

Granular insecticide applicator for arecanut palm

The device, useful for placing granular insecticide in the axils of leaves of arecanut palm, has won for the author an award of Rs 500 from NRDC India.

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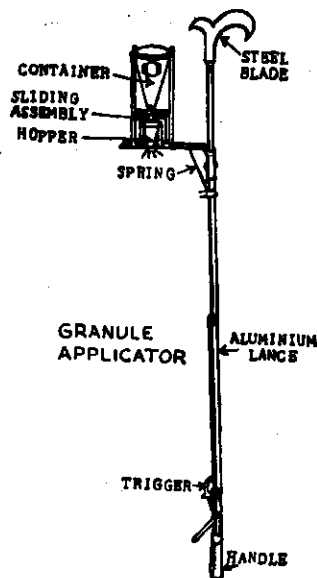
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■ Arecanut is grown as a major crop in Kerala, Karnataka, Tamil Nadu, Assam and West Bengal. A serious pest of arecanut palm in Kerala, Southern part of Karnataka, and some parts of Tamil Nadu is the spindle bug, both adult and immature stages of which colonize the inner most two leaf axils and suck the sap from the newly emerging unopened spindle leaf. The tissue around the feeding punctures dries and when the leaf opens, numerous necrotic patches can be seen.

Severe infestation by spindle bug causes drying of leaves, stunting of plants, and reduction or even complete loss in yield. Almost 87.5% gardens in Kerala are affected by this pest resulting in about 25% loss in yield.

A research project on the control of spindle bug, conducted under the author's supervision at the Central Plantation Crops Research Institute's Regional Station in Kayangulam, revealed that granular insecticide (Phorate 10G) could effectively control the pest if filled into the innermost two leaf axils. But how to place the insecticide granules in the axils was the problem.

Arecanut is a slender palm growing to a height of 25 metres with 2.5 metres long crown. Inflorescence is produced on the top of the stem just below the crown. Because of the slippery nature of the leaf sheath, it is very



difficult to climb over the crown for filling the leaf axils with the insecticide. This necessitated the development of an instrument that could be conveniently used by farmers to fill the leaf axils with granular insecticide.

The granular insecticide applicator invented by the author consists of a long aluminium lance fitted with a steel blade at the top and a handle and trigger at the bottom. The insecticide container and hopper are fixed on a frame below the steel blade with a sliding assembly

in between. The sliding assembly is movable with the help of a string attached to the trigger.

The insecticide can be filled in the container through its inlet. When the sliding assembly is in resting position, the container outlet will be open to the inlet of the hopper, whose outlet will, however, remain closed so that it is freely filled with insecticide granules coming down from the container. When the trigger is pressed, the sliding assembly moves aside thereby closing the outlet of the container and opening the outlet of the hopper. In this position, while the insecticide inside the hopper falls down, that in the container doesn't fall into the hopper, and so, excessive flow of the insecticide is prevented.

A climber with some experience can easily operate this instrument taking position on the stem of the palm just below the inflorescence. The instrument, which weighs 1.4 kg, can be lifted with the help of a string and the outlet of the hopper placed over the lead axil. A few

leaflets that may come in the way of the climber in locating the exact positions of the leaf axils may be removed by means of a steel blade.

Granule applicators are not new to agriculture. Henderson (1963) devised a precision equipment for applying granule formulations. This electrically operated device worked on a 6-volt dry cell that lasted only for an hour, and hence, it could not be used for any large scale application. Takashi Takenga (1971) described a knap-sack power sprayer type granule applicator used in Japan for only broadcasting insecticides into the field. The invention developed by the author is entirely different from the above instruments. An important advantage of this tool is that no generated power is required for its operation. And with suitable modification, particularly in respect of its total length, it can be used for filling insecticides into the leaf axils of such plants as sugarcane and sorghum to control the shoot borer, and in the leaf axils of banana to control the vector aphids of the bunchy top disease.

New Ideas

Humidity—a new source of energy?

■ The energy consumption today has reached such a high level that we have started looking for new sources of energy. That is the reason why, apart from natural resources like coal, gas, oil, geothermal, hydro, tidal and wind, we are now trying to harness larger resources like nuclear energy and solar energy: indeed, scientists are even trying to tame the energy of the sea waves.

While we are desperately trying to extract as much energy from known resources as we can, we are still unaware of a form of energy source that is always around us.

Look at this thirsty bird, a very popular toy in the market. It drinks day and night without let-up. But from where does it draw its energy? Quite naturally, it is getting the energy from its surroundings. By what process? This question

will lead us to a new energy source—a source which is enormous but unknown, which surrounds us every moment, everywhere.

Now let us analyze the problem. Here we have three important things: a toy, water, and energy source (nature). The toy has some water

