Weed research. 5. - Weed control in orchards

G. A. Pearce
S. E. Hardisty

Follow this and additional works at: https://researchlibrary.agric.wa.gov.au/journal_agriculture3

Recommended Citation
Available at: https://researchlibrary.agric.wa.gov.au/journal_agriculture3/vol8/iss5/19

This article is brought to you for free and open access by Research Library. It has been accepted for inclusion in Journal of the Department of Agriculture, Western Australia, Series 3 by an authorized administrator of Research Library. For more information, please contact jennifer.heathcote@agric.wa.gov.au, sandra.papenfus@agric.wa.gov.au, paul.orange@dpird.wa.gov.au.
ALTHOUGH trials in Western Australia have shown that chemicals such as Dalapon, Amitrol, C.M.U. and P.C.P. can be used with safety for the control of weeds in orchards, cultivation still remains the most important method of control. The use of chemicals to eliminate cultivation completely is possible but seldom desirable.

The growth of weeds in orchards is not always harmful. They supply organic matter and by providing soil cover late summer weeds are often of great help in preventing erosion likely to be caused by heavy opening rains.

During the spring and summer months, however, weeds compete strongly with fruit trees for available soil moisture and nutrients, and the control of weeds at this time is most desirable.

CULTIVATION

Cultivation is not only a cheap and effective means of weed control but is also a means of incorporating fertilisers and green cover crops into the soil.

However, cultivation has a number of disadvantages. By cutting the surface roots, cultivation reduces the feeding area of the tree. This can be very important during the spring when good growing conditions are required for fruit setting.

Also, cultivation, when the soil is too wet or too dry destroys the physical structure of the soil forming a compact layer below the surface which becomes almost impermeable to water and root penetration. Despite these disadvantages the great benefit obtained by controlling weed growth makes regular cultivation essential.

CHEMICAL CONTROL

Although chemicals could be used to virtually eliminate the need for cultivation for weed control in orchards, a combination of both methods appears desirable. Chemicals could be used to advantage in the following situations—

(1) For the control of perennial grasses particularly around the tree trunks.

(2) For the control of summer-growing weeds where cultivation would lead to dusty conditions or interfere with irrigation equipment or tree props.
(3) For the control of weeds around the trunks of trees following spring cultivation. This would greatly facilitate the control of many insect pests.

(4) For the control of weeds on steep hill slopes where cultivation is only desired in one direction. Chemicals could be used for the narrow strips missed along the tree rows.

**Spraying Method**—Weedkilling chemicals are normally applied at reasonably low pressures of from 50 to 100 lb. per square inch. The usual volume applied is from 80 to 150 gallons per acre. Where absorption is taking place through the leaf or stem sufficient solution should only be applied to wet the absorbing surface. Any run-off is wasted. The addition of a wetting agent such as a household detergent is always an advantage.

Where it is desired to kill the weed seeds as they germinate it is essential to obtain an even application of the chemical to a reasonably smooth and clean surface. For this reason high volumes of application of from 100 and up to 300 gallons per acre should be used. In this case the most important factor is to spread the recommended amount of chemical evenly over the given area. Best results are usually obtained if the soil is moist at the time of application, say within a week of the germinating rains.

Normal orchard spraying equipment can be used to apply the chemicals mentioned, but some care is required to avoid contamination.

Although these chemicals have not the same residual dangers as the hormone sprays, such as 2,4-D, the equipment including the vat and hoses should be thoroughly washed after use.

When using weedkilling chemicals in orchards spraying the foliage of the trees should be avoided. By reducing the pressure to around 50 lb. per square inch the danger of spray drift will be greatly reduced.

**Chemicals**—The chemicals listed when sprayed around and under orchard trees such as apple, pear, citrus and stone fruits will not damage trees provided they are at least three years old. Using the rates of application recommended a considerable safety margin exists.

Some care should be taken to prevent spraying the foliage of the trees as damage can result.

