WEEDS IN NON CROP SITUATIONS - INCLUDING AQUATICS

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Non crop situations include roadsides, railway and power easements, irrigation and drainage schemes, factory yards, terminal areas, recreation areas, cemeteries etc. It is difficult to accurately assess the importance placed on weeds in these situations because of the many attitudes and interests involved, but it has been estimated that, apart from aquatic weed control, approximately $1 mil per year is spent in Victoria on herbicides for weed control in such situations.

The significance of aquatic weeds is easier to assess particularly in irrigation areas. In Victoria there are 5300 miles of supply channels and 2400 miles of drains associated with irrigation schemes. About one half of the supply channels support weed growth sufficient to appreciably affect the flow of water whilst almost all the drains carry a prolific growth of weeds. The State Rivers and Water Supply Commission alone spends between $300,000 and $400,000 per year on chemical weed control in the supply and drainage systems under its control.

The significance of aquatic weeds in lakes is gaining in importance because of the greater use of these areas for recreation. Albert Park Lake and Lake Wendouree are good examples.

PRESENT PRACTICE OF WEED CONTROL

The present practice in industrial situations is based on the principle that existing vegetation should be eliminated, new growth also destroyed, and any tolerant species which develop should be dealt with by a change in the herbicide used. The present practice is to use a combination of herbicides, some of which will kill the existing vegetation whilst others will persist in the soil and kill any new growth or regrowth. Alternatively some chemicals are relied upon to perform both functions. Of the 30 commercial products available in Victoria for total vegetation control, fifteen are mixtures of two or more chemicals. Of the products available, ten contain 2,4-D, ten contain sodium borate, nine contain sodium chlorate, nine contain bromacil, six contain 2,2-DPA, five contain a triazine, and five contain a urea.

Any tolerant weeds which develop are dealt with by a change in chemical or in the case of deep rooted perennials by the

Introduction of dicamba, 2,3,6-TBA or picloram.

The control of aquatic weeds is achieved both mechanically and chemically. The use of herbicides is much more attrative economically when the difficulties associated with mechanical control are appreciated. For example, the use of a dragline excavotor which is often necessary to clean large channels, costs $600 to $800 per mile. In channels the main weeds are cumbungi (*Typha angustifolia*), ribbon weed (*Vallisneria spiralis*), elodea (*Elodea canadensis*), cattail (*Myriophyllum elatinoides*), floating pondweed (*Potamogeton tricarinatus*), and canegrass (*Phragmites communis*). In drains the important species are water couchgrass (*Paspalum distichum*), blunt pondweed (*Potamogeton ochreatus*) and cumbungi.

Acrolein, 2,2-DPA and TCA are used in supply channels and are effective on most weeds. Acrolein, amitrole, and diuron are used in drains and are generally effective.

Lakes are generally treated with acrolein, copper sulphate, and diquat, but these treatments are expensive and shortlived.

EFFECTIVENESS OF RESEARCH, EXTENSION AND LEGISLATION

For industrial weed control practically all of the research is carried out by companies marketing herbicides. Consequently, only chemicals covered by a current patent are investigated and therefore many good materials are ignored. Such research is aimed at developing the exclusive product to the detriment of mixtures involving long established chemicals. It is regrettable that no government instrumentality has a responsibility in this field.

For aquatic weed control the State Rivers and Water Supply Commission has an active research programme investigating not only improved methods of control but also the side effects which may result from proposed weed control practices such as the persistence of chemicals in water and their effect on desirable plants. The major requirement in this field is for an effective economical treatment for submerged weeds.

As there is no government oriented research into industrial weed control, there is also no government extension in this field and therefore any extension is commercial and competitive. On the other hand, the State Rivers and Water Supply Commission provides a comprehensive extension service on aquatic weed control through personal contact, literature etc.

The only involvement with legislation in this field is in dealing with the noxious weed, water hyacinth.

The State Rivers and Water Supply Commission and the Vermin and Noxious Weeds Destruction Board cooperate closely on this matter in giving publicity to the plant, conducting surveys

both from the ground and from the air and as a result all known patches have been treated several times and most have been eliminated.

FORESTS AND WOODY PLANT WEEDS IN VICTORIA

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Harvestable forests in Victoria consist of approximately 8.4 million acres of hardwoods and 100,000 acres of softwoods. Several types of weed problems are encountered - unwanted woody weeds, mainly acacias, competing with young pines; unwanted eucalypts both coppice and seedlings competing with young pines; mixed scrub hindering site preparation prior to sowing to eucalypts; and planting of pines, eucalypts; herbaceous weeds competing with transplanted pines and eucalypts; and nursery weed control.

Woody plants such as blackberries, furze, sweet briar, boxthorn and hawthorn are important weeds of grazing areas, roadsides and wasteplaces where they occupy space which could be better occupied by less objectionable species (all have spines or prickles which deter grazing animals and seriously limit utilization of infested areas).

PRESENT PRACTICE OF WEED CONTROL

Most scrub and acacia weeds in young pines are adequately controlled by aerial spraying with 2,4,5-T (butyl ester) at 1 lb a.i. per acre in late May or June, two years after planting. The control of unwanted eucalypt coppice and seedlings is not widely practiced at present but trials are in progress and field adoption of either spraying with picloram/2,4,5-T mixtures or stump treatment or stem injection with picloram mixtures is imminent. General scrub control is achieved by aerial spraying with 2,4,5-T (butyl ester) at 3 lb a.i. per acre followed 18 months later by bulldozing, burning and aerial sowing of eucalypt seeds. The control of herbaceous weeds around young pines and eucalypts is not currently practiced, although cultivation is sometimes used prior to planting. Weed control in nurseries is carried out with power kerosene or paraquat as pre-emergent treatments and power kerosene or simazine as