: Ensure that spraying precedes ANY new spear emergence

STUBBLES OF ALL CROPS – AUTUMN/SPRING APPLICATIONS

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Common couch	Up to 75 shoots/m ²	2.0	Hydraulic sprayers 80-250 l/ha
	Over 75 shoots/m ²	2.67	
Other perennial grasses Volunteer potatoes (autumn only)	All levels of all species	2.67	

Application Guidance: Do not cultivate BEFORE spraying. Allow a minimum of five days to elapse between spraying and cultivations or drilling. Allow volunteer potatoes to make ample top growth before spraying. A minimum period of 21 days weed growth in the spring should occur before spraying.

STUBBLES OR PRE-CULTIVATED LAND AUTUMN OR SPRING

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Volunteer cereals Other annual grasses, Annual broad-leaved weeds	All levels of all species	1.0	Hydraulic sprayers 80-250 l/ha

Application Guidance: Cultivations may be made 24 hours after spraying. Direct drilling may take place two days after spraying.

SET-ASIDE – GREEN COVER ON LAND TEMPORARILY REMOVED FROM PRODUCTION

Target	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
--------	------------------	---------------------------------	--------------

Before or during removal from production	Common couch		Population < 75 shoots/m ² - 2.0	Hydraulic sprayers 80-250 l/ha
			Population > 75 shoots/m ² - 2.67	
	Perennial broad-leaved weeds and other perennial grasses		2.67	
	Annual weeds - Autumn/Spring of year 1 only		1.0	
	- Summer of year 1 and thereafter		2.0	
After short rotation or long term removal from production	Natural regeneration and cover crop destruction	Annual weeds	2.0	
		Perennial grasses	2.67	
		Perennial broad-leaved weeds	3.33	
		Perennial broad-leaved weeds as listed below: Common Ragwort White Clover Yellow Rattle	4.0	

Application Guidance: Perennial weeds should have grown actively for at least 21 days before spring applications.

Perennial weeds – apply not less than 5 days before drilling or cultivating.

Annual weeds – apply not less than 24 hours before cultivation.

Note:

- Ensure that all management rules are followed prior to use on land taken out of production as part of a grant aided scheme
- Do not top or cultivate before spraying
- Do not direct drill after set-aside.

The best control of annual grasses is achieved from applications at full ear emergence or before stem elongation. Avoid application during stem elongation as reduced control and re-spray is likely.

GRASSLAND DESTRUCTION AND CONTROL OF ASSOCIATED WEEDS

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Short-rotation Ryegrass with annual weeds	See under 'Weeds controlled'	2.0	Hydraulic sprayers 150-250 l/ha

Leys 2-4 years old with perennial grass weeds	See under 'Weeds controlled'	2.67	
Long leys 4-7 years old with perennial broad-leaved weeds	See under 'Weeds controlled'	3.33	
Permanent pasture – select application rate to control the least susceptible target weed	See under 'Weeds controlled'	4.0	

Application Guidance: DO NOT apply lime or fertiliser prior to AMEGA DUO application.

Treatment timings:

1. Re-growth after grazing or mowing.
2. Before grazing or cutting.
 - Apply between June-October
 - Spray crops that are 30-60cm tall, are not dense and do not contain mature seeds.

Grass utilization

1. Grass may be utilized in the normal way from 5 days after treatment.
2. Cattle, Dairy cows and Sheep may graze or be fed the treated forage.

POISONOUS PLANT SPECIES MUST BE REMOVED OR BURIED BEFORE RE-GRAZING OR MOWING.

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

Normal cultivations for the next crop may be made as usual once fields are cleared of grass crops. Grass and clover may be direct drilled following application of AMEGA DUO to: (a) 1-2 year old leys without mat: all surface trash should be removed before drilling, 5 days after spraying, or (b) long leys with some mat: AMEGA DUO should be applied in the autumn and direct drilling delay until the following spring.

LAND NOT INTENDED TO BEAR VEGETATION

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Annual weeds	All species	1.0	Hydraulic sprayers 80-250 l/ha
Perennial grasses	All species	2.67	
Perennial broad-leaved weeds. Destruction of established vegetation prior to sowing (Refer to section "Hand-held applicators").	All species	4.0	

Application Guidance: Use areas include: Clearance of land prior to sowing, Weed control in fence lines, stockyards, around buildings and storage areas, Roads paths and ditch edges, Re-growth in root crop storage areas. **DO NOT USE IN OR ALONGSIDE HEDGEROWS. DO NOT USE UNDER GLASS OR POLYETHYLENE.** Apply this product carefully. Ensure spraying takes place only when weeds are actively growing (normally March to October) and is confined only to visible weeds including those in the 30cm swath covering the kerb edge and road gulley – do not overspray drains. This does not apply to use on railway ballast.



