NEWSLETTER

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KERALA FOREST RESEARCH INSTITUTE

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A NEWSLETTER FROM US

Sometime back I promised of sending newsletters at intervals to keep you informed of our activities, progress and problems. Here is the first one and if you find it useful, we will make it a regular feature. We want to make the future issues more informative by including useful extracts from forestry journals etc. I would appreciate your suggestions in this regard.

We are in our infancy. We have many teething problems. But with your help and good wishes, I am confident that we will grow and be more useful to you.

My colleagues and I thank the Chief Conservators of Forests, Conservators of Forests and all the Officers and Staff of the Department for looking after us and for the courtesy extended to us in the field. We are particularly beholden to the Chief Conservator of Forests(Development), who is his capacity as a member of our Governing Body and Executive Committee, has been a great source of encouragement and inspiration to us.

P.M. GANAPATHY

ABOUT OURSELVES

We have moved to a more spacious building amidst sylvan surroundings, at Chiyyaram, in the outskirts of Trichur. It is not difficult to locate us as we have positioned sign boards at vantage points.

Our Architect has finalised the drawings of the main buildings except museum and auditorium. The first phase of construction has already been taken up and in case you drive along Pattikad-Peechi road, you will find lot of activity in the Institute site. Our plans for a sub-centre at Nilambur have been finalised and we hope to take up construction work soon.

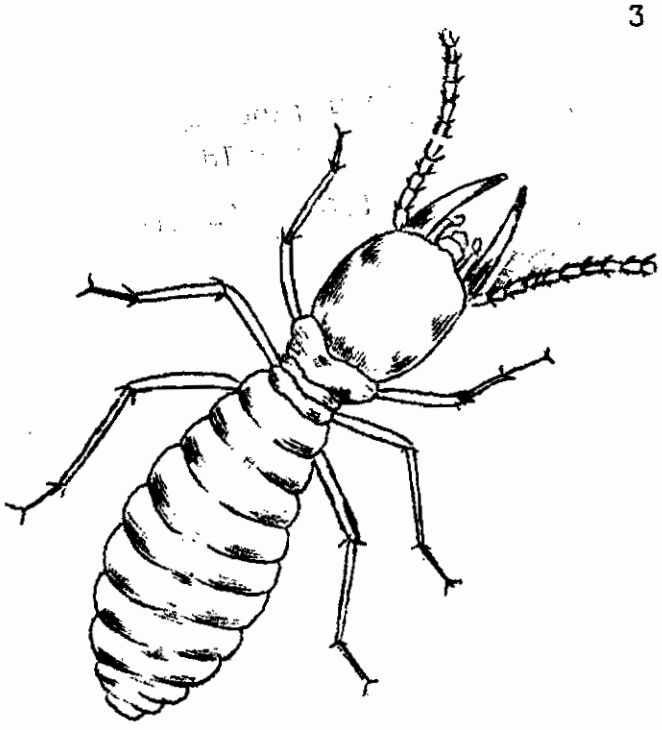
Dr. K.S.S. Nair has joined us as Entomologist. He is assisted by Dr. R.V. Varma. Dr. T.G. Alexander has joined as Soil Scientist and his team of Assistants are expected to join shortly. Dr.V.S. Vijayan is our Wild Life Biologist. Along with Dr.M. Balakrishnan, he is now in Silent Valley.

RESEARCH PROGRAMMES

We have initiated research programmes of practical value to forestry in Kerala. Several officers in the Forest Department helped us in identifying the problems and we are indebted to them. If you are interested in obtaining a copy of the Research Programme for 1977, please feel free to ask us. We require your help and advice in abundant measure for implementation of the programmes.

TERMITE CONTROL IN *EUCALYPTUS*

Termite damage is a major source of loss in *Eucalyptus* plantations. We have taken up detailed investigations on various aspects of the problem. Here is a note for your consideration, based on our findings.



