Managing Mushroom Pests and Disease Control in response to resistance and Environmental Sustainability demands

Donal Gernon
Why are we here today?

- Disease issues over the past few months
  - Lower yields
  - Cost of controlling disease
  - Picker productivity
  - Reduced farm profitability
- Inform growers on what products are available
- Audit compliance
Topics covered:

- List of Approved products in Ireland and the UK:
  - Labels
  - Application Rate and Timing
  - Application Method
- Integrated Pest Management Strategy
- Audit compliance information
## List of Approved Products:

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<th>MAPP number (UK)</th>
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<td>Sporgon 50 WP</td>
<td>05094</td>
<td>17700</td>
</tr>
<tr>
<td>Vivando</td>
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<tr>
<td>Pyrethrum 5EC</td>
<td>06255</td>
<td>Not Approved for use on Mushroom crops in UK</td>
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<tr>
<td><em>Botanigard</em></td>
<td>06264</td>
<td>Not Approved for use on Mushroom crops in UK</td>
</tr>
<tr>
<td>Naturalis L</td>
<td>Not Approved for use on Mushroom crops in ROI</td>
<td>17526</td>
</tr>
<tr>
<td>Met52</td>
<td>Not Approved for use on Mushroom crops in ROI</td>
<td>15168</td>
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### DAFM PCS website:

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<thead>
<tr>
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<th>PCS No.</th>
<th>Function</th>
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<tbody>
<tr>
<td>Amylo-X WG</td>
<td>06311</td>
<td>Fungicide</td>
</tr>
<tr>
<td>Sporekill</td>
<td>92396</td>
<td>Disinfectant</td>
</tr>
<tr>
<td>Sporgon 50 WP</td>
<td>05094</td>
<td>Fungicide</td>
</tr>
<tr>
<td>Virando</td>
<td>05685</td>
<td>Fungicide</td>
</tr>
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HSE Pesticide register database:

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<th>Product Name</th>
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<th>Marketing Company</th>
<th>Crop(s) (may have different Expiry Dates) see notice</th>
<th>Active(s)</th>
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<td>Allure 12651</td>
<td>30/09/2021</td>
<td>ChilTERN Farm Chemicals Limited</td>
<td>all edible crops except potato and cauliflower</td>
<td>metaldehyde</td>
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<td>Ampro X WG 12718</td>
<td>30/09/2027</td>
<td>Cerlis</td>
<td>mushroom (permanent protection with full enclosure)</td>
<td>Bacillus amyloliquefaciens C/47</td>
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<td>Appeal 12822</td>
<td>31/12/2021</td>
<td>ChilTERN Farm Chemicals Limited</td>
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<td>Appeal 12713</td>
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<td>31/03/2022</td>
<td>Adarna Agricultural Solutions UK Ltd</td>
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<td>Daunt 14010</td>
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<td>Ento 14306</td>
<td>31/03/2022</td>
<td>Adarna Agricultural Solutions UK Ltd</td>
<td>all edible crops except potato and cauliflower</td>
<td>metaldehyde</td>
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<tr>
<td>Sepron 50 WP 1700</td>
<td>30/09/2026</td>
<td>Sylvan Spawn</td>
<td>mushroom</td>
<td>prochloraz</td>
</tr>
</tbody>
</table>

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Sporgon 50 WP

- Rate of Use: 1 grams per $m^2$
- Active Substance: Prochloraz
- Application Method: Watering Tree, Lance, Automatic watering system
- Dilution Rate: Up to 1.8L of water per $m^2$
- Application Timing: During case run
- Harvest interval: 10 days
- MRL: 3 mg/kg
- Max number of applications: 1 per crop
Sporgon 50 WP

A wettable powder containing 461 g/kg (46% w/w) prochloraz. A fungicide for the control of diseases in indoor mushrooms.

Risk and Safety Information

Warning:
Very toxic to aquatic life with long lasting effects.

Avoid release to the environment.
Collect spillage.
Wear suitable protective gloves/protective clothing/eye protection/face protection.
Wear respiratory protection.
Dispose of contents/container to a licensed hazardous waste disposal contractor or collection site except for clean empty 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.

PCS No: 05094

1 kg
Sporgon 50 WP

- Used to control Verticilium and Dactylium
- PPE: Heavy Duty overalls Wellingtons, Face mask/respirator, Gloves
- Mix Sporgon and water in a bucket first and then add to a tank which can be agitated to get even mix
- Rinse tank when finished and apply rinsed water to the across all bed area treated
Vivando

- Rate of Use: 1 ml per m²
- Active Substance: Metrafenone
- Application Method: Watering Tree, Knapsack, Lance, Automatic watering system
- Dilution Rate: Recommended 150ml/m²
- Application Timing: case run only
- Harvest interval: 10 days
- MRL: 0.5mg/kg
Vivando

A fungicide for control of cobweb mould in mushrooms

An suspension concentrate containing 500 g/litre (42.4% w/w) metrazone

Risk and Safety Information
Toxic to aquatic life with long lasting effects.

