

Natural Enemies of the Soybean Grey Semilooper, *Rivula* sp. (Lepidoptera : Noctuidae) in Madhya Pradesh

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The grey semilooper, *Rivula* sp. has been reported as a serious pest of soybean in Madhya Pradesh, causing an yield loss of 33 per cent (Singh *et al.*, 1987; Singh and Singh, 1989). An attempt was made to record its natural enemies during the rainy season of 1987.

Soybean (Cv. 'Gaurav') was sown on 30th June 1987 in an area of 50 m x 20 m. The larvae of the pest appeared on the soybean crop in the first week of September 1987 (6.31 larvae / m row length) and continued up to the fourth week of September (2.30 larvae / m row), having maximum population between second and third week of September (21.73 to 32.93 larvae / m row). One hundred larvae (third to fifth instar) of the pest were collected separately in the first, second, third and fourth week of September 1987 from this area and reared in the laboratory on soybean leaves in Petri dishes (15 cm) to record the activity of parasitoids. Observations on the predators and fungal diseases were made in the field.

Three dipterous flies (*Strumia* sp., *Palexorista* sp., *Exorista* sp.) and one hymenopteran (*Elastomus brevicornis* Gah.) were observed parasitizing third to fifth instar larvae of *Rivula* sp., *Strumia* sp. and *Exorista* sp. appear to be new records on *Rivula* sp. in soybean cropping system.

Strumia sp. parasitized 5, 5, 11 and 6 per cent of larvae in the first, second, third and fourth week of September, respectively; whereas, *Palexorista* sp. and *Exorista* sp. together parasitized 3 and 6 per cent of larvae in the second and third week of September. *E. brevicornis* parasitized only 2 per cent of the larval population in the third week of September 1987.

The nymphs and adults of two pentatomid predators, viz., *Andrallus spinidens* Fabr. and *Canthiconidia furcellata* Wolff were observed sucking the haemolymph of larvae of *Rivula* sp. throughout September. Only two adults of reduviid

predator, *Rhinocoris fuscipes* Fabr. were observed preying on the larval stage of the pest. These three predators were reported for the first time on *Rivula* sp.

The first, second, third, fourth and fifth instar nymphs of *A. spinidens* consumed 0, 1.1, 1.8, 2.3 and 7.1 larvae of *Rivula* sp., per day respectively. An adult pair consumed 11.4 fourth and fifth instar larvae / day during September 1987. There were 5 nymphal instars of *C. furcellata*, and first, second, third, fourth and fifth instars consumed 0, 0.5, 1.5, 2.5 and 6.1 larvae per day, respectively. An adult pair consumed 5.8 fourth and fifth instar larvae of *Rivula* sp., per day during September 1987.

Infection by *Beauveria bassiana*, was first noticed in the second week of September. The level of infection rose from 2 per cent to 35.9 per cent in the third week and 69.1 per cent in the fourth week of September 1987. In the first week of October, 93.6 per cent larvae were found to be infected by the fungal pathogen resulting in complete suppression of larval population in the field.

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KEY WORDS : *Rivula* sp., Natural enemies, Soybean

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