1. **Dalapon** (sodium dichloroproponate)—This chemical is a selective grass weedkiller and has proved very effective against couch and Kikuyu grasses. The
rate of application for orchards should be 10 lb. of 85 per cent. Dalapon per complete acre. This means that when only applying sufficient solution to wet the weeds, without run-off, a suitable solution is made by dissolving 1 lb. of Dalapon in each 16 gallons of water. For the control of perennial grasses, although higher rates of application can be used best results have been obtained by making two applications at this rate with an interval of 10 to 14 days between treatments.

The chemical should be applied when the grasses are making active growth. For the control of winter and summer growing annual grasses the rate of application should be reduced to 5 lb. of 85 per cent. Dalapon per acre. This means that a suitable solution is made by dissolving one half pound of Dalapon in 16 gallons of water.

It should be remembered that Dalapon is absorbed through the leaf of the grass and that it is not effective against broad leaved weeds.

2. **C.M.U.** (chlorophenyl dimethylurea) —C.M.U. can be used effectively for the control of nearly all winter-growing annual weeds for a period of 8 to 12 weeks. Applied at the rate of 2 lb. of 80 per cent. C.M.U. per complete acre (1 oz. in 5 gallons of water per 150 square yards) within a week of the germinating rains C.M.U. kills the weed seedlings as they emerge. For effective results it is important to obtain an even application to a reasonably smooth soil surface. C.M.U. is not highly soluble and it is essential to keep the mixture well agitated. This treatment can be used around tree trunks or on irrigated orchards where weeds are expected to appear.

For the control of summer annuals such as crabgrass and portulaca in irrigated orchards the rate of application should be increased to 4 lb. per acre (2 oz. in 5 gallons of water per 150 square yards). Best results will be obtained if the chemical is applied to the soil while the surface is still damp and while the weeds are in the very young seedling stage.

C.M.U. is particularly effective against portulaca and this weed can be controlled by spraying before or after emergence with C.M.U.

---

![Fig. 3—The weeds around the bases of these trees could be controlled by treatment with Amitrol](image-url)
3. Amitrol (Amino triazole)—Amitrol is a general purpose weedkiller which can be used in a number of ways. It is probably the most effective chemical for controlling heavy weed growth in orchards during the spring. It can also be applied to bare surfaces as described for C.M.U. to kill the weed population as it germinates. In this way it can control weed growth for a period of 8 to 12 weeks. Although Amitrol can be used for the control of couch grass in orchards, the use of Dalapon is preferred. The recommended rate of application is 10 lb. of 50 per cent. Amitrol per acre. This means that when only applying sufficient spray to wet the weeds, without run-off,

<table>
<thead>
<tr>
<th>Weed</th>
<th>Time for Spraying</th>
<th>Chemical to Use</th>
<th>Rate</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perennial Grasses</td>
<td>When making active growth—November to April</td>
<td>Dalapon ....</td>
<td>1 oz. per gal.</td>
<td>Second application 10-14 days later. Further treatments as required. Repeat when weeds begin to persist. Spray when young. Repeat when weeds begin to persist.</td>
</tr>
<tr>
<td>Annual Grasses</td>
<td>Before emergence—within 7 days germinating rains</td>
<td>Amitrol or C.M.U.</td>
<td>1 oz. per 5 gal.</td>
<td>Repeat when weeds begin to persist. Spray when young. Repeat when weeds begin to persist.</td>
</tr>
<tr>
<td>Broad-leaved weeds and annual grasses</td>
<td>Before emergence—within 7 days of germinating rains</td>
<td>Amitrol or C.M.U.</td>
<td>1 oz. per 5 gal.</td>
<td>Repeat when weeds begin to persist. Spray when young. Repeat when weeds begin to persist.</td>
</tr>
<tr>
<td>Summer Weeds—Portulaca</td>
<td>Before or after emergence</td>
<td>C.M.U. ....</td>
<td>1 oz. per 3 gal.</td>
<td>Treatment before emergence spray when soil is damp. Spray as required. Repeat when weeds begin to persist.</td>
</tr>
<tr>
<td>Crabgrass</td>
<td>Before emergence</td>
<td>C.M.U. ....</td>
<td>1 oz. per 3 gal.</td>
<td>Repeat when weeds begin to persist. Spray when young. Repeat when weeds begin to persist.</td>
</tr>
<tr>
<td>Fathen, Goosefoot, Nightshade</td>
<td>Before emergence</td>
<td>Dalapon ....</td>
<td>1 oz. per 5 gal.</td>
<td>Repeat when weeds begin to persist. Spray when young. Repeat when weeds begin to persist.</td>
</tr>
<tr>
<td>Sourso, Nut Grass, Sorrel</td>
<td>Before or after emergence</td>
<td>Amitrol ....</td>
<td>1 oz. per 3 gal.</td>
<td>Repeat when weeds begin to persist. Spray when young. Repeat when weeds begin to persist.</td>
</tr>
</tbody>
</table>

