SUMMARY REPORT 142-2(S)

# EVALUATION OF SOIL STERILANT HERBICIDES FOR ROADSIDES

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# Evaluation of Soil Sterilant Herbicides for Roadsides

by

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Soil sterilant herbicides, used to keep an area free of vegetation, have been projected as a maintenance aid to eliminate objectional vegetation under guardrails and cables, around sign posts, culvert headwalls or other structures, and to replace hand trimming on roadsides.

Forty-four individual herbicidal formulations, singly and in various combinations, were compared for their utility as soil sterilants on roadsides (Table 1). Treatments were applied to three test sites from June to October during each of two successive years. These test sites were located in Lubbock, Tarrant, Smith, Jasper, Walker, and Wharton Counties as well as at the A&M Research Annex.

Herbicidal materials were applied both as liquid sprays and as granules to test strips on open soil under guardrails. Sterilant materials generating a quick plant response were applied singly; where plant response was slow the sterilant was combined with a contact herbicide to control above-ground growth. Spray applications were made at standard volume equivalent to 200 gallons per acre. In an effort to reduce shift of herbicidal activity outside the treated area, selected materials were applied in 400 gallons of spray solution per acre, and in or under a film of

**Sterilant herbicides giving effective vegetation control invariably moved downslope from the treatment location.**

Table 1

HERBICIDES CONTAINED IN THE FORMULATIONS AND MIXTURES TESTED

| COMMON NAME OR DESIGNATION | CHEMICAL NAME |
|---|---|
| **Contact herbicides** | |
| Cacodylic acid | Hydroxydimethylarsine oxide |
| HCA | 1,1,1,3,3,3-hexachloro-2-propanone |
| Paraquat | 1,1'-dimethyl-4,4'dipyridinium ion |
| **Sterilant herbicides** | |
| Amitrole | 3-amino-*s*-triazole |
| Ametryne | 2-(ethylamino)-4-(isopropylamino)-6-(methylthio)-*s*-triazine |
| AMS | Ammonium sulfamate |
| Atrazine | 2-chloro-4-(ethylamino)-6-(isopropylamino)-*s*-triazine |
| Bromacil | 5-bromo-3-sec-butyl-6-methyluracil |
| CBMM | 18.5% sodium chlorate + 10.0% sodium metaborate |
| Dalapon | 2,2-dichloropropionic acid |
| Erbon | 2-(2,4,5-trichlorophenoxy)ethyl 2,2-dichloropropionate |
| Fenac | (2,3,6-trichlorophenyl)acetic acid |
| Fluometuron | 1,1-dimethyl-3-($\alpha,\alpha,\alpha$,-trifluoro-m-tolyl) urea |
| Karbutilate | m-(3,3-dimethylureido)phenyl tert-butylcarbamate |
| MBC | 68% sodium metaborate + 30% sodium chlorate |
| MonuronTCA | 3(p-chlorophenyl)-1, 1-dimethylurea mono (trichloroacetate) |
| Picloram | 4-amino-3,5,6-trichloropicolinic acid |
| Simazine | 2-chloro-4,6-bix (ethylamino)-*s*-triazine |
| TCA | Trichloroacetic acid |
| Terbacil | 3-tert-butyl-5-chloro-6-methyluracil |

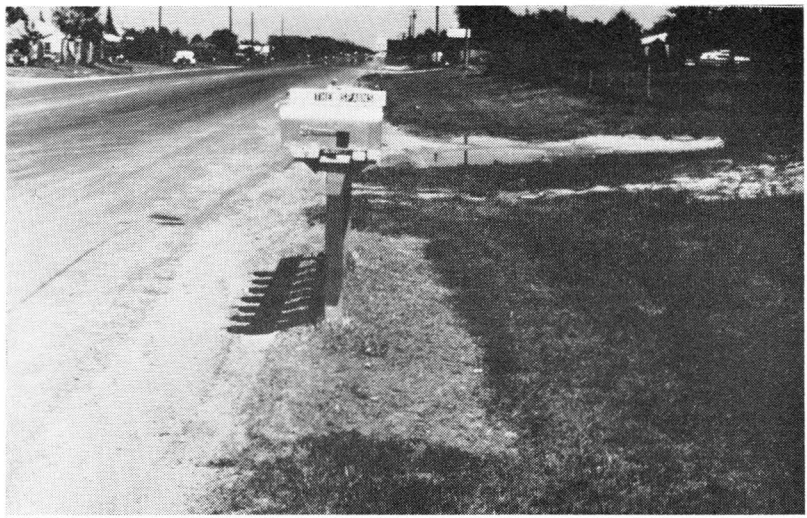
emulsified asphalt. Treatment effectiveness was rated on the response of treated plants as well as any adverse effects outside the target area.

The findings from this study may be summarized as follows:

1. A number of sterilant treatments gave satisfactory plant control, but certain plants recovered more quickly than others from a particular treatment.

2. Adequate vegetation control was achieved for a period of 3 to 6 months, but treatment early in the growing season favored the recovery of tolerant plants. Also, treatments which were effective during the summer growing season did not prevent the encroachment of a different group of plants which infest the sites during the fall and winter.

3. Sterilant treatments could be recommended for level sites, but effective materials applied at the top of a slope invariably denuded part or all of the slope below, creating a severe erosion hazard. Granular formulations were more hazardous than spray



**Used on flat sites sterilants effectively controlled vegetation on the area treated.**

applications of the same material. Increasing spray volumes to better put sterilants in contact with soil failed to confine the treatment to the target area. Also, applying these materials in or under a film of asphalt was ineffective in preventing movement of the applied herbicide downslope.

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