Baidoo et al., J. Appl. Biosci. 2017 Build-up of insect pests and their natural enemies on rotated and nonrotated okra (Abelmoschus esculentus (L.) Moench), tomato (Lycopersicon esculentus Mill) and egg plant (Solanum melongena (L.) Moench.) fields.



Journal of Applied Biosciences 110: 10802-10807

ISSN 1997-5902

Build-up of insect pests and their natural enemies on rotated and non-rotated okra (*Abelmoschus esculentus* (L.) Moench), tomato (*Lycopersicon esculentus* Mill) and egg plant (*Solanum melongena* (L.) Moench.) fields

P. K. Baidoo,¹M.B. Mochiah,² W. Apo¹, and H. K. Teye-Anim¹

¹Department of Theoretical and Applied Biology, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.

² Entomology Section, Crops Research Institute, P. O. Box 3785, Kwadaso, Kumasi, Ghana. Corresponding Author's Email address: <u>pkbaidoo2002@yahoo.com</u>

Original submitted in on 19th November 2016. Published online at www.m.elewa.orgon 28th February 2017 http://dx.doi.org/10.4314/jab.v110i1.10

ABSTRACT

Objective: The quest for increased food production requires crops to be protected from pests and diseases. The readily available means of controlling pests is the application of chemical pesticides, with its attendant negative effects on humans and the environment. The study was conducted to assess the effectiveness of crop rotation as a pest control measure and how this affects the population of natural enemies of the pests. *Methodology and Results*: The build-up of insect pests' of tomato, okra and egg plant and their natural enemies on rotated and non-rotated fields were studied. The rotated and non-rotated fields were each replicated 3 times. The different insect pests that infested the crops were identified and counted. Aphids and whiteflies were assessed using a scoring scale from 0 to 5. Natural enemies of the pests were also identified and counted. Significantly larger numbers of *Bemisia tabaci, Aphis gossypii, Podagrica uniforma, Zonocerus variegatus* and *Locusta migratoria* were sampled on the crops on the non-rotated than the rotated fields. Numbers of natural enemies, *Dictynia* sp *Coccinella* sp and *Camponotus* sp were not significantly different on the rotated and non-rotated fields but crop yields were significantly higher on the rotated field.

Conclusion and application of findings: The results of the study indicated that rotating crops on the same piece of land resulted in reduction in pests' numbers and an increase in crop yields. The reliance on pesticides alone to manage pests may not be the best option to reduce pests because of the negative effects of pesticides on the environment. Crop rotation can therefore be adopted as a cultural control option in the overall management of pests.