Table 1 lists the more common weeds found in orchards and the recommended chemical for their control. Column 4 shows the amount required to make a suitable solution to just wet the weeds without run-off.

**Table 2**

**AVAILABLE CHEMICALS**

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Trade Name</th>
<th>Distributor</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dalapon</td>
<td>Basfapon</td>
<td>Henry York &amp; Co. Ltd.</td>
<td>85 %</td>
</tr>
<tr>
<td></td>
<td>Dowpon</td>
<td>Agricultural Products Co.</td>
<td>85 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barrow Linton &amp; Co. Ltd.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>David Gray &amp; Co. Ltd.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elder Smith &amp; Co. Ltd.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Horticultural Industries Pty. Ltd.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kwinana Chemical Co.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lanes Pty. Ltd.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Terra Trading Co.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Westralian Farmers’ Co-op.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wilcox Mofflin Ltd.</td>
<td></td>
</tr>
<tr>
<td>C.M.U.</td>
<td>David Gray's C.M.U.</td>
<td>David Gray &amp; Co. Ltd.</td>
<td>80 %</td>
</tr>
<tr>
<td></td>
<td>Telvar</td>
<td>Lane's Pty. Ltd.</td>
<td>80 %</td>
</tr>
<tr>
<td></td>
<td>Terra C.M.U.</td>
<td>Terra Trading Co.</td>
<td>80 %</td>
</tr>
<tr>
<td>Amitrol</td>
<td>Weezadol</td>
<td>Barrow Linton &amp; Co. Ltd.</td>
<td>50 %</td>
</tr>
<tr>
<td></td>
<td>Noceweed P.C.P.</td>
<td>Lanes Pty. Ltd.</td>
<td>25 %</td>
</tr>
<tr>
<td>P.C.P.</td>
<td>Shell Weedkiller Q.</td>
<td>Shell Chemical Co.</td>
<td>15 %</td>
</tr>
<tr>
<td></td>
<td>Pentacide</td>
<td>Kwinana Chemical Co.</td>
<td>20 %</td>
</tr>
</tbody>
</table>

Table 2 shows the proprietary lines of the chemicals discussed and the distributors known to the Department of Agriculture. All chemicals are powders except the P.C.P.
a suitable solution is made by dissolving 1 lb. of 50 per cent. Amitrol in each 16 gallons of water.

When the weeds are well developed a second application may be required some three weeks after the first, or the initial rate of application could be increased.

4. P.C.P. (Pentachlorophenol)—P.C.P. is a contact weedkiller which can be used for the control of annual weeds in orchards. The recommended rate of application is 10 lb. per acre. This means that a suitable solution is made by dissolving 7 fluid ounces of a 15 per cent. P.C.P. line in each gallon of water.

**SUMMARY**

(1) Various chemicals can be used to control most weeds growing in orchards.

(2) Cultivation is still the most important method of controlling weeds.

(3) Chemicals can be used to control weeds in orchards to advantage in many situations where cultivation is not desirable.