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.

May produce an allergic reaction. Contains: 1,2-benzoisothiazol-3(2H)-one

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

UN 3082
Packing Group III
Environmentally hazardous substance, liquid, M.O.S. (contains metrazone, EP), Marine Pollutant

1 L

IE Marketing Company
BASF Ireland Limited
BASF plc, P O Box 4,
Earl Road, Castle Hume,
Cheshire, SK9 6QG, UK
Telephone 0161 460 622
Fax 0161 460 622

UK Marketing Company
BASF plc, P O Box 4,
Earl Road, Castle Hume,
Cheshire, SK9 6QG, UK
Telephone 0161 460 622
Fax 0161 460 622

Technical Enquiries (Office hours): Tel: 60 44 (0)44 622 6603
Emergencies (24 hour freephone): Tel: 00 49 110 2273112

© = Registered trademark of BASF

The Voluntary Initiative
This label is compliant with the Cnt Voluntary Initiative Guidance (UK only)

IMPORTANT INFORMATION
FOR USE ONLY AS A PROFESSIONAL FUNGICIDE.

Crops
Maximum individual dose
Mushroom 10 l/ha (1 l/m²)

Maximum number of applications
1

Latest time of application
10 days before harvest

READ THE LABEL BEFORE USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE.

MAPP 18026
PCS 00685

11115594IE1047

Cecasg
Agriculture and Food Development Authority
Vivando

- For control of Cobweb
- PPE: Same as Sporgon
- Advisable to apply at dilution rate of 0.5 – 1L of water/m²
- Ensure Vivando is mixed in tank before application to crop
- Do not apply after 1st flush
- Rinse tank when finished and apply rinsed water to the across all bed area treated
Pyrethrum 5 EC

- Rate of Use: 0.065ml/m² (Refer to EAMU Document)
- Active Substance: Natural Pyrethrins
- Application Method: Fogging
- Dilution Rate: 2 – 4 litres of water per 1000m³
- Harvest interval: 24 hours
- Fogging frequency: Every 7 Days
- Maximum number of applications: 3 per crop
- MRL: 1 Pyrethrins
Pyrethrum 5 EC

- PPE required:
Pyrethrum Directions on how to apply:

- Used to control Sciarid and other mushroom flies
- Turn off fresh air and increase fan speed
- Direct fogger to the re-circulate (air handling unit) or place in between shelves. Turn on from outside tunnel.
- During and following fogging, 2 to 4 hours of recirculation is required before venting.
- Turn on from outside tunnel.
- Not approved for use in the UK
Decis Protech

- Rate of Use: 5ml/100 m³ (Refer to EAMU Document)
- Active Substance: Deltamethrin
- Application Method: Fogging
- Dilution Rate: 2 – 4 litres of water per 1000m³
- Harvest interval: 3 days before harvest
- Minimum interval between applications: 14 Days
- Maximum number of applications: 2 per crop
- MRL: 0.05 mg/kg
Decis Protech

Insecticide
A broad spectrum pyrethroid insecticide for the control of aphids, caterpillars and a range of other pests in a wide range of agricultural and horticultural crops.

An oil-in-water emulsion formulation containing 15 g/L (1.50 % w/w) deltamethrin.

For professional use only.

Safety Information
DECIS PROTECH
Contains 15 g/L (1.50 % w/w) deltamethrin.

Warning
Flammable liquid and vapour.
Very toxic to aquatic life with long lasting effects.
Ground/bond container and receiving equipment.
Wear protective gloves/protective clothing/eye protection.
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 1,2-benzisothiazolin-3-one, reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-benzisothiazolin-3-one (5:1), alpha-heptylmercaptaldehyde, benzylsalicylate. May produce an allergic reaction.

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

PCS Number: 05269

To access the Safety Data Sheet for this product scan the code or use the link below:
www.bayercropscience.ie/sds/dectisprotech.pdf
or alternatively contact your supplier.
Decis Protech

- Calculate rate of application example:
  - Tunnel Volume = \( (3.14 \times \text{radius}^2 \times \text{Length of tunnel})/2 \)
  - Example = Tunnel A – Width 9 m, Height 4.5m, length 45m, \( r = \text{width} = 4.5m \)
  - Volume = \( (3.14 \times 4.5^2 \times 45)/2= 1,431 \text{ m}^3 \)
  - Application rate= \( (1,431/100)\times 5\text{ml} = 71.55\text{ml} \)
FLiPPER

- Target: Sciard & Phorid
- Rate of Use: 1.6ml per m²
- Active Substance: Fatty Acids (potassium salts)
- Application Method: Knapsack
- Can also be applied to walls, doors, vents similar to Ficam.
- Dilution Rate: 62.5ml per m²
- Harvest interval: N/A
- Application timing: Recommended 1-2 applications at case run, and an application between flushes.
- Maximum number of applications: 5 per crop
- MRL: N/A
- Not approved for mushroom crops in the UK
FLiPPER®

Insecticide/Acaricide

FLiPPER® is a contact insecticide / acaricide for the control of aphids, whitefly and spider mites on a range of crops.

