

STUDIES IN RELATION TO MARUCA TESTULALIS

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Maruca testulalis Gey is a major pest of cowpea. Initial infestation in the field occurs on the foliage buds and tender stems. Later the larvae prefer to feed on flowers and pods. Different instar larvae are found feeding on flowers. The insect is widely distributed in the tropics having been recorded in West and East Africa, Fiji islands, Samoa, Ceylon, South Africa, West Indies, and South America. It attacks a number of other legumes such as lima beans, soybeans, pigeon peas, Phaseolus vulgaris, Crotalaria juncea and Poinciana spp.

Resistance to Maruca testulalis in relation to infestation in stem, flowers and pods in cowpea cultivars has been investigated (Table 1). It was found that susceptibility to Maruca damage on the cowpea pod increases if the pods have a chance to touch any other plant part. An experiment conducted with Prima cultivar in which the pods were oriented closer than normal indicated an increase in infestation by almost 100% percent (Table 2).

Studies on the susceptibilities of selected miscellaneous legumes to M. testulalis infestation were undertaken under mesh-house conditions. The results are presented in Table 3.

A number of parasites and predators of M. testulalis have been identified at IITA. They are:

Parasites

1. Tachinidae (Diptera) Thelairosoma palposum - attacks larva
Pseudoperichaeta laevis - attacks larva
2. Eulophidae (Hymenoptera) Tetrastichus sp - attacks larva
3. Braconidae (Hymenoptera) Phanerotoma sp - attacks larva
Braunsia sp - attacks larva
4. Mermithidae (Nematoda) ? gen & species, larva - attacks larva

Predators

1. Selenopidae (Araneae) Selenops radiatus - attacks larva and adults
2. Formicidae (Hymenoptera) Campanotus sericeus - larva attacked
3. Mantidae Polyspilota aeruginosa - attacks adults Spodromantis lineola - attacks adults
4. Others, yet to be identified, include a large variety of hybrid frogs and scinks.

Table 1. Reaction of selected cowpea cultivars to damage by Maruca testulalis on stem, flowers and pods, IITA 1975.

| Cultivar | Plant part | | |
|-----------|------------|--------|-----|
| | Stem | Flower | Pod |
| 201-1D | S | S | S |
| 946 | R | S | LS |
| 1190E | S | S | S |
| 1629 | S | S | LS |
| 1886 | MR | S | LS |
| 4557 | R | S | LS |
| 4552 | HS | S | S |
| Prima | S | S | S |
| Ife Brown | MR | S | S |

R = resistant; MR = moderately resistant; LS = less susceptible; S = susceptible; HS = highly susceptible.

Table 2. Percentage M. testulalis damage on Prima cowpea pod held in 3 different positions 1974.

| Position & No. of Pods | % Borer Infestation |
|--------------------------|---------------------|
| 2 pods pendant (control) | 31.4 a |
| 2 pods erect held closer | 61.1 b |
| 4 pods erect held closer | 77.8 b |

a,b = Numbers followed by different letters are significantly different at 5% level.

Table 3. Susceptibility of selected miscellaneous legumes to M. testulalis infestation. IITA 1975

| Legume | Name | Stem | Leaves | Flowers | Pods | Pod texture |
|-------------------|-----------------------------|------|--------|---------|------|-------------|
| TCE-1 | <u>Canavalia ensiformis</u> | - | - | ++ | ++ | Smooth |
| TVm 1 | <u>Vigna mungo</u> | - | - | + | + | Hairy |
| TVm 3 | " " | - | - | ++ | + | Light hairy |
| TVm 10 | " " | - | - | ++ | - | Hairy |
| TVm 2 | " " | - | - | +++ | + | Hairy |
| TVm 4 | " " | - | - | +++ | + | Hairy |
| TVm 5 | " " | - | - | ++ | - | Hairy |
| TVm 14 | " " | - | - | ++ | ++ | Light hairy |
| TVau 2 | <u>V. aureus</u> | - | + | + | | Light hairy |
| TVau 21 | " " | - | + | + | + | Light hairy |
| TVau 221 | " " | - | + | +++ | +++ | Smooth |
| TVau 1 | " " | - | - | ++ | ++ | Light hairy |
| TVau 18 | " " | + | + | ++ | + | Light hairy |
| TVau 31 | | - | - | + | + | Light hairy |
| TPE 1 | <u>Pachyrizus erosus</u> | - | + | +++ | +++ | Velvety |
| TVm 2 | <u>V. umbellata</u> | - | - | +++ | +++ | Smooth |
| TVm 1 | " " | + | + | ++ | ? | ? |
| TCC 3f - UQ 50 | <u>Cajanus cajan</u> | - | - | +++ | ++ | ? |
| - | <u>Crotolaria juncea</u> | - | - | + | - | - |
| - | <u>Arachis hypogea</u> | - | ++ | - | - | - |

+, ++, +++ = light, heavy and very heavy respectively.