

<b>Training Package</b>	<b>Conservation and Land Management (RTD02), Amenity Horticulture (RTF03) and Rural Production (RTE03)</b>	<b>HSC Requirements and Advice</b>
<b>Title</b>	<b>Treat weeds</b>	
<b>Unit code</b> <b>RTC2401A</b>	This competency standard covers the process of treating weeds using cultural, biological and chemical methods. Treatment will follow strict work instructions and will be under supervision. Competency involves the application of knowledge and skills in recognising common weeds, monitoring and recording the severity of the weed problem, applying a range of treatments, and recording relevant information.	<b>HSC Indicative Hours</b>  <b>10</b>

### Evidence Guide

#### What evidence is required to demonstrate competence for this standard as a whole?

Competence in treating weeds requires evidence that the common weeds have been recognised and appropriately treated. The skills and knowledge required to treat weeds must be **transferable** to a different work environment. For example, this could include different weed species, locations and treatment techniques.

<b>What specific knowledge is needed to achieve the performance criteria?</b>	<b>What specific skills are needed to achieve the performance criteria?</b>	<b>Are there other competency standards that could be assessed with this one?</b>	<b>Assessment guide</b>	<b>HSC Requirements and Advice</b>
<p>Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:</p> <ul style="list-style-type: none"> <li>• recognition of common weeds for a particular enterprise/ situation</li> <li>• weed growth characteristics</li> <li>• different types of control measures, treatments and their principles</li> <li>• modes of action of different chemicals</li> <li>• equipment capability and limitations</li> <li>• legislation relation to the use of chemicals for weed control</li> </ul>	<p>To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complimentary skills are required. These include the ability to:</p> <ul style="list-style-type: none"> <li>• read and interpret chemical labels, Material Safety Data Sheets (MSDSs), manufacturers specifications for setting up equipment, and maintain spray records</li> <li>• prepare to treat weeds</li> <li>• apply weed treatments</li> <li>• carry out post treatment operations.</li> </ul>	<p>This competency standard <u>could</u> be assessed on its own or in combination with other competencies relevant to the job function.</p>	<p>There is critical information about <b>assessing this competency standard for consistent performance and where and how it may be assessed</b>, in the Assessment Guidelines for this Training Package. All users of these competency standards must have <b>access</b> to both the <b>Assessment Guidelines</b> and the relevant <b>Sector Booklet</b>.</p>	<p><b>Key Terms and Concepts</b></p> <ul style="list-style-type: none"> <li>• chemical labels</li> <li>• common weeds</li> <li>• contamination</li> <li>• control methods</li> <li>• environmental impacts</li> <li>• equipment</li> <li>• hazard identification</li> <li>• hazardous substances</li> <li>• legislation</li> <li>• Material Safety Data Sheets (MSDS)</li> <li>• <i>Noxious Weeds Act 1993</i> (NSW).</li> <li>• occupational health and safety (OHS)</li> <li>• off-target damage</li> <li>• personal protective equipment (PPE)</li> <li>• <i>Pesticides Act 1999</i> (NSW)</li> <li>• post treatment operations</li> <li>• residue</li> </ul>

What specific knowledge is needed to achieve the performance criteria?	What specific skills are needed to achieve the performance criteria?	Are there other competency standards that could be assessed with this one?	Assessment guide	HSC Requirements and Advice
<ul style="list-style-type: none"> <li>• OHS responsibilities of employees</li> <li>• OHS legislative requirements and associated hazardous substances regulations and Codes of Practice</li> <li>• correct wearing/fit of personal protective equipment</li> <li>• environmental considerations when using chemicals for weed control.</li> </ul>				<ul style="list-style-type: none"> <li>• risk assessment</li> <li>• Standard Operating Procedures (SOP)</li> <li>• toxicity</li> <li>• treatments</li> <li>• waste disposal</li> <li>• weed growth characteristics</li> <li>• workplace records.</li> </ul>

