

penta

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A suspension concentrate formulation containing 400 g/l (36.0% w/w) pendimethalin.
A herbicide for the control of a range of grass and annual broad-leaved weeds in a wide range of crops.

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

Batch number: XXXX

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Sharda Cropchem

SHARDA CROPCHEM LIMITED
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Mumbai - 400050, India, Tel. +91-22-66782800

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

IMPORTANT INFORMATION

Crops:	Maximum individual dose (litres product/hectare):	Maximum number of treatments (per crop):	Latest time of application:
Wheat (winter), barley (winter), rye (winter), triticale, durum wheat	3.3	1	Before leaf sheath erect stage
Barley (spring), combining pea, sunflower	3.3	1	Before crop emergence
Potato	3.3	1	Before crop emergence
Forage maize	3.75	1	Before 4th leaf stage
Carrot, parsnip	3.3	1	Before crop emergence
Blackcurrant and redcurrant, gooseberry, apple, cherry, pear, plum	3.3	1	Before bud burst
Strawberry	3.3	1	After flower initiation but before flower truss emergence
Raspberry, loganberry, rubus hybrid, blackberry	3.3	1	After harvest but before bud burst
Bulb onion, leek	3.3	1	Before crop emergence
Broccoli/calabrese, Brussels sprout, cabbage, cauliflower	3.3	1	Before transplanting

Other specific restrictions:

Returnable containers must not be re-used for any other purpose.

Returnable containers must be returned to the supplier.

This product qualifies for inclusion within the Local Environment Risk Assessment for Pesticides (LERAP) scheme. Before each spraying operation from a horizontal boom sprayer, either a LERAP must be carried out in accordance with the 'Local Environment Risk Assessment for Pesticides Horizontal Boom Sprayers' booklet available from the HSE Chemicals Regulation Directorate's website or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for three years.

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.

PENTA

HAZARDOUS TO THE AQUATIC ENVIRONMENT - ACUTE 1 HAZARDOUS TO THE AQUATIC ENVIRONMENT - CHRONIC 1

VERY TOXIC TO AQUATIC LIFE
VERY TOXIC TO AQUATIC LIFE WITH
LONG LASTING EFFECTS

Wash contaminated clothing before reuse.

Avoid release to the environment

Collect spillage.

Store locked up.

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.

CONTAINS PENDIMETHALIN: MAY PRODUCE AN ALLERGIC REACTION



WARNING

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.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS) AND SUITABLE PROTECTIVE GLOVES when applying by 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.

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.

To protect aquatic organisms respect an unsprayed buffer zone to surface water bodies in line with LERAP requirements. Since there is a risk to aquatic life from use, users not applying the statutory buffer zone must either themselves carry out or ensure that someone else has carried out a Local Environment Risk Assessment for Pesticides (LERAP) on their behalf before each spraying operation from a horizontal boom sprayer

DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5 m of the top of the bank of a static or flowing water body, unless a Local Environment Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone, or within 1 m of the top of a ditch which is dry at the time of application. DO NOT ALLOW DIRECT SPRAY from hand-held sprayers to fall within 1 m of the top of the bank of a static or flowing water body. Any measures indicated by the LERAP as justifying the narrower buffer zone must

be complied with in full and in accordance with any conditions applicable to them. Spray must be aimed away from water.

The results of the LERAP must be recorded in written form and must be available for a period of three years for inspection to any person entitled to exercise enforcement powers under or in connection with the Plant Protection Products Regulations 2011 or the Plant Protection Products (Sustainable Use) Regulations 2012. (An electronic record will satisfy the requirement for a written record, providing it is similarly available for inspection and can be copied).

Detailed guidance on LERAPs and how to conduct a LERAP are contained in the booklet 'Local Environment Risk Assessment for Pesticides - Horizontal Boom Sprayers', available from HSE Chemicals Regulation Directorate's website. All LERAPs must be carried out in accordance with this Guidance and any amendments that are made to it.

Storage and Disposal

KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.

WASH OUT CONTAINER THOROUGHLY, empty washings into spray tank and dispose of safely.

DO NOT RE-USE CONTAINER FOR ANY OTHER PURPOSE.

RETURN EMPTY CONTAINER TO THE SUPPLIER.

DO NOT RINSE OUT THE CONTAINER.

