



## Mass multiplication of *Micromus igorotus* Banks on sugarcane woolly aphid (SWA), *Ceratovacuna lanigera* Zehntner and field release to manage the SWA

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### ABSTRACT

Sugarcane woolly aphid (SWA), *Ceratovacuna lanigera* Zehntner, appeared in an epidemic form in southern Maharashtra and Northern Karnataka, India during 2002 and biological control of pest with potential predator, *Micromus igorotus* Banks was found to be dependable remedy. So the predator was mass multiplied in laboratory on SWA, and then released in sugarcane ecosystem. The adults were reared using plastic container of 25 cm (ht.) X 11.25 cm (dia) size and were released @ 25 pairs per container. SWA was given as adult food and cotton thread [15 cm (length) and 0.155 cm (thick)] was used as ovipositional substrate. The larvae were reared in plastic box with ventilated lid [10.00 cm (ht.) X 25.50 cm (dia)] @ 100 larvae per box. At the time of pupation corrugated brown paper of 15.0 cm (l) X 12.0 cm (w)] was provided for pupation. The pupae of the predator were released in SWA infested sugarcane fields @ 500, 1000 and 1500 pupae/ha. Studies on predatory dosage, level of incidence and gestation period for suppression of SWA to desired level indicated that there exists choice in altering the dosage depending on the severity of aphid incidence, age of the crop and gestation period targeted for suppression of pest. Augmentation of 500 pupae/ha was adequate to suppress the pest in 90 days when it was prevalent at grade 2 – 3 on 6 – 7 month crop during June – November. To reduce the gestation period and thus to prevent growth and loss of cane, release of 1000 pupae/ha on 6 – 7 months crop infested with SWA at 3 – 4 grade ensured the suppression of the pest in 60 days after release (DAR) in June – November. A dosage of 1500 pupae/ha proved effective to lower the SWA incidence from severe state of grade 5 – 6 on crop of 6 – 7 months in 30 DAR during June to November. In all the field release studies, native population of SWA predator assisted the augmented population.

**Key words:** *Ceratovacuna lanigera*, *Hemerobius* spp., *Micromus igorotus*

### INTRODUCTION

The members of Hemerobiidae are unfamiliar since they are rare in nearly all localities. The brown lacewings (BLW) are cosmopolitan neuropteran group comprising approximately 575 species worldwide. Hemerobiids, characteristics of low vegetation, include a number of species from widely distributed genera and most of the biological information available refers to *Micromus* Rambur and *Hemerobius* Linnaeus. Soft bodied and very fragile BLW have been regarded as “key predators” of aphids (Horne *et al.*, 2001). Persistence in the environment is likely during the period of low pest abundance when alternative food is available. They are regarded as “Lying in wait” and as “Insurance” against pest outbreaks (Chang and Kareiva, 1999). The number of *Micromus* species reported so far in the world is 42, of which two are encountered in India. *Micromus igorotus* was described for the first time by Banks in 1920, redescribed and

illustrated by Monserrat (1993). This species was originally described from Philippines, and has since been reported from China, Indonesia, Malaysia, Taiwan and Thailand, whereas from India and elsewhere, it has been reported for the first time as predator of sugarcane woolly aphid, *C. lanigera* (Lingappa *et al.*, 2004). The species is widespread in oriental region.

Suppression of any pests by biological control is not only density dependent but also influenced by the rate of multiplication of pest versus predator, feeding potential, native predator population, climatic conditions favourable to predator and unfavourable to pest. In the exploitation of a predator, it becomes imperative to make indepth studies on release rate, time and frequency of natural enemy. In cognizance of this fact, mass multiplication and field release studies were undertaken to find out the effective dosage to suppress the pest within reasonably short time without affecting the quality and quantity of the produce.