In our experiments at Wadakkanchery (Trichur Division) last year, over 70 per cent of Eucalyptus hybrid seedlings planted without insecticidal treatment were killed by termites within five months. Such damage can occur throughout the State and for all species of Eucalyptus currently being planted. Most damage occurs during the first few years following planting. The Forest Department has been practising routine pre-planting insecticidal treatment to prevent such damage. Our survey showed, however, that in the absence of a standard recommendation, different methods are being used in different plantations and that in spite of routine insecticidal treatment, substantial losses continue to occur in most plantations. We find that most failures are due to inadequate mixing of the insecticide with the soil. Recognizing that proper mixing of the insecticide in each of the individual planting pit is a difficult and labour-intensive operation, we recommend the following method of treatment for the 1977 planting season.

This is an interim recommendation which we consider the most effective and simple within limits of research findings. Further refinement of the method is anticipated, but it depends upon your comments as well as the results of our field studies in progress. In making this recommendation, we have kept in view, the cost and practicability of operation. Effectiveness of the insecticide is not our discovery; what we have worked out are the method of application, effective dosage under the given conditions of application and simplification of procedure. If a practical demonstration in the field is desired, we will gladly be at your service.

Please let us have your comments and do give the method outlined, a fair trial.

KFRI Recommendations (March 1977)

The method involves application of an insecticide, as a preventive measure, in two steps.

I. Mix an insecticide dust with basketting soil

Principle: Mix either aldrin or heptachlor at the rate of 50 g a.i. (active ingredient) per cubic meter of the soil used to fill the polyethylene bags.

Practical method

Materials required:

1. A 5 per cent dust formulation of aldrin or heptachlor.
2. A plastic teaspoon to measure the insecticide dust.
3. An empty kerosine tin, 18.5 litre capacity, (top removed) to measure basketting soil.

Measure out 5 kerosine tin-fuls (level) of dry basketting soil. Spread the insecticide dust on the top of the soil at the rate of two moderately heaped (each about 9 g) teaspoonfuls for one tin-ful of soil. Mix very thoroughly by turning over the soil several times with a "Mammotty". The soil is now ready to be filled into polyethylene bags. About 150 polyethylene bags of size 12 cm x 18 cm can be filled with the above quantity of soil. Adequate mixing of the insecticide with the soil is essential for best protection from termites. To ensure good mixing, do not use more than five tin-fuls of soil at one time to mix the insecticide. Proper mixing is not ensured if the soil is wet. Erect a temporary roof over the site where the potting soil is stored and mixed with the insecticide.

II. Treat the newly planted seedling with a liquid insecticide

Principle: Drench the soil immediately around the base of the plant with a water emulsion of either aldrin or heptachlor at the rate of 0.09 g a.i. per plant.

When the seedlings are planted out in the field untreated soil will top the insecticide-treated basket soil. Termites may gain entry through the surface soil and cause girdling of the plant. The treatment recommended here will prevent such damage.

Practical method

Materials required:

1. An emulsified concentrate (EC) of aldrin or heptachlor.
2. A plastic ounce-measure to measure the liquid insecticide.
3. A bucket with mark at 5 litre capacity, to measure water (Or using a 1-litre milk bottle, pour five bottles of water to any suitable container and mark the five litre capacity level with paint).
4. An ordinary insecticide sprayer of 7 to 9 litre capacity fitted with an NTM three-action nozzle. This nozzle is necessary to get a course spray of the insecticide. It can be purchased for about Rs.20/- from most pesticide dealers. It can be fitted onto any sprayer in place of the usual nozzle at the tip of the spray lance.

