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Integrated Pest Management of *Tirathaba* Bunch Moth on Oil Palm Planted on Peat*

LIM KIM HUAN

Research & Development Centre, PT. TH Indo Plantations, Riau, Indonesia

The bunch moth (Tirathaba mundella) is becoming one of the most important pests on oil palm planted on peat. If not properly managed, crop losses can be >50 per cent. Free fatty acid (FFA) content also increased in infested bunches. This fast spreading pest with a short life cycle of about 1 month is attracted by poor sanitation especially presence of unharvested rotten bunches on the palms. Once the caterpillars have infested a palm, female inflorescences and bunches at various stages of development are attacked. Infested bunches have non-glossy appearance and are covered with frass (faeces) when compared to healthy bunches which have shiny appearance. Average bunch weight is greatly reduced. Under serious attacks, the bunches will not develop fully and may abort prematurely.

Early detection of Tirathaba bunch moth damage is normally obtained from the FFB platforms during routine grading of harvested fruit bunches. Once Tirathaba infestation on the harvested bunches is >5 per cent, detail census is carried out on the block. Speedy application of bio-pesticide (Bacillus thuringiensis) and good sanitation is an effective integrated approach to avoid outbreak situation.

A trial was conducted on 7-year-old palms with serious Tirathaba infestation (>50% palms and >50% bunches infested). It compared spraying of cypermethrin (a.i. 5% at 1 ml/l litre water) vs Bacillus thuringiensis (Bt) variety Kurstaki strain HD-7 (16 000 IU/mg) at 1 g product per litre water sprayed on infested bunches using conventional knapsack sprayer at 2-weekly intervals. Six continuous 2-weekly rounds of Bt spraying over 3 months was able to bring down infestation to less than 15 per cent on the bunches. In the treatment with cypermethrin spraying, infested bunches remained high at more than 60 per cent. In the untreated control plot, infestation went up to more than 95 per cent of the bunches. Visual observations showed that cypermethrin spraying affected the population of pollinating weevils (Elaeidobius kamerunicus) and earwigs (Chelisochea moris) which is a natural predator of the Tirathaba caterpillars.

Integrated pest management combining good sanitation and 2-weekly spraying with Bacillus thuringiensis (Bt) based on census, can significantly reduce crop losses and minimise expenditures on Tirathaba control. Use of Bt in wettable powder form is preferred as it leaves some whitish marks on the bunches after spraying that will help in checking whether the infested bunches have been effectively sprayed by the workers.

Research on the use of pheromone traps to capture the female moths, merits investigation. Pheromone traps will help in monitoring the pest population and minimize spread of the Tirathaba bunch moths.

Keywords: *Tirathaba bunch moth, integrated pest management, oil palm, peat.*