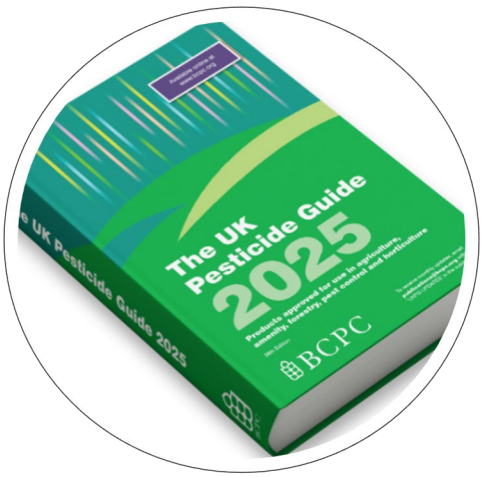
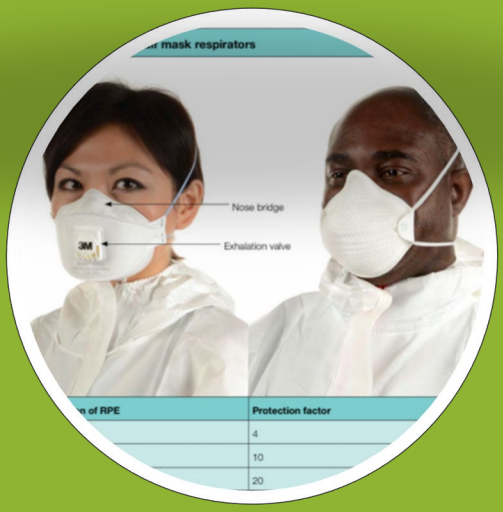




Plant protection product management and best practice masterclass

St George's Hall Complex, 16 High Street, Methwold, Thetford, Norfolk IP26 4NT and Darby Nursery Stock Ltd, Fen Farm, Severalls Road, Methwold Hythe, Thetford, Norfolk IP26 4QU

Tuesday 18th November 2025

Contents

Contents 2

Agenda 3

Location 4

Relevant legislation covering plant protection products – codes of practices, references and guides for technical managers 5

Interpreting the instructions - label and EAMU approvals, recommendation sheets, and keeping up to date 17

Application of plant protection products - operator and worker safety, spray application sheets, sprayer management and cleaning 23

Pesticide stores – store inventories, stock takes, dealing with spillages and container/product disposal 33

Appendix 37

Agenda

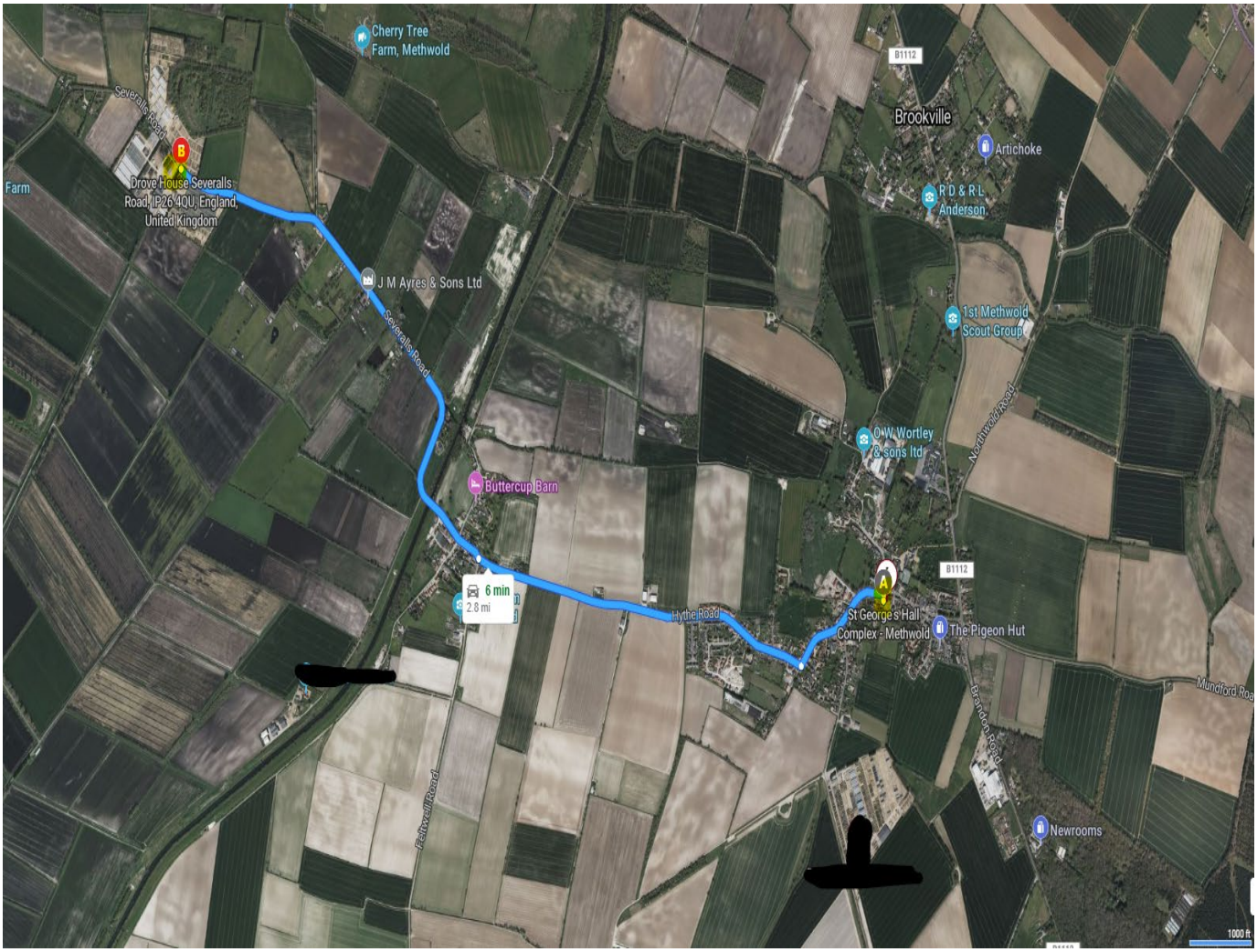
Time	Content	Speaker
St George's Hall Complex, 16 High Street, Methwold, Thetford, Norfolk IP26 4NT		
09:00 – 09:15	*Coffee, tea, and refreshments*	
Presentations		
09:15 – 10:00	**Relevant legislation covering plant protection products – codes of practices, references and guides for technical managers**	Selchuk Kurtev, **Zest Sustainable ICM**
10:00 – 10:45	**Interpreting the instructions - label and EAMU approvals, recommendation sheets, and keeping up to date**	Wayne Brough, **HTA**
10:45 – 11:00	*Coffee, tea, and refreshments and travel to Darby Nursery Fen Farm site, IP26 4QU*	
11:00 – 11:45	**Practical exercise completing LERAPs, COSHH assessments and operator record sheets**	Selchuk Kurtev, **Zest Sustainable ICM**
11:45 – 12:45	**Auditing your own pesticide store**	Wayne Brough, **HTA**
12:45 – 13:30	*Travel and buffet lunch back at St. Georges Hall Complex, Methwold, IP26 4NT*	
13:30 – 14:15	**Application of plant protection products - operator and worker safety, spray application sheets, sprayer management and cleaning**	Selchuk Kurtev, **Zest Sustainable ICM**
14:15 – 15:00	**Pesticide stores – store inventories, stock takes, dealing with spillages and container/product disposal**	Selchuk Kurtev, **Zest Sustainable ICM**
15:00 – 15:45	**Summary quiz to establish learnings from the day** – an engaging multiple-choice quiz to round off the masterclass	**All delegates**
16:00	*Wrap up and depart*	

BASIS and NRoSO continued professional development points will be available on the day of the workshop.

Location

Addresses and locations:

St George's Hall Complex, 16 High Street, Methwold, Thetford, Norfolk IP26 4NT (highlighted in yellow and A on the map) *What3words: ///Snippets.Glorious.Fallen*	**Darby Nursery Stock Ltd, Fen Farm, Severalls Road, Methwold Hythe, Thetford, Norfolk IP26 4QU** (highlighted in yellow and B on the map) *What3words: /// Tribune.Vessel.Braved*



Relevant legislation covering plant protection products – codes of practices, references and guides for technical managers

Selchuk Kurtev, Zest ICM

Notes

WHAT I WILL COVER

- Key legal instruments covering plant protection products and their relevance
- Timelines of various legal instruments and amendments
- Statutory instruments – codes of practice and guides
- COSHH, HSWA and LERAP requirements
- Summary

hta.org.uk

Definitions - Acts, Regulations, and Codes of Practice

- Acts are the broad laws passed by a legislature, which give the government power to create detailed regulations. Regulations are the specific rules made by government agencies under the authority of an act to implement its general principles. Essentially, an act provides the framework and objectives, while the regulations provide the specific, practical instructions on how to comply.
- Regulations are the mandatory legal requirements, while codes of practice offer guidance on how to meet those requirements. Regulations are the 'what' you must do, and codes of practice provide the 'how', often through recommended or preferred methods. Codes of practice can be issued by regulatory bodies to help organisations understand and comply with the law.

hta.org.uk

Key Legal Instruments Covering PPPs

Timelines (note relevant pollution regulation not covered due to time restrictions)

Year	Legislation Title	Purpose	Territory	Status
1985	Food and Environment Protection Act 1985	Primary Act providing powers for PPP/pesticide regulation	UK-wide	Active
1986	Control of Pesticides Regulations 1986 (S.I. 1986/1510)	Early control and approval of pesticides	UK	Partially superseded
1998	Pesticides Act 1998	Amends FEPA and strengthens enforcement	UK	Active
2005	Plant Protection Products Regulations 2005 (S.I. 2005/1435)	Authorisation and placing on market	England / Wales	Retained
2005	Plant Protection Products (Scotland) Regulations 2005 (S.S.I. 2005/331)	Scottish equivalent to 2005 regulations	Scotland	Retained
2005	Plant Protection Products Regulations (Northern Ireland) 2005 (SR 2005/526)	Northern Ireland version	NI	Active
2009	**Regulation (EC) No 1107/2009**	**EU framework for authorisation of PPPs (retained post-Brexit)**	**GB / NI**	**Retained**
2012	**Plant Protection Products (Sustainable Use) Regulations 2012 (S.I. 2012/1657)**	**Transposes Directive 2009/128/EC on sustainable use**	**UK**	**Active**
2020	**Official Controls (Plant Protection Products) Regulations 2020 (S.I. 2020/552)**	**Introduces official controls and operator registration**	**GB**	**Active**
2023	Plant Protection Products (Miscellaneous Amendments) Regulations 2023 (S.I. 2023/1321)	Post-Brexit updates and transitional measures	GB	Active

1. EU Regulation (EC) No 1107/2009

Practical Implications for UK Stakeholders

- Professional Users (e.g., farmers, land managers, local authorities):
  - ✓ May only use **authorised products** and must follow label conditions precisely.
  - ✓ Must take all reasonable precautions to **protect human health and the environment**, as reinforced by the UK's Sustainable Use Regulations 2012.
  - ✓ Safe storage, application, and disposal practices are mandatory.

2. Plant Protection Products (Sustainable Use) Regulations 2012 (S.I. 2012/1657)

Practical Implications for UK Stakeholders

- Professional Users (Farmers, Growers, Groundskeepers, Contractors)
  - ✓ Must take **all reasonable precautions** to protect **human health and the environment** when using PPPs.
  - ✓ Can only apply **authorised products** and must follow label instructions precisely (dose, frequency, target area, buffer zones).
  - ✓ Must ensure **spraying equipment is tested, maintained, and calibrated** (regular equipment inspections required).
  - ✓ Need to hold **proper certification/training** (e.g., NPTC or City & Guilds pesticide application certificates).
  - ✓ Must store PPPs securely and dispose of **leftover product, containers, and washings safely**, preventing contamination of soil and water.
  - ✓ Should **minimise use** by adopting **integrated pest management (IPM)** — using non-chemical alternatives where possible.
- Employers (Agricultural, Local Authority, or Contracting Organisations)
  - ✓ Responsible for ensuring all employees who use PPPs are **properly trained** and supervised.
  - ✓ Must provide **protective equipment** and enforce safe working practices.
  - ✓ Required to assess risks to operators, bystanders, and the environment under **Health and Safety at Work** and **COSHH** principles.

Notes

3. Official Controls (Plant Protection Products) Regulations 2020 (S.I. 2020/552)

Practical Implications for UK Stakeholders

- Professional Users (Farmers, Groundskeepers, Local Authorities, Contractors)
  - ✓ May be subject to inspection to ensure they are using only approved PPPs in accordance with conditions of use.
  - ✓ Must be able to demonstrate compliance with sustainable use and record-keeping obligations (e.g. pesticide usage logs).
  - ✓ Required to cooperate with official inspectors and provide access to premises, equipment, and documentation.

Codes of Practices

Summary table

Area	Main Code	Key Focus	Applies To
Safe use of PPPs	Code of Practice for Using Plant Protection Products click here	Training, use, storage, disposal	GB
Distribution and sales	Code of Practice for Suppliers of Pesticides click here	Authorisation, buyer checks, records	GB
Workplace safety	COSHH and HSWA Codes	Exposure control, PPE, health surveillance	UK
Northern Ireland	DAERA Code of Practice	EU-aligned use and environmental protection	NI

Code of Practice for Using Plant Protection Products

Purpose and Legal Context

This Code translates legal duties under UK pesticide law into everyday working standards.

It supports compliance with:

- The Health and Safety at Work etc. Act 1974 (HSWA)
- The Food and Environment Protection Act 1985 (FEPA)
- The Control of Substances Hazardous to Health (COSHH) Regulations 2002
- The Plant Protection Products (Sustainable Use) Regulations 2012 (SI 2012/1657)

It applies to everyone involved in the storage, supply, use, and disposal of PPPs in Great Britain.

Notes

Code of Practice for Using Plant Protection Products

Practical Implications for Key Stakeholders

A. Professional Users (Farmers, Growers, Groundskeepers, Contractors)

- ✓ Must hold **appropriate training and certification** (e.g., NPTC, BASIS, City & Guilds).
- ✓ Must **only use authorised products**, following label instructions precisely (dose, timing, target area).
- ✓ Required to **assess risks** before each application — to people, wildlife, and water.
- ✓ Must **maintain equipment** in good working order and have sprayers inspected regularly.
- ✓ Expected to **record all PPP applications** (date, product, dose, area, weather conditions).
- ✓ Must **prevent pollution** — use buffer zones, protect watercourses, and dispose of residues properly.
- ✓ Should prioritise **Integrated Pest Management (IPM)** — use non-chemical methods where possible.

hta.org.uk

Code of Practice for Using Plant Protection Products

Practical Implications for Key Stakeholders

B. Employers and Land Managers

Must ensure all operators are **trained, competent, and supervised**.

Required to conduct **COSHH risk assessments** for employees who handle or are exposed to PPPs.

Must provide **appropriate PPE** and ensure it's used and maintained.

Responsible for safe **storage, transport, and disposal** of products and packaging.

hta.org.uk

Code of Practice for Using Plant Protection Products

Practical Implications for Key Stakeholders

C. Distributors, Retailers, and Suppliers

Can only supply **authorised PPPs** to trained or certified buyers.

Must store products safely and **keep sales records**.

Should provide buyers with **product safety data** and guidance on correct use.

hta.org.uk

Notes

Code of Practice for Using Plant Protection Products

Practical Implications for Key Stakeholders

D. Environmental and Water Protection Stakeholders

Must cooperate with **catchment-sensitive farming initiatives** and water stewardship programmes.

Should avoid application near **surface water, drains, and protected habitats.**

Expected to manage handling areas and spills to prevent run-off or contamination.

Code of Practice for Using Plant Protection Products

Enforcement and Compliance

- The Code is **not itself law**, but **compliance provides legal protection** — it shows you've taken all reasonable steps to meet legal duties.
- Regulators (HSE, Environment Agency, DEFRA, and local authorities) use the Code as a **benchmark during inspections.**
- **Non-compliance** can lead to enforcement notices, fines, or prosecution under FEPA or HSWA.

Definitions – Hazard and Risk

A hazard is a **potential** source of harm, while risk is the **likelihood** that the hazard will cause harm and the **severity** of that harm. In simpler terms, a hazard is what can cause harm (e.g., a sharp knife), and risk is the chance of being hurt by that hazard, and how bad it would be (e.g., the risk of cutting yourself while chopping vegetables).

Notes

Workplace safety - COSHH and PPP Use in the UK

What COSHH Covers

- COSHH is the main UK law protecting workers from **harmful substances** — including **PPPs, adjuvants, and treated materials**.
- It applies to **all workplaces** where PPPs are stored, mixed, handled, or applied — from farms and golf courses to councils and pest control services.
- The goal: **prevent or control exposure** to substances hazardous to health using a hierarchy of use options and control measures.

hta.org.uk

Workplace safety - COSHH and PPP Use in the UK

Key Legal Duties

A. Assess the Risks (COSHH Regulation 6)

Before using any PPP, the employer or user must carry out a **risk assessment** covering:

- ✓ The product's **hazards** (from the label or Safety Data Sheet).
- ✓ How it will be used and the risks associated with it — mixing, spraying, cleaning equipment, etc.
- ✓ Who might be exposed — operator, bystanders, the public, animals.
- ✓ Where exposure could occur — skin contact, inhalation, ingestion.