AMENITY VEGETATION

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Annual weeds	All species	1.0	Hydraulic sprayers 80-250 l/ha
Perennial grasses and broad-leaved weeds	All species	2.67 – 3.33	

Application Guidance: For vegetation management in areas of semi-natural or ornamental vegetation including trees. Areas of bare soil around ornamental plants or areas intended for ornamental planting. Hydraulic sprayers or weed wipers may be used

DO NOT USE IN OR ALONGSIDE HEDGEROWS.

DO NOT USE UNDER POLYTHENE OR GLASS

ALL EDIBLE AND NON-EDIBLE CROPS (DESTRUCTION BEFORE SOWING/PLANTING)

Target weed	Weed infestation	Rate (L/ha) + authorised adjuvant	Water volume
Annual Weeds	-	1.0	Hydraulic sprayers: 80-250 l/ha
Perennial Weeds		2.67	
Perennial broad-leaved weeds		3.33	

Application Guidance: Allow a minimum of 5 days to elapse between spraying and cultivations or drilling.

DO NOT USE UNDER POLYTHENE OR GLASS. DO NOT USE IN OR ALONGSIDE HEDGEROWS

TOP FRUIT ORCHARDS – WITHIN ORCHARDS OF APPLE, PEAR, PLUM, CHERRY OR DAMSON

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Perennial grasses and broad-leaved weeds	All levels most species	3.33	Hydraulic sprayers 200-400 l/ha. Optimum 250l/ha
Root suckers (late spring treatment only)	All species	3.33	

Application Guidance: Trees must have been established for two years before spraying. Spray after fruit trees have lost all their leaves in autumn, or before green clusters stage of apple and pear or white bud stage of stone fruit in spring. Avoid contact with tree branches and trunks above 30cm from the ground.

FORESTRY – PRE-PLANTING

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Arable land and planting	Arable weeds	2.67	Hydraulic sprayers 80-250 l/ha
Re-planting and grassland areas	Grassland weeds	3.33	

Application Guidance: All tree species may be planted 7 days or more after treatment.

FORESTRY – POST-PLANTING (DIRECTED)

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Clean-up around trees with knapsack applications Conifer release	Grasses: annual & perennial, and broad-leaved weeds	2.67	Knapsack sprayers (hydraulic). Apply at a concentration of 1 part of AMEGA DUO with 200-250l/ha. Spot gun and weedwiper mini – see application section.
	Woody weeds: Bracken, Beech	2.0	
	Brush, Brambles	2.0	
	Sycamore, Oak, Hazel	2.0	
	Willow, Ash	2.0	
	Heather (peat soils)	2.67	
	Heather (mineral soils)	4.0	
Rhododendron [.]	6.67		

Application Guidance: It is ESSENTIAL to use a TREE GUARD for all applications made in the growing season. Treat bracken after frond tips are unfurled but pre-senescence. Treat Heather late August to end September. All other woody weeds - treat June-August before leaf senescence (but after new

growth of crop has hardened). [...] for improved control of Rhododendron add High Trees Mixture B at a concentration of 2% final water volume to 5.33 l/ha of AMEGA DUO. For Rhododendron control cut back and treat re-growth at least 1 metre in height throughout the entire coppice.

FORESTRY – POST-PLANTING (OVERALL DORMANT SEASON)

Target weed	Weed infestation	Rate (L/ha) + approved adjuvant	Water volume
Grass weeds - Lowland areas - Upland areas	See under 'Weeds controlled'	1.0 1.33	Hydraulic sprayers 80-250 l/ha or Hand-held equipment – see Application section.
Bracken, Beech and Birch Brambles	All levels of all species	1.33 1.33 2.0	

Application Guidance: 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 Pines, Norway Spruce, Sitka Spruce, Lawson Cypress, Western Red Cedar. Douglas Fir and Nobel 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. Treat bracken after frond tips are unfurled but pre-senescence.

CAUTION: the timing of hardening of leader growth varies between locations and 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.

FORESTRY – STUMP APPLICATION FOR CHEMICAL THINNING

Target weed	Weed infestation	Rate (L/ha)	Water volume
Prevention of coppicing and re-growth from stumps	Deciduous species	6.6% solution of AMEGA DUO in water	Hydraulic sprayers 80-250 l/ha or Hand-held equipment – see Application section.
	Coniferous species	13.3% solution of AMEGA DUO in water	

For stump application AMEGA DUO does not need to be mixed with an adjuvant.