To five litres of water in the sprayer, and 1 ounce of aldrin 30EC or 1½ ounces of heptachlor 20EC. Mix by shaking. Build up pressure and with the spray nozzle adjusted to deliver a course narrow spray, spray the liquid onto the soil close to the stem of the plant to deliver about 50ml of the liquid per plant. At this rate, five litres of the insecticide-water emulsion can be used for 100 plants. The person who applies the spray must perform one or two mock sprayings with five litres of water to determine the quantity that must be delivered to each plant in order to cover 100 plants with five litres of water. It will require about 28 gallons of water to cover one hectare of plantation (2,500 plants). This treatment may be done any time within a month of planting, preferably on a dry day.

As a second choice, if water is scarce or transportation of water to the planting site is costly, a 5 per cent dust may be used for the post-planting insecticidal treatment suggested above. At the time of planting, after heaping the soil around the plant to from a mound, but before compacting the soil, sprinkle about half a level teaspoonful of the insecticide dust (about 2 g) onto the soil around the plant stem. A higher quantity of the insecticide will do no harm to the plant, but will increase the cost of treatment. Mix the insecticide with the surface soil by raking the soil immediately around the plant stem with a pencil-tick stick moved in the soil in a circle close to the plant stem. A dusting-can may be used to dispense the insecticide dust. A container (similar to a large Cuticura powder tin) with a hole at the top and a screw cap at the bottom is ideal. Such a container, with an adjustable dispensing hole, is used by Sandoz (India) Chemicals Ltd. to market their product, 'Solvirex' in 1Kg packings. Such empty containers can be obtained through pesticide dealers. This container can hold 1Kg of the dust conveniently, which quantity is enough to dust 500 plants.

Quantity of insecticide required per hectare of plantation

Basket-soil treatment	: 1.54Kg of 5 per cent dust.
Post-planting treatment	: 0.75 litres of a 30EC liquid or 1.125 litres of a 20EC liquid or 5Kg of a 5 per cent dust.

Sources of the insecticides

Insecticides have both common and trade names. Aldrin and heptachlor are common names. The same insecticide with suitable diluents or emulsifying agents may be sold under different trade names by different suppliers. For example, aldrex and al-tox, for aldrin and hep-tox, for heptachlor. As these insecticides are not commonly used in agricultural crops, they will not be stocked in large quantities by local dealers, especially the dust formulations which are bulky. It is therefore advisable to initiate purchase procedures sufficiently in advance. If there is difficulty in procuring the insecticide, contact us for information on suppliers.

For dust formulations, a 5 per cent dust is recommended, although, higher, and in some cases, lower, concentrations are available. A lower concentration dust may be used by proportionately increasing the quantity. But do not use a higher concentration dust as it is difficult to obtain proper mixing of the insecticide with the soil when the quantity of the dust is reduced.

Cost of insecticide per hectare

The price of insecticides vary depending on the formulation (i.e., dust or EC), the packing and the manufacturer. Based on the cost of aldrin quoted by one of the major suppliers, the cost of insecticide per hectare works out to

Rs.34-32, for basket-soil dust treatment together with post-planting EC treatment

OR

Rs.31-07, for basket-soil dust treatment together with post-planting dust treatment.

Notes

1. In our experiments, BHC did not give satisfactory protection against termites at rates of applications similar to those of aldrin and heptachlor. Other insecticides like dieldrin and chlordane are known to be effective against termites, but we do not have sufficient data to recommend dosage rates.
2. Mere dusting or spraying of an insecticide into the planting pit before covering it with soil, as is practised often, will not give adequate protection, as termites can find their way through the untreated top layer of soil.

Safe use of insecticides

1. All insecticides are poisonous.
2. The EC formulation contains a higher percentage of the insecticide; therefore avoid contact with the skin. Wash with soap and water if the EC spills over hand accidentally.

3. Do not allow any person with cuts or wounds to handle insecticides.

4. Destroy the plastic spoon and the plastic ounce-measure after the season's use, to avoid the risk of someone using it for domestic purposes. Do not re-use any of the insecticide containers for other purposes. Burn or bury them.

5. After handling insecticides or insecticide-treated soil wash hands and face with soap and water.

6. Store insecticides out of reach of children.

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