Steps to Safe Spraying

Trainer guide

A WELL resource to assist chemical sprayers in agriculture

This resource supports the development of language, literacy and numeracy skills related to selected units of competency in the AHCI0 Agriculture, Horticulture and Conservation and Land Management Training Package

Funded under the Workplace English Language and Literacy (WELL) Program by the Australian Government Department of Education, Employment and Workplace Relations

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Disclaimer
At the time of development and printing, care has been taken to ensure the accuracy and currency of the information presented in the training resource Steps to Safe Spraying. No person should rely on the general information presented in this resource as a substitute for specific expert advice. All chemicals, pests and diseases used in scenarios and activities are fictitious.

TRAINER GUIDE

Steps to Safe Spraying is a Workplace English Language and Literacy (WELL) resource to assist market gardeners with chemical spraying.

Steps to Safe Spraying is an updating of the 2005 ‘Henry Sprays it Safe’ resource.

This resource supports the development of the language, literacy and numeracy skills related to selected units of competency:

- AHCCHM101A Follow basic chemical safety rules
- AHCCHM201A Apply chemicals under supervision
- AHCCHM303A Prepare and apply chemicals
- AHCCHM304A Transport, handle and store chemicals

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INTRODUCTION

Steps to Safe Spraying was funded under the Workplace English Language and Literacy (WELL) Program by the Australian Government Department of Education, Employment and Workplace Relations.

The original resource developed in 2005 titled *Henry Sprays it Safe,* was very successful for the target audience and is still available. However there is a need to update the characters to be more inclusive for a new generation entering the industry. The 2012 version titled *Steps to Safe Spraying* includes this feedback with revised characters and vocals to address a youth audience.

The resource was developed to assist market gardeners with chemical spraying. Many market gardeners are:

- sole operators/single person enterprises
- from language backgrounds other than English.

Chemical use has been identified as a high risk activity, which can impact negatively on growers, consumers and the environment.

This resource has now been updated and consists of an online interactive resource/CD, Trainer guide and Learner workbook. The learning activities and tasks are drawn from an analysis of the industry units of competency, from site visits to market gardens, interviews with chemical trainers and market gardeners as well as consultations with bilingual support officers in the field.

The resource aims to support the development of the language, literacy and numeracy skills required for a number of key units in AHCI0 Agriculture, Horticulture and Conservation and Land Management Training Package.

These units relate to the safe handling, storage, preparation and application of chemicals at Australian Qualifications Framework (AQF) levels I, II and III.

The selected units of competency are:

- AHCCHM101A Follow basic chemical safety rules
- AHCCHM201A Apply chemicals under supervision
- AHCCHM303A Prepare and apply chemicals
- AHCCHM304A Transport, handle and store chemicals

The learning sequences and activities have been based around the everyday work of a small enterprise market garden and involve three characters – Matt and Joe, both market gardeners, and Vera, a chemical reseller.

This Trainer guide includes a section on the underpinning knowledge and skills of particular units of competency and how the activities relate to these.

THE RESOURCE

The resource consists of 3 parts

1. **Interactive resource CD or online at http://www.siandvatafe.nsw.edu.au/resources-page/**
2. **Trainer guide**
3. **Learner workbook**

There are five sections in the interactive resource. The sections take the learner through a whole chemical spraying sequence, from identifying the pest, discussing options with a chemical re-seller, reading important parts of the chemical label, transporting and storing chemicals, checking and calibrating equipment, mixing, spraying, clean up after spraying and keeping records.

In a nutshell, the learner follows Matt, a market gardener as he deals with the problem of 'Bluefly' on his lettuces. He gets help from Vera, his reseller, in choosing an appropriate chemical and in transporting the chemical home. He then gets help from his neighbour, Joe, in calibrating his equipment for spraying his lettuces and manages a small spill in the chemical shed at the end of the day.

Throughout this sequence of events, Matt seeks help from the learner with particular tasks related to his lettuces and other crops on his farm.

While the characters and activities are as authentic as possible, it should be noted that the chemicals, pests and diseases are fictitious.

The learner can choose to work through the sections sequentially or in any order. Learners should start working with the interactive resource by selecting '**Introduction**' and '**How to use**' on the '**Home**' menu.

The largest and most in-depth sections (Sections 3 and 4) cover:

- finding information from the chemical label
- taking measurements
- calibrating equipment
- calculating the amount of chemical per tank
- calculating how much chemical is needed to spray an area.

Each part in the process has been broken into small chunks. This ensures the learner has the opportunity to gain an understanding of the chemical spraying process and to develop the required skills in small manageable steps. There is a practice activity to reinforce the learning at every step. In the practice activities learners are given hints. If they make an incorrect response, they are given the opportunity to try again. On the third incorrect response they are given the correct answer, so they can continue through the activity.

These activities are reinforced further in the Learner workbook where the learner can apply the skills with different fictitious chemicals. The emphasis is on the vocabulary associated with chemical spraying, on developing reading skills to find necessary information on labels and reinforcing the numeracy skills needed to calibrate equipment and measure chemicals.

The learner will also practise beginner computer skills while undertaking the activities on the interactive resource. Navigation has been kept very simple with only a few basic computer actions required. These actions are explained in the **How to use** section. Learners should be directed to use this section before starting the program. However it is possible that some learners may require additional trainer guidance when first using the program.

Other features

Hints
Throughout the interactive resource hints are provided for additional information or tips about the topic. These can be accessed on the tool bar on the left of the screen.

Printable sheets
There are a number of printable sheets which can be accessed from the Print Outs folder on the interactive resource website or CD. These sheets are also available in the Trainer guide and Learner workbook.

1. Sheets for recording information

Key record sheets modelled on those currently used in the industry are provided for learners to use in the activities. These are also used by the characters in the resource. They are:

- Calculation sheet (five steps for learners to follow to record measurements and calculations)
- Calibration record
- Spray application record
- Storage record sheet
- Spill record sheet

These are included in this Trainer guide at pages 27-32. They are also available in the Learner workbook.

2. Information sheets

Where there is a lot of information, one-page summaries can be printed for further reference. These are:

- Ute it don't boot it! (Transport your chemical products safely)
- Cleaning up after spraying
- Cleaning spills
- Beaufort scale

These are included in this Trainer guide and the Learner workbook.

3. Maths practice sheets

Sheets from the previous Trainer guide are now in the Learner workbook in Section 4:

- Changing centimetres to metres
- Changing litres to millilitres
- Changing millilitres to litres
- Changing square metres to hectares
- Working out 10%

New numeracy practice sheets in the Learner workbook include:

- Rounding
- Analogue and digital clocks
- Fractions and decimals

4. Glossary - Words to know

A glossary of meanings of key terms is included in this Trainer Guide starting at page 37. It can be photocopied for learners as required.

