การใช้โซเดียมทีซีเอและดาลาพอนกำจัดหญ้าต่าง ๆ

The Control of Grasses with Sodium TCA and Dalapon[1]

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Grasses are a major weed problem in both cultivated and uncultivated areas. In Thailand, paragrass (*Brachiaria mutica*), torpedograss (*Panicum repens*) and lalang (*Imperata cylindrica*) are the most widespread and difficult to control among the perennial grasses. Torpedograss and lalang have deep rhizomes, while paragrass has relatively shallow stolons and culms (Fig. 1–3)

The first effective selective herbicide for grasses to appear was sodium trichloroacetate, commonly designated as TCA (McCall and Zahnley, 1949). Through the substitution of one of the chlorine atoms in TCA with a methyl group another effective herbicide, 2,2–dichloropropionic acid (dalapon) was produced (Dow-Chemical Co., 1953). Both of these chemicals have been demonstrated to be highly effective against Johnsongrass (*Sorghum halepense*) Burmudagrass (*Cynodon dactylon*), quack grass (*Agropyron repens*), and others (Audus, 1964; Hanson, 1956).

Relatively little information exists on the control of grasses in Thailand. Pratee-pasen (1939) reported that the application of sodium arsenite at 10 lbs./acre at weekly intervals completely eradicated the lalang. Prompuak (1955) claims that cross-cultivation with a tractor 3 times at weekly intervals in dry season will give 90% control of lalang. A combination of sodium arsenite and ploughing was recommended by Penchit (1954). Sayuprathum (1954) and Yubol (1962) suggested planting in lalang infested areas certain grasses such as *Pollinia ciliata* which will outgrow and ultimately suppress the lalang. Thirawat (1960) attempted to control pure stands of lalang during the dry season with dalapon, TCA and Lallicide, but none proved effective, while Simandjuntak (1963) showed that dalapon was the most effective among several herbicides tested.

Beginning in May, 1963, a series of experiments were conducted under the auspices of the Kasetsart/Hawaii University Contract in order to determine the efficacy of TCA and dalapon in controlling paragrass, torpedograss and lalang. The results of research are reported herein.

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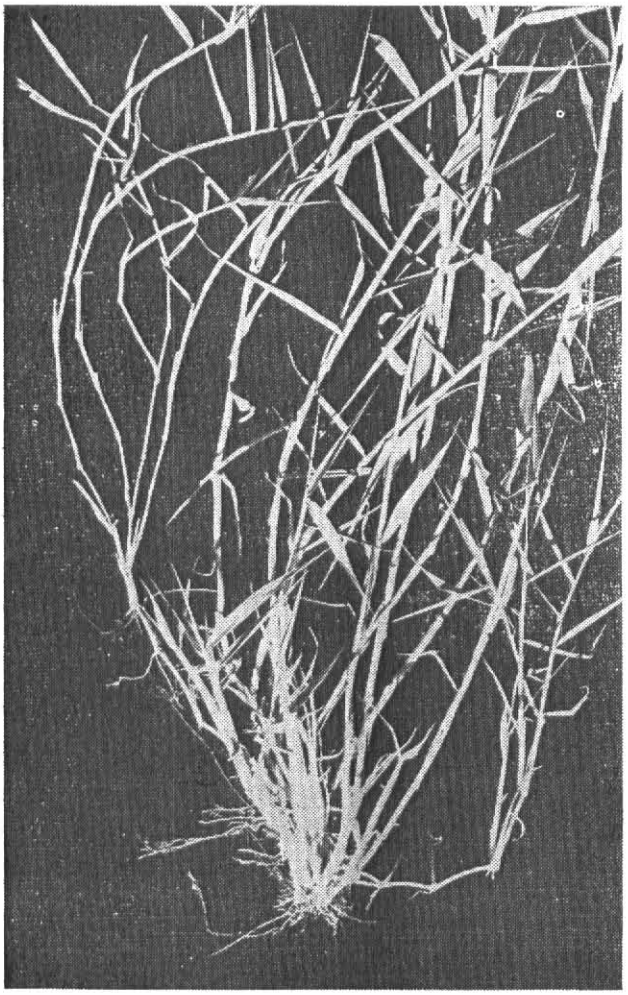

Fig. 1. Habit of paragrass, *Brachiaria mutica*.