Application Guidance: Apply to saturate the freshly cut stump. (Hand-held sprayers – see page 19).

- - Clearing saw fitted with Enso attachments.
- - Knapsack sprayer operated at low pressure.
- - Spot gun fitted with a solid stream nozzle.
- - Paintbrush.

Treat stumps within a week of felling from November to March (outside spring sap flow). Do not cut trenches or drill holes and fill with the solution or use undiluted product.

FORESTRY –CHEMICAL THINNING BY INJECTION OF TREE STUMPS

Target weed	Weed infestation	Rate (L/ha)	Water volume
Coniferous and Deciduous species	-	1.33ml neat AMEGA DUO per cut per 10cm diameter of stem (or less)	-

For stump application AMEGA DUO does not need to be mixed with an adjuvant.

Application Guidance: Use a hatchet to cut one notch in trees up to 10 cm diameter and apply 1.33ml of the solution to each cut e.g. using a spot gun. 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.

SPRAY APPLICATION EQUIPMENT AND TECHNIQUES

Tractor mounted applicators

Conventional hydraulic sprayers.

Sprayer and nozzle selection

All machines capable of applying accurately 80-250 l/ha, as a 'MEDIUM' or COARSE quality spray - (BCPC definition) within a pressure range of 1.5-2.5 bars using 80° or 110° nozzles, may be used. For application pre-harvest of crops it is essential to use a sprayer whose boom may be raised to the correct height.

Water volume:

For general use 200-250 l/ha is the preferred volume range. For specific uses, volumes may be reduced to 80-120 l/ha by selecting low volume hydraulic nozzles and adjusting pressure of application and tractor forward speed.

Spray pressure

Pressures must be related to tractor forward speed, desired water volume and nozzle type. A range of 1.5-2.5 bars must be used to ensure optimum results with minimum risk of drift.

Tractor forward speed

Speed of travel must be related to nozzle output characteristics. The typical range is from 4-9kph. The slower speeds should be selected for applications pre-harvest of crops and where soil conditions could cause excessive boom bounce and yaw at the faster speeds.

Recommended Nozzle type, pressure, volumes and tractor speeds for the application of 80-120 l/ha 80° or 110° nozzles able to apply the required volume at pressures between 1.5-2.5 bars at between 4-9kph are recommended. Examples of these nozzles are available in a separate handbook.

Filling the sprayer

Half fill the spray tank with water and start agitation. Add recommended quantity of AMEGA DUO herbicide, top-up tank with water to required level. Before using a sprayer and, especially, after nozzles have been changed, it is essential to calibrate the sprayer by checking the output of at least one nozzle for each separate boom section of the sprayer.

Calibration

Before using the sprayer and, especially, after nozzles have been changed, it is essential to calibrate the sprayer by checking the output of at least one nozzle for each separate boom section of the sprayer.

Operation in the field

Check the following before starting to spray: - that the nozzles are aligned evenly at the correct angle to the direction of travel; - that the boom is level over its width; - that the boom height permits the correct pattern of spray overlap on the target weeds.

Sprayer maintenance

Ensure that the sprayer is in good working order by paying particular attention to the condition of the pump, hoses, nozzles or disc assemblies and pressure gauge. Replace damaged, worn or malfunctioning parts. If extra filtration or pressure damp valves have been fitted for low volume work at 80-120 l/ha make certain this equipment is clean and functioning correctly. Carry out maintenance according to the instructions of the sprayer manufacturer. This is of utmost importance when using low volume nozzles.

Hygiene when using all sprayers

It is essential to thoroughly clean out sprayer 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.

Hand-held applicators

OVERALL, NON-SELECTIVE APPLICATIONS

Spot or directed application

Knapsack applicator: These may be used in Forestry, Orchards and non-crop areas. Normal water volume is 200-300 l/ha but by fitting low volume nozzles it can be reduced to 100-150 l/ha. All applications to be as a MEDIUM or COARSE quality spray (BCPC definition).

Example of use:

At a walking speed of 1m/sec and with a 1m wide swath most knapsack sprayers fitted with a Lurmark AN 2.0 or similar nozzle deliver 200 l/ha spray volume. To apply 2.67 l/ha of AMEGA DUO use 26 ml of product for each 2 litres of spray liquid required.