Element	Performance Criteria	Range of Variables	HSC Requirements and Advice
1 Prepare to treat weeds	1.1 Weeds which impact on commercial crops, gardens and turf, and natural areas are recognised by common name.	The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work contexts.	<p><b>Learning experiences for the HSC must address:</b></p> <p>An awareness of a range of common weeds and their impacts.</p> <p>Knowledge of weed growth characteristics for a range of common weeds.</p>
	1.2 <b>Details</b> of the weed occurrence are recorded and reported to the supervisor.	<p>What type of <b>details</b> about the weed might be required?</p> <p>Details might include location of weeds, area covered by the weed, possibility of off target damage, and potential threats that the weed may present to surrounding areas.</p>	<p><b>Learning experiences for the HSC must address:</b></p> <p>Monitoring, recording and reporting details of weed occurrence including:</p> <ul style="list-style-type: none"> <li>• physical description</li> <li>• common name</li> <li>• location and occurrence</li> <li>• possibility of off-target damage and potential threats to surrounding areas.</li> </ul> <p>An awareness of the use of appropriate methods for recording that are clear and concise including:</p> <ul style="list-style-type: none"> <li>• electronic records</li> <li>• files</li> <li>• database folders</li> <li>• pictures</li> <li>• photos</li> <li>• word processing</li> <li>• collections.</li> </ul>
	1.3 <b>Treatment methods</b> are selected in consultation with the supervisor.	<p>What <b>treatments</b> might be applied?</p> <p>Treatments may include hand weeding, herbicides, release of biological agents, cultivation, slashing, cutting, burning and ripping.</p>	<p><b>Learning experiences for the HSC must address:</b></p> <p>Procedures for selecting treatment methods including:</p> <ul style="list-style-type: none"> <li>• correctly identifying the target</li> <li>• researching the products registered for the purpose</li> <li>• appropriateness of the product to the life cycle of the weed</li> <li>• level of toxicity</li> <li>• environmental implications</li> <li>• access to appropriate application and safety equipment</li> <li>• disposal of unwanted chemicals and containers</li> <li>• residue or resistance problems.</li> </ul>

Element	Performance Criteria	Range of Variables	HSC Requirements and Advice
			<p>An understanding of the principles of treatment and control methods including:</p> <ul style="list-style-type: none"> <li>• cultural <ul style="list-style-type: none"> <li>– the use of tolerant or biological cultivars</li> <li>– choice of location</li> <li>– time of planting</li> <li>– fertilisers</li> <li>– plant rotation</li> <li>– sanitation</li> </ul> </li> <li>• mechanical <ul style="list-style-type: none"> <li>– hoeing and chipping</li> <li>– soil tillage</li> <li>– slashing and cutting</li> <li>– chaining or scrubbing</li> <li>– ripping</li> </ul> </li> <li>• physical <ul style="list-style-type: none"> <li>– hand weeding</li> <li>– drainage</li> <li>– temperature</li> <li>– light</li> </ul> </li> <li>• biological <ul style="list-style-type: none"> <li>– disease-resistant varieties</li> <li>– using a natural predator</li> <li>– companion planting</li> </ul> </li> <li>• chemical <ul style="list-style-type: none"> <li>– artificial chemicals</li> <li>– dusts/sprays.</li> </ul> </li> </ul>
	<p>1.4 <b>Equipment</b> is selected and prepared for use according to enterprise guidelines and manufacturers specifications.</p>	<p>What <b>equipment</b> is appropriate for treatment application?</p> <p>Equipment may include backpack sprayers, spray tanks, fertiliser spreaders, ladders, tractor drawn cultivation equipment, rippers, weedicide applicators, handsaws, chainsaws and brushcutters.</p>	<p><b>Learning experiences for the HSC must address:</b></p> <p>Knowledge of the use of a range of equipment according to enterprise guidelines including:</p> <ul style="list-style-type: none"> <li>• backpack sprayers</li> <li>• spray tanks</li> <li>• fertiliser spreaders</li> <li>• drawn cultivation equipment</li> <li>• rippers</li> <li>• weedicide applicators</li> <li>• hand-held pneumatic sprayers</li> <li>• spot-on and pour-on applicators</li> <li>• boom spray</li> <li>• handsaws.</li> </ul>

