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**IMPACT OF RICE LEAF FOLDER (*CNAPHALOCROSIS MEDINALIS*)
ATTACK ON GROWTH, PHOTOSYNTHESIS AND YIELD OF RICE**

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Rice (*Oryza sativa* L.) which belongs to family Graminae is the staple food of Sri Lankans. In the cultivation of this species, use of high doses of fertilizers, high yielding modern varieties, irrigation and year round cultivation create the rice growing environment a more favourable habitat for the proliferation of various insect pests.

Rice leaf folder (*Cnaphalocrosis medinalis*) is one of the major pests severely attacking mid country rice fields in Sri Lanka. Scraping and folding of the leaf blade by the leaf folder larvae restrict the photosynthesis capacity of the rice plant and causes negative effects on grain yield. In this study pest damage on growth, development and yield of two rice varieties, the effect on the photosynthesis process associated with the pest damage and responses shown by the different varieties of rice were investigated.

Two varieties of rice (BG 300 and BW 272-6- B) were grown under simulated lowland conditions in pots. The 4th instar larvae of leaf folder were introduced to the growing crop at the stages of tillering, panicle emergence and grain filling separately. A set of controls was maintained. Three days after the pest introduction, measurements were taken for tiller number, plant heights, total leaf area, damaged leaf area, photosynthesis rates and total chlorophyll content for 7 days. Yield components were measured finally. Tiller number per plant and plant height of both BG 300 and BW-272-6-B varieties were not affected by leaf folder attack.

Percentage leaf area reduction of BG 300 and BW-272-6-B varieties at tillering, grain filling and panicle initiation stages were 16.24%, 4.437%, 3.074% and 4.622%, 19.91%, 21.13% respectively. Lowest photosynthesis rates were shown by BG 300 at tillering ($2.515 \mu \text{ mol CO}_2 \text{ m}^{-2} \text{ s}^{-1}$) and BW 272-6-B ($2.832 \mu \text{ mol CO}_2 \text{ m}^{-2} \text{ s}^{-1}$) at panicle emergence. Photosynthesis rates of the affected plants were significantly different from the control plants in both varieties at all stages.

Total chlorophyll content was highly reduced at the panicle initiation stage (2.50 mg/ g fresh wt.) of BG 300 and grain filling stage (1.378 mg/ g fresh wt.) of BW372-6-B. Total chlorophyll content was significantly different in the affected plants when compared to the control.

Total grain yield of BG 300 was lowest when leaf folder larvae attacked at tillering and BW-272-6-B at panicle initiation. Reduction of photosynthesis rates and total chlorophyll content correlate with the total grain yield. BG 300 and BW 272-6-B were highly susceptible to leaf folder larvae when attacked at the tillering and panicle initiation stages respectively. Thus when adopting control measures for *Cnaphalocrosis medinalis* the stage/s of worst attack and its correlation with the yield reduction and the cost effectiveness of the control measures need to be considered.