

# EFFECTS OF RICE BUGS (ALYDIDAE: *Leptocorisa oratorius* (FABRICIUS)) ON RICE YIELD, GRAIN QUALITY, AND SEED VIABILITY

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To determine if *Leptocorisa oratorius* (F.) has the ability to reduce rice yield, grain quality, and seed viability, we exposed potted rice plants (*Oryza sativa* L.) to infestations of *L. oratorius* in a green house at IRRI, Los Baños, Philippines. Four selected rice cultivars were evaluated: IR72164-201-1, C2, PSBRc20 and IR64. Each variety was exposed to 4 levels (0, 1, 3, and 6) of rice bugs per caged plant, replicated four times. Seven-day-old rice seedlings of each test cultivar were transplanted at one seedling per pot. Pots were set in galvanized steel trays filled with 10 cm water in a randomized complete block (RCB) design. A fabricated cylindrical metal cage (30 cm x 120 cm) covered with fiberglass net was used to enclose each potted plant at booting stage. Urea fertilizer was applied 3 times at the rate of 200kg N ha<sup>-1</sup> or an equivalent of 0.28 grams per pot. Adult rice bugs were collected in farmers' fields in Lucban and reared in the greenhouse. Newly emerged adult female rice bugs were taken from the colony and used as to infest milk stage rice. Twenty-one-days after infestation, all insects were collected and cages were removed. Panicles from each pot were harvested and placed in paper bags with identifying labels and oven dried at 60°C for 4 days. The number of panicles was recorded and hand threshed. Filled grains were separated from partially filled grains and weighed individually. One hundred filled grains were extracted from each potted plant and observed under the microscope to count the protein sheaths that rice bugs deposit when they feed. The same one hundred grains were de-hulled, weighed and processed for quality scoring as indicated by the percentage of pecky rice. Another one hundred grains, both damaged and undamaged, were extracted from the samples for seed viability tests, measured as percent germination. Grains were sown in rows in aluminum seed boxes (114 x 69 x 7 cm) in RCB layout. Percent germination was recorded 1 week after sowing. Data were analyzed with IRRISTAT<sup>®</sup>. ANOVA and LSD (5% significance) were used to determine significant differences in yield, percent damaged grains, percent pecky grains and percent germination among treatments. Trend analysis was used to measure the correlation between rice bug levels and reductions in yield, grain quality, and seed viability.

Rice bug feeding at the highest level of infestation resulted in significantly lower yields and germination rates than uninfested checks in all cultivars. The percentage of pecky grain was significantly higher on infested than uninfested plants for all cultivars. In all 4 rice cultivars, rice bug levels were negatively correlated with yield, grain quality and seed viability. We therefore conclude that *L. oratorius* infestations have the potential to reduce rice yields, grain quality and seed viability.