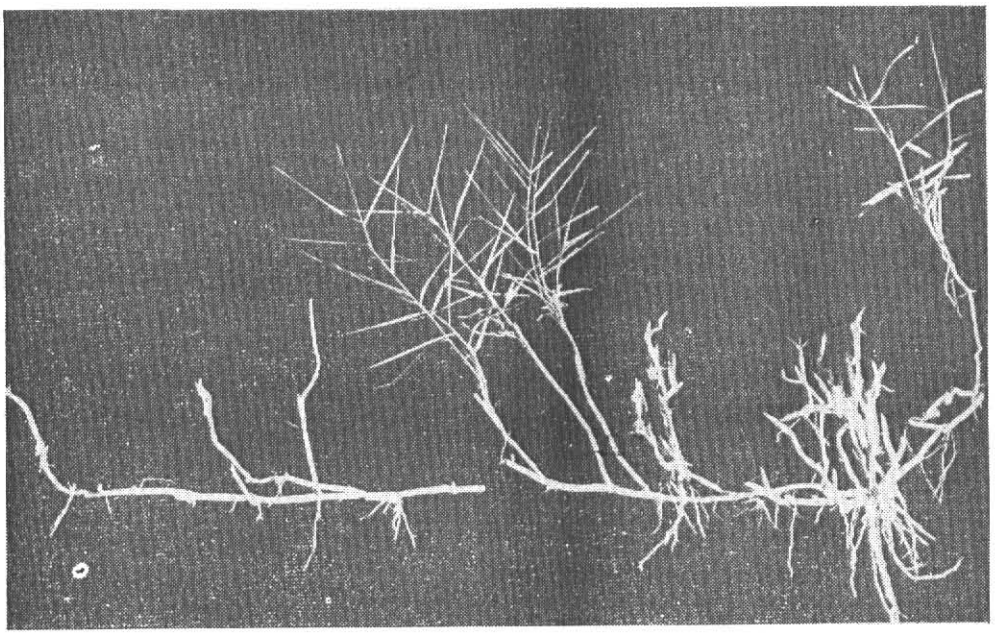

Fig. 2. Habit of torpedograss, *Panicum repens*.

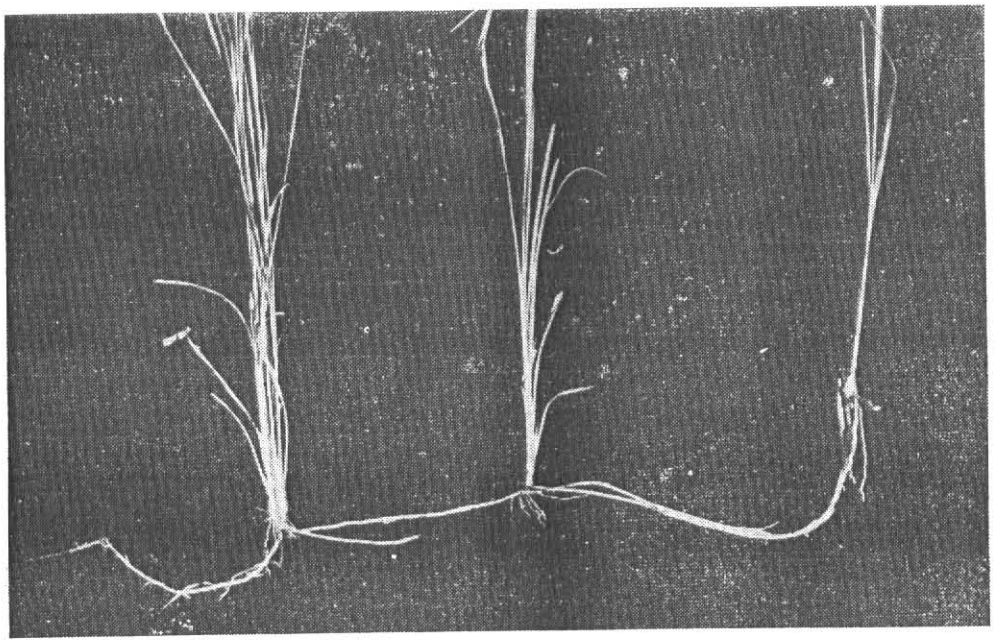

Fig. 3. Habit of lalang, *Imperata cylindrica*.