TIPS FOR TRAINERS

Steps to Safe Spraying is not a complete training program. It can be used by a trainer in conjunction with other teaching, learning and assessment materials and activities. A range of additional material is summarised in the **Useful Resources** section of this Trainer guide.

Learner workbook

The Learner workbook is designed to be used flexibly alongside the interactive resource. The workbook has been organized into 5 parts that roughly correspond with the Interactive resource.

Section	**Learner workbook**	**Interactive resource**
1	Choosing chemicals	Choosing chemicals
2	Transporting & storing chemicals	Transporting & storing chemicals
3	Calibrating and measuring	Calibrating and measuring
4	Numeracy practice sheets	Calibration- test yourself
5	Spraying and cleanup	Spraying and cleanup

Depending on the language and literacy skills of the learners, the trainer may firstly refer to the vocabulary activities at the beginning of each section to ensure the learners understand the vocabulary. The learners may then use the interactive resource and return to complete activities in the Learner workbook for further skills practice and reinforcement.

Throughout the Learner workbook key words are in bold. The trainer should ensure the learners have an understanding of these words before attempting the activity.

Some activities in the workbook refer to sections of the Interactive resource. The trainer should ensure they have located these sections prior to the training session.

Interactive resource

It is suggested that the trainer work through the interactive sections first, and choose appropriate parts for use within a training session. After each section, ask questions to check for understanding and allow time for discussion and review of the material covered.

Initially, on the Interactive resource, learners can be encouraged to work through the sections in order. Later the user can return to sections where they want or need

more practice or revision. The Learner workbook will also allow for more practice and extension.

The simulated tasks performed on the resource need to be supported with real chemical labels and Material Safety Data Sheets (MSDS) using equipment appropriate to the crop and area to be covered, and focusing on the types of pests common to the crop and region.

While navigation on the interactive resource has been kept simple, some learners may not have computer skills, and may need initial guidance when referring to **'How to use'** the resource. For example, they may need help with clicking with a mouse, using enter and delete, moving the cursor and clicking in a box, printing worksheets, moving from screen to screen and using the online calculator.

Trainers need to be aware that many older workers may not be familiar with metric units or with using a calculator and may need to be shown how to enter numbers including decimals, and to perform operations. The analogue clock face has been supplemented with a digital watch to allow for possible variation in available equipment.

REFERRALS

This resource can be used to encourage learners to seek assistance to improve their literacy and numeracy. If trainers identify learners in their group who require further assistance with English language, literacy and/or numeracy, they could encourage these learners to seek further training.

There is a National Reading-Writing Hotline which provides advice on how to access classes throughout Australia. The hotline number is 1300 655 506. Trainers can pass on this information discretely, or offer to make the call on the learner's behalf.

A mapping document to the Australian Core Skills Framework (ACSF) is available for the resource.

SECTIONS ON THE INTERACTIVE RESOURCE

The table below outlines the content of the interactive resource. The trainer can choose which sections are most suited to the purpose of different parts of their training.

SECTION	SUB-SECTION	WHAT'S THERE	LEARNER WORKBOOK
Introduction		The purpose of the resource, the characters and the setting	
How to use		General navigation from the Home page and using the shovel and circles Toolbar icons: ▪ Speaker – volume ▪ Book - a glossary ▪ Question mark – hints ▪ Printouts can be accessed by clicking on the link when presented, or clicking on the Print outs folder which will be on the website or CD.	
1. Choosing chemicals	1. At the farm	*Scenario using a fictitious insect and chemical*: *Matt finds Bluefly on his lettuces* Identification of a pest	**Section 1 - Choosing Chemicals** *PART A- Types of chemicals* Vocabulary and listening exercises Types of pests and types of chemicals to treat them.
	2. At the resellers	Herbicides, insecticides, fungicides *Matt and Vera work out that Bugaway is the best chemical to use*	
	3. Broad Claims for Use	Chemical label – *Broad Claims for Use* section,	
	4. Mode of Action	Chemical label – *Mode of Action* section	

SECTION	SUB-SECTION	WHAT'S THERE	LEARNER WORKBOOK
1. Choosing chemicals (continued)	5. Signal Heading	Chemical label – *Signal Heading* section	*PART B- Reading labels* Finding information by looking at Directions for Use, Signal heading, Mode of Action, Withholding period, Spray droplet size
	6. Withholding Period	Chemical label – *Withholding Period* section	
	7. Overview	Revision of where on the label to find *Broad Claims for Use*, *Signal Heading*, *Withholding Period, Mode of Action, Directions for use, Restraint Statement* Asking for the MSDS	
	8. Activity 1	Practice activity - Look at the *Broad Claims for Use* to choose the most suitable chemical	
	9. Activity 2	Practice activity - Look at the *Signal Heading* to identify how poisonous a chemical is	
	10. Activity 3	Practice activity - Look at the *Withholding Period* and find when the crop can be harvested	
2.Transporting and storing chemicals	1. Safe transport	Transporting chemicals, Dangerous Goods signs **Ute it don't boot it!**	**Section 2- Transporting and storing chemicals** *PART A- Safe transport* Vocabulary and listening exercises Finding information from Print Out- **Ute it don't boot it!** *PART B- Storing chemicals* Vocabulary from MSDS. Matching hazards and PPE
	2. Safe storage and MSDS	Storage shed, Labelled containers How chemicals can harm you Hazardous substances and the MSDS	
	3. Storage Record	Keeping Storage Records – demonstration of how to fill in a **Storage record sheet**	
	4. Storage Record - activity	Practice activity - Print out and fill in a **Storage record sheet**	

SECTION	SUB-SECTION	WHAT'S THERE	LEARNER WORKBOOK
			PART C- Finding information on MSDS Scanning using subheadings *PART D- Record keeping* Storage record forms
3.Calibrating and measuring	1. Calibration: introduction	The reason for calibrating The approach taken on this resource – 5 steps Getting ready to calibrate – what you need - the **Calculation sheet**	**Section 3- Calibrating and measuring** *PART A- Introduction* Vocabulary and listening exercises Equipment *PART B- Information for calibration* Learners practise finding and recording- -water application rate -chemical application rate -spray droplet size using fictitious chemical labels for Snuffbug Insecticide, Arosa Fungicide and Fogmo Herbicide Step 2 measurements are given and learners must find and record this information on the calculation sheets Step 3 learners practice using the formula to calibrate.
	2. Step 1 – recording information	*Scenario using a fictitious insect and chemical: Joe wants to use his 200 L tank to spray his cucumber crop for cucumber mite using Buzoff* Joe records: Chemical application rate Water application rate Tank size Pump pressure Nozzle size	
	3. Step 1 - activity	*Scenario using the same fictitious insect and chemical from section 1 – Matt wants to use his 15 L knapsack sprayer to spray his lettuce crop for Bluefly using Bugaway* Practice activity – Help Matt find and record: ▪ Chemical application rate ▪ Water application rate ▪ Tank size ▪ Pump pressure ▪ Nozzle size	

