# PANTHA

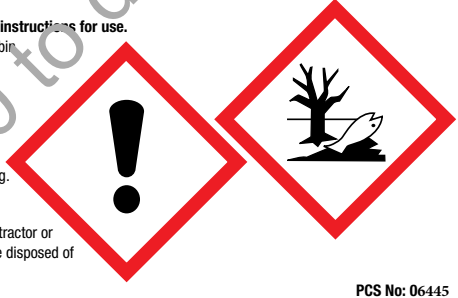
Product registration number: PCS No. 06445

PANTHA is a suspension concentrate containing 250 g/litre (23.1% w/w) of azoxystrobin

A broad spectrum fungicide for wheat, barley, oats, rye, triticale, oilseed rape, combining peas, fresh peas (vining peas, garden pea, mange tout, sugar snaps), fresh beans (broad beans, green beans), field beans, lupins, bulb onions, garlic, shallots, leeks, carrots, asparagus, potatoes, cabbage, cauliflower, Brussels sprouts, kale (winter greens), collard (spring greens), broccoli, calabrese, outdoor and protected crops of strawberry, outdoor and protected crops of lettuce, endive (including frisee, escarole), chicory (radicchio).



**FOR PROFESSIONAL USE ONLY**
**To avoid risks to human health and the environment comply with the instructions for use.**
A suspension concentrate containing 250 g/litre (23.1% w/w) of azoxystrobin



**Warning**
**Harmful if inhaled.**
**Very toxic to aquatic life with long lasting effects.**
Avoid breathing dust/fume/gas/mist/vapours/spray.
Use only outdoors or in a well-ventilated area.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/ doctor if you feel unwell.
Collect spillage.
Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for triple rinsed empty clean containers which can be disposed of as non-hazardous waste.
Contains 1,2-benzisothiazol-3-one. May produce an allergic reaction.

**PCS No: 06445**

**In the event of emergency, call the National Poisons Information Centre, Beaumont Hospital at 01 809 2166 or 01 837 9964.**

*PROTECT FROM FROST*
*SHAKE WELL BEFORE USE*

| **Authorisation Holder and Marketing Company** | |
|---|---|
| TerreChem Ltd<br>PO Box 12351<br>Braintree, Essex, UK. CM7 0JS<br>Tel: +44 (0) 1371 811236 | |

**5 litres**

# PANTHA

**CONDITIONS OF USE**

FOR USE ONLY AS AN AGRICULTURAL/HORTICULTURAL FUNGICIDE

| Crop | Maximum individual dose (litres/product/ha) | Maximum number of treatments (per crop) | Maximum total dose (litres/ product /ha) | Latest time of application |
|---|---|---|---|---|
| Wheat, rye and triticale | 1 | 2 | 2 | Before watery ripe stage (GS 71) |
| Barley, oats | 1 | 2 | 2 | Before beginning of flowering (GS 61) |
| Oilseed rape (winter and spring) | 1 | 2 | 2 | 21 days before harvest |
| Peas – combining, field beans, lupins | 1 | 2 | 2 | 35 days before harvest |
| Broad beans, vining peas | 1 | 2 | 2 | 14 days before harvest. |
| Dwarf french bean | 1 | 2 | 2 | 7 days before harvest |
| Bulb onions, garlic, shallots | 1 | 3 | 3 | 14 days before harvest. |
| Leeks | 1 | 3 | 3 | 21 days before harvest |
| Carrots | 1 | 3 | 3 | 14 days before harvest |
| Asparagus (outdoor) | 1 | 2 | 2 | Before senescence |
| **Brussels sprout, Cabbage, cauliflower, kale (winter greens) collards (spring greens), broccoli and calabrese – all outdoor | 1 | 2 | 2 | 14 days before harvest |
| Strawberries (outdoor and protected) | 1 | 3 | 3 | 3 days before harvest |
| **Lettuce, endive (including frisee, escarole), chicory (radicchio), (outdoor and protected) | 1 | 2 | 2 | 14 days before harvest |
| Potato (in-furrow) | 3 | 1 | 3 | At planting, applied as an in-furrow treatment |
| Potato (foliar spray) | 0.5 | 3 | 1.5 | 7 days before harvest |



Other Specific Restrictions:

To reduce the risk of resistance developing in target diseases the total number of applications of product containing QoI fungicides made to any cereal crop must not exceed two.