If risks are significant, measures must be taken to **reduce or eliminate exposure**.

hta.org.uk

Workplace safety - COSHH and PPP Use in the UK

Key Legal Duties

B. Prevent or Control Exposure (Regulations 7–8)

Do not use.

Avoid exposure if possible (e.g., switch to a less hazardous method or product).

If not, use **engineering controls** and **safe systems of work**:

- ✓ Closed transfer systems, enclosed cabs, or low-drift nozzles.
- ✓ Mixing/loading in designated areas away from drains or water.
- ✓ Good ventilation during indoor applications.

Personal Protective Equipment (PPE) is a last line of defence — gloves, coveralls, masks, or visors as specified on the product label.

hta.org.uk

Notes

Workplace safety - COSHH and PPP Use in the UK

Key Legal Duties

C. Maintain and Inspect Controls (Regulation 9)

- ✓ Application equipment (e.g., knapsacks, sprayers) must be **maintained and inspected regularly.**
- ✓ PPE should be **checked, cleaned, and replaced** as necessary.
- ✓ Records of maintenance and inspections should be kept.

D. Monitor Exposure and Health (Regulations 10–11)

If there's a risk of harmful exposure, employers may need to:

- ✓ Monitor exposure levels (e.g., air sampling or contamination checks).
- ✓ Provide health surveillance (for operators regularly handling PPPs).

Medical advice should be sought if symptoms of poisoning or irritation occur.

hta.org.uk

Workplace safety - COSHH and PPP Use in the UK

Key Legal Duties

E. Training and Information (Regulation 12)

All employees must receive **training and instruction** on:

- ✓ Safe handling and use of PPPs.
- ✓ Emergency actions (spills, poisoning, first aid).
- ✓ Proper use and care of PPE.

Records of training should be maintained and updated regularly.

hta.org.uk

Workplace safety - COSHH and PPP Use in the UK

Key Legal Duties

F. Emergency Procedures (Regulation 13)

- ✓ Must have clear procedures for **spills, leaks, and accidental exposure.**
- ✓ Provide suitable **first aid facilities and emergency wash areas.**
- ✓ Spill kits and absorbent materials should be accessible near storage and mixing areas.

hta.org.uk

Notes

Workplace safety - COSHH and PPP Use in the UK

Documentation and Records

Keep the following on site and up to date:

- ✓ COSHH risk assessments (for all hazardous materials).
- ✓ Safety Data Sheets (SDS) for all products used.
- ✓ Equipment and PPE maintenance logs.
- ✓ PPP application records.
- ✓ Training and certification records for operators.

hta.org.uk

Workplace safety - COSHH and PPP Use in the UK

Enforcement and Penalties

- ✓ Enforced by the **Health and Safety Executive (HSE)** and **Local Authorities**.
- ✓ Breaches can result in **Improvement Notices, Prohibition Notices**, or **prosecution** under the **Health and Safety at Work etc. Act 1974**.

hta.org.uk

Workplace Health, Safety and Welfare

Purpose and Scope

- ➢ The **Workplace (Health, Safety and Welfare) Regulations 1992** require employers to ensure that the **workplace environment and facilities** are safe, healthy, and suitable for employees.
- ➢ These regulations **apply to all premises** where PPPs are handled, stored, or used — including farms, glasshouses, depots, golf courses, local authority stores, and contracting bases.
- ➢ They sit under the **Health and Safety at Work etc. Act 1974 (HSWA)** and complement more specific rules like **COSHH** and the **Sustainable Use Regulations 2012**.

hta.org.uk

Notes

Workplace Health, Safety and Welfare

Key Practical Requirements

A. Workplace Conditions

- ✓ **Clean, well-maintained, and adequately ventilated** areas must be provided for mixing, decanting, and storing PPPs.
- ✓ Surfaces should be **impermeable and easy to clean** to prevent contamination or chemical absorption.
- ✓ **Good lighting** is essential for reading labels, measuring products, and checking for leaks or spills.
- ✓ Areas must be **free from obstructions** and designed to reduce trip or spill risks.

Workplace Health, Safety and Welfare

Key Practical Requirements

B. Washing, Changing, and Sanitary Facilities

- ✓ Provide **handwashing facilities** near PPP mixing and filling areas — with running water, soap, and towels.
- ✓ Workers handling PPPs must have access to **washing and changing areas** separate from eating spaces.
- ✓ **Emergency eyewash and drench facilities** should be available near storage or mixing points.
- ✓ Ensure **toilets and rest areas** are clean and kept away from PPP storage zones.

Workplace Health, Safety and Welfare

Key Practical Requirements

C. Safe Storage of PPPs

- ✓ PPPs must be stored in a **dedicated, lockable, and ventilated store** that prevents contamination and protects against fire and spills.
- ✓ Stores should be **clearly marked with warning signs** and kept away from food, feed, and animal housing.
- ✓ **Secondary containment** (bunds or trays) should be used to catch leaks or spills.
- ✓ Keep **spillage kits and absorbent materials** on hand and train staff in their use.

Notes

Workplace Health, Safety and Welfare

Key Practical Requirements

D. Safe Working Practices

- ✓ Provide **written safety procedures** for handling, mixing, and applying PPPs.
- ✓ Ensure **training and supervision** for all employees and contractors handling PPPs.
- ✓ Prohibit **eating, drinking, or smoking** in any area where PPPs are present.
- ✓ Keep **clear emergency procedures** visible and ensure all workers know what to do in case of spills, exposure, or fire.

hta.org.uk

Workplace Health, Safety and Welfare

Key Practical Requirements

E. Welfare for Outdoor and Protected Workers

Where PPPs are used outdoors (e.g. farms, amenity areas, forestry), employers must:

- ✓ Provide **mobile washing or cleaning kits** when fixed facilities are not nearby.
- ✓ Ensure workers have access to **drinking water, shelter, and rest breaks.**
- ✓ Supply **suitable PPE** (coveralls, boots, face shields, masks, RPE, SRSU gloves etc) and ensure safe removal and cleaning at the end of tasks.
- ✓ Thermal Comfort Checklist – click here

hta.org.uk

Workplace Health, Safety and Welfare

Employer Responsibilities

- ➢ Carry out **risk assessments** to identify workplace hazards related to PPP use.
- ➢ Maintain **records** of inspections, cleaning, and maintenance of stores and equipment.
- ➢ Ensure **first aiders** are trained to respond to PPP exposure incidents.
- ➢ Display **emergency contact numbers** and **Safety Data Sheets (SDS)** in storage and mixing areas.

hta.org.uk

Notes

Workplace Health, Safety and Welfare

Enforcement and Accountability

- Enforced by the **Health and Safety Executive (HSE)**.
- Inspections may include checking:
  - ✓ Condition of PPP stores.
  - ✓ Welfare and washing facilities.
  - ✓ Training records and risk assessments.
- Breaches may result in **Improvement or Prohibition Notices**, or prosecution under HSWA.

hta.org.uk

LERAP (Local Environmental Risk Assessment for Pesticides, UK)

What is LERAP?

- **LERAP** stands for **Local Environmental Risk Assessment for Pesticides**.
- It's a **UK-specific legal requirement** (under the *Plant Protection Products (Sustainable Use) Regulations 2012*) designed to protect **watercourses, hedgerows, and aquatic habitats** from spray drift and contamination.
- Applies to **professional PPP users** when using products near **ditches, streams, rivers, ponds, or lakes**.

hta.org.uk

LERAP (Local Environmental Risk Assessment for Pesticides, UK)

What is LERAP?

- **LERAP** stands for **Local Environmental Risk Assessment for Pesticides**.
- It's a **UK-specific legal requirement** (under the *Plant Protection Products (Sustainable Use) Regulations 2012*) designed to protect **watercourses, hedgerows, and aquatic habitats** from spray drift and contamination.
- Applies to **professional pesticide users** when using products near **ditches, streams, rivers, ponds, or lakes**.

hta.org.uk

Notes

LERAP (Local Environmental Risk Assessment for Pesticides, UK)

Why It Matters

- Many PPPs are **harmful to aquatic life**.
- The LERAP system allows **risk-based flexibility** — operators can reduce statutory buffer zones **only if** they can demonstrate reduced environmental risk.
- Following LERAP guidance ensures compliance and helps prevent **water pollution incidents** and **cross-compliance penalties** (for farm assurance or environmental schemes).

hta.org.uk

LERAP (Local Environmental Risk Assessment for Pesticides, UK)

When LERAP Applies

- LERAP must be carried out **before spraying** any PPP:
- Near **watercourses** or **dry ditches** that could carry water within 6 months.
- When the product label carries a statement like:
- **LERAP A** - Fixed buffer zone – **no reduction allowed,** must maintain full statutory buffer (usually **5 m**)
- **LERAP B** - Ajustable buffer zone – **reduction possible,** may reduce from 5 m → 1 m if local assessment supports it
- Carrying out and recording LERAP – click here

hta.org.uk

SUMMARY

- Legislation is complex (*and much is now old*) and captures various interchangeable statutory instruments.
- Tiered approach from Acts of Parliament to Codes of Practices and guidance factsheets.
- HSE is the main source as reference for managing PPPs on farms/nurseries.
- Users and employers have their roles and responsibilities.
- Official Controls regulations provide End-to-End control of PPP, transparency and 'audit 365'.
- *Note other Pollution Regulations and Codes of Practice also impact PPP transport, storage, mixing, application, and disposal.*

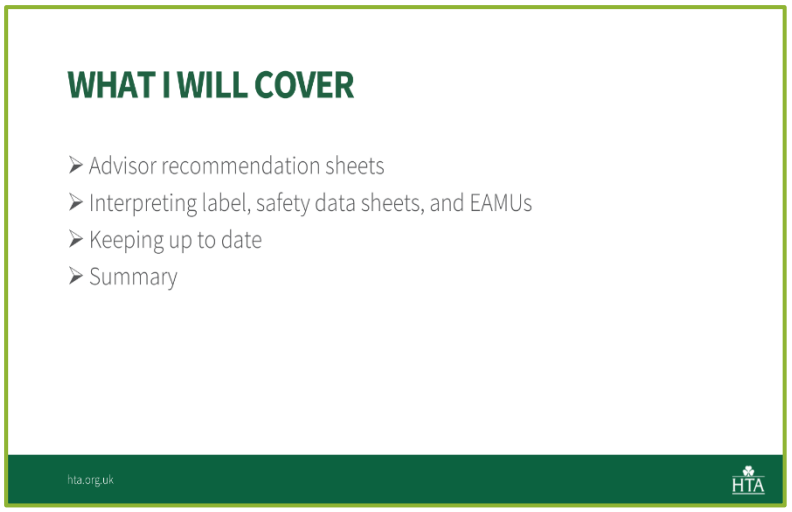
hta.org.uk

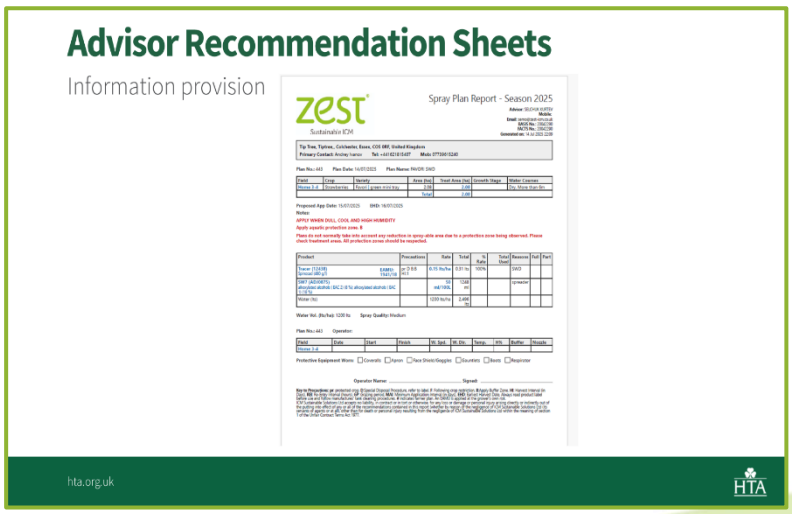
Notes

Interpreting the instructions - label and EAMU approvals, recommendation sheets, and keeping up to date

Wayne brough, HTA

Notes





Notes

Label, Data Sheet, and EAMU Information

Following the guidance

hta.org.uk

Label, Data Sheet, and EAMU Information

Key symbols


Dangerous to the environment


Toxic


Gas under pressure


Corrosive


Explosive


Flammable


Caution - used for less serious health hazards like skin irritation


Oxidising


Longer term health hazards such as carcinogenicity

hta.org.uk

Label, Data Sheet, and EAMU Information

Conversions

- 1ha = 10,000m^2
- 1L = 1,000ml
- 1kg = 1,000g

- Converting per hectare to per m^2 1.0L/ha in 400L/ha
- Product – 1.0L/ha = 1,000ml/10,000m^2 = 0.1ml of product/m^2
- Water – 400L/ ha or 10,000m^2 = 0.04L or 40ml/m^2
- Total solution – 0.1ml of product + 39.9ml of water = 40ml

hta.org.uk

Label, Data Sheet, and EAMU Information

Dose rate vs concentration

- Dose rate vs maximum concentration
  - 'MINIMUM' water volume applied per area
    - **Vivid 200 MAPP 17295** - 1.25L/ha – 1.25L in 200L/ha maximum concentration. Advisory section 200-400L.
    - **Prestop MAPP 19458** – 6kg/ha applied as spray x 1 or 6kg/ha applied as drench x 3 but 500g/100L, therefore 1,200L/ha or 120ml/m^2 for drench.
  - 'MAXIMUM' water volume per area
    - **Proline MAPP 14790** – 0.8L/ha and maximum water volume of 400L/ha in advisory section
  - Water volume per area not relevant
    - **Previcur Energy MAPP 15367** – 3ml/m^2 as drench x 2, therefore 30.0L/ha. Advisory 2.0-4.0L/m^2 or 20,000-40,000L/ha.

Label, Data Sheet, and EAMU Information

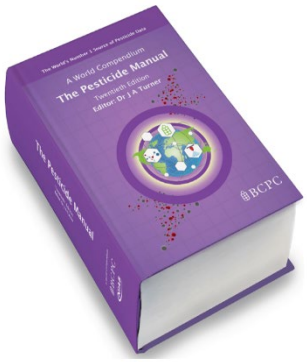
Active substance and maximum total dose per crop, year, area

- Active substance per crop per year and maximum total dose
  - **Proline MAPP 14790** – 0.8L/ha and maximum total dose 1.6L/ha/crop, 400g prothioconazole /ha/crop. Product is 250g/L prothioconazole – 0.8L/ha x 0.25kg/L= 0.200kg A.S./ha.
  - **Sultan 50 MAPP 16680** – Maximum dose rate 1.5L/ha, no more 1.0kg A.S./ha in 3 years in same field. Product is 500g/L metazachlor, therefore 1.5L/ha x 0.5kg/L= 0.75kg/ha. Springbok contains 200g/L metazachlor and therefore 1.25L/ha in addition to full rate Sultan in same year or in 3 years is permitted.

Keeping up to Date

The big picture down to the detail

- If you want to understand active substances, obtain the BCPC Pesticide Manual – printed or online.
- Useful reference publication, but at a price £450.
- Over 1400 pages packed full of pesticide data, including: *** Chemical structure, target site of action, field of use, resistance code, chemical class *** Nomenclature – IUPAC, Chemical abstract names, CAS RN, EPA pesticide code, EC Number and development codes *** Physical chemistry properties, history, manufacturer, patents, route of action and spectrum, uses, formulation types *** NEW regulatory section with references to toxicological and regulatory reviews, WHO toxicity and IARC classifications *** Current status of EU and US EPA registrations *** Ecotoxicology data covering birds, fish, aquatic organisms, worms and bees *** Environmental fate information for animals, plants, soil and the environment ***
- https://www.bcpc.org/product/pesticide-manual-20th-edition



Notes

Notes

Keeping up to Date

The big picture down to the detail

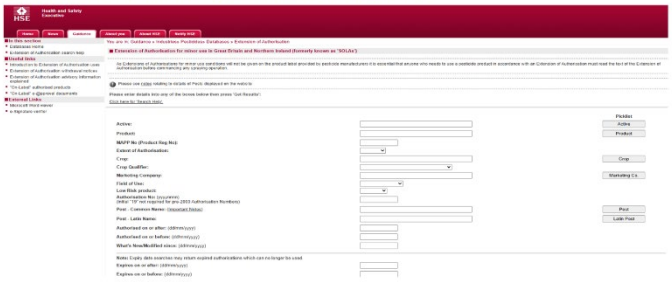
- For day to day to reference obtain the BCPC UK Pesticide Guide – printed or online* each year. (*kept up to date).
- Product focused.
- A little more digestible at £70.
  - Extensions of Authorisation for minor uses (EAMUs)
  - Hazard categories
  - LERAP classifications
  - Maximum doses and approved timings
  - Harvest intervals
  - Manufacturers websites
- https://www.bcpc.org/product/ukpesticideguide-online-formerly-plantprotection
- LIAISON

hta.org.uk

Keeping up to Date

The big picture down to the detail

- The HSE database – for approved products and especially EAMUs.
- https://secure.pesticides.gov.uk/offlabels/search.asp



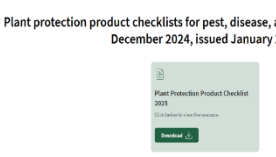
hta.org.uk

Keeping up to Date

The big picture down to the detail

- Ornamentals EAMUs are summarised on the HTA website too, along with PPP checklists of recommended products for pest, disease and weed control.
- https://hta.org.uk/new-eamus-and-how-to-requesting-an-eamu
- https://hta.org.uk/horticulture-crop-protection/plant-protection-product-checklists

All new EAMUs generated in 2023, 2024, and 2025 (first six months) relevant to ornamental and forestry crops



Plant protection product checklists for pest, disease, and weed control, created December 2024, issued January 2025

Plant Protection Product Checklist 2025

Download

hta.org.uk

Notes

Keeping up to Date

The big picture down to the detail

- Getting site/crop specific advice from a relevant, suitably qualified consultant.
- Need to ensure they are BASIS qualified, ideally BASIS Professional Registered, which ensures the consultant stays up to date with developments each year.