SECTION	SUB-SECTION	WHAT'S THERE	LEARNER WORKBOOK
3.Calibrating and measuring (continued)			*PART C- Calibration records* Learners are able to review how Matt recorded the calibration for Buzoff from the resource. They can also see the example of the calibration record for Aroza Fungicide. Learners can practice recording the calibration for Fogmo Herbicide. *PART D- Calibration for booms* This section is for further practice and to see how calibration of a large boom is similar to calibrating equipment with one nozzle.
	4. Step 2 – taking measurements	Joe measures: ▪ Nozzle output ▪ Spray width ▪ Walking speed	
	5. Step 2 - activity	Practice activity - Help Matt measure: ▪ Nozzle output ▪ Spray width ▪ Walking speed	
	6. Step 3 – calibrating equipment	Joe calculates the *sprayer application rate* using a formula	
	7. Step 3 - activity	Practice activity - Help Matt calculate the *sprayer application rate* using a formula	
	8. Step 4 – chemical per tank	Joe calculates how much chemical to put in a tank using a formula	
	9. Step 4 - activity	Practice activity - Help Matt calculate how much chemical to put in a tank using a formula	
	10. Step 5 – area, tanks and chemical	Joe calculates: ▪ Area to spray in square metres and hectares ▪ How many tanks are needed ▪ How much chemical is needed for the job	
	11. Step 5 - activity	Practice activity - Help Matt calculate: ▪ Area to spray in square metres and hectares ▪ How many tanks are needed ▪ How much chemical is needed for the job	
	12. Calibration: overview	Keeping a record of calibration calculations using a **Calibration record** sheet	

SECTION	SUB-SECTION	WHAT'S THERE	LEARNER WORKBOOK
		Review of when to calibrate	
4. Calibration – test yourself	1. Introduction	*Scenario using a fictitious insect and chemical – Matt wants to use his 100 L tank to spray his tomatoes for rust using Gonno* Print a **Calculation sheet**	**Please see Section 3 for activities regarding calibration** **Section 4- Numeracy practice sheets** Numeracy worksheets have been provided in this section to assist learners to develop and practise the maths skills required for the calculations in chemical spraying. In this section you will find information and activities for- ▪ Rounding ▪ Analogue and digital clocks ▪ Changing centimetres to metres ▪ Changing square metres to hectares ▪ Changing litres to millilitres ▪ Changing millilitres to litres ▪ Fractions and decimals ▪ Working out 10%
	2. Step 1	Practice activity – Help Matt find and record: ▪ Chemical application rate ▪ Water application rate ▪ Tank size ▪ Pump pressure ▪ Nozzle size	
	3. Step 2	Practice activity – Help measure: ▪ Nozzle output ▪ Spray width ▪ Walking speed	
	4. Step 3	Practice activity – Help Matt calculate the Sprayer application rate using a formula	
	5. Step 4	Practice activity - Help Matt calculate how much chemical to put in a tank using a formula	
	6. Step 5	Practice activity - Help Matt calculate: ▪ Area to spray in square metres and hectares ▪ How many tanks are needed ▪ How much chemical is needed for the job	
	7. Recording	Practice activity - Copy calibration calculations onto a **Calibration record** sheet	

SECTION	SUB-SECTION	WHAT'S THERE	LEARNER WORKBOOK
5. Spraying and clean up	1. Critical Comments	*Critical Comments* about spraying on the label	**Section 5- Spraying and cleanup** *PART A- Spraying* Vocabulary activity *1. Review of PPE Vocabulary* activity *2. Directions for Use, Restraints and Critical comments* - Activity to find information on the label of a fictitious chemical- Maxxy Lawn Fungicide *3. Weather information* Vocabulary exercises. Learners are able to build their knowledge, vocabulary and skills regarding weather information for: 1. Humidity 2. Rainfall 3. Temperature 4. Wind *4. Using a calendar* Learners are able to practice working out withholding periods and re-entry periods on a calendar. *5. Information from the calibration record* Activity to work out how much chemical to use *PART B_ Clean up* Reading activity to find information on Print out- After Spraying. Learners practice completing a S for Buzoff *PART C_ Chemical spills* Vocabulary and reading activities regarding cleaning spills, equipment in spill kits, reading MSDS. Recording a spill.
	2. Weather	Suitable weather for spraying: ▪ Wind speed and direction ▪ Temperature ▪ Humidity **Beaufort Wind Scale**	
	3. Critical Comments - activity	Check *Critical Comments* on the label	
	4. Weather - activity	Practice activity - Check suitable weather for spraying: ▪ Wind speed and direction ▪ Temperature ▪ Humidity	
	5. PPE	Personal protective equipment – finding information Demonstration of PPE	
	6. Mixing	Where to mix How to mix How much chemical	
	7. Mixing - activity	Practice activity - How much chemical to use.	
	8. Spraying	Careful spraying – watch out for sensitive areas and no spray drift	
	9. After spraying	**Cleaning Up After spraying** Check equipment Check *Re-entry Period* on the label Check *Withholding Period* on label **Spray Application Record** Spill clean up Spill recording	

TRAINING PACKAGE UNITS

Grid of learning activities

The grid below shows how the sections on the resource relate to the selected units of competency. These units are in a large number of qualifications. Trainers should check which units are required for the qualification they are delivering, so that learners can be directed to complete only those sections required for the particular qualification.

