

# Pendifin 400 SC<sup>TM</sup>

A suspension concentrate containing 400g/L pendimethalin

A herbicide for the control of annual grasses and broad-leaved weeds in a wide range of agricultural and horticultural crops.



## Warning

**Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.**

Keep out of the reach of children.

Do not eat, drink or smoke when using this product.

If swallowed: get immediate medical advice/attention.

Collect spillage.

Dispose of contents/container to a licensed hazardous waste disposal contractor or collection site except for triple rinsed, empty containers which can be disposed of as non-hazardous waste.

Contains pendimethalin may cause an allergic reaction.

**To avoid risks to human health and the environment, comply with the instructions for use.**



**Authorisation holder & Marketing company:**

Finchimica S.p.A, via Lazio, 13, 25025 Manerbio (BS), Italy (Registered Company number: 00573160983)

[www.finchimica.it](http://www.finchimica.it)

**TECHNICAL ENQUIRIES:** +39 (0) 30938901

**24 HOUR EMERGENCY NUMBER:** +39 (0) 30938901

**PCS No: 05731**

## IMPORTANT INFORMATION

FOR PROFESSIONAL USE ONLY AS AN AGRICULTURAL/HORTICULTURAL HERBICIDE

<b>Crops</b>	<b>Maximum individual dose (L product/ha)</b>	<b>Maximum individual dose (L product/ha)</b>	<b>Latest time of application</b>
Winter wheat, winter barley, durum wheat, winter rye and triticale	3.3	One per crop	Before leaf sheath erect stage (GS 30)
Spring barley, combining pea, sunflower and potato	3.3	One per crop	Pre-crop emergence
Forage maize	3.75	One per crop	Before 4 leaf stage
Bulb onion (spring and autumn, drilled and transplanted) and leek (drilled crops)	3.3	One per crop	Pre-crop emergence
Carrot and parsnip (drilled crops)	3.3	One per crop	Pre-crop emergence
Broccoli, Brussels sprout, cabbage, calabrese and cauliflower (transplanted crops)	3.3	One per crop	Before transplanting
Strawberry (field)	3.3	One per crop	After flower initiation but before flower truss emergence
Top fruit orchards (Apple, cherry, pear, plum)	3.3	One per crop	After harvest but before bud burst
Cane/bush fruit plantations (Raspberry, loganberry, rubus hybrid, blackberry, blackcurrant and gooseberry)	3.3	One per crop	After harvest but before bud burst

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SHAKE WELL BEFORE USE

PROTECT FROM FROST

## **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

AVOID ALL CONTACT BY MOUTH.

DO NOT BREATHE SPRAY.

WASH CONCENTRATE from skin or eyes immediately

WASH HANDS AND EXPOSED SKIN before meals and after work.

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

### **Environmental protection**

Do not contaminate water with this 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 of 5 metres to surface water bodies.

### **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.

Keep dry in a frost proof pesticide store. Protect from sunlight.

Store at temperatures not exceeding 35°C.

## **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**

**General:** Consult your processor before using Pendifin 400 SC on crops to be processed.

Avoid spillage of Pendifin 400 SC. Diluted and concentrated Pendifin 400 SC will stain however this is minimized or completely removed if skin and clothes are washed immediately after contact. Machinery used to apply Pendifin 400 SC should be hosed down with a spray tank cleaner immediately after use.

Rainfall occurring within 7 days of application of Pendifin 400 SC will promote weed control as soil moisture is necessary for the activation of this herbicide. However, Pendifin 400 SC should not be applied if rain is expected within 6 hours of application as reduced weed control may result.

Residual control maybe reduced if there is a prolonged dry spell and where the soil has a high Kd factor. Reduced control may also be apparent on soils with a high (greater than 6%) organic matter content or high ash content.

The soil should be settled prior to the application of Pendifin 400 SC and not disturbed after treatment as this may reduce control.

Ploughing prior to application on soils where organic residues accumulate in the surface soil is recommended to ensure these residues are dispersed into a greater volume of soil.

**Soil types:** Pendifin 400 SC can be used on mineral soils but should not be used on soils where the organic matter content of the soil is greater than 10%. Crop damage may occur when Pendifin 400 SC is applied to stony or gravelly soils especially if heavy rain occurs soon after application. Pendifin 400 SC should not be applied to waterlogged soils or soils prone to water logging.

**Seedbed:** The seedbed should have a fine, firm tilth with trash and straw evenly incorporated. Loose or cloddy seedbeds should be consolidated before application of Pendifin 400 SC. Unconsolidated clods may result in a reduction in the level of weed control following pre-emergent applications and cause seed to be inadequately covered and thereby bring about crop damage.