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			<p>Preparation of equipment according to manufacturers guidelines including:</p> <ul style="list-style-type: none"> <li>• performing routine checks and maintenance</li> <li>• calibration of machinery</li> <li>• correct nozzle settings</li> <li>• correct pressure settings</li> <li>• appropriate water volumes.</li> </ul>
	<p>1.5 <b>OHS hazards</b> are identified, <b>risks</b> assessed and reported to the supervisor.</p>	<p>What <b>OHS hazards</b> might apply to this standard?</p> <p>OHS hazards may include use of hazardous chemicals, use of tractors and machinery, solar radiation, manual handling, falls, tripping and noise.</p> <p>What or who may be at <b>risk</b> from OHS hazards?</p> <p>Hazard may cause risk to workers, equipment, people and animals external to the workplace (such as members of the public, wildlife, pets, bees, fish, birds), and the environment.</p>	<p><b>Learning experiences for the HSC must address:</b></p> <p>An awareness of potential OHS hazards relating to weed treatments including:</p> <ul style="list-style-type: none"> <li>• use of hazardous chemicals</li> <li>• use of machinery and equipment</li> <li>• manual handling</li> <li>• slippery surfaces.</li> </ul> <p>A basic understanding of risk assessment:</p> <ul style="list-style-type: none"> <li>• identify hazards</li> <li>• assess associated risks</li> <li>• strategies to control/eliminate risks.</li> </ul> <p>Knowledge of who or what may be at risk from OHS hazards including:</p> <ul style="list-style-type: none"> <li>• workers</li> <li>• people and animals external to the workplace</li> <li>• machinery and equipment</li> <li>• environment.</li> </ul>
<p>2 Treat weed</p>	<p>2.1 Suitable <b>personal protective equipment</b> (PPE) is selected, used, maintained and stored.</p>	<p>What <b>personal protective equipment (PPE)</b> may be required to apply treatments?</p> <p>Personal protective equipment may include hat, rubber boots, chemical resistant overalls, face protection, hearing protection, gloves, goggles, respirator or facemask, sunscreen lotion.</p>	<p><b>Learning experiences for the HSC must address:</b></p> <p>The selection, use, maintenance and storage of personal protective equipment (PPE) appropriate to the work task including:</p> <ul style="list-style-type: none"> <li>• footwear</li> <li>• head protection – hard hat, sun hat and helmet</li> <li>• overalls</li> <li>• gloves</li> <li>• apron</li> <li>• respirator</li> <li>• face mask</li> <li>• hearing protection</li> <li>• eye protection – goggles, safety glasses and face guard</li> </ul>

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			<ul style="list-style-type: none"> <li>• sunscreen</li> <li>• waterproof clothing.</li> </ul> <p>Maintenance of PPE according to manufacturer's instructions and enterprise Standard Operating Procedures (SOP) including:</p> <ul style="list-style-type: none"> <li>• cleaning and decontamination</li> <li>• correct storage</li> <li>• regular checks for damage</li> <li>• repair/replacement of worn, malfunctioning or damaged equipment/parts</li> <li>• disposal of single-use equipment.</li> </ul>
	<p>2.2 Treatments are prepared according to supervisor's instructions and manufacturers guidelines.</p>	<p>What <b>treatments</b> might be applied?</p> <p>Treatments may include hand weeding, herbicides, release of biological agents, cultivation, slashing, cutting, burning and ripping.</p>	<p><b>Learning experiences for the HSC must address:</b></p> <p>An understanding of the safe preparation of chemical treatments including:</p> <ul style="list-style-type: none"> <li>• label and Material Safety Data Sheet (MSDS) directions</li> <li>• appropriate quantities</li> <li>• mixing and diluting solutions.</li> </ul> <p>Consequences of incorrect preparation of treatments for the following:</p> <ul style="list-style-type: none"> <li>• lakes, ponds and waterways</li> <li>• wildlife habitats and wetlands</li> <li>• neighbouring properties</li> <li>• public roads and amenities</li> <li>• travelling stock routes and reserves.</li> </ul>
	<p>2.3 Treatments are applied in such a way that non-target damage is minimised.</p>		<p><b>Learning experiences for the HSC must address:</b></p> <p>An understanding of procedures to minimise non-target damage including:</p> <ul style="list-style-type: none"> <li>• bare earth not being treated</li> <li>• early season crops not being treated</li> <li>• choice of the most appropriate chemical formulation</li> <li>• choice of the most appropriate application equipment</li> <li>• waiting for optimal weather conditions.</li> </ul>