OPEN THE CONTAINER ONLY AS DIRECTED.

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.

Restrictions or Warnings

1.1 Efficacy

PENTA must not be applied to any crop suffering from stress as a result of drought, waterlogging, low temperatures, nutrient or lime deficiency or other factors reducing crop growth.

Do not spray if frost is expected.

Some soil moisture must be present for PENTA to be activated. Best results will be obtained if rainfall occurs within seven days of application.

Residual control may be reduced:

- under prolonged dry conditions
- on soils with a high Kd factor
- where organic matter exceeds 6%
- where ash content is high

Do not disturb the soil after PENTA has been applied as this will result in reduced weed control.

Where cultural techniques which encourage the build up of organic residues in the surface soil are practiced for a number of seasons, the effectiveness of residual herbicides may be reduced. In such circumstances periodic ploughing is recommended to disperse residues into a greater volume of soil.

1.2 Soil types

PENTA may be used on all mineral soil types.

Do not use on soils with more than 10% organic matter.

Do not use on water logged soil or soils prone to water logging.

On stony or gravelly soils there is a risk of crop damage, especially if heavy rain falls soon after application.

1.3 Seedbed preparation

Trash and straw should be incorporated evenly during seedbed preparation.

Seedbed must have a fine, firm tilth.

Consolidate loose or cloddy seedbeds before use.

Following pre-emergence applications, unconsolidated clods (especially if larger than 75mm (3") diameter) may reduce the level of weed control and cause seed to be inadequately covered, which could result in crop damage.

1.4 Crop safety

Extreme care should be taken to avoid damage by drift onto plants outside the target area.

Do not apply PENTA to crops suffering from stress, which may be caused for

example by pests, disease, water logging, poor seedbed conditions or previous chemical treatment.

Seed should be covered with a minimum of 3.2 cm of settled soil (2.5 cm for Peas and Sunflowers, 5 cm for Maize).

Shallow drilled crops should be treated post-emergence.

Do not soil incorporate.

Do not spray undersown crops.

Do not undersow crops treated with PENTA.

PENTA should not be used on protected crops, or in greenhouses.

1.5 Other Restrictions/Warnings

Before using PENTA on crops to be processed, please consult your processor. Concentrated or diluted PENTA will stain. Avoid spillage.

Staining is minimised or completely removed if skin and clothes are washed immediately.

Hose down machinery immediately after use with a spray tank cleaner.

Certain following crop restrictions apply; these are detailed under 'Crop Specific Information'.

2. Weed Control

PENTA is a herbicide with foliar and root activity against a broad range of weeds. Good spray cover of the weeds is essential. PENTA is most effective against small actively growing weeds.

2.1 Cereals

2.1.1 PENTA applied alone

All weed susceptibility ratings in the table below are for applications made pre-emergence of the weeds.

CROPS	Winter Wheat, Durum Wheat, Winter Barley, Winter Rye & Triticale		Spring Barley
	PENTA		PENTA
PRODUCT			
Rate of application	3.3 litres/ha	2.5 litres/ha	3.3 litres/ha
GRASS WEED CONTROL			
Annual Meadow-grass	S	S	S
Awmed Canary Grass	-	-	-
Black-grass	-	-	-
Rough Meadow-grass	MS	MS	MS
BROAD LEAVED WEEDS			
Black bindweed	-	-	-
Black nightshade	-	-	-
Cleavers	-	-	-
Common chickweed	S	S	S
Common fumitory	MS	-	MS
Commonorache	S	MS	S
Common poppy	S	MS	S
Corn buttercup	-	-	-
Corn marigold	S	S	S
Fat-hen	S	MS	S
Field forget-me-not	S	MS	S
Field pansy	S	MS	S
Hemp-nettle (Day nettle)	S	S	S
Henbit Dead-nettle	S	S	S
Knotgrass	S	MS	S
Mayweeds	MS	-	-
Parsley piert	S	S	S
Red dead-nettle	S	S	S

CROPS	Winter Wheat, Durum Wheat, Winter Barley, Winter Rye & Triticale		Spring Barley
	PENTA		PENTA
PRODUCT			
Rate of application	3.3 litres/ha	2.5 litres/ha	3.3 litres/ha
Redshank (early germinating)	-	-	-
Scarlet pimpernel	S	S	S
Shepherds-purse	MS	-	MS
Small nettle	S	-	S
Smooth sowthistle	S	MS	S
Speedwells	S	S	S
Volunteer oilseed rape (1)	S	S	MS

