

About this factsheet

Confused about why and when to use the several methods of Integrated Pest Management (IPM) under cultural practices, mechanical control, and biological control? This factsheet describes various IPM practices and factors affecting your choice of method.

Integrated Pest Management of the Sweet Potato Weevil

What is the sweet potato weevil?

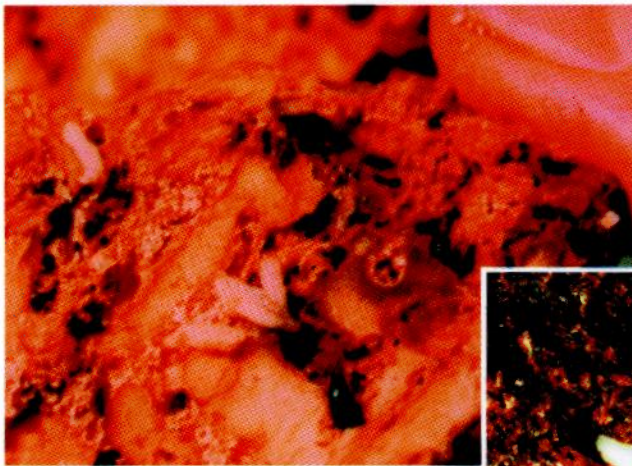
The sweet potato weevil, *Cylas formicarius* ("bogas", "wormy", "blue fly") is a serious pest of sweet potato in Jamaica. Losses as high as 60% of harvested sweet potato have been reported by farmers.

How does the sweet potato weevil damage your sweet potato crop?

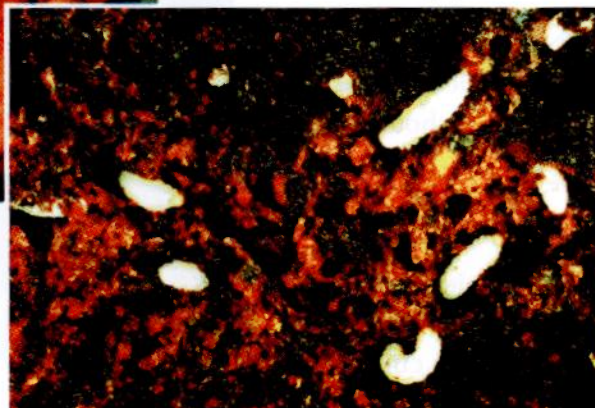
Female weevils lay eggs in the vines and/or roots of the sweet potato. The egg hatches and the young weevils ("worms") feed, grow, and develop inside the roots. When the weevils are fully-grown, they leave the roots and mate. After mating, the female weevil enters another root or vine and lays her eggs. Fully-grown weevils also feed on the roots and vines but do not cause much damage. Roots that are infested with the weevils are not suitable to eat as they have a strong smell.



Adult sweet potato weevil



Damaged sweet potato



Baby weevils – larvae and pupae ("worms")

How do weevils enter your sweet potato crop?

- Old roots or slips, which are carried to farms for animal, feed and/or planting material may be infested with eggs or young weevils ("worms").
- Weevils move from old infested fields to newly planted fields, which may be nearby.
- Weeds such as "wild slip" which may be in or around fields, harbor sweet potato weevils.

How can sweet potato weevil damage be lowered?

By using Integrated Pest Management (IPM)

What is IPM?

IPM is the use of several methods to reduce pest numbers and damage. IPM encourages the use of:

Cultural Practices

- Crop rotation
- Field sanitation
- Correct planting season, proper plant spacing
- Site selection
- Companion cropping
- Salt water management

Mechanical Control

- Hand picking
- Screening

Biological Approaches

- Natural enemies-good insects, fungi, nematodes, viruses, and bacteria and which feed upon pests and protect crops
- Pheromones
- Plant juices – pepper, garlic

IN ADDITION...

Chemical Control

Chemicals should be applied ONLY when pests are present and/or crop damage is noticeable. Chemicals that are least harmful to natural enemies should be used, e.g. soaps, oils.

Remember...

Not all methods must be used. The choice of method is dependent on the crop or pest. For example, the sweet potato weevil can be managed with cultural and biological methods only. Chemicals are not necessary.

IPM assists farmers to lower production costs, improve the quality of the harvest, and protect the health of farmers, consumers, and the environment.