Read all instructions carefully before using this product.

MAPP 17767 / PCS 05027

10 Litre

alphaBioControl

BIO-INSPIRED CROP PROTECTION

RISK & SAFETY INFORMATION:
An emulsion in water (EW) Insecticide containing 479.8 g/5 litre
(47.9% w/v) plant origin carboxylic acid potassium salts C14 - C20.
A contact insecticide / acaricide for the useful preventative
control of whitefly, aphids and two spotted mite on a range of
protected crops.
MAPP 17767 / PCS 05027
The (COSHH) Control of Substances Hazardous to Health
Regulations may apply to the use of this product at work (UK only).

WARNING
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
Harmful to aquatic life with long
lasting effects.

PRECAUTIONARY STATEMENTS
Do not breathe dust/vapours/spray.
Wash hands thoroughly after handling. Use only in a well
ventilated area. Avoid release to the environment.
Precautions to be taken when using the product and when using
containers to store empty/used containers.

We recommend disposal into a licensed landfill site or recycling
site for commercial users. Domestic users should contact
their council for disposal instructions.

In case of contact, wash affected area with plenty of soap and water.
In case of ingestion, call a POISON center or call a doctor.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do.

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove victim to fresh air and keep at rest in a
position comfortable for breathing. Get medical advice/attention.

IF ON CLOTHING: Remove clothing (if possible) and wash before reuse.

IF ON EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do.

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Get medical advice/attention.

IF ON CLOTHING: Wash before re-use.

Authorisation Holder: Alpha BioPesticides Limited t/a AlphaBio
Control Ltd, St John’s Innovation Centre, Cowley Road, Cambridge,
CB4 0WS, England. Tel: +44 (0) 1223 519768.

Distributed by
Fargro Ltd, Vinery Fields, Arundel Road, Poing, Arundel, West
Sussex BN18 9PY Tel: +44 (0)1903 721891 E: info@fargro.co.uk

For advice on medical emergencies, fires, spillages or chemical
hazards ONLY - Tel: 0870 180 6777 (UK only).

In case of a medical emergency following exposure to a chemical,
the public should call NHS Direct in England or Wales
0845 46 47 or NHS 24 in Scotland 08454 24 24 (UK only).

The National Poisons Information Service, Dublin
Tel: 00 35 3 137 99 64/379966.

FLiPPER® is a registered trade mark of
AlphaBioPesticides Limited (Trading as AlphaBio Control), St John’s
Innovation Centre, Cowley Road, Cambridge, CB4 0WS.
Botanigard

- Target: Sciarid & other mushroom flies
- Rate of Use: 0.24g per m²
- Active Substance: Beauveria bassiana
- Application Method: **EAMU states that product is to be applied via cold fogger**
- Harvest interval: N/A
- Application timing: After Casing and between flushes
- Maximum number of applications: 4 per crop
- MRL: N/A
- Not approved for mushroom crops in the UK
Botanigard WP
A wettable powder containing 4.4 x 10^9 CFU/g of Beauveria bassiana GHA.

DANGER
MAY CAUSE AN ALLERGIC SKIN REACTION. MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS.
OR BREATHING DIFFICULTY IF INHALED. AVOID BREATHING DUST, DROPS OR VAPOURS.
Wear protective overalls, protective clothing and protective face and respiratory protection.
Use only outdoors or in well-ventilated areas.

IF ON SKIN: Wash with plenty of water. Take off shoes and socks.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If experiencing respiratory symptoms call a POISON CENTRE and a doctor.

Dispose of containers/ containers in a named hazardous waste disposal contractor or collection site except or empty, then rinse with clean water.

Contains Beauveria bassiana GHA (MAPP 4238-82-0). May produce an allergic reaction.
To avoid risks to human health and the environment, comply with the instructions for use.

IMPORTANT INFORMATION
FOR USE ONLY AS A PROFESSIONAL HORTICULTURAL INSECTICIDE
Crops: Full details are attached on leaflet.
Maximum individual dose/Maximum number of treatments/Maximum total dose/Latest time of application/Other specific restrictions: Full details are on attached leaflet.
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.

THE (COSHH) CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH REGULATIONS MAY APPLY TO THE USE OF THIS PRODUCT IN WORK – UK ONLY.
SAFETY PRECAUTIONS
Operator protection
Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:
SUITABLE PROTECTIVE CLOTHING (OVERALLS), SUITABLE PROTECTIVE GLOVES AND SUITABLE RESPIRATORY PROTECTIVE EQUIPMENT when handling the product or applying the product.

Environmental protection
Do not contaminate water with the product of its container. Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads.

DIRECTIONS FOR USE:
Refer to leaflet attached to this container.
For advice on medical emergencies, fires, spillages or chemical hazards ONLY – phone 0870 190 8777.

