

### Further reading

<i>Application of pesticides by hand-held equipment</i>	AFAG202
<i>Emergency planning</i>	AFAG802
<i>Training and certification</i>	AFAG805
<i>First aid at work: Your questions answered</i>	INDG214
<i>Managing health and safety in forestry</i>	INDG294
<i>Safe use of pesticides for non-agricultural purposes L9</i>	0 7176 0542 6
<i>Medical aspects of work-related exposures to organophosphates MS17</i>	0 7176 1775 0

These publications are available from HSE Books - see 'Further information'.

### Notes

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### Further information

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

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# Pre-planting spraying of container-grown seedlings



**AFAG**  
 Arboiculture and Forestry Advisory Group

## Introduction

This leaflet covers the pre-planting application of pesticides to container-grown seedlings for forestry and other tree work.

You can use this leaflet within the risk assessment process to help identify the controls to put in place to prevent or adequately control the risk of contamination to people and the environment when applying pesticides. It should be read in conjunction with HSE's Approved Code of Practice L9 *Safe use of pesticides for non-agricultural purposes* (the Approved Code).

You must also assess the effect of the site and the weather as well as following this guidance. Useful practical guidance on appropriate and suitable weather conditions including wind speeds is in the publication *Code of practice for the safe use of pesticides on farms and holdings* (the Green Code) available free from DEFRA Publications Tel: 08459 556000.

All operators must have had appropriate training in how to carry out the tasks required. They may also need to hold appropriate Certificates of Competence (see AFAG leaflet 805 *Training and certification*).

## Certificates of Competence

- 1 Under the Control of Pesticides Regulations 1986 (COPR), operators must have had relevant training and be competent for the duties they are to perform. Operators born after 31 December 1964 or who will be spraying as a commercial service must hold the appropriate Certificate of Competence (see Table 1) issued by the National Proficiency Tests Council (NPTC) or Scottish Skills Testing Service (SSTS), unless they will be under the direct and personal supervision of a person who holds such a certificate. If born before 31 December 1964 and working on their own or their employer's land, operators still need to be able to demonstrate competence and show proof of appropriate training.

**Table 1** Relevant Certificate of Competence modules

Module number	Title	Notes
PA1	Foundation module	With the exception of PA7 'Pilot' and PA11 'Seed treating equipment', all personnel are required to complete this module before attempting any other module.
PA2	Ground crop sprayer - mounted or trailed	Either <b>A</b> Hydraulic nozzle type or rotary atomiser type boom; or <b>C</b> Twin fluid nozzle type boom; or <b>D</b> Electrostatically charged; or <b>E</b> Horizontal boom type fitted with downward air assistance; or <b>F</b> Frame or boom type wick applicator; or <b>AR</b> Vehicle-mounted kerb sprayers - hydraulic nozzle/rotary atomiser type; or <b>ST</b> Spray trains - hydraulic nozzle and/or rotary atomiser type.

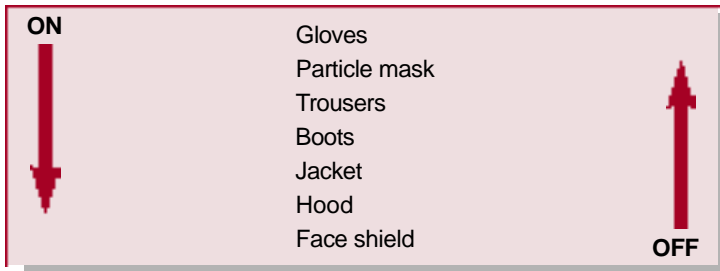
Module number	Title	Notes
PA6	Hand-held applicators	Includes pedestrian-controlled machines but <b>excludes</b> misters and foggers. Either <b>A</b> Hydraulic nozzle type or rotary atomiser type; or <b>AW</b> Applications to water using hydraulic or rotary atomiser type sprayers; or <b>B</b> Applications to water using alginate applicators; or <b>C</b> Granule applicator; or <b>CW</b> Applications to water using granule applicators; or <b>D</b> Hand-held applicators (requiring minimal calibration).