**A maximum total dose of 500g azoxystrobin must not be exceeded within a 12 month period on the same field.

When used in a protected situation other than "permanent protection with full enclosure", a 5m aquatic buffer zone must be observed.

**ADDITIONAL SAFETY PRECAUTIONS**

**(a) Operator protection**
WASH SPLASHES from skin or eyes immediately.
DO NOT BREATHE SPRAY.
WASH HANDS AND EXPOSED SKIN before meals and after work.
For use by tractor mounted/trailed sprayer or handheld knapsack sprayer.

**(b) Environmental protection**
Avoid drift on to non-target plants.
To protect aquatic life, for uses on crops broccoli, calabrese, Brussel sprouts, cabbage, cauliflower, collards, lettuce and kale, the maximum total dose applied must not exceed 500 g Azoxystrobin per hectare per year.
To protect aquatic organisms respect a 5m unsprayed buffer zone to surface water.
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.

**(c) Storage and disposal**
KEEP IN ORIGINAL CONTAINER, tightly closed in a safe place.
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 safely.



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

**GENERAL INFORMATION**

PANTHA contains azoxystrobin, a broad spectrum fungicide from the strobilurin group. It has systemic, translaminar and protectant properties.

Azoxystrobin inhibits fungal respiration. Its mode of action is different from the action of other fungicidal groups. It should always be used in mixture with fungicides with other modes of action.

PANTHA shows good crop safety, disease control and maintenance of green leaf area which result in significant yield benefits.

PANTHA is best used as a protective treatment or during early stages of disease establishment. In cereals, the length of disease control is generally about four to six weeks during the period of active stem elongation, but can be more when applied at flag leaf/ear emergence.

PANTHA is approved for application to wheat, barley, oats, rye, triticale, oilseed rape, combining peas, fresh peas (vining peas, garden pea, mange tout, sugar snaps), fresh beans (broad beans, green beans), field beans, lupins, bulb onions, garlic, shallots, leeks, carrots, asparagus, potatoes, cabbage, cauliflower, Brussels sprouts, kale (winter greens), collard (spring greens), broccoli, calabrese, outdoor and protected crops of strawberry, outdoor and protected crops of lettuce, endive (including frisee, escarole), chicory (radicchio).

**RESTRICTIONS**

Certain apple varieties are highly sensitive to PANTHA . As a precaution PANTHA should not be applied when there is a risk of spray drift onto neighbouring apple crops. Spray equipment used to apply PANTHA to other crops should not be used to treat apples.

Apply PANTHA under good growing conditions with adequate soil moisture. Avoid poor growing conditions which may give less reliable results.

**DISEASES CONTROLLED**

**Wheat**

Glume Blotch (*Leptosphaeria (syn. Septoria) nodorum*)
Yellow Rust (*Puccinia striiformis*)
Brown Rust (*Puccinia recondita*)
Ear Diseases *(Cladosporium, Alternaria*)
Can reduce the severity of Take-all (*Gaeumannomyces graminis var. Tritici*)

**Barley**

Net Blotch (*Pyrenophora teres*) – moderate control
Brown Rust *(Puccinia hordei*)
Leaf Blotch (*Rhynchosporium secalis*) – reduction
Can reduce the severity of Take-all (*Gaeumannomyces graminis var. Tritici*)

**Oats**

Crown Rust (*Puccinia coronata*)

**Rye and Triticale**

Brown Rust (*Puccinia recondita*)
Leaf Blotch (*Rhynchosporium secalis*) - reduction
Can reduce the severity of Take-all (*Gaeumannomyces graminis var. Tritici*)

**Oilseed Rape**

Dark Leaf and Pod Spot (*Alternaria spp.*)
Sclerotinia stem rot (*S. sclerotiorum*) - moderate control

**Combining Peas, Vining Peas, Garden Peas, Sugar Snap, Mange Tout Green Beans**

Downy mildew (*Perenospora viciae*) - reduction
Leaf and Pod Spot (*Ascochyta pisi*) – useful reduction
When AMISTAR is used to control leaf and pod spot, some control of Grey Mould (Botrytis cinerea) and Mycosphaerella blight may be achieved.

