Integrated Pest Management

Monitoring

- Routinely scout fields by walking in a V or X pattern & check leaves for presence of insects.
- Inspect leaves particularly on the under surface of the leaves, within leaves that are starting to unfold and at the base of the younger petioles.
- When a threshold of 1 nymph/5 plants has been reached chemical control is warranted.

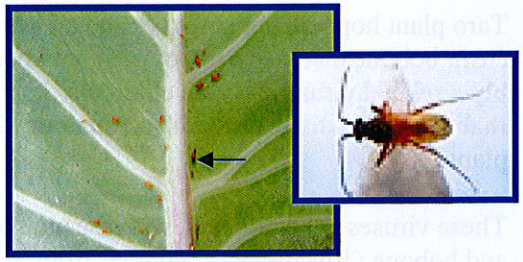
Cultural

Crop Rotation: Rotate with non-host crops. If possible relocate crop to a new area on land not previously cultivated in dasheen but with an unrelated crop e.g. corn

Sanitation: Remove all infested plants in the field and surrounding areas during crop rotation

Biological control

- The egg predator *Cyrtorhinus fulvus* (Hemiptera: Miridae) (Fig. 8&9) has successfully controlled *Tarophagus* spp. in many parts of the Pacific.
- *C. fulvus* is unlikely to reduce populations sufficiently to prevent the spread of alomae and bobone virus diseases.



Figs. 8 & 9: C. fulvus feeding on eggs of TPH

In Jamaica assassin bugs (Fig. 10) have been found to attack this pest, though not enough to effect control.

Fig. 10: Assassin bugs attack TPH in Jamaica

Chemical control

Dip all planting material for 10 –15 minutes in insecticide solution of malathion,or diazinon. Drench young infested plants with imidacloprid (Confidor®) or thiamethoxam (Actara®). Apply to infested leaves lambda -cyhalothrin (Karate Zeon®), carbaryl (Sevin®), indoxicarb (Caprid®), abamectin (Newmectin®/Cure®) or azadirachtin (Neem-X®). Rotate insecticides of different chemistries to reduce development of resistance.

- Read & follow instructions as stipulated on the pesticide labels; Wear ptotective gear
- Use a surfactant (sticker) in order to increase effectiveness of the insecticides.
- Promote control by encouraging natural enemy population
- Apply treatments in the early morning or evening and when it is not windy.
- Care should be taken when applying pesticides to protect human & environmental health & trade

Prepared by the Plant Protection Unit (Bodles), Research and Development Division, July 2013 Ministry of Agriculture and Fisheries

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1-888- -ASK-RADA (275-7232)

THE TARO/DASHEEN PLANT HOPPER

(*Tarophagus* sp.)

A NEW PEST OF DASHEEN IN JAMAICA

Introduction

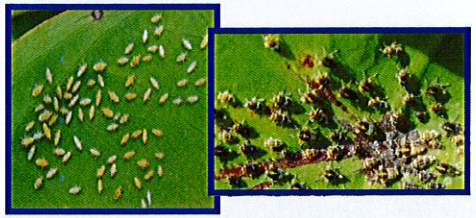
The taro plant hopper *Tarophagus* sp. TPH (Hemiptera; Delphacidae) was identified in Jamaica in 2011. Since then it has spread to most dasheen growing areas across the country causing much damage. This factsheet presents the findings to date based on literature review & local research.

Description

The taro plant hopper genus, Tarophagus, has three recognised species, *T. colocasia, T. proserpena and T. persephone* and one unnamed species in Pacific island countries.

Eggs are deposited in pairs in small holes made by the female taro plant hoppers in the midrib on the underside of the leaf & in the base of the leaf stalks or petioles.

Young **nymphs** are almost clear to creamy white, while the third to fifth nymphal stages are predominantly black with white markings (Figs. 1 &2).



