CEREAL LEAF MINER

(Syringopais temperatella Led.)

By **S. Eghlidi**

This leaf miner is a small moth whose larvae feed on the leaves of cereals.

The local name varies from place to place: in Shiraz "Karaf" in Khuzestan "Dafac" in Dehloran " Shaelah ".

The origin of this pest is not known but according to Adel - Abou - Nasser (1957) it was first observed in Russia and later reported from Turkey, Syria, Libanan, Cyprus and Iraq.

In Iran the larvae were first found by Mr. Mirzayan in Lar in 1955. Since that time the insect has been recorded from many other places (fig-1).

MORPHOLOGY AND LIFE HI TORY

The adult is a small Lepidoptera (Microlepidoptera) measuring maximum 18 mm for males and 12 mm for females. The forewings are dark - brown with the posterior third covered by a soft woolly orange down. Females have two dark - red spots on each forewings; undersides wings are greyish; abdomen and thorax black. The difference between the two sexes is clear, the color and length are quite different (fig-2).

The eggs are yellow and more or less elliptical; the length being 0.5 mm and the width 1/3 mm; the surface is toothed, when the embryo develops (after few days) some sinking will appear as the embryo changes into a crescent shape; after 24 hours the color will change to yellow - brown and gradually to light borwn, yellow and red.

On hatching the larva is black, becoming brown at the last instar with a black head. The last instar larva measures 12 - 15 mm with black dots; before pupaticg it becomes bright brown, then red brown (fig-3).

The pupa is more or less oak color, measuring 6 - 7 mm in length and 1.5 mm width. The cocoon is opaque. The moth appears in Khuzestan at 25-30 C., but this may vary for different places in this region. The mean life of this moth is about 17 days, but for males less than females. The moth flys at sunrise feeding on dew or pollen. It is positively phototropic and collection at night by a light - trap is easy. It copulates after three days feeding. Egg laying begins at 17 - 18 C. and continues for 2 - 3 days.

The number of eggs varies (74 - 127). Incubation takes 15 - 16 days in March under Khuzestan conditions, but the duration lessen as the temperature goes up. The incubation in the same area is 9 - 10 days in late March and early April.

The young larva feeds downwardly on the leaf, and leaves its excretions in the channal which it has made between two epidermal layers of the leaf.

The larva having finished one leaf exits from the hole and transfers to another leaf. To transfer it drops to the ground and crawls, or it makes a web by its saliva and swings along to the other leaves. This transfer usually takes place at 10 A. M. until 3 P. M. on sunny days. It molts in the tunnel in which it has fed. The population density varies from 1-9 larvae in a single leaf, and can be more when the infestation is high. One field test showed in 4742 leaves 2241 larvae. The duration or the larval stage is from 9-10 weeks. In March and April they transform to pupae under crevices. After 8-12 days the moth emerges.

PLANTS ATTACKED

Besides cultivated cereals the insect attack some wild plants such as, Medicago sp., Melilotus sp., Trifolium sp., Malva sp, Calendula sp. Chiefly it is abundent over Malva sp.

DAMAGE

The intensity of damage varies from place to place depending on the soil type and method of cultivation (irrigated and non-irrigated). As a whole if soil is poor and non-irrigated the crop will be completely destroyed. In the clay and irrigated soil the intensity of damage is low.

CONTROL

Agrotechnical methods :

Deep plowing and deep spring plowing after harvesting the crops reduces the population.

Rotation of cereals with other crops especially with leguminose plants is recommended.

Grazing the field by sheep is another method of control.

Chemical control :

Soil treatment with Aldrin 40%. at the rate of 2.5 kg active ingredient per hectare and D. L. D. 20%. at the rate of 3 kg a. i. per hectare give good result.

Spraying must start in December. For giving an accurate spray schedule the biology of the pest needs further investigation. As Aldrin has a longer residual effect, it seems to be more ideal.

In places where water is not within reach dust could be applied.

PARASITES

Some parasitic wasps of *Calcididae, Braconidae, Eulophidae,* attack the larvae of the pest. These parasites mostly were collected from Dehloran, Fakeh, Hendijan, etc. So far, only one of these parasites has been detrmined to genus *Solenetus* (fam. *Eulophidae*).