

Incidence of *Nanaguna* sp. and *Perixera* sp. on cashew flowers – Emerging potential menaces in cashew production

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Cashew (*Anacardium occidentale* L.) is a tree nut crop grown in many parts of the world, having good export potential due to its multiple uses in bakery, confectionery, cosmetics, and varied industrial use of the by-products especially cashewnut shell liquid. In India, it is grown in an area of 11.05 lakh hectares. The annual production of cashewnuts in 2018-19 was 7.43 lakh tonnes of cashew (DCCD, 2019). Among the biological constraints, pests are important yield limiting factors in cashew. Tea mosquito bugs and cashew stem and root borers are the two important pests causing significant yield loss in many cashew growing countries. Apart from these two pests, there are few occasional and region-specific secondary pests. Information on the pest species complex, their relative abundance and damage potential is important in the changing pest scenario to understand the pest status of cashew and devise plant protection activities.

Recent studies conducted at ICAR-Directorate of Cashew Research, Puttur (12.45°N latitude, 75.15°E longitude and 90 m above MSL) indicated that different inflorescence pests cause considerable flower damage leading to lower nut set. The inflorescence caterpillars recorded hitherto include, *Lamida moncusalis* W., *Archips* sp., *Dudua aprobola* M., *Hypatima haligramma* M., *Euproctis* spp. *Thylacoptila paurosema* M., *Bombotelia jocosatrix* Guen., *Oenospila flavifusata* W., *Pingasa ruginaria* Guen., *Aetholix flavibasalis* Guen., *Orthaga* sp. and *Hyposidra* spp. feed on the developing inflorescences (Sundararaju, 1993; Sundararaju, 2009). Apart from these, *Perixera* sp. (Geometridae) and *Nanaguna* sp. (Nolidae) are the two emerging new pest species noticed in the last few years. The incidence of *Perixera* sp. and *Nanaguna* sp. was recorded on the inflorescences of cashew during random surveys taken up in the cashew plantations of ICAR-DCR, Puttur between November 2017 and February 2021. Incidence of these two inflorescence pests were noticed from initial flowering *i.e.*, from second fortnight of November or early December till February - March.

The infestation percentage was noticed in 10-15 % of the cashew trees. Larvae of *Perixera* sp. damage the flower buds and flower by chewing the floral parts with slight webbings. In a single inflorescence, a maximum of five larvae have been noticed. Larvae are loopers having band like patterns over the body (Fig.1) express typical wriggling movements. Pupation took place in shoots itself (Fig.2) and the adult moths emerged in 6-7 days. Up to 15% parasitism has been observed in the field collected pupae. The damaged flowers and buds dried away and drastic reduction in nuts set (0-2 /inflorescence) was noticed compared to uninfested ones (3-5/inflorescences) (Fig.3). However, the pest incidence was scattered and in general, a clump of inflorescences got damaged by this pest.

The larvae of *Nanaguna* sp. (Fig.4) webbed the flowers as well as buds into tight clumps and remained inside the webbings. Dried flowers in tight webbings can be seen in the infested inflorescences, which are indicative of presence of larva of *Nanaguna* sp. for its damage. Wherever the webs were in contact with developing nuts, bored holes inside the nuts were also noticed. Number of *Nanaguna* sp. per inflorescence ranged between 1 and 3 per inflorescence. Apart from cashew, severe incidence of *Perixera* sp. has been noticed in mango orchards located in Doddaballapur taluk of Bengaluru during February 2021. *Nanaguna* sp. has been recorded as a pest of mango (Soumya, *et al.*, 2017) which also belongs to Anacardiaceae family. Sudden upsurge in population of *Perixera* sp. has been earlier reported on litchi plants (Kumar *et al.*, 2014).

Whenever the damage by inflorescence pests are prominent, timely spraying is very much essential, since yield loss to the tune of 30-40 % has been recorded in unsprayed plots having flower caterpillars compared to pesticide sprayed plots.

References

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Fig. 1. Larva



Fig. 2. Pupae



Fig. 3. Damaged inflorescences



Fig. 4. *Nanaguna* sp.