Journal of Applied Biosciences 213: 22653 – 22674
ISSN 1997-5902

Control of the invasive fall armyworm (*Spodoptera frugiperda*) in Benin: Analysis of control measures taken by farmers

Fernand A. Sotondji, Kristina Karlsson Green, Elie Dannon, Daniel C. Chougourou
University of Abomey-Calavi, Polytechnique school of Abomey-Calavi, Laboratory of Applied Biological Research at EPAC, Benin
Unit of Chemical Ecology Agriculture, dept of Plant Protection Biology Swedish University of Agricultural Sciences
National University of Science, Technology, Engineering and Mathematics (UNSTIM), Laboratory of Natural Sciences and Applications (LNSA),
Entomology and Plant Protection at the Polytechnique school of Abomey-Calavi (EPAC), Applied Biology Research Laboratory, Benin
Corresponding auteur: fernandsotondji@yahoo.com

Submitted 06/09/2025, Published online on 31/10/2025 in the https://www.m.elewa.org/Journals/journal-of-applied-biosciences https://doi.org/10.35759/JABs.213.9

ABSTRACT
Objective: Since its detection in Benin in 2016, fall armyworm (*Spodoptera frugiperda*) has rapidly spread nationwide, threatening maize production. The aim of this study was to examine the methods used by farmers to prevent and control FAW and their impact on maize production.
Methodology and Results: A field survey across five districts of central and southern Benin was conducted, covering a representative sample of 522 maize producers. The results showed that the dominant control method was the use of chemical pesticides, practiced by 80% of farmers. These farmers reported comparatively lower FAW presence in their fields, particularly among older producers (>60 years), suggesting that pesticides are perceived as the most effective option. However, only 20% of farmers used biopesticides mainly plant extracts (48.15% in N'Dali), ash-water mixtures, bacterial formulations (up to 90% in Bassila), and soap-based foliar applications. Adoption of these agroecological alternatives varied strongly across districts, reflecting cultural and resource differences. Statistical analyses indicated that farmers' age ($p < 0.05$) and ethnicity ($p < 0.05$) significantly influenced FAW management choices.
Conclusion and Application of results: This study findings confirm that while chemical pesticides are currently the most widely used and effective short-term strategy, their ecological and health risks necessitate the promotion of sustainable alternatives. Integrated pest management (IPM), which combines limited pesticide use with crop diversification, organic fertilisers, and locally sourced biopesticides, has been identified as the most effective way to mitigate FAW damage in Benin. This approach also promotes biodiversity conservation and supports the sustainability of farmer livelihoods.
Key words: Farmer surveys, *Spodoptera frugiperda*, maize, Biological control, Agroecology, sustainable plant protection, Benin.