## Personal protective equipment (PPE) and hygiene requirements

- 2 Select PPE on the basis of label recommendations and a risk assessment under the Control of Substances Hazardous to Health Regulations 2002 (COSHH). At all times when handling concentrate or dilute pesticide, the operator must wear the protective clothing specified on the product label. The following should be considered as the basic requirements:
- A face shield, complying with EN 166.
  - Respiratory protective equipment (RPE):
    - for potential airborne dusts/particles, a disposable respirator complying with EN 149 with P2 filter efficiency or reusable respirator to EN 136 or 140 (or equivalent) fitted with a P2 filter;
    - for potential airborne spray/vapour, a reusable respirator to EN 136 or 140 (or equivalent) fitted with a vapour filter suitable for the pesticide being used.
  - A coverall, selected on the following basis:

Purpose	CEN type rating	General description
Protection against liquid jets	Type 3	Chemical protective clothing with liquid-tight connections between different parts of the clothing.
Sprays	Type 4	Chemical protective clothing with spray-tight connections between different parts of the clothing.
Solid particles	Type 5	Reusable and limited-use 'particle-tight' protective clothing.
Splashes of liquid and solid	Type 6	Reusable and limited-use protective clothing offering limited performance against splashes and aerosols of liquid and solid particulate chemicals.

- Nitrile gloves (minimum 0.5 mm thickness), complying with EN 374.
  - Wellington or water-repellent boots with a good grip.
- 3 Put on and take off protective clothing in the correct order to avoid contact with contaminated surfaces.



- 4 Whenever gloves or sleevelets have to be removed, thoroughly wash their outsides with soap and water and wipe off surplus moisture before removal. Replace gloves regularly to minimise exposure to pesticides from any internal contamination.
- 5 Adequate washing facilities, ie soap and water and paper towels must be available. Where reasonably practicable, use a running artificial water supply for washing. Ensure that different water and different wash bowls are used for protective clothing and for personal washing.
- 6 Always remove gloves and thoroughly wash hands in soap and water before smoking or attending to personal needs.
- 7 At the end of each work period:
- thoroughly wash the outsides of gloves in soap and water and wipe off surplus moisture;
  - thoroughly wash down the overall/suit;
  - remove protective clothing in the correct order;
  - thoroughly wash hands in soap and water and dry well.
- 8 Always put on, take off, hang to dry and store protective clothing away from rest and eating places, stored (clean) personal clothing, the personnel areas of vehicles and sources of contamination.
- 9 Replace damaged items promptly.
- 10 Carry a first-aid kit (see HSE leaflet INDG214 *First aid at work: Your questions answered*). All operators and supervising personnel should know the symptoms of heat stress and how to treat it.

## Planning to spray

- 11 Always plan pesticide application thoroughly and in good time.
- 12 Do not use a pesticide if there is a suitable alternative control.
- 13 **Always** use the pesticide product that presents least risk to health and the environment while achieving effective weed or pest control.
- 14 Ensure the pesticide to be used is currently approved under COPR for the proposed treatment and species.
- 15 Ensure any company production targets enable the work to be carried out in a deliberate and systematic manner to minimise the risk of contamination.
- 16 Identify safe areas for diluting and mixing pesticide and for filling applicators. Make arrangements to deal with accidental spillage, eg absorbent material, a shovel, plastic sacks.
- 17 Identify areas for washing protective clothing and applicators. Make provision for safe disposal/removal of washings.
- 18 Ensure supplies of fresh water will be available for dilution and washing. **To prevent contamination of water sources water should not be taken directly from a natural supply, nor should a domestic supply be connected into any spray solution.**
- 19 Ensure information about the pesticide being used is readily available in a form that can accompany a person requiring medical attention, eg a hazard data sheet (see AFAG leaflet 802 *Emergency planning*).