Unit of Competence	Element	Performance Criteria	Interactive Section
AHCCHM101A Follow basic chemical safety rules	1. Follow workplace requirements and instructions concerning chemicals.	1.2 Safety procedures involved in chemical handling and use are recognized and followed as required.	Transport and store: Safe transport Spray and clean up: PPE, Spraying, After spraying
	2. Recognise risks associated with chemicals.	2.2 Chemical labels and symbols are recognized and hazards identified.	Choosing chemicals: Signal heading Transport and store: Safe transport, Safe storage
		2.3 Chemical storage locations are identified.	Transport and store: Safe storage
		2.4 Instructions for transport, handling and storage of chemicals are recognized and observed.	Transport and store: Safe transport, Safe storage
	3. Follow chemical handling and storage rules	3.3 Appropriate personal protection equipment is obtained and used when working in areas where chemicals are stored.	Spray and clean up: PPE

Unit of Competence	Element	Performance Criteria	Interactive Section
AHCCHM201A Apply chemicals under supervision	1. Check application and personal protective equipment	1.1 Carry out pre-operational checks of application equipment in accordance with manufacturer's specifications and OHS requirements.	Calibrating and measuring: Step 2 – Taking measurements
		1.2 Prepare application equipment for use in accordance with manufacturer's specification and directions.	Spray and clean up: PPE

Unit of Competence	Element	Performance Criteria	Interactive Section
		1.3 Identify and replace any damaged or worn components.	
		1.4 Check personal protective equipment in accordance with manufacturer's specifications and OH&S requirements.	
	2. Prepare application equipment	2.1 Apply label information regarding precautions for the chemical mix/ substance being used.	Choosing chemicals Spray and clean up: Critical Comments
		2.2 Select and use appropriate personal protective and mixing equipment in accordance with MSDS and chemical label.	Spray and clean up: PPE
		2.3 Measure, mix and load chemical mix or substances in accordance with directions on chemical label.	Spray and clean up: Mixing
		2.5 Confirm instructions from chemical MSDSs in the event of a spill.	Spray and clean up: After spraying
		2.6 Check that output of application equipment is correct and in accordance with application/ spray plan.	
AHCCM201A Apply chemicals under supervision **…..continued**	3. Apply chemicals	3.1 Assess and record meteorological conditions and forecasts prior to and during application.	Calibrating and measuring: Step 3 – Calibrating equipment
		3.2 Select and use appropriate personal protective equipment in accordance with MSDS and chemical label.	
		3.3 Apply chemical in accordance with the application/ spray plan and/or instructions.	
		3.4 Assess and minimize risks to others, product integrity and the environment prior to and during application.	
	4. Finalise work	4.1 Clean and store Personal Protective Equipment (PPE) and application equipment in accordance with manufacturer's specifications and OH&S requirements.	Spray and clean up: After spraying
		4.2 Dispose of excess chemicals and use triple rinse drums in accordance with label	Spray and clean up: After spraying

Unit of Competence	Element	Performance Criteria	Interactive Section
		and MSDS requirements.	
		4.3 Complete incident reports as required in accordance with legislative and/or regulatory requirements.	Spray and clean up: After spraying
		4.4 Complete application records.	
		4.5 Store unused chemical/products in accordance with label requirements and MSDSs.	
		4.6 Adhere to all re-entry and withholding periods.	
	5 Transport and handle chemicals	5.1 Confirm precautions for the transport and handling of chemicals.	Transport and store: Storage record
		5.2 Transport and handle chemicals in accordance with legislative and/or regulatory requirements.	Transport and store: Storage record Spray and clean up: After spraying

Unit of Competence	Element	Performance Criteria	Interactive Section
AHCCHM303A Prepare and apply chemicals	1. Determine the need for chemical use	1.1 Nature and level of the pest, weed infestation or disease is identified.	Choosing chemicals: At the farm
		1.2 Need for control is assessed.	Choosing chemicals: At the reseller
		1.3 The requirement for chemical use as an option within an integrated pest management strategy is assessed.	Choosing chemicals: At the reseller
		1.4 Hazard and risk analysis of different chemical options is undertaken.	
		1.5 Requirement for chemical application is identified and confirmed.	
	2. Prepare application/ spray plan	2.1 Mixing rates for chemicals is defined and calculated.	Choosing chemicals: At the reseller Transport and store: MSDS
		2.2 Application equipment type and set up requirements are determined for intended application.	Choosing chemicals
		2.3 The quantity of mix required is determined.	

Unit of Competence	Element	Performance Criteria	Interactive Section
		2.4 Meteorological conditions and forecasts prior to and during application are accessed.	
		2.5 An application/spray plan is completed.	
		2.6 Notify neighbours as required in accordance with industry practice or regulatory requirements.	
	3. Prepare chemical mixes	3.1 Requirements from chemical labels and MSDSs are interpreted and applied.	Spray and clean up: PPE
		3.3 Appropriate personal protective and mixing equipment is selected and used in accordance with MSDSs and chemical label.	
		3.4 A suitable location for mixing and loading is selected.	
		3.5 Chemicals are prepared in accordance with registered use.	Calibrating and measuring Spray and clean up: Mixing
		3.6 MSDSs are followed in the event of a spill.	Spray and clean up: Mixing
AHCCHM303A Prepare and apply chemicals **…continued**	4. Calibrate application equipment	4.1. Pre-operational checks of application equipment are carried out.	
		4.2. Equipment is calibrated in accordance with manufacturer specifications and application/spray plan.	
		4.3. Calibration is checked for conformity to the requirements of the application/spray plan.	
		4.4 Chemical is loaded wearing appropriate Personal Protective Equipment (PPE) and controlling risks to human health and the environment	
	5. Apply chemicals	5.1 Appropriate personal protective equipment is selected and used in accordance with MSDSs and chemical label.	Choosing chemicals: Signal heading Transport and storage: Safe storage - MSDS
		5.2 Chemical is applied in accordance with the application/spray plan and/or instructions and legislative and/or regulatory requirements.	Choosing chemicals: Signal heading Spray and clean up
		5.3 Risks to others, product	

Unit of Competence	Element	Performance Criteria	Interactive Section
		integrity and the environment are assessed and minimized.	
	6. Clean up equipment and complete records	6.1 Excess chemical is disposed of in accordance with label and MSDSs requirements.	
		6.2 Application equipment is cleaned and decontaminated.	Spray and clean up: After spraying
		6.3 Requirements for the disposal of unused chemical, containers spilled materials are determined and implemented.	
		6.4 PPE and mixing equipment is cleaned and stored.	
		6.5. Incidents are reported as required in accordance with legislative and/or regulatory requirements.	
		6.6 All records, e.g. calibration, application, DG/hazard substances, risk assessments, are completed in accordance with legislative, industry and enterprise requirements.	

