18 Sweetpotato stemborer

Background

Sweetpotato stemborer is a pest that we commonly find in a sweetpotato field, where its occurrence does not necessarily cause yield loss, but definitely has a potency to do so. Stemborer damage particularly occurs in fields where sweetpotato is grown for several consecutive seasons. Control is very difficult after the stemborer has entered the stem of the sweetpotato plant, therefore, the key to successful control is prevention. In order to implement preventive measures well, we first have to understand the life cycle of the stemborer.

Objectives

The objective of this activity is to enhance the participants' knowledge about the life cycle of the sweetpotato stemborer, and ways to prevent and reduce its damage.

Materials

- Bamboo stakes to mark stemborer infested sweetpotato plants.
- Glass jars with cover.
- Knife or razor blade to cut open the sweetpotato stems.
- Newsprint paper.
- Felt-tip markers.

Activity steps

A *Field sampling for stemborer*

A.1 The participants are divided into small groups.

A.2 Invite them to look for, and collect specimens of stemborer life cycle stages and symptoms, such as:
- → Swollen stems.
- → Frass under the plant.
- → A caterpillar inside the stem.
- → A pupa inside the stem.
- → The length of the tunnel made by the caterpillar inside the stem.
- → Other animals inside the same stem (natural enemies).
- → Exit holes for stemborer moths on the stems that are still covered and that are open.
- → Adult moths.

A.3 Discuss the field observation results by showing the samples collected from the field.

A.4 Put some of the collected caterpillars and pupae in glass jars that are covered inside with paper. The caterpillars must be kept within the sweetpotato stems. Ask some participants to take the jars home for further observation. The jars are brought back to the next FFS meeting to observe what has emerged from the pupa: stemborer moth or a natural enemy (parasitic wasp).

A.5 Discussion:
- → What is the life cycle of the sweetpotato stemborer?
- → To what extent and when does the stemborer cause yield loss to the sweetpotato crop?
- → What is the best method to control the stemborer?

A.6 Observation of stemborer moths should be done in the evening by bringing a torch to the field. The moths will come to the torch since they are attracted by the light. Suggest to the group to do evening observation, and if there is interest agree on the time and place.

B *Stemborer development in the field*

B.1 Each small group marks two sweetpotato plants with stemborer infested stems in the field. Write the group name and the date on the bamboo stake.

B.2 One of the plants marked by each group is just left to develop, while the other plant is treated by hilling up the soil so that the part of the stem where the exit hole will be made by the stemborer is covered. During the following weeks the small group observes both plants.

B.3 The date when the stemborer moth emerges from the stem is written on the bamboo stake.

B.4 During harvest, the storage roots per plant of the two marked plants and one uninfested plant per group are weighed and compared. The stemborer observation results throughout the season are discussed during the evaluation meeting.

B.5 Discussion:

→ Did the stemborer moth emerge from the stem or did it die inside the stem? Compare the two treatments.

→ What is the effect of hilling up on the stemborer development?

→ To what extent did the stemborer attack affect the yield? How does this compare with the participants' experience in their own fields?

For more information see:

- Sweetpotato stemborer (Part III, Section 5.2.2).

Notes