THE PROBLEMS AND ECONOMICS OF CYCAD CONTROL IN THE NORTHERN TERRITORY

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Serious losses caused by the toxin of a *Cycas* species have contributed to the problems of the cattle industry in the Darwin/Adelaide River area. Although losses have been noted for over 50 years, the problem has only become acute as management improves and cattle numbers increase.

The Cycad toxins affect the hindquarters causing an unsteady gait in affected animals. In acute cases, paralysis occurs. Affected animals are unable to walk long distances and rapidly lose condition during the dry. Animals are permanently affected, but sale to abattoirs is possible if the animal's condition is suitable.

Formerly thought to be *Cycas media*, the plant is unidentified and probably un-named (Everist, pers. comm. 1969). Palm-like in appearance, the plant is deciduous, making most growth in the late dry season. Fires stimulate rapid growth at any period of the year. Height average is 2-6 feet (0.6-1.8 m) with occasional plants to 11-12 feet (3.3-3.7 m). The normally unbranched trunk averages 4-8 in. (10-20 cm) in diameter with a large underground tuber up to 2 feet (60 cm) deep and 1.5 feet (50 cm) across.

Regrowth can occur from any part of the trunk or tuber if the growing point is damaged.

Over 400 Cycads per acre (1000 per hectare) have been counted, with averages of 50-75 per acre (100-150 per hectare) over large areas. The plant grows mainly on well drained slopes.

CONTROL METHODS

Ploughing or ripping will eliminate the plant, but as most pastures are established without clearing, this is not economic.

Power kerosene, 2,4,5-T, ammonium sulphamate, fenuron and borax have been tested but are ineffective. Sodium arsenite, and picloram (Tordon 50-D) are effective. Although arsenite is much cheaper than picloram, toxicity problems can occur, with operators and stock.

The chemical is injected into the base of the plant using tomahawks and automatic syringes. These were preferred by operators to other types of equipment tested. Trunkless and immature plants are sprayed to run off with Tordon 255(R) applied to the growing point with a plastic knapsack.

Rates used are:

Tordon 50-D - 1 ml/injection, 2-3 injections/plant, neat.

Arsenite - ditto

Tordon 255 - 1 part to 45 diesel fuel.

PROBLEMS OF CONTROL

From experience gained on 1700 acres (688 hectare) it is essential to stimulate as many plants as possible into active growth. Burning in late October and waiting until early storms achieves this. Fire clears dead grass, facilitating location, and stimulates many plants into active growth, while the rain stimulates more, particularly immature plants.

Kills of 60%, with an additional 20% badly affected have been achieved using Tordon 50-D, by injecting any point on the trunk. Injection close to ground level improves the kill. Treated plants may take up to two wet seasons to die or recover.

COSTS

Total costs, based on 1700 acres (688 hectares) are estimated to be $3-4 acre ($7.40-9.90 per hectare). This is using Tordon 50-D, and Tordon 255, at rates of 3.5 - 4.5 acres (1.4 - 1.8 hectare) per manhour.

The cost is spread over 3 or 4 years, it being impossible to treat all plants in any one year.

The density must be reduced to less than 1 per acre (2 per hectare) to eliminate the problem.