THE WEED-A-METRE

N.A. DAVENHILL and P. HALL

Forest Research Institute, Rotorua

During forest establishment, herbicides are often used to release young trees from competing vegetation. Although broadcast aerial spraying is usually favoured for large areas, spot applications of herbicide around the trees is more economical for smaller blocks. This technique has the advantage of placing the herbicide where it is needed, thereby substantially reducing the quantity of chemical applied per hectare. In the past, spray applications using spot guns, and in some situations knapsack sprayers, have been preferred for spot treatments. Now there is increasing interest in granular herbicides, generated initially by the "Huntly" applicator, but more recently by the "Weed-a-metre", a new hand-held device consisting simply of a spring-loaded piston (trigger) inside a brass-sleeved barrel.

The Weed-a-metre is fitted with a perforated plastic spreader cone designed to provide uniform distribution of granules, and a container for the herbicide. If the Weed-a-metre is held at 1.3 m it will deliver a precise dose of granules over a 1.2 m diameter circle. There are two trigger sizes. The 2-g trigger dispenses hexazinone (Velpar 20G) granules at 2 g/m² for releasing radiata pine seedlings from herbaceous broadleaved weeds and grasses. The 3-g trigger applies hexazinone granules at 3 g/m² for releasing from bracken, paspalum, kikuyu, and a variety of seedling woody weeds. To apply dichlobenil (Prefix) granules the 3-g trigger is pressed more than once to dispense the required rate.

The Weed-a-metre's main advantages over the spot gun are its convenience and the fact that there is no need for water.

- Therefore:
- *No mistakes in application rate.* Incorrect mixing of water-soluble herbicides can lead to dead trees or live weeds.
 - *No waste.* Surplus granules can be used another time.
 - *No drift.* All granules reach the target area.
 - *No washing out.* Simply remove locking pin to separate trigger assembly and wipe with a dry cloth.
 - *No need for protective clothing.*
 - *No inhalation of dust or spray.*

A recent study was undertaken at Maramarua Forest to compare usage and costs of the spot gun and the Weed-a-metre using hexazinone for spot-releasing newly planted radiata pine. Results are outlined in Table 1.

TABLE 1: Comparison of spot gun and weed-a-metre.

	Spot Gun	Weed-a-metre	Difference (%)
Basic cost of equipment (1987)	\$167.2	\$79.2	- 53
Time taken (mins) to load applicator	4.7	2.2	- 53
Time taken (mins) to treat 1 ha (1250 trees)	150.6	102.4	- 33
Number of hectares treated per day	2.4	3.5	+ 47
Labour costs/ha: \$8.95/hour (1987)	\$30.21	\$20.57	- 32

The Weed-a-metre was faster to operate than the spot gun. This is due to three factors:

- * It can treat more trees for an equivalent load weight, thus reducing unproductive walking time.
- * It is easier and quicker to load.
- * The light trigger action enables it to be operated with one finger, whereas the spot gun requires much greater pressure. Over several hours this makes a big

Proc. 41st N.Z. Weed and Pest Control Conf.

difference to operator comfort.

The one disadvantage is the higher cost of granular herbicide compared with the equivalent soluble powder. Herbicide costs on a per hectare basis are at present approximately 33% higher for hexazinone granules than for the soluble powder formulation at equivalent application rates. For areas smaller than 3.5 ha it is more economical to use a Weed-a-metre. This is because the higher costs in acquiring a spot gun plus ancillary equipment outweigh the increased cost per hectare of using granular herbicides. For areas exceeding 3.5 ha, a spot gun may be more cost-effective.

The Weed-a-metre was developed primarily for releasing in forestry plantations, but it has many other uses. In orchards it can be used to maintain weed-free strips and spots alongside fruit trees, vines, and berry canes with dichlobenil. In parks and reserves it is a convenient applicator to control weeds on footpaths, around shrubs, in children's play areas, etc. The general public are very spray conscious in urban areas, and there are likely to be fewer complaints about a non-drifting granular herbicide.

Farmers frequently use picloram granules for isolated weeds. Instead of tossing a handful of herbicide into scattered gorse or blackberry clumps, it is less wasteful to apply a precise dose. For thistles, ragwort, docks, etc., the spreader cone may be removed and replaced with a length of alkathene pipe to apply 2 or 3 g at the base of the weed. Unskilled staff may not always be relied upon to correctly mix sprays for knapsack pumps, but they can operate a Weed-a-metre without any difficulties.

Commercial and forest nurseries can also use the Weed-a-metre. Weeds growing amongst rows of lined-out trees or potted stock can be controlled safely. Almost all shrubs tolerate dichlobenil whereas spray formulations of other herbicides require careful placing to avoid serious damage.

Today the Weed-a-metre is used to apply only granulated herbicides: we believe its diversification into insecticides, fungicides, and fertilisers is just around the corner.