Factsheet 36/12

Protected Edibles

Southern Green Shieldbug

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The southern green shieldbug is not a native of the UK but has been recorded annually from sites in southern Britain since 2003. It is becoming increasingly common in glasshouses in the London area where it has caused significant damage to sweet pepper and aubergine crops. Tomato is also listed as a host plant but crop damage has not yet been reported in the UK. This factsheet provides an introduction to the biology and recognition of the pest and will help to distinguish it from less damaging native species of plant bugs.

Introduction

The southern green shieldbug, *Nezara viridula*, is believed to be native to Ethiopia but is now widely distributed across tropical and subtropical regions of the world. It feeds on a wide range of plants and is a serious pest of many important food crops (Figures 1 & 2). It is often referred to as the southern green stinkbug due its malodorous smell.

The southern green shieldbug has been imported into the UK on fruit and vegetable products for many years but was not found in the wild until 2003. It is mainly confined to the south-east of England which is thought to be the northern limit of its outdoor range. It is now considered to be established in London and the surrounding area. Breeding populations have most commonly been found in man-made habitats such as parks, gardens and allotments, where it is seems particularly fond of runner beans. The adults are strong fliers and are capable of long-distance natural dispersal during warm weather.

Details of the southern green shieldbug's life cycle parameters under UK conditions are, as yet, poorly documented. However, we can make assumptions based on what is known about the pest in other parts of the world. It probably overwinters as an adult sheltering in tree bark, leaf litter or other locations which provide protection from adverse weather conditions.

The southern green shieldbug has found a favourable niche in heated glasshouses in the north London area and it seems highly likely that it will eventually be transported to other parts of the country on produce and packing materials. It also seems likely that the pest would survive year round any where in the UK if it were within a glasshouse with frost protection between crops.

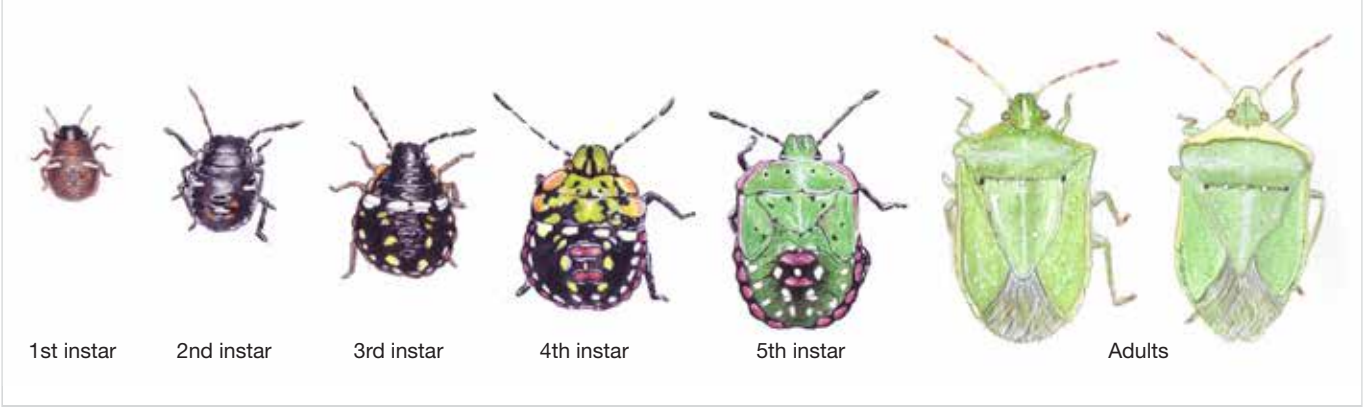
1. Adult southern green shieldbug

2. Adult southern green shieldbugs on sweet pepper

Southern green shieldbug life cycle stages

The female southern green shieldbug deposits eggs in batches of 30-130 on the underside of leaves in the upper portion of the crop canopy. The barrel-shaped eggs are pale yellow in colour and are firmly 'glued' together and to the leaf surface. The eggs turn a pinkish colour as they mature.

The immature southern green shieldbug moults five times during its development. Each intermediate stage is known as a nymph or instar. The five instars are so different in appearance that they are often thought to be different species. The drawings below provide an excellent representation of the relative size, shape and colouration of the instars (Figure 3). There is also considerable variation in colour within each instar as can be seen in Figures 4-7.