500 grams
Naturalis L

- Target: Broad range of flies
- Rate of Use: refer to product label
- Active Substance: Beauveria bassiana
- Harvest interval: N/A
- Application timing: After Casing and between flushes
- Maximum number of applications: 5 per crop
- MRL: N/A
- Not approved for mushroom crops in the ROI
A bioinsecticide for the control of whitefly in all edible crops (protected) and ornamental plant production (protected). The product will also provide a reduction in thrips.

**Contents:** 1Le

**Naturalis L**

**FOR USE ONLY AS AN AGRICULTURAL / HORTICULTURAL INSECTICIDE**

**FORMULATION AND ACTIVE INGREDIENT:**
An oil dispersion formulation containing 7.16% w/w Brevicoryne brassicae ATCC 74040 (2 x 10^8 CFU ml^-1).

For use only on crops under permanent protection. Do not freeze.

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

Batch number / Production date see packaging.

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

**SAFETY PRECAUTIONS**

**Operator Protection**

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

- Wettable protective clothing (coveralls) suitable protective gloves and suitable respiratory protective equipment* when handling the concentrate or applying the product.
- *Disposable filtering facepiece respirator to at least EN40 1FF/FFP or equivalent.
- However, engineering controls may replace personal protective equipment if a COSHH assessment (show) provide an equal or higher standard of protection (UK only).
- If you feel unwell, seek medical advice immediately (show the label where possible).
- WHEN USING DO NOT EAT, DRINK OR SMOKE.
- IN CASE OF CONTACT WITH EYES OR SKIN, RINSE IMMEDIATELY WITH PLenty of clean water.
- AVOID CONTACT WITH SKIN AND EYES.
- WASH HANDS AND EXPOSED SKIN before meals and after work.
- USE ONLY IN A WELL VENTILATED AREA.
- DO NOT BREATHE SPRAY.

**Environmental Protection**

- Do not contaminate water with the product or its container.
- Do not apply clean equipment near surface water and avoid contamination via drains from farmyards and roads.

**Storage and disposal**

- KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.
- KEEP OUT OF REACH OF CHILDREN.
- KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.
- DO NOT RE-USE CONTAINER FOR ANY OTHER PURPOSE.
- WASH OUT CONTAINER thorOUGHLY, empty washings into spray tank  and dispose of safely.

**Storage**

Naturalis* L is a biological product and has not been used as a single agent to control insects. It is recommended to store at 5-5 °C to retain maximum stored viability.

**DIRECTIONS FOR USE**

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**

- Do not apply through spray nozzle filters which are less than 20 mesh.
- Do not apply using irrigation equipment.
- Naturalis* L should not be tank mixed with any other product. After a Naturalis* L treatment, leave at least 48 hours before applying a fungicide. The effects of fungicides applied before a Naturalis* L treatment has not been fully evaluated. Some fungicides may reduce effectiveness of Naturalis* L.

**Resistance**

Naturalis* L has not been reported to have any insect resistance. However, it is good practice to use such products as components of integrated Pest Managment systems, alternating with other control measures. This is particularly important for sequential crops. The effects of Naturalis* L on natural enemies has not been fully established, some adverse effects may occur, for example on Encarsia. Naturalis* L is a bio-insecticide containing viable spores of the fungus Brevicoryne brassicae, strain ATCC 74040, a naturally occurring and non-genetically modified fungus. It is applied for the control of all stages of whitefly and for the reduction of thrips in crops under permanent protection. The fungus has a unique mode of action: contortoids germinate to produce a penetration hyphae, which when inside the insect body proliferate to cause insect necrosis and death.

**Crop Recommendations**

Naturalis* L controls adult and larval stages of whitefly species which belong to the family Aleyropterae, including the glasshouse whitefly, Trialeurodes vaporariorum and provides a reduction in numbers of adult and larval stages of thrips species, including Western Flower Thrips, Frankliniella occidentalis.

**Applicaton rate and frequency**

Naturalis* L is to be applied at a concentration of 0.2% w/v i.e. 3 litres in 1000 litres of water. It should be applied with a fine spray, ensuring complete coverage of the plant. To the point just before run-off. Applications should be carried out in the morning or in the evening when usually fly less and relative humidity is higher. Apply at the very first appearance of whitefly or thrips on the crop, and repeat the application at intervals of no less than 5 days, up to a maximum of 5 treatments.

**Packaging**

Naturalis L works well when the temperature is between 20 °C and 30 °C, and the relative humidity is over 40%.

**Mixing and spraying**

Spraying equipment must be clean and free of pesticide residues. Before measuring out the product, gently rotate the product container to ensure that the sprays are evenly mixed within the concentrate. Initially, make a solution in half the trial volume of water. Once the product is completely dissolved, make up to the trial volume with the remaining amount of water. When mixing, continuously agitate the solution to ensure that the sprays are evenly dispersed. Agitation of the solution when spraying will prevent spray sedimentation. After application, rinse out the spraying equipment several times with water and leave to air dry before being returned to store.

