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Short communication

Tip withering bug, *Anoplocnemis phasiana* (Fab.), halts grape shoots: friend or foe, arrival time explains

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ABSTRACT

Pruning is a regular practice followed in grapevine, *Vitis vinefera* L., to keep the vine manageable and productive. However, immediately after pruning, the plants put out a new flush of leaves which attract several leaf-feeding insects, leading to defoliation and crinkling. Incidence of tip withering bug, *Anoplocnemis phasiana* (Fab.), usually coinciding with the period of halting practice, results in die-back of shoot tip and prevents extension of the shoot, thus halting shoot growth. Intricacies involved in incidence of this coreid bug on grapevine are discussed here.

Key words: Tip withering bug, *Anoplocnemis phasiana*, grape

Anoplocnemis phasiana (Fab.) (Coreidae: Hemiptera) usually referred to as paddle-legged bug or leaf footed bug (named for its leaf-like expansions of their hind tibia and femora) and as legume-pod bug (common on redgram, cowpea and other pulses), is often fondly addressed to as 'halting bugs' by grape growers. This is because these bugs frequent grapevines during the post-pruning phase in summer (after April pruning). Their alternate hosts are erythrina, cassia, glyricidia, pongamia, sorghum, groundnut, brinjal, potato, ridge gourd, citrus, cocoa, etc. (Puttarudraiah, 1983; Mitchell, 2001). These bugs are cosmopolitan and cause economic damage when they occur in large numbers. Nevertheless, most of the time these coreids do not build up in numbers sufficient to become serious pests.

These bugs are larger, blackish-brown, appear as carved wood but are quite engaging creatures. These do not get scared easily and are perfect subjects for pictures. Dorsal side of their abdomen is brick-red and the ventral side is blackish-brown; a small head; four-segmented, long antennae (terminal segment brick-red in colour); large, compound eyes and a pair of ocelli. Abdomen of the male is slender, hind femora long with large, strong tibia, whereas, abdomen of the female is triangular with un-flattened hind femora.

Adult *A. phasiana* bugs are strong fliers flying long distances (upto 5000m) and lay eggs normally in chains. The eggs are grayish-black in colour and hatch in 7-11 days. The life cycle includes five nymphal instars, with total nymphal period varying from 29 to 54 days. Early instars resemble ants. Adult longevity varies from 24 to 84 days, but unmated females and males have survival rates of upto 170 days (Davies and Lateef, 1975).

Usually, nymphs and adults live above-ground on their host plants where they may feed on seeds, fruits, stems or leaves. Like in all true bugs, adults are equipped with a beak, or *rostrum*, a hypodermic needle-like device carried under the head, which is used for piercing plant tissue to suck out the saps. They do not simply 'suck out sap', but inject tissue-dissolving saliva and vacuum out the resulting slurry. The widespread damage to a plant is a result of these liquifying enzymes (Puttarudraiah and Maheswariah, 1956).

In grape, these bugs were found to usually feed on tender shoot tips, causing die-back like symptoms. Both nymphs and adults pierce with their mouthparts tender shoots and suck out the sap. Tips of the shoots thus fade and dry up, hence the pest is also called the tip withering bug. If present in large numbers during early shoot development, losses due to this bug would be considerable.

Halting (nipping the shoot-tip) the shoots is a regular practice in grape after back-pruning, and is done to curtail vigour than for altering canopy architecture. In contrast with other grape-growing regions, grapevines in the tropics are pruned twice a year, once each in summer and early-

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Fig 1. Halting in grape shoot caused by the coreid bug, *Anoplocnemis. phasiana;* female & male bug

winter, to maintain a balance between shoot-growth and productivity. After summer pruning, the growing cane (if not curtailed) develops into a long cane with bud-fruitfulness likely shifting to its terminal portions. Normally, table varieties (especially seedless cultivars) have unfruitful basal buds. Therefore, halt of the growing cane at the 5th node, developing one or two sub-canes, coupled with application of vigour-reducing chemicals like CCC (2 chloro-ethyl trimethyl ammonium chloride) has largely helped viticulturists increase basal-bud fruitfulness.

Incidence of *A. phasiana* on grapevine shoots

Interestingly, attack of *A. phasiana* on grape shoots coincides with the period of halting and, as mentioned earlier, the attack dries up the shoot tip and curtails its extension thus halting it naturally. Nevertheless, appearance of *A. phasiana* during early shoot development (i.e., before the 5th node) is serious as, shoot-growth halts before the desired length is attained and farmers resort to control measures to limit the damage. However, if pest incidence occurs during 4th - 6th nodal stage, it favours the grower as tip-damage by the bug helps the shoot halt naturally. This occurs approximately 22-25 days after pruning and differs with the variety and region. Therefore, grape growers often call this the *'halting bug'* and are glad to sight it during 4th-6th nodal stage. The role of the halting bug, *A. phasiana*, as a friend or foe in grape is, therefore, decided by its arrival time. Nevertheless, the bug, can turn from foe to friend and *vice-versa* in grape.

Phoretic association between the egg parasitoid, *Protelenomus* sp., and adult *A. phasiana* bugs, has also been observed. Most parasites were found on hind femora in male bugs, while about half of the parasitoids were found attached to antennae of the female bugs. Studies showed that the transfer of parasites from male bug to female bug occurs during copulation. Since the bugs change their host-plant seasonally, phoresy can be used to advantage by making the bugs vehicles for parasitoid transportation (Kohno, 2002).

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REFERENCES

Davies, J.C. and Lateef, S.S. 1975. Insect pests of pigeonpea and chickpea in India and prospects for control. *Pro. Intl. Workshop on Grain Legumes.* ICRISAT, Hyderabad, Jan 13-16, 1975, pp. 319-331

Kohno, K. 2002. Phoresy by an egg parasitoid, *Protelenomus* sp. (Hymenoptera: Scelionidae), on the coreid bug *Anoplocnemis phasiana* (Heteroptera: Coreidae). *Entomol. Sci.*, **5**:281-285

Mitchell, P.L. 2001. Leaf-footed bugs (Coreidae). In: Heteroptera of economic importance. Eds. Carl W. Schaefer and Antonio Ricardo Panizzi. CRC Press, 2001

Puttarudraiah, M. 1983. A guide for cultivation and protection of important crops. S.V. Rangaswamy and Company Ltd, Bangalore, pp.1280

Puttarudraiah, M. and Maheswariah, B.M. 1956. Some observations on the life history and habits of *Anoplocnemis phasiana* (Fabricius). *J. Bombay Nat. Hist. Soc.*, **31**:248-255

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