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Evaluation of Control Options to Reduce the Impact of the Fall Armyworm, *Spodoptera frugiperda*, on Maize in Smallholder Cultivation on the "Plaine de La Ruzizi", DR Congo

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Abstract

The "plaine de la Ruzizi" at the border of DR Congo, Rwanda and Burundi is a fertile arable land where cassava and maize present(ed) the principle food crops. As the cassava brown streak disease that destroyed the entire root harvest essentially eliminated cassava production in the region, maize gained considerable ground as the main staple food. The arrival of the fall armyworm, *Spodoptera frugiperda*, a disastrous pest of maize, at the beginning of 2017 resulted in an enormous devastation of the crop and caused severe food shortages. More seriously, because of the lack of any knowledge about the pest and options for its control, the resource poor farming community was left rather helpless in the combat to reduce the impact from the calamity that was foreseen for the coming cropping season. Our intervention, to assist the community in controlling the pest considered, accessible methods and locally available materials, the use of a biological insecticide (Conserve) based on *Saccharopolyspora spinosa* compounds and the use of a synthetic insecticide. The latter was in particular significant because the farmer community demanded for any product that could provide immediate relief. Our experimentation considered the best moment to begin the control action by scouting fields for signs of insect eggs, nymphs and frass windows, efficacy of control, and repetition of treatment. Four variables were compared on demonstrations plots at 3 sites and on maize parcels of 10.5 m × 48 m. Reducing the numbers of insects by crushing egg masses, nymphs and collecting caterpillars and the application of a home-made wood ash/oil mix were compared with chemical treatments using Conserve (Dow Chemical) and the most generally used Roket (40 % (Profenofos) + 4 % (Cypermethrin). Because there was complete absence of any concept on safe use of pesticides, demonstration and training was provided on precautionary measures, the use of protective overalls and gear as well as safety of users and passersby.

We report the results, experiences and knowledge gained from two seasons of interventions to combat the fall armyworm attacking maize in the South Kivu region and discuss the options left for small resource poor farmers to reduce the severe impact of this pest and to assure food on the table.

Keywords: DR Congo, fall armyworm, maize

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