**Marketing company:**

FARGO LIMITED

Vineyard Fields - Amulet Road - Pinning - West Sussex BN19 2PF - UK - www.fargo.co.uk

Tel: +44 1903 721591

**Approval holder:**

CRF (Europe) S.r.l.

Via L. Masina, 2

20034-Como(ITALY)

Tel: 0346-386679

Naturalis is a registered trademark of CRF (Europe) S.r.l.
Met52 granular bioinsecticide

- Target: Sciarid
- Rate of Use: refer to product label
- Active Substance: Metarhizium Anisopliae
- Harvest interval: N/A
- Application timing: refer to product label
- Maximum number of applications: refer to product label
- MRL: N/A
- Not approved for mushroom crops in the ROI
Met52

Met52® GRANULAR BIOINSECTICIDE

A granular product containing 2% w/w *Metarhizium anisopliae* var. *anisopliae* strain F52 (a minimum of 9 x 10^9 cfu/kg).

For controlling black vine weevil (*Otiorhynchus* spp.) larvae in soft fruit and ornamental crops (protected and unprotected).

Product registration number: MAPP 15168
(PCS 04811)

Contains a specific strain of a natural insect pathogenic fungus.

For incorporation into soil or growing media for the control of vine weevil in open field and container crops.

Effective long lasting control.

fargro

Ask the Specialist!

Fargro Ltd
Vinery Fields, Arundel Road,
Poling, Arundel,
West Sussex
BN18 9PY
Tel: +44 (0)1903 721591
Email: info@fargro.co.uk
www.fargro.co.uk

USE PLANT PROTECTION PRODUCTS SAFELY. ALWAYS READ THE LABEL AND PRODUCT INFORMATION BEFORE USE
Nematodes (Steinernema feltiae)

- Rate of Use: 2 – 3 million per m²
- Application Method: Watering Tree, Lance, Automatic watering system
- Dilution Rate: 0.5 – 1L of water per m²
- Application Day: During case run usually after ruffling (day 4/5). Can also be applied after 1st flush.
- Harvest interval: N/A
- PCS Number: N/A
- Use: To control Fly Populations
Nematodes

- Important Nematodes are stored in a fridge
- Take out of fridge at least 1 hour before application
- Mix nematodes with water in a bucket before adding to the mixing tank.
- Ensure the nematodes are being constantly agitated during application to ensure they don’t settle at the bottom of the tank.
Recent withdrawals:

- **Ficam W** (PCS Number: 93413) (MAPP no: 5390)
  - Can not be used in ROI since 31/08/20
  - Can not be used in the UK after 10/12/20

Label Changes:

- **Sporgon 50 WP** (Old PCS No: 91288) (New PCS No: 05094)
  - Label expired in ROI on 30/09/20

- **Pyrethrum 5EC** (Old PCS No: 92317) (New PCS No: 06255)
  - Label expired in ROI on 30/06/20
# Biocides

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<th>Product</th>
<th>PCS</th>
<th>Active Ingredient</th>
<th>Hose</th>
<th>Fog</th>
<th>Product Type</th>
<th>Application Rates</th>
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</thead>
<tbody>
<tr>
<td>Omnicide M</td>
<td>99380</td>
<td>Glutaraldehyde</td>
<td>✓</td>
<td>✓</td>
<td>PT4</td>
<td>0.5%-2%</td>
</tr>
<tr>
<td>Enviro-tech</td>
<td>97311</td>
<td>Benzylalkonium Chloride</td>
<td>✓</td>
<td>✓</td>
<td>PT4</td>
<td>0.5%-2%</td>
</tr>
<tr>
<td>Sporekill</td>
<td>92396</td>
<td>Potassium salts of fatty acids</td>
<td>✓</td>
<td>✓</td>
<td>PT2,PT4</td>
<td>0.5%-2%</td>
</tr>
<tr>
<td>Jet 5</td>
<td>95366</td>
<td>Peracetic acid</td>
<td>✓</td>
<td>✓</td>
<td>PT1-6, PT11, PT12</td>
<td>Refer to label</td>
</tr>
<tr>
<td>Sodium Hypochlorite (Red Label)</td>
<td>96864</td>
<td>sodium hypochlorite</td>
<td>✓</td>
<td>-</td>
<td>PT2-5, PT11</td>
<td>Refer to label</td>
</tr>
<tr>
<td></td>
<td>97678</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prophyl</td>
<td>93133</td>
<td>Chlorophene, Chlorocresol</td>
<td>✓</td>
<td>✓</td>
<td>PT2</td>
<td>0.2%-0.5%</td>
</tr>
</tbody>
</table>
# Product Type (PT)

| PT 2 | Disinfectants and algaecides not intended for direct application to humans or animals | Used for the disinfection of surfaces, materials, equipment and furniture which are not used for direct contact with food or feeding stuffs. Usage areas include, inter alia, swimming pools, aquariums, bathing and other waters; air conditioning systems; and walls and floors in private, public, and industrial areas and in other areas for professional activities.  