MSS = Susceptible

MS = Moderately susceptible

(1) = Deep germinating Volunteer Oilseed Rape may not be controlled

- = no data

2.1.2 PENTA plus tank mix partner

Crops	Winter Wheat
Product	PENTA
Rate of application	3.3 litres/ha
Tank mix partner	Atlantis WG@3 400 g/ha + 0.5% Biopower@3

GRASS WEED CONTROL

Annual Meadow-grass	<i>S up to 1st node (GS 31)</i>
Awmed Canary Grass	-
Black-grass	<i>S up to 1st node (GS 31)</i>
Loose Silky Bent	-
Rough Meadow-grass	<i>S up to 1st node (GS 31)</i>
Italian Ryegrass	<i>S up to stem elongation (GS 30)</i>
Perennial Ryegrass (from seed)	<i>S up to 1st node (GS 31)</i>
oats (Autumn germinating)	<i>S up to 1st node (GS 31)</i>

BROAD LEAVED WEEDS

Black bindweed	-
Charlock	<i>S up to 2 lvs</i>
Cleavers	<i>S up to 2 whorl</i>
Common chickweed	<i>S up to 8 lvs</i>
Common fumitory	<i>MS pre-em</i>
Commonorache	<i>S pre-em</i>
Common poppy	<i>S up to 8 lvs</i>
Corn marigold	<i>S pre-em</i>
Corn Spurrey	-
Crane's bill	-
Fat-hen	<i>S pre-em</i>
Field forget-me-not	<i>S pre-em</i>
Field pansy	<i>S up to 2 lvs</i>
Fools Parsley	-
Groundsel	-

Crops	Winter Wheat
Product	PENTA
Rate of application	3.3 litres/ha
Tank mix partner	Atlantis WG@3 400 g/ha + 0.5% Biopower@3
Hemp-nettle (Day nettle)	<i>S pre-em</i>
Henbit Dead-nettle	<i>S pre-em</i>
Knotgrass	<i>S pre-em</i>
Mayweeds	<i>S up to 8 lvs</i>
Parsley piert	<i>S pre-em</i>
Red dead-nettle	<i>S pre-em</i>
Redshank (early germinating)	-
Scarlet pimpernel	<i>S pre-em</i>
Shepherds-purse	<i>S up to 4 lvs</i>
Small nettle	<i>S pre-em</i>
Smooth sowthistle	<i>S pre-em</i>
Speedwells	<i>S up to 2 lvs</i>
Volunteer oilseed rape (1)	<i>S pre-em</i>
Wild radish	-

S = Susceptible

MS = Moderately susceptible

** = Approved formulations

(1) = Deep germinating Volunteer Oilseed Rape may not be controlled

(2) = Heavy infestations may require re-treatment in the Spring with an approved Black-grass herbicide

(3) = Useful control of Autumn germinating Wild-oats has been observed. Heavy infestations, or where significant flushes occur in the Spring, may require a Spring application of an Approved Wild-oat herbicide.

(4) = Regrowth of Chickweed may occur where residual activity is reduced by excessive rainfall, warm soils and/or very dry soil conditions.

- = no data

2.2 Other crops

All weed susceptibility ratings in the table below are for applications made pre-emergence of the weeds.