**Field Beans, Broad Beans and Lupins**

Rust (*Uromyces spp*.)

**Leeks**

Leaf rust (*Puccinia porri*)
Purple blotch (*Alternaria porri*) – moderate control
White tip (*Phytophthora porri*) – moderate control

**Bulb Onions, Shallots and Garlic**
Downy mildew (*Peronospora destructor*) – moderate control

**Carrots**
Alternaria leaf blight (*Alternaria dauci*)
Powdery mildew (*Erysiphe polygoni*)

**Asparagus**
Stemphylium (*Stemphylium botryosum*) - moderate control
Rust (*Puccinia asparagi*) – moderate control

**Brussels Sprouts, Cabbage, Cauliflower, Kale (Winter Greens), Collards (Spring Greens), Broccoli and Calabrese**
White blister (*Albugo candida*) - moderate control
Ring spot (*Mycosphaerella brassicicola*) – moderate control
Alternaria (*Alternaria brassicae and Alternaria brassicicola*) – moderate control

**Lettuce, Endive (Frisse and Escarole), Chicory (Raddichio)**
Downy mildew (*Bremia spp*.)

**Strawberry**
Powdery mildew (*Podosphaera macularis*) – moderate control

**Potatoes**
Stem canker and Black scurf (*Rhizoctonia solani*) in furrow only - reduction
Black dot (*Colletotrichum coccodes*) in furrow only - reduction
Early blight (*Alternaria solani*) foliar application only - moderate control



**CROP SPECIFIC INFORMATION**
**CROPS**
PANTHA is approved for application to wheat, barley, oats, rye, triticale, oilseed rape, combining peas, fresh peas (vining peas, garden pea, mange tout, sugar snaps), fresh beans (broad beans, green beans), field beans, bulb onions, garlic, shallots, leeks, carrots, asparagus, potatoes, oilseed rape, cabbage, cauliflower, Brussels sprouts, kale (winter greens), collard (spring greens), broccoli, calabrese, outdoor and protected crops of strawberry, outdoor and protected crops of lettuce, endive (including frisee, escarole), chicory (radicchio).

**WINTER & SPRING WHEAT, WINTER AND SPRING BARLEY, WINTER AND SPRING OATS, RYE & TRITICALE**
**Timing**
Always inspect crops to assess disease development immediately before spraying. Best results will be achieved from applications made in the earliest stages of disease development or as a protectant treatment following a disease risk assessment or the use of appropriate decision support systems.
Winter and spring wheat, rye and triticale can be treated from BBCH 30 -69.
Winter and Spring barley and winter and spring oats can be treated from BBCH 30-59.

For protection against ear disease (*Cladosporium* and *Alternaria*) apply PANTHA at ear emergence.

When used to control the listed foliar diseases, PANTHA applied at the first or second node stage of the crop can reduce the severity of Take-all infection.

**Rate Of Use**
1.0 litre per hectare.
The maximim number of applications to any cereal crop is two per crop

**Tank Mixing**
On cereal crops, PANTHA must always be used in mixture with another product, recommended for control of the same target disease that contains a fungicide from a different cross resistance group and is applied at a dose that will give robust control.

**Resistance Management**
Use PANTHA as part of an Integrated Crop Management (ICM) strategy incorporating other methods of control, including where appropriate other fungicides with a different mode of action. You must not apply more than two foliar applications of QoI-containing products to any cereal crop.

