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## Arboriculture Research Note 53

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### **CHEMICAL WEEDING-HAND HELD DIRECT APPLICATORS, by P B Lane, Work Study Branch, Forestry Commission.**

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#### **Summary**

Hand-held direct applicators which give a precise deposition of herbicide onto weed vegetation have environmental and operational advantages, when compared to conventional methods of herbicide application. They are also readily accepted by operators. This note reviews the principles and the application of the method.

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#### **Definition**

1. Direct application is defined as the direct transfer of herbicide from an applicator to the vegetation by contact.

#### **Introduction**

2. Within the Forestry Commission the direct applicator has become a recognised method of applying approved herbicides to control vegetation around forest and motorway trees, especially around herbicide sensitive tree species.

#### **Advantages / Disadvantages**

3. The advantages of direct applicators when compared with conventional herbicide application methods are:
  - i) Only vegetation in direct contact with the applicator will be treated thus enabling precise placing of the herbicide
  - ii) No herbicide drift.
  - iii) Weeds around herbicide sensitive trees can be treated with less risk to the tree than occurs with overall or directed spray applications.
  - iv) Essential operator protective clothing is minimised.
  - v) Reduced logistical problems of transport of water.
  - vi) Ergonomic benefits to the operator; the weight of a full direct applicator is between 1 and 2 kg, compared with 20kg for a full knapsack sprayer.
  - vii) Operator acceptance, because the herbicide is deposited with no drift, with reduced protective clothing requirements and ergonomic benefits

4. The disadvantage is that in multi-layer vegetation only the top layer of vegetation will be successfully treated and only partial control achieved.

### **Applicators**

5. There are a number of applicators on the market, but generally the single head broom shape, where the transparent handle is the reservoir with the nylon wick attached at the bottom, is the most suitable applicator for treatment of vegetation around forest and motorway trees.

### **Method of Application**

6. The area of vegetation to be treated is wiped with the applicator in a back and forth sweeping action, taking care not to touch the tree. This method ensures that both sides of the vegetation are treated.
7. Where the trees are standing above the level of vegetation, application should be in a triangular pattern; for the trees below the vegetation level application can be made over the trees providing there is a 10 cm clearance between the applicator wick and the top of the trees.
8. Generally direct applicators are only suitable for spot treatment, the size of the spot depending on the number of strokes made with the applicator.

### **Herbicides**

9. Roundup (Monsanto) is the only herbicide with label approval for use in direct applicators.
10. The manufacturer recommends dilution rates should be used. The herbicide should be prepared and used within the day. The chemicals should not be applied within 6 hours of expected rain, as this might reduce the effectiveness of the herbicide by preventing sufficient foliar absorption.
11. To give the operator confidence that herbicide is being deposited onto the vegetation and to indicate the area treated, a good grade scarlet food dye\*, which is compatible with the herbicide, should be added to the mixture.

### **Time of Application and Vegetation Types**

12. Trees benefit most from being weed free during the early part of the growing season. Herbicides applied in the summer should, therefore, benefit tree growth in the following growing season.
13. Grasses can be treated with Roundup at any time of the year but best results are achieved when the vegetation is actively growing. The presence of seed heads in late summer indicates that the grasses are not in active growth and the effectiveness of the herbicide treatment may be reduced.

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\* Available direct form Hortichem Ltd., 14 Eddison Road, Churchfields Industrial Estate, Salisbury. Telephone: 01722 20133

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14. Broadleaved weeds. The best results are achieved when weeds are treated with Roundup just prior to flowering. However, it may be impractical to treat tall weeds just prior to flowering. Such seeds

should be treated earlier in the season when, for example, they are only 30-40cm tall, but as treatment is not at the weed's most susceptible time, the effectiveness of control may be reduced. Weeds with a large root system in proportion to leaf area, e.g. nettles, may only be reduced in vigour and not completely killed by the first application.

## Protective Equipment

15. When handling the concentrated chemical, mixing and filling the applicator, waterproof chemical resistant Wellington boots, trousers and jacket with hood should be worn. Chemical resistant waterproof gloves and a face shield should also be worn.
  
16. Waterproof chemical resistant Wellington boots, trousers and gloves should be the minimum protective equipment worn by the operator when applying herbicide through a direct applicator. Always read the product label in case there is need for additional items of protective clothing or equipment to that recommended.
  
17. For details of the use of herbicides and necessary safety requirements, see Forestry Commission Field Book 8 "The Use of Herbicides in the Forest" by D R Williamson and P B Lane.

Always check before use that the herbicide still has approval and is legal to use under the Chemicals Regulation Directorate (EEC 91/414) the European Directive controlling pesticide approval.

Before using a herbicide always read carefully the manufacturers' instructions on the label (including any accompanying leaflet) and apply the chemical for the use, at the rate and by method recommended pay particular attention to aspects of safety.

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