



Food and Agriculture
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Burkina Faso: Impact of fall armyworm on maize production, livelihoods and food security

DIEM-Impact report, July 2023: Executive summary

Executive summary

Native to the tropical and subtropical regions of the Americas, FAW, *spodoptera frugiperda*, was introduced in Africa in 2016 and then spread across Africa (Day *et al.*, 2017). The geographic expansion of FAW to West Africa and the Sahel region was fast paced, despite the efforts of the Governments and their partners to limit its spread.

Since its appearance in 2016, fall armyworm has spread to many countries and remains one of the main threats to agriculture and food security in Africa, causing around 73 percent maize yield loss, a cereal on which 208 million people in the region depend, corresponding to USD 9.8 billion loss (FAO, 2021).

Impacts in terms of FAW damage reduction have been seen in Burkina Faso over recent years, where the percentage of maize area seriously affected by FAW and yield losses has reduced (FAO, 2022). However, yield losses were still estimated to be between 5 and 15 percent in 2022 (Ministry of Animal and Fisheries Resources [MRAH], 2023). The overall objective of this study was to assess the impact of FAW on maize production, and the livelihoods and food security of maize farmers in Burkina Faso. The specific objectives were to:

- Establish the magnitude and severity of FAW maize infestations as the main food crop. Determine the level of damage of FAW infestations on plants while considering the occurrence of other pests and hazards.
- Determine the impact of FAW infestations on maize yield.
- Determine the impact of FAW infestations on farmers' livelihoods and food security due to actual crops losses and to resources mobilized to fight the pest.
- Understand the different control measures adopted by farmers and their efficiency.
- Identify and profile cropping systems and farmers more vulnerable to the impacts of FAW.
- Identify farmers' priorities and needs for the next cropping seasons.
- Provide recommendations for action.

The study targeted the following three regions in Burkina Faso: Centre-Ouest, Hauts-Bassins and Sud-Ouest. A total of 732 farmers were interviewed, (233 in Centre-Ouest, 243 in Hauts-Bassins, and 256 in Sud-Ouest). This impact assessment follows a methodology developed by OER's Data in Emergencies Information System (DIEM) team, articulated in three steps: a household survey, a scouting exercise to measure the level of FAW infestation, and a crop cutting experiment (CCE) conducted at harvest time to determine the yields.

The study determined that:

- The most practiced interventions to control FAW across all regions were: regular monitoring of maize after germination to check for signs of FAW (66 percent) and application of synthetic pesticide

(64 percent), followed by timely planting (23 percent), regular weeding (14 percent), crop rotation (14 percent) and hand picking (9 percent). No respondents reported the use of practices such as push-pull, pheromone traps and biocontrol.

- Approximately 94 percent of respondent households reported crop production difficulties like access to fertilizer (54 percent), pest outbreak (19 percent) and plant diseases (7 percent).
- Approximately 93 percent of the visited plots were infested by FAW at the time of field scouting, with an average of 25 percent of maize plants affected in the selected plot.
- Based on the results of the regression on FAW incidence, the two most influential factors on FAW incidence were previous damage, meaning that the higher the previous damage, the higher the FAW incidence, and altitude, meaning that the higher the altitude, the lower the FAW incidence. In addition, increases in density, earlier planting dates, presence of pathogens and control of predators and FAW are all farming practices that allow for better yield based on our regression.
- There is still margin for improving the knowledge of the farmers, in terms of capacity to recognize FAW, but also the appropriate time to start scouting and what time of day is more effective for applying pesticide. Overall, maize farmers in Sud-Ouest seem to have better knowledge across the various elements for which they were tested, when compared to farmers in Hauts-Bassins and Centre-Ouest.
- According to the household hunger score (HHS), 92 percent of the households experienced little to no hunger, 5 percent experienced moderate hunger and 3 percent experienced severe hunger.
- The Food Insecurity Experience Scale (FIES) highlights a situation of food insecurity which is higher in Centre-Ouest compared to the other two regions. There is a significant and positive correlation between yield loss due to FAW and the prevalence of recent moderate or severe household food insecurity. The more yield loss due to FAW, the higher the percentage of households affected by recent food insecurity (RFI) at moderate or severe levels.
- There is a significant difference between households classified at the crisis level of the livelihood coping strategies index (LCSI) (with a mean yield loss due to FAW of 524 kilograms/ha) and those using no coping strategies (losses of 352 kilograms/ha).
- About 78 percent of the maize farmers declared the need for assistance in the three to six months following the survey, in particular crop inputs (79 percent), training (39 percent) and cash (38 percent).
- With respect to the farmers who are members of an FAO or Global Action (GA) supported farmer field school (FFS) or FAW-IPM group, the majority (35 percent) declared that the lessons learned from the FFS sessions, in terms of managing FAW on maize crops, were very useful, 29 percent thought that the information was quite useful, and about 16 percent thought it was a little useful. The knowledge gained was used in a partial way by 36 percent and completely by 35 percent. The reasons behind the partial use of the knowledge gained were associated with the fact that it was too late to implement the recommendations received (72 percent) and the lack of money (26 percent).

Based on the results, the following term recommendations emerged:

Short-term recommendations

- Centre-Ouest is where most of the households employ emergency coping strategies. There may be additional difficulties beyond FAW to explain this. Additional support outside of FAW, such as cash and food assistance, should be provided to farmers in Centre-Ouest.

Long-term recommendations

- Awareness and knowledge of best practices on how to control FAW should be boosted across all regions. There is room to improve the farmers' capacity to recognize FAW, their knowledge of the appropriate time to start scouting, and the most effective time of day to apply pesticide.
- Rural media are among the preferred sources of information on best practices to manage FAW. However, their use is still limited, and extension services should be leveraged over rural media to boost farmers' need for information.
- Access to fertilizer has become a more pronounced crop production difficulty in the last season compared to the previous five years. Conduct further assessments to understand the challenges accessing fertilizer.
- Results from the study show that the presence of pathogens and control of predators allow for better yield. Practices that conserve natural enemies, such as reduction of pesticide use, should be highlighted in future training and communication on FAW IPM.

The full report is available here:

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