SUPPLEMENTAL FOOD PREFERENCE FOR THE WEAVER ANT, A POTENTIAL BIOLOGICAL CONTROL AGENT OF THE MAHOGANY SHOOT BORER

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ABSTRACT

Supplemental feeding is being investigated as a method to enhance the performance of the weaver ant (*Oecophylla smaragdina* Fabricius) (Hymenoptera: Formicidae), a promising biological control agent of the mahogany shoot borer (*Hypsipyla robusta*) (Lepidoptera: Pyralidae) in Malaysia. The nests of this aggressive, predatory tree-dwelling ant can be harvested from various host plant species and redistributed to mahogany plantations that need its protection. Choice and no-choice tests assessed the preference of ant colonies for four foods. In the choice test, six ant colonies were each provided ad libitum access to four food choices on a feeding platform: fresh minced fish, live mealworms, a liquid "weaver ant formula" containing sucrose and human muscle-training powder, and honey solution. The 7-day study recorded food weight taken daily. The no-choice test was similarly conducted, but provided only one of the four food types to a total of 12 colonies. The choice test showed that at least one of the treatment effects was significantly greater than zero ($S = 13.2$; d.f. = 3; $p = 0.0001$; Friedman's test). Mealworms were significantly preferred over the other foods, and consumption of weaver ant formula was significantly greater than that of fish or honey ($p \geq 0.05$; Conover-Inman's test). The no-choice test showed a significant difference between at least one of the treatments ($H = 8.95$; d.f. = 3; $p = 0.03$; Kruskal-Wallis test). Consumption of mealworms and fish was significantly greater than that of the liquid foods (Conover-Inman's test). Thus, mealworms were most palatable to the ants, but fish was readily accepted when no other foods were available. Mealworms and weaver ant formula were selected for a subsequent study evaluating the effect of supplemental feeding on the establishment of relocated ant colonies.