

Preliminary field tests with chlordane indicated the necessity of having the insecticide in the ground before heavy feeding of the grubs commenced. Emulsions applied in 1948 after damage became visible did not prevent severe losses although as much as 14 pounds of actual chlordane was applied per acre. In contrast, an emulsion applied at 12 pounds per acre just before heavy feeding began prevented damage although a greater grub population was present than in the areas treated after the appearance of damage. Although there were many surviving grubs, the dosage was sublethal for many of the individuals, they did not feed in the normal manner and no measurable damage occurred. A large percentage of the grubs in this area survived to become adults.

In the field where chlordane treatments (both dusts worked into the soil and emulsions had been applied, numerous adults were observed during the day on the surface of the ground. Many were on their backs and showed symptoms of poisoning. The number of dead and dying beetles increased until four or five dead adults per square yard was not uncommon. This unexpected result indicates the desirability of a study of the ultimate effects of sublethal dosages on the entire life cycle in order to work out dosages which will give adequate (or ultimate) control.

SUMMARY.—A number of the chlorinated hydrocarbons have been shown to give adequate white grub control in field cages operated for the past four seasons.

Since chlordane has proved effective for a 4-year period in cages, has afforded protection in the field, and has demonstrated to be non-phytotoxic to a wide range of tree seedlings, it has been recommended for use in forest tree nurseries.

Condensed from an article in Journal of Economic Entomology, Vol. 44, No. 3.

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SUBTERRANEAN TERMITE CONTROL WITH CHLORDANE

Insecticidally, chlordane is well adapted to subterranean termite control because it can act as a contact toxicant, as a stomach toxicant and by vapor toxicity. Initial experimental tests showed that as low a concentration of chlordane as 1 part per 20,000 parts of soil (sandy) remained effective thus far for three years. A number of these tests are still in progress. Under conditions of the tests, at a concentration of 1 to 2,000, chlordane provided complete control in a period of 24-48 hours. Field tests have confirmed these observations of residual protection and rapidity of insecticidal action.

The soil treatment for the control of subterranean termite colonies requires the use of a formulation which will offer a minimum of phytotoxic hazards to plants, flowers, shrubs, and trees. There are no reports of plant damage due to the use of chlordane emulsion sprays. This desirable property makes the actual soil treatment simpler for the operator.

The type of chlordane formulation favored for use in practical applications is an emulsifiable concentrate diluted with water to the required active ingredient concentration. Water emulsions at chlordane concentrations in the range of ¼% to 2% have been used under various conditions with completely satisfactory results. The chlordane water emulsions have excellent penetration properties which are essential for both soil application and the treatment of woody structures. In comparison with an oil solution, the water emulsion is more economical to use and it is free from the inherent phytotoxic hazards of the oil.

For soil application, an accepted procedure is to use 2 pounds of chlordane (2 quarts of the 45% emulsifiable or 1 quart of the 75% emulsifiable) with 50 gallons of water, and this water emulsion is mixed in the soil around foundation pillars, under houses, and to other areas believed a source of the infestation. The chemical treatment may be made with low pressure spraying equipment to the soil. If it has been determined that termites are entering a building through breaks in the foundation wall, a chemical barrier of chlordane can be made by trenching along the outside of the foundation and applying 0.2% chlordane water emulsion at the rate of 1 gallon per 2 lineal feet. In some cases it may be necessary to trench along the entire perimeter of the building. In trenching, it is essential to expose the concrete surface of the foundation.

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