

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.

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

by

M. STEPHEN DORAIRAJ, V. SAVITHRI and S. G. AIYADURAI

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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insects were trapped and the leaves could be turned to any position for counting and the counts were made within an area of 38-50 square centimetres, in each leaf, thus keeping the unit area constant.

The results indicated that the mean population at the 5th leaf from the top was more or less indicative of the overall mean population of the variety. The jassids were found to be more at the 3rd leaf from the top showing their preference to the tender regions of the plants. There was no significant association of the pest infestation either with the stem colour or with the interaction between stem colour and bloom nature. There prevailed a significant difference in jassid population due to the varied bloom conditions. 'No bloom' varieties were found apparently to harbour less of jassids than the single bloom ones, though the difference in population was not significant statistically.

Triple bloom varieties of castor attracted the least number of jassids and hence may be said to be more resistant than the rest. Casual observations showed the presence of more aleyrodids in varieties that are highly resistant to jassids and vice versa. The importance of triple bloom nature in castor which can be advantageously exploited in the breeding of jassid - resistant varieties was also indicated.

\* There was very lively discussion following the presentation of this paper. The discussion centred around the following points:

(i) Population density of the jassid, though it has its own value, cannot be considered as a sound criterion for evaluating varietal resistance, as there may be tolerant varieties even among triple bloom varieties which may harbour large populations of the insect. Perhaps the degree of hopper burn could have been a better criterion.

(ii) The data presented in the paper represent only just one day's counts in each variety recorded in November, 1961. This is inadequate and should have been done at least for one season.

(iii) The time of the day for taking the counts has to be uniform for all the varieties as photoperiodism is known to affect the activity of the jassids.

(iv) The method of counting using a petri dish may lead to faulty results because of the fact that there are varietal differences in vein thickness, especially at the point of attachment of the petiole where the jassids have a tendency to congregate. The petri dish used to cover this area may allow jassids to escape due to the thick veins.

In view of the above, the reliability of the data and its value in breeding work are questionable.

The author explained that his method of approach was based largely on available published literature and the main idea was to have a simple and reliable method of evaluating varietal resistance of castor to jassids. The counts were taken during the period of maximum infestation and the counting technique adopted had the advantage of trapping the jassid population in a unit area which was uniform for all the varieties. However, the observations were of a preliminary nature and formed part of the varied observations made in the germ plasm bank maintained by the Oilseeds Section. Detailed studies from an Entomologist's point of view were never contemplated.

The members of the Academy felt that though useful observations have been made there is a clear case for further detailed studies with special emphasis on the need for collaboration between the workers in the Oilseeds and the Entomology Sections.

#### 4. A PRELIMINARY STUDY ON THE EFFECT OF CERTAIN SYNTHETIC INSECTICIDES ON BENGALGRAM AND COWPEA

by

B. VASANTHARAJ DAVID and P. S. NARAYANASWAMY

The studies were undertaken to gather information on the beneficial and adverse effects of repeated application of insecticides on bengalgram and cowpea independent of their insecticidal action. Three rounds of 0.1% sprays of BHC, DDT, Lindane, Aldrin, Dieldrin, Basudin and H. E. T. P. and 0.05% sprays of Parathion (Folidol) and Endrin were applied under pot culture conditions during 1961-62 at Coimbatore and replicated four times. The first round of treatments was given a month after sowing and the subsequent two rounds at intervals of 15 days.

There was good growth in plants treated with BHC, Basudin, Endrin, Parathion, Dieldrin, Aldrin and Lindane in Bengalgram and DDT, Endrin, Aldrin and Dieldrin in cowpea.

In all the insecticidal treatments both in bengalgram and cowpea there was increased yield over control and there was also increase in the height of plants over control in bengalgram, indicating that the insecticides have some stimulant action on the growth and yield of plants. This is in conformity with previous observations.

Observations made on the third day after the application of insecticides showed no phytocidal injury to the foliage of the plants.

Secondary infestation of the mealy bug, *Ferrisiana virgata* Kll., on plants treated with DDT, BHC, Lindane and Dieldrin in bengalgram and DDT in cowpea, the aphid, *Aphis craccivora* Koch., on plants treated with BHC, DDT, and Dieldrin in cowpea and the mite, *Tetranychus telarius* Linn., on plants treated with BHC, DDT, Endrin, Aldrin and Basudin in cowpea were noted. There were no symptoms of tainting of the produce but after cooking the produce obtained from the plants treated with BHC in bengalgram and Basudin in cowpea were found to have lost their natural flavour and to be insipid in taste.

The results obtained in this preliminary study are only indications of the benefits and manifestations of adverse effects in plants treated with insecticides.

\* During discussions the remarks of the referee were read out. The referee had remarked that it is a good line of work, but proper planning, including the association of a Plant Physiologist with the experiments is essential to arrive at some definite conclusions.

The authors explained that the work done was only of a preliminary nature. Detailed studies on the physiological aspect would involve work of a fundamental nature for which facilities are not available here.