Keeping up to Date

The big picture down to the detail

- Manufacturers technical product information, label information, safety data sheets and published EAMUs.
- These provide the specific product detail required for safe and correct use. Paper/electronic copies should be obtained and held before use.

Keeping up to Date

Other relevant sources of information

- Manufacturer websites
- BASIS - https://basis-reg.co.uk/
- NRoSO - https://nroso.org.uk/
- Voluntary Initiative - https://voluntaryinitiative.org.uk/
- City and Guilds - https://digitalcredentials.cityandguilds.com/34133644-90ab-47df-9f6d-3af34e3f1585#acc.wM3gpFGK and NPTC - https://www.nptc.org.uk/qualificationschemes.aspx?id=10&back=qual
- HCP - https://hcpltd.org/
- HTA - https://hta.org.uk/horticulture-crop-protection

SUMMARY

- Ensure PPP spray application recommendations are generated by a BASIS qualified person.
- Always obtain the product information prior to use.
- Labels are not always formatted in the exactly same way; ensure you can locate the key information and understand the difference between regulatory and advisory information on the label.
- Familiarise yourself with the available information sources.
- Spray records should match recommendations and conform with label information.
- Spray operators should be suitably qualified.

hta.org.uk

Notes

Application of plant protection products - operator and worker safety, spray application sheets, sprayer management and cleaning

Selchuk Kurtev, Zest ICM

Notes

WHAT I WILL COVER

- Operator safety
- Worker safety
- Spray application sheets
- Sprayer management and cleaning
- Summary

hta.org.uk

Operator safety

Hazardous substances

- Looks at Personal Protective Equipment (PPE)
- Approvals often contain **standard phrases** for the approved situation
- Refers to two separate activities – **mixing/handling concentrate** and **application**
- Unless otherwise specified/instructed by the company. Relevant to managers as well as operators:

1. Refer to **label approval** (MAPP №)
2. Refer to **EAMU approval** for MAPP № and **situation** (XXXX-XXXX)
3. **Method of application** – label first then EAMU
4. **COSHH Assessment** (latest up to date version) – can overrule all the above if engineering controls or other mitigation measures provide equal to or higher protection than those state on the label or the approvals

hta.org.uk

Notes

Operator safety

PPE - coveralls

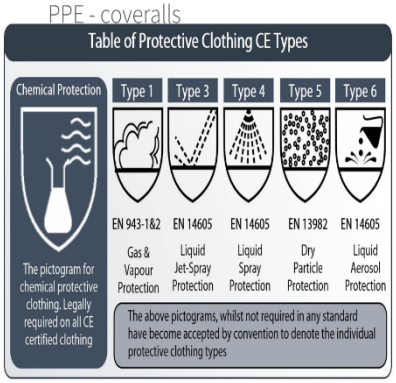
- ✓ Often a balance of more than one type
- ✓ Type 5/6 is the most common
- ✓ Disposable but not single use
- ✓ Categories

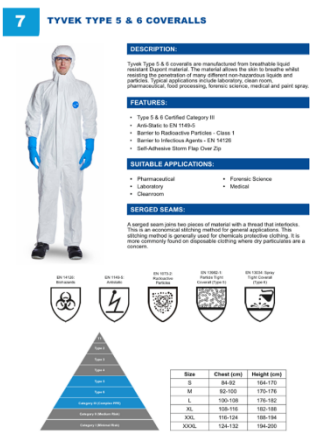
Type	Standard(s)	Typical Materials & Construction	Use Cases	Pros	Cons
Type 1 (Gas-tight)	EN 943-1	Fully sealed one-piece, welded seams, airtight closures	High hazard chemical plants, spill response	Highest barrier protection	Expensive, heavy, heat stress
Type 2 (Non gas-tight)	EN 943	Less stringent sealing, some ventilation	Chemical environments without full gas risk	Good chemical protection	Less protective than Type 1
Type 3 (Liquid-jet-tight)	EN 14605	Taped/welded seams, sealed connections	High-pressure liquid chemical exposure	Strong liquid protection	Costly, less comfortable
Type 4 (Liquid-spray-tight)	EN 14605	Spray-resistant fabric/seams	Chemical spray/ mist areas	Balanced protection vs cost	Not for high-pressure jets
Type 5 (Solid-particle)	EN ISO 13982-1	Non-woven/ microporous, dust barrier	Asbestos, fibers, pharmaceuticals	Lightweight, good for particles	Limited liquid protection
Type 6 (Limited splash)	EN 13034	Light liquid splash barrier	Low-risk chemical splash	Cost-effective, light	Limited protection

hta.org.uk

Operator safety

PPE - coveralls



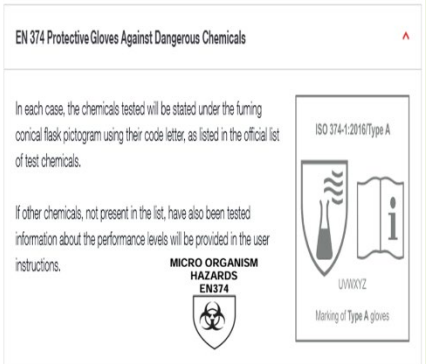


hta.org.uk

Operator safety

Gloves

- ✓ EN374
- ✓ Type A
- ✓ Same categories
- ✓ Gloves within overall sleeves not outside sleeves



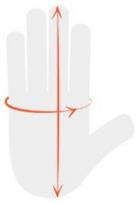
hta.org.uk

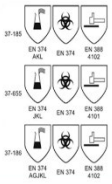
Operator safety

Gloves

- ✓ Size and length of glove
- ✓ Standards for other purposes
- ✓ Not disposable
- ✓ Can be costly

- **BS EN 388:2016+A1:2018**
  Protective gloves against mechanical risks
- **BS EN ISO 374-1:2016+A1:2018**
  Protective gloves against dangerous chemicals and micro-organisms
- **BS EN 407:2020**
  Protective gloves and other hand protective equipments against thermal risks (heat and/or fire)
- **BS EN 12477:2001**
  Protective gloves for welders
- **BS EN 511:2006**
  Protective gloves against cold
- **BS EN ISO 10819:2013+A2:2022**
  Mechanical vibration and shock - Hand-arm vibration
- **BS EN 421:2010**
  Protection from ionising radiation and radioactive contamination
- **EN 16350**
  Protective gloves with electrostatic properties
- **EN 60903**
  Gloves of insulating material for live working
- **BS EN 1186**
  Materials and articles in contact with foodstuffs





CATEGORY III

Operator safety

Footwear

- ✓ Classified in two classes
- ✓ S4 or S5 most suitable
- ✓ Crucial during handling the concentrate
- ✓ Look for ergonomic rating and lightweight
- ✓ Care and maintenance is very important

BS EN ISO 20345: Personal protective equipment - Safety Footwear

CLASS I FOOTWEAR: Footwear made from leather and other materials excluding all-rubber or all-polymeric footwear	
S1	Safety basic + Closed seat region + Antistatic + Energy absorption of the seat region + Fuel oil resistant outsoles
S2	As S1 plus: Water resistance of the upper
S3	As S2 plus: Penetration resistance of the outsole + Cleated outsoles

CLASS II FOOTWEAR: All-rubber (i.e. entirely vulcanized) or all-polymeric (i.e. entirely moulded) footwear	
S4	Safety Basic + Closed seat region + Antistatic properties + Energy absorption of seat region + Resistance to fuel oil
S5	As S4, plus: Penetration resistance + Cleated outsole

Operator safety

Footwear

- ✓ Steel toe cap is desirable
- ✓ Easily washed off and visually checked
- ✓ Durable
- ✓ Slip rating desirable
- ✓ Coveralls over the boot, not in the boot!

Notes

Notes

Operator safety

Respiratory Protective Equipment (RPE)

- ✓ Lots of confusion around RPE
- ✓ Often seen as need for extra precaution
- ✓ Objective is to stop inhaling the pesticide fume, mist fluid etc
- ✓ Many of the bioprotectant products also require this during application
- ✓ Perception of nursery staff

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 GLOVES when applying by broadcast air-assisted equipment.

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

WASH HANDS AND EXPOSED SKIN before meals and after use.

(2) Vehicle mounted or trailed horizontal or vertical boom sprayers must only be used where the operator's normal working position is within a closed cab with a suitable in-cab filtration system* or suitable respiratory protective equipment** must be worn during application in protected situations.
*Closed cabin meeting at least EN 15695 category 3. **Disposable filtering facepiece respirator to at least EN149 FFP3 or equivalent.

hta.org.uk

Operator safety

Respiratory Protective Equipment (RPE)

Table 2 RPE types

Adequacy/suitability	Respirators						
RPE type	 Disposable half mask – particle filter*	 Reusable half mask – particle filter	 Reusable half mask – gas/ vapour filter	 Full face mask – particle filter	 Full face mask – gas/vapour filter	 Powered mask	 Powered hoods/helmets
Effective for particles	✔	✔	✘	✔	✘	✔ **	✔ **
Effective for gas/vapour	✘	✘	✔	✘	✔	✔ **	✔ **
Continuous wear time	Less than 1 hr	Less than 1 hr	Less than 1 hr	Less than 1 hr	Less than 1 hr	More than 1 hr	More than 1 hr
APF4 types	✔	✔	✘	✔	✘	✘	✘
APF10 types	✔	✔	✔	✔	✘	✔	✔
APF20 types	✔	✔	✘	✘	✔	✔	✔
APF40 types	✘	✘	✘	✔	✘	✔	✔
APF200 types	✘	✘	✘	✘	✘	✘	✘
APF2000 types	✘	✘	✘	✘	✘	✘	✘
Page reference	29	30	31	32	33	34	35

* Sometimes referred to as a filtering facepiece or orinasal respirator.
** Only protects against particle or gas/vapour when the appropriate filter is fitted.

hta.org.uk

Operator safety

Respiratory Protective Equipment (RPE)

- ✓ This is the minimum requirement on most approvals where RPE is stated
- ✓ Lower cost but few uses – 1-5 times max
- ✓ Longevity of spray job and environment is important
- ✓ More comfortable than half or full mask
- ✓ Low or no maintenance required
- ✓ Fit test REQUIRED (especially with facial hair)

Figure 8 Disposable half mask respirators

Classification of RPE	Protection factor
FFP1	4
FFP2	10
FFP3	20

Work rate	Medium (all classes)	
Continuous wear time	Less than 1 hour	
Effective against	Solid or liquid particles	
Fit testing required	Yes	
Fit testing options	Qualitative	Quantitative
	✔	✔
Applicable standards	BS EN 149	

Important information, which applies to all these types.

Dispose of masks marked NR (not reusable) after a single shift (8 hours).
P1 and P2 filters are not recommended for fumes unless stated. (See general dos and don'ts Tables 4-6.)

hta.org.uk

Notes

Operator safety
Respiratory Protective Equipment (RPE)

Filter Guidance (for gases & vapours)

Filter markings explained for combination filters

For particulate filters, P2 & P3 indicate the level of filter protection, whereby the higher the number, the higher level of protection, but for gas filters, 1 & 2 refers to the duration the filter will last: 1 = standard and 2 = extended duration.

Depending on the area of application and the length of time workers are required to wear RPE will determine the most appropriate filter.

Did you know that a gas filter continues to absorb the hazardous substances from the air even if it is not in use? Correctly storing your RPE and filters in a sealed container is important to ensure the maximum usage from your filters.

Below are just some examples of combination filters available:

Combination Filters	Particulates	Organic Substances	In-organic Substances	Acid Gases	Ammonia & Amines	Low Boiling Organic Substances	Mercury
	P3	A	B	E	K	AX	Hg
A2P3	•	•					
A2AX		•				•	
ABE1P3	•	•	•	•			
AE1HgP3	•	•		•			•
A1BE2K1P3	•	•	•	•	•		
A1BE2K1HgP3	•	•	•	•	•		•

hta.org.uk

Operator safety
Respiratory Protective Equipment (RPE)

hta.org.uk

Operator safety
Eye protection

OPTICAL CLASS

There are three different types of optical class, each level detailing how often the glasses should be used. The three levels are

- Class 1: Permanent wear (distortion free)
- Class 2: Occasional wear
- Class 3: Brief wear

STRENGTH RATING

The strength rating describes at which point the glasses will break upon impact and an additional rating regarding how the glasses relate to temperature.

- S: Minimal impact resistance - Impact with a small object travelling at 12 meters per second
- F: Low energy impact - Impact with a small object travelling at 45 meters per second
- B: Medium energy impact - Impact with a small object travelling at 120 meters per second
- A: High energy impact - Impact with a small object travelling at 190 meters per second
- T: Impact test at extreme temperatures - -5°C/ +55°C (optional)

hta.org.uk

Operator safety

Eye protection – EN166

CHEMICAL RISKS

- 3: Liquid splash protection
- 3: Liquid droplet protection
- 4: Resistance to large dust particles over 5 microns
- 5: Resistance to gases and dust particles under 5 microns

ELECTRICAL RISKS

- 8: Resistance to short circuit ARCs

THERMAL RISKS

- 9: Resistance to molten metal splashes and hot solids projections

LENS TREATMENTS

- K: Resistance to damage by small particles (anti-scratch)
- N: Resistance to fogging (anti-fog)

These four categories are not mandatory, and will only appear if relevant to the goggles. Any other number or code which follows or precedes these will relate to a different standard.

hta.org.uk

Operator safety

Eye protection – EN166

EN 166:2001 1F
EN 170:2002

EN 166:2001 1AT 3B9
EN 170

hta.org.uk

Operator safety

PPE storage

- Storage usually in an upright metal locker with shelves, but it could be a dedicated secure area with hooks on walls, to store PPE and allow it to dry
- Need to separate PPE from everyday work wear
- Need to avoid cross contamination of PPE. Any deposits on overalls must not be allowed to contaminate PPE stored directly below (e.g. insides of footwear, gloves or even respirators)
- Segregate respirators from other clothing to avoid contaminating the inside of them
- Don't store PPE with application equipment or PPPs

hta.org.uk

Notes

Operator safety

PPE disposal

- DO NOT
  - ☒ Burn used PPE
  - ☒ Throw PPE in normal rubbish bins
  - ☒ Wash PPE where runoff can enter drains or water courses
  - ☒ Reuse disposable PPE

PPE Type	Action
Reusable gloves, boots, visors	Wash and reuse if safe
Disposable gloves, coveralls, masks	Hazardous waste – bag & store for collection
Damaged or heavily contaminated PPE	Hazardous waste – do not reuse

- DO
  - Check if PPE is reusable or disposable.
  - Wash reusable PPE (gloves, boots, goggles) with detergent and water if only lightly contaminated.
  - Treat wash water as pesticide waste – dispose via biobed, biofilter, or lined area (never down drains).
  - Store contaminated PPE in a clearly labelled, secure container: "Hazardous Waste – Contaminated PPE".
  - Arrange collection by a licensed hazardous waste carrier.
  - Keep waste notes or consignment records for 3 years.

hta.org.uk

Worker safety

SRSU gloves

- ✓ Invaluable information from AHDB factsheet
- ✓ Most nurseries are still not aware or not 'willing' to accept the need to implement
- ✓ Key challenge is how to conform with timelines of handling periods
- ✓ Additional cost
- ✓ More waste
- ✓ Often untidy nursery

FACTSHEET 09/15
Cross Sector

AHDB HORTICULTURE

Richard Glass,
Eurofins Agroscience Services

Selection and use of 'splash-resistant single use' (SRSU) protective gloves for workers handling treated plants and contaminated surfaces

This factsheet provides information to those responsible for workers (ie the duty holder) about the selection and use of protective gloves (Figure 1) when carrying out tasks that may result in exposure of the hands to plant protection products (PPPs). Such tasks include taking and inserting cutting material, pinching, pruning, harvesting and packing following application of a PPP. The Chemicals Regulation Directorate (CRD) now allows the protective factor of gloves to be taken into account during the PPP authorisation process. This could allow new approvals of PPPs that might otherwise not be approved without the restrictions associated with having a time delay between treatment and handling by workers.

hta.org.uk

Worker safety

Re-entry into crop or structure

- Complete non-handling period
- Re-entry with protective clothing
- Handling period with protective clothing and gloves
- Sales window restriction

(b) Workers must wear suitable protective clothing in which arms, body and legs are fully covered when re-entering treated areas or handling treated crops or contaminated surfaces within 39 days after treatment. (See 'Other Specific Restrictions')

Crops/situations:	Maximum individual dose: (litres product / ha)	Maximum total dose:	Maximum number of treatments: (per crop)	Latest time of application:
Protected and outdoor ornamental plant production - container grown crops	0.4	-	1	3 days prior to removal for sale

hta.org.uk

Notes

Notes

Worker safety

Protective clothing

Protective clothing (including the legs)

Types of protection

97 Protective clothing must offer some specific protection – if it does not, it is classified as 'workwear'. There are three main types of protective clothing:

(a) **separates** – jackets, trousers etc that cover only part of the body;
(b) **aprons** – that cover only part of the body;
(c) **overalls, coveralls and body suits** – which cover the whole body.

