

that the effects of slashing were critically examined. Also in view of *Hyptis suaveolens* becoming a problem in Townsville stylo it would be advisable to study the tolerance of this legume to 2,4-D in some detail.

WEEDS OF NON CROP SITUATIONS IN QUEENSLAND

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Within this summary are included Industrial situations (Railways, Rights of Way, Irrigation, Factories, Main Roads, etc.), eradication programs and Government sponsored projects.

SIGNIFICANCE

In most cases this is difficult to assess in terms of economic loss as for railways, main roads, rights of way, etc., weed control is regarded as normal maintenance and is included in these costs. In most cases a budget allocation is made each year and is used to best advantage.

The total amount spent on these situations in Queensland is of course much less than in southern States, but the estimated proportions of this spent by the various authorities are:-

Railways	40%	(46% Southern)
Govt. Depts., Local and Public Authorities	42%	(18% ")
Irrigation etc.	10%	(20% ")
Roads	7%	(14% ")
Industry	1%	(2% ")

Railways require total vegetation control and because of periodic treatments, weeds are mainly annuals. Weeds of main roads are mainly grasses and annuals, again due to control practices; specific weed treatment is generally only required for maintenance of signs, guide posts, culverts, etc., or for traffic hazards. Public Utility companies require control only of species which may endanger power lines along rights

of way and in most cases only woody species are of significance; control of noxious weeds and herbaceous species remain the responsibility of the landholder.

Total area under irrigation is not great but considerable increases are contemplated. Weed problems are complicated because rain falls, while summer dominant, may occur at any time of the year, and temperatures, except at St. George, allow continuous growth of both crops and weeds. Total area occupied by Industry (Factories, oil installations, P.M.G. buildings, schools, etc.,) is very limited; weed problems, while locally important, account for a low proportion of the State's total.

Eradication programs against small infestations of potentially dangerous species such as Stinkwort, Ragweeds, Bitterweed, St. John's Wort, Artichoke Thistle, Hemlock, etc. are currently in progress by the Department of Lands. A large scale project by the Brisbane City Council against Groundsel bush (*Baccharis halimifolia*) is successful but at a cost exceeding \$1,000,000 (\$73,000 for 1969/70).

Government sponsored control programs: *Harrisia cactus* (*Eriocereus martinii*) has been declared an extraordinary noxious weed under the Lands Acts and control measures have been operating (mainly in the Collinsville district) for some years; current annual expenditure is \$300,000. Several species of prickly pears, while generally under control, still offer a potential threat.

CURRENT PRACTICE

The approach of management to control of weeds of these situations in Queensland is governed mainly by consideration of treatable area against funds available.

Railroads (total 6,000 miles (9,600 kilometres)), except for special situations are treated with mixtures of 2,2,DPA/amitrole applied at high volume, and these give satisfactory control at an acceptable cost. Time of application varies with rain falls but two treatments per year are the maximum possible. Four spray trains are each responsible for a defined region; the current trend is to use smaller trolley mounted boom spray units under the control of district staffs, and used at their discretion. Equipment design is by the Q.G.R. and herbicides are purchased as required.

Main roads: Specific chemical treatments are confined to traffic hazards and maintenance of signs, guide posts, culverts, etc. Other weed control is subservient to road maintenance but periodic forming of road shoulders with graders does restrict plant growth. Mowing of shoulders is practiced on principal highways but the total area mown is limited.

Irrigation: Chemical usage is restricted to areas where immediate control is required; most often used are 2,2-DPA/ amitrole mixtures applied at high volume and low pressure. Where possible specific weeds are treated with selective, non-residual herbicides (2,4-D, 2,4,5-T, etc). Replacement programs are now envisaged using mowable grasses e.g. couch, paspalum, rhodes, etc. Where possible mechanical equipment - off-set mowers, drag-lines etc., are used.

Rights of Way: Virtually all control is by mechanical means - either heavy equipment (often by contract) or manually.

Industry: Control measures are virtually all chemical following principles similar to those of other States, i.e. an initial knock-down followed by total vegetation control. The use of mown grasses and gardens is increasing in popularity.

Cacti: Successful control of *Harrisia cactus* is being obtained by pulling and burning of surrounding brigalow scrub followed by deep ploughing; by over-all spraying at high volume with 1.0% fenoprop (2,4,5-TP) and by treatment of isolated plants with Sodium 2,4-D powder.

Satisfactory control of several other species is maintained by manual distribution of Cochineal insects by Government and Local Authorities.

RESEARCH, EXTENSION AND LEGISLATION

A major problem is the lack of results of research; in almost every case - railways, irrigation, etc., - recommended treatments have been determined for temperate climates with reliable and regular rainfalls, or for situations where the cost per unit area is not critical. Current research in Queensland is limited mainly to herbicide screening trials by the larger chemical and Public Utility Companies.

The success of the *Harrisia* scheme is due to research by the Department of Lands. Clearance of the weed is a condition of tenure on infested properties in the Collinsville region; initial control of some heavily infested areas on some of these properties has been accepted as a responsibility of the Crown.