

WEEDS IN PASTURES AND GRAZING LAND IN NORTHERN TERRITORY

Reviewed by

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THE SIGNIFICANCE OF WEEDS

- Pasture weeds can act -
- (a) on the pasture directly by causing a drop in production of desirable species per unit area through competition
 - (b) to decrease total production by invasion and reduction of area available for grazing
 - (c) on the animal itself e.g. toxic species.

As improved pastures have been developed in the monsoon areas, the significance of weeds, acting in all three ways has been greatly intensified and they are now of considerable importance.

In the Arid Zone native pasture areas, the definition of what constitutes a weed can cause problems as in many cases, some ground cover (even if normally considered as weed species) may be better than no cover at all. Less desirable species have shown some increase in recent years, but this may be only as a result of differing climatic conditions after years of drought. However in some areas, the changes can be attributed to poor management and over grazing resulting from inadequate knowledge of the ecology and productive capacity of the rangeland.

PRESENT WEED CONTROL PRACTICES

In native pasture or rangeland, management is of primary importance due both to the large areas involved and its effect on the biological and ecological factors controlling weed spread. Management can be effective for both woody and herbaceous weed species. Herbicidal or physical control methods may be employed in scrub invasion where economic benefit may result, but if management has any weed control aspects it is aimed at containing the weed, not eliminating it.

On improved pasture, (predominantly Townsville stylo) herbicidal control of *Hyptis suaveolens* can be obtained using 2,4-D formulations and aerial application over large areas has

proved promising. The perennial *Sida* spp. are difficult to control. Herbicides are ineffective, and the most satisfactory methods are to firstly ensure the absence of weed seeds from the seed sown and then where appropriate, control by either slashing, the avoidance of over-grazing, and in seed population areas, by hand pulling. Slashing can also help control *Hyptis*.

The annual grass species (major invaders of Townsville stylo pasture) can be controlled in the seedling stands by pre-emergence herbicides including trifluralin and chlorthal, but at present this is too expensive and time consuming for large scale pasture improvement, though in use in some seed production stands. Management of Townsville stylo by fairly hard grazing during the wet season, at which time the animals preferentially select the annual grasses, will effectively control these species and very grassy stands have been managed back to productive pastures by this method. However it must be remembered that on native pasture in the Top End with low animal production, economics is the prime determining factor and in many cases it is just not worth while spending the money.

EFFECTIVENESS OF RESEARCH, EXTENSION AND LEGISLATION ON PASTURE WEED CONTROL

Research in this context must refer to detailed biological, ecological and agronomic studies as well as direct control (herbicidal) methods and in this situation where management is a most decisive factor, the first three will probably have the most beneficial long term results. However research has already provided a herbicidal answer to *Hyptis* and annual grasses though costs are generally far too high, except for certain purposes. Research on herbicidal control should be continued with particular attention directed towards those species mentioned in the table.

Extension has proved most helpful in educating the pastoral community on weed identification and the inroads weeds can make and in general has served to arouse community awareness of weeds. New weed controls methods need to be conveyed to the farming community and part of the increased use of 2,4-D for *Hyptis* control can be attributed to effective extension.

Direct control through specific weed legislation - e.g. Noxious Weeds Ordinance is mostly ineffective due to poor policing, the vast areas involved, cost of treatment in comparison to value of production, and the large areas of weed-infested Crown land.

Indirect control through seed certification has been considerably more effective, both in ridding seed fields of undesirable weeds and raising the quality of the seed to be sown for pasture, though total control cannot be gained as neither Seed or Stock

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Food Ordinances exist in the Northern Territory and there is no effective interstate plant quarantine control.

The Significant Weeds in different Pasture Zones,
and their mode of action as described above

Monsoon area [$> 30'' (> 750 \text{ mm})$ A.A.R.]

	<u>Predominant desirable species</u>	<u>Significant Weeds</u>	<u>Principal Effects</u>
	<i>Sorghum</i> spp.	<i>Cycas</i> spp.	C
1. Native pasture	<i>Themeda australis</i> <i>Chrysopogon</i> spp. <i>Heteropogon</i> spp.	<i>Hyptis suaveolens</i>	B
2. Improved pasture	<i>Stylosanthes humilis</i>	<i>Digitaria adscendens</i>) annual <i>Brachiaria</i> sp.) grass <i>Urochloa</i> sp.) group <i>Hyptis suaveolens</i> <i>Sida</i> spp. <i>Pennisetum pedicellatum</i> <i>Eucalyptus</i> sp.) suckers <i>Erthryophleum chlorostachys</i>)	A A, B A, B B B, C
<u>15''-30'' (375mm-750mm) A.A.R.</u>			
1. Native pasture	<i>Astrebla</i> spp. <i>Iseilema</i> spp. <i>Enneapogon</i> spp. <i>Aristida</i> spp.	<i>Calotropis procera</i> <i>Acacia farnesiana</i> <i>Parkinsonia aculeata</i> <i>Crotolaria</i> spp.	B B B C
<u>Arid region $< 15'' (< 375\text{mm})$ A.A.R.</u>			
1. Native pasture	<i>Atriplex</i> spp. <i>Kochia</i> spp. <i>Acacia</i> spp. <i>Chenopodium</i> spp. <i>Triodia</i> spp.	<i>Senecio magnificus</i> <i>Indigofera domini</i> * 'burr type' plants	C C A, B

*The group includes *Calotis* spp., *Xanthium* spp., *Bassica* spp., and *Tribulus* spp.