## FORESTRY AND WOODY WEEDS IN QUEENSLAND

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### SIGNIFICANCE OF WEEDS IN PRIMARY PRODUCTION

Woody plants present a particular problem in tropical and sub-tropical regions of Queensland especially in grazing and forestry lands and utility rights-of-way. They include native tropical rain forests species, eucalypts, brigalow and other Acacias, and the exotic lantana, groundsel bush, giant sensitive plant, chinee apple and rubber vine. Of the poisonous plants green cestrum, desert poison bush, lantana, peach leaf poison bush and Ellangowan poison bush are important.

Woody plant control is an essential in the management of grazing and forestry lands for efficient economic production; it is also desirable along utility rights-of-way and for flood mitigation.

The following table gives a conservative estimate of arboricide usage in Queensland in the 1969-70 financial year and illustrates the significance of the woody plant problem on grazing and forestry lands.

| Active Ingredient | Pounds Weight (kg) | Cost of Chemical |
|---|---|---|
| Arsenic | 200,000 lb (90,700kg) | $40,000 |
| 2,4-D | 75,000 lb (34,000kg) | $45,000 |
| 2,4,5-T | 125,000 lb (56,700kg) | $185,000 |
| fenoprop | 1,200 lb ( 550kg) | $2,000 |
| picloram | 35,000 lb (15,900kg) | $1,050,000 |

Application costs would be difficult to estimate but would probably be well over $3 million.

Mechanical methods are at least as important as chemical control especially in brigalow and wallum development.

PRESENT PRACTICES OF CONTROL

Mechanical methods are still largely used for initial clearing and maintenance in situations such as some forestry plantations, grazing lands and utility rights-of-way. Besides the spectacular work of heavy machinery, rotary slashing, brushing ringbarking, sucker bashing and grubbing are important in terms of the large number of widespread, small operations resulting in a significant overall acreage, especially in situations where chemicals cannot be used.

Prescribed or strategic burning plays a major role in initial clearing and maintenance of grazing areas and selected native forests. Smaller woody perennials may be eliminated by regular burning.

An ecological approach is being used in rehabilitating degraded pastures invaded by woody plants such as groundsel bush, lantana, wattles, mistflower and crofton weed. Various combinations of mechanical, chemical and burning treatments may be used together with pasture development.

Chemical control is assuming increasing importance in initial clearing of low density vegetation and in the maintenance of cleared and improved country. The Queensland Department of Lands supplies chemicals to landholders at concession rates to encourage control of woody plants and noxious weeds. Arsenic is cheap and kills nearly all species. It is used where safer chemicals are ineffective e.g. difficult-to-kill species in silvicultural treatments of tropical rainforests and giant sensitive plants in wet tropical areas. 2,4-D is largely used on groundsel bush, lantana and rubber vine. Fenoprop is very effective on mistflower and creeping lantana while 2,4,5-T controls a wide range of species provided the chemical is correctly applied at the right time of the year. There has been a sharp increase in the usage of 2,4,5-T amine for stem injection of eucalypts, angophoras and other species due mainly to the development of vastly improved formulations. Picloram is beginning to find its real place in woody plant control. Mixed amines of picloram and 2,4-D or 2,4,5-T are most efficient for stem injections. Mixed esters of picloram and 2,4,5-T are showing promise on a number of problem species. The choice of chemical depends on such factors as species susceptibility, cost, hazards to operators, possible spray drift, volatility, crop damage and residue problems, equipment and labour availability.

Methods of applying chemicals to woody plants include foliage spraying of susceptible species such as groundsel bush, eucalypts, brigalow and other acacias; stem injection of eucalypts and melaleucas, in which correct placement of chemical is all important, is the most effective method in the drier inland areas; cut surface treatments such as cut stump and frill ring are used on stems too small for injection, such as eucalypt seedlings, or on species not susceptible to stem injections, such as inland spotted gum; basal bark methods are used for a special purpose where foliage spraying is ineffective or cut stump treatments are impractical or undesirable, such as with sandalwood, lantana, prickly acacia, chinee apple and parkinsonia; soil applications have given inconsistent results due mainly to unreliable rainfall and are not generally recommended in Queensland.

## EFFECTIVENESS OF RESEARCH, EXTENSION AND LEGISLATION IN ACTUALLY CONTROLLING WEEDS

The Queensland Forestry Department has carried out a vast amount of research oriented towards developing more efficient methods of forest management. The techniques developed are applicable to forestry conditions and are being used by the Department's own work force under close supervision. Any failures are quickly investigated and further research continued if necessary. This is in contrast to the case of a grazier receiving advice from the local general storekeeper. The grazier has a more difficult situation where conditions generally favour more rapid regrowth and regeneration. There are insufficient full-time research workers to study every situation in depth and landholders are forced to carry out their own research. The average landholder is not equipped to do this research.

There is no extension service specializing in woody plant control in Queensland. Often research workers from CSIRO and the Department of Forestry, Lands and Primary Industries pass on information directly to the landholder. Leaflets are included with each carton of herbicide sold by the Lands Department which also provides a postal enquiry service and personal visits by its officers to properties. District advisers of the Department of Primary Industries and District Foresters of the Department of Forestry provide valuable services. Field representatives of several well established chemical firms probably contact a greater number of landholders than do the combined Government Departmental personnel and, therefore, close liaison is maintained with these company representatives. On the whole, extension is probably adequate to serve the immediate needs of the grazing community which is presently faced with the

uncertainty of the wool industry and overseas meat export markets.

At least twenty (20) woody plants are declared noxious under the Land Act, the Stock Routes and Rural Lands Protection Act and the Local Authorities Act. If local authorities enforce the law diligently, then they can produce spectacular results such as seen in the Brisbane area where there has been excellent cooperation between the Brisbane City Council and the Department of Lands in the clearing of groundsel bush. In several other districts, control has not reached this high standard. The introduction of 'The Agricultural Chemicals Distribution Control Act' should result in the safer use of chemicals and more effective control mainly because of the licensing of spray operators. The restricted use of certain chemicals and certain types of spray equipment in declared hazardous areas should result in more efficient control with greatly reduced danger of crop damage.