

# Ladybeetles

## that damage potatoes

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Ladybeetles (family Coccinellidae), also known as ladybirds or ladybird beetles, are usually known to be beneficial insects that are welcome in our gardens. The most well known ladybeetles are the predators that feed on aphids and other small insect pests, and are placed in the subfamily Coccinellinae. However, another subfamily, the Epilachninae, consists of phytophagous (plant-eating) ladybeetles that attack various plant species, including pumpkin, watermelon, cucumber, spinach and tomato. There are at least four ladybeetle species known to attack potatoes in South Africa, of which three are described in this article.

### Description

Ladybeetles are easily recognized by their round hemispherical shape, short legs and bright colours. They are slow moving and their red/orange/black colours are easily noted on the green background of plants. The most common species on potatoes is the potato ladybeetle *Epilachna dregei* (Fig. 1), previously known as *Solanophila dregei*. They are relatively large ladybeetles, measuring about 8 mm in length and 5-6 mm in width. They are usually black, with 10 large orange patches on each wing. However, colour variations commonly occur; the patches may also be yellow or red (Fig.1). Eggs are laid in clusters of about 30 on the undersides of leaves. A life cycle from egg to adult takes approximately 40 days. The larva of the potato ladybeetle is yellow and covered with long, dark coloured spiny projections (Fig 2). The fully grown fifth instar larva seeks a protected place to attach itself to pupate, usually on the lower stems of haulms. The pupae are darker in colour, covered by the old hard and spiny skin of the larva (Fig. 3). These pupae are usually not noted in fields, and a second generation and outbreak may thus appear unexpectedly. In the northern parts of the country, adults migrate to hilltops or higher places during the latter parts of summer or early autumn. At such places, they gather in dense masses to hibernate for up to 10 months until the first rains the following spring. After the first good rain, adults again appear



**Figure 1. Colour variations in the potato ladybeetle *Epilachna dregei* (insert), with characteristic damage to a leaf.**

from their hiding places to invade newly planted potato fields. Another ladybeetle that attacks potatoes includes the nightshade ladybeetle *Epilachna paykulli* (Fig.4). They are smaller, measuring up to 6 mm, and have small black spots on a yellow body. Another species, also with orange wings, but with irregular yet symmetrical black markings instead of spots, is *Henosepilachna hirta* (Fig. 5). In some individuals of this species, the markings may be reduced to small black spots.



**Figure 2. A larva of the potato ladybeetle.**

### Damage

Damage by phytophagous ladybeetles is unique among pests attacking potatoes. No other pest causes the characteristic "skeletonising" of leaf surfaces (Fig. 1

and 5). They consume leaf areas in narrow, short bands from left to right, and then start again below the first band, but never consuming the thin line of leaf area that separates the two adjacent bands. The result is a very characteristic

feeding pattern called skeletonising. Both adults and larvae feed in this manner, the adults usually feeding on the top of leaf surfaces, while the larvae usually feed on the undersides of leaves. Because healthy, vigorously growing plants can tolerate to some extent leaf removal, damage is normally not serious. However, under certain, still unknown conditions, and especially in young plantings, populations may increase to such an extent that entire plants may be skeletonised in a very short time (Fig.6). Yield losses will be severe under such conditions.

**Control**

Control measures are not usually needed for this pest. They are mostly troublesome in small plots where no insecticides are applied. The normal spraying programs aimed at other insects, e.g. tuber moth, leafminer and aphids are usually sufficient in keeping their numbers low. In small, unsprayed plots, their numbers can be reduced by removing them by hand, especially the pupae that forms on the lower stems of haulms.

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**Figure 3. Pupae of the potato lady beetle on a potato stem.**



**Figure 4. The nightshade lady beetle *Epilachna paykulli*.**



**Figure 5. *Henosepilachna hirta*.**



**Figure 6. Potato plant skeletonised by the potato lady beetle.**