(4) Four different chemicals are recommended for the control of various weeds, in most cases more than one chemical could be used for the same purpose.

(5) Table 1 lists the most common weeds found in orchards and the recommended chemical for their control.

(6) Table 2 shows the trade names of proprietary lines available and the recommended rate of application for each chemical.

**ACKNOWLEDGMENT**

It is desired to thank Wilcox Mofflin Ltd., and Agricultural Services Pty. Ltd., who kindly supplied the Dalapon and Amitrol respectively used in these trials.

---

**Increase your Profits by using “Christmas-Phos”**

More Phosphorus and Cheaper as Compared with Bone Meal or Bone Flour

80 per cent Tricalcic Phosphate

Guaranteed 16% Phosphorus 32% Calcium

For All Classes of Livestock and Poultry

80 lbs nett per bag
28 bags to the ton

Free 16 PAGE BOOKLET
Obtainable from . . .

your usual feed merchant or direct from the Sole Australian Distributors

W. THOMAS & CO. (W.A.) LTD.
Cottesloe W.A.

---

Journal of agriculture Vol. 8 1959
MURESK AGRICULTURAL COLLEGE
(Department of Agriculture)

Parents are reminded that applications for 1961 admission to Muresk Agricultural College close on 31st December of this year. A preliminary selection of 1961 entrants is made after the Junior results are available early in 1960.

The successful applicants then continue with Sub-Leaving, or higher studies, in 1960.

Before the course can be commenced students must have attained:

(a) Sub-Leaving Standard in English, Maths, A, Chemistry and Physics (including Magnetism and Electricity).
(b) Junior Standard Bookkeeping.

Should places still exist for 1961 commencement after the preliminary selection early in 1960, they are filled in order of application during 1960, by qualified applicants.

Some places still exist for 1960 commencement and are now being filled by qualified applicants, i.e., those who have or are now taking the correct course at Sub-Leaving or higher standard.

**Duration of Course.**—Two years.

**Fees.**—Approximately £130 per annum covering full residential charges.

**Scholarships.**—Department of Agriculture (3), the "Countryman," and J. J. Poynton Memorial (2).

**Boarding Allowance.**—Most Muresk students are eligible for the Education Department Boarding Allowance (£50 per annum).

Full details of the College are obtainable from the Principal, Muresk Agricultural College, Muresk, W.A., or the Department of Agriculture, Perth.

FOR NITROGEN TOPDRESSING
invest wisely in granulated

**CHILEAN NATURAL NITRATE OF SODA**

THE CHAMPION NITRATE NITROGEN FERTILISER

Chilean nitrate of soda is the world's oldest nitrogen fertiliser and has successfully endured the searching test of well over a century of use and exacting scientific research.

**MERITS:**

Nitrates are the quickest acting of all nitrogen fertilisers and prevent an increase in soil acidity. In addition Chilean nitrate greatly assists soil fertility; (1) by conserving lime, potash, magnesium and manganese, due to the effect of sodium; (2) by increasing the availability of soil phosphate and the utilisation of applied phosphate; and (3) by containing trace elements including boron, molybdenum, and iodine (average 0.02%) which contribute to healthy plant and animal nutrition.

**USES:**

Timely applications as "straight" or in well-balanced mixed fertilisers, can be made with confidence to improve yields and quality of Leafy Vegetables, Citrus, Pome and Stone Fruits, Bananas, Grapes, Flax, Tobacco, Grass Seed, Green Fodder and Pastures, as well as hastening the establishment of pastures on poor soils.

Ample stocks available.

**PRICE:** £32/0/0 per ton ex

FRANK MANFORD'S STORE,
HAMPTON ROAD, SOUTH FREMANTLE.

For literature and further information, which is supplied free of charge, fill in the attached coupon and post to

Chilean Nitrate Sales Corporation Pty. Ltd.
Caltex House, 167 Kent Street, Sydney.

Please mention the "Journal of Agriculture of W.A.," when writing to advertisers.