Disease control may be reduced if strains of other pathogens less sensitive to azoxystrobin develop. On cereal crops, PANTHA must always be used in mixture with another product, recommended for control of the same target disease that contains a fungicide from a different cross resistance group and is applied at a dose that will give robust control.

Users should refer to current FRAG-UK guidelines for QoI compounds.

**PEAS (COMBINING AND FRESH), GREEN BEANS, BROAD BEAN, LUPIN**
**Timing**
PANTHA should always be used at the first sign of disease infection or when a predictive assessment shows conditions favourable for disease development from BBCH 17-72. For optimum disease control apply PANTHA before infection or as soon as disease is first seen in the crop. Always inspect crops to assess disease development immediately before spraying. Best results will be achieved from applications made in the earliest stages of disease development or as a protectant treatment following a disease risk assessment or the use of appropriate decision support systems.



**Rate Of Use**
1.0 litre per hectare.
A second treatment may be required if disease pressure remains high – especially in combining peas. A minimum interval of 14 days must be observed between applications.

**Peas For Processing**
Where a crop of peas is destined for processing, consult your processor before treating with PANTHA. (One year's results indicate that no taints were detected on quick frozen, canned, vining or canned combining peas)

**Crop Safety**
PANTHA shows good crop safety on combining peas and fresh peas. Before applying ensure the crop is free from any stress caused by environment or agronomic effects. Check wax level if necessary using the Crystal Violet test.

**Resistance Management**
To avoid the likelihood of resistance developing, application of PANTHA should be made with due regard to current FRAG-UK guidelines for QoI compounds. Do not make more than two applications of PANTHA.

**FIELD BEAN**

**Timing**

Before applying PANTHA, ensure the crop is free from any stress caused by environmental or agronomic effects. Always inspect crops to assess disease development immediately before spraying. Best results will be achieved from applications made in the earliest stage of disease development from BBCH 60-69 or as a protectant treatment following a disease risk assessment or the use of appropriate decision support systems.

A second treatment may be required if disease pressure remains high. A minimum interval of 21 days must be observed between applications.

**Rate Of Use**

1 litre per hectare

**Resistance Management**

To avoid the likelihood of resistance developing, application of PANTHA should be made with due regard to current FRAG-UK guidelines for QoI compounds. Do not make more than two applications of PANTHA to crops of field beans. Use PANTHA as part of an Integrated Crop Management (ICM) strategy incorporating other methods of control, including where appropriate other fungicides with a different mode of action.

**BULB ONION, GARLIC, SHALLOT, LEEK AND CARROT**

**Timing**

Before applying PANTHA , ensure the crop is free from any stress caused by environmental or agronomic effects. For optimum disease control PANTHA should be used at the first sign of disease infection or preferably preventatively when a predictive assessment shows conditions favourable for disease development. Always inspect crops to assess disease development immediately before spraying. Best results will be achieved from applications made in the earliest stage of disease development or as a protectant treatment following a disease risk assessment or the use of appropriate decision support systems.

Bulb onions, garlic and shallots can be treated from BBCH 14-48

Leeks can be treated from BBCH 16 – 48

Carrots can be treated from BBCH 16 - 49



**Rate Of Use**

1.0 litre per hectare.

**Bulb onion, garlic and shallots**

- For optimum downy mildew control in bulb onions, garlic and shallot a 7 to10 day spray interval should be maintained
- Applications to established downy mildew infection are unlikely to give reliable control

**Processing**

Where a crop is destined for processing, consult your processor before treating with PANTHA

**Resistance Management**

Use PANTHA as part of an Integrated Crop Management (ICM) strategy incorporating other methods of control, including where appropriate other fungicides with a different mode of action.

To avoid the likelihood of resistance developing, applications of PANTHA should be made with due regard to current FRAC guidelines for QoI compounds as illustrated below in the following table:

| Total number of fungicide spray applications per crop | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | ≥12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum recommended solo QoI fungicide sprays | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 |
| Maximum recommended QoI fungicide sprays in mixture | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 4 |

No more than 3 applications of PANTHA are permitted per crop. Refer to the FRAC website for updates on recommendations for resistance management.