**Crop safety:** Avoid spray drift onto neighbouring crops. Crops suffering from stress caused by for example pests, disease water logging, previous chemical treatment or poor seedbed conditions may be damaged by application of Pendifin 400 SC. Crop seed must be adequately covered by settled soil (5cm for maize; 2.5cm for peas and sunflowers and 3.2cm for other crops), shallow drilled crops should not be treated pre-emergence.

Do not treat undersown crops and do not undersow crops treated with Pendifin 400 SC.

Do not incorporate Pendifin 400 SC into soil.

Do not treat protected crops or glasshouse crops with Pendifin 400 SC.

Do not apply to maize grown for seed.

### **Resistance**

Pendifin 400 SC contains pendimethalin, it belongs to the dinitroanilines chemical class and is classified as belonging to the HRAC group K1 herbicides which inhibit microtubule assembly by binding tubulin. This particularly affects the meristematic regions thus inhibiting root and shoot growth. Symptoms on grass species include short, swollen coleoptiles and injured broadleaf plants often have swollen hypocotyls.

Strains of some annual grasses, 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. 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.

Black-grass and Italian ryegrass populations with enhanced metabolism resistance will not be fully controlled by applications of Pendifin 400 SC. Cultural control methods such as crop rotation, ploughing, stale seedbeds, delayed drilling etc. should be used in conjunction with chemical methods of weed control. Regularly monitor fields and check the reasons for any occurring poor control in accordance with the current advice from HRAC.

## Weeds controlled

When Pendifin 400 SC is applied pre-emergence of the weeds the following susceptibility can be expected, as shown in the table below. Weeds germinated at the time of application may not be controlled. To give best weed control it is important that soil is moist at the time of application.

Crops	Winter wheat, durum wheat, winter barley, rye and triticale		Spring barley	Combining pea, sunflower, carrot, parsnip, strawberry, Bush fruit, cane fruit and top fruit	Onion, leek, transplanted brassicas	Forage maize	Potato (First early, Second early, maincrop)
<b>Rate of Use (L/ha)</b>	<b>2.5</b>	<b>3.3</b>	<b>3.3</b>	<b>3.3</b>	<b>3.3</b>	<b>3.75</b>	<b>3.3*</b>
	<u>Grass weeds</u>						
Annual meadow grass	S	S	S	S	S	S	S
Rough meadow grass	MS	MS	MS	MS	MS	MS	MS
	<u>Broad leaved weeds</u>						
Black bindweed	-	-	-	-	-	-	MS
Black nightshade	-	-	-	-	-	S <sup>2</sup>	-
Charlock	-	-	-	-	-	-	S
Cleavers <sup>2</sup>	-	-	-	-	-	-	MS
Common chickweed	S	S	S	S	S	S	S
Common fumitory	-	MS	MS	MS <sup>4</sup>	MS <sup>2</sup>	MS <sup>2</sup>	MS <sup>2</sup>
Common orache	MS	S	S	S	S	S	S
Common poppy	MS	S	S	S	S	S	S
Corn marigold	S	S	S	S	S	S	S
Fat hen	MS	S	S	S	S	S	S
Field forget-me-not	MS	S	S	S	S	S	S
Field pansy	MS	S	S	S	S	S	S
Groundsel	-	-	-	-	-	-	S
Hemp nettle	S	S	S	S	S	S	S
Henbit dead-nettle	S	S	S	S	S	S	S

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**Broad leaved weeds**

Knotgrass	MS	S	S	S	S	S	S
Mayweeds	-	MS	-	-	-	-	S <sub>2</sub>
Parsley piert	S	S	S	S	S	S	S
Red dead-nettle	S	S	S	S	S	S	S
Redshank <sub>1</sub>	-	-	-	-	-	-	S
Scarlet pimpernel	S	S	S	S	S	S	S
Shepherd's-purse	-	MS	MS	MS	MS	MS	MS
Small nettle	-	S	S	S	S	S	S
Smooth sowthistle	MS	S	S	S	S	S	MS
Speedwells	S	S	S	S	S	S	S
Volunteer OSR <sup>3</sup>	S	S	MS	MS	MS	MS	S

S = susceptible

MS = moderately susceptible

= no data

\*= applied with 0.35kg/ha metribuzin

1 = early germinating

2 = A sequence of Pendifin 400 SC and another product applied post-emergence maybe necessary to achieve control where dry conditions follow application or there is a severe infestation of weeds.

