

**RESIDUAL EFFICACY OF SPINETORAM ON PROGENY
DEVELOPMENT OF *Tribolium castaneum* (Herbst) (COLEOPTERA:
TENEBRIONIDAE) ON DIFFERENT RICE VARIETIES AND OIL
SEEDS**

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The red flour beetle, *Tribolium castaneum*, is a serious pest of stored grains and oil seeds. Due to the issues on the biotic and abiotic environment caused by synthetic insecticides, the biorational pest management is emphasised. The bacterial formulation Spinetoram is effective against *T. castaneum*. Once applied, the residual effect of spinetoram lasts on a surface but such information on local grains is not available. Therefore, this study evaluated if *T. castaneum* progeny emerged in traditional and new improved rice varieties and oil seeds treated with spinetoram varies with grain type, spinetoram concentration and storage duration. Experiments were set up as CRD with four replicates. The rice varieties *Kuruluthuda*, *Red Heeneti*, red raw rice; and oil seeds sesame, groundnut and soybean were having 40% broken and subsequently treated with a spinetoram concentration series (1, 15.125, 31.25 or 62.5 ppm) or distilled water control. From each solution, 15 mL was sprayed on 1 kg of each replicate grain sample. Once every four weeks, a 20 g sample was drawn from each replicate of rice/oil seeds, twenty adults of *T. castaneum* (1-month-old) were introduced, and maintained under ambient environmental conditions (30°C, 65% r.h.). The data were analysed using mixed model of SAS software and significance tested at $p=0.05$. The progeny emerged in different grain types increased with the duration of storage period and suppressed by the increasing spinetoram concentration. At 62.5 ppm, progeny emerged was notably reduced. After four months, the maximum progeny emerged in *Red Heeneti* and the lowest in soybean. Therefore, this study concludes that the residual efficacy of spinetoram varies with the grain type and declines with storage duration. Further testing under normal warehouse conditions should be followed to confirm the success of spinetoram as a residual insecticide in practical situations.

Keywords: Insecticides, Pest management, Postharvest losses, Spinosyns, Stored products