98 As well as trousers for leg protection, there are also knee pads and gaiters. Hard fibre or metal guards will help protect against some impacts.

Examples of hazards which could require protective clothing

99 The main hazards are as follows:

(a) **working with chemicals** – handling small quantities of low-risk chemicals may only require aprons to protect against accidental splashes. Larger quantities of chemicals or risks of contact with sprays or jets of chemicals are likely to require protective coats/ trousers or coveralls. Potential exposures to large quantities of chemicals or very hazardous materials will often require the use of gas or liquid-tight suits and appropriate RPE;

SAFETY PRECAUTIONS
(a) 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.
WORKERS MUST WEAR SUITABLE PROTECTIVE CLOTHING (in which arms, body and legs are fully covered) AND SUITABLE GLOVES* when re-entering treated areas, handling treated crops or contaminated surfaces within 11 weeks of treatment.
*Meeting at least glove safety standard EN374-2:2014, Level 2 and CE category III. Such gloves can be identified by a CE Mark with four digits below, and the EN374 pictogram for micro-organisms.
However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.
WASH SPLASHES from skin or eyes immediately.
DO NOT BREATHE SPRAY.
WASH HANDS AND EXPOSED SKIN before meals and after work.

hta.org.uk

Worker safety

Protective clothing

- ✓ Even though the HSE have formally replied and confirmed that 'as long as the arms legs and body is covered' the clothing doesn't matter
- ✓ Yet in L25 PPE guidance document suggests Protective clothing and workwear are two different things

hta.org.uk

Worker safety

Spray application sheets

Spray task worksheet							
DATE			*Equipment*	Lance			
Authorised by			*Spray Quality*	medium, heav			
Department			*Nozzle type*	brown ff, cone			
Location			PPE - Mixing	Faceshield, Nitrile gloves, Coverall, Wboots,			
Indoor / Outdoor			PPE - Application	Nitrile gloves, Coverall, safety glasses /goggles, Wboots, faceshield			
Operator			*Hazard Label*	Harmful, toxic etc			
Washings							
List/ Area	Bed	Crop	Problem	Treatment	Rate	LERAP Buffer	Risk
E2	409	photinia rr	Powdery Mildew	Nimrod	1.0L/ha	0	0
		Always read the label. Use pesticides safely					

hta.org.uk

Notes

Worker safety

Spray application sheets

zest
Sustainable ICM

Spray Plan Report - Season 2025

Advisor: SELCHUK KURTEV
Mobile:
Email: semo@zest-icm.co.uk
BASIS No.: 20042290
FACTS No.: 20042290
Generated on: 05 Nov 2025 11:42

Tip Tree, Tiptree,, Colchester, Essex, CO5 0RF, United Kingdom
Primary Contact: Andrey Ivanov **Tel:** +441621815407 **Mob:** 07739615240

Plan No.: 474 **Plan Date:** 11/09/2025 **Plan Name:** NGS 1+2 ROUND 1

Field	Crop	Variety	Area (ha)	Treat Area (ha)	Growth Stage	Water Courses
NGS1	Strawberries	Karima	1.00	1.00		Dry
NGS 2	Strawberries	Karima	1.00	1.00		Dry
			Total	2.00		

Proposed App Date: 13/09/2025 **EHD:** No Restriction

Product	Precautions	Rate	Total	% Rate	Total Used	Reasons	Full	Part
Potassium Bicarbonate (MBS166) Potassium hydrogen carbonate (99 % w/w)		450 g/100L	9000 g	23%		Powdery Mildew		
Headland Sulphur (MBS798) Sulphur (800 g/l)		2 lts/ha	4 lts			Powdery Mildew		
SW7 (ADJ0875) alkoxylated alcohols (EAC 2) (8 %); alkoxylated alcohols (EAC 1) (18 %)		50 ml/100L	1000 ml			spreader		
Water (lts)		1000 lts/ha	2,000 lts					

Water Vol. (lts/ha): 1000 lts **Spray Quality:** Medium

Plan No.: 474 **Operator:**

Field	Date	Start	Finish	W. Spd.	W. Dir.	Temp.	H%	Buffer	Nozzle
NGS1									
NGS 2									

Protective Equipment Worn: ☐ Coveralls ☐ Apron ☐ Face Shield/Goggles ☐ Gauntlets ☐ Boots ☐ Respirator

Operator Name: **Signed:**

Key to Precautions: pr: protected crop. D:Special Disposal Procedure, refer to label. F: Following crop restriction. B:Apply Buffer Zone. HI: Harvest Interval (in Days). REI: Re-Entry Interval (hours). GP: Grazing period. MAI: Minimum Application Interval (in days). EHD: Earliest Harvest Date. Always read product label before use and follow manufactures' tank cleaning procedures. # indicates farmer plan. An EAMU is applied at the grower's own risk.
ICM Sustainable Solutions Ltd accepts no liability, in contract or in tort or otherwise, for any loss or damage or personal injury arising directly or indirectly out of the putting into effect of any or all of the recommendations contained in this report (whether by reason of the negligence of ICM Sustainable Solutions Ltd (its servants or agents or at all), other than for death or personal injury resulting from the negligence of ICM Sustainable Solutions Ltd within the meaning of section 1 of the Unfair Contract Terms Act 1977.

hta.org.uk HTA

Sprayer maintenance and cleaning

Maintenance

- ✓ Same principles as with PPE
- ✓ Monthly maintenance and repairs
- ✓ Records
- ✓ NSTS testing
- ✓ Leaks, wear and tear, mechanical parts, ergonomics, straps, pumps, hose pipes and reels, gun lance, boom, nozzles
- ✓ Calibration after each change of nozzle and repair to hydraulic pump and pressure lines

hta.org.uk HTA

Sprayer maintenance and cleaning

Maintenance

- ✓ Boom sprayers all need testing
- ✓ Canon sprayer, air assisted etc annually, but legally every 3 years
- ✓ Hand-held equipment only inspection by competent person
- ✓ Some grey areas here as to which equipment needs testing every 6 years or not at all

hta.org.uk HTA

Notes

Sprayer maintenance and cleaning

Cleaning

- ✓ How clean is your tank?
- ✓ Each equipment MUST be washed at the end of each day
- ✓ Particularly filters
- ✓ Some active substances can be very persistent – clopyralid, MCPA, 2,4-D, florasulam, SU herbicides
- ✓ Outside of spray equipment as well
- ✓ Tools and spares could all be contaminated

Analyte in µl/l	Level Found	
MRPS by GC (SOP611)		
2,4,6-Trichlorophenol	1.9	
Azoxystrobin	8.3	
Boscalid		**33**
Bupirimate		**26**
Carfentrazone Ethyl		**32**
Cyflufenamid	0.5	
Cyprodinil		**29**
Difenoconazole	0.4	
Fenamidone	4.1	
Fludioxonil		**31**
Flusilazole	0.3	
Iprodione	7.9	
Kresoxim-Methyl	0.3	
Lenacil	0.1	
Metalaxyl	1.0	
Myclobutanil		**47**
Napropamide	7.3	
Oxadiazon	5.9	
Piperonyl Butoxide		**11**
Propiconazole		**11**
Pyraclostrobin		**20**
Pyrimethanil		**100**
Tebuconazole	0.6	
Tebufenpyrad	0.4	
Terbuthylazine	0.1	
MRPS by LC (SOP603)		
Acetamiprid	0.2	
Diflubenzuron	0.2	
Ethirimol	0.2	
Indoxacarb	0.8	
Isoxaben	2.5	
Pirimicarb	0.7	
Prochloraz		**35**
Thiacloprid	4.0	

hta.org.uk

Sprayer maintenance and cleaning

Maintenance

Weekly Sprayer maintenance checks

Cooper Pegler Berthoud Knapsack

The following form is designed to help us to maintain our equipment to a high standard of safety.
Please Date the column and tick or cross against the checklist below.
If an action is required please give details of this and report to DTSM

Description of Equipment:

	Action / Comments								
Date									
Nozzle condition									
Leaks Y, Location?									
Are filters clean?									
Straps -twisted/ damaged?									
Clean tank- In & Out?									
Pipes / Hoses - Split?									
Are Jubilee clips tight ?									
Pressure check									
Calibration carried out									

hta.org.uk

SUMMARY

- ➢ Challenges are mainly with approvals and worker protection
- ➢ Many approvals not practical
- ➢ Conformity with each specific safety standard is important
- ➢ Record keeping and training is crucial for auditing
- ➢ Maintenance for PPE spray equipment must be carried out
- ➢ NSTS schemes are more important now and need to be adhered to
- ➢ Agronomist recommendations are not sufficient for HSE audits

hta.org.uk

Pesticide stores – store inventories, stock takes, dealing with spillages and container/product disposal

Selchuk Kurtev, Zest ICM

Notes

WHAT I WILL COVER

- Pesticide store positioning and store requirements
- Store inventories and stock takes
- Spillages and dealing with them
- Container disposal and disposal of product(s)
- Summary

hta.org.uk

Pesticide store positioning and store requirements

Location

hta.org.uk

Notes

Pesticide store positioning and store requirements

Inventories and requirements



hta.org.uk

Pesticide store positioning and store requirements

Stock inventories and bund size

Bund size depends on volume of pesticides stored:

- 110% bund of stored pesticide
- 185% if in sensitive area
- Calculate your bund size by volume
  - H x W x L – 0.2m x 3.2m x 6.2m = 3.97m^3
  - 110% - 3.97m^3 = 3,970L - 397L = 3,573L for liquids or solids
  - 185% - 3.97m^3 = 3,970L+3,374.5L= 595.5L for liquids or solids

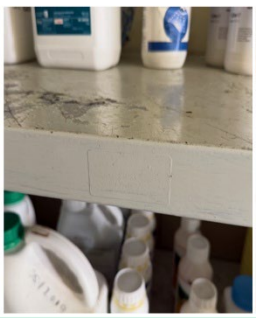
Chemical Store Stock Take

Product Name	Active ingredient	Pack Size	MAPP no.	DATE 11/9/25	DATE
FUNGICIDES					
Amistar	Azoxystrobin	5L	18039	5	
Arizona	Folpet	5L	15318	2	
Fubol Gold	Mancozeb + metalaxyl-M	7.5kg	14605	1	
Kestrel	Prothioconazole	5L	16751	1	
Luna Privilege	Fluopyram	1L	18393	2	
Nativo	Tebuconazole + trifloxystrobin	1kg	16867	1	
Paraat	Dimethomorph	1kg	15445	2	
Percos	amisulbrom + dimethomorph	5L	19700	\	
Previcur Energy	Fosetyl-aluminium + propamocarb hydrochloride	1L	15367	4	
Promess	propamocarb hydrochloride	1L	16008	2	
Proplant	Propamocarb hydrochloride	1L	15422	1	
Reflect	Isopyrazam	10L	18573	3	
Revus	Mandipropamid	10L	17443	1	
Scala	Pyrimethanil	1L	15222	1	
Serenade ASO	Bacillus subtilis (strain QST 713)	10L	16139	2	
Signum	Boscalid and pyraclostrobin	2.5kg	11450	\	
Silvon	Bioalkali	5L	19384	1	
Switch	Cyprodinil + fludioxonil	1kg	15129	4	

hta.org.uk

Pesticide store positioning and store requirements

Spillages and spillage kits


hta.org.uk

Pesticide store positioning and store requirements

Container disposal and product disposal

hta.org.uk

Pesticide store positioning and store requirements

Container disposal and product disposal

hta.org.uk

Pesticide store positioning and store requirements

Spillage kits and dealing with spillage

hta.org.uk

Notes

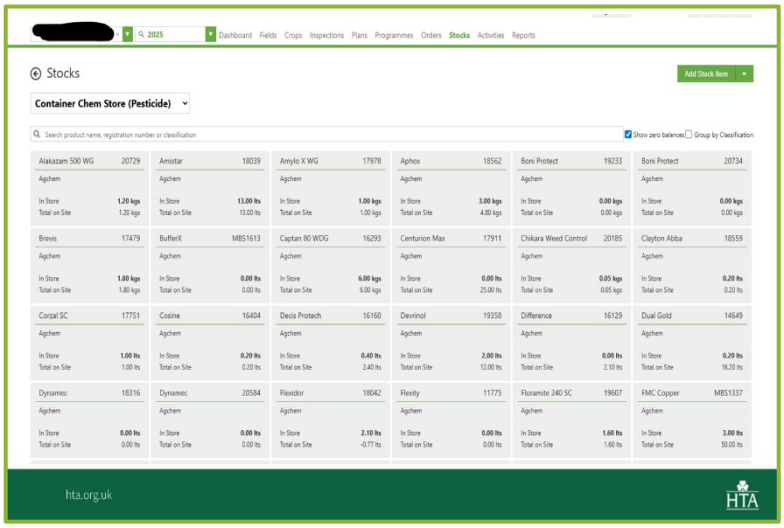
Notes

Pesticide store positioning and store requirements

Summary

- Monthly stock takes x 2 copies – 3 yrs
- Disposal records – product, packaging, PPE, hazardous waste etc – 3yrs
- Maintenance records – leaks, lighting, fans, bund, painting etc - 3 yrs
- First aid kits expiry, procedures, signs etc
- General tidiness/cleanliness, goods in and emergencies
- Washings, segregation of waste, disposal
- Store arrangement of products and labels
- Flammable, Toxic and Oxidising agents separate storage within the store
- Volume stored vs bund size
- Other

hta.org.uk



hta.org.uk

SUMMARY

- Follow latest HSE guidance
- Staff training and meticulous record keeping
- Hygiene, cleanliness, and tidiness
- Maintenance of store integrity and facilities
- Strict labelling of product and prevention of spillages and risk of pollution
- Transport of chemicals and disposals via correct routes
- 'Audit 365' ready

hta.org.uk

Understanding the Product Label

You must read and understand the label before you start to use the product. The label is the main source of information on the safe and effective use of a product. The product label must always be supplied with the container. Additional information may also sometimes be supplied as a separate leaflet. It is essential that all the information is read carefully and understood before a plant protection product (PPP) is used because it informs the user of the safe and proper use of the product.

Statutory conditions of use

It is an offence not to follow the statutory conditions of use of a PPP: these are detailed in the relevant notice of authorisation. Details of authorisations are published on the Pesticides Register of GB/NI Authorised Products website. Additionally, the product label must be consistent with the statutory conditions of use. There are special requirements for 'Extensions of Authorisation for Minor Use' and commodity substances. Statutory conditions of use will differ from product to product and use to use. They cover:

- Field of use restrictions, e.g. agriculture, wood preservative;
- User restrictions;
- The crop or situation which may be treated;
- Maximum individual dose/application rate;
- Maximum number of treatments or maximum total dose;
- Maximum area or quantity which may be treated;
- Latest time of application, harvest or re-entry interval;
- Operator protection or training requirements;
- Environmental protection requirements.

It is therefore important to read the label (together with any accompanying leaflet) carefully, if possible before purchase and certainly before use.

Other information on the label

The information on the label also includes:

- The trade name and marketing company of the product;
- The MAPP (registration) number;
- The product's active ingredients (and their concentrations);
- Any necessary hazard symbols;
- Precautions to be taken during use;
- Medical advice;
- Safe disposal of the product;
- Advice on what pests (including diseases and weeds) the product controls.

NIMROD®

MAPP 18522

A systemic fungicide with curative and protectant action which controls powdery mildew on apple, pears, soft fruits, cucumber and ornamental plants.

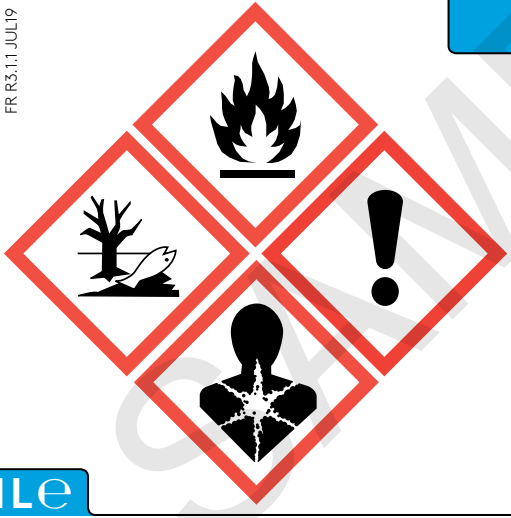
An emulsifiable concentrate formulation containing 250 g/l (26.8% w/w) bupirimate, n-butanol and hydrocarbons.
May produce an allergic reaction.

F

ADAMA

Scan for Safety Data Sheet or use weblink:
https://bit.ly/2KrSkG6

FR R3.1.1 JUL19



1Le

Danger

Flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes serious eye irritation.
May cause respiratory irritation.
Suspected of causing cancer.
Very toxic to aquatic life with long lasting effects.
Repeated exposure may cause skin dryness or cracking.
Contains bupirimate. May produce an allergic reaction.
Keep out of reach of children.
Keep away from heat, sparks, open flames, hot surfaces and other ignition sources. No smoking.
Take precautionary measures against static discharge.
Avoid breathing vapours or spray.
Wear protective gloves, protective clothing, eye protection, face protection.
Do NOT induce vomiting.
Collect spillage.
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.

97050385D_201906

For advice on medical emergencies, fires or major spills telephone the National Chemical Emergency Centre on 01865 407333

Adama Agricultural Solutions UK Ltd
Third Floor East, 1410 Arlington Business Park, Theale, Reading RG7 4SA
Telephone 01635 860555 | Technical Helpline 01635 876622
www.adama.com | ukenquiries@adama.com

SHAKE WELL BEFORE USE

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

Batch No.: see packaging

This leaflet is part of the approved label.