MATERIALS AND METHODS

The areas selected for treatment had been naturally infested by either paragrass (*Brachiaria mutica*), torpedograss (*Panicum repens*) or lalang (*Imperata cylindrica*) with the exception of Exp. 3 in which the grass was planted. Sodium TCA (94% active ingredient) and dalapon (89% active ingredient) were used in concentrations ranging from 50 to 200 lbs./acre and 15 to 30 lbs./acre of active ingredient, respectively. The herbicides were applied through a knapsack sprayer equipped with T-jet nozzles discharging 80 to 100 gal./acre at a pressure of 20 to 40 psi.

The first five experiments, which involved the control of paragrass, *Brachiaria mutica* (syn. *Panicum purpurascens*), were conducted at the Horticulture Department in Bangkhen.

Exp. 1 was initiated at the beginning of the rainy season on May 15, 1963 using 5 × 3 meter plots and 3 replications. In Exp. 2 herbicides were applied during the rainy season on Aug. 12 and Sept. 1, 1964. Plot size and replications were identical to the former experiment. In Exp. 3, the grass was planted on Nov. 28, 1963, and when established it was treated with herbicides on Feb. 29 and March 21, 1964. Individual plots were 2 × 1.5 meters, and 4 replications were used. Exp. 4 was conducted during the latter part of the rainy season. The grass was cut back near the ground level on Aug. 24 and treated on Sept. 15 and Oct. 14, 1964. Plots were 3 × 4 meters, and 3 replications were included. For the final experiment on paragrass, the grass was cut back on Oct. 24 and herbicides applied on Nov. 30, Dec. 14, and Dec. 28, 1964.

Exp. 6 and 7 conducted at Bangkhen were directed toward the control of torpedograss, *Panicum repens*. In Exp. 6, herbicides were applied during the rainy season on Aug. 25 and Sept. 16, 1964. The plot size was 3 × 3.5 meters, and 4 replications were used. Exp. 7 was conducted during the beginning of the cool and dry season. The grass was cut back to the ground level on Oct. 10, and herbicides were applied on the regrowth on Nov. 26 and Dec. 19, 1964. Four replications using 3 × 4 meter plots were involved.

Lalang was treated in the last three experiments. Exp. 8 was conducted in the citrus orchard at Pakchong Experiment Station in Nakorn Rajasima. Herbicides were applied on April 30 and May 20, 1964. Plot size was 1.75 × 1.75 meters. Five year old tangerine trees were involved in replicates 1 and 2, while 4 year old tress were in replicates 3 and 4. Exp. 9 was conducted at Mongkol's farm at Nakorn Nayok. The grass was cut back and burned on July 25, and herbicides were applied on Aug. 29, 1964. Four replicates and 3 × 4 meter plots were used. In Exp. 10 conducted at the Pakchong Experiment Station, the grass was cut back on Oct. 25 and herbicides applied on Nov. 4 and 25, 1964. Four replicates and 2 by 2 meter plots were used. The tangerine plants were 4 years old.

The degree of weed control was determined on the basis of visual observations. Complete control was rated 4, while no effect of the herbicide was denoted 0 (1 for Exp. 1 and 2). Good control was considered to be an acceptable degree of weed control in commercial plantings and was rated 3, fair control was rated 2 and poor control, 1 (except in Exp. 1 and 2)

RESULTS

A few days following the application of sodium TCA and dalapon, deformation of new growths and proliferation of tissue developed in paragrass, and gradually the growths died. The deformative effects were not noticeable in lalang. In the majority of experiments the maximum degree of control of grasses was obtained in about two months after initial treatment. Usually at about four months after initial herbicide application, regrowth appeared.

PARAGRASS

In the first experiment (Table 1) sodium TCA at 141 lbs./acre gave complete control for paragrass and fair to good control at 47 and 94 lbs./acre. Only fair to good control was obtained with dalapon at 12.4 lbs./acre, the highest concentration used in this test, indicating that the concentration was not high enough to effectively control paragrass.