## Preparing to spray

- 20 Read the pesticide product label carefully (or the text of any off-label approval) and fulfil the legal requirement to comply with its contents regarding:
- the crop or pest which may be treated;
  - the maximum dose rate of the product;
  - operator protection and training; and
  - environmental protection.
- 21 Take into account any additional advisory information provided on the product label.
- 22 Ensure safe storage of pesticides on site. Unless adequately secured against theft, do not leave containers unattended or out of your sight. Label all containers clearly, indicating their contents and any special hazards.
- 23 Do not mix more pesticide than can be used during the work period.

- ❑ **24** Mix strictly in accordance with the label instructions.
- ❑ **25** Never use bare or gloved fingers to clean out residues from concentrate containers. Replace caps immediately after use.
- ❑ **26** Ensure liquids do not splash. Pour slowly with the container opening at the top to avoid glugging.
- ❑ **27** Wash out empty liquid concentrate containers and use the washings to make up the spray solution.
- ❑ **28** Handle wettable powders carefully to avoid dust.
- ❑ **29** Stand upwind so that any dust from granules will be blown away from you when filling an applicator.
- ❑ **30** Puncture or crush empty concentrate containers, but do not obliterate the label.

## Applicator

- ❑ **31** Make sure the applicator is in good working order at all times, completely free from leaks and, as far as possible, any external contamination.
- ❑ **32** Make sure spares and accessories are available - replacement nozzles, seals, washers, maintenance tools and calibration equipment.
- ❑ **33** Calibrate the applicator carefully using plain water, eg by selection of nozzle, pressure or walking speed, to achieve the chosen spray application rate within the approved dose rate for the product.

## Spraying

- ❑ **34** Do not touch the face or any other exposed skin with the gloved hand or with any other part of the protective clothing.
- ❑ **35** Ensure good ventilation when spraying seedlings that are stored under cover.
- ❑ **36** Apply spray to seedlings, not to access passageways.
- ❑ **37** Do not work in your own or someone else's spray drift.
- ❑ **38** Minimise walking through treated areas.
- ❑ **39** Stop if you see anyone approaching from the downwind side.
- ❑ **40** Constantly monitor the workings of your applicator for leaks, mechanical defect, pressure setting and spray quality.
- ❑ **41** Depressurise sprayers before carrying out maintenance.
- ❑ **42** Do not suck or blow through the nozzle or any other part of the applicator to clear blockages.
- ❑ **43** Do not take off gloves when removing nozzles.

- ❑ **44** If seedlings are on raised 'tables' ensure that access passageways are wide enough to avoid operator contamination.
- ❑ **45** If there is any contamination of the skin or protective clothing by pesticide concentrate, wash it off immediately and completely.
- ❑ **46** If you feel unwell, report the symptoms to your supervisor/contract manager and seek medical advice as soon as reasonably practicable, giving details of the work concerned and the full name of the pesticide product used.

## After spraying

- ❑ **47** Identify treated plants and restrict access to the area (display warning signs and tape off or use barriers) until the pesticide has had time to dry and become weatherfast.
- ❑ **48** If there is surplus dilute pesticide at the end of the day put it into a secure, clearly labelled container and return it to the store for subsequent use or disposal.
- ❑ **49** Wash out empty applicators and empty spray solution containers and dispose of washings on site. Ensure washings do not contaminate watercourses. Wipe applicators down with clean paper towels and put used towels in plastic bags for safe disposal.
- ❑ **50** Dispose of surplus pesticide, empty containers and cleaning materials in accordance with Appendix 4 of the Approved Code.
- ❑ **51** If you are an employee who uses anti-cholinesterase compounds, such as organophosphorus pesticide products, classified as toxic or very toxic, you should be under health surveillance arranged by your employer as required by COSHH (see HSE Guidance Note MS17 *Medical aspects of work-related exposures to organophosphates*).

## Handling treated seedlings

- ❑ **52** Allow the spray to dry and become weatherfast before trays of seedlings are moved.
- ❑ **53** Follow the requirements for planting (see AFAG leaflet 103 *Planting*).
- ❑ **54** Handle plants gently and carefully to avoid dislodging any pesticide and minimise contamination of protective clothing.
- ❑ **55** Carry trays of treated seedlings in the hands, not resting on the arms. Where practicable use trolleys or other mechanical assistance.