For advice on medical emergencies, fires or major spills telephone the National Chemical Emergency Centre on 01865 407333

IMPORTANT INFORMATION

FOR PROFESSIONAL USE ONLY AS A HORTICULTURAL FUNGICIDE

Crop	Maximum individual dose (litres/ha)	Maximum number of applications	Latest time of application	Aquatic buffer (m)*
Apples and pears	0.9	4 per year	14 days before harvest	15
Strawberry (outdoor)	1.0	4 per year	3 days before harvest	-
Strawberry (permanent protection with full enclosure)	1.0	4 per crop	3 days before harvest	-
Raspberry, blackcurrants, redcurrants and gooseberries (outdoor)	1.0	4 per year	7 days before harvest	5
Raspberry (permanent protection with full enclosure)	1.0	4 per year	7 days before harvest	-
Chrysanthemum (outdoor)	0.7	3 per crop	-	5
Chrysanthemum (protected)	0.7	3 per crop	1 day before harvest	-
Roses (outdoor)	1.0	3 per crop	-	5
Roses (permanent protection with full enclosure)	1.0	3 per crop	6 days before harvest	-
Begonia (outdoor)	1.1	3 per crop	-	5
Begonias (permanent protection with full enclosure)	1.1	3 per crop	6 days before harvest	-
Ornamental plant production other than chrysanthemum and begonias including in containers (outdoor)	1.0	3 per crop	-	5
Ornamental plant production other than chrysanthemum and begonias, including in containers (permanent protection with full enclosure)	1.0	3 per crop	6 days before harvest	-

Qualified minor use recommendation				
Cucumber (permanent protection with full enclosure)	1.5	4 per year	1 day before harvest	-

*Further details provided under 'Environmental Protection'. Relevant to outdoor crops only.

Other specific restrictions:

Where application is applied for indoor use:

1. Treatment must only be made under 'permanent protection' situations which provide full enclosure (including continuous top and side barriers down to below ground level) and which are present and maintained over a number of years.
2. Reasonable precautions must be taken to prevent access of birds, wild mammals and honey bees to treated crops.
3. To minimise airborne environmental exposure, vents, doors and other openings must be closed during, and after application, until the applied product has fully settled.

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.

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 AND FACE PROTECTION (FACESHIELD) when handling the concentrate.
WEAR SUITABLE PROTECTIVE GLOVES when handling contaminated surfaces or applying by broadcast air-assisted equipment.
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 they provide an equal or higher standard of protection.
WHEN USING DO NOT EAT, DRINK OR SMOKE.
WASH HANDS AND EXPOSED SKIN before meals and after work.
TAKE OFF IMMEDIATELY all contaminated clothing.
WASH ALL PROTECTIVE CLOTHING thoroughly after use, especially the insides of gloves.
IF YOU FEEL UNWELL, seek medical advice immediately (show the label where possible).

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.

Apple and Pear:

DO NOT ALLOW DIRECT SPRAY from broadcast air-assisted sprayers to fall within 15 m of the top of the bank of a static or flowing waterbody, unless a Local Environment Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone, or within 5 m of the top of a ditch which is dry at the time of application. Aim spray away from water.

This product qualifies for inclusion within the Local Environment Risk Assessment for Pesticides (LERAP) scheme. Before each spraying operation from a broadcast air-assisted sprayer, either a LERAP must be carried out in accordance with HSE's published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for three years.

Raspberries (outdoor), blackcurrant and redcurrant, gooseberry, rose (outdoor), begonia (outdoor), chrysanthemum (outdoor), other ornamentals (outdoor):

DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5 m of the top of the bank of a tatic 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. Aim spray away from water.

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 HSE's published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for three years.

Storage and Disposal

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDINGSTUFFS.
KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.
WASH OUT 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.
DO NOT RE-USE CONTAINER for any purpose.
THIS MATERIAL AND ITS CONTAINER must be disposed of in a safe way.

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 AND WARNINGS

For varietal restrictions on ornamental plants please refer to 'Crop Specific Information'.

It is advisable to test for compatibility and tolerance to crop injury prior to full scale commercial use on ornamentals.

Warning for begonias: Never spray flowering plants or those with flower buds showing colour as this can scorch petals.

Crops should not be re-entered until spray residues are dry.

Crops for processing

NIMROD® has not caused taint in tests with blackcurrants and gooseberries but consult processor before using on any crops for processing.

RESISTANCE

NIMROD contains bupirimate. For resistance management purposes, it's mode of action is classified as A2 under the FRAC code. There is medium risk of resistance and cross resistance known in powdery mildews. Application should be made in accordance with FRAC Guidelines.

Use NIMROD as part of an Integrated Crop Management (ICM) strategy incorporating other methods of control. To reduce the likelihood of resistant strains of powdery mildew developing in all crops, it is recommended that NIMROD should be used in spray programmes with other suitable mildew fungicides with alternative modes of action.

The efficacy of this product may be affected if strains of disease pathogens resistant or less sensitive occur at any time. As such occurrences cannot be predicted no responsibility can be accepted for the results obtained.

DISEASE CONTROL

NIMROD is a systemic fungicide with curative and protectant action which controls powdery mildew in a range of crops.

CROP SPECIFIC INFORMATION (including disease control)

APPLES AND PEARS

Rate of use and water volume:

0.9 litre/ha at a maximum concentration of 60 ml/100 litres water.

Where tree height and/or canopy density is reduced, the dose (and water volume) should be adjusted in accordance with an appropriate dose adjustment scheme. Consult your specialist advisor for further information. Further information on the PACE scheme is available from AHDB Horticulture (formerly HDC), or see the AHDB Horticulture leaflet (Orchard Spraying: Opportunities to reduce rates) available on the AHDB Horticulture website at: www.horticulture.ahdb.org.uk

Water volumes should be based on the size of the trees and leaf area at application and sufficient to ensure good coverage.

Apply from late green cluster (apples) or white bud stage (pears) and repeat at intervals of 10-14 days.

During periods conducive to powdery mildew and especially during rapid leaf development in June, best results are obtained by applying at the shorter spray intervals.

For season long control of powdery mildew, other products will need to be included in the treatment programme.

Timing

Apply at late green cluster/white bud stage and repeat until extension growth ceases, using up to a maximum of 4 sprays per year.

Harvest Interval: 14 days.

STRAWBERRIES (outdoor and protected)

Rate of use and timing:

1 litre in 500-1,000 litres water per hectare.

Apply at first signs of disease from just before blossom and repeat at 10-14 intervals as necessary, using up to a maximum of 4 sprays per crop. On protected strawberries 2 crops per year may be treated.

Harvest interval: 3 days.

RASPBERRIES (outdoor and protected), BLACKCURRANTS and REDCURRANTS (outdoor) AND GOOSEBERRIES (outdoor)

Rate of use and timing:

1 litre in 100-400 litres water per hectare.

Apply at first signs of disease and repeat at a minimum of 12 day intervals using up to a maximum of 4 sprays per year.

On susceptible raspberry varieties application at full flower has been shown to be important in giving best protection of fruit.

Harvest Interval: 7 days.

CHRYSANTHEMUMS (outdoor and protected)

Rate of use and timing:

0.7 litre/ha. Spray thoroughly to wet all foliage.

Apply as soon as infection is seen and repeat at 10-14 day intervals. A maximum of 3 applications may be made to any crop. A maximum of 2 protected crops may be treated per year. One outdoor crop may be treated per year.

Varieties: NIMROD has been used on the following varieties: Helen, White Marble, Pink Marble, Bronze Nero, Red Regalia, Bronze Hazel Zwager, Peter Zwager, Evelyn Bush and Puriton. On other chrysanthemums, first treat a few plants to check for damage before proceeding further.

Harvest interval (protected only): 1 day

ROSES (outdoor and protected)

Rate of use and timing:

1 litre/ha.

Apply sufficient spray to obtain complete crop cover.

Apply before, or at the first signs of disease and repeat at 10-14 day intervals. Under high disease pressure reduce spray interval to 5 days. A maximum of 2 protected crops may be treated per year. One outdoor crop may be treated per year.

Note: Some leaf puckering may occur on young soft growth during early spring and under low light intensity.

In these conditions, test varietal susceptibility by spraying a few plants and allowing 14 days for any symptoms to develop.

Harvest interval (protected only): 6 days

BEGONIAS (outdoor and protected)

Rate of use and timing:

1.1 litre/ha. Spray thoroughly to wet all foliage.

Apply at the first sign of infection and repeat at 14 day intervals until no new infections are seen. Where the disease is well established, spray at 5-7 day intervals until good control is achieved and thereafter at 14 day intervals until no new infections are seen. A maximum of 3 applications may be made to any crop. A maximum of one crop per year may be treated.

Varieties: NIMROD has been applied without affecting growth or damaging foliage to the following Rieger Begonia cultivars:

Rot, Rot K, Rosa, Orange, Krefeld Orange and Goldorgange. On other varieties, first treat a few plants to check for damage before proceeding further.

Warning - never spray flowering plants or those with flower buds showing colour as this can scorch petals.

Harvest interval (protected only): 6 days

OTHER ORNAMENTALS (outdoor and protected)

Rate of use and timing:

1 litre/ha

Apply sufficient spray to obtain complete crop cover.

Apply before, or at the first signs of disease and repeat at 5-14 day intervals, depending on disease pressure. A maximum of 2 protected crops may be treated per year. One outdoor crop may be treated per year.

It is advisable to test for compatibility and tolerance to crop injury prior to full scale commercial use on ornamentals.

Harvest Interval (protected only): 6 days

QUALIFIED MINOR USE RECOMMENDATION

CUCUMBER (protected)

NIMROD may be used as a fungicide for powdery mildew in cucumber on the basis of limited effectiveness data.

Rate of use and timing:

1.5 litre/ha. Spray thoroughly to wet all foliage.

Apply at the onset of disease and repeat at a minimum of 10 day intervals. Apply a maximum of 4 sprays per crop. A maximum of 3 crops per year may be treated.

Note: Some leaf spotting may occur during the winter and early spring when light levels are low. If it is necessary to spray in these conditions, test spray a few plants 10-14 days before spraying the whole crop.

Strains of powdery mildew (*Sphaerotheca fuligenea*) resistant to bupirimate are common in the UK. NIMROD is ineffective against these resistant strains.

Harvest interval: 1 day.

MIXING AND SPRAYING

Shake the container of NIMROD thoroughly before opening.

Hydraulic and orchard crop sprayers:

Add half the required volume of clean water to the spray tank. Add the recommended quantity of NIMROD. Agitate whilst filling the tank to the required water volume and continue agitation during spraying. Wash out all spray equipment with water immediately after use.

For knapsack sprayers:

Half-fill the sprayer tank with clean water. Add the measured amount of product, with rinsings, to the sprayer tank and fit the tank lid. Gently shake the sprayer, by rocking, to ensure thorough mixing. Top up the tank with water to the correct level. Refit the tank lid and again gently shake the sprayer, by rocking, to ensure thorough mixing.

Ensure good coverage and penetration of the spray and that the sprayer is correctly calibrated before use.

Do not leave the spray liquid in the sprayer for long periods (i.e. during meals or overnight).

DISCLAIMER/CONDITIONS OF SUPPLY

The specified properties of our products and the mode of application stated on this label have been established on the basis of research and experience. Products conform to specification at the time of delivery but, as we exercise no control over their subsequent storage, handling, mixing or use or the weather conditions before, during and after application, all of which may affect the performance of the products, no responsibility or liability will be accepted by us or our re-sellers for any failure in performance, damage or injury to person or property whatsoever arising from the storage, handling, application or use of the products. These conditions cannot be varied by our staff or agents whether or not they supervise or assist in or make recommendations concerning the use of such products. We recommend you contact your dealer to request advice on the suitability of this product for any new and/or unusual growing methods or for new varieties not listed on this label.

Marketed by
Adama Agricultural Solutions UK Ltd
Third Floor East, 1410 Arlington Business Park
Theale, Reading RG7 4SA
Telephone: 01635 860555
Technical Helpline: 01635 876622
www.adama.com
Email: ukenquiries@adama.com

0469/2024

Topas®

syngenta

GROUP 3 FUNGICIDE

Contains 100 g/l penconazole as an emulsifiable concentrate.

For the control of powdery mildew in apples, crab apples, pears, blackcurrants, redcurrants, grapes, outdoor and protected strawberries.

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

Syngenta UK Limited
Jealott's Hill International Research Centre,
Bracknell, Berkshire, RG42 6EY
Tel +44 (0) 1223 883400

In case of toxic or transport emergency ring +44 (0)1484 538444 any time

PROTECT FROM FROST
STORE IN A COOL, DRY PLACE

This product label is compliant with the CPA Voluntary Initiative (VI) guidance

The Voluntary Initiative

1 Litre

L1132521 GBRI/01D PPE 4225703

TOPAS® is an emulsifiable concentrate containing 100 g/l penconazole.

Warning

Causes serious eye irritation.
Suspected of damaging the unborn child.
Toxic to aquatic life with long lasting effects.

Obtain special instructions before use.
Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
IF exposed or concerned: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Collect spillage.
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.

MAPP: 16765 **UFI:** R4K8-C0D4-A00Y-PH9M

IMPORTANT INFORMATION
FOR USE ONLY AS A FUNGICIDE

For use on:
Crops: Apples, crab apples, pears, blackcurrants, redcurrants, grapes, outdoor and protected strawberries.

Maximum individual dose, Maximum number of treatments, Latest time of application and Other specific restrictions: Full details are given in the Statutory Area 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.

SAFETY PRECAUTIONS

(a) Operator protection
Engineering control of operator exposure must be used where reasonably practicable in addition to the following protective equipment:
WEAR SUITABLE PROTECTIVE GLOVES AND FACE PROTECTION (FACESHIELD) when handling the concentrate.
However engineering controls may replace personal protective equipment if COSHH assessment shows that they provide an equal or higher standard of protection.
WASH ALL PROTECTIVE CLOTHING thoroughly after use especially inside of gloves.
WASH CONCENTRATE from skin or eyes immediately.
WASH HANDS AND EXPOSED SKIN before meals and after work.

(b) Environmental protection
RISK TO NON-TARGET INSECTS OR OTHER ARTHROPODS. See Directions for Use.
Extreme care must be taken to avoid spray drift onto non-crop plants outside of the target area.
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.

L1132521 GBRI/01D PPE 4225703

IMPORTANT INFORMATION

FOR USE ONLY AS A FUNGICIDE
For use on:

Crops	Maximum Individual Dose (litres product/ha)	Maximum Number of Treatments	Latest time of application (days before harvest)
Apple, pear, crab apple	0.5	3 per year	21
Blackcurrant (outdoor), redcurrant (outdoor)	0.5	2 per year	28
Strawberry (outdoor)	0.5	2 per crop	3
Strawberry (protected)	0.5	4 per crop	3
Table grapes, wine grapes	0.3	3 per year	28

Other specific restrictions:
For the use on grapes, apples, pears and crab apples the spray concentration must not exceed 0.5 L product in 250 L water.
For use on currants the spray concentration must not exceed 0.5 L product in 2000 L water.

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

This leaflet is part of the approved Product Label.

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.

Where application in by horizontal boom sprayers: Avoid spraying/application within 5 m of the field boundary to reduce effects on non-target insects or other arthropods.

Where application is by broadcast sprayers: The best available application technique, which minimises off-target drift should be used to reduce effects on non-target insects or other arthropods.

No information on the safety of TOPAS in Integrated Pest Management systems has been provided and therefore safety cannot be assumed.

PROPERTIES OF TOPAS
TOPAS should be used preventatively or in the earliest stages of disease development to minimize risks of resistance. To maintain a high level of protection, applications of TOPAS should not be made consecutively but used in alternation with fungicides with different modes of action. Where high infection levels of mildew are present in the crop, use another product to lower the mildew pressure before using TOPAS.

DISEASES CONTROLLED
TOPAS is for the control of powdery mildew in apples, crab apples, pears, outdoor blackcurrants and redcurrants, table and wine grapes, outdoor and protected strawberries.

A programme of different powdery mildew fungicides is required for season long control.

Pome fruit
Podosphaera leucotricha

Grapes
Uncinula necator

Currants
(*Podosphaera mors-uvae*)

Strawberry
Sphaerotheca macularis

Integrated Pest Control
For the latest information consult your specialist advisor. Where insect pests are a problem, a specific insecticide should be used.

CROP SPECIFIC INFORMATION

<u>APPLE, PEAR, CRAB APPLES</u>
Crop safety on pears has not been tested. Test on a small area prior to large scale application.

TOPAS will reduce the spread of powdery mildew from primary infections and will also control the spread of secondary mildew

RATE OF USE
A rate of 0.5 litres/ha should be used for trees of 3 – 3.5m height at full canopy density. Apply in 250 -1500 l/ha of water to ensure good crop cover.

Where tree height and/or canopy density is reduced, the dose (and water volume) should be adjusted in accordance with an appropriate dose adjustment scheme. Consult Syngenta or your specialist advisor for further information. Further information on the PACE scheme is available from HDC, or see the HDC leaflet (Orchard Spraying: Opportunities to reduce rates) available on the CRD website at
http://www.pesticides.gov.uk/uploadedfiles/HDC_TreeFruitDosingleaflet.pdf

Always spray to achieve a thorough and even coverage of the foliage as this will maximise the protectant properties of the product.

Where trees are significantly taller than 3.5m height, the efficacy is likely to be reduced.

