

SALT CEDAR CONTROL WITH CHEMICALS^{1/}

H. F. Arle^{2/}

Saltcedar, *Tamarix pentandra*, thrives in the arid and semiarid regions of western United States. Saltcedar and other vegetation, associated with areas in which the water table is at a shallow depth, have been given the name "phreatophytes". These plants habitually grow where their roots can penetrate the water table or draw from the capillary fringe immediately above. State and Federal agencies are interested in controlling saltcedar because it is an extravagant user of groundwater.

Previous studies showed that single spray applications at relatively low rates (1.25 and 2.0 lb/A) of 2,4-dichlorophenoxyacetic acid (2,4-D) or mixtures of 2,4-D and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) on mature saltcedar or regrowth following mechanical clearance usually defoliated plants and resulted in a high percentage kill of top growth but seldom was the plant population reduced. It was also indicated that an amine formulation of 2,4-D was much less effective than ester forms of 2,4-D or mixtures of 2,4-D and 2,4,5-T at equivalent rates. The results of spray applications of 2,4,5-trichlorophenoxypropionic acid (silvex) on unreplicated plots indicated this chemical to be more effective than 2,4-D or 2,4,5-T.

A current experiment is being conducted to further evaluate silvex and compare it with 2,4-D and 2,4,5-T. Following mechanical clearing and burning, applications of chemicals were made with a 21-foot boom mounted on a Dodge Power Wagon. Treatments were replicated three times on 1/3-acre plots.

The first series of applications was made during October 1956 on 6-month-old regrowth which had attained an average height of four feet. Applications were repeated each following May and October on plots that had plant survival. The following tabulation shows the percentage of plants killed following repeated treatments with chemicals which were applied each time at the rate of four pounds per acre.

<u>Material</u>	<u>First Application</u>	<u>Second Application</u>	<u>Fourth Application</u>
Silvex	30	93	100
2,4-D / 2,4,5-T	23	76	95
2,4,5-T	30	88	88
2,4-D (ester)	26	82	90
2,4-D (amine)	14	62	79

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^{2/} Plant Physiologist, Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture, Tempe, Arizona.

None of the materials caused a high percentage of eradication following the initial treatment. However, repeated treatments resulted in a high degree of plant kill. Silvex was more effective than other chemicals included in this experiment and as expected the amine salt of 2,4-D again was least effective. During May 1957, when regrowth had an average height of eight feet, another series of plots was sprayed. In this experiment the herbicidal activity of silvex was compared to the 2,4-D - 2,4,5-T formulation. Each chemical was applied at rates of 3,4, and 5 pounds acid equivalent per acre. The following tabulation indicates percentage of plants killed after each application.

<u>Material and Rate/Acre (lb.)</u>	<u>First Application</u>	<u>Second Application</u>	<u>Third Application</u>
<u>2,4-D - 2,4,5-T</u>			
3	46	70	93
4	50	69	95
5	65	85	93
<u>Silvex</u>			
3	62	67	99
4	70	89	100
5	82	84	99

Again silvex proved more effective. This is especially evident when examining the results of the initial application. At each rate of application silvex treatments gave a higher percentage of root kill. As the rates of application increased in the initial treatment better kills were obtained. This trend became less obvious, however, after the second and third applications, at which time there was no advantage for the higher rates of application.

These data indicate that repeated treatments are required for effective control of saltcedar. Since the lowest rate of application in the experiment gave excellent control when repeated three times, these results suggest the need for evaluating effectiveness of lower rates on a repeated treatment basis.

Chemicals in a Diesel oil carrier were applied to dormant saltcedar during February 1957 and the plots repeated in February 1958. All herbicides were relatively ineffective in controlling saltcedar when applied as dormant sprays. Silvex was the most effective herbicide; however, it gave only 34 percent control of dormant saltcedar. The following tabulation contains the percentage kill of saltcedar obtained with various chemicals applied during plant dormancy. Each application was at the rate of four pounds per acre.

<u>Treatment</u>	<u>One Application</u>	<u>Two Applications</u>
Silvex (PGBE ester)	17	34
2,4-D - 2,4,5-T (pentyl ester)	16	12
2,4-D - 2,4,5-T (PGBE ester)	5	30
2,4,5-T (PGBE ester)	6	2
2,3,5,6 - TBA	0	5