Unit of Competence	Element	Performance Criteria	Interactive Section
AHCCHM304A Transport, handle and store chemicals	1. Transport and handle chemicals and biological agents	1.1 Transport requirements are identified and followed from legislative and regulatory requirements, including Occupational Health and Safety (OHS).	Transport and store: Safe transport
		1.2. Risks involved in the transport and handling of chemical and biological agents are assessed and minimized.	Transport and store: Safe transport
		1.3. Containers are confirmed as being in a sound condition to transport.	
		1.4. PPE is used as required according to manufacturer specifications and OHS requirements.	
		1.5. Instructions from chemical material safety data sheets (MSDS) are followed in the event of a spill.	
AHCCHM304A Transport, handle and store chemicals	2. Store chemicals in the workplace	2.1. Appropriate storage methods are used according to chemical labels, MSDS, and/or legislative and regulatory	Transport and store: Safe storage

Unit of Competence	Element	Performance Criteria	Interactive Section
…continued		requirements.	
		2.2. Assess and minimise risks involved in storage of chemical and biological agents.	
		2.4. Products are retained in original containers with labels intact.	
		2.5. Storage methods are utilized to prevent contact with people or animals, contamination of produce or the environment.	
		2.6. Correct disposal procedures are applied for used chemical drums and storage containers.	
		2.7. Unwanted and/or out-of-date chemicals are disposed of according to legislative and/or regulatory requirements and industry programs.	
	3. Record storage details	3.1. Chemical storage inventory and records are maintained according to legislative and regulatory requirements, including OHS.	Transport and store: Storage record
		3.2. Storage incidents are reported as required according to legislative and/or regulatory requirements.	Transport and store: Storage record

ASSESSMENT

Learners using *Steps to Safe Spraying* are working towards the selected industry units of competency. The learning sequences and activities do not comprise a complete training program, so formal assessment events have not been included. Learners can self-assess their progress in completing the activities on the resource, as feedback is provided for both correct and incorrect responses.

Trainers can undertake ongoing assessment of learners using assessment methods such as practical demonstration of processes, oral questioning of knowledge and observation.

Trainers can sign and present learners with a *Learning Achievements Checklist*, which is available for copying in this Trainer guide. The *Learning Achievements Checklist* is a summary of what learners have achieved by successfully completing the activities on the resource. The completed checklist, along with worksheets such as the *Calculation sheet* can be used as a piece of evidence/or can contribute towards the required evidence when learners are assessed against the relevant units of competence.

USEFUL RESOURCES

BOOKS AND PUBLICATIONS

Title	**Australian Vegetable Growing Handbook / [John Salvestrin, editor].**
Publisher	Irrigation Research & Extension Committee [and] NSW Agriculture, Griffith, NSW. 1998
Summary	Good information, tables and pictures on pest and weed control.
Purchase online	http://www.shop.nsw.gov.au/pubdetails.jsp?publication=5173

Title	**Integrated pest management in Greenhouse Vegetables : Information Guide**
Publisher	Primary Industries, Agriculture
Summary	Focuses on the practical aspects of integrated pest management.
Purchase online	http://www.shop.nsw.gov.au/pubdetails.jsp?externalCode=B279

Title	**1. Chemical Safety (AQF2)**
Summary	The SMARTtrain Chemical Safety Learning and Assessment package is a training resource that meets the requirements for training commercial users of pesticides and the requirements for using hazardous substances.
Title	**2. Chemical Application (AQF3)**
Summary	The SMARTtrain Chemical Application resource package meets the training requirements for training people who use pesticides with powered and hand-held application equipment.
Title	**3. Safe Use of Hazardous Substances (AQF2)**
Summary	The SMARTtrain Safe Use of Hazardous Substances Learning and Assessment Guide is a training resource aimed at induction level employees who will be using or exposed to the substances classified as hazardous substances in the workplace.
Publisher	SMARTtrain National Support Centre Murrumbidgee Rural Studies Centre Trunk Road 80 Private Mail Bag YANCO NSW 2703 Phone: 1800 138 351
Purchase Order Form	*www.**smarttrain**-publications.com/orderform.pdf*

TOOLBOXES

Title	Horticulture (304)
Project manager	Ms Jill Jamieson Challenger TAFE, Fremantle, WA Ph: (08) 92398207
Website	http://flexiblelearning.net.au/toolbox/series3/304.htm
Summary	This toolbox supports the Cert II in Horticulture The activities and resources in this Toolbox are located within a fictitious horticultural setting that includes a garden area, a nursery, a pergola, machinery shed and a lunchroom. The competency unit related to chemical spraying is RUH HRT 227 Recognise plants, products and treatments

Title	Amenity Horticulture (605)
Project manager	Ms Anelieske Noteboom Challenger TAFE, Fremantle, WA Ph: (08) 9239 8200
Website	http://flexiblelearning.net.au/toolbox/series6/605.htm
Summary	This toolbox supports the Cert III and IV in Horticulture.

Title	Horticulture for Indigenous Learners (422)
Project manager	Challenger TAFE, Fremantle, WA
Website	http://flexiblelearning.net.au/toolbox/series4/422.htm
Summary	This toolbox supports the Cert II in Horticulture, in particular, the nursery and parks and gardens sectors have been targeted, but some of the Units of Competency are valid for all seven industry sectors in Horticulture and for Production Agriculture. The activities and resources in this Toolbox are located within a fictitious horticultural setting that includes a garden area, a Meeting Place, a nursery, machinery shed and a lunchroom. The competency unit related to chemical spraying is RUH HRT 227 Recognise plants, products and treatments

Title	Nursery*Live!*
Project manager	Gerard Marcus, Holmesglen Training and Development, Holmesglen Institute of TAFE, ANTA Initiative, 2003
Website	http://pre2005.flexiblelearning.net.au/productsandservices/nursery.htm
Summary	This toolbox supports the Cert III in Horticulture and covers the following competency standards: • RUHHRT303A Maintain nursery plants • RUHHRT317A Control pests and diseases • RUHHRT353A Select chemicals and biological agents. Nursery*Live!* features a simulated nursery, in which the user interacts with a variety of plants in order to complete certain tasks. Plants must be watered, fertilised and monitored to ensure their health. Pests and disease must also be controlled.

WEBSITES

Australian Agriculture and Natural Resource Online – an integrated knowledge discovery tool for agriculture and natural resources
www.aanro.net

Australian Centre for Agricultural Health and Safety – download free practical guidelines and resources to get started with a farm safety program
http://www.aghealth.org.au/index.php?id=4

Australian Flexible Learning Framework –LORN- Integrated Pest Management learning material (Specifically for grapevines but some good material)
http://lorn.flexiblelearning.net.au/search?defaultSearchField=integrated+pest+management

Chemlink – Health and safety for chemical users
www.chemlink.com.au/health.htm

Farmsafe Australia Inc – useful information and resources for farmers and those working in agricultural production to management health and safety on farms
http://www.farmsafe.org.au/index.php?article=content/for-farmers

Horticulture Australia Ltd - good information on current projects and general developments in horticulture
www.horticulture.com.au

Horticulture for tomorrow - interesting national project on quality assurance guidelines
www.horticulturefortomorrow.com.au

National Association of Agricultural Educators (NARE) – information relevant to teaching of agricultural and related studies
http://www.naae.asn.au/pages/naae/home.php