3 = Deep germinating volunteer oilseed rape may not be controlled

4 = Control may be achieved under favourable conditions

### **Crop specific information**

#### Winter wheat, durum wheat, winter barley, winter rye and triticale

Pendifin 400 SC can be applied at 2.5-3.3L/ha in a water volume of 100-200L/ha. It can be applied pre-emergence of the crop to before leaf sheath erect stage (GS30). Seed must be covered with a minimum of 3.2cm of settled soil for pre-emergence application. For shallow drilled crops only apply Pendifin 400 SC post-emergence. Do not apply pre-emergence to crops drilled after the 30th November.

#### Spring barley

Apply Pendifin 400 SC at a rate of 3.3L/ha in 100-200L water /ha pre-emergence of the crop as soon after drilling as possible. Do not apply Pendifin 400 SC after the end of March unless rainfall is imminent. Ensure seed is covered by a minimum of 3.2cm of settled soil.

#### Combining pea

Pendifin 400 SC can be applied at a rate of 3.3L/ha in a water volume of 100-200L/ha pre-emergence of the crop and as soon after sowing and final seedbed preparation as possible. The seed should be covered with a minimum of 2.5cm of settled soil and Pendifin 400 SC should not be applied if the plumule is less than 13mm from the soil surface. All mineral soils can be treated except gravelly soils. Do not apply Pendifin 400 SC after the end of March unless rainfall is imminent.

#### Carrot and parsnip

Pendifin 400 SC can be applied at a rate of 3.3L/ha in a water volume of 100-200L/ha as soon as possible after drilling but before crop emergence. A contact herbicide maybe applied in a tank mix with Pendifin 400 SC if weeds are present after drilling and before crop emergence.

#### Transplanted broccoli, Brussel sprouts, cabbage, calabrese and cauliflower

Pendifin 400 SC can be applied at a rate of 3.3L/ha in a water volume of 100-200L/ha after the final plantbed cultivation and before transplantation. Care must be taken to ensure treated soil is not introduced into the root zone during transplanting. Do not incorporate and avoid all unnecessary disturbance to the treated soil. If the soil is dry irrigation may be necessary before application, do not apply Pendifin 400 SC post planting or when heavy rain is expected.

### Bulb onions (spring, autumn drilled or transplanted) and leeks (drilled only)

Pendifin 400 SC can be applied at a rate of 3.3L/ha in a water volume of 100-200L/ha.

For **drilled crops** it should be applied as soon as possible after drilling but before emergence of either the crop or weeds.

For **transplanted crops** Pendifin 400 SC should be applied to the soil prior to transplanting and care should be taken to ensure treated soil is not introduced into the root zone of the plants.

Do not apply Pendifin 400 SC to crops grown on sands or very light soil as crop damage may occur. Reduced weed control may result if Pendifin 400 SC is applied to fen soils or soils containing more than 10% organic matter.

### Forage maize

Pendifin 400 SC should be applied pre-emergence at a rate of 3.75 L/ha in a water volume of 100-200L/ha. The seed must be covered by a minimum of 5cm of settled soil. If a heavy infestation of weeds is present or if dry conditions prevail a post-emergent application of another herbicide may be necessary. Crown roots may be affected by the use of Pendifin 400 SC but this will not affect the final yield.

### Sunflower

Pendifin 400 SC can be applied at a rate of 3.3L/ha in a water volume of 100-200L/ha as soon as possible after drilling and final seedbed cultivation. The seedbed should be consolidated after drilling, and before application, to give a firm level soil which covers the seed with 2.5cm of settled soil before the crop or weeds emerge.

### Potatoes (First earlies, second earlies and maincrop).

Pendifin 400 SC can be applied at 3.3L/ha with the addition of 0.35kg/ha metribuzin in a water volume of 200L/ha, pre-emergence of the crop as soon after planting and ridging up as possible. For optimum weed control the ridges should be settled and well-rounded with few clods. If there is the possibility of re-ridging being required do not apply until after that is complete.

Slight distortion and discolouration of the initial shoots may occur if heavy rain falls after application but before emergence, especially on light soils. This is usually quickly outgrown and yield is not affected. Particular note should be made of the partner product label to ensure full restrictions are complied with.

### Strawberry (maiden or established crops)

Pendifin 400 SC can be applied at a rate of 3.3 L/ha in a water volume of 100-200 L/ha.

**Maiden beds:** the roots of runners must be well covered and the plantbed needs to be well consolidated to ensure good weed control. In the autumn or early spring Pendifin 400 SC can be applied to the newly planted, dormant runners before the weeds begin to emerge. Delay the application of Pendifin 400 SC if the establishment of the plants is likely to be slow, until the plants are established and stress free. Vigour may be temporarily reduced after application to sprouting runners but this will be rapidly outgrown.

Do not apply before October to beds which are newly planted with cold stored runners or to beds newly planted in late summer. Do not apply Pendifin 400 SC to bed prior to planting.

**Established beds:** Pendifin can be applied from autumn to spring to weed free soil during the dormant period of the crop. Applications made after the end of March or after the flower trusses have emerged may affect yield especially if the conditions are not favourable to rapid growth after application. Pendifin 400 SC should not be applied during flower initiation (immediately post-harvest in September). It should not be used in a protected or glasshouse situation.

### Blackcurrant and gooseberry

Pendifin 400 SC can be applied at a rate of 3.3L/ha in a volume of 100-200L/ha after the final cultivation to weed free soil from autumn to early spring during the dormant period of the crop.

The application should be made before bud burst and may be applied as a directed spray or over the top. Do not apply Pendifin 400 SC in the season of planting.

### Raspberry, loganberry, rubus hybrid and blackberry

Pendifin 400 SC can be applied at a rate of 3.3L/ha in a water volume of 100-200 L/ha after the final cultivation to weed-free soil from autumn to early spring. It should only be applied after the end of March if the soil moisture is high enough to activate the herbicide. Do not apply Pendifin 400 SC to autumn fruiting raspberries.

On **newly planted** crops Pendifin 400 SC should be applied immediately after planting and before any new canes emerge. It is recommended that the canes are ridged up slightly before application to ensure good covering of the cane roots.

On **established crops** Pendifin 400 SC should be applied as soon as the canes have been cut and tied and before bud burst.

Apple, cherry, pear and plum

Pendifin 400 SC can be applied at a rate of 3.3L/ha in a water volume of 100-200 L/ha to weed free soil from autumn to early spring. It should only be used after the end of March if adequate soil moisture is present to ensure activation of the herbicide. It is not recommended that Pendifin 400 SC be used in the season of planting.

### **Following crops**

**After normal harvest:** It is recommended to plough to a depth of 15 cm before drilling any crop other than cereals after harvesting a spring crop- this should also be done if Rye grass is to be drilled.

**After crop failure:** the soil must be thoroughly cultivated or ploughed to a minimum depth of 15cm and then the following intervals observed before planting:

#### After an autumn application:

5 months must elapse before drilling: spring barley, spring wheat, beans (spring field bean, broad bean or dwarf bean), Brussels sprouts, cabbage, calabrese, carrots, cauliflower, parsnips, parsley, peas, potato, linseed, maize or turnip.

#### After a spring or summer application:

2 months must elapse before drilling: beans (spring field bean, broad bean or dwarf bean), Brussels sprouts, cabbage, calabrese, carrots, cauliflower, parsnips, parsley, peas, linseed or turnip.

5 months must elapse before drilling any crop except red beet, sugar beet and spinach

12 months must elapse before drilling red beet, sugar beet and spinach

### **MIXING AND SPRAYING**

Only prepare the required quantity of spray and apply using conventional crop spraying equipment as a FINE to MEDIUM spray as defined by BCPC, applied at a minimum of 2 bar to ensure an even coverage.

Half-fill the spray tank with clean water and begin agitation. Add the recommended amount of Pendifin 400 SC to the spray tank. Fill the tank with the remaining water. Continue agitation until spraying is completed.

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.)

Once spraying is complete thoroughly clean and flush out the application equipment with a minimum of 3 rinses and add the rinsings to the spray tank.

### **Compatibility**

Pendifin 400 SC is compatible with approved formulations of metribuzin (MAPP 16167, PCS 04361).

### **Company Disclaimer and conditions of supply**

Finchimica S.p.A. , as the seller, shall be under no liability (except for liability for death or personal injury resulting from the negligence of the seller) whether in contract or in tort for or in respect of any loss or damage resulting from an arising out of the mixing or sequential use, of the goods with any other goods (whether the Seller or any third-party) otherwise than in accordance with the Seller's Recommendations for Use, or resulting from or arising out of the use of the goods in or before abnormal weather conditions or in unusual soil conditions notwithstanding that such conditions may be known or may have been known to the Seller or on plant varieties not known to the Seller to be abnormally susceptible to damage by the goods.

**PENDIFIN 400 SC** is a trademark of Finchimica S.p.A., Italy.

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Batch number: see packaging

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SHAKE WELL BEFORE USE



# 10 Litres e