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FACULTY OF APPLIED SCIENCE

DEPARTMENT OF APPLIED CHEMISTRY

PROJECT TITLE

INCORPORATION OF THIAMETHOXAM AND PIRIMIPHOS METHYL INTO THE
CURRENT FORMULATION OF SHUMBA SUPER DUST.

DONE BY

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ABSTRACT

The Maize weevil, Angomois grain moth and the Larger grain borer (*Prostephanus Truncatus* (Horn)) are serious pests of maize. The larger grain borer is the most destructive of them all causing substantial grain damage losses of about 30-40%. Insect infestation results in weight losses and quality deterioration which constitute a threat to food security especially in developing countries (mostly African countries). The larger grain borer's susceptibility to Shumba Super Dust is believed to have decreased over the past years. Insects develop physiological changes and tend to adapt differently in different environments, therefore continued use of the same pesticide might not be effectively efficacious against the pests over a prolonged period of time. This research serves to address this problem. Thiamethoxam and Pirimiphos methyl are the new insecticides that were tried and tested for efficacy against the larger grain borer. Efficacy testing experiments were done in triplicate for each prescribed pesticide concentration and ten insects were placed in each petri dish. For Pirimiphos methyl, the concentrations that were tried for efficacy are in the range 0.5% to 2% and for Thiamethoxam, 0.1% to 0.4%. The most effective concentration of Pirimiphos methyl was 2% and that of Thiamethoxam was 0.4%. However, to optimize for costs, a concentration of 1.8% Pirimiphos methyl will be used in product formulation as its degree of efficacy is more or less the same as of its 2%. Evidence from this research suggests that a combination of these two insecticides is more efficacious than the current formulation of the Shumba Super Dust available in the market.