

### APPLY CHEMICALS UNDER SUPERVISION



# CONTENTS

INTRODUCTION .....	1
1. BEFORE YOU START .....	2
2. GETTING READY.....	16
3. APPLY CHEMICALS .....	36
4. FINALISE WORK .....	48
5. PROJECT ACTIVITY.....	54
RESOURCES.....	55
1. STATES & TERRITORIES: ACTS, CODES OF PRACTICE, LICENSING .....	55
2. USEFUL VIDEOS TO WATCH.....	58
3. PRE-START CHECKLIST .....	59
4. PESTICIDE APPLICATION RECORD .....	60
GLOSSARY .....	61
REFERENCES .....	62

## PUBLICATION NOTES

*BHP Billiton Iron Ore is proud to support Greening Australia to provide valuable conservation and land management training to communities throughout the Pilbara through the Indigenous Training Program.*

*This Learning Guide series has been developed as part of our partnership of the program.*

Gavin Price, Head of Environment, BHP Billiton Iron Ore

*Greening Australia is proud to produce and provide the comprehensive suite of new ALEP Learning Guides. The guides are compatible with the new horticulture and conservation industries training package and suited to developing skills in Indigenous communities within remote areas of the country where employment opportunities are limited. We would like to thank BHPBIO for their generous support in the development of the guides.*

Brendan Foran, National CEO Greening Australia

The second series of ALEP Guides is aligned with a number of units of competence from the *Training Package AHC10 – Agriculture, Horticulture and Conservation and Land Management* (Release 8.0). The units selected are frequently used within Certificates I to III in Horticulture and Conservation and Land Management. As such they cover, where possible, the elements, performance criteria and required skills and knowledge of each unit.

The principal goal of these resources is to support the learning process; the learning activities may complement a trainer's assessment plan. The intent is that they will be used in an interactive manner with learners rather than as self-paced study guides. The structure and sequence have been designed to follow the logical steps of the practical tasks wherever possible. Concepts are introduced and then consolidated with discussion and/or practical activities.

The writers consider that these guides can provide a sound technical foundation but also strongly encourage trainers to complement the guides with additional, authentic resources from relevant industry texts and websites. The guides can be used in part or in their entirety but should always be linked to practical activities to strengthen the teaching and learning.

Genuine consideration was given to the level of language used in the guides. The goal has been to find a balance between simplifying the language to an accessible level and ensuring that the vocational concepts are addressed. The writers contend that with appropriate support these texts can provide an opportunity for students to strengthen their language, literacy and numeracy skills, which may be required for pathway progression.

A number of Aboriginal people have been involved in developing this ALEP Guide, which is considered suitable for use within a program based on Aboriginal pedagogies.



# INTRODUCTION

Welcome to *Apply chemicals under supervision*. This learning guide covers information about using chemicals as part of a program to manage pests. The chemicals you use will depend on the problem and the surrounding environment. The chemicals might include liquid chemical mixes, powders, granular products and/or biological agents.

This learning guide can only present the broad ideas about chemical application. This knowledge needs to be used in practice as you carry out your duties in the field. Assessment of this unit can be clustered with other units from your qualification.

## EQUIPMENT REQUIRED

To complete this training you will need the following:

1. Appropriate Personal Protective Equipment (PPE)
2. Safety gear, including first aid kit and drinking water
3. Equipment required to measure, mix and apply chemicals
4. Safety Data Sheets (SDSs) for the chemicals you will use
5. Codes of Practice and guidelines relevant to your state

## LEARNING ACTIVITIES

There are five kinds of activities to complete. These activities may go toward your final assessment.

