Abstract

Sterile insect techniques (SIT) are biological, non-polluting pest control methods used on farms. The release of false male codling moths (FCM) is used in this method to reduce the number of fertile female FCM in the farm population. In this study, a mathematical model that simulates the interaction between the susceptible host, the sterile male FCM population, and the wild FCM population is developed. The local and global stability analysis of the model is analysed and found to be asymptotically stable when Ro < 1. A threshold number of sterile FCM is determined above which the FCM control is effective. These theoretical results are reorganised in terms of possible strategies for the control of FCM and are numerically illustrated. Keywords: Sterile insect technique, Mathematical modelling, codling moth, Stability analysis, Plant pest model, pest control .