NSW Association of Agriculture Teachers - provides the latest news other links
www.nswaat.org.au

Office of Environment & Heritage – a short video has been created to help NSW market growers and horticultural workers to understand how to use pesticides safely and legally – available in Mandarin, Cantonese, Vietnamese, Arabic and Khmer
http://www.environment.nsw.gov.au/pesticides/usepesticidessafelyandlegally.htm

Office of Environment & Heritage - Market gardeners and farmers will find useful information on appropriate management of pesticides, legislation governing pesticide use, record keeping, training and notification requirements and pesticide control orders governing the use of restricted chemical products
http://www.environment.nsw.gov.au/pesticides/index.htm

Pest Genie - is a database specialising in information about plant protection and animal health products, including both labels and Material Safety Data Sheets
www.pestgenie.com.au

Primary Industries Agriculture - Spray Sense - a series of leaflets which focus on providing up-to-date information on a range of pesticide issues
http://www.dpi.nsw.gov.au/agriculture/farm/chemicals/general/spray-sense-leaflet-series

safe work australia - a selection of farming safety resources from around Australia
http://www.safeworkaustralia.gov.au/Pages/default.aspx

The Australian Pesticides and Vet Medicines Authority– very useful to find information about registered chemicals, permits etc
www.apvma.gov.au

The Association of Beneficial Arthropod Producers Inc (ABC Inc) - useful information including information about 'The Good Bug Book'
www.goodbugs.org.au

WorkCover Authority of NSW – provides useful information on chemical safety
http://www.workcover.nsw.gov.au/healthsafety/healthsafetytopics/Chemicalsafety/Pages/default.aspx

It is recommended that trainers consult sources relevant to their location in Australia.

CALCULATION & RECORDS SHEETS

CALCULATION SHEET

Step 1 Recording important information

• Write down these **measurements**:

Chemical application rate ☐ litres per hectare (L/ha)

Water application rate ☐ litres per hectare (L/ha)

Tank size ☐ litres (L)

Pump pressure ☐ kilopascals (kPa) or bars

Type and size of nozzle ☐

Remember: you get this rate from the **Directions for use** on the label

Remember: you get this rate from the **General Instructions** on the label

Step 2 Taking measurements

• Measure **nozzle output:**
Water sprayed into jug in one minute = ☐ litres (L)

• Measure **spray width:**
Spray width = ☐ metres (m)

• Measure **walking speed:**
Distance walked in one minute = ☐ metres per minute (m/min)

Remember to write the amount in litres (L):
1000 mL=1 L
500 mL= 0.5 L
100 mL= 0.1 L
150 mL= 0.15 L

Remember to write the width and distance in metres (m):
100 cm = 1 m
50 cm = 0.5 m
45 cm = 0.45

Step 3 Calibrating equipment

• Use this formula to work out **your sprayer application rate:**

Your sprayer application rate (L/ha) = nozzle output (L/min) x 10000 ÷ spray width (m) ÷ walking speed (m /min)

Your sprayer application rate (L/ha) = ☐ x 10000 ÷ ☐ ÷ ☐

Your sprayer application rate (L/ha) = ☐ L/ha

• Check: Is your rate **within the range of the water application rate** on the label? If not, change the nozzle, the pump pressure or your walking speed and work out the sprayer application rate again.

Step 4 Calculating the amount of chemical per tank

• Use this formula to work out **how much chemical to put in your tank**:

Amount of chemical per tank (L) = chemical application rate (L/ha) x tank size (L) ÷ your sprayer application rate (L/ha)

Amount of chemical per tank (L) = ☐ x ☐ ÷ ☐ = ☐ L

• Now change the amount from litres (L) to millilitres (mL):

☐ L = ☐ mL

Remember:
1 litre (L) = 1000 millilitres (mL)

Step 5 Calculating the area, tanks and chemical for this job

• Use this formula to find the **area to be sprayed in square metres:**

Area to be sprayed (m^2) = length (m) x width (m)

Area to be sprayed (m^2) = ☐ x ☐ = ☐ m^2

Remember:
10000 m^2 = 1 hectare

• Now change the area from square metres to hectares

Area in hectares (ha) = ☐ m^2 ÷ 10000 = ☐ ha

• Use this formula to work out the **number of tanks to use**

Number of tanks = size of area (ha) x your sprayer application rate (L/ha) ÷ your tank size (L)

Number of tanks = ☐ x ☐ ÷ ☐ = ☐ tanks

• Use this formula to work out the **total amount of chemical for this job**

Total amount of chemical for this job (mL) = number of tanks x amount of chemical per tank (mL)

Total amount of chemical for this job (mL) = ☐ x ☐ = ☐ mL

Now **copy important information** onto another sheet called the **CALIBRATION RECORD** sheet. It may be useful when doing other calibrations.

CALIBRATION RECORD

General information	
Name of chemical	
Crop	
Reason for spraying	
Date of calibration	

Label and equipment information		
Chemical application rate		L/ha
Water application rate		L/ha
Tank size		L
Pump pressure		
Type and size of nozzle		

My measurements		
Nozzle output		L/min
Spray width		m
Walking speed		m/min

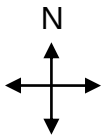
Calculations		
Sprayer application rate		L/ha
Amount of chemical per tank		mL
Area sprayed		ha
Number of tanks		
Total amount of chemical for this job		

SPRAY APPLICATION RECORD

Spraying information	
Name of chemical	
Crop sprayed	
Pest / disease	
Size of area sprayed	
Equipment used	
Date of calibration	
Date of application	
Time started	
Time finished	
Application rate (from label)	
Amount of chemical used for this job	

Sketch map showing where on the simple label

Sketch map



Weather information	
Wind speed	
Wind direction	
Temperature	
Humidity	
Did the weather change while spraying?	Yes / No If yes, give details

General information	
Property Address	
Owner, manager or occupier of the land:	
Name	
Address	
Phone number	
Person applying the chemical:	
Name	
Address	
Phone number	

Signature of the person applying the chemical: _____

STORAGE RECORD SHEET

Name of chemical	
Location of chemical	
Date of purchase	
Current MSDS (5 years or less)	Yes / No
Hazardous substance	Yes / No
Dangerous Goods Class	
Expiry date or Date of Manufacture	
Batch number	
Comments	

Name of chemical	
Location of chemical	
Date of purchase	
Current MSDS (5 years or less)	Yes / No
Hazardous substance	Yes / No
Dangerous Goods Class	
Expiry date or Date of Manufacture	
Batch number	
Comments	

Name of chemical	
Location of chemical	
Date of purchase	
Current MSDS (5 years or less)	Yes / No
Hazardous substance	Yes / No
Dangerous Goods Class	
Expiry date or Date of Manufacture	
Batch number	
Comments	

