

## About this factsheet

The use of Pheromones to trap insects is a well researched method of non-chemical control. This factsheet, illustrated with photographs, shows a simple inexpensive method of trap construction using the pheromones of the female sweet potato weevil to trap the males, in an effort to control the weevil and reduce losses to sweet potato farmers in Jamaica.

# Construction and Use of Pheromone Traps in Sweet Potato Production

Pheromones are chemicals produced by insects to communicate with each other. Pheromones have been used to manage a wide range of insects, including the sweet potato weevil "wormy" which severely damages sweet potatoes. Some farmers have reported that they have lost more than 50% of their crop due to the sweet potato weevil ("worm damage").

### How can pheromones be used to reduce sweet potato weevil damage?

Female weevils produce a chemical "perfume" which attracts male weevils. This chemical is called a sex pheromone. Sweet potato weevil sex pheromone can be used to trap male weevils present in the sweet potato crop. Trapping male weevils helps to reduce the number of young weevils that can be produced by females. Less weevils will therefore be present to damage the crop.

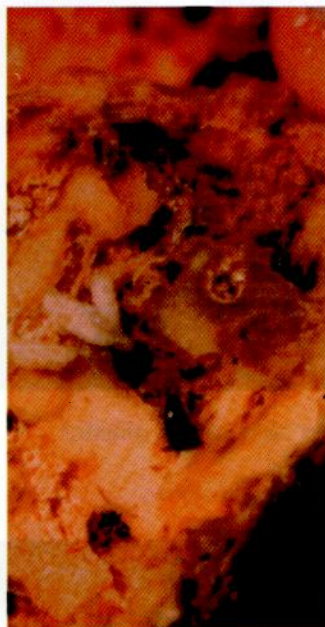
Several farmers in Southern Clarendon, Jamaica have been using sex pheromones in sweet potato production for over three years and have found that weevil damage has been reduced significantly.

### TRAP CONSTRUCTION

Traps are easy and inexpensive to make as discarded materials lying around the farm, can be used in construction (e.g. plastic bottles and bamboo).



Adult sweet potato weevil



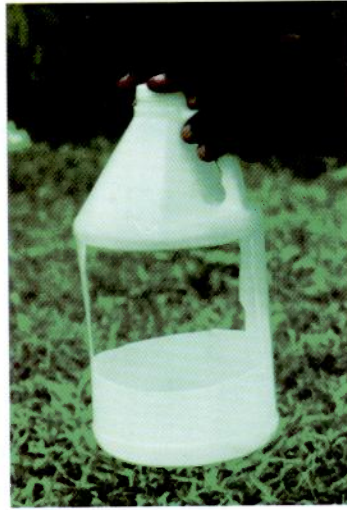
Sweet potato damaged by the weevil



1. Gather the following materials: plastic bottle with a cover (e.g. Pepsi, Bleach, Oil), wire (15 cm), two crutch sticks, knife, pliers and, pheromone septa.



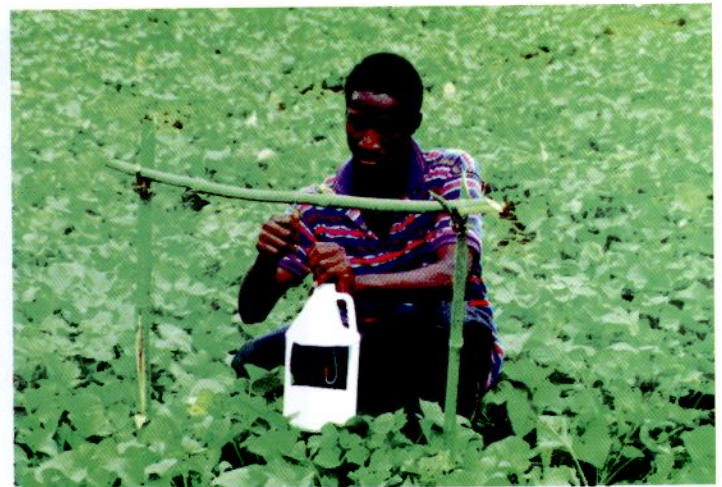
2. Cut two large holes in either side of the plastic bottle.



3. Make a hole through the cover of the bottle. Insert the wire through the hole and bend both ends with the pliers,



4. Hang the rubber with the female "perfume" on the inside wire.



5. Hang the plastic bottle in the field on the crutch sticks.



6. Pour water in the bottom of the bottle. Add a teaspoon of soap.



7. Leave trap in field for the cropping season.

#### How does the trap work?

The pheromone acts as a bait to attract male weevils. Male weevils smell the female pheromone—"perfume" within the trap. Assuming that a female is present, they move towards the scent, fall into the water which is in the bottom of the trap and drown.

#### How are traps to be used?

- Place trap in the field as soon as planting is completed
- Use 1 to 2 traps per 0.5—1 hectare of sweet potato
- Position traps against the wind

- Place the rubber with the female pheromone "perfume" 15—20 cms above sweet potato leaves
- Move the trap around the field every week
- Water should be in the container of the trap at all times
- Replace the rubber every 6—8 weeks

#### IT IS IMPORTANT TO...

Remove old fields close to the new crop; pheromones will pull weevils from nearby infested fields into the new crop.

#### NOTE...

Pheromones CANNOT manage the sweet potato weevil by itself. Cultural practices such as field sanitation, crop rotation, use of clean planting material, and quick harvesting, should be used along with pheromone traps.

#### REFERENCES

- AgriScience. 1991. Pheromone-Trap Monitoring System for Sweet potato Weevil (*Cylas formicarius*). In Sweet potato Worldwide. Technical Information Bulletin. Fresno, CA.
- CARDI Research Activities. 1990—1995. IPM of the Sweet potato Weevil.

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