Table 1. The effect of sodium TCA and dalapon on paragrass (*Brachiaria mutica*)

	Treatment lbs./acre	Degree of control* 6/3/63	7/4/63
Sodium TCA	47	2.0	2.3
	94	2.4	2.8
	141	3.6	4.0
Dalapon	4.2	1.0	1.0
	8.5	1.3	1.7
	12.8	1.5	2.5
Control		1.0	1.0

* 1 = no control, 2=fair, 3=good 4 = excellent.

The results of Exp. 2 (Table 2) shows that split applications of sodium TCA and dalapon are much more effective than a single application even though the total amount applied is the same. Sodium TCA at 94+70.5 lbs./acre and 117.5+70.5 lbs./acre and dalapon at 10.6+6.4 lbs./acre completely eradicated the paragrass. Nearly complete control was obtained with sodium TCA at 117.5+47.5 lbs./acre and 70.5 lbs./acre and dalapon at 8.5+6.4 lbs./acre. The single applications of both sodium TCA and dalapon gave very poor results.

Table 2. The effect of repeated applications of sodium TCA and dalapon on paragrass

	Treatment lbs./acre	Degree of control* 10/10/63	11/13/63
Sodium TCA	70.5	1.0	1.0
	94.0	1.0	1.0
	117.5	1.0	1.0
	70.5 + 47.0	3.3	2.0
	94.0 + 47.0	4.0	2.6
	117.5 + 47.0	4.0	3.7
	70.5 + 70.5	3.6	3.8
	94.0 + 70.5	4.0	4.0
	117.5 + 70.5	4.0	4.0
Dalapon	6.4	1.0	1.0
	8.5	1.0	1.0
	10.6	1.0	1.0
	6.4 + 4.2	2.6	2.0
	8.5 + 4.2	3.8	2.8
	10.6 + 4.2	2.8	2.8
	6.4 + 6.4	3.0	2.8
	8.5 + 6.4	3.0	3.8
	10.6 + 6.4	3.7	4.0
Control		1.0	1.0

* 1 = no control, 2 = fair, 3 = good, 4 = excellent

The third experiment (Table 3) confirmed the earlier results that split applications are much more effective than single applications. Every single application of sodium TCA and dalapon was ineffective in controlling paragrass. Good to excellent control was obtained with sodium TCA at 125+50 and 125+50 and 125+75 lbs./acre and with dalapon at 15+7.5 lbs./acre within two months after treatment. but regrowth appeared in three months. The treatments in this experiment were not as effective as those in the previous experiment, possibly due to the advanced age of the growth for the grass was treated while in the flowering stage.

Table 3. The effect of sodium TCA and dalapon on paragrass during the cool season.

Treatment	lbs./acre	Degree of control* 4/29/64	5/29/64
Sodium TCA	75	1.5	0.0
	100	1.8	0.1
	125	1.9	0.2
	75 + 50	2.8	1.7
	100 + 50	2.8	1.4
	125 + 50	3.4	2.1
	75 + 75	2.2	1.6
	100 + 75	2.9	2.2
	125 + 75	3.8	1.9
Dalapon	10	1.6	0.0
	12.5	2.0	0.0
	15	2.1	0.1
	10 + 7.5	2.6	1.3
	12.5 + 7.5	2.6	1.2
	15 + 7.5	3.2	1.1
	10 + 10	2.9	0.8
	12.5 + 10	2.8	1.0
	15 + 10	2.8	0.8
Control		0.0	0.0
LSD	5%	0.8	0.9
	1%	1.0	1.2

* 0 = no control, 1 = poor, 2 = fair, 3 = good, 4 = excellent

Exp. 4 was designed to compare the efficacy of dalapon at 20, 25, and 30 lbs./acre in one, two and three applications. As seen in Table 4, dalapon at 20, 25 and 30 lbs./acre in either two or three applications gave between good and excellent control two months after initial application, and this level of control was maintained for four months in most treatments. The single applications were slightly less effective than the split applications, although the differences were not as great as in the previous experiments. The differences between two and three application treatments were not significant. It can be noted that the single applications made at the latest date were less effective than those made initially. This can be attributed to the differences in weather conditions during and after treatment. Soon after the initiation of treatments, the dry season set in which is generally unfavorable for weed growth.