**ASPARAGUS (OUTDOOR)**

**Timing**

Always inspect crops to assess disease development immediately before spraying. Best results will be achieved from applications made in the earliest stages of disease development or as a protectant treatment following a disease risk assessment or the use of appropriate decision support systems. Asparagus can be treated from BBCH 41 – 89.

Earliest time of application : After commercial cutting

PANTHA may only be applied after the harvest season (i.e. after commercial cutting). Where a new 'bed' is established, do not treat within three weeks of transplanting out the crowns.

A minimum interval of 10 days must be observed between applications.

Latest time of application : until the end of September or before the crop senescence, whichever is sooner. PANTHA shows good crop safety on asparagus. Before applying ensure the crop is free from any stress caused by environmental or agronomic effects.



**Rate of Use**

1.0 litre per hectare.

**Resistance Management**

PANTHA contains azoxystrobin a member of the QoI cross resistance group. PANTHA should be used preventatively and should not be relied on for its curative potential. Disease control may be reduced if strains of pathogens less sensitive to azoxystrobin develop.

To avoid the likelihood of resistance developing, applications of PANTHA should be made with due regard to current FRAC guidelines for QoI compounds as illustrated below in the following table:

| Total number of fungicide spray applications per crop | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ≥8 |
|---|---|---|---|---|---|---|---|---|
| Maximum recommended solo QoI fungicide sprays | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 |
| Maximum recommended QoI fungicide sprays in mixture | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |

No more than 2 applications of PANTHA are permitted per crop. Refer to the FRAC website for updates on recommendations for resistance management.

**POTATOES**

FOLIAR APPLICATION

For the control of Early blight (*Alternaria solani*).

**Timing**
Before applying PANTHA, ensure the crop is free from any stress caused by environmental or agronomic effects. Always inspect crops to assess disease development immediately before spraying. Best results will be achieved from applications made in the earliest stage of disease development or as a protectant treatment following a disease risk assessment or the use of appropriate decision support systems.
Potatoes can be treated from BBCH 51-85

A minimum interval of 7 days must be observed between applications.

**Rate of Use**
0.5 litre per hectare
A total of 3 applications can be made per season if disease pressure remains high.

**Potatoes For Processing**
Where a crop of potatoes is destined for processing, consult processors before treating with PANTHA.

**Resistance Management**
The risk of resistance developing to PANTHA in *Alternaria* solani is considered to be moderate. To avoid the likelihood of resistance developing, application of PANTHA should be made with due regard to current FRAG-UK guidelines for QoI compounds. Use PANTHA as part of an Integrated Crop Management (ICM) strategy incorporating other methods of control, including where appropriate other fungicides with a different mode of action.



IN-FURROW APPLICATION

**Timing**
PANTHA must be applied as an in-furrow application made at the time of planting for the reduction of Stem canker, Black scurf (*Rhizoctonia solani*) and Black dot (*Colletotrichum coccodes*).
Where PANTHA is applied as an in-furrow application, it is important to direct the spray into the planting furrow and not onto the seed tuber. Application should ensure that the PANTHA is applied to soil around the tuber.

**Rate Of Use**
For in-furrow application made at planting 1.3 litre per hectare

A maximum of one application per crop should be made

**Advisory Information**
With in-furrow application, always target the soil and not the seed tuber in order to minimise any possible delay in emergence. Wherever possible, use properly chitted seed or cold-stored seed which has not started to sprout. Using seed which has just broken dormancy may well result in emergence delays.

Using PANTHA following earlier applications of imazalil, pencycuron or imazalil/pencycuron is likely to lead to a check in the speed of crop emergence. Effects are usually, but not always, outgrown.

**Effects of soil type**
Do not use PANTHA on high organic matter soils as the product will not be effective.

**Potatoes For Processing**
Where a crop of potatoes is destined for processing, consult processors before treating with PANTHA.

