

## Eggplant flea beetle (247)

### Common Name

Eggplant flea beetle, *Psylliodes* flea beetle

### Scientific Name

*Psylliodes* species. The beetle is recorded from Fiji and Tonga as *Psylliodes bretteinghami*, but other species are likely to be present in the Pacific islands. However, even though the different species may have different hosts, it is likely that they have similar life cycles. *Psylliodes bretteinghami* is thought to be synonymous with *Psylliodes cucurbitae*.

### Distribution

Asia, Africa, North and Central America, Europe, Oceania. It is recorded from Australia (Lord Howe Island), Fiji, Tonga, and Vanuatu.

### Hosts

*Psylliodes* species infest a number of solanaceous crops, including eggplant, potato, tomato, and weeds, such as black nightshade (*Solanum nigrum*), jimsonweed (*Datura stramonium*), and gooseberry (*Physalis angulata*).

### Symptoms & Life Cycle

The adults make clusters of small irregular holes in leaves as they feed (Photos 1-3), giving the impression of damage from fine bore shot [like, for instance, the *bele* (*Abelmoschus*) flea beetle (**see Fact Sheet no. 22**)]. Damage to seedlings may destroy the crop. Symptoms are similar on tomato (Photo 4).

The life cycle of the Pacific species is unknown. The following information is from other parts of the world. Eggs are yellowish, minute and laid singly or in clusters in soil beside the plant stems. Each female lays up to 500 eggs. Eggs probably hatch at about 7 days. The larvae, which have pale yellowish-white with brown heads, tunnel through stems, roots or leaf midribs. They have three stages and become mature in about a month. Afterwards, they pupate in small chambers constructed in soil beside the plant, at 0.5-8 cm depth. Pupation lasts up to a month. The adults are 3-4.5 mm long, shining brassy-green, green, or blackish blue with metallic shine, with lines of small pits on the wing covers (Photos 5&6). They have enlarged thigh on their hind legs and can jump considerable distances and also fly.

### Impact

The flea beetle causes impact in two ways: (i) directly, as adults eating the leaves and affecting fruit yield, and (ii) indirectly, by transmitting plant viruses. Also, larvae add to the direct damage by burrowing inside roots, stems or midribs of leaves, and reduce plant vigour.

### Detection & inspection

Look for numerous small holes in leaves made as the adult flea beetles feed. Look for adults on the underside of leaves, but they are easily disturbed, so turn leaf over slowly or bend down to look from underneath. It is very unlikely that the larvae can easily be found in the soil. They are very small.



Photo 1. Adult *Psylliodes* beetles feeding on eggplant.



Photo 2. Damage to eggplant by *Psylliodes* flea beetles.



Photo 3. Small patches of eggplant leaf eaten by adult *Psylliodes*.



Photo 4. *Psylliodes* species on tomato. Possibly the same as those on eggplant.

## Management

### QUARANTINE

*Psylliodes* species are probably native to the west Pacific region, feeding on indigenous *Solanum* species. However, there are probably several species and until their distributions are better known, efforts should be made to prevent spread between countries.

### CULTURAL CONTROL

Before planting::

- Avoid overlapping crops of eggplant (tomato, potato), especially planting new crops next to old where the beetle is present.
- Leave at least 3 month between crops.

During growth

- Use fertilizer or composts to accelerate seedling development, otherwise attack by the flea beetle may stunt seedling growth.
- Remove weeds from within and around the plots; especially remove any weeds related to eggplants, i.e., wild *Solanum* species.

After harvest:

- Collect and burn or bury as much of the crop as possible.

### CHEMICAL CONTROL

Spraying may be necessary when adults are in high number.

- Use plant-derived products, such as derris, pyrethrum or chilli (with the addition of soap).
- Note, a variety of *Derris*, brought many years ago to Solomon Islands from Papua New Guinea, is effective as a spray. It contains rotenone, an insecticide, so it should be used with caution. There may be varieties of *Derris* (fish poisons) in your country that can be tried (**see Fact Sheet no. 56**).
- Alternatively, use synthetic pyrethroids; they are likely to be effective, but will also kill natural enemies.

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When using a pesticide, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval. **Recommendations will vary with the crop and system of cultivation. Expert advice on the most appropriate pesticide to use should always be sought from local agricultural authorities.**



Photo 5. Adult *Psylliodes bretinghami* (from above).



Photo 6. Adult *Psylliodes bretinghami* (side view).

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AUTHORS Grahame Jackson & Mani Mua  
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