

observed results from these exercises suggest that this 'trickle' technique is a practical proposition, and worth developing in similar environments. Established infestations of *Hydrilla*, *Najas*, *Myriophyllum*, and *Ceratophyllum* were all controlled fairly quickly by the p.p.m. dose, with less effective results in the two species of *Potamogeton*. These responses took between a week and a fortnight to become obvious, and were better demonstrated from $\frac{1}{4}$ to $\frac{1}{2}$ mile downstream than near the point of treatment - indeed it was only after the apparent failure of one of the earliest trials that the I.W.S.C. Field Officer took the trouble to check the channels from half to one mile downstream, and there to find satisfactory results!

Encouraged by these observations, plans are now in hand for examining variations in dose levels of chemical, as well as including diquat as a blend with paraquat, hopefully to widen the scope of weeds that can be controlled by this novel and convenient technique.

CONTROL OF WATER COUCH (*PASPALUM PASPALOIDES*) WITH AMITROLE AND AMMONIUM THIOCYANATE

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An investigation of rates of application, timing and split application techniques.

A series of trials in the 1967/68 and 1968/69 growing seasons were designed to investigate the split application technique of controlled Water Couch (*Paspalum paspaloides*) with the formulated product of amitrole and ammonium thiocyanate.

Water Couch *Paspalum paspaloides* (Michx) Scribn (*P. distichum* Auctt. Non L.) is an emergent aquatic plant infesting drainage systems and small supply channels in the Murrumbidgee Irrigation Area. The main growth period of water couch is from November to March and it spreads by a vigorous root system and long surface runners from the margins of channels into water up to 3 feet in depth, causing obstruction and siltation of the channels. The

formulated product of 25% w/v 3-amino-1,2,4-triazole and ammonium thiocyanate is used for the control of water couch. In practice 15-20 lb a.i./ac (15-20 kg/ha) amitrole followed by another treatment at the same site after an interval of six weeks has been used successfully.

This investigation was aimed at examining this approach more critically particularly in regard to timing, rates and time intervals between applications.

METHOD

A plot trial was designed in which amitrole was applied at 10, 15 and 20 lb a.i./acre (10, 15 and 20 kg/ha) with follow up rates of 10 and 15 lb a.i./ac (10 and 15 kg/ha) at 1, 2, 4, 6 and 9 weeks. Single treatments of 10, 15 and 20 lb a.i./ac (1, 15 and 20 kg/ha) were also applied. All treatments were applied using high volume application.

Two similar sites were selected near Griffith, New South Wales and the trial was commenced at separate sites in early summer (December) and late summer (February) during the 1967/68 growing season. The sites were named Site A and Site B respectively.

The following year in the 1968/69 growing season the trial was commenced at both sites in early summer (December) and late summer (February). This approach was adopted as the late summer spraying in 1967/68 at Site B resulted in a reduced density of growth at the start of the next season.

Water couch in both years was at the vegetative and post seeding growth stage in early and late summer respectively.

RESULTS

1967/68 growing season

Site A - early summer application

Commencement of treatment in early summer with 10 lb a.i./ac (10 kg/ha) followed by a second application of 10 lb a.i./ac after a 6-9 week period gave good control. Higher rates of initial or follow up applications were not required and at all rates shorter time intervals between applications did not result in effective control being obtained. 20 lb a.i./ac (20 kg/ha) applied alone did not give effective control.

Site B - late summer application

Split application treatments gave similar results to early summer application. At this time the 20 lb a.i./ac (20 kg/ha) gave equal results to the 10 + 10 lb split application treatment.

1968/69 growing season

Site A

Observations prior to the commencement of spraying showed that no significant reduction in growth resulted from the previous year's treatment

Early summer application

The 10 + 10 lb a.i./ac (10 + 10 kg/ha) split application treatment with a time interval of 6-9 weeks gave good control. Shorter time intervals between sprayings resulted in ineffective control. Higher combinations of rates were not required. A single application of 20 lb a.i./ac (20 kg/ha) did not give effective control.

Late summer application

Application at this time did not give as effective results as early summer spraying. The difference between single and split applications and time intervals between applications was not as marked at this period. 10 + 10 lb a.i./ac (10 + 10 kg/ha) and 20 lb a.i./ac (20 kg/ha) as split and single applications respectively gave good control.

Site B

A reduction in vigour had occurred as a result of spraying during the previous season.

Early summer application

Again 10 + 10 lb a.i./ac (10 + 10 kg/ha) was effective as higher combinations. The optimum time interval between sprayings varied from 4-9 weeks. Generally the time interval was not as critical as when the water couch was not reduced in vigour from the previous season's spraying. 20 lb a.i./ac (20 kg/ha) was not as effective as the split application of the same total active.

Late summer application

Good results were obtained at 10 + 10 lb a.i./ac (10 + 10 kg/ha) as a split application and 20 lb a.i./ac (20 kg/ha) as a single application. The time interval between sprayings did not affect the results of the split application treatment.

CONCLUSION

An initial application of 10 lb a.i./ac (10 kg/ha) of amitrole in early summer with a second treatment at the same rate 6-9 weeks later will give effective control of water couch. The time interval between sprayings is critical and if the water couch is growing vigorously recovery will occur if the second spraying is applied after a shorter period. If the water couch is reduced in vigour the second spraying can be applied 4-9 weeks after the initial application. A single application of 20 lb a.i./ac (20 kg/ha) in early summer will not give effective control over the growing season.

If spraying is carried out in late summer a single application of 20 lb a.i./ac (20 kg/ha) is as effective as the split application of 10 + 10 lb a.i./ac (10 + 10 kg/ha). With split applications at this period the time interval between spraying does not become as critical particularly if the water couch is reduced in vigour when spraying is commenced.

Commencement of split treatments in early summer will result in maximum freedom from blockage of channels over the main growing period. Although a single application in late summer will also give effective control the split application approach commenced in early summer is the most practical.

NON SELECTIVE CONTROL OF WHITEHORSE NETTLE

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Occasionally a plant species may have a limited distribution and grow mainly on non-productive land such as channel banks, railway reserves, and roadsides. The occurrence on agricultural land may be confined to a few properties and/or the acreage may not be very great. When this plant is known to be a weed of importance in other States or countries it may be desirable to eliminate it even if the cost is high. The cost of eradication may be far less than the future losses in production if extensive infestations develop.