TIMING
TOPAS should be applied as a foliar spray from BBCH 71 (fruit size up to 10 mm; fruit fall after flowering. Further applications can be made if disease pressure remains high. A programme of sprays should include not more than 3 sprays of TOPAS in any one season. Allow a minimum of 10 days between applications.
The latest time of application is 21 days before harvest.

PROCESSING
Where the crop is destined for processing, consult your processor before treating with TOPAS.

OUTDOOR AND PROTECTED STRAWBERRY

RATE OF USE
Apply TOPAS at a rate of 0.5 litres product per hectare.

It is important to ensure complete coverage of the plant at all growth stages.

TIMING
For optimum results apply TOPAS preventatively or in the earliest stages of disease development but no earlier than the stated growth stage.

Outdoor strawberries
Apply TOPAS from the beginning of stolen/runner formation, visible about 2 cm long (BBCH 41). Further applications can be made if disease pressure remains high. Up to 2 applications may be made in any one season. Allow a minimum of 10 days between applications.

Protected strawberries
Apply TOPAS preventatively from the 3rd leaf unfolded stage (BBCH 13). Further applications can be made if disease pressure remains high. Up to 4 applications may be made in any one season. Allow a minimum of 10 days between applications.

The latest time of application for outdoor and protected strawberries is 3 days before harvest.

VOLUME
Apply in 300-2000 litres of water per hectare.

PROCESSING
Where the crop is destined for processing, consult your processor before treating with TOPAS.

BLACKCURRANTS AND REDCURRANTS

TIMING
TOPAS should be used as a protective spray commencing at the first sign of disease (usually mid-late flowering) and continue at 7 day intervals. A further application can be made after harvest to protect plants further.

A maximum of 2 applications should be made in any one cropping year.

The latest time of application is 28 days before harvest

RATE OF USE
TOPAS should be used at the rate of 0.5 litres per hectare.

It is important to ensure complete coverage of the plant at all growth stages.

VOLUME
Apply TOPAS in a minimum water volume of 2000 l/ha to achieve good coverage of the foliage without excessive run off.

PROCESSING
Where the crop is destined for processing, consult your processor before treating with TOPAS.

TABLE AND WINE GRAPES

RATE OF USE
Apply TOPAS at a rate of 0.3 litres product per hectare.

It is important to ensure complete coverage of the plant at all growth stages.

TIMING
Apply TOPAS from the 3rd leaf unfolded stage (BBCH 13). Further applications can be made if disease pressure remains high. Up to 3 applications may be made per crop. Allow a minimum of 8 day between applications.

The latest time of application is 28 days before harvest

VOLUME
Apply in at 200-1000 litres of water per hectare.

PROCESSING
Where the crop is destined for processing, consult your processor before treating with TOPAS.

MIXING AND SPRAYING
For outdoor use apply through conventional crop spraying equipment.Apply using a medium quality spray as defined by BCPC. A spray pressure of at least 2 bar is preferred.

Applications for the protected uses should be made via hydraulic nozzle applicator e.g. motorised sprayer with hand lance or boom lance or knapsack applications.

Make sure the sprayer is set to give an even application at the correct volume.

Fill the spray tank with half the required volume of water and begin agitation. Add the required amount of TOPAS and continue agitation while adding the rest of the water. Agitate the mixture thoroughly before use and continue agitation during spraying. Thoroughly wash all spraying and measuring equipment with water and a wetting agent immediately after use. Do not leave the spray liquid in the sprayer for long periods (such as during meal breaks or overnight).

RESISTANCE
TOPAS contains penconazole, a DMI fungicide. The possible development of disease resistant to TOPAS cannot be excluded or predicted. Disease control may be reduced accordingly if strains of fungi resistant to penconazole develop.

No more than 4 applications of a DMI containing fungicide should be made for the control of powdery mildew in grapes.

COMPANY ADVISORY INFORMATION
[This section is not part of the (EC) 1107/2009 Regulation and provides additional advice on product use at the discretion of the applicant]

Where application is by hand-held sprayer:
Minimise drift away from target area to reduce effects on non-target insects or other arthropods.

SAFETY PRECAUTIONS
(a) Operator protection
Engineering control of operator exposure must be used where reasonably practicable in addition to the following protective equipment:
WEAR SUITABLE PROTECTIVE GLOVES AND FACE PROTECTION (FACESHIELD) when handling the concentrate.
However engineering controls may replace personal protective equipment if COSHH assessment shows that they provide an equal or higher standard of protection.
WASH ALL PROTECTIVE CLOTHING thoroughly after use especially inside of gloves.
WASH CONCENTRATE from skin or eyes immediately.
WASH HANDS AND EXPOSED SKIN before meals and after work.

(b) Environmental protection
RISK TO NON-TARGET INSECTS OR OTHER ARTHROPODS. See Directions for Use.
Extreme care must be taken to avoid spray drift onto non-crop plants outside of the target area.
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.

To access the Safety Data Sheet for this product, scan QR code:

Alternatively, contact your supplier.

0469/2024

Topas®

syngenta

GROUP 3 FUNGICIDE

Contains 100 g/l penconazole as an emulsifiable concentrate.

For the control of powdery mildew in apples, crab apples, pears, blackcurrants, redcurrants, grapes, outdoor and protected strawberries.

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

Syngenta UK Limited
Jealott's Hill International Research Centre,
Bracknell, Berkshire, RG42 6EY
Tel +44 (0) 1223 883400

In case of toxic or transport emergency ring +44 (0)1484 538444 any time

PROTECT FROM FROST
STORE IN A COOL, DRY PLACE

This product label is compliant with the CPA Voluntary Initiative (VI) guidance

The Voluntary Initiative

1 Litre

L1132521 GBRI/01D PPE 4225703

TOPAS® is an emulsifiable concentrate containing 100 g/l penconazole.

Warning

Causes serious eye irritation.
Suspected of damaging the unborn child.
Toxic to aquatic life with long lasting effects.

Obtain special instructions before use.
Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
IF exposed or concerned: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Collect spillage.
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.

MAPP: 16765 **UFI:** R4K8-C0D4-A00Y-PH9M

IMPORTANT INFORMATION
FOR USE ONLY AS A FUNGICIDE

For use on:
Crops: Apples, crab apples, pears, blackcurrants, redcurrants, grapes, outdoor and protected strawberries.

Maximum individual dose, Maximum number of treatments, Latest time of application and Other specific restrictions: Full details are given in the Statutory Area 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.

SAFETY PRECAUTIONS

(a) Operator protection
Engineering control of operator exposure must be used where reasonably practicable in addition to the following protective equipment:
WEAR SUITABLE PROTECTIVE GLOVES AND FACE PROTECTION (FACESHIELD) when handling the concentrate.
However engineering controls may replace personal protective equipment if COSHH assessment shows that they provide an equal or higher standard of protection.
WASH ALL PROTECTIVE CLOTHING thoroughly after use especially inside of gloves.
WASH CONCENTRATE from skin or eyes immediately.
WASH HANDS AND EXPOSED SKIN before meals and after work.

(b) Environmental protection
RISK TO NON-TARGET INSECTS OR OTHER ARTHROPODS. See Directions for Use.
Extreme care must be taken to avoid spray drift onto non-crop plants outside of the target area.
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.

L1132521 GBRI/01D PPE 4225703

Extension of Authorisation Number: 0169 of 2019

EXTENSION OF AUTHORISATION FOR A MINOR USE OF A PLANT PROTECTION PRODUCT

PLANT PROTECTION PRODUCTS REGULATION (EC) No. 1107/2009

Product name*:*	Topas
Active ingredient*:*	100 g / l penconazole
MAPP number*:*	16765
Product authorisation holder*:*	Syngenta UK Limited (Registered Company no. 849037)
Marketing company*:*	Syngenta UK Limited
This Extension of authorisation ends:	on the final expiry date of use for the authorised product (unless otherwise stated)

If the authorisation of the above product is withdrawn or amended before the end date above, this Extension of authorisation will end on the same date as the authorisation for the product. This Extension of authorisation will be withdrawn or amended before its end date if a decision is taken to withdraw or amend this Extension of authorisation under Regulation (EC) No 1107/2009 on any other grounds.

Extent of authorisation: United Kingdom

This extension of authorisation for minor uses applies to all UK parallel trade products issued under Article 52 of Regulation (EC) No 1107/2009 for which Topas with MAPP 16765 is the reference product.

Signed by: wayne.mcleod@hse.gov.uk
Signing time:Thursday, February 21 2019, 11:56:47 GMT
Location: CRD York
Reason to sign: For the Health and Safety Executive
HSE Digital Signature

This and the attached Appendices 1 and 2 are signed by the Health and Safety Executive ("HSE") for and on behalf of the Secretary of State, the Welsh Ministers, the Scottish Ministers and the Department of Agriculture, Environment and Rural Affairs in Northern Ireland.

Date of issue: 21 February 2019

EXPLANATORY NOTES

1. This is Extension of authorisation number 0169 of 2019.

2. This Extension of authorisation will be published on the website of the Chemicals Regulation Division of the HSE.

3. Application reference number: COP 2018/00039

4. Persons using the product to which this Extension of authorisation applies should acquaint themselves with and observe all requirements contained in the Regulation (EC) No 1107/2009, including the duty on the holder of any Extension of authorisation to notify information on potentially dangerous effects, a contravention of which is a criminal offence under those Regulations.

5. Neither the efficacy nor the phytotoxicity of the product for which this Extension of authorisation has been granted has been assessed and, as such, the user bears the risk in respect of failures concerning its efficacy and phytotoxicity.

ADVISORY INFORMATION

This Extension of Authorisation relates to the use of 'Topas' (M16765) for the control of powdery mildew . Application is to be made via horizontal boom sprayer, broadcast sprayer and hand held sprayer in 250 to 1500 litres water per hectare.

IMPORTANT: When applying this product under the terms of this Extension of Use Notice, comply with any resistance guidance or restrictions stated on the product label.

Total reliance on one pesticide will hasten the development of resistance. Pesticides of different chemical types or alternative control measures should be included in the planned programme. Alternating with different modes of action is a recognised anti-resistance strategy.

TOPAS contains penconazole, a DMI fungicide. The possible development of disease resistant to TOPAS cannot be excluded or predicted. Consult the latest advice from FRAG UK and FRAC regarding disease resistance strategies.

Topas should be used preventatively or in the earliest stages of disease development. To maintain a high level of protection, applications of Topas should not be made consecutively but used in alternation with fungicides with different modes of action. Where high infection levels of mildew are present in the crop, use another product to lower the mildew pressure before using Topas.

APPENDIX 1: CONDITIONS OF EXTENSION OF AUTHORISATION

The conditions below are obligatory. They must be complied with when the Extension of authorisation occurs. Failure to comply with the following conditions will result in the withdrawal or amendment of the Extension of authorisation under Regulation (EC) No 1107/2009 and may result in other enforcement action, including prosecution. For the purposes of this Extension of authorisation only, the conditions and/or requirements shown below supersede any corresponding conditions and/or requirements set out on the label or otherwise provided for under the product authorisation **which would otherwise apply**.

Use:

Field of use: **ONLY AS A FUNGICIDE**

User: Professional

Crops/situations:	Maximum individual dose: (litres product / ha)	Maximum total dose:	Maximum number of treatments: (per year)	Latest time of application:
Protected and outdoor ornamental plant production	0.5	-	2	-
Permanent protection with full enclosure ornamental plant production	0.5	-	4	-

Operator Protection:

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

(a) Operators must wear suitable protective gloves and face protection (faceshield) when handling the concentrate.

(b) Workers must wear suitable protective clothing in which arms, body and legs are fully covered when re-entering treated areas or handling treated crops or contaminated surfaces within 21 days after treatment. (See ‘Other Specific Restrictions’)

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

Other specific restrictions:

(1) This product must only be applied in accordance with the terms of this extension of authorisation, the product label and/or leaflet and any additional guidance on extensions of authorisation.

(2) Managers must carry out a thermal comfort checklist (see - http://www.hse.gov.uk/temperature/assets/docs/thermal-comfort-checklist.pdf) prior to worker re-entry tasks. If needed, an additional heat stress check list and associated risk assessment must be undertaken (see- http://www.hse.gov.uk/temperature/assets/docs/heat-stress-checklist.pdf) and the records retained. Temperature and humidity inside tunnels should be monitored during re-entry tasks. If conditions become such that there is a risk of heat related illness, or workers complain of ill effects, then work must cease until the risk is reduced. It is not acceptable for workers to remove clothing and continue working

(3) A minimal interval of 7 days between applications must be observed.

(4) Applications must not be made to crops grown outdoors or under protection after leaf fall (or only made when plants are in full foliage)

(5) For crops grown under permanent protection, reasonable precautions must be taken to prevent access of birds, wild mammals and honey bees to treated crops.

(6) To minimise airborne environmental exposure when applying to crops grown under permanent protection, vents, doors and other openings must be closed during and after application until the applied product has fully settled.

APPENDIX 2: GENERAL CONDITIONS FOR AN EXTENSION OF AUTHORISATION

Failure to comply with the following conditions will result in the withdrawal or amendment of the Extension of authorisation under Regulation (EC) No 1107/2009 and may result in other enforcement action, including prosecution.

Adverse effects:

The authorisation holder must immediately notify the Secretary of State, the Scottish Ministers and the Department of Agriculture, Environment and Rural Affairs in Northern Ireland (care of the Health and Safety Executive), if they have any new information on the potentially adverse effects of the authorised product, or of residues of an active substance in that product when used in accordance with the conditions of this Extension of authorisation. For those products authorised under Regulation (EC) No 1107/2009 authorisation holders must also tell the other relevant competent authorities of the EC Member States (a list of which is available from the Health and Safety Executive) and the EC Commission. Failure to comply with this requirement is an offence.

Provision of information:

The authorisation holder must comply with all requests for information required by, or on behalf of, the Secretary of State, the Scottish Ministers or the Department of Agriculture, Environment and Rural Affairs in Northern Ireland in accordance with Regulation (EC) No 1107/2009.

Safe Storage and Use of Plant Protection Products

The Official Controls Plant Protection Products (PPPs) Regulations 2020 were put into place to enable regulatory authorities to support compliance and enforce legal requirements that apply to the marketing and use of PPPs throughout the supply chain.

As part of these Regulations, users of professional PPPs were required to register using the relevant form by 22 June 2022. The next stage, which is currently underway, consists of site inspections from Health and Safety Executive enforcement officers. The purpose of the inspection is to check how well the duties required under plant protection product law are being complied with.

It may therefore be an opportune moment to check on the processes, procedures and practices, regarding the storage and use of PPPs, that are in place within your business. Below is a list of some questions which should be considered as part of any internal check.

Plant protection products

- Are all the products legal – check with the HSE website?
- Do you have product safety data sheets for each?
- Do you have a paper or electronic EAMU for off-label use of products?
- Where are products left at delivery from the supplier, and what is the process for checking them into store?
- Are all the products still in their original containers?
- Are the products in good condition – no leaks, labels still adhering to product etc?
- Are all products stored within the store (not left in glasshouses and production areas or on sprayers)?
- After washing out, where are the empty containers stored and the process of container (and spray washing) disposal? PPP containers must not be used as general containers around the nursery, even if washed out.
- What is the process for dealing with revoked and unwanted PPPs? Are they stored safely and securely before disposal?

Storage

- Is the store of suitable construction, it can be a building or a metal cabinet?
- Is the store suitably sited, away from drains, water courses, flammable materials etc?
- Do you have a product inventory close to the store (or within it if it's a walk-in store) and a copy in the office?
- Is the store secure, lockable, frost-proof, fireproof (if it's a building - fire-proof walls), bunded (can contain 110% of contents), lit, ventilated, and labelled correctly?
- Are the local emergency services (fire brigade) aware of its location?
- Are the shelves made of a non-absorbent material?
- Are the contents within store capacity and stored tidily?
- Are powders stored above liquids?
- Ensure only PPPs are in store (don't store fertilisers in the store for example).
- Is there a container of absorbent, non-flammable material (e.g., sand) close by for dealing with spillages?
- Is there a plan of action in case of spillages, with emergency telephone numbers?

Use

- Are there adequate spray records in place and have they been suitably completed? There is a move towards electronic records to make it easier for spray operators to a take their records with them when they move between jobs.
- Spray records must cover the minimum required relevant parameters (see pages 142 and 143 from the Code of Practice for Using Plant Protection Products) and be kept up to date.
- Is the area used for measuring and mixing PPPs suitable (away from drains and water courses, with a break tank in any mains feed pipe, does the area permit spills to be contained and dealt with)?

- Are warning notices used on site when spray application is in progress and are exclusion periods adhered to?
- Are PPPs safely transported between production areas and sites?
- Are buffer zones adhered to?
- Is there suitable storage space and provision for personal protective equipment (PPE) and spray equipment?

- Are wash facilities, eye wash and first aid kits available?
- Is the appropriate PPE provided to undertake the role?
- Are there usage records for respirators?
- Are there official testing records for appropriate spray application equipment (generally tractor mounted sprayers)?
- Is there evidence of sprayer calibration?
- Are spray operators and those providing PPP advice suitably qualified and members of a continual development scheme?

Guidance on storing pesticides for farmers and other professional users

HSE information sheet

Agriculture Information Sheet No 16(rev1)

Introduction

This information sheet provides guidance to professional users of pesticides on suitable standards for storage. It will help professional users to meet their duties under relevant pesticide legislation. It contains advice on:

- fixed stores, including purpose-built stores, converted existing buildings or parts of existing buildings and small-scale storage in cabinets, chests etc;
- mobile stores providing short-term storage away from the home base in vehicles, on bowsers and sprayers etc;
- storing small amounts of particular pesticides whose hazardous chemical properties require additional precautions to be taken.

