

Geographical Distribution of *Pediobius foveolatus* in New Jersey Soybean Fields to
Control the Mexican Bean Beetle Population

Abstract

This thesis provides an initial look at potential movement predictions of the *Pediobius foveolatus* for controlling the Mexican bean beetle population. It is commonly known in the entomology world that this wasp is very effective in controlling the population of this soybean pest, but most studies of this insect stopped around 1960. Since then, the rise of geographic information systems has allowed for a renewed interest in this species' movement patterns.

The use of commonly applied geostatistical analysis to create prediction surfaces is examined. Both Kriging and Inverse distance weighted are used to try and predict the percent parasitism levels of the wasp. This experiment shows that common geostatistical methods of inverse distance weighted and Kriging can be used to predict movements, but cannot say which method is better over the other. Further research is needed in this subject.