Spot gun:

This applicator may be used to apply an accurately measured dose of AMEGA DUO herbicide spray solution for the spot treatment of weeds.

Amount of AMEGA DUO (ml) per 5 litres of spray solution when the Spot Gun is fitted with the TG-SS2.8W nozzle, using a setting of 5ml per squeeze of the trigger:

Spot diameter (m)	Application rate of AMEGA DUO (ml)		
	2.0 l/ha	2.67 l/ha	3.3 l/ha
0.3	80	100	150
1.0	120	160	240

- Treatment of individual weeds

Individual weeds may be treated using the Spot Gun fitted with a narrow angle cone nozzle, either the TG-3 or TG-5 nozzle. The spot diameter will increase with the distance of the target weed from the nozzle tip.

Amount of AMEGA DUO (ml) per 5 litres of spray solution when the Spot Gun is fitted with the TG-3 or TG-5 nozzle, using a setting of 5ml per squeeze of the trigger:

Spot diameter (m)	Application rate of AMEGA DUO (ml)		
	2.0 l/ha	2.67 l/ha	3.3 l/ha
0.3	13	19	23
0.6	57	73	93

- Tree injection

The applicator must be fitted with a solid stream nozzle, either a Spraying System 0006 or a Delavan LF 6.0. Set the gun to apply 1.33ml of neat AMEGA DUO per cut.

- Stump Treatments

The applicator must be fitted with a narrow angle cone nozzle, either the TG-3 or TG-5 or solid stream nozzle tips either a Delavan LF 6.0 or Spraying Systems 0006.

Set the gun to deliver 3.33ml per squeeze and select the concentration of AMEGA DUO according to usage recommendations. A dose of 3.33ml should be applied for each 5cm diameter of tree stump.

Cut stump application

Enso attachment to rotary saws

This technique is specific to scrub clearance in Forestry. The water soluble dye Methyl Violet Gurr may be added to AMEGA DUO at a concentration of 0.01% to help identify treated stumps. This is equivalent to the addition of 1ml of dye to 10 litres of spray liquid. The dye may be obtained from: BDH Chemicals Ltd Broom Road, Poole, Dorset BH12 4NN, United Kingdom. Tel: Poole (01202) 745520 – BDH Technical Services.

Tractor-mounted wipers

Treatment of sugar beet bolters, weed beet and other weeds: For use in arable crops, grassland and forestry areas. Ensure there is at least 5 cm between the top of the tallest desired vegetation and the impregnated wiper. Weeds should be a minimum of 10 cm taller than the desired vegetation for safe application. Two passes in opposite directions will be needed where weeds are dense and successive applications will be required to control weeds that were below the original wiping level. Treat before weed seeds have matured to reduce to a minimum seed return to the soil, Bolting beet should be treated by a series of three applications during early July to early August with two weeks between treatments.

WEEDS MUST BE GROWING ACTIVELY TO BE SUSCEPTIBLE. DO NOT USE WIPER TECHNIQUES IN SOFT FRUIT CROPS.

Recommended machines and dilution rates

Hectaspan Weedwiper
Keenan Weed Licker
Matrot Mobilcord

Tecnoma Top Weeder
Telford Homburg Chemical Applicator
Vicon Wedge-Wik

The recommended concentration is at least one part of AMEGA DUO herbicide to two parts water. Under hot, dry, conditions a concentration of one part of AMEGA DUO herbicide to two parts water is preferred.

For best results with all wiper applicators

- Operate at speeds below 5 kph.
- Treat when weeds reach 10 cm above the desired vegetation.
- Keep wiping surfaces wet but prevent dripping.
- Clean ropes several times a day to maintain optimum flow rate.

COMPANY ADVISORY INFORMATION

This section is not part of the Product Label under the Plant Protection Products Regulations 2011. It provides additional advice on product use at the discretion of the applicant.

ACKNOWLEDGEMENTS

®AMEGA is the registered trademark of Nufarm UK Limited

TERMS AND CONDITIONS OF SUPPLY, SALE OR USE

All goods supplied by Nufarm UK Ltd. are high grade and we believe them to be suitable for the purpose for which we expressly supply them: but as we cannot exercise any control over their mixing, use or application which may affect the performance of the goods all conditions and warranties statutory or otherwise as to the quality or fitness for any purpose of our goods are excluded and no responsibility will be accepted by us or our Associate Companies for any damage or injury whatsoever arising from their storage, handling, re-application or use. These conditions cannot be varied by our staff, our agents or the re-sellers of the product whether or not they supervise or assist in the use of such goods.