It does not cover the storage of methyl bromide, the storage of pesticides by suppliers (including contractors who supply pesticides), or the transport of pesticides from suppliers to the end user. If you carry out any of these activities you should consult the DEFRA *Code of Practice for suppliers of pesticides to agriculture, horticulture and forestry* (the Yellow Code).

If you store flammable pesticides such as antifouling products, refer to HSE's guidance booklet *The storage of flammable liquids in containers*.

For the purposes of this information sheet 'professional user' means anyone who uses pesticides as part of their business or undertaking, whether as an employer or self-employed person.

Fixed storage

What are your storage needs?

Size

- The store needs to be large enough to hold your peak pesticide requirements, any part-used containers, and able to cope with stock being held over due to poor weather.
- Estimate the likely total of stocks to be held at any one time – include pesticides such as slug pellets, rodenticides and wood treatment products.
- Check if you need to make additional provision for storing any of the special classes of pesticides listed at the end of this guidance.
- Consider the need to store other potentially harmful chemicals and allow for likely amounts.
- Provide adequate storage for rinsed empty containers awaiting disposal.
- Check what other facilities you may need to provide (eg storage for contaminated equipment, personal protective equipment, washing facilities etc) by reading the code of practice relevant to your pesticide work (see 'Further reading').
- Remember that if the store is too small it leaves staff working in cramped conditions, often having to move one product to get to another.

Location

Before creating new storage, check with:

- your local authority planning department – you may need planning permission for your store;
- the Environment Agency (EA), or in Scotland the Scottish Environment Protection Agency (SEPA). You may be in an 'environmentally sensitive area' such as a groundwater protection zone or upstream of water supply catchment areas.

Site your store away from areas that present a risk of fire and at least four metres away from:

- hay, straw, diesel, oils, paints, fertilisers, paper, wood stacks, gas containers and other combustible materials;
- domestic dwellings or sources of ignition such as grain driers or welding/grinding activities.

Check where any contaminated fire-fighting water will drain and:

- do not site stores near to drains, watercourses, wells and boreholes or areas liable to flooding.

Help protect against harm to humans, animal health and the environment.

Make sure that:

- cabinet stores are not located in domestic dwellings, retail areas, staffrooms, offices or areas where human or animal food is stored or processed;
- access to a pesticide store within a larger building is not through such areas;
- all staff know what to do in the event of a chemical spillage or fire;
- there is ready access for pesticide deliveries or the emergency services.

If an incident occurs, contain and absorb any spillage with inert absorbent materials or sand. Dispose of contaminated material or liquids safely after having sought advice from EA or SEPA.

Construction

Your aim is to provide a store that is resistant to fire, capable of retaining leakage/spillage (eg if containers were to melt in a fire), dry, frost-free, adequately ventilated and secure against unauthorised access. Take the following factors into account:

General principles applying to all stores

- The store, including any doors but not the roof, should be made of materials which will resist fire for 30 minutes or longer.
- The store, or the area in which the store is located, should be able to retain leakage or spillage to a volume of 110% of the total quantity of products likely to be stored (185% if you are in an 'environmentally sensitive area'). Bunding is the most usual way of achieving this.
- The bund should be soundly constructed of non-fragile materials resistant to permeation by liquids, eg metal (not foil), concrete, bricks, stone slabs and concrete products. Rendering or sealing the building materials may be necessary, especially at joints.
- The bund should comprise, or extend around, the whole periphery of the store, and should not be compromised by, for example, entrances and exits, or apertures where services enter the store.
- Bunding may be achieved by standing your pesticides within a metal container of sufficient capacity, eg a redundant water tank. Before converting any storage tank to form a store or bund, make sure that it is suitable and not contaminated and that flammable liquids/gases are purged. Make sure doors/lids and windows provide adequate security and are kept locked or otherwise secure when not in use.
- Avoid having a water supply passing through the bunded area.
- The store itself, or the area in which it stands, should be roofed.

Purpose-designed buildings

Remember the general principles and note that:

- bunds are best constructed as an integral part of the foundations, floor and walls and sunk below ground level;
- where ramps are to be installed for forklift handling of pesticides, their slope should be gentle enough to avoid destabilising the load (eg < 5° slope).

Converting existing structures – detached buildings

Make sure your selected building/area meets the general principles and:

- remove combustible materials;
- create a sealed bund;
- seal off internal drains.

Converting existing structures – stores within larger buildings

Do the same as for detached buildings, plus the following:

- where possible, access to the store should open directly to the outside of the building;
- cage-style stores are only acceptable where the construction of the store and the building in which the store is located meets the general principles, including bunding;
- remember that fire often spreads through the roof space – consider the need for fire-resistant walls extending up to the roof.

Converting existing structures – lorry bodies, shipping containers etc

Remember the general principles and:

- don't use lorry bodies with wooden floors or sides;
- create bunding by fitting a sill across the doorway or by tilting the store away from the entrance. Ensure that there are no low-level ventilation ducts;
- check at regular intervals that wall-to-floor joints have not deteriorated.

Cabinet/bin/chest stores

Remember the general principles and:

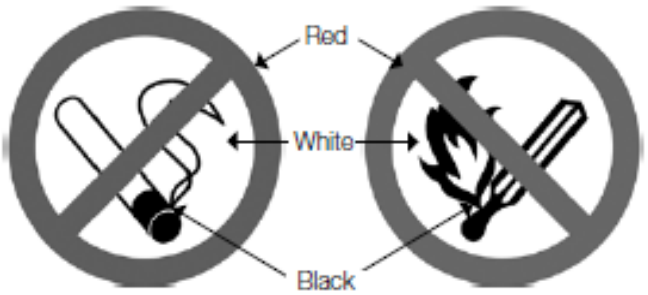
- note that purpose-built proprietary cabinets for pesticide storage are available;

- check the advice in the 'Location' section and make sure your store is robust and properly sited away from traffic;
- stand chest freezers with foil or plastic inner liners within a bunded area;
- fit metal cabinets with an internal bund or stand them within a bunded area;
- make all cabinets etc secure or locate them in a secure area.

Organising your store

- Mark the exterior of the store (and where it is located within a larger building, the exterior of the building) with the general danger warning sign (see diagram).

- Put 'No Smoking' or 'Smoking and Naked Flames Forbidden' prohibitory signs (see diagrams) on the exterior door of the store.



- Provide adequate shelving so that products can be seen by staff.
- Store powders above liquids (liquids can leak if containers are damaged).
- Provide adequate lighting so that you can read the labels.
- Protect stocks against frost – oil or gas heaters or electrical equipment with exposed elements are not suitable.
- Avoid storing plastic containers in direct sunlight – shade windows if necessary.
- If pallets are used to keep stocks off the floor, make sure they don't present a tripping hazard and that the bunding capacity remains adequate.
- Lag water pipes.
- Provide a brush, shovel, absorbent granules/sand and an impermeable container to deal with any spillages or leaking drums/packages.
- Practice good store management by ensuring that waste cardboard packaging is removed, old stocks are used up, damaged or deteriorating containers are properly disposed of and an up-to-date stock record is kept (away from the store).
- Keep an accurate stock record available as well as useful telephone numbers, including your local fire service and EA (or SEPA in Scotland).

Mobile storage

This guidance applies to storage, normally for less than 24-hour periods, in vehicles, bowsers and sprayers stocked from a fixed store.

You should ensure all pesticides are safely transported to the application site and remain safely stored at the site.

Never carry pesticides in the cabs of tractors, self-propelled sprayers or other vehicles, and consider the following key points before you carry concentrated pesticides to an application site:

- Use a vehicle with a floor-to-ceiling bulkhead between the driver/passenger compartment and the load compartment.
- Where the vehicle has no bulkhead, fit secure chemical containers or provide a secure cabinet mounted on the exterior of the vehicle or on a trailer.
- Check that the load-carrying area is free of projections which might damage containers.
- Mark the load-carrying area with the general danger warning sign.

When away from your fixed store, pesticides should always be secure against unauthorised access:

- Park your mobile store away from any location where water pollution could occur.
- Try to work within sight of your mobile store – especially in areas where the public may have access.
- Lock the cabinet or vehicle when it is unattended.

At the end of the job:

- check that lids/caps on any part-used products are secure before the journey back to the fixed store;
- make sure you take all empty containers, packaging and other equipment back to your empties store;
- return unused pesticides to your fixed store.

Additional precautions for special classes of pesticides

Guidance in this section deals only with amounts that can be safely stored in cabinets, chests and bins. The hazardous chemical properties of certain pesticides mean that extra measures have to be taken to store them safely. Check to see if you store any of the following:

Moisture-activated gassing compounds

People have died as a result of poor storage of these compounds at fixed stores and in transit. In particular, using water to fight a fire can present a significant danger to the emergency services. In your fixed store, provide a separate storage cabinet which should be:

- made of metal or fire-resistant materials;
- located above the level of the store bunding and away from direct sunlight and sources of heat;
- provided with adequate stability, eg by bolting it to the wall;
- marked 'Gassing Compound – Do Not Use Water'.

During transport, reduce the risk of exposure if an accident happens by:

- storing gassing compounds in a separate vapour-proof container within the load space;
- providing some means of securing the container in the load space, eg a frame bolted to the structure in which the container can be strapped.

Pesticides marked 'Oxidising Agent' – such as sodium chlorate

When heated, oxidising agents give off large amounts of oxygen which can rapidly increase the spread of fire. Large quantities need a completely separate store. However, up to 10 kg may be kept in your store if it is kept in a fire-resistant, dry container away from heat sources and other pesticides.

Further reading

Code of Practice for suppliers of pesticides to agriculture, horticulture and forestry PB3529 DEFRA 1998 (the Yellow Code) www.pesticides.gov.uk

Code of Practice for using plant protection products PB11090 DEFRA 2006 ISBN 0855211709 www.pesticides.gov.uk

The storage of flammable liquids in containers HSG51 (Second edition) HSE Books 1998 ISBN 978 0 7176 1471 4 www.hse.gov.uk/pubns/books/hsg51.htm

Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

This document contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

This document is available at www.hse.gov.uk/pubns/ais16.htm

Managing Plant Protection Products Nursery Self-Audit Form

(based on OHAS Scheme requirements)

Subject area	Comments
Proficiency and advice	
All staff carrying out operations involving plant protection product usage and handling must hold the relevant National proficiency certificate (s) for the specific application, unless under direct and personal supervision of a Certificate holder. Copies of certificates must be held on record.	
All plant protection product advice supplied to the business by outside organisations must be from personnel who have the official qualifications or have attended specific training courses (e.g. BASIS). Copies of all certificates must be held on record for reference.	
Inventory and approval for use	
An inventory of plant protection products in store (by commercial brand name and active ingredient, and amount) must be maintained, documented at least monthly and reconciled annually. The inventory must be held in/close to store and duplicated within the office.	
Only plant protection products approved in the country of use with the appropriate recommendation (off-label and extrapolation included) must be stored and used.	
Storage	
Plant protection products must be safely and appropriately stored under lock and key and according to the label storage requirements, separate from other non-plant protection products (no fertilisers, biostimulants etc), in a store or cabinet of approved design. Access must only be granted in the presence of persons who have been formally trained in the safe handling and use of plant protection products.	
The store (walk in or cabinet) must be large enough to hold peak requirements of plant protection products and capable of retaining spillage of the maximum amount held plus 10%. Products should be arranged tidily and accessible by the operator.	
The bund (floor and walls) must be sound and resistant to permeability by liquid plant protection products.	
The store must be fire resistant, (minimum requirement RF30 - resistant to fire for 30 minutes) and sited to minimise the likelihood of fire and at least 4 metres away from combustible materials if not separated by a fire-proof wall.	
The store must also be sited to minimise the danger of pollution of ground and surface waters.	

The store must be sited away from staff rest areas (especially cabinet types), and ideally away from busy routes used by staff members to avoid contamination or store strike from vehicles.	
The store must be frost free, protected from extremes of temperature, ventilated, dry, properly lit, and secure against unauthorised access.	
The store must be clearly and correctly marked with the general danger warning sign and with signs prohibiting smoking.	
The store must be adequately shelved; shelves must be made from a non-absorbent material.	
Powders must be stored above liquids. All containers must be in good condition. No leakages. Legible labels must be present on products.	
Plant protection products must be kept in their original containers. Alternative containers must only be used in the case of breakage / damage, and a label must be applied to the new container giving full product details as per the original container.	
An accident procedure, with emergency contact numbers, visually displaying the basic steps of primary accident care must be accessible by all persons within 10 metres of the plant protection product store and designated mixing areas. The store / mixing and filling areas must be supplied with accessible emergency facilities to deal with operator contamination as follows: - • **Emergency contact numbers and clear accident procedures,** • **Eye wash, first aid kit and basic first aid instructions,** • **Clean running water within 10 metres of the store and clearly signed.**	
The local emergency services (fire brigade) should be aware of the store location.	
The store must be equipped with a container holding an absorbent, inert material for absorbing spillages, a brush and shovel, and a sign to be used in case of accidental spillage.	
Transport between sites	
Plant protection products transported in vehicles between nursery sites must be stored safely in transit in a spill proof container to the application site and remain safely stored at the site. Vehicles should be appropriately labelled.	
Mixing, application, protective clothing and records	
Records must be maintained of all plant protection product applications, applied during the plant propagation and production period. The records must be of sufficient detail and cover the following parameters: product(s) applied; active ingredient; quantity mixed up and applied; dose rate; evidence that product label instructions have been followed and the treatment accurately prepared; method of application / machine used; size of area treated; application calculation considering velocity, surface area to be	

covered, pressure (if applicable) and nozzle type; crop type and variety; location; date of application; operator name; local weather conditions, justification for application (common name of pest, disease or weed recorded); and re-entry time (if applicable and evidence it has been observed). Where no re-entry information is available on the product label the spray must have dried on the plants before workers re-enter the growing area. The records must be signed off by a technically responsible individual who authorises each application.	
Buffer zones (no spray buffer zones) must be in place to protect local water courses and Local Environmental Risk Assessments for plant protection products (LERAP's) must be undertaken, as appropriate. Measures must be taken to avoid drift to and from neighbouring production areas.	
Appropriate protective clothing must be provided, worn (as per the plant protection product label instructions) and stored correctly in a ventilated locker away from plant protection product and personal clothing. Clothing must be stored so that it doesn't contaminate protective clothing below or around it. Protective clothing must not be worn as wet weather gear.	
Protective clothing and equipment must either be cleaned or discarded of directly after using plant protection products according to the type of use (washable or single use), and the degree of soiling. Gloves and footwear must be cleaned prior to removal. Torn or damaged clothing must be disposed of.	
Appropriate respirator filters must be used. Respirator filters must be checked and changed regularly and records of usage maintained. Expired filters must be disposed of.	
Spray application in progress warning signs and re-entry signs must be available and appropriately displayed.	
The area used for measuring and mixing plant protection products must be suitable and away from drains and water courses, with a break tank in any mains feed pipe. It must be equipped with the appropriate utensils to enable safe and efficient handling and accurate mixing including equipment to deal with spillages. The correct handling and filling procedures must be followed as stated on the product label. Sprayers must be filled in a designated area where any spillage can be contained. Plant protection products must be returned to store after mixing, if they are transported with the sprayer they must be contained with a labelled, secure, spill proof container.	
The mixing area and utensils must be cleaned to avoid contamination, before and / or after use, as necessary.	
Sprayers must be cleaned and maintained and stored correctly. Nozzles should be regularly checked. Sprayers must be calibrated according to usage. Tractor mounted sprayers must conform to National Sprayer Testing Scheme sprayer testing.	

Empty plant protection product containers must be cleaned in accordance with the label recommendations or triple washed, pierced and then stored safely and securely in an isolated, labelled container prior to disposal. The rinsate from empty containers must always be placed back into the spray tank when mixing. Empty plant protection product containers must not be re-used for any other purpose.	
Disposal and obsolete products	
Washed empty plant protection product containers must be safely and securely stored and handled before disposal via licensed waste disposal operators. Disposal must comply with legislation and the risk to the environment must be minimised.	
Obsolete plant protection products must be securely maintained and identified and disposed of via authorised / licensed specialist waste disposal operators and documented.	

COSHH ASSESSMENT

Substance Name:		**Ref:**	
Classification:		**Form:**	
Active Ingredient:		**Manufacturer**:	
Where Used or Produced:			
Process/Work Activities:			
Environmental impact:			
Nature of Potential Exposure: Breathing the vapour or ingestion of granules. Inhalation ☐ Ingestion ☐ Absorption ☐ Injection ☐ Skin/Eye Contact ☐			
Who may Affected:	**No. of People**	**Estimate of Exposure**	
Operator		Low	
Other employees		None	
Public, Contractors		None	
MEL/OES:			

COSHH ASSESSMENT

Substance Name:		**Ref:**	

Spillage/Emergency Measures:

Inhalation:

Skin contact:

Eye contact:

Ingestion:

FIRE:

Disposal:

Control Measures:

Personal Protective Equipment:

Coverall, Nitrile gloves /0.4-0.7mm/, Full mask respirator /A2B2-P3/, apron for handling concentrate and application.

Coverall, Nitrile gloves /0.4-0.7mm/, Full mask respirator /A2B2-P3/ for assisting with application on sweeping or watering in the product.

Inspection, Testing & Maintenance of Control Measures:

Daily care and maintenance of PPE and equipment

Annual servicing of equipment.

Assessment of the Risk:

COSHH ASSESSMENT

Substance Name:		**Ref:**	
Monitoring Requirements:			
Health Surveillance Requirements:			
Information, Instruction & Training Requirements:			
Actions:			
Action Date:			
Date of Assessment:		**Review Date:**	

This assessment applies only to the substance and those activities and persons mentioned. Should there be any change to the process, work activities, control measures, PPE or substance then a review of this risk assessment will be necessary.

