

The differences between *Meloidogyne* and *Heterodera* consisted in the fact that the root-knot nematode forms galls on the roots, is internal when mature, rarely exposed to the outside and does not form cysts whereas the members of the genus *Heterodera* are cyst forming nematodes, where the female body protrudes outside the root tissue when mature which eventually turn into the cysts. *Meloidodera* which is intermediate between the above two genera is not known from India so far, and is at present confined to the U. S. A.

As regards the toxic mechanism causing the galls, it was explained that the nematode while feeding, injects small quantities of the secretion of the esophageal glands into the host tissue. This secretion contains some unidentified enzymes which induces the formation of the giant cells, renders the contents of the cells more fluid making it easier to ingest and assimilate and causes such reactions on the plant tissue as hypertrophy and hyperplasia of the cells, leading to distortion of the roots. One possible explanation on the physiology of gall formation has been that it is due to excess production of the amino acid tryptophane which is a precursor of IAA in the gall tissue. The plant protein is perhaps broken down into several amino acids including tryptophane which later gets converted into IAA.

Regarding the question on virus transmission, the questioner was informed that root-knot nematode is not known to transmit any virus disease so far.

When the nematode becomes mature, eggs are laid inside a mucilaginous secretion extruded out of the vulva. The II stage larvae hatch out and move about in the soil and a good percentage of them are able to survive, till the next crop is available.

At the plenary session, questions were raised regarding the influence of rainfall and soil types on root-knot nematodes. It was explained that root-knot nematodes are well known to tolerate varied soil types and soil moisture conditions and these factors are found to be of minor importance, though light soils are very conducive to their multiplication. Studies on these aspects will be taken up in due course.

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1. STUDIES ON THE CONTROL OF *Sitophilus oryzae* L. AND *Tribolium castaneum* H. IN STORED *Cholam* WITH MODERN SYNTHETIC INSECTICIDES

lots in cloth bags and treated initially with the insecticide dusts of Aldrin 2%, Dieldrin 1.5% and Geigy-33 containing 10% DDT at dosages varying from 1:100 to 1:300 by weight. Twenty adults each of *S. oryzae* and *T. castaneum* which were bred in *cholam* in the laboratory were introduced per bag in each of the experiments at monthly intervals and the mortality counts of the respective insects were recorded every month.

The investigations have, on the whole, indicated that seeds treated with Geigy 33 even at 1:300 dosage were found to be completely free from the weevil attack for a period of one year, while Aldrin 2% dust at 1:300 concentration resulted in the complete elimination of the red grain beetle. Emphasis has been laid on the fact that food grains intended for human consumption should not be mixed with the insecticides and this treatment is recommended only for stored *cholam* intended for seed purposes.

* The referee had pointed out the fact that the treatments cannot be recommended for seed *cholam* till the treated seeds are tested for their viability. The dosages of the chemicals appear rather high for dealing with these two pests and perhaps some lower doses might have given the desired effects.

The author explained that, though not reported in the present paper, viability of the treated seeds has been tested and was found to be normal. Lower dosages of the chemicals will be tried in future tests.

The desirability of using beetles of the same age and of a standardised sex ratio for the experiments was pointed out at the group discussion. The author explained that the test insects were raised in captivity and were of uniform age when introduced. The sex ratio was not determined nor standardised. However, it was presumed that the males and females were in more or less equal numbers as in the natural population, since the insects periodically introduced into the bags were collected at random.

At the plenary session, a question was raised whether the initial moisture content of the *cholam* seed, prior to its treatment and storage had been determined. In reply, it was explained that this was not done.

3. POPULATION DENSITY AS A CRITERION FOR EVALUATING VARIETAL RESISTANCE OF CASTOR (*Ricinus communis* LINN.) TO JASSID INFESTATION

by

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Investigations were taken up to assess the degree of relationship of the jassid population with the varied types of waxy bloom coatings and stem colours of castor. Jassid population counts were recorded on a total of seventy-six varieties of castor maintained at the Agricultural Research Institute, Coimbatore during 1961-62 monsoon season.

In each plant counts were made on the 3rd, 5th and 7th leaves from the top, after trapping the insects on the underside of the leaves with three petri-dishes of 7 cm. diameter. The advantages of this method were that the

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