CROPS	Combining peas Sunflowers Carrots Parsnips Strawberries Bush fruit Cane fruit Top fruit	Onions Leeks Transplanted Brassicas :- (Brussels sprouts, Broccoli Cabbages Calabrese Cauliflowers)	Forage Maize	Potatoes :- (First Early Second Early, Maincrop)
PRODUCT	PENTA	PENTA	PENTA	PENTA
Rate of application	3.3 litres/ha	3.3 litres/ha	3.75 litres/ ha	3.3 litres/ ha
Tank mix partner Rate (kg/ha)				SHOTPUT 0.5 kg/ha
Annual Meadow- grass	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Black-grass	-	-	-	-
Rough Meadow- grass	<i>MS</i>	<i>MS</i>	<i>MS</i>	<i>MS</i>
Black & White Mustard	-	-	-	-
Black bindweed	-	-	-	<i>MS</i>
Black Nighthshade	-	-	<i>S #</i>	-
Charlock	-	-	-	<i>S</i>
Cleavers (#)	-	-	-	<i>MS</i>
Common chickweed	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Common fumitory (#)	<i>*MS</i>	<i>MS</i>	<i>MS</i>	<i>MS</i>
Commomorache	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Common poppy	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Corn Buttercup	-	-	-	-
Corn marigold	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Fat-hen	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Field forget- me-not	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Field pansy	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Groundsel	-	-	-	<i>S</i>
Hemp-nettle (Day nettle)	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Henbit Dead-nettle	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Knotgrass	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Mayweeds (#)	-	-	-	<i>S</i>
Parsley piert	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Red dead-nettle	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Redshank (1)	-	-	-	<i>S</i>
Scarlet pimpernel	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Shepherds-purse	<i>*MS</i>	<i>MS</i>	<i>MS</i>	<i>MS</i>
Small nettle	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Smooth sowthistle	<i>S</i>	<i>S</i>	<i>S</i>	<i>MS</i>
Speedwells	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Volunteer oilseed rape (2)	<i>MS</i>	<i>MS</i>	<i>MS</i>	<i>S</i>

S = Susceptible
 MS = Moderately susceptible
 * = Control may be achieved under favourable conditions
 (1) = Early germinating
 (2) = Deep germinating Volunteer Oilseed Rape may not be controlled.
 # = If application is followed by a period of dry conditions, or in situations where very heavy populations occur, asequence of PENTA and a product applied post-emergence may be necessary.
 - = no data

2.3 Resistance management

Strains of some annual grasses (e.g. Black-grass, Wild-Oats, and Italian Ryegrass) have developed resistance to herbicides, which may lead to poor control. A strategy for preventing and managing such resistance should be adopted. Guidelines have been produced by the Weed Resistance Action Group and copies are available from the AHDB, CPA, your distributor, crop adviser or product manufacturer.

Populations of Black-grass and Italian ryegrass with high levels of enhanced metabolism resistance will not be fully controlled.

Key elements of the resistance management strategy for PENTA:

- Always follow WRAG guidelines for preventing and managing herbicide resistant weeds.

- Maximise the use of cultural control measures wherever possible (e.g. crop rotation, ploughing, stale seedbeds, delayed drilling, etc).

- Use tank mixes or sequences of effective herbicides with different modes of action within individual crops, or successive crops.

- For the control of herbicide resistant grassweeds, always use PENTA in tank mix or sequence with other effective graminicides with different modes of action.

- Apply pre-emergence of weeds wherever possible. If applications are delayed, apply post-emergence products/mixtures to small, actively growing weeds, especially where high levels of resistance are suspected and to reduce the risk of resistance development.

- Monitor fields regularly and investigate the reasons for any poor control.

3. Crop specific information

PENTA is recommended for use on all varieties of approved crops on any mineral soil except where indicated in the tables below.

3.1 Winter wheat including Durum wheat, winter barley PENTA applied alone

Product	PENTA
Rate	2.5 or 3.3 l/ha
Water volume	100 to 200 litres/hectare.
Timing	Pre-emergence of the crop to before leaf sheath erect stage, (GS30). Do not apply pre-emergence to crops drilled after 30th November.
Seed depth	Seed must be covered with a MINIMUM of 3.2cm of settled soil. ONLY treat shallow drilled crops POSTEMERGENCE.

3.2 Winter wheat PENTA applied in tank mix with Atlantis[®] WG

Product	PENTA + Atlantis [®] WG + Biopower [®]
Rate	3.3 l/ha + 400 g/ha + 0.5%
Water volume	200 litres/hectare.
Timing	Apply post-emergence from 2 leaves on the crop. Apply to young, actively growing weeds. Optimum timing for Black-grass control is 1-3 leaves of the Black-grass.
Notes	For optimum activity, apply when weather conditions promote active weed growth. Do not apply to crops suffering from stress, which may be caused for example by pests, disease, water logging, poor seedbed conditions or previous chemical treatment. Under certain climatic, soil and crop conditions some slight chlorosis and stunting of the crop may occur. If frost is likely, avoid spraying non

frost-hardened crops. Avoid spraying during periods of prolonged or severe frost. Control may be reduced if rain falls within 2 hours of application. Thoroughly clean all spray equipment with a proprietary sprayer cleaner immediately after spraying to avoid subsequent damage to crops other than cereals. Consult Atlantis[®] WG product label for information on sequences with other sulfonylurea or 'ALS-inhibiting' herbicides.