3. Southern green shieldbug *Nezara viridula* life cycle stages

4. First instars often remain in sibling groups

5. Mid-instar

6. Fifth-instar with dark colouration

7. Fifth-instar with predominantly green colouration

Distinguishing southern green shieldbug from native species

It is important to be able to distinguish between the southern green shieldbug and the more widely distributed native 'common green shieldbug', *Palomena prasina*. The latter often strays into glasshouses during the summer but does not cause economic damage. Control measures may be required against southern green shieldbug but not against *Palomena prasina.*

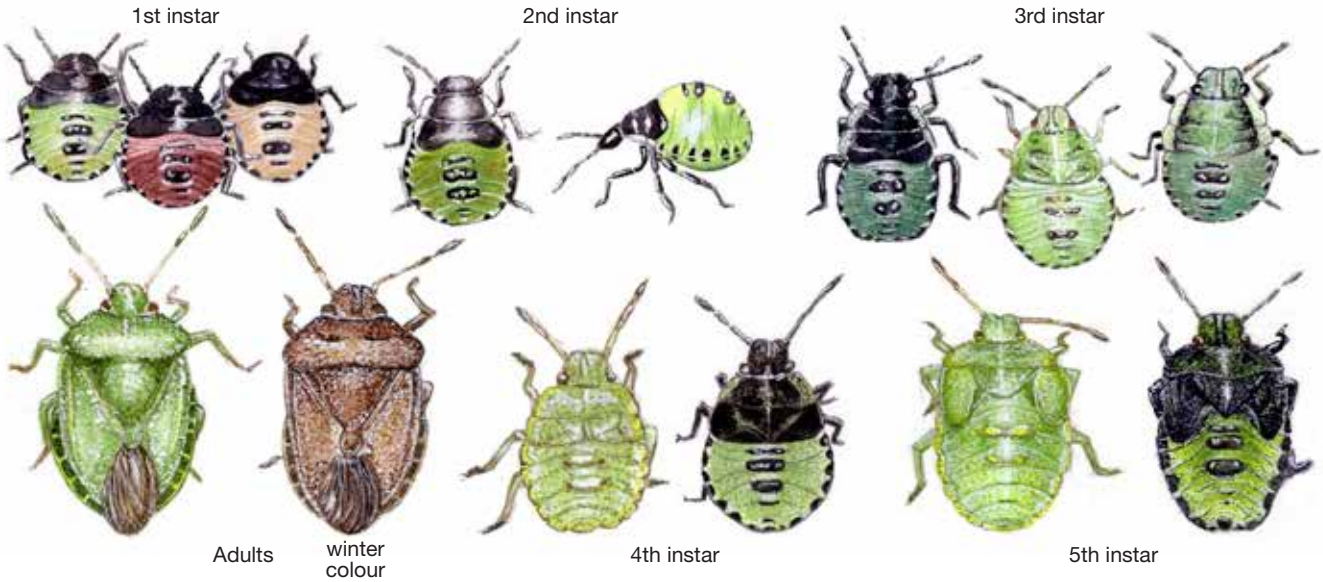
The adult southern green shieldbug differs from *Palomena prasina* by the 3-5 white spots and two black spots across its 'back' (Figures 1 and 8). In addition, the exposed wing membrane at the rear of the insect is pale in southern green shieldbug but darker in *Palomena prasina* (Figure 9).

Based on what is known about the southern green shieldbug elsewhere, it is likely that 'over wintered' adults emerge within glasshouses in early spring and soon begin to produce eggs. The life cycle is relatively long and there are probably 2-3 overlapping generations during the pepper / aubergine growing season.

In contrast, *Palomena prasina* has only one generation per year. Adults are bright green in spring and summer but become brown prior to winter hibernation (Figure 10). The instars feed on deciduous trees and shrubs from June to October and do not fly, so they are less likely than adults to be found straying into glasshouses. The instars take many different forms (Figure 10) which can be confusing when trying to distinguish from southern green shieldbug.

8. Adult southern green shieldbug. Note the white marks across its back and pale wing membranes at the rear

9. Adult *Palomena prasina*. Note the darker wing membranes at the rear



10. Common green shieldbug *Palomena prasina* life cycle stages

Crop damage by southern green shieldbug

The southern green shieldbug has piercing-sucking mouth-parts which are formed into a beak-like structure. Salivary fluid