

Spray safe STAY SAFE

The use of spray technology to control weeds, pests and diseases is widespread and is often heralded as the easiest option. However, safe and effective spraying is about more than random chemical warfare.

Before leaping into attack with a fist full of chemicals, first correctly identify the pest, weed or disease you want to control. A wide range of publications, web sites and local landcare or land management experts can assist you with this first step. Weeds are probably the most common thing sprayed by small landholders.

The Weeds CRC has an excellent site, www.weeds.crc.org.au, with an extensive range of publications that can help you identify weeds and decide upon the best control options.

While the most popular control option for pests, weeds and diseases often is to use a spray, this is neither the only nor always the best option. Get advice before loading the spray tank.

If spraying is the best option, select a chemical that is registered for control of the pest, weed or disease you have correctly identified. In addition to the information available through DAFWA, there are excellent commercial databases such as Infopest (available for purchase through Queensland Department of Primary Industries) and HerbiGuide (a WA-specific program that also includes an excellent weed identification component, purchasable through www.herbiguide.com.au). In the public domain, the Australian Pesticides and Veterinary Medicines Authority (APVMA) has a comprehensive database of all currently registered products and permits, which enables you to view or download product labels, at www.apvma.gov.au. A less comprehensive database which also brings up the labels and MSDSs (material safety data sheets), is Pestgenie, at www.pestgenie.com.au

Read the label

After selecting a suitable product read and follow the label directions. This is a legal requirement. Most people only look up how much to mix. Just as important is the timing. Weeds need to be controlled when they are small and actively growing. It is near impossible to kill mature weeds, irrespective of how much spray you use. It is also a waste of time and herbicide to attempt to kill weeds when they are under stress because the weather is too hot, too cold or too

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dry. The weed shuts down in these conditions and the herbicide is not taken up by the plant.

Similarly, insects need to be sprayed when they are small and there are not too many of them. Caterpillars larger than 8mm are just as hard to kill as big weeds. And, if the bugs arrive in numbers, you will experience severe damage and losses before the spray takes effect.

Like weeds and insects, plant pathogens have to be detected early and a spray applied before the number of spores increases dramatically.

Check the label to see if an adjuvant has to be added to the spray mix; what spray equipment can be used; how to mix the pesticide in the tank; if there is a minimum water volume recommended; what personal protective equipment (PPE) to wear to protect your health; when crops or pastures can be harvested or fed to livestock after spraying (the withholding period or WHP); and what environmental precautions need to be observed - like not spraying when bees are foraging.

Some chemicals can be rendered inactive by poor water quality. Always check the label to determine how water quality may affect a particular chemical. Ensure you have your water tested and are aware of any quality issues – wetter and adjuvants are available to ameliorate quality issues if necessary.

Select your weapon

For spot spraying, (spraying individual weeds) a knapsack sprayer is adequate. However, if you need to spray woody weeds or vines, such as blackberries or lantana, a powered wand is required. A knapsack is incapable of putting out the volumes necessary to wet big blackberry bushes, for example. Small boom sprays mounted on ATVs or tractor three-point linkages (3PLs) usually have the option of a hand gun running off the pump.



Photos: Kondinin Group

There is a variety of tools available for chemical application including the knapsack sprayer and small boom sprays mounted on ATVs.



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To spray weeds spread throughout a pasture, the usual equipment is a small boom spray mounted on the back of an ATV, with the tanks attached to the front and/or rear carry racks and a small diaphragm pump running off the battery; or a small 3PL boom on a utility tractor, the pump powered by the tractor's power take-off (PTO). It is common for this equipment to include a hand wand for woody weed and spot spraying. If it is an option, it is worth choosing for the added versatility.

Weed wipers are another alternative that can be used to stop weed seed set in crops or pastures. There is a range of different types of weed wipers including rotary, blanket, wick and rope wipers.

Made to measure

Calibration involves measuring how much spray the sprayer puts out.

Labels usually include two mixing rates: a dilution rate, e.g. 100 mL chemical/1 L water or an area rate, e.g. 2 L chemical/hectare in a minimum water volume of 50 L/ha.

Dilution rates are only suitable for spot spraying. Rather than mix up and spray away, it is useful to know how much spray you are putting out, so you can avoid both over and under application. Over application wastes pesticide and puts excess pesticide into the environment. Under application generally results in a spray failure.

To calibrate a boom spray, you need to know how much each nozzle puts out, the swathe or spray width of the boom, and the speed of the sprayer. When you have these three figures, it is then a matter of putting them into the formula. Nozzle output is measured using a measuring jug and stopwatch, or tip tester. The swathe is the sum of the width of the boom plus one nozzle spacing. And sprayer speed needs to be checked by timing the sprayer across 100 m, rather than relying on the speedometer. Calibration is taught in pesticide training courses (see below) and calibration sheets are available.

The correct nozzle needs to be selected to give the droplet spectrum required by the target, and to deliver the required output. More and more labels specify droplet spectrum, e.g. medium to coarse, and most labels will recommend an output or flow rate, for example, 50 L/ha.

Nozzles can be selected by looking up nozzle charts. These charts are available in hard copy, and also on the web. The two most popular nozzles are Hardi and TeeJet, which can be found at www.hardi-nozzles.com and www.teejet.com. Again, training courses will teach you how to read and use nozzle charts.

Be trained, be safe

States require certain categories of pesticide applicators to be trained. Even if it is not mandatory for you to be trained, it is in your best interests to undertake training. Training will ensure you can read and apply labels, calibrate and use your spray equipment effectively and safely, and know your legal obligations when spraying. To find out a suitable course and location, check out the ChemCert website, www.chemcert.org.au, or ring the SMARTtrain National Resource Centre on



1800 138 351.
Both these organisations deliver nationally recognised and accredited training.

Be responsible

Contact your local departmental authorities to find out whether or not you have to be trained. Even if you don't have to be trained, you are still subject to the legislation in your state that controls use of pesticides. For example, you may have to keep records, and you will certainly be responsible for any pesticide that drifts off your property and harms someone else, be they a neighbour or a sensitive environment.

Ensure you dispose of used chemical containers responsibly. drumMUSTER is the national program for the collection and recycling of empty, cleaned, non-returnable chemical containers. For more information on chemical drum disposal visit www.drummuster.com.au.

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Training ensures you can calibrate and operate your spray equipment effectively and safely.

FOR MORE INFORMATION

<http://www.dpi.nsw.gov.au/agriculture/farm/chemicals/general/spray-sense-leaflet-series>

Notes

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