

CYDIA PTYCHORA (MEYRICK) (TORTRICIDAE . LEPIDOPTERA)
AS A POD BORER OF MUNG BEAN IN RAJASTHAN

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In September 1977, the ripening pods of mung bean [*Vigna radiata* (L.) Wilczek] grown at the Central Arid Zone Research Institute, Jodhpur were found infested with pink larvae of a lepidopterous borer. The green pods were free from the attack. Externally, it was difficult to distinguish the infested pods from the healthy ones, except for a pin-point reddish spot in some pods that indicated larval penetration.

Adults, reared from the infested pods, were identified as the cowpea seed moth, *Cydia ptychora* (Meyrick) which has not been reported to infest mung bean in Rajasthan. It has, however, been reported as a pest of pigeon pea (Fletcher, 1919), cowpea (Gubbaiah *et al.*, 1975), lima bean (cf. Perrin and Ezueh, 1978), soybean (Kumar *et al.*, 1981) and groundnut (Panchabhavi, 1982) in India. The related species reported to infest mung bean are *Cydia* (*Eucosma*) *critica* (Meyrick) and *Eucosma melanaula* Meyrick (Nayar *et al.*, 1976). In view of reports of increasing incidence of *C. ptychora* and its capability of infesting a wide range of tropical grain legumes (Perrin, 1977), observations on its biology and nature of feeding were recorded.

The adults are small, smoky-black moths with black compound eyes; wings folded roof-like over the body and the slender antennae carried behind over the abdomen while at rest. In field, moths take shelter under vegetation and are active in cool hours of the day i.e. the morning and the evening.

In the field, eggs could not be observed on the crop. In the laboratory, eggs were laid out singly or in groups of 3-4 eggs on the ripening pods provided to the adults kept in the battery jars. The eggs were initially white, but developed red specks and turned darker before hatching in 3 days.

Newly hatched larvae were dirty white with a brownish head. The colour of the growing larvae changed gradually from pale-pinkish to brilliant red in the full grown caterpillars. Full grown larvae measured from 9 to 10 mm in length. Larval period was 9 to 13 days. Laboratory and field observations showed that at least 3 seeds in a pod were damaged by a larva during its full development, although completely damaged pods, with more than 5 seeds damaged, were also found. The infested pods contained dry webby frass in the space of eaten up seeds and silken filaments around the larvae. The larvae could feed on the ripening and rather dry seeds in the

Pods. Mature larvae were also present in the pods at the time of threshing of the crop. However, attempts to feed and complete the larval development in threshed dry seeds or softer grains without pods failed. Also, the larvae failed to pupate in between the naked seeds, although silken webbings and cocoons were formed. This observation lends support to the views of Taylor (1965) that *C. ptychora* is not likely to become a pest in storage.

Pupation was observed to take place both inside the pod in a silken cocoon and, more frequently, in the soil where fine soil particles get embedded with the cocoon. Larvae changed into pupae in 24 to 36 hrs after cocooning. Pupal period was 9 to 10 days whereas Perrin and Ezueh (1978) reported a pupal period of 5 to 7 days. The moths emerged in early morning hours and lived for 3 to 5 days. They readily fed on 10% sucrose solution.

Curiously, *C. ptychora* has so far not been observed infesting its other known hosts (cowpea) and moth bean in the surveys conducted around Jodhpur during 1977 to 1982. The pest is essentially a pod borer and grain feeder on most legumes except one report as a shoot borer (Panchabhavi, 1982). Maximum per cent infestation of pods (45.4) and damaged grains (72.7) were observed in 1977 in mung bean grown as a companion crop with grasses (*Cenchrus ciliaris* Linn. and *C. setigerus* D. Don.) Usually, 10 to 15% pods are infested and 2 or 3 seeds are damaged per pod per larva. The incidence was negligible in drought or in low rainfall years and in mung bean intercropped with pearl millet as compared to the sole crop or in years of good rainfall.

In arid zones, the succession of the pest from one season to another is not understood especially when there is no continuity of the cultivated hosts. No alternate host is known or reported elsewhere and no diapause is known to occur (Perrin, 1977). Perrin and Ezueh (1978) opined that incidence of *C. ptychora* seemed to be confined to areas with humidity and short dry seasons without complete disappearance of the hosts. Therefore, off-season bio-ecology of this pest needs to be investigated to understand carry over of the pest from one season to another, particularly since the tortricids are known to be poor migrants (Perrin and Ezueh, 1978).

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