Figs. 1 & 2: Tarophagous young (left) & older

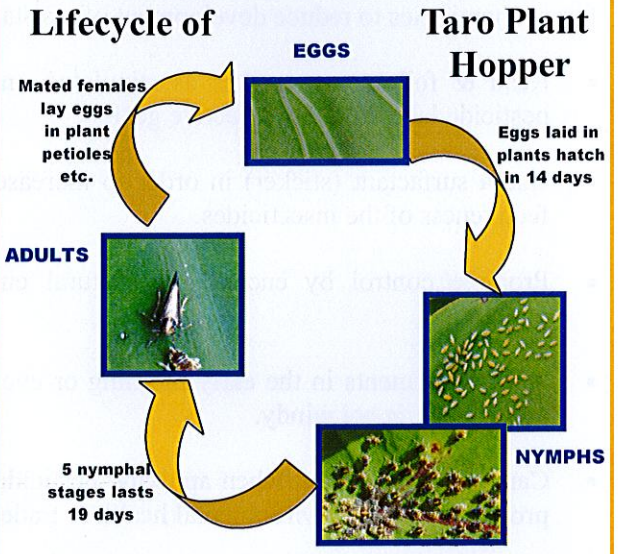
Adult taro plant hoppers are

- 4 mm in length; black with broad white patches on the back of the thorax and abdomen (Fig. 3).
- Adults have either short wings for most of the year or long wings for the cooler periods as the plant matures and starts to die.
- They normally move sideways, but both nymphs and adults hop readily if disturbed.
- They are most common in dry weather. In Jamaica high infestations are more prevalent after August /September

Fig. 3: Tarophagus sp.

Distribution

Tarophagus species are widely distributed from East Asia (including Taiwan & the Ryukyu Islands of southern Japan), through Southeast Asia to Australia (Northern Territory and Queensland), Papua New Guinea, New Caledonia, & many Pacific island countries. In Jamaica the infestation is present in St. Elizabeth, Westmoreland, Hanover, St. James, Clarendon, St. Catherine & Portland.



Host Range

Taro planthoppers feed mostly on dasheen/taro (*Colocasia esculenta*), although they have been observed on *Alocasia* spp. and *Cyrtosperma* spp.

Damage

- They feed on sap; plants then wilt and become stunted by heavy infestations
- Feeding & egg-laying punctures cause sap oozing which forms red crusts on the plant especially at the base; Older petioles appear dirty as oozing sap dries to form a brown crust (Fig. 4&5).

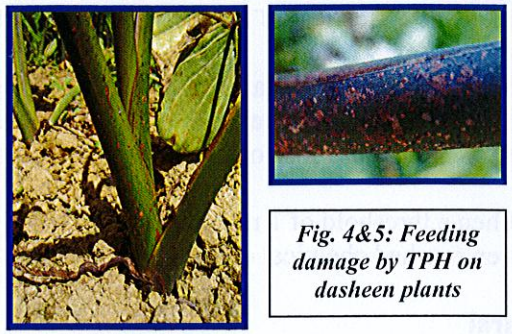
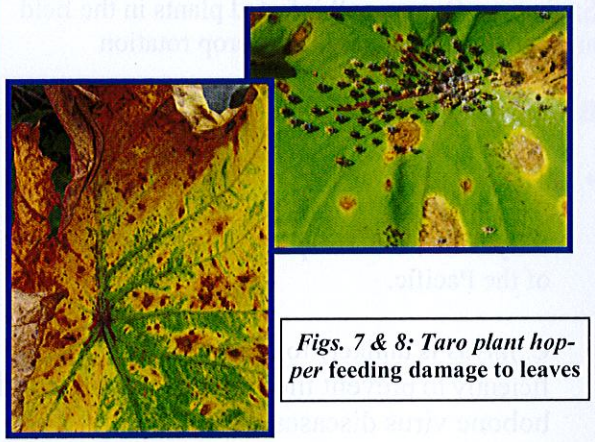


Fig. 4&5: Feeding damage by TPH on dasheen plants

- Older leaves are affected by severe infestations during dry weather: the petioles bend down giving the plants a splayed appearance, and the leaves die prematurely (Figs. 7&8).



Figs. 7 & 8: Taro plant hopper **feeding damage to leaves**

- Taro plant hoppers transmit /vectors a *Colocasia* bobone disease (rhabdovirus), and possibly a related virus, taro vein chlorosis rhabdovirusa disease which can stunt or kill plants.
- These viruses are associated with the alomae and bobone virus diseases reported from Solomon Islands and Papua New Guinea.