3.3 Winter rye, Triticale

Product	PENTA
Rate	2.5 or 3.3 l/ha
Water volume	100 to 200 litres/hectare
Timing	Pre-emergence of the crop to before leaf sheath erect stage, (GS30). Do not apply pre-emergence to crops drilled after 30th November.
Seed depth	Seed must be covered with a MINIMUM of 3.2 cm of settled soil. ONLY treat shallow drilled crops POSTEMERGENCE.

3.4 Spring barley

Product	PENTA
Rate	3.3 l/ha
Water volume	100 to 200 litres/hectare.
Timing	Pre-emergence of the crop. Apply PENTA as soon as possible after drilling and before emergence. Due to risk of dry soils, do not apply PENTA SC alone after the end of March (mid April in Scotland) unless rainfall is imminent.
Seed depth	Seed must be covered with a MINIMUM of 3.2 cm of settled soil.

3.5 Combining Peas

Product	PENTA
Rate	3.3 l/ha
Water volume	100 to 200 litres/hectare
Timing	Pre-emergence of the crop. Apply PENTA as soon as possible after sowing and final seedbed preparation. Do not apply if the plumule is less than 13mm from the soil surface. Due to risk of dry soils, do not apply PENTA alone after the end of March (mid April in Scotland) unless rainfall is imminent.
Soil types	All mineral soils except gravelly soils
Seed depth	Seed must be covered with a MINIMUM of 2.5cm of settled soil

3.6 Potatoes (First early, second early & main crops)

Products	PENTA + SHOTPUT
Rate	3.3 l/ha + 0.5 kg/ha. In dry conditions apply a PENTA – SHOTPUT sequence.
Water volume	200 litres/hectare.
Timing	Pre-emergence of the crop. Apply as soon as possible after planting and final ridging up. Loose structured ridges must be allowed time for settlement before application. Do not apply later than 7 days before emergence.
Soil types	Do not use on Sands (S), Gravelly or Stony soils
Variety	Read the SHOTPUT label carefully, particularly with regard to varietal restrictions.
Application	PENTA + SHOTPUT should be applied in a minimum of 200 litres of water/ha.
Notes	Best weed control will be achieved with settled well-rounded ridges with few clods. If re-ridging is

necessary, delay application until after the final ridging is completed. Slight distortion and discolouration of the initial shoots may occur if very heavy rain falls after application but before emergence, particularly to crops grown on very light soils. This is quickly outgrown and subsequent growth is unaffected. Read the SHOTPUT label carefully, particularly with regard to following crop restrictions.

3.7 Sunflowers

Product	PENTA
Rate	3.3 l/ha
Water volume	100 to 200 litres/hectare.
Timing	Apply as soon as possible after sowing and final seedbed cultivation, before crop and weed emergence.
Seedbed	Consolidate seedbeds after drilling to provide a firm level soil. Seed should be drilled so that after seedbed consolidation it is covered by a minimum of 2.5cm of settled soil.

3.8 Carrots and Parsnips

Product	PENTA
Rate	3.3 l/ha
Water volume	100 to 200 litres/hectare.
Timing	Apply as soon as possible after drilling but before crop and weed emergence.
Notes	If emerged weeds are present after drilling but pre-emergence of the crop, PENTA may be applied in tank mix with a recommended approved contact herbicide.

3.9 Transplanted Brassicas (Broccoli, Brussels sprouts, Cabbages, Calabrese, Cauliflowers)

Product	PENTA
Rate	3.3 l/ha
Water volume	100 to 200 litres/hectare.
Timing	Apply after final plantbed cultivation but before transplanting. Do not apply PENTA post-planting as crop damage may occur. Do not apply PENTA to any transplanted brassicas when heavy rain is forecast.
Application	Do not incorporate and avoid all unnecessary disturbance to soil after application. When transplanting care must be taken not to introduce treated soil into the root zone. If necessary, irrigation should be used before application as some moisture is essential for the chemical to be activated.
Soil types	Do not use on crops grown on sands (CS, S, FS, LCS), very light soils (LS, LFS, CSL), as crop damage may result.
Notes	If emerged weeds are present at pre-transplanting application, apply PENTA in tank mix with a recommended approved contact herbicide.