Used for disinfection of air, water not used for human or animal consumption, chemical toilets, waste water, hospital waste and soil.  

Used as algaecides for treatment of swimming pools, aquariums and other waters and for remedial treatment of construction materials.  

Used to be incorporated in textiles, tissues, masks, paints and other articles or materials with the purpose of producing treated articles with disinfecting properties. |
|---|---|---|
| PT 4 | Food and feed area | Used for the disinfection of equipment, containers, consumption utensils, surfaces or pipework associated with the production, transport, storage or consumption of food or feed (including drinking water) for humans and animals.  

Used to impregnate materials which may enter into contact with food. |
Omnicide

PROGRESS PRODUCTS
HYGIENE SPECIALISTS TO THE MUSHROOM INDUSTRY

OMNICIDE-M

PROVIDING OPTIMUM SURFACE DISINFECTION
ASSISTS IN CREATING IDEAL LEVELS OF HYGIENE

A BROAD SPECTRUM, NON-PHENOLIC SURFACE DISINFECTANT MANUFACTURED FOR PROGRESS PRODUCTS TO MEET THE STRINGENT REQUIREMENTS OF THE MUSHROOM INDUSTRY.

OMNICIDE-M is a specially formulated SURFACE DISINFECTANT based on a synergistic combination of Gluteraldehyde and QAC, specifically designed for the surface cleaning or disinfecting of Mushroom Growing Houses prior to the introduction of mushroom spawn.

DESCRIPTION: A Clear pale amber liquid.

SOLUBILITY: Forms a clear solution in water.

DIRECTIONS FOR USE
(REFER TO OUR MSDS BEFOREHAND IS ADVISED)

FOOT DIPS: Use at 1.5% solution, i.e., 1 litre of OMNICIDE-M per 65 litres of water. Renew after 2 or 3 days.

CONCRETE PATHWAYS AND FLOOR AREAS: Apply OMNICIDE-M at a 0.5% (1 hr in 200ltr water) dilution. Avoid contact with all shelves, casing etc, during cropping.

GENERAL DISINFECTION AND HYGIENE ROUTINE IN POLYTUNNELS AND ALL FOOD RELATED AREAS: Remove all organic matter and hose down floors, walls and ceilings with water or a solution of nonionic detergent. Apply OMNICIDE-M at 0.5% (1:150) whilst still wet and leave to dry without rinsing. Use a more concentrated dilution (2% or 1:50) if contamination of the previous crop was an issue. Growing houses can then be miked after the area is dry. The safe period for re-entry should be determined in strict compliance with Local Health and Safety Legislation. All factors should be taken into account to accurately determine this. Re-entry should not take place until or before this determined period has been reached.

PICKING KNIVES AND OTHER EQUIPMENT: Use a 2% (1 hr in 50ltr water) dilution to disinfect these items, which then must be rinsed thoroughly before re-use, with clean water.

AVERSE DIRECT CONTACT WITH NEAT OR DILUTED FORMS OF "OMNICIDE-M" WITH EXISTING CROP OR COMPOST.

DANGER
Contains: QUATERNARY AMMONIUM COMPOUNDS, BENZYL-C12-18-ALKYLDIMETHYL CHLORIDES 9.3g/100g and GLUTARALDEHYDE 14.7g/100g.

For professional use only. Store in tightly closed, original container in a dry, cool and well-ventilated place. 5/25 Litres

For enquiries, please call: 01278 444866
Email: steve@progressproducts.co.uk

Queenswood House, 70 Durleigh Road, Bridgwater, Somerset, TA6 7JE
Tel: (01278) 429500  Fax: (01278) 444866  Email: steve@progressproducts.co.uk
Enviro-Tech

ALL ROUND BROAD SPECTRUM DISINFECTANT.
BACTERIAL AND FUNGICIDAL DISINFECTANT.
FOR USE IN THE FOOD INDUSTRY (MUSHROOM INDUSTRY)

Directions for use: Use at 1:50 (2%) where infection is suspected.
For general disinfection use at dilution of 1:150 (0.6%)

Foot dips: Use at 1.5% dilution i.e. 1L of Enviro-Tech per 65L water.
Renew after 2 or 3 days.

End of crops: Beds can be drenched with a solution of approx. 0.5%
before emptying. Tunnels or growing houses can be fogged with
Enviro-Tech at approx. 1.75ml per cubic metre and allowed to act with
doors closed with a minimum of 2 hours.

Concrete pathways and floor areas: Apply at 0.5% (200-1) dilution.
Avoid contact with all shelves, casing, etc.

Between crops cleaning of growing houses: Remove all organic matter
and hose down floors, walls and ceilings. Apply Enviro-Tech at 0.6% (1:150)
whilst still wet and leave to dry without rinsing. Where intensive disinfection
is required up the dosage to 2% (1:50) growing houses can then be refilled.

