

13 Aphids and other tiny insects

Background

Ever since pesticides began to be used on agricultural fields, the kind and number of pest species that emerged in the crops changed. Several kinds of insects that previously did not cause economic loss are presently major pests such as, for instance, the brown planthopper in rice crops, and aphids in sweetpotato in certain areas. Typically, these are insects that are small in size and under pesticide-free, normal conditions suppressed by natural enemies.



Farmers often cannot distinguish between the various kinds of tiny insects that occur in their sweetpotato crop, many of which cause similar symptoms, such as curly leaves. But if observed well, the shape of these different species is actually very different, as is their effect on the crop and management practices

required to keep the populations low. Therefore, farmers should be able to identify the different species of small pest insects and understand their respective biologies and ecologies.

Objectives

The objective of this activity is to increase the participants' knowledge in regard to:

- The different kinds of small pest insects.
- Factors influencing the population dynamics of small pest insects.
- Management practices for small pest insects.

Materials

- Newsprint paper.
- Felt-tip markers.

Activity steps

A *Small pest insects in the field*

A.1 The participants are divided into small groups and invited to go to the field to collect samples of:

- small pest insects, i.e. aphids, leafhoppers, thrips and mites,
- leaves with symptoms of damage due to these small insects, and
- natural enemies of these small pest insects.

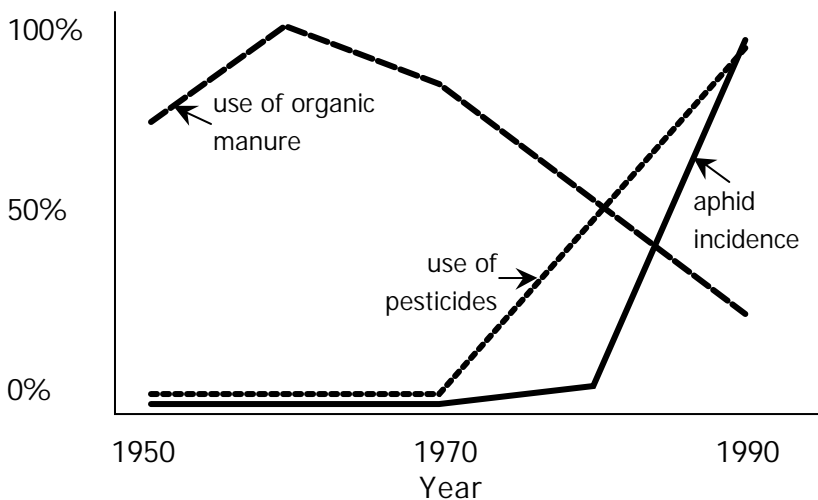
The samples are put in small plastic bags and taken to the FFS meeting place. The appearance of the different species of insects, their biology and the natural enemies collected are observed more closely.

A.2 The samples collected are put up on the analysis board with explanations written on a sheet of newsprint paper. The groups take turns to present their results. Probe and discuss why leaf sucking insects can be more dangerous than chewing insects.

A.3 Suggest to the groups to observe the behavior of various kinds of small pest insects and their interaction with natural enemies in the life cage containers.

B *The cause of the problem*

- B.1 Ask the participants when and how aphids, leafhoppers, thrips and/or mites have emerged for the first time on their crops.
- B.2 If the relationship between the emergence of these pest insects and the increased use of pesticides emerges, make a “time-and-trend-line graph” together with the participants. Such a graph can clearly illustrate the strong relationship between the emergence of certain pest insects and management factors, such as the changed use of pesticide, manure, chemical fertilizers, and new varieties (see example below). Let the participants try to explain the prevailing conditions at that moment and changing conditions over time. The facilitator captures their points in a chart indicating a relative score versus time periods.

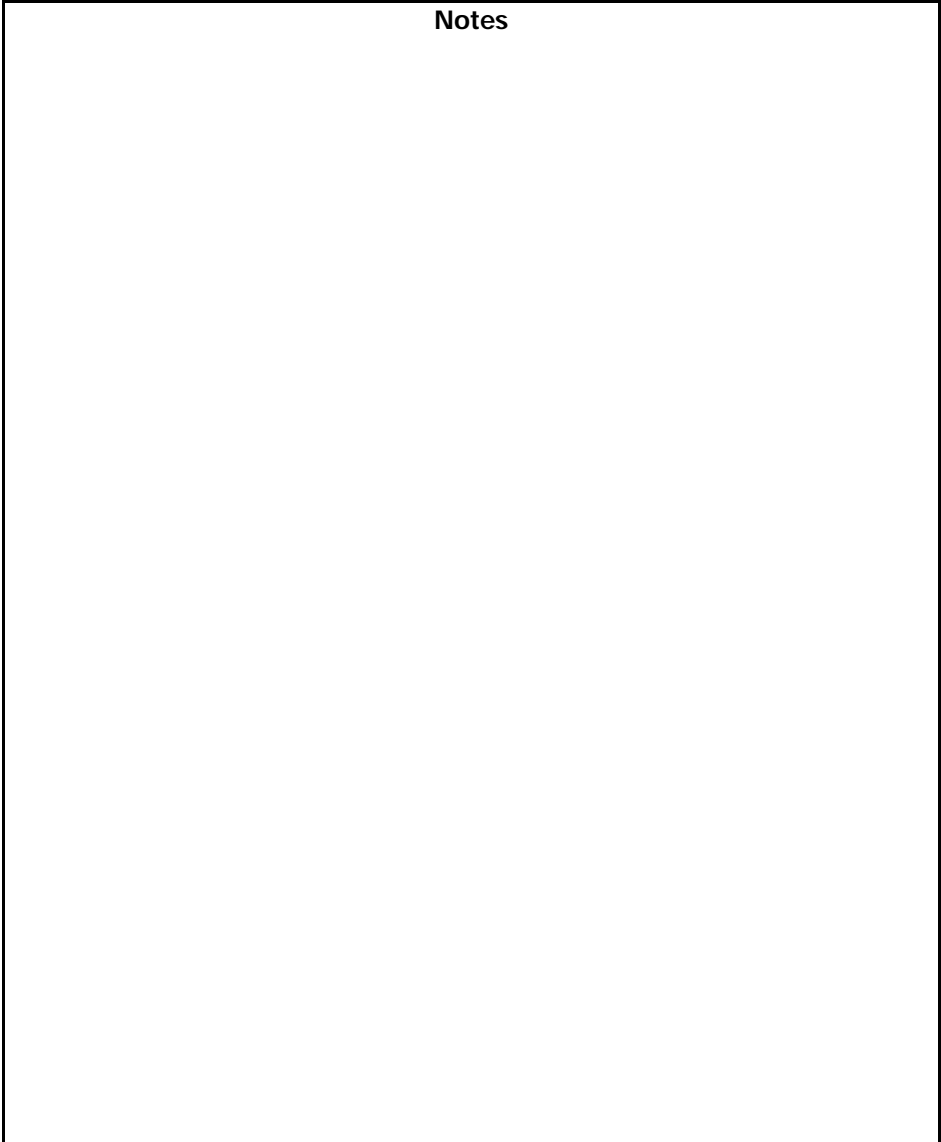


- B.3 Lead a discussion about how the small pest insects can be best managed. Emphasize the conservation of natural enemies and the enhancement of crop health.

For more information see:

- Chewing and sucking pests (Part III, Section 5.2).

Notes

A large, empty rectangular box with a black border, intended for taking notes. The word "Notes" is printed in bold at the top center of the box.