



Bug of the week

The **diamondback moth (*Plutella xylostella*)** is a worldwide pest of brassica crops (cabbage, cauliflower, broccoli, watercress, Chinese cabbage, mustard, kale, etc). Moths are very small (12-13 mm long), with a wingspan of 7-10 mm and a row of cream-yellow diamond-shaped markings along top of the body when wings are folded. Adults are nocturnal and females lay cylindrical white eggs (0.4-0.5 mm long) on both top and bottom of leaves of host plants. A single female can lay up to 450 eggs, but more commonly 100-150 eggs, during her 3-7 day lifetime. Eggs turn yellow towards maturity (3-7 days) when small grey-green caterpillars emerge and develop to 10-12 mm maximum length. Newly hatched larvae (1st instars) mine into the leaf, making their presence harder to see, however, as larvae get bigger they are obvious, as is the damage they cause. Pupae are attached to the bottom of the leaf, are light brown to dark green and wrapped in a loose silk cocoon.



Diamondback moth (Photo: Olaf Leillinger) and larva on cabbage (Photo: Merle Shepard, Gerald Carner, and P. Ooi)

In many countries intensive insecticide use for the diamondback moth has resulted in it becoming resistant to many insecticides and in fact, the diamondback moth was the first pest to develop resistance to the biological control agent *Bacillus thuringiensis* (*Bt*). Luckily in Cook Islands no *Bt* resistance has been detected in diamondback moth yet. DiPel® is the trade name for the *Bt* biological insecticide used here. Another option here is the product Success® Naturalyte®, also a biological insecticide with soil bacterium Spinosad. This is the most effective against diamondback moth but is more expensive. Success® and DiPel® are organic registered by BioGro (NZ). Neem oil can also be used but may not deliver the same degree of control. To avoid the development of insecticide resistance, always use the recommended concentration on the label, keep the number of applications to a minimum and rotate insecticides where possible. All three insecticides mentioned are less harmful to the natural enemies. Fortunately a group of parasitic wasps (*Diadegma semiclausum*, *Trichogramma australicum* and *Diadromus collaris*) for biological control of diamondback moth were introduced in Rarotonga from New Zealand in 1974-5, and these are also likely to be helping to keep the pest numbers down.

