Bat Consumption of Ostinia nubilalis, European Corn Borer

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The United States is the leading producing country of corn. The European Corn Borer, Ostrinia nubilalis, are pests of grains, particularly corn. They are North Dakota's number one corn pest and cost farmers over a billion dollars annually in insecticides and lost crop yields. The purpose of this study is to determine if bats play a role in crop pest management by testing bat guano for insect DNA, mainly the Ostrinia nubilalis. Bat guano was collected by trapping bats in two locations using mist nets. Data collection consisted of bat's mass, forearm length, pregnancy, species, sex, and location trapped. Next, the guano was tested determining if Ostrinia nubilalis DNA was present using DNA Extractions with the Zymo Fecal DNA MicroPrep Kit. Twenty-nine healthy bats consisting of three species, Little Brown Bat, Big Brown Bat, and Hoary Bat, were captured on four evenings. The Little Brown Bat, Myotis lucifugus, and Big Brown Bat, Eptesicus fuscus, mass and forearm showed a strong correlation. The average mass/weight and the forearm length of both species fall within an average range, indicators of a healthy bat population. DNA fragments indicated 80% of the bats' diets consisted beetles and mosquitoes; the presence of Ostrinia nubilalis DNA was not found. Bats are effective biological agents against pests and are considered a fringe species. More research needs to be conducted on bat health, diet, and use as a biological agent. Increasing bat habitat could promote insect suppression, as well as conserve bats.

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