Name of Assessor: **Position:**

COSHH ASSESSMENT

Signature: _____ **Date:** _____

COSHH Task Assessment

Example Nursery

LOCATION & TASK Pesticide store, storage of pesticides.
SUBSTANCES USED OR PRODUCED Various concentrated pesticides.
PERSONS AT RISK Owner and employees.
CONTROL MEASURES IN USE Pesticides are stored in an approved secure store. The store is frost proof and well lit. The store and the outer building are appropriately labelled. An inventory is in place of products in store. The pesticides are all in their original containers, all the labels are all legible. Only pesticides are kept in store. Powders are stored above liquids. There is good access to the store. Protective clothing is available when handling the pesticides. Wash and first aid facilities available. All product safety data sheets are held on file.
ASSESSMENT OF EXPOSURE RISK Accidental spillage risk.
ACTION TO REDUCE EXPOSURE Ensure a bucket of sand is placed next to the store in case of spillage to absorb any liquid product. Produce an emergency plan in case of spillage. Ensure an eye wash is included in the first aid kit.
DATE **ASSESSOR** April 2004 Joe Bloggs

Health and Safety Risk Assessment

Example Nursery

LOCATION & TASK Potting shed, transplanting plug raised plants.
HAZARD Moving machinery parts, conveyor belt and electricity.
PERSONS AT RISK Owner and employees.
CONTROL MEASURES IN USE Transplanting machine used with all safety features installed at manufacture (no modifications). Guards are in place to protect staff from moving fingers and conveyor belts on machine. Two emergency on / off switches installed on machine. Good access around machine. Electricity and other leads protected from damage and water. Staff appropriately trained before they are allowed to use the machine. Machine annually maintained by a qualified engineer. First aid kit on site.
ASSESSMENT OF RISK Risk of accidental injury if procedures are not followed.
ACTION TO REDUCE EXPOSURE Ensure operating procedures and emergency plan are in place for the machine (and all other machinery).
DATE **ASSESSOR** April 2004 Joe Bloggs

Heat Stress Check List

This check list is only to be used when conducting a heat stress risk assessment it should not be used for the purposes of a thermal comfort risk assessment.

Risk Assessment Work Sheet

- Please complete one risk assessment worksheet for each employee.
- Read the questions carefully, and provide an answer in the relevant space provided.
- If you require further information, refer to the relevant web pages.

Name of risk assessor:	
Date of assessment:	
Job being assessed	
Location of assessment	
Name of employee being assessed	

Personal status of employee

Employees age		Is the employee male or female	Male / Female
Is the employee acclimatised:	Yes / No	If Yes provide details of acclimation:	

Is the employee experienced in the job? Is the employee experienced in working in the heat? Has the employee been trained to work in the heat?	Yes / No Yes / No Yes / No

Please provide a brief description of the work being performed: How many employees are involved in this task?	

Where was the assessment conducted? (Please provide a description of the workplace. If necessary use the back of the page to provide a diagram of the workplace and the area)

How long (in minutes) does the work typically take?	a) Without a break:
	b) In a typical shift (excluding breaks):
How often will this task take place:	Daily / Infrequently
Is refresher training given to employees?	Yes / No
If YES how often?	

What were the external climatic conditions? (If measurements are not available, provide a brief description).	Air temperature:	
	Radiant temperature:	
	Air velocity:	
	Relative humidity:	
	Description:	

Hazard Identification

Name of risk assessor:	
Date of assessment:	
Job being assessed	
Location of assessment	
Name of employee being assessed	

This observational check list helps identify potential heat stress hazards. If you observe any of the hazards described, tick the box to the right of that description.

If you identify a heat stress hazards not listed, describe the hazard in the "Other" box, and tick the appropriate answer.

Consideration	**Description**	**Tick**
Air Temperature	• Does the air feel warm or hot?	
Radiant Temperature	• Is there a radiant heat source present eg the sun, furnaces; ovens; kiln walls, kilns; dryers; hot surfaces & machinery, exothermic chemical reactions, molten metals, etc.)	
Humidity	• Is there any equipment that produces steam?	
	• Is the workplace affected by external weather conditions?	
	• Are the employees wearing PPE that is vapour impermeable?	
	• Do your employees complain that the air is humid?	
Air Movement	• Is warm or hot air blowing onto your employees	
Metabolic rate	• Is the work-rate moderate to intensive?	
PPE	• Is PPE being worn to protect against harmful chemicals, asbestos, flames, extreme heat etc?	
	• Is respiratory protection being worn?	
What your employees think	• Do your employees think that heat stress is a problem?	
	• Do your employees complain of feeling warm or hot?	
Other		

If you have ticked any of the descriptions to any of the above questions there may be a heat stress risk and you should now conduct a more detailed risk assessment using the heat stress observation checklist.

Personal Risk Factor Checklist

Name of risk assessor:	
Date of assessment:	
Job being assessed	
Location of assessment	
Name of employee being assessed	

This is not intended to replace a medical examination and is only to be used as a preliminary observation tool. If in doubt, seek advice from an occupational health physician who has a knowledge of working in the heat.

Has the employee had a pre-exposure medical examination by a qualified occupational health professional?		Yes / No
If **YES**:	Have they been cleared to work in an environment where they may be at risk from heat stress	Yes / No
If **No**	Consult a physician	
	When was their last medical screening done?	
	When is their next medical screening due?	
Before this assessment had the employee completed a pre-exposure medical questionnaire?		Yes / No
If **YES**:	Were any **YES** answers provided in the pre-exposure medical questionnaire?	Yes / No
(If **YES** consult a physician?)		
When was the questionnaire last administered?		
Please provide any other information that may be relevant to this part of the assessment.		

Heat Stress Observation Checklists

- Each of the following check lists addresses one of the one of the six basic parameters.
- Each parameter is described and a risk score is given for each. The higher the score, the higher the risk it may contribute to heat stress.
- You should observe the environment, taking note of the description provided, and tick the box that best fits your workplace. This will provide you with an estimated risk score for that parameter. You may tick more than one box if the environment is changing, or if the employee is moving between environments.
- If you do not see a description that best fits the work situation you are assessing, or are unsure then tick the "**Don't know**" box at the bottom of that table. This introduces an uncertainty into the assessment and requires that you conduct a more detailed qualitative assessment.

Air Temperature

What is air temperature and what should you look out for?

- Air temperature is described as the temperature of the air surrounding an employee.
- Consider the air temperature surrounding the employee and how you would describe it.

Subjective description of air temperature	Score	Tick
• Cool	-1	
• Neutral	0	
• Slightly warm	1	
• Warm	2	
• Hot	3	
• Very hot	4	
	Don't Know	

Radiant Temperature

What causes radiant temperature and what should you look out for?

- Thermal radiation is the heat that radiates from a heat source and will be present if there are heat sources in an environment.
- Examples include: the sun, electric fires; furnaces; ovens; kiln walls; cookers; dryers; hot surfaces & machinery, exothermic chemical reactions, deep mine tunnel walls; molten metals, etc.
- Observe the surroundings and identify heat sources. Consider how close your employees are to these heat sources. Do they need to wear protective clothing to prevent burns etc?

Subjective description of radiant temperature	Score	Tick
• Objects colder than the surrounding air are near to worker.	-1	
• There are no heat sources in the environment	0	
• A heat source is present but the employees are not in close proximity to it. • The heat source surface is warm to touch and there is no risk of contact burns.	1	
• The heat source surface is hot to touch. • Employees feel hot when they stand near the heat source.	2	
• The heat source surface is very hot to the touch and may burn the skin. • Employees cannot work in close proximity to the heat source for more than 10 minutes without wearing PPE.	3	
• Contact with the heat source will cause burning. • Employees cannot work in close proximity to the heat source for more than 5 minutes without wearing PPE.	5	
• Workers are not permitted to work in the environment without PPE to protect them from the radiant heat in that environment.	6	
	Don't Know	

Air Velocity

Air velocity explained

- Air velocity is the speed of air moving across an employee and may affect the employee if it is not cooler than the environment.
- To help you, four categories of air velocity are provided. They are **Still, Low, Moderate** and **High**
    1. **Still** air, is where there is no noticeable flow of air;
    2. **Low** air speed, is when you can just feel air movement on exposed flesh;
    3. **Moderate** air speed, is when you can feel air movement (e.g. a light breeze) on exposed flesh;
    4. **High** air speed, may be similar to the air speed on a windy day, or at or near fans or other machines or equipment that generate air movement.
- Things to look out for are wind sources; the presence of fans to reduce the temperature (e.g. during specialist maintenance work?); employees feeling hot or warm air blowing on any exposed skin or is the moving air cooler or warmer than the ambient air temperature.

Subjective description of air velocity	Score	Tick
• Cold air at a high speed (e.g. employees standing in front of an air conditioning unit).	-3	
• Cold air at a moderate speed, or • Cool air at a high speed.	-2	
• Cold air and low air speed, or • Cool air at a moderate air speed	-1	
• Still air in a neutral environment	0	
• Warm air and low air speed.	1	
• Still air in a warm environment	2	
• Still air in a hot environment.	3	
• Warm air at a moderate air speed, or • Still air in a very hot environment, or • Hot air and moderate air speed.	4	
• Very hot air at a high speed	5	
	Don't Know	

Humidity

Humidity explained

- When water is heated and evaporates into the air this provides the environments humidity. High humidity environments contain a lot of water vapour and this is important as it reduces the ability of sweat to evaporate from the skin which is the main means by which your employees lose heat.
- When **vapour impermeable PPE is worn**, sweat cannot evaporate and increases the humidity inside the PPE. If an employee is wearing this sort of PPE (e.g. asbestos, chemical protection suits etc) the humidity within the microclimate of the garment may be high.
- Humidity is very difficult to estimate. Profuse sweating may be an indication of high humidity, but it may also be an indication of a high physical activity.
- Things to looks out for are is the environment susceptible to outdoor conditions, especially in summer? Are there any dryers or other machines producing steam? Do workers complain about the humidity? Are they wearing vapour impermeable PPE?

Subjective description of air velocity	Score	Tick
• No humidity. Air is dry, with no drying processes or other mechanisms for increasing the humidity in the workplace.	0	
• Humidity seems to be somewhere between very humid and very dry.	2	
• Air is very humid. Examples may be near drying machines, laundry machines, chemical processes where steam is given off.	5	
• Vapour impermeable PPE is worn	6	
	Don't know	

Clothing

Clothing explained

- Clothing interferes with our ability to lose heat to the environment. Where heat stress is a risk eg where workers may be wearing PPE, even if the environment is not considered warm or hot. It is important to identify whether the clothing the employee is wearing may contribute to the risk of heat stress.
- It is impossible to list or describe all the clothing that may be worn in industry so only general descriptions of clothing are provided.
- Observe the employee and select the clothing type that best represents what is worn in that workplace. Where employers wear or remove clothing depending on the job or task, it may be necessary to conduct a quantitative heat stress risk assessment.
- Additional information may be obtained by contacting the manufacturer or supplier of the PPE for further advice.

Subjective descriptions of clothing	Score	Tick
• Shorts and a T-shirt. No protective or work clothing worn	-1	
• Light work clothing	0	
• Cotton coverall, jacket	2	
• Winter work clothing, double cloth coveralls, water barrier materials.	3	
• Light weight vapour barrier suits	5	
• Fully enclosed suit with hood and gloves.	6	
	Don't know	

Work Rate

Work rate explained

A, knowledge of the work or metabolic rate, is important when conducting a heat stress risk assessment. The more physical work performed, the more heat produced and the more heat that needs to be lost to prevent overheating.

Observe your employees, note their movements, posture, speed, effort, weight of materials they handle, parts of their bodies responsible for their movement etc? Review your manual handling assessment for information of the components of the task.

Five categories of metabolic rate are described:

1. **Resting,**
2. **Low,**
3. **Moderate,**
4. **High**
5. **Very High.**

Subjective descriptions of work rate	Score	Tick
Resting • Employee is resting as part of a work/rest schedule or is awaiting instructions etc.	**-2**	
Low • Sitting or standing to control machines • Light hand work (writing, drafting, sewing, bookkeeping, drafting etc). • Hand and arm work (small bench work, using tools such as table saws; drills, inspecting, assembling or sorting light materials, operating control panels, turning low torque hand wheels, very light assembly operating etc). • Standing with light work at machine or bench while using mostly arms (drill press, milling machine, coil taping, small armature winding, machine with light power tools, inspecting or monitoring hot processes). • Arm and leg work (driving a car, operating foot pedals or switches). • Walking in easily accessible areas (can walk upright). • Lifting 4.5 kg loads for fewer than 8 lifts/min; 11 kg few than 4 lifts/min	**0**	
Moderate • Hand and arm work (mailing filing) • Arm and leg work (off road operations of trucks, tractors and construction equipment). • Arm and trunk work (operating air hammer, tractor assembly, cleaning or clearing light debris spillage, plastering, heavy welding, scrubbing while standing up, intermittently handling heavy objects, weeding, hoeing, picking fruit and vegetables). • Carrying, lifting, pulling and pushing light loads (lightweight carts and wheelbarrows); • Operating heavy controls (e.g. opening valves); • Walking in congested areas (limited headroom), walking 2 to 3 mph. • Lifting: 4.5 kg fewer than 10 lifts/min, 11 kg fewer than 6 lifts/mins	**2**	
High • Intense arm and trunk work, (sawing by hand or chiselling wood, shovelling wet sand, transferring heavy materials, sledge hammer work, planting, hand mowing, digging). • Intermittent heavy lifting (such as pick-and-shovel work). • Pushing or pulling heavy loads (pallet trucks, skips, loaded cages, heavy wheelbarrows). • Heavy manual handling and lifting (e.g. laying concrete block, and clearing heavy debris (e.g. cleaning and relining reactor vessels)). • Heavy assembly work on a non-continuous basis. • Lifting: 4.5 kg 14 lifts/mins; 11 kg 10 lifts/mins.	**4**	
Very High • Work at this rate cannot be sustained for long periods • Very intense activity at a fast maximum pace (e.g. intense shovelling, axe work, running). • Heavy assembly, building or construction work; (climbing stairs, ramps or ladders rapidly) • Walking faster than 4mph • Lifting 4.5 kg more than18 lifts/min. 11 kg more than 13 lifts/min	**6**	
	Don't know	

What to do with results from Observations check list

Referring back to each of the parameters you have just observed please tick the score which corresponds to the score you gave each parameter.

The black squares indicate that the score is not available for a particular category For example, Metabolic Rate can only achieve scores of -2, 0, +2, +4 and +6

Where you have a score higher than 1 the greater the heat stress risk. As the scores increase (also shown by colour shading from light red to dark red) so the risk of that parameter contributing to heat stress increases. If three or more of your scores are greater than 1, there may be a risk of heat stress.

If you score greater than 5, then in these situations, physiological monitoring may be required. If you are not competent in measuring, analysing and interpreting physiological measurements you should now seek expert advice.

	SCORES										
	-3	-2	-1	0	1	2	3	4	5	6	Don't know
Air temperature											
Radiant heat											
Air velocity											
Humidity											
Clothing											
Metabolic rate											

EXAMPLE LERAP RECORD

Make a record of the pesticide buffer zone applied in Section A

Section A

Date	
Field name or number	
Crop to be treated	
Reason	
Product Used	
Weather conditions	
Specify buffer zone distance in metres e.g. 7m	

If you used a LERAP assessment to reduce your pesticide 5 metre buffer zone then also complete Section B. Distances for category 'A' products and greater than 5 metres cannot be reduced.

Section B

Dose	Full ☐	¾ ☐	½ ☐	¼ ☐			
Sprayer	Standard ☐	1-star ☐	2-star ☐	3-star ☐			
Watercourse width	Dry ditch ☐	≤ 3m ☐	3 to 6m ☐	≥ 6m ☐			
Width of buffer zone after LERAP	1m ☐	2m ☐	3m ☐	4m ☐			
Date of LERAP							
Name of person who carried out LERAP							

Appendix

1. Respiratory protective equipment at work: A practical guide HSG53
2. Skin contact - Distance your skin from chemicals and wet work poster
3. Single use, splash-resistant gloves poster
4. Code of practice for using plant protection products
5. Code of Practice for suppliers of pesticides to agriculture, horticulture and forestry
6. Working with substances hazardous to health - A brief guide to COSHH
7. Workplace health, safety and welfare. Workplace (Health, Safety and Welfare) Regulations 1992. Approved Code of Practice and guidance L24
8. Heat Stress Check List
9. Example LERAP record form
10. Broadcast air-assisted sprayers - Local environment risk assessment for plant protection products (LERAP)
11. October 2011: INTERIM UPDATE TO AQUATIC BUFFER ZONE SCHEME FOR PESTICIDES.
12. Horizontal boom sprayers - Local environment risk assessment for plant protection products (LERAP)
13. Selection and use of 'splash-resistant rev.pdf
14. Personal protective equipment at work (L25)
15. Cleanroom Supplies Ltd disposable coveralls selection guide
16. A summary of the update to standard BS EN ISO 374: 2003 Protective Gloves Against Dangerous Chemicals and Micro-organisms
17. ARCO Respiratory Protection
18. NSTS decision tree for spray equipment over 5 years old
19. Safe Handling of Chemicals - poster
20. Guidance on storing pesticides for farmers and other professional users – AIS16 latest version

www.hta.org.uk

zest®

Sustainable ICM

www.zest-icm.co.uk