UK &IRELAND DISTRIBUTOR:
Conway Services
20 Mooreisland Road, Armagh,
N. Ireland BT61 8LX
TEL: +44 (0) 28 3889 1195 / +353 (0) 8779 88569
www.conwayservices.co.uk

WARNING
Causes burns. Harmful if swallowed.
May cause sensitization by skin contact.
Keep away from food, drink and animal feeding stuffs.
Do not breathe vapour/spray. In case of contact with
eyes rinse immediately with plenty of water and seek
medical advice.
Wear suitable protective clothing gloves and eye/face
protection. Use only in well ventilated areas. In case of
inadequate ventilation wear respiratory protection.

EU CHEMICAL CLASSIFICATION

PESTICIDE CONTROL
SERVICES NUMBER

HAZCHEM CLASS 8
UN1719

PCS 97311

20/205 LTRS
Sporekill

Mushroom farm disinfectant and sanitiser

Sporekill is a multi-action product based on a synergistic blend of natural fatty acids which have a strong cleaning action through a powerful surfactant and fungistatic/bacteriostatic action to irreparably damage spores and mycelia strands. It leaves a film that also traps any remaining spores, thus rendering them non-viable. Do not wash down.

Sporekill is clear in colour and remains clear on dilution.

Classification

Cleaning products

Approval No.

PCS92935

Please read accompanying leaflet for more information.

Composition

Potassium salts of fatty acids
6701:09:1 45-47%

Rosin
38050:09:1 18-19%

DIRECTIONS

Equipment & general use

0.75% (1L in 1.33L) up to 2% (1L/50L) for contaminated conditions. Leave to dry.

Outside concrete surfaces

0.5% (1L in 200L). Leave to dry.

Fogging

1L in 5L per 1000m2. Houses must be sealed and in contact with Sporekill for at least one hour.

APPLICATION

Sporekill should be applied via a spray or through a pressure washer. It is best to apply when wet washed surfaces are dry or drying. It can also be applied effectively through fogging equipment. Do not wash down or protective film will be lost.

DISPOSAL

Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility. Never place unused product down any indoor or outdoor drain.

SAFETY

Wear protective clothing and rubber gloves when applying Sporekill. If Sporekill comes in contact with eyes or skin wash off with copious amounts of water.

Manufactured by

Nutripam Ltd, Unit 9B, Holmes Chapel Business Park, Manor Lane, Holmes Chapel, Cheshire, UK, CW4 8AF

Country of Origin: UK
Jet 5

JET 5:
PCS No. 95366
Patent No. EP. B0613464
A powerful and safe disinfectant containing 5% w/w peracetic acid

5 Litre:
Batch No.:

THE COSHH CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH REGULATIONS MAY APPLY TO THE USE OF THIS PRODUCT AT WORK - UK ONLY

Cautions:
USE PLASTIC VESSELS when preparing dilutions.
DO NOT MIX WITH OTHER CHEMICALS.
CONTAIN & COLLECT SPILLAGE, DRENCH SPILLAGE AREA with water.
KEEP ONLY IN ORIGINAL CONTAINER.
DO NOT RE-USE CONTAINER.
WASH OUT CONTAINER THOROUGHLY after use and dispose of safely.

Risk and Safety Information:
JET 5 - A powerful and safe disinfectant containing 5% w/w peracetic acid, hydrogen peroxide and acetic acid.

DANGER
MAY INTENSIFY FIRE: OXIDISER
MAY BE CORROSIVE TO METALS
HARMFUL IF SWALLOWED, IN CONTACT WITH SKIN OR IF INHALED
CAUSES SEVERE SKIN BURNS AND EYE DAMAGE
MAY CAUSE RESPIRATORY IRRITATION
VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS

Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Take any precaution to avoid mixing with combustibles.
Wear protective gloves/protection clothing/eye protection/face protection.
Avoid release to the environment.
Do not breathe dust/vapours/mist.
IF SWALLOWED: Rinse mouth. DO NOT INDUCE VOMITING.
IF ON SKIN (or hair) Remove/Immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Immediately call a POISON CENTRE or doctor/physician.
Absorb spillage to prevent material damage.
Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty,
tripled rinsed 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.
Prophyl

Designed to Decontaminate

Prophyl will improve your farm hygiene and reduce the danger of diseases.

Very broad spectrum activity against viruses, bacteria, Mycoplasmas, Spores and Fungi, including:
- Trichoderma Viride
- Mycoplasma Pneumoniae
- Mycobacterium Tuberculosis
- Escherichia Coli
- Staphylococcus Aureus
- Bacillus Anthracis
- Foot & Mouth Disease Virus
- Swine Fever Pest Virus
- Myxomocosis Virus

Advantages:
- Prophyl is an advanced type of disinfectant, combining synthetic phenolic derivatives with activators and detergents.
- Clear bluish liquid with a slight fragrant scent and dissolves in water instantly
- All purpose DISINFECTANT/DETERGENT
- Completely biodegradable in waste water
- Does not corrode equipment or plastics in diffused form. Completely harmless and extremely pure active constituents are used in its manufacture
- Near neutral when diluted and free from soda. This ensures the active ingredients have a prolonged action and do not breakdown into phenates readily, contrary to the usual action of other phenolic derivatives, reducing their effectiveness.
- Clean and practical product
- Non-irritating to skin using 2%-5% solution.
- Stable at high temperatures
- Remain active in the presence of organic material
- Low use level of 0.1%, therefore very economic
- Compatible with organophosphoric inseminates

