



MANAGEMENT OF STEM BORER ON GRAPES



NATIONAL RESEARCH CENTRE FOR GRAPES

P. B. No.3, Manjri Farm P.O., Solapur Road
Pune - 412 307, Maharashtra, India

slits on the trunk and branches during July-September by cutting and removing the slit portion with the help of a sharp knife.

6. Removal of loose bark and pasting the trunk and branches with IHR mixture (1 mL of Neem oil + 1 mL of gum+ 6 gm carbaryl + 10 gm of copper oxychloride in one litre of water) in July -August.
7. Application of fumigants or injection of chemical into the affected plant during January-March helps to kill the larvae. Prior to application, live holes (presence of extrusion of frass and oozing of gum) made by the stem-borer can be located and the resinous mass is removed. Hole is to be made a little wider either with hard wire/chisel/augur and then the tablet or chemical is pushed/applied inside the trunk. The hole is plugged with mud paste so that the fumes emitting from the



Light trap



Injection of chemical



Mud plugging

injected chemical do not escape out through the hole.

- a. Injection of fumigants like petrol, carbon disulphide methyl bromide, chloroform and dichlorvos at 5 mL/hole is found to be effective in killing the larva of stem borer. Another method of applying dichlorvos is injecting the chemical (8%) into the stem of the affected plant by using squeeze bottle until the hole gets filled up to kill the stem borer larva.
- b. Insertion of one tablet or one gram powder of aluminium phosphide in each live hole made by stem borer also helps to kill the larva inside the stem.

Timely adoption of collection and destruction adult beetles and eggs during July-August, and application of chemicals during January-March are able to reduce the stem borer incidence to a great extent.

Note :

1. All the doses mentioned above are for high volume sprayer, where normal spray volume is 1000 litres/ha.
2. Pre-harvest interval of the chemicals recommended for stem borer control is yet to be worked out and extra care has to be taken while applying chemicals on export table grapes. Restricted/banned chemicals by importing countries should be avoided in the cropping season on export table grapes.
3. Recommendation of chemicals for the management of stem borer is of advisory nature for the good viticulture practices and therefore, not covered under any legal scrutiny.

Extension Folder No. 20

Prepared by :

Dr. M. Mani, Dr. N.S. Kulkarni and Dr. P. G. Adsule
National Research Centre for Grapes, Pune-412 307

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For further details contact :

NATIONAL RESEARCH CENTRE FOR GRAPES

P.B. No.3, Manjri Farm P.O., Solapur Road
Pune - 412 307, Maharashtra, India
Tel. : 020-26914245 / 5573 / 5574
Fax : 020-26914246
Email : dirnrcg@gmail.com

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Stem borer has been reported from Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu causing damage to grapes in the field.

SPECIES

The longicorn beetle *Coelosterna scabrator* is the only species of stem borer reported on grapes in India.

STATUS

It becomes more serious in old and neglected gardens and also vines which are stressed. It is also more serious on the grafted plants than those raised on own roots.

LIFE CYCLE

Female beetle makes conspicuous slit on the bark of the trunk and branches, and lays 12-15 eggs in the slits singly covered with gummy substance. Eggs are similar to rice grain in shape and white in colour. Eggs hatch in about 10 days. The newly hatched flat-headed cream coloured apodous larvae having powerful mandibles enter directly inside the trunk and branches and start feeding. The larval period lasts for 6-8 months. The full grown larva measuring 75 mm in length pupates in the tunnel within a

Life stages of stem borer



Egg



Larva



Pupa



Adult

calcareous cocoon. Pupal period lasts for 25-35 days. Adult beetles, measuring 40 mm in size, are stout and dull yellowish in colour with minute light orange coloured spots. Adults live for 20-25 days. The whole life cycle of stem borer is completed in about 10 months.

DAMAGE

Adult beetles cut round hole from inside the trunk and branches and emerge out. The beetles cause damage to the tender shoots by scraping and also making slits on the outer bark for egg

Symptoms of stem borer attack



Adult exit hole



Adult feeding on shoot



Shoot scarring



Slit on the bark

laying. The larva causes damage by feeding inside the trunk/branches and boring/tunneling upward and downward. Extrusion of frass through the holes on the trunk and branches is the

Symptoms of stem borer damage



Larval feeding



Hole covered with frass



Gummosis

common symptom of damage. Gummosis (oozing of resinous substance from the hole) is also observed on the damaged

Symptoms of stem borer attack



Frass and Faecal matter on ground



Tunnel on trunk and arm



Yellowing of leaves

trunk/branch. The dried resinous material will be sticking on the trunk and branches over the hole. A large quantity of fine wood powder similar to saw-dust, fallen from the holes made by stem borer, and also faecal matter excreted by the stem borer larvae, on the ground near the affected plants, can also be noticed. The stem borer affected plant shows typical yellowing of leaves (similar to micro nutrient deficiency) followed by shedding of leaves, drying and dieback of branches. As a result, the affected vines get weakened and growth of the vine is reduced leading to decrease in the yield. The maturity of berries is also delayed ultimately influencing the quality of grapes.

SEASONAL DEVELOPMENT

Generally adult beetles start emerging from the last week of June with the onset of monsoon rains till September. Egg laying is observed during July-September. After hatching, the larvae enter into the stem and remain there up to April. Pupation takes place inside the stem in May-June.

MANAGEMENT

1. Collection and destruction of all the affected branches containing full grown larvae and pupae in April/May.
2. Collection and destruction of adult beetles by hand picking in day time and setting up of light traps @2-3/ha in the night time during July-August.
3. Monitoring and destruction of adult beetles on the alternate host plants like casurina, teak, eucalyptus, babul etc. during July-August.
4. Adult beetles are to be controlled with sprays of carbaryl 50 WP (2gm/L) or chlorpyrifos 25 EC (2.5 mL/L) or endosulfan 35EC (2 mL/L) during July-August.
5. Mechanical removal of eggs and young larvae available in the