9 Sweetpotato pests

Background

Under normal conditions, most plants in a field will definitely contain one or more insects that are consuming certain parts of the plant. Farmers, whose aim is to cultivate crops with as high a yield as possible, normally do not like to see any creatures in their field. But do all creatures that live in the agroecosystem damage the crop? And do all creatures that, indeed, consume plant parts, cause yield loss? Are all animals that eat plant parts eligible to be called “pests”?

Objectives

After completing this activity the participants are able to:

- Identify the major sweetpotato pests and understand their life cycles.
- Understand that crop eating animals should not always be considered pests.

Materials

- Small plastic bags.
- Containers with perforated or screen-windowed lids.
- Newsprint paper.
- Felt-tip markers.

Activity steps

A *Which one is a pest?*

A.1 Ask the participants to mention the sweetpotato pests they know and list them on a sheet of newsprint paper (vertically).

A.2 If the list is exhausted, draw a table of five columns, with the list of sweetpotato in the first column, and the following headings in the other four columns:

Sweetpotato pests	Frequently occurring in large numbers	Dangerous and damaging	Difficult to control	TOTAL
1.				
2.				
3.				
etc.				

A.3 Per column, the participants rank the pests, by giving the pest that is, for instance, most frequently occurring in large numbers a score of 10, while the other pests are given a proportional score in relation to the number one pest. The same is done for the third and fourth columns. When all columns have been ranked, the total score for each pest is calculated by adding the scores of the three columns. The total scores for all pests are compared.

A.4 Discussion:

→ Which pest could be considered the major problem based on the total score that was determined in the ranking exercise? Does everybody agree?

→ Which of the three factors should be given relatively more weight to consider whether a pest is a major problem or not?

→ What factors determine whether a plant eating animal should be considered a pest or not?

If necessary, the facilitator can add some of the following points:

- Occurrence.
- Type of damage and level of actual yield loss.
- Development stage of the crop.
- Types of natural enemies existent in the field.
- Ratio between number of natural enemies and number of pests.
- Health and genetic resistance of the crop.
- Weather and environmental conditions.

B *Life cycles and food chains*

B.1 By probing the participants, draw the life cycles of the sweetpotato weevil, the hornworm (or any other commonly occurring caterpillar) and the aphid.

B.2 Ask the participants what development phase of each insect attacks the sweetpotato crop. Let them describe the biology of each insect (where does it live, what does it eat at the different phases, etc.), and add their comments in the life cycle pictures.

B.3 Draw a food chain together with the participants, starting with the sweetpotato leaves eaten by a hornworm. The hornworm is eaten by what natural enemy, which in turn is eaten by what other natural enemy? What happens at last with all of the organisms?

B.4 Discussion:

→ How are life cycles of pests related to the infestation of the crop?

→ The attack of which phase of the pest life cycle by natural enemies is most effective to suppress pest population build-up?

C *A pest or a natural enemy: prove it yourself!*

C.1 If the participants find an insect in the field of which they do not know its function, rather than giving a straightforward answer they should be encouraged to prove for themselves whether the insect eats plants or other animals. They can use containers with the perforated lids for this purpose.

C.2 Put the insect in the container and provide it with one or several types of food, such as leaves, root pieces, caterpillars, aphids, etc. One type of food per container is easier to observe, but more types in one container can show whether the insect eats more than one type of food or not, and which one is preferred. Observe what the insect eats. The next day, the food can be replaced by something else.

C.3 The containers are taken home by the participants for further observations. During the next session, the groups present their findings.

For more information see:

- Sweetpotato pests (Part III, Chapter 5, particularly Sections 5.1 and 5.2).

Notes