

Article 50

GFC/MLW

26th February, 1968.

THE CONTROL OF REGENERATING BRACHYSTEGIA SPICIFORMIS BENTH.
BY MEANS OF TORDON 22K.

1. An investigation into the practicability of incorporating organic arboricides into our barrier maintenance operations was carried out during 1959, and extended in 1960/1961. (Cockbill Rhod. Agr. J. 58 No. 3 1961; Rhod. Agric. J. 58 No. 6 1961). It was concluded from these investigations that while some woody species could readily be killed by suitable applications of mixtures of 2,4-D and 2,4,5-T in lighting paraffin to the cut trunks, others, notably B.spiciformis were highly tolerant of the treatment.

2. On the recommendation of the technical advisor of Messrs. Fisons Pest Control a further trial was carried out during 1966/67 using the compound Tordon 22K on the freshly cut stems of regenerated B.spiciformis.

3. The area selected for treatment was a patch of regenerating Brachystegia spiciformis Benth. on Lettie Swan Farm, Chipinga District, which had grown to a height of 8-10 feet, with stems of up to three inches diameter. Until 1958 the area had been subjected to annual slashing and burning as part of an anti-tsetse programme designed to provide a barrier to incursions of the tsetse flies Glossina morsitans, G.pallidipes and G.brevipalpis from neighbouring infested territory in Mocambique. In 1958, however, as the reduced threat of invasion appeared to warrant a redirection of resources, this area was excluded from this annual treatment. The extent of the regeneration of woody species which followed soon reduced the grass cover to a level where hot, annual fires ceased to occur, and the coppicing thickened progressively.

4. So dense were the regenerating shoots that it was not possible for operators to move through them to apply a foliar spray carrying the pneumatic knapsack sprayers. Consequently, each shoot was cut cleanly through and the freshly cut end was treated with arboricide applied by means of paint brushes.

Application was made initially to the freshly cut stems on February 1st 1966. On December 9th 1966 about half of the surviving, leaf bearing shoots were treated with the arboricide, applied as a foliar spray. The remainder were used as controls. Shoots which were cut and left untreated as controls on February 1st 1966 were divided on December 9th 1966. About half were left as controls and the remainder received arboricide as a foliar spray at a concentration of 1 : 100.

5. The results are summarised here in tabular form.

6. It appeared that 1% Tordon 22K, in water, prevented regrowth, or killed a higher proportion of treated plants than either the 4% or 0.25% application when applied as a foliar spray to regeneration following application to the freshly cut stems. The 1% foliar application to the regeneration from the untreated cut stems killed or prevented regrowth of about the same proportion as the 4% foliar application following application to the freshly cut stems. The single applications of 4%, 1% or 0.25% to freshly cut stems were not highly effective. The amount of grass regeneration was distinctly greater on the plots where treatment had been most effective.

It is not considered necessary to analyse these figures statistically, since, if arboricides are to be used with any confidence, their effectiveness must be of the order of obviousness.

7. The cost of these operations may serve as a rough guide to large scale operations, although the total area involved was only one acre in extent. The quoted price of the Tordon 22K at the time of the application was £22.10.0. per gallon. In Table 2. the costs of treating all species of woody plants encountered in the trial are given. Since labour costs vary somewhat from district to district the expenditure is presented as man/hours.

Thus, it would seem, an outlay of about £12 per acre would be required to remove B.spiciformis regeneration from the affected areas of Lettie Swan farm by means of Tordon 22K.

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TABLE 1.

THE EFFECT OF APPLICATIONS OF VARIOUS CONCENTRATIONS OF TORDON
22K ON REGENERATING BRACHYSTEGIA SPICIFORMIS BENTH.

Number of Brachystegia shoots showing evidence of survival (Buds or leaves).

Date of Treatment	4% to cut stems		1% to cut stems		0.25% to cut stems		Cut stems	
	Populations of shoots in 20 x 3' radius circular sampling stations in each plot.							
1. 2.1966	95		37		116		43	
3. 6.1966	66		24		83		46	
25.10.1966	86		34		93		42	
9.12.1966	116		31		95		46	
	Control	4% Foliar Spray	Control	1% Foliar Spray	Control	0.25% Foliar Spray	Control	1% Foliar Spray
	Populations of shoots in 10 x 3' radius circular sampling stations in each plot.							
9.12.1966	49	67	17	14	50	45	26	20
30. 3.1967	40	2	18	0	45	23	25	1
18. 7.1967	39	5	17	0	46	33	28	2

Converted to percentages of original number of shoots.

1. 2.1966	100		100		100		100	
3. 6.1966	69		65		72		107	
25.10.1966	91		92		52		98	
9.12.1966	122		84		82		107	
	Control	4% Foliar Spray	Control	1% Foliar Spray	Control	0.25% Foliar Spray	Control	1% Foliar Spray
9.12.1966	100	100	100	100	100	100	100	100
30. 3.1967	82	3	106	0	90	51	96	5
18. 7.1967	80	10	100	0	92	73	108	10

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TABLE 2.

COST OF TREATMENT WITH TORDON 22K.

Applied to cut stems	4%	1%	0.25%	Control	Labour
Estimated No. of stems cut, and cleared. (All spp.)	2066	1676	2534	1754	9.3 man/hours/acre
Mean application gals. per acre.	5.745	3.976 4.561	3.962	0	8.5 man/hours/acre
Cost of application of 4.561 gal/ac @ £22.10.C. per gal. (excluding cost of water).	£ 4.105	£ 1.026	£0.256		17.8 man/hours

As foliar spray to all spp.

Estimated No. of stems treated (All spp.)	1481	1715	935	0	5.3 man/hours/acre
Mean application gals. per acre, if total population had been treated.	37.947	32.773 52.188	85.833		
Cost of application of 52.188 gal/ac. @ £22.10.C. per gal.	£46.969	£11.742	£2.936		5.3 man/hours

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