CHEMICAL SPILL RECORD

CHEMICAL SPILL INFORMATION		Sketch map showing where on the property the chemical was spilled
NAME OF PERSON WHO FOUND THE SPILL		
JOB TITLE		
CONTACT DETAILS	PHONE- ADDRESS-	
NAME OF CHEMICAL		
TYPE OF CHEMICAL		
DATE OF SPILL		
ESTIMATE HOW MUCH CHEMICAL WAS SPILLED	- LESS THAN 1 LITRE ☐ - 1 TO 2 LITRES ☐ - 2 TO 10 LITRES ☐ - MORE THAN _____ LITRES	N

WHAT WERE YOU DOING AT THE TIME?	
HOW DID THE CHEMICAL SPILL?	
WAS THE CHEMICAL CLEANED UP? IF SO, HOW?	
WAS THE CHEMICAL DISPOSED OF? IF SO, HOW?	
DID THE CHEMICAL AFFECT ANYONE? IF SO, WHO AND HOW?	
WAS THE CHEMICAL SPILL REPORTED? IF SO, WHO TO?	
OWNER, MANAGER OR OCCUPIER OF THE LAND:	
NAME	
ADDRESS	
PHONE NUMBER	

SIGNATURE : _____

NAME: _____

Transport your chemical products safely

UTE IT DON'T BOOT IT!

- Don't transport chemicals with people or animals.
- Don't transport chemicals with foods or drinks, plants and seeds, safety equipment or other clothing.
- Put chemicals inside a tray or box to stop liquids spilling.
- Check all containers for damage and leaks.
- Put lids and caps facing upwards.
- Make sure lids are on tightly.
- Put lighter items on top of heavy ones.
- Don't transport any pesticide, herbicide or fungicide with fertilizer.
- Tie down chemical containers. Make sure they can't slide around or fall off the truck.
- Make sure nothing in the truck can damage containers - for example, tools.
- Cover your load with plastic or a tarpaulin to protect from water damage.
- Drive straight home if you can. If you have to stop on the way home, lock your vehicle.

CLEANING UP AFTER SPRAYING

- Wear PPE when cleaning equipment.
- Keep your PPE on to clean equipment.
- Read Accidental Release and Disposal sections of the MSDS and Disposal section of the label.
- Flush your sprayer with water inside and out to get rid of all chemical. The water must not be able to run away and get into water supplies.
- While cleaning, check to see if there are any worn parts on your equipment. Make repairs and replace worn parts before your next spray job.
- Rinse empty chemical containers three times or pressure rinse and wash inside the cap and around the thread of the container. If the container has a drumMUSTER symbol, take it to a special collection site where you see the drumMUSTER sign – most tips have them.

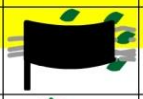
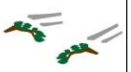
- After cleaning equipment, take off your PPE. Soak overalls and washable hats overnight in clean water. Wash in hot water. Do not wash with your other laundry.
- Wash gloves, boots and goggles with warm soapy water. Check there are no leaks in your gloves.
- Check the valves on the respirator are opening and shutting correctly. Remove the respirator cartridges and store them in a sealed container. Wash the respirator body with a damp cloth.
- Store your PPE away from chemicals.

CLEANING SPILLS

- Keep your PPE on.
- You should have a spill cleanup kit in your shed. This may include a bin, a shovel, a broom, a bag of hydrated lime, a chemically absorbent boom and absorbent material such as kitty litter.
- Follow the instructions on the label and MSDS.
- Clean up spills as soon as possible.
- Do not allow chemical to get into waterways or drains.
- If you need help to clean up the spill contact the Fire Brigade.

If you need advice about poisons ring the Poisons Information Centre on 131126

BEAUFORT WIND SCALE

BEAUFORT WIND SCALE				
#	Wind Speed	Seamans Terms	Common signs for reconition	
0	0 kph	Calm		Air is Calm; Smoke rises vertically
1	1-5 kph	Light Air		Smoke drifts slowly Vanes do not move
2	6-11 kph	Light Breeze		Wind felt on face; leaves rustle; vanes begin to move
3	12-19 kph	Moderate Breeze		Leaves move constantly. Light flags extend
4	20-29 kph	Fresh Breeze		Small trees begin to sway
5	30-39 kph	Strong Breeze		Large branches of trees move.
6	40-50 kph	Moderate Gale		Whole trees sway. Resistance in walking
7	51-61 kph	Fresh Gale		Twigs & small branches break off trees
8	62-74 kph	Strong Gale		Large branches break.Some Structural damage occurs
9	75-85 kph	Whole Gale		Small trees uprooted. Structural damage occurs

between 3 and 15 kph

GLOSSARY - WORDS TO KNOW

A	Absorb	Soak up a liquid or take in a chemical.
	Absorbent	Able to soak up liquid. *The paper was very **absorbent**.*
	Active constituent	The main chemical in a product that affects the pest or disease. It is important to know the active constituent if a person becomes sick from using the chemical.
	Alternating	To change between. First you use one, the next time you use another.
	Analogue clock	A clock with a round face and hands.
	Avoid	Keep away from. Try not to use.
B	Bacteria	Small living single cells. They can cause disease or cause things to decay.
	Bars	A measurement of pressure. One bar = 100 kilopascals (kPa). More bars mean higher pressure, and so smaller droplets.
	Beaufort Scale	A guide to help you work out how fast the wind is blowing.
	Broad Claims for Use	The words on the label that tell you the crops and the pests or diseases the chemical is suitable for.
	Bunding	Something used to surround a spill so it cannot spread.
C	Calculation	The way you work out a mathematical problem.
	Calibrate, calibration	Setting your equipment to spray chemical in the right way and in the right amounts.
	Caution	CAUTION on the chemical label means the chemical is slightly poisonous. It will kill you if you get enough.
	Centimetre	A metric unit for measuring length. 1 centimetre is roughly the width of your index finger.
	Chemical Application Rate	The amount of chemical you should use for each hectare. This is in the Directions for Use on the label.
	Contain spill	Stop the spilled chemical from spreading.
	Contaminate	To pollute or make dirty.
	Corrosive	Can eat away skin or metal.
	Critical Comments	The words on the label in the 'Directions for Use' table that give you special information about how to spray the chemical.
D	Dangerous Goods	Chemicals which are dangerous to move or store because they can damage people, property or the environment. Dangerous goods are shown by diamond-shaped signs, for example, TOXIC 6 and FLAMMABLE LIQUID 3.
	Decay	Go rotten.
	Decimal point	A dot that separates the whole numbers from the tenths, hundredths and smaller parts.
	Digit	A symbol that represents a **number** or numeral.
	Digital clock	A clock which shows numbers for the time. For example- 3:30 (three thirty, or half past three).
	Directions for	The section on the label that tells you how to use the chemical -