3.10 Bulb onions and Leeks

Product	PENTA
Rate	3.3 l/ha
Water volume	100 to 200 litres/hectare.
Timing	Drilled crops - apply PENTA as soon as possible after drilling but before crop or weed emergence. Transplanted crops - apply PENTA pre-transplanting. Do not apply PENTA to any onion or leek crop when heavy rain is forecast.
Seed depth	Seed should be covered with a minimum of 2.5cm of settled soil.

Application When transplanting, care must be taken not to introduce treated soil into the root zone.

Soil types PENTA is not recommended for use on onions or leeks grown on sands (CS, S, FS, LCS), very light soils (LS, LFS, CSL), as crop damage may result. PENTA is not recommended for use on onions or leeks grown on fen soils or other soils containing in excess of 10% organic matter, as weed control may be reduced.

Notes If weeds are present, these can be controlled by applying PENTA in tank mix with a recommended contact herbicide. Read tank mix partner label carefully for restrictions on transplanted multi-seeded onions or leeks.

3.11 Forage maize

Product	PENTA
Rate	3.75 l/ha
Water volume	100 to 200 litres/hectare.
Timing	Pre-emergence to before 4th leaf of the crop.
Notes	Do not use on Sweetcorn or Maize grown for seed. Seed must be covered by a minimum of 5cm of settled soil. The use of PENTA may affect the full development of crown roots which function only to anchor the plant. This has no effect on the yield of maize. If application is followed by a period of dry conditions or in situations where very heavy populations occur, a sequence of PENTA and a product applied post-emergence may be necessary.

3.12 Strawberries (Maiden and Established crops)

Product	PENTA
Rate	3.3 l/ha
Water volume	100 to 200 litres/hectare
Timing	Maiden Beds
	- runners should be planted so that roots are well covered.
	- good consolidation of the plantbed is necessary for good weed control.
	- PENTA should be applied to dormant newly planted runners in the autumn or early spring immediately after planting and prior to weed emergence.
	- if runners are likely to be slow in establishing due to stress conditions, such as drought, at the time of planting, the application of PENTA should be delayed until plants have established and are free of stress.
	- application made after runners have started growing away may reduce the initial vigour of new foliage but this will be rapidly outgrown.
	- do not apply PENTA before October to beds newly planted with cold-stored runners or beds newly planted in late summer.
	- pre-planting application of PENTA is not recommended.

Established beds

	- apply PENTA to weed free soil from autumn to early spring during the dormant period of the crop. - PENTA applied after the end of March or after the emergence of flower trusses in the spring may affect crop yield, particularly if conditions adverse to vigorous plant growth follow application.
	- do not apply PENTA during the flower initiation period (immediately post-harvest to mid-September)
Notes	Leaf growth of strawberries may be checked following applications of PENTA in the spring but, in extensive experimentation, this has been shown not to affect yield. Do NOT use PENTA on protected crops or crops grown in green houses.

3.13 Bush Fruit – Blackcurrants, redcurrants and Gooseberries

Product Rate	PENTA 3.3 l/ha
Water volume	100 to 200 litres/hectare.
Timing	Apply PENTA after final cultivation to weed-free soil from autumn to early spring during the dormant period of the crop before bud burst, either over the top or as a directed spray. PENTA is not recommended for use in the season of planting.
Tank mixes	If emerged weeds are present at application, PENTA may be applied as a directed spray in tank mix with a recommended approved contact herbicide.

3.14 Cane Fruit – Raspberries, Loganberries, Tayberries, Blackberries

Product Rate	PENTA 3.3 l/ha
Water volume	100 to 200 litres/hectare.
Timing	Apply PENTA after final cultivation to weed-free soil from autumn to early spring. PENTA is not recommended for use after the end of March unless adequate soil moisture is present as some soil moisture present is essential for the chemical to be activated. Do not apply to autumn fruiting raspberries.

Newly planted crops:

- PENTA should be applied immediately after planting.
- a light riddling along the cane row before application is recommended to ensure roots are well covered.
- PENTA should be applied well before the emergence of the new canes.

