

THE BULL SHEET, monthly publication of the Midwest association of Golf Course Superintendents. Editor, William H. Stupple Associate Editors, Bert Rost, Al Johnson.

THE PRESIDENT'S MESSAGE

At our Annual Meeting at the Sherman Hotel on January 7, I will have completed my second year as president of the Association and although my name is on the ballot as a candidate for election as president, I will at that time withdraw my name from the ballot. The office of president entails a great deal of responsibility and if it is to be conducted in a conscientious and a proper manner, naturally, it is going to require a lot of time and effort on the part of the president. I believe that two consecutive years in the office of president is enough for any man and I think this is for the good of the organization.

I wish to express my sincere thanks to all who have assisted me during my term of office, for without the good help and cooperation of the membership, the president is powerless to carry out his ideas to promote the best for our Association.

Probably the most important work accomplished during the last two years has been the fulfillment of my object to promote better relations and fellowship between the members of our Association. This we have tried to do by emphasizing more golf at our meetings and informal get togethers and dances. It is truly a revelation to see Superintendents gather at a meeting and then sit down and discuss their problems with each other. It is certainly a far cry from the old days of rivalry and jealousy among the men.

It is my opinion that our Association is in a sound condition in every way and I again wish to thank all who have assisted in making this possible.

My best wishes for the Association and for the officers which you will elect for the coming year and I can assure you that I will be around to assist in any manner possible.

With best wishes for a Happy and Prosperous New Year and the hope that our organization will grow and prosper in the future as it has in the past.

William H. Stupple, President

DON STRAND ELECTED DELEGATE

At our December meeting, Don Strand of Westmoreland Country Club was elected delegate and Ray Davis of Medinah Country Club was elected alternate to represent our Association at the Annual Meeting of the National Association at Columbus on February 4-8.

I would like to remind the members of our Association who are also members of the National, that it is necessary that 60% of our total membership be members in good standing of the National before we can have the privilege of being represented by a delegate at the meeting. Otherwise each of the members must vote individually.

THE JANUARY MEETINGS

Due to confliction of dates of our February meeting with that of the National, and because of the fact that a great number of the members of our Association intend to spend the balance of February in Florida and other places, it has been decided to hold two meetings in January- the Annual Meeting on Jan. 7 and the Exmoor meeting on Jan. 21. This latter, although usually conducted in more or less informal manner, will take care of any business that may come up at that time.

INSECTICIDES FOR CONTROL OF WHITE GRUBS.

R. D. Shenefelt and H. G. Simkover, Wisconsin

Agricultural Experiment Station, Madison.

The larvae of Phyllophaga and related species have caused very severe losses in seedlings and transplants in Wisconsin forest tree nurseries, in some years destroying as much as 25 per cent of the total stand. Studies of the ranges of host plants of the June Beetles, lengths, of flight periods, and distances of flight showed that it would be best to direct efforts towards controlling the grubs in the soil. Since prolonged toxicity in the soil is necessary for adequate control of white grubs in tree nurseries, emphasis has been placed on determining the residual effectiveness of the materials. Cage tests of the effectiveness of soil insecticides for grub control have been in progress at a state forest tree nursery in central Wisconsin for the past 4 years.

When insecticides were tested against different stages of larvae it was discovered that the toxicants were most effective just after the insects hatched and became less effective as the grubs matured. The high degree of resistance of the third instar is illustrated by the fact that in one case a 10 per cent survival of the third instar grubs was found 36 days after the cages had been treated with parathion at a rate of 108.2 pounds per acre. Results of tests with soil fumigants, of preliminary laboratory and field treatments for control of adults, eggs and larvae, and of cage trials during the first two seasons were reported in 1950. Consequently, only the results obtained in field cages and the effects of field applications made in four state forest tree nurseries are included here.

The field cages used, constructed of aluminum frame and screen, consisted of a 2in. by 2in. by 2in. lower portion set in the ground and an upper portion of the same size. Where dusts or wettable powders were tested, the top 3 inches of soil in each cage was removed, sifted, and the amount of insecticide necessary to give the desired dosage in pounds per acre thoroughly mixed with it. The treated soil was replaced and the cage sown with mixed grass seed. After sod had become established, the cage was stocked with insects.

Where emulsions or solutions were employed, sod was established, the grubs introduced, and, about a week later, the appropriate amount of insecticide was applied in one gallon of water by sprinkling. The material was then washed into the soil by further sprinkling with 2 gallons of water. In the initial tests for toxicity to grubs, 25 first instar larvae, taken from rearing cages, were introduced into the soil in each cage. Approximately 2 weeks later the soil was sifted to determine the survival of the grubs. In certain instances, the grubs found alive were reintroduced into the cages from which they were taken and a second examination made about a month later.

Tests showed that, in plainfield sand: (a) lead arsenate long considered as a standard for grub control, losses its toxicity more rapidly than either chlordane or benzene hexachloride; (b) the toxicity of chlordane mixed into the soil begins to decline at the end of the third season; (c) benzene hexachloride at 1 pound of the gamma isomer per acre loses its insecticidal properties to a greater extent than chlordane at 2.5 pounds per acre between the third and fourth seasons; and (d) in general wettable powders mixed into the soil retain insecticidal properties longer than emulsions of the same material and at the same dosages applied from above and washed into the soil.

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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