

Successful management of slug caterpillar outbreak in Andhra Pradesh through IPM

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One of the major factors that contribute to the loss of production and productivity in important plantation crops viz., coconut and oil palm is damaged due to the insect pests particularly leaf eating caterpillars. Slug caterpillar *Macroleptena nararia* earlier considered as sporadic pest is at present becoming regular and endemic on coconut and oil palm in Godavari districts of Andhra Pradesh causing serious losses to these plantation crops. The caterpillar is greenish brown in colour, covered with tiny spines that cause severe irritation on contact to the skin. The young larvae feed on the epidermis on lower side of the leaflet, scrapping the surface tissue giving a glistening appearance in the feeding area and later leaf spot-like black halo markings develop on the feeding areas which later coalesce and form bigger lesions. The later instar caterpillars feed voraciously on entire laminar portion of the leaflets leaving only mid ribs. In severe outbreaks, the caterpillar even feeds even on the leaf stalks and nuts surface of coconut resulting in gum ooze symptoms. The affected leaf fronds show a burnt

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Monitoring slug caterpillar incidence with help of light traps



Adult moths attracted to light traps

appearance and in case of severe attack the whole palm loses all green chlorophyll area and bores a dried appearance. The larval period lasts for 30 ± 2 days. The larvae pupate inside a round brown shell like cocoon in the crown region or in leaflet axils and lasts for 15 days. The adults are brown coloured, sluggish and rest in inverted position mostly in the crown region during day time and have a longevity of five days. Females are larger in size than males and lay about 100-150 eggs in groups on leaves which again hatch in four to five days.

Starting from the year 2012 regular outbreaks of this caterpillar were reported in East and West Godavari districts of Andhra Pradesh. With weaning of usage of red labelled harmful insecticide monocrotophos which was widely recommended for root feeding in coconut ecosystem, impetus on development of eco-friendly pest management strategies were formulated. An outbreak of slug caterpillar *Macroleptura nararia* was recorded in an area of 135 ha during March 2019 in Poduru village (Poduru mandal) and in an area of 100 ha in Zinnur village (Palakoderu mandal) during February 2020 on coconut in West Godavari district of Andhra Pradesh. The pest incidence was observed in sole coconut gardens, coconut palms on fish pond and paddy field bunds. Scientists of Horticultural Research Station, Ambajipeta, under AICRP on Palms, Dr. Y.S.R. Horticultural University conducted timely awareness programmes on integrated management of slug caterpillar during both the years and demonstrated the developed IPM package thereby preventing further spread of the outbreak.

The IPM package comprised of mechanical removal and destroying larval and pupal stages present in two to three heavily infested dried leaves in outer whorls of the coconut palm.

Release of *Pediobius imbreus* in slug caterpillar infested gardens

Pediobius imbreus a potential parasitoid on slug caterpillar was identified in 2018 and timely release of this parasitoid gave impetus to biological control based IPM. The mass production procedure and release rates of this parasitoid were standardized under AICRP palms. When the pest is in early larval stage (first to third instar), the release rate was fixed as @ 60 per palm at fortnight intervals on ten per cent of total palms in the garden (@ 600 number per acre). The per cent parasitisation of slug caterpillar was very high ranging from 30.33 ± 2.28 to 50.23 ± 1.87 per cent parasitisation within 30 days after release in experimental gardens and natural perpetuation of parasitoid and parasitoid recovery was also observed in unreleased adjoining



gardens. On a pilot scale about 11200 parasitoids were released covering 18.5 acres in 2019 and 10000 parasitoids were released covering 16.5 acres in 2020 and larval population and subsequent stages of pest build up dwindled exceptionally in the released gardens and natural build up of parasitoid was also recorded.

Continuous monitoring for life stages of slug caterpillar was carried out and when more than 75% of pest population is in pupal and adult stage, 200 Watts incandescent light traps were installed @ 5 per hectare, at 1 ½ feet above the ground level and water pan is kept below the light trap from 9 pm to midnight for three hours to attract and kill the moths as these moths which are highly phototropic.

In young gardens, where the pest incidence is high with larval stage and feasibility for spraying two sprays of eco friendly green label insecticide Chlorantraniliprole 18.5 % SC @ 0.3 ml/litre was done at 15 days interval

For quick recovery of pest affected palms application of recommended dose of fertilizers can also be done.

This integrated approach led to checking in build up of pest population and the outbreak area affected was limited to only 56 ha and 41 ha in 2019 and 2020 respectively as compared to 227 ha and 145 ha in 2017 and 2018, respectively. Further, keeping in view of regular incidence of slug caterpillar the hot spot areas of the pest were mapped and various programs in association with farmer groups and department of Horticulture were carried out to create awareness on incidence and pest management. As parasitoid *P. imbreus* was highly effective the parasitoid culture is regularly being maintained in bio control lab, HRS., Ambajipeta for supply to farmers for timely field releases. In addition regular monitoring activity in hot spot areas is also being carried out along with roving survey in the affected plantations to have a constant vigil and prevent the future outbreaks of this dreaded pest. ■

Neera Sapper of Nava Design awarded Millenium Alliance Grant



The Neera Sapper developed by Cochin based startup. Nava Design is awarded the prestigious Millenium Alliance Grant.

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