

CONCLUSION

The sugarcane stem boring grub, Dorysthenes buqueti Guerin (Coleoptera : Cerambycidae) is one of the most important soil insect pest of sugarcane. In the cane field the infestation is initiated in 1-2 years. The damaged cane losses weight and dies. It is a serious pest in the East and North east of Thailand.

The sugarcane stem boring grub lay their eggs in the soil at a depth of 0.6-25 cm. The average number of eggs laid per female is 41-441. The eggs period is 15.5 ± 3.03 days. The life cycle is 1 to 2 years. In the one year life cycle, males live for 356.25 ± 16.77 days ; females live for 327.5 ± 21.46 days. In the two year life cycle the males live for 562.3 ± 92.5 days ; the females live for 528.25 ± 99.67 days. The female begins to lay her eggs 1-2 days after mating.

The spatial distribution of infestation of sugarcane stem boring grubs was negative binomial. The variance to mean ratio was more than 1 and the value of the Morisita index was more than 1.3.

A sequential interval procedure was developed to calculate the upper and lower stop value of the sequential sampling models for sugarcane stem boring grubs, Dorysthenes buqueti Guerin infesting sugarcane. The sequential interval procedure was developed for ET

0.0723 (7.23 per cent infested stalks) and the upper and lower stop values were calculated for proportions of maximum-allowable sequential error 0.1.

There are two natural enemies of sugarcane stem boring grubs in the cane field mites and fungi, but their effectiveness are low. The percentage of infestation by mites and fungi were 10 and 20 per cent respectively.

In plant cane (treated and untreated plots), yields were not significant. Eight genera of nematodes were found in the cane field. They were Tylenchorhynchus sp., Pratylenchus sp., Meloidogyne sp., Helicotylenchus sp., Hoplolaimus sp., Praratrachodorus sp., Rotylenchulus sp. and Criconebella sp. Crop loss assessment of sugarcane from nematodes were 17.39 per cent in plant cane (U-Thong 1 varieties) and 23.70 per cent in ratoon cane (F156 varieties). In plant cane (U-Thong 1 varieties) yield reduced 36.31 per cent and the percentage of infested stalks 5.09 per cent.

In ratoon cane F156, yield was reduced by 50.81 per cent and the percentage of infested stalks was 19.40 per cent (untreated plot).

Crop loss survey : In plant cane the percentage of infestation was 15 —95 per cent. Yield was reduced between 23.9-40.63 per cent. The number of sugarcane stem boring grub in damaged stools was 1-6 per stool. Yield was reduced by 29.17-41.67 per cent. In ratoon cane the percentage of infestation was 15 - 95 per cent. Yield was reduced by between 11.49-56.32 per cent. The amount of sugarcane stem boring grub damage per stool was between 1-12. Yield was reduced by 22.99-49.43 per cent.

A survey of crop loss in plant cane showed that the percentage of infestation had some influence on the yield. There was strong positive correlation between yield and percentage of infestation. The regression equation was $\hat{y} = 0.8312 - 3.1719x$ and the correlation coefficient (r) was 0.81. The number of stem boring grub per stool had the same influence on yield as the percentage of infestation. Yield was reduced when the number of sugarcane stem boring grub increased. At a rate of one sugarcane stem boring grub per stool, yield loss averaged 29.17 per cent at a rate of six grubs per stool the yield was lost 41.67 per cent.

In plant cane the percentage of infested stalks was 15 per cent. Yield reduced 23.96 per cent.

In ratoon cane, the yield loss was found to be greater than in plant cane. The regression equation was $\hat{y} = 0.74 - 4.17x$ and

the correlation coefficient (r) was 0.83^{*}. Yield loss was 22.99 per cent at a rate of one sugarcane stem boring grub per stool and 52.87 per cent at a rate of six sugarcane stem boring grubs per stool.

The percentage of infested stools or stalks of sugarcane stem boring grubs, Dorysthenes buqueti Guerin is more important than the number of stem boring grub.

To control sugarcane stem boring grubs, the effective insecticides were chlordane 72 % EC at a rate of 700 millilitre/rai and endosulfan+BPMC 4.5 % G at a rate of 5 kilograms/rai both for of plant cane and ratoon cane.

The pitfall traps has a potential to reduce the population of sugarcane stem boring grub. It was found more mass capturing the sugarcane stem boring grub on the ratoon cane than the plant cane field conditions. It was found that 80 per cent of females did not lay their eggs in fields where pitfall traps were used. The ratio of males to females was 1.3 : 1 plant cane in Chonburi province, 2.1 : 1, 1.1 : 1 ratoon cane on Chonburi and Prachuab Kerikhan province respectively.