

Short Communication

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Integrated Management of Maize Pests in Vegetation and in Storage

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In Benin, the agricultural sector contributes 32% of the Gross Domestic Product (GDP), 88% of export earnings and employs about 70% of the working population. However, the presence of insect pests of corn, which are in particular the vegetation pest, defoliator and stem borer, *Spodoptera frugiperda* (Figures 1 and 2), and the weevils *Prostephanus truncatus*, also called the large corn borer, *Sitophilus zeamais*, *Sitophilus oryzae* and *Rhizopertha dominica* (Figure 3), in stocks of maize grains lead to quantitative and qualitative losses. This situation reduces the livelihood capacity and income of producers, processors and consumers. The diversification of a range of effective insecticides to circumvent the resistance of certain insect pests dependent on corn in vegetation and in storage, to certain molecules, has led research and the plant protection service to formulate recommendations for products approved for Benin by the National Committee for the Approval and Control of Phytopharmaceutical Products (CNAC) [1]. To better protect vegetation, store

and preserve maize grains in storage, different control methods, in this case chemical control and physical control, are commonly proposed and adopted by most cereal producers, traders and consumers. Based on the results of research work and documentary research with practitioners, a technical sheet has been drawn up to trace current practices and propose attitudes to adopt to better reduce vegetation and post-harvest losses [2]. The factors determining the attacks include (i) the type of insect and place of infestation, (ii) the state of drying of the grains, (iii) the state and storage conditions of the grains before harvesting, in particular with respect to grain maturity, ear cover, storage site and conditions, and timing of harvest, (iv) post-harvest condition and storage conditions of grain, including concerns the variety and quality of the product stored (relative humidity of the grains, degree of maturation), the forms of storage, the climatic factors depending on the site and the season: temperature and humidity, the water content of the grain, condition

of store, type of store/storage, maintenance and duration, insect diversity (pests, natural enemies, population dynamics) and pre-harvest infestation, (iv) forms of storage with regard to shelled form, cob with or without husks, temperature and humidity grain moisture content, (v) type and condition of storage, (vi) level of infestation before harvest. Different control methods including chemical control, physical control, drying, the use of insect repellent sheets and several bagging techniques are documented and proposed to effectively control pests in vegetation and in storage [3,4]. However, only the use of chemical products makes it possible to effectively control insects in vegetation and in stock for a maximum period of one (01) year, of course also, that the population of *S. zeamais* must

be controlled by an insecticide. of synthesis for a better conservation of corn in storage. The use of Sofagrain insecticides based on pirimiphos-methyl (16 g/kg) and permethrin (3 g/kg) or pyrimiphos-methyl (1.5%) and deltamethrin (0.1%), and Actellic Gold Dust DP, a binary insecticide based on pyrimiphos-methyl at the content of 16 g/kg and Thiamethoxam 3.6 g/kg are recommended. The adoption of good practices combined and coupled with vigilance and attitudes of control and monitoring, makes it possible to reduce at best, the losses in vegetation and post-harvest, in order to ensure self-sufficiency and food security, as well as poverty reduction [5].



Figure 1: Leaf damage from the armyworm, *Spodoptera frugiperda*, on a maize plant in the field.



Figure 2: Maize armyworm, *Spodoptera frugiperda*, damages on cob.

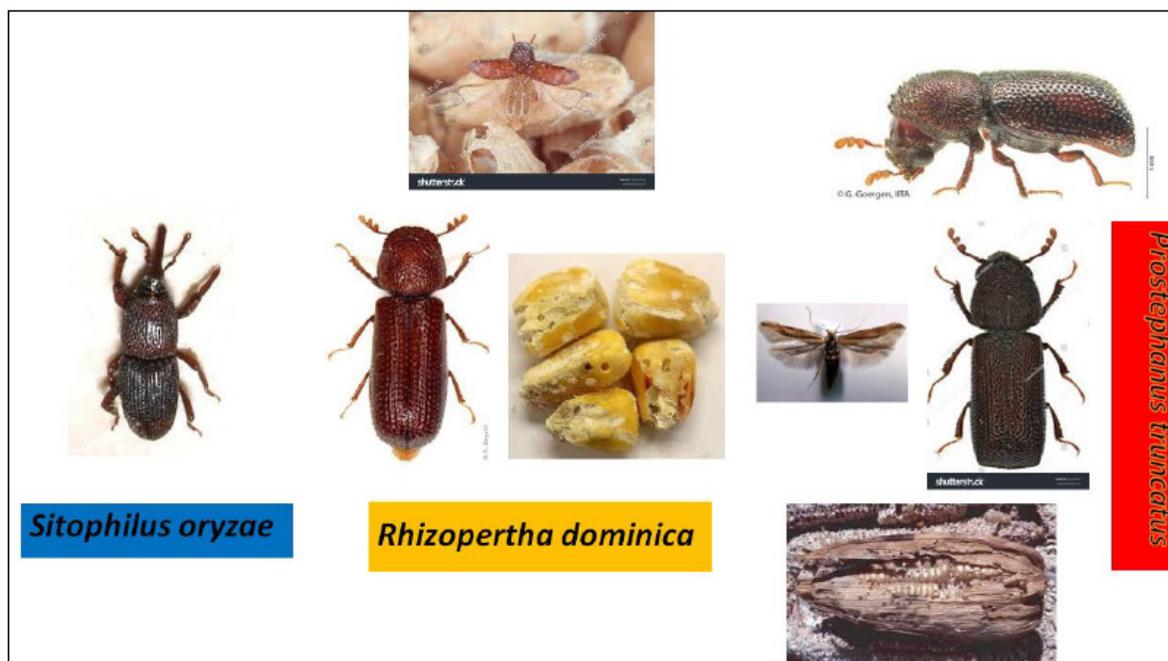


Figure 3: Insects of maize stocks of major importance with illustrations of their negative impacts in terms of qualitative and quantitative damages.

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Conflict of Interest

There is no conflict of interest.

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