Available in three sizes: 5, 20 & 60 litre containers
Integrated Pest Management Strategy
Crop Filling Hygiene

- Clean filling machine – No dirt or debris visible.
- Disinfecting filling machine, conveyors, lorries, concrete apron and all equipment before commencing the operation.
- Operatives wearing disposable overalls
Crop Filling Hygiene

- Filling Operatives not allowed to mix with harvesting staff – Separate canteen/toilet facilities
- Ensure filling operatives are not collecting mushrooms before the filling operation commences
- Reduce fan speed in nearby tunnels with disease infection
- Close doors immediately after filling
Sealing tunnels

- Preventing pest and disease entering clean tunnels is critical.
- Brush strips and door seals
- Exhaust seals
Preparing tunnel before/after filling:

- Foot dips
- Fly Filter at fresh air intake
- Fly drum and fly traps
- Prevent/restrict access to tunnels from central corridor
Ruffling and Machinery storage:

- Ruffling is a potential source of crop contamination.
- Operator must wear disposable overalls, gloves and clean boots.
- Disinfect ruffler before operation commences.
- Store filling machine, conveyors, filling winch and ruffler in clean shed.
Fly Monitoring

- Using fly traps
- Weekly fly record
Disease Identification and treatment:

- Dedicated staff to treat disease
- Train staff how to identify disease and treat each disease correctly
- Treat disease early before it gets out of control
- If flush has high levels of disease, don’t water the crop
- Always check the crop before watering
- Record and monitor disease
Poor disease Treatment:
Limit harvesters spreading disease:

- Pick clean crops first and reduce harvester movement between flushes
- Reduce harvester numbers in infected rooms
- Ensure harvesters are changing gloves regularly and using alcohol gel before leaving and entering tunnels.
- Use Foot dips IN & OUT of every tunnel
- Clean and Disinfect canteens, toilets, door handles and corridors regularly
- Dedicated overalls (colour code), trolleys & picking knives for infected crops
Cookout crop
Emptying crop

- Kill off crops early with high levels of disease infection
- Ensure crop is cooked out before emptying
- Cover over emptying conveyor
Net washing

- Clean concrete apron if washing with power washer
- Brushes and jets in good condition on net washer
Washing/disinfecting empty Tunnel

- Remove dirt and debris before washing
- Could apply Sodium Hypochlorite (red label) on concrete before washing to help remove dirt. Can
- High standard of washing
- Disinfect tunnel after washing
Audit Compliance

- Pesticide Usage
- The associated Paperwork needed to comply
- Pesticide storage facilities
Pesticide Usage

- Inventory record
  1. Name and Address of supplier
  2. Brand name
  3. PCS or MAPP number
  4. Quantity
  5. Date of receipt
Pesticide Usage

- Pesticide usage record:
  1. Product name
  2. PCS or MAPP number
  3. Location (tunnel applied)
  4. Crop (Mushrooms)
  5. Area treated (m²)
  6. Application rate
  7. Date applied
  8. Harvest interval
  9. First permissible harvest date
  10. Justification of use (disease outbreak)
  11. Operator name
  12. PA advisor name and number (Donal Gernon, PA001369)
The associated Paperwork needed to comply

- 2 copies of inventory records must be kept on file. (one in growing office and one in chemical store).
- Growers must monitor pest and disease incidence patterns. Pesticide application must be based on pest/weed threshold levels and/or disease pressure. An Integrated Pest Management Policy must be implemented to minimise pesticide use.
- Pesticides must be officially registered, approved for use and purchased from a registered distributor.
- Plant Protection Product List (PPPL) must be on display in the pesticide store and a copy stored in the farm office.
- Pesticides must only be used according label instructions.
- Pesticide users and advisors must be register with DAFM.
- MSDS and product labels must be available for individuals safety.
Pesticide storage facilities

- Located areas used for collection and sorting of harvested produce, fuel and waste storage.
- Sound structure
- Fire resistant
- Locked, ventilated and well lit
- Equipped with shelving and work surfaces that can be easily cleaned (non-absorbent). Anti slip floors
Pesticide storage facilities

- Pesticide segregated:
  - Flammable; non-flammable
  - Powers stored above liquids
  - Obsolete pesticides labelled and segregated to be disposed of accordingly.

- Empty pesticide containers:
  1. Tripe rinsed, crushed or pierced to prevent re-use
  2. Appropriately stored and labelled
  3. Disposed of using licensed waste contractor
Conclusion

- Record Your Pesticide usage
- If Unsure ask your Advisor
- Store Pesticides correctly
- Remember Customers test your Produce so be honest about your pesticide use
Thank you
Any Questions??