**Resistance Management**
The risk of resistance developing to PANTHA in *Rhizoctonia solani* (Black scurf and Stem canker) and *Colletotrichum coccodes* (Black dot) is considered to be very low. PANTHAshould only be used in potato crops, which adhere to good rotation practices.

To avoid the likelihood of resistance developing to QoI compounds used to control potato late blight, application of PANTHA should be made with due regard to current FRAG-UK guidelines for QoI compounds. If an application of PANTHA is made, no more than two further QoI treatments should be applied sequentially as the first sprays against late blight before using an alternative product.

**WINTER AND SPRING OILSEED RAPE**
**Timing**
Before applying PANTHA, ensure the crop is free from any stress caused by environmental or agronomic effects. Best results will be achieved from applications made as a protectant treatment following a disease risk assessment or the use of appropriate decision support systems.
Oilseed rape can be treated from BBCH 60-69.

A second treatment may be required if disease pressure remains high.

*Sclerotinia*– PANTHA should be applied as a protectant spray during flowering. The optimum timing is early flowering to mid flowering (GS60 – GS65)

*Alternaria* – Apply PANTHA as a protective spray at early pod formation when the first ten pods are longer than 4 cm, before they become knobbly and not later than the time the first spots are seen on the pods.

Note : an application of PANTHA against *Sclerotinia* will significantly limit the development of alternaria

**Rate Of Use**
1 litre per hectare

**Resistance Management**
To avoid the likelihood of resistance developing, application of PANTHA should be made with due regard to current FRAG-UK guidelines for QoI compounds. Do not make more than two applications of PANTHA to crops of oilseed rape. Use PANTHA as part of an Integrated Crop Management (ICM) strategy incorporating other methods of control, including where appropriate other fungicides with a different mode of action.

**BRUSSELS SPROUTS, CABBAGE, CAULIFLOWER, KALE (WINTER GREENS), COLLARDS (SPRING GREENS), BROCCOLI AND CALABRESE**
**Timing**
Before applying PANTHA, ensure the crop is free from any stress caused by environmental or agronomic effects. Always inspect crops to assess disease development immediately before spraying. Best results will be achieved from applications made in the earliest stage of disease development
or as a protectant treatment following a disease risk assessment or the use of appropriate decision support systems.

Brassicas can be treated from BBCH 16-49.

A second treatment may be required if disease pressure remains high. A minimum interval of 12 days must be observed between applications to brassicae.

**Rate Of Use**
1 litre per hectare
A maximum total dose of 500g azoxystrobin must not be exceeded within a 12 month period on the same field.

**Resistance Management**
To avoid the likelihood of resistance developing, application of PANTHA should be made with due regard to current FRAG-UK guidelines for QoI compound. Do not apply more than a total of two applications of PANTHA to any brassica crop.

**OUTDOOR AND PROTECTED LETTUCE, ENDIVE (INCLUDING FRISEE AND ESCAROLE), CHICORY (RADICCHIO)**
**Timing**
Before applying PANTHA, ensure the crop is free from any stress caused by environmental or agronomic effects. Always inspect crops to assess disease development immediately before spraying. Best results will be achieved from applications made in the earliest stage of disease development or as a protectant treatment following a disease risk assessment or the use of appropriate decision support systems.
Lettuce, Endive (including frisee and escarole), and chicory (radicchio) can be treated from BBCH 14 -49.

A minimum interval of 7 days must be observed between applications for both protected and outdoor uses.

**Rate of Use**
1.0 litre per hectare.
A maximum total dose of 500g azoxystrobin must not be exceeded within a 12 month period on the same field.

**Resistance Management**
Use PANTHA as part of an Integrated Crop Management (ICM) strategy incorporating other methods of control including, where appropriate, other fungicides with a different mode of action.

To avoid the likelihood of resistance developing, application of PANTHA should be made with due regard to current FRAG-UK guidelines for QoI compounds. Do not apply more than a total of two applications, when used as part of a programme.



