Section B

201/B

Studies on rice leaf folder, *Cnaphalocrocis medinalis* (Guen.) (Lepidoptera: Pyralidae): oviposition pattern and leaf damage & yield relationship

M C D Perera* and K S Hemachandra
Department of Agricultural Biology, Faculty of Agriculture, University of Peradeniya, Peradeniya

Defoliation by rice leaf folder (RLF), *Cnaphalocrocis medinalis* is quite visible in the field; hence, farmers apply insecticides to manage RLF even at low population levels. However, there was no strong data to show the effect of defoliation on yield. Therefore, one of the objectives of this study was to assess the relationship between leaf damage and yield components. Further, biological control of RLF using egg parasitoids has been suggested. In this process, it is important to understand the RLF egg distribution on rice plant. Hence, the second objective of this work was to examine the RLF egg distribution in rice fields.

In order to assess the leaf damage and yield relationship, a field with nine week old rice, naturally infested by RLF was examined. When a leaf area was > 80% damaged, it was considered as a damaged leaf and plants with 1 or 2 or 3 damaged leaves were selected. Undamaged rice plants were used as the control. Each defoliation level (3.3, 6.6 and 9.9%) includes 25 plants. Upon ripening, panicles were harvested separately and number of filled seeds, empty seeds and dry weight of filled seeds were recorded. In order to assess the RLF egg distribution, naturally infested rice fields were examined for eggs and place of oviposition on rice leaf blade and number of eggs was recorded.

Leaf feeding damage by RLF on rice plant had no significant effect on grain yield. Grain yield was measured taking the dry weight of filled seeds per panicle. The dry weight of the filled grains was not significantly different among the damage levels including the control. In addition, the number of filled grains per panicle was not significantly different among damage levels. However, there was a significant variation of number of empty grains among damage levels ($F = 3.96$ df = 3, 96 $P = 0.01$). With respect to RLF egg distribution, a total of 424 RLF eggs were found on 100 leaves, on 98 plants. Mean egg number per leaf was 4.24 ± 0.32. Presence of leaves with 1, 2, 3, 4, 5, 6, 7 eggs were 14, 29, 10, 7, 2, 6 and 7 respectively. Of these leaves, 84% of leaves had eggs on the middle part of the leaf; upper and lower part of leaves were 12% and 4% respectively. When one egg was laid, 69% of leaves had the egg on the middle part of the leaf, while the upper and lower part of leaves had 25 eggs and 6% of leaves. Overall, RLF adult chooses the middle of the leaf to lay eggs. The results of this study indicate the control measures applied by the farmers, especially the insecticide spraying is not essential.

Keywords: Biological control, damage level, defoliation, oviposition, rice leaf folder

Acknowledgements: Financial support by National Research Council (grant 11-116)

pereramcd@gmail.com Tel:071-5593426