	Use	the crops, the pests or diseases, the rate of application and special instructions.
	Dispose of	To get rid of. To transfer to somewhere else.
	drumMUSTER	A place where you can safely get rid of chemical containers after use. There are drumMUSTERs at most rubbish tips.
E	Emerge	To come out of something. For example, the seedling **emerged** from the soil after 4 days.
	Estimate	To guess or work out roughly. About.
	Equipment	Tools or gear you use for a job.
	Expiry date	The date by which you should use a chemical.
	Explosive	Can blow up or explode.
F	Flammable	Can catch fire quickly and easily.
	Foliage	The leaves on a plant or crop.
	Fraction	A part of something. Divided.
	Fungicide	A chemical product to treat fungal diseases.
G	Gauge	An instrument for measuring pressure.
	General	Common or usual.
H	Harvest	Picking the crop.
	Hazardous	Can hurt or harm people - for example, hurt your eyes or skin, make you sick if you breathe in the smell.
	Heavy duty	Hard wearing, strong.
	Hectare	A measurement of land area. One hectare = 10 000 square metres. Most chemical and water application rates are for hectares.
	Herbicide	A chemical product which kills weeds and unwanted plants.
	Hose	A long rubber tube to carry water or chemicals.
	Humidity	The amount of water or moisture in the air.
	Hydrated lime	An absorbing powder which is not very toxic.
I	Immediately	Straight away. Right now.
	Ingest	Eat or drink something.
	Inhale	Breathe in.
	Insecticide	A chemical product which kills insects.
	Integrated pest management (IPM)	Using a number of methods to control pests - for example, destroying weeds where pests hide, improving drainage, and using good insects or 'beneficial' to control harmful insects. In IPM, chemicals are just one part of a larger pest plan.
	Irritating	Causes a painful reaction such as inflammation or rash.
	Kilopascals	A measurement of pressure. 100 kilopascals (kPa) = one bar. More kilopascals mean higher pressure, and so smaller droplets.
L	Litre	A metric unit used for measuring liquid such as water or chemical. Just over 4 cups will make 1 litre.
M	Material Safety Data Sheet (MSDS)	A sheet of paper containing health and safety information about a chemical product. You can ask the reseller for the MSDS for the product you are buying.
	Mode of Action	The words and numbers on the label that tell you the group of chemicals that the chemical product belongs to (eg GROUP 2A INSECTICIDE, GROUP L HERBICIDE, GROUP C FUNGICIDE). All

		chemicals in one group *act* on pests or diseases in the same way or *mode*. If you regularly use chemicals from the same group, the pests or diseases may develop resistance.
N	Nozzle output	The amount of spray mixture that comes out of the nozzle in one minute.
P	Percent (%)	One hundredth part of something. Divide by 100.
	Personal Protective Equipment (PPE)	Clothes and equipment which keep you safe when working with chemicals, for example, goggles, gloves and boots.
	Poison, poisonous	POISON on the chemical label means that the chemical will make you sick. DANGEROUS POISON means it will make you very sick. Both may kill you.
	Prevent	To stop or avoid.
R	Re-entry period	The time you must wait before it is safe to go back into an area you have sprayed with chemical without wearing PPE.
	Residue	The chemical that remains in the plant, animal or soil after you spray.
	Resistance	When pests are no longer controlled by a chemical because chemicals from the same chemical group have been used too many times. See Mode of Action.
	Restraint statement	A part of the label that will tell you what you can't do, such as the droplet size. "You cannot use smaller than medium size droplets".
	Rounding	This gives an approximate amount. For example $4.5032 can be rounded to $4.50.
S	Sensitive areas	Areas that can easily be damaged by chemicals - for example, creeks and rivers.
	Signal Heading	The words on the label that tell you how poisonous a chemical is - VERY POISONOUS, POISONOUS, CAUTION.
	Spray drift	When the chemical you are spraying goes onto other plants, animals or areas. Spray drift can happen because of weather conditions, equipment problems or incorrect spraying methods.
	Spray width	The measurement of how wide the spray is. You spray the ground and measure from side to side in metres.
	Sprayer Application Rate	The amount of water (or chemical solution) your sprayer uses to cover a hectare. The rate should be within the range given on the chemical label. If it is not, you need to adjust your equipment, walking speed or spray width.
	Spray Application Record	A sheet to record the details about the use of a chemical - for example, crop, pest/disease, date, time.
	Storage Record Sheet	A sheet to record all the chemical products you have in your shed or storage area - for example the date you bought the chemicals, where they are in your shed.
	Swallow	Eat or drink something. To gulp.
T	Tank	A large container.
	Tape	A long ribbon or strip. A tape measure is a long strip with measurements.

	Tarpaulin	A canvas sheet or cover.
	Temperature	Hotness. The heat of something.
	Thermometer	An instrument to measure temperature.
	Thorough coverage	Covered completely. All parts of the plant have been sprayed.
	Toxic	Can harm a person, animal or plant - for example, make a person sick.
V	Ventilated, ventilation	Air moving around - for example, there is usually good ventilation if a window is open.
W	Water Application Rate	The amount of water to use for every hectare of crop.
	Waterways	Creeks, rivers, dams, ponds, storm water drains. Anywhere that water flows, or is stored.
	Withholding period	The time you must wait before you harvest a crop after spraying a chemical.

Your list

On line resource

Minimum System Requirements – PC user

Windows 7, Windows Vista®, Windows XP, Windows Server® 2008, Windows Server 2003
Intel Pentium 4 2.33GHz, Athlon 64 2800+ or faster processor (or equivalent)
256MB of RAM
128MB of graphics memory
Internet Explorer 6.0 and above, Mozilla Firefox 3.0 and above, Google Chrome2, Safari 4.0 and above, Opera 9.5 and above, AOL 9.0 and above
Recommended: 1024x768 screen resolution

Minimum System Requirements – Mac user

Mac OS X 10.6, Mac OS X 10.5, Mac OS X 10.4 (Intel)
Intel Core™ Duo 1.33GHz or faster processor
256MB of RAM
128MB of graphics memory
Safari 4.0 and above, Mozilla Firefox 3.0 and above, Google Chrome, Opera 9.5 and above
Recommended: 1024x768 screen resolution

Steps to Safe Spraying

This WELL resource supports the development of the language, literacy and numeracy skills related to selected units of competence in the AHC10 Agriculture, Horticulture and Conservation and Land Management Training Package.