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	2.4 Treatments are applied according to <b>OHS and regulatory requirements.</b>	<p>What <b>OHS requirements</b> might apply to this standard?</p> <p>OHS requirements may include identifying hazards, assessing and reporting risks, safety procedures involved in chemical handling and use, weather conditions, safety procedures for protecting others, cleaning, maintaining and storing tools and equipment, appropriate use, maintenance and storage of personal protective equipment including sun protection, drinking to avoid dehydration, safe operation of tools and equipment, personal hygiene and reporting problems to supervisors.</p> <p>What <b>regulatory requirements</b> might apply to this standard?</p> <p>Regulatory requirements may include the use and disposal of chemicals, record keeping, transport of chemicals, access to area, use of chainsaws, reporting accidents and dangerous goods.</p>	<p><b>Learning experiences for the HSC must address:</b></p> <p>An awareness of appropriate OHS controls including:</p> <ul style="list-style-type: none"> <li>• appropriate PPE</li> <li>• basic first aid training and access to first aid kits</li> <li>• safe work procedures</li> <li>• access to communication devices</li> <li>• safe work procedures</li> <li>• safety procedures for the protection of others.</li> </ul> <p>A basic understanding of legislation relating to weed treatments including:</p> <ul style="list-style-type: none"> <li>• <i>Pesticides Act 1999</i> (NSW)</li> <li>• <i>Occupational Health and Safety Act 2000</i> (NSW)</li> <li>• <i>Occupational Health and Safety Regulation 2001</i> (NSW)</li> <li>• Code of practice for the control of workplace hazardous substances 1996 (NSW)</li> <li>• Code of practice for the safe use and storage of chemicals in agriculture 1998 (NSW)</li> <li>• <i>Noxious Weeds Act 1993</i> (NSW)</li> <li>• <i>Noxious Weeds Regulation 2003</i> (NSW).</li> </ul> <p>Knowledge of OHS regulatory requirements including:</p> <ul style="list-style-type: none"> <li>• disposal of chemicals</li> <li>• record keeping</li> <li>• access to site being treated</li> <li>• reporting accidents and dangerous goods.</li> </ul>
3	Carry out post treatment operations 3.1 Equipment is shut down and cleaned with full consideration of <b>environmental impacts</b> and OHS requirements.	<p>What <b>environmental impacts</b> may apply to this standard?</p> <p>Environmental impacts may include leaching and contamination of the water table, soil contamination, spray drift, damage to off target organisms, contaminated produce, surface run off, changes in soil structure.</p>	<p><b>Learning experiences for the HSC must address:</b></p> <p>An understanding of appropriate procedures for cleaning of chemical application equipment to prevent build-up of chemicals including:</p> <ul style="list-style-type: none"> <li>• cleaning on a purpose-built pad</li> <li>• cleaning inside and outside equipment</li> <li>• flushing nozzles</li> <li>• removal and cleaning of nozzle tips and screens</li> <li>• rusted or corroded parts</li> <li>• wiping with oil.</li> </ul>