Established crops:

- PENTA should be applied as soon as the canes have been cut out and tied, but before bud burst.

Tank mixes	If emerged weeds are present at application, PENTA may be applied as a directed spray in tank mix with a recommended approved contact herbicide
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3.15 Top Fruit – Apples, Cherries, Pears, Plums

Product Rate	PENTA 3.3 l/ha
Water volume	100 to 200 litres/hectare.
Timing	Apply PENTA to weed-free soil from autumn to early spring. PENTA is not recommended for use after the end of March unless adequate soil moisture is present as some soil moisture is essential for the chemical to be activated. PENTA is not recommended for use in the season of planting.
Tank mixes	If emerged weeds are present at the time of application, PENTA should be applied in tank mix with a recommended approved contact herbicide.

4. Following crops

4.1 Following crops after normal harvest

Before Rye grass is drilled after a very dry season, plough or cultivate to at least 15cm.

If spring crops are to be followed by crops other than cereals plough or cultivate to at least 15cm.

4.2 In the event of crop failure

In the event of crop failure the land must be ploughed or thoroughly cultivated to a minimum depth of 15cm to ensure any residues are evenly dispersed throughout the soil.

The minimum intervals (specified below) should elapse between application of PENTA and the sowing of one of the following crops listed below.

Application timing	Minimum interval	In the event of crop failure, the following crops may be drilled:
Autumn	5 months	Spring wheat, Spring barley, Spring Field beans, Broad beans, Dwarfbeans, Brussels sprouts, Cabbage, Calabrese, Carrots, Cauliflower, Parsnips, Parsley, Peas, Potato, Linseed, Maize, Turnip
Spring & early summer	2 months	Spring Field beans, Broad beans, Dwarf beans, Brussels sprouts, Cabbage, Calabrese, Carrots, Cauliflower, Parsnips, Parsley, Peas, Linseed, Turnip
	5 months	Any crop (with the exception of Red Beet, Sugar Beet and Spinach) may be planted or sown.
	12 months	Red Beet, Sugar Beet and Spinach

5. Mixing and Spraying

5.1 Mixing

Never prepare more spray solution than is required. Half fill the tank with clean water and start the agitation. To ensure thorough mixing of the product, invert the container several times before opening. Add the required quantity of PENTA to the spray tank while re-circulating. Fill up the tank with water and continue agitation until spraying is completed. When tank mixes are to be used, take due note of any instructions given as to the order of mixing. Each product should be added separately to the spray tank and fully dispersed before the addition of any further product(s). 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.

5.2 Spraying

Ensure good, even spray cover of the target using a FINE or MEDIUM quality spray, as defined by BCPC. Apply PENTA in 100-200 l/ha. For potatoes apply PENTA in minimum 200 l/ha water. When tank mixing with other products use a minimum water volume of 150-200 l/ha depending on the tank mix partner. When using 100 l/ha include an 80 mesh inline boom filter.

5.3 Sprayer cleaning

After spraying, thoroughly clean and flush out application machinery with a minimum of three rinses, to ensure that all traces of product are removed.

6. Compatibility

When tank-mixing ONLY APPLY within label conditions for each product.

6.1 Tank mixes for Winter cereals

Two-way mixes (up to max of 3.3 l/ha PENTA)	Atlantis®3 WG + Biopower®3
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6.2 Tank mixes for Potatoes

Potatoes	SHOTPUT	Do not exceed rates given in Weed Control section for PENTA + SHOTPUT
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6.3 Sequential treatments

PENTA may be used in sequence with any other approved product. Leave a minimum interval of 24 hours unless longer is specified on the label.

PENTA may be applied in sequence with Avadex®1 Excel 15G provided only one product is applied pre-emergence of the crop.

7. Trademark acknowledgements

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The following does not form part of the product label under the UK Plant Protection Products Regulations.

CONDITIONS OF SUPPLY

All goods supplied by us are of high grade and we believe them to be suitable but, as we cannot exercise control over their storage, handling, mixing or use or the weather conditions before, during and after 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 re-sellers for any failure in performance, damage or injury whatsoever arising from their storage, handling, application or use. These conditions cannot be varied by our staff or agents whether or not they supervise or assist in the use of such goods.

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Specimen-
2018 to date