Table 4. The effect of split applications of dalapon on paragrass

	Treatment lbs./acre	Degree of control* No. of days after first application. 30	60	90	120
Dalapon	20	2.6	3.6	3.4	3.2
	0 + 20	2.7	3.5	3.2	3.1
	0 + 0 + 20	2.9	3.5	2.6	2.4
	10 + 10	3.0	3.9	3.6	3.4
	13 + 7	3.4	4.0	3.4	3.6
	7 + 7 + 6	2.5	3.9	3.8	3.5
	10 + 7 + 3	3.4	4.0	3.7	3.8
	25	3.2	3.9	3.6	3.5
	0 + 25	2.9	3.8	3.3	3.2
	0 + 0 + 25	3.1	3.6	2.8	2.5
	12.5 + 12.5	3.3	3.9	3.3	3.3
	17 + 8	3.6	4.0	3.5	3.2
	9 + 8 + 8	3.4	4.0	3.6	3.1
	12 + 8 + 5	3.3	3.8	3.7	3.4
	30	3.3	3.8	3.5	3.3
	0 + 30	3.1	3.4	3.1	3.0
	0 + 0 + 30	3.2	3.6	2.8	2.6
	15 + 15	3.5	3.9	3.5	3.5
	20 + 10	3.6	4.0	3.8	3.6
	10 + 10 + 10	3.5	4.0	3.9	3.9
	15 + 10 + 5	3.5	3.7	3.3	3.4
Control		0.0	0.0	0.0	0.0
LSD	5%	0.8	0.3	0.5	0.4
	1%	1.0	0.4	0.6	0.6

* 0 = no control, 1 = poor, 2 = fair, 3 good, 4 = excellent

The results of Exp 5 are similar to those of the preceding test (Table 5). Dalapon at both 20 and 25 lbs./acre in two or three applications gave effective control from two to three months after the initial treatments. Eradication was obtained in several plots (Fig. 4). As in the earlier experiments, the single applications of 20 and 25 lbs./acre were significantly less effective than the split applications. The herbicidal effects were slower to manifest themselves in this test probably due to the unfavorable weather conditions for growth of the grass. It appears that two applications of dalapon totaling 20 lbs./acre will effectively control paragrass for a period of several months.

Table 5. The effect of dalapon on paragrass

	Treatment lbs./acre	Degree of control* 12/30/64	1/24/64	2/28/65
Dalapon	20	2.0	2.9	3.3
	10 + 10	2.4	3.5	3.9
	13 + 7	2.6	3.5	3.9
	7 + 7 + 6	2.4	3.5	3.9
	10 + 7 + 3	2.5	3.8	4.0
	25	2.1	2.9	3.3
	12.5 + 12.5	2.5	3.6	3.9
	17 + 8	2.7	3.4	3.8
	9 + 8 + 8	2.5	3.7	4.0
	12 + 8 + 5	2.4	3.7	4.0
Control		0.0	0.0	0.0
LSD	5%	5.0	0.2	0.3
	1%	0.6	0.4	0.5

* 0 = no control, 1 = poor 2 = fair, 3 = good, 4 = excellent

TORPEDOGRASS

Observation at 90 days after the first treatment in Exp. 6 showed that split applications of dalapon at 25, 20 and 25 lbs./acre and sodium TCA at 100, 150 and 200 lbs./acre gave good control of terpedograss (Table 6). However, regrowth appered in the fourth month indicating that the rhizomes were not completely killed. The single applications of dalapon and sodium TCA at the lower concentrations were less effective than the highest concentration.

Table 6. The effect of sadium TCA and dalapon on torpedograss (*Panicum repens*)

	Treatment lbs./acre	Degree of control* 9/24/64	10/24/64	11/23/64	12/23/64
Sod. TCA	100	3.4	3.8	2.4	0 3
	150	3.3	3 9	2.7	0.4
	200	2.8	3.7	3.1	0.5
	50 + 50	2.9	2.8	3.2	0 9
	75 + 75	3.2	3 9	3.4	0.9
	100 + 50	3.4	3.9	4.6	1.6
	100 + 100	3.6	4.0	3 6	2.0
	150 + 50	3.5	4.0	3.2	0.8