SECTION	ACTIVITY	SATISFACTORY (Y/N)	DATE
<b>PRACTICAL ACTIVITIES</b>			
1.2	Types of chemicals		
2.1	Reading labels		
2.3	Checking your PPE		
2.4	Pre-start check on spray equipment		
2.4	Adjust spray equipment		
2.8	SOPs and JSAs		
4.2	Storing chemicals		
5	Project – applying chemicals – create portfolio		
<b>DISCUSSION ACTIVITIES</b>			
Throughout	Pest problems, reading labels and SDSs, transporting chemicals, monitoring weather, spray drift, application methods, disposal of containers, monitoring, working with diversity, spills, emergencies, disposing of rinsate		
<b>RESEARCH ACTIVITY</b>			
1.5	Codes of Practice and guidelines		
<b>WORKBOOK ACTIVITIES</b>			
Throughout	Written responses to workbook questions (conducted verbally where appropriate)		
<b>PROJECT</b>			
5	Team work and individual portfolio		



*Much of the training for this unit should be completed on the job.*

# 1

## BEFORE YOU START



In your work, you will come across situations where there is a problem caused by pests. In horticulture and conservation and land management (CLM) the word 'pest' is used to talk about plants, animals, insects and diseases that are causing a problem. Some examples of pest problems are:

- Weeds competing with native plants
- Weeds invading a waterhole or creek line
- Insects and/or disease damaging a food crop
- Introduced grasses and woody weeds affecting the intensity of fire
- Feral animals causing damage to the native environment

Some of them might be managed by applying chemicals, but some might be managed in other ways, such as slashing, culling, grazing, fencing and crop rotation.



### DISCUSSION ACTIVITY



What pest problems exist in your area?

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How does your workplace solve the problems in your area?

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## 1.1 INTEGRATED PEST MANAGEMENT

Integrated Pest Management (IPM) is an approach to solving problems caused by pests. It aims to solve pest problems by using a combination of the most efficient and effective methods.

'Efficient' means that the solution uses the least money and effort.

'Effective' means that the solution manages the pest so it is no longer a problem.

IPM always looks for solutions that reduce the risk of environmental damage.

Actions are taken to control pests only when their numbers are likely to cause a problem. Just because a pest is observed, doesn't mean it is causing a problem.

IPM does not encourage the use of chemicals but recognises that sometimes they are needed as part of an integrated solution.

So when your supervisor chooses to use chemicals to manage a pest, it will be because there is no other way to solve the problem. This decision will be made after:

- Learning about the pest, its life cycle and natural enemies
- Attempting to prevent the problem from happening
- Monitoring the pest and deciding that the pest needs to be managed
- Considering all other control options

Both horticulture and CLM use IPM to solve problems caused by pests. The problems they need to solve will be different.

In horticulture the problem is likely to be that pests are damaging a crop. For example, weeds are a problem if they are taking over the vegetable garden.

In CLM the problem is likely to be environmental. For example, weeds are a problem if they are smothering a waterhole.



# INTEGRATED PEST MANAGEMENT MODEL

## 1. LEARN ABOUT THE PROBLEM

Why is the pest a problem?

- How is the pest causing the problem?
- Understand the life cycle of the pest (and its natural enemies)
- Understand crop rotation and crop life cycle (horticulture)
- Use books, fact sheets, internet, consultants and researchers

## 5. REVIEW LOOK BACK, THINK AHEAD

- Look at the success and shortcomings of the management program
- Look at crop yields or survey data
- Look at the damage
- What worked?
- What needs to be done differently?
- What else needs to be done?

## 4. SELECT CONTROL

Do you need to do anything to manage the problem?

Think about:

- The numbers of the pest
- The damage it is causing
- Any relevant legislation
- The life cycle stage of the pest
- The life cycle stage of the crop
- Environmental conditions

Options

- Exclusion, e.g. fencing
- Mechanical, e.g. weeding, slashing, mulching, ringbarking
- Biological, e.g. use other living things
- Chemical, e.g. apply spray, dust or granules

## 2. PREVENT THE PROBLEM

- Site selection, variety of crop, crop rotation (horticulture)
- Good hygiene to stop contamination, e.g. take care not to carry weed seeds from one site to another
- Community education programs

## 3. MONITOR THE SITUATION

- Watch for weeds, diseases, pest insects and beneficial species
- Conduct survey
- Record details