

50 gallons of the octonate ester the following year 1967-68. The sales of ioxynil have now increased to such an extent that formulation of this material will in future be carried out in Melbourne.

The work in South Australia on onions was an example of how results of research could be accepted by growers with a minimum of effort in extension.

WEED CONTROL IN NON-CROP SITUATIONS (INCLUDING AQUATICS) IN SOUTH AUSTRALIA

Reviewed by
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Weed control in non-crop situations can be divided into three parts.

TOTAL VEGETATION CONTROL

Herbicides having a residual nature are used to maintain a vegetation free area, e.g. the South Australian Railways treat track-side areas to reduce fire risk, reduce ballast fouling by organic matter, stop trains slipping and for aesthetic reasons. Generally treatments are effective although the resistance of *Cynodon dactylon* L. and *Convolvulus arvensis* L. to a frequently used mixture of atrazine and amitrole is noteworthy.

Herbicides used include Vorox AA^(R) 8 lb/acre (8.8 kg/ha) initially followed by 2-4 lbs/acre (2.2-4.4 kg/ha) annually and Karmex^(R) Diuron 10 lbs/acre (11 kg/ha).

The South Australian Railways spend approximately \$50,000 annually and the Electricity Trust \$10,000 annually.

GENERAL WEED CONTROL

Control of declared dangerous or noxious weeds is required by the Weeds Act. The methods used depend on the weed concerned. The Department of Agriculture carried out research on control measures for new weeds. Local government bodies administering the Weeds Act spend an estimated \$50,000 annually on roadside noxious weed control and the South Australian Railways \$13,000 annually.

The Post Master General's Department in South Australia outlays \$13,000 annually on telephone line vegetation clearing. One tenth is spent on herbicide methods, half on hand slashing and the remainder on bulldozing. The latter costs 50% more than herbicide treatments and causes more damage to associated vegetation. The switching to underground cables will reduce the amount of vegetation control in the future.

AQUATIC WEED CONTROL

The following submerged aquatics are encountered in channels and permanently flowing drains.

Myriophyllum propinquum A. Cunn.

Nasturtium officinale R. Bl.

Potamogeton spp.

Sium latifolium var *univillatum* L.

Triglochin procera R. Bl.

Vallisneria spiralis L.

Veronica anagallis var. *aquatica* L.

In channels the above weeds are controlled by mechanical methods. Both mechanical methods and ester 2,4-D or amitrole plus ammonium thiocyanate are used in drains. The use of acrolein or chlorinated benzene was investigated but considered uneconomic for the limited areas to be treated.

Emergent aquatics of the following species are found in drains.

Cyperus rotundus L.

Eliocharis acuta R. Bl.

Juncus polyanthemus Buchen

Machaerina articulata Koyama

Phragmites communis Trin.

Scirpus americanus Pers.

Typha angustifolia L.

2,2-DPA is used for Cumbungi and reed control and amitrole plus ammonium thiocyanate is used for rushes and sedges. A wetting agent is essential.

In addition to chemical control, removal of water weeds is achieved by periodic drain cleaning, primarily intended for the removal of accumulated silt.

An estimated \$25,000 is spent annually on aquatic weed control.

WOODY WEEDS AND WEEDS OF FORESTS IN SOUTH AUSTRALIA

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South Australia has a range of woody weeds whose limits extend from those occurring in low rainfall pastoral areas to inhabitants of higher rainfall zones.

In the first group one can include *Lycium ferocissimum* (African boxthorn), *Acacia armata* (kangaroo thorn), *Alhagi camelorum* (camel thorn) and various *Opuntia* spp. (prickly pears and devil's rope). Of this list perhaps two only are worthy of mention. African boxthorn is being treated effectively with either 2,4,5-T or bromacil and the severity of infestations is decreasing. On the other hand the prevalence of small patches of *Opuntia* species and the expanding nature of some of the infestations particularly in the Flinders Ranges is causing concern. 2,4,5-T is being used and formulations of picloram are being tested. With the exception of kangaroo thorn, all the above weeds are to be destroyed or controlled under the Weeds Act.

Nicotiana glauca (Tobacco bush) is also prevalent in the lower rainfall areas, particularly in creek beds. It is found in waste places throughout the State but is of little consequence or concern to landholders.

In higher rainfall areas *Rubus* spp. (blackberries), *Rosa* spp. (briars), *Eucalyptus* spp. (as regrowth) and *Ulex europaeus* (gorse or furze) must be classified as weedy species.

Blackberries and gorse are required to be destroyed or controlled under the Weeds Act and are mainly problems in areas which have been cleared and used for some agricultural purpose