**OUTDOOR AND PROTECTED STRAWBERRY**
**Timing**
For optimum results apply PANTHA as a protectant spray at the beginning of flowering. Two further applications can be made if disease pressure remains high. Application should be made in sequence with other products as part of a fungicide programme during flowering at a minimum interval of 7 days.

Strawberries can be treated from BBCH 51-89.
A minimum interval of 7 days must be observed between applications to all strawberry crops.

**Rate of Use**
1.0 litre per hectare.

**Processing**
Where a crop is destined for processing, consult your processor before treating with PANTHA.

**Resistance Management**
Use PANTHA as part of an Integrated Crop Management (ICM) strategy incorporating other methods of control, including where appropriate other fungicides with a different mode of action.

To avoid the likelihood of resistance developing, applications of PANTHA should be made with due regard to current FRAC guidelines for QoI compounds as illustrated below in the following table:

| Total number of fungicide spray applications per crop | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Maximum recommended solo QoI fungicide sprays | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| Maximum recommended QoI fungicide sprays in mixture | 1 | 2 | 2 | 2 | 2 | 3 | 3 |

No more than 3 applications of PANTHA are permitted per crop.

**QUALIFIED USE RECOMMENDATION**
Strawberries and Lupins
The following uses are supported by a limited amount of effectiveness data which indicate that the use of PANTHAat 1.0 l/ha may provide some useful activity against Rust (*Uromyces spp*.) on Lupins and Antrhracnose (*Collectotrichum acutatum*) on strawberries

**MIXING AND SPRAYING**

Ensure that the sprayer is clean and correctly set to give an even application at the required volume.
Half-fill the spray tank with clean water and start agitation. Shake the container and add the required amount of PANTHA to the sprayer using a filling device (e.g. induction bowl or closed transfer unit) or by direct addition to the sprayer tank.

Wash out containers thoroughly, preferably using an integrated pressure rinsing device, or manually rinse three times. Add washings to the sprayer at the time of filling. Complete filling to the required volume and continue to agitate throughout the spraying operation.
Do not leave the spray liquid in the sprayer for long periods (such as during meal breaks or overnight).



**VOLUME OF WATER AND SPRAYING**
**OUTDOOR CROPS**
Apply using a medium quality spray (BCPC) at a pressure of at least 2 bar. Apply through conventional crop spraying equipment calibrated to give an even application at the correct volume.

Strawberries : Apply in at least 300 litres of water per hectare
Brussels sprouts, cabbage, cauliflower, kale (winter greens), collards (spring greens), broccoli, calabrese: Apply in at least 250 litre of water per hectare
Green beans, broad beans: Apply in at least 150 litres of water per hectare
Lettuce and associated crops: Apply in at least 300 litres of water per hectare
Cereals, combining peas, fresh peas, field beans, lupins, oilseed rape, carrots, leek, bulb onions, garlic and shallots: Apply in at least 200 litres of water per hectare

In dense crops, increase the water volume to improve coverage

Asparagus:

For conventional tractor mounted crop spraying equipment, apply in at least 600 litres of water per hectare using a medium quality sprayer (BCPC) at a presssure of at least 2 bar.

For hand-held spraying equipment, apply in at least 200 litres of water per hectare.

Potatoes
**In-furrow application use:** Apply between 50-150 litres of water per hectare. Apply using specialist in-furrow application equipment.
**Foliar application:** Apply in at least 200 litres of water per hectare.

**INDOOR CROPS**
Application should be made via a hydraulic nozzle applicator e.g. motorised sprayer with hand or boom lance or via a knapsack sprayer.

Lettuce and associated crops: Apply in at least 300 litres of water per hectare
Strawberry: Apply in at least 100 litres of water per hectare

**AFTER SPRAYING**
Thoroughly wash out sprayer according to manufacturer's guidelines and dispose of washing and clean containers according to DEFRA Code of Practice and local water authority guidelines.

**This product is to be used only in accordance with the recommendations and instructions given on the labels provided with this pack.**

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