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			Environmental impacts including: <ul style="list-style-type: none"> <li>• leaching and contamination of the water table</li> <li>• soil contamination</li> <li>• spray drift</li> <li>• damage to off-target organisms</li> <li>• contaminated produce</li> <li>• surface run-off</li> <li>• changes in soil structure.</li> </ul>
	3.2 Treatment waste is disposed of causing minimal environmental damage.	What <b>environmental impacts</b> may apply to this standard?  Environmental impacts may include leaching and contamination of the water table, soil contamination, spray drift, damage to off target organisms, contaminated produce, surface run off, changes in soil structure.  What <b>treatments</b> might be applied?  Treatments may include hand weeding, herbicides, release of biological agents, cultivation, slashing, cutting, burning and ripping.	<b>Learning experiences for the HSC must address:</b>  Treatment of waste including: <ul style="list-style-type: none"> <li>• empty used and unused chemical containers</li> <li>• excess chemicals</li> <li>• unused work materials</li> <li>• plant debris and other organic matter.</li> </ul> Appropriate disposal of treatment waste in accordance with labels and environment protection legislation.
	3.3 <b>Records</b> are maintained according to enterprise guidelines.	What <b>records</b> need to be kept when treating weeds?  Records may include accident and dangerous occurrence reports, name of operator, treatments applied, rate, date, settings of equipment, weed numbers, numbers of beneficial organisms.  What type of <b>details</b> about the weed might be required?  Details might include location of weeds, area covered by the weed, possibility of off target damage, and potential threats that the weed may present to surrounding areas.	<b>Learning experiences for the HSC must address:</b>  An awareness of the type of information to be recorded including: <ul style="list-style-type: none"> <li>• OHS hazards</li> <li>• accidents and dangerous occurrences</li> <li>• weeds               <ul style="list-style-type: none"> <li>– location</li> <li>– numbers</li> <li>– off-target damage</li> <li>– potential threats</li> </ul> </li> <li>• operation of machinery               <ul style="list-style-type: none"> <li>– name of operator</li> <li>– settings of equipment</li> <li>– condition of machinery and equipment</li> </ul> </li> <li>• treatments               <ul style="list-style-type: none"> <li>– treatments applied</li> <li>– rate</li> <li>– date</li> <li>– success rates.</li> </ul> </li> </ul>

Element	Performance Criteria	Range of Variables	HSC Requirements and Advice
			Types of records including: <ul style="list-style-type: none"> <li>• files               <ul style="list-style-type: none"> <li>– hard copy</li> <li>– electronic</li> </ul> </li> <li>• weed inventory.</li> </ul>

### What processes should be applied to this competency standard?

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the **key competencies**, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where

0 = not required      1 = perform the process      2 = perform and administer the process      3 = perform, administer and design the process

1. How can <b>communication of ideas and information (1)</b> be applied?	Ideas and information relating to applying weed treatments should be discussed with other members of the work team and the supervisor.
2. How can <b>information be collected, analysed and organised (1)</b> ?	Information will be collected by inspecting the weed and the information gained will be recorded and discussed with the work team and supervisor. Enterprise work procedures and weed control programs should be consulted, interpreted and applied with clarification from the supervisor where necessary.
3. How are <b>activities planned and organised (1)</b> ?	Equipment, materials and work procedures for applying treatments will need to be arranged before and between work periods, and there may be some responsibility for coordinating work with others.
4. How can <b>team work (1)</b> be applied?	The application of treatments may involve working with other members of a team to complete the program and ensuring other activities are scheduled around the application of weed treatments.
5. How can the use of <b>mathematical ideas and techniques (1)</b> be applied?	Mathematical ideas in relation to calculating rates, and areas, will be required.
6. How can <b>problem-solving skills (1)</b> be applied?	Problems solving may be demonstrated in cases of machinery malfunctions or chemical spillage.
7. How can the <b>use of technology (1)</b> be applied?	Technology may be applied in the preparation, use and maintenance of spray equipment.