IPM of the SWEET POTATO WEEVIL

The following pest management practices should be conducted during the various stages of production:

Site Selection

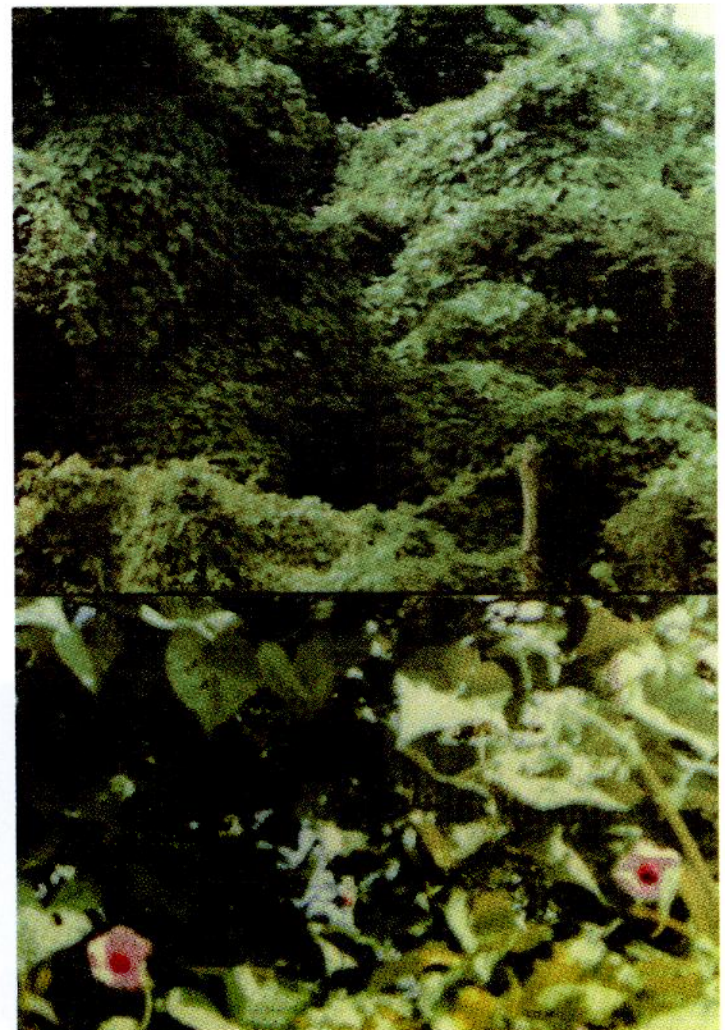
Rotate Crop

If possible do NOT plant sweet potato in the same area year after year. Rotate sweet potato with other crops, which will not be attacked by the weevil, e.g. pumpkin, corn. This will prevent the build-up of weevil populations.

Land Preparation

Field Sanitation

Remove alternate hosts. Uproot and burn weeds such as morning glory "wild slip" from the edges and/or



Weevils feed on "wild slip" which surrounds farms

borders of the field. Weevils are known to feed and develop in the stems of this weed.

Remove and destroy old roots and vines

Burn/bury all damaged potatoes and vines that may have been present from the previous crop.

Destroy old fields

Plough any old field that may be close to newly-planted fields. Weevils move from the old fields and feed/lay eggs within the new crop. If old sweet potato fields are being used to feed animals, a pheromone trap should be placed within each field to assist with keeping weevils from moving to younger sweet potato crops which are nearby (see photograph at right).

Plant Establishment and Development

Use clean planting material

Use the top 25—50 cm of sweet potato slips to plant the new crop. This section of the vine is usually free from eggs and young weevils ("worms").



Use top of slips to replant crop

Keep soil moist

Irrigate field at least once per week. Cracks in dry soil allow weevils to enter sweet potato roots, lay eggs, and feed.

Pheromone traps

Place 1–2 pheromone traps per hectare of sweet potato planted. Traps should be placed in the field as soon as planting is completed. The rubber with the female pheromone "perfume" should be placed 15–20 cm above sweet potato leaves. Water should be in the



Plastic bottle trap baited with sweet potato weevil sex pheromone "perfume" being used to catch male weevils

base of the trap at all times. Move the trap around the field every week. Change rubber septa with the female pheromone every 6–8 weeks.

Harvest

Harvest quickly

Harvest within 2–3 months of crop maturity; leaving the crop for more than 3 months after maturity results in the build-up of large numbers of weevils and high levels of damage to the crop.

Field Sanitation

After each harvest, collect and bury/burn all damaged roots and old vines.

REFERENCES

CARDI Research Activities. 1990–1995. IPM of the sweet potato weevil

Talekar NA. 1988. How to Control the Sweet Potato Weevil: A Practical IPM Approach. AVRDC 88–292

ACKNOWLEDGEMENTS

Photographers:

Dionne Clarke-Harris (CARDI),
Jim Castner (University of Florida).

AUTHOR:

Janet Lawrence, Entomologist, CARDI, Jamaica

FUNDED BY:

The Caribbean Agricultural Research and Development
Institute (CARDI)

The ACP-EU Technical Centre for Agricultural and
Rural Cooperation (CTA)

The Integrated Pest Management Collaborative
Research Programme (IPM CRSP)

United States Agency for International Development
(USAID)

A PRODUCT OF:

The Caribbean Agricultural Information Service (CAIS)



LAG-G-00-93-0053-00