Dalapon	15	2.4	3.3	2.4	0.2
	20	2.4	3.5	2.3	0.4
	25	2.5	3.3	3.1	0.7
	10 + 5	2.7	3.7	3.0	1.2
	10 + 10	3.1	3.8	3.1	1.7
	15 + 5	2.8	3.8	3.4	1.5
	15 + 10	2.9	3.7	3.1	1.6
	20 + 5	3.2	3.8	3.0	1.7
Control		0.0	0.0	0 0	0.0
LSD	5%	0.5	0.7	0.6	0.2
	1%	0.6	0.9	0.8	0.3

* 0 = no control, 1 = poor, 2 = fair, 3 = good, 4 = excellent

In Exp. 7 (Table 7) the results differed from those of the previous experiment in that several treatments gave good control of torpedograss for a period of four months, and also most of the grass rhizomes were killed. The high efficacy of the treatments was probably due to the favorable stage of development of the grass. The herbicide was applied on the active regrowth, while in Exp. 6 full-grown plants in flowering stage were treated.

Table 7. The effect of dalapon on torpedograss during the dry season

Treatment		Degree of control*		
	lbs./acre	12/25/64	1/24/65	3/26/65
Dalapon	15	2.2	2.3	3.2
	20	2.1	2.3	3.2
	25	2.4	2.4	2.4
	10 + 5	3.2	3.1	3.2
	10 + 10	3.6	3.7	2.4
	15 + 5	3.1	3.3	3.3
	15 + 10	3.5	3.6	3.3
	20 + 5	3.1	3.3	3.5
Control		0 0	0 0	0 0
LSD	5%	0.4	0.1	0.5
	1%	0 6	0 2	0.7

* 0 = no control, 1 = poor, 2 = fair, 3 = good, 4 = excellent

LALANG

In Exp. 8 (Table 8) single applications of sodium TCA and dalapon on lalang gave poor results, similar to the earlier experiments on paragrass and torpedograss. Sodium TCA at 75+75, 100+75 lbs./acre gave good control and dalapon at 17+17 and 34+17 lbs./acre gave complete control for a period of four months after treatment. After 8 months considerable regrowth was encountered in the split treatments of sodium TCA. On the other hand the split treatments of dalapon maintained complete to nearly complete control indicating that the treatment more or less eradicated the grass. No phytotoxic effects on the tangerine trees were detected.

Table 8. Control of lalang (*Imperata cylindrica*) in citrus planting.

Treatment	lbs./acre	Degree of control* 7/1/64	9/10/64	1/11/65
Sodium TCA	75	0.0	0.5	1.3
	100	0.7	1.0	1.3
	75 + 75	3.0	3.0	1.8
	100 + 75	3.0	3.2	1.8
Dalapon	17	1.0	1.2	1.8
	34	1.9	1.7	1.8
	17 + 17	4.0	4.0	3.8
	34 + 17	4.0	4.0	3.9
Control		0.0	0.0	0.0
LSD	5%	0.9	0.7	1.0
	1%	1.2	1.0	1.3

* 0 = no control, 1 = poor, 2 = fair, 3 = good, 4 = excellent

The results of Exp. 9 (Table 9) again show that the split applications of sodium TCA and dalapon are much more effective than the single applications. Good to excellent control was obtained with the split applications of dalapon at 15 (Fig. 5), 20 and 25 lbs./acre and sodium TCA at 150 and 200 lbs./acre for a period of 5 months. The results of 2 applications of dalapon at various concentrations did not differ significantly. As with paragrass and torpedograss, most of the rhizomes were killed.

Table 9. Effect of sodium TCA and dalapon on lalang

Treatment	lbs./acre	Degree of control* 10/26/64	12/23/64	2/6/65
Sod. TCA	100	2.3	1.0	1.3
	150	2.9	2.4	2.1
	100	3.0	3.0	2.6
	50 + 50	3.3	2.4	2.1
	75 + 75	3.6	3.3	3.4
	100 + 50	3.9	3.5	3.2
	100 + 100	3.8	3.7	3.3
	150 + 50	3.7	3.8	3.7
Dalapon	15	2.6	1.4	1.1
	20	2.9	2.3	1.8
	25	2.7	1.7	1.2
	10 + 5	3.7	3.7	3.6
	10 + 10	3.7	3.4	3.4
	15 + 5	3.5	3.6	3.5
	15 + 10	3.8	3.9	3.8
	20 + 5	3.6	3.7	3.6
Control		0.0	0.0	0.0
LSD	5%	0.4	0.6	0.5
	1%	0.6	0.8	0.7

* 0=no control, 1 = poor, 2 = fair, 3 = good, 4 = excellent

In the Exp. 10,(Table 10) dalapon was less effective than in Exp. 9, probably due to the difference in the environmental conditions, or the age of the growth, for the grass was about 80 cm. tall when the dalapon was applied. Split application of 15 and 20 lbs./acre, particularly 8 + 7 and 10 + 10 lbs./acre gave good control at 4 months following the initial treatment. No phytotoxic effects were observed on tangerine plants.

Table 10. The control of lalang in citrus planting

	Treatment lbs./acre	Degree of control* 1/11/65	3/7/65
Dalapon	15	1.3	2.8
	20	2.0	2.7
	10 + 5	1.5	2.7
	15 + 5	1.2	2.9
	8 + 7	2.1	3.1
	10 + 10	1.8	3.2
Control		0.0	0.0

*0=no control, 1=poor, 2=fair, 3=good, 4=excellent

DISCUSSION

The control of paragrass with sodium TCA or dalapon does not appear to be difficult. Two or three applications of sodium TCA totaling 150 lbs./acre and of dalapon totaling 20 lbs./acre should suffice in providing good to excellent control of the grass for a period of several months. If the weed control operation is handled properly by utilizing the optimum concentration of herbicide in 2 to 3 applications, providing good coverage of the spray, applying herbicides on young and active growths, and assuring adequate soil moisture for effective translocation of the herbicides, one might expect nearly complete eradication of the grass. It is very diffi cult to completely eliminate the grass in 2 to 3 spraying, and usually spot treatments are required 3 to 4 months after the initial treatment.

Either sodium TCA at 150 to 200 lbs./acre or dalapon at 15 to 20 lbs./acre in split applications will give satisfactory control of paragrass. Considering the amount of herbicide required and the cost of each, dalapon is much more economical and, therefore, recommended over sodium TCA for practical grass control. In Hawaii, it has been shown that dalapon is 4 to 8 times as effective as TCA in controlling Burmudagrass, torpedograss and paragrass (Hanson, 1956).

The deep rhizomes of torpedograss makes it much more difficult to control than paragrass. In Hawaii dalapon at 5 to 10 lbs./acre per application using 2 or 3 applications proved effective in controlling the torpedograss. Some plantations have adopted the use of a combination spray of 3 lbs./acre of dalapon and 8 lbs./acre of sodium TCA (Hanson, 1956). In Florida on fine sandy soil, methyl bromide applied at 1 lb./acre sq. ft. under a polyethylene cover left in position for 2 days gave effective control of both top growth and rhizomes. Ethylene glycol ester of TCA at 60 lbs./acre and sodium TCA at 90 lbs./100 gave rapid though temporary top kill, and retreatment gave satisfactory

knock-down of regrowth, but many rhizomes remained unaffected (Ryan and Kretchman, 1963). According to Kretchman (1962a), methyl bromide is the only treatment so far found which will kill the underground parts of the torpedograss, and repeated application of dalapon has not been completely effective.

In Exp. 6 of the present investigation regrowth of torpedograss appeared at 3 months after treatment. However, in Exp. 7, good to excellent control was maintained over a period of 4 months, and most of the rhizomes were killed. It appears that in Thailand dalapon at 20 lbs./acre in split applications can effectively control the grass for a period of at least 3 months. If regrowth appears, spot treatments should be made to eradicate this grass.

Split applications of dalapon at 15 lbs./acre have provided excellent control of lalang for a period of 4 to 5 months after initial application. Regrowth may appear, but subsequent spot treatments will enable the complete eradication of this grass.

No phytotoxic effects of either sodium TCA or dalapon were detected on the tangerine plants. Kretchman (1962b), however, has shown that 3 applications of dalapon at 1.5 lbs./acre treated twice a year resulted in the reduction of yield of Valencia orange. An annual treatment involving 3 applications of dalapon at 1.5 lbs./acre did not cause any reduction. Davidson *et al.* (1955) observed that 20 to 60 lbs./acre of dalapon caused a moderate amount of foliage injury and some leaf drop in Valencia orange, but in most cases the trees recovered from the injury and resumed normal growth after a period of a few months.

Several factors are known to influence the effectiveness of herbicides. Leasure (1963) listed the following important factors in the application of dalapon: 1) the age of plant, 2) the active foliage, 3) the coverage of foliage. 4) the fate of photosynthesis and downward movement of photosynthesis, 5) the depth of plowing following the spray application and 6) repeat applications.

SUMMARY

1. Experiments on herbicidal effects of sodium TCA and dalapon on paragrass (*Brachiaria mutica*), torpedograss (*Panicum repens*) and lalang (*Imperata cylindrica*) were conducted in Thailand during different seasons of the year.

2. Sodium TCA at 150 and 200 lbs./acre and dalapon at 15 and 20 lbs./acre were effective in controlling the grasses.

3. Two to three applications at 2 to 3-week intervals were more effective than single applications.

4. The season and the age of plant affected the results. Cutting grasses near the ground level and treating the regrowth in 3 to 4 weeks during the wet season gave effective control, while treating plants in the flowering stage gave relatively poor results.

5. Effective control was usually maintained for a period of 3 months after initial treatment. Regrowth appeared during the fourth month. Spot treatment of the regrowth is recommended for complete eradication of grasses.

6. Good control of lalang was obtained in citrus plantings without any detectable injury to the citrus. However, observation on the yield of citus was not made.

7. Although both sodium TCA and dalapon gave effective control of grasses, because of the high concentrations of TCA required and its relatively high cost, dalapon is recommended for the control of grasses in Thailand.

สรุป

จากการทดลองเพื่อหาผลในการกำจัดวัชพืชของ sodium TCA และ dalapon โดยทำกับหญ้าขน (*Brachiaria mutica*) หญ้าชันอากาศ (*Panicum repens*) และหญ้าคา (*Imperata cylindrica*) ในฤดูกาลต่าง ๆ กันของประเทศไทย ปรากฏผลดังต่อไปนี้

1. sodium TCA เข้มข้น 150 และ 200 ปอนด์ต่อเอเคอร์ (27 และ 36 กก. ต่อไร่) และ dalapon เข้มข้น 15 และ 20ปอนด์ ต่อเอเคอร์ (2.7–3.6 กก.ต่อไร่) สามารถกำจัดหญ้าขน หญ้าชันอากาศ และหญ้าคาได้ดี

2. ความเข้มข้นตามข้อ 1. ถ้าแบ่งฉีด 2 ถึง 3 ครั้ง โดยทิ้งระยะห่างกันแต่ละครั้ง 2 ถึง 3 อาทิตย์ได้ผลดีกว่าฉีดครั้งเดียว

3. ฤดูกาลและอายุของต้นกล้ามีผลต่อการให้ผลของสารเคมีดังกล่าว การตัดหรือถางต้นหญ้าที่แก่ลงมาจนติดดิน แล้วฉีดหน่อที่เกิดขึ้นในเวลาต่อมาราว 3 ถึง 4 อาทิตย์ ในฤดูฝนเป็นการช่วยให้ได้ผลดีขึ้น ซึ่งถ้าฉีดต้นแก่และกำลังมีดอกจะทำให้ได้ผลน้อยไป

4. การกำจัดมักจะมีผลอยู่ได้ราว 3 เดือน หลังจากฉีดครั้งแรก หลังจากนั้นแล้ว (คือในเดือนที่ 4) จะมีหน่อแทงขึ้นมาใหม่ การฉีดซ้ำอีกเป็นแห่ง ๆ ไปจะช่วยทำให้กำจัดหญ้าได้อย่างสิ้นเชิง

5. การกำจัดหญ้าคาในส้มเขียวหวาน โดยใช้ sodium TCA และ dalapon ปรากฏว่าได้ผลดี โดยไม่มีอันตรายกับส้ม แต่ว่าในการทดลองนี้ไม่มีตัวเลขเกี่ยวกับผลผลิต

6. แม้ว่าทั้ง sodium TCA และ dalapon จะให้ผลดีในการกำจัดหญ้าแต่เนื่องจาก sodium TCA ต้องใช้ในความเข้มข้นสูงและราคาแพงกว่า จึงเห็นได้ว่า dalapon สมควรจะใช้ได้ดีกว่าในสภาพของเมืองไทย

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