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INCIDENCE AND CONTROL OF POD BORERS ON  
COMMON BEANS (PHASEOLUS VULGARIS L.)

A. K. Karel

Department of Crop Science, University of Dar es Salaam,  
Box 3005, University Sub-Post Office, Morogoro, Tanzania.

Common bean, Phaseolus vulgaris L., is the most important grain legume grown in Tanzania. Although 287,000 tons of beans were produced in 1977 (and the production is increasing), the dry seed yield of beans is very low, usually between 200 and 670 Kg/ha (Karel et al. 1981). The low yields are attributed to severe damage by insect pests and diseases. Among the important insect pests of beans are two pod borer species, spotted pod borer (Maruca testulalis Geyer) and 'American' bollworm (Heliothis armigera Hb.). Early instar larvae of M. testulalis feed on floral parts whereas the later instars bore into the pod and feed on seeds. The young larvae of H. armigera feed on the flowers and young pods but the main damage is caused by the older larvae burrowing into the pods and feeding on the developing seeds (Karel et al. 1981). However, larvae of both species are not uncommon on the leaves of bean plants. Losses up to 50% by pod borers have been recorded in beans due to pod borer damage. The present study records the incidence and control of pod borers on beans.

Materials and Methods: The experiment was carried out at the Faculty of Agriculture, Morogoro, in a randomized block design with four replications. Individual plots consisted of 7 rows, five meters long and 50 cm apart. Plants within rows were 10 cm apart. The final plant population was 200,000 plants/ha. The experiment had following 7 treatments:

<u>Treatment</u>	<u>Rate of application (g a.i./400l water/ha)</u>
1. Endosulfan 35 EC	500
2. Gamma HCH 20%	600
3. DDT 25% m.o.	1000
4. Sumithion 50 EC	800
5. Dimethoate 40 EC	800
6. Carbaryl 855	1000
7. Control	No insecticide

The insecticides were sprayed at 35, 45, 55 and 65 days after planting (DAP) to all treatments with the exception of control check. All treatments including control check received gamma HCH as a cover spray at 500g a.i./400l water/ha at 15 and 25 DAP so that the treatment effect would be due to pod borer control. A fungicidal cover spray of Diathane M 45 was given at 20 and 40 DAP for the control of diseases to all treatments. Weeds were controlled by hand at 20 and 35 DAP.

The incidence of the two pod borer species larvae on bean plants and their distribution on flowers, pods and leaves was recorded on 40 plants selected at random in each plot. Pods from three control rows were harvested for yield assessment.

Results and Discussion: The incidence and distribution of the larvae of M. testulalis and H. armigera on different parts of bean plant.

The number of Maruca larvae counted were generally more than that of Heliothis in all treatments confirming the earlier observation that M. testulalis is more serious pest of the two pod borers on beans (Karel, 1982). As far as the distribution of the larvae of two pod borers on different parts of bean plant is concerned, the flowers had more larvae followed by pods and

leaves. The heavy incidence of pod borer larvae caused lot of damage to bean plants resulting in a decrease in dry seed yield.

The dry seed yield of beans were significantly ( $P = 0.05$ ) high for all treatments sprayed with insecticides during the post-flowering growth stage of bean plants indicating that pod borer larvae were effectively controlled by insecticides. The highest yield of 1447 kg of dry seeds/ha was recorded in plots treated with gamma HCH. This yield was statistically significantly higher than that of other treatments. The yield was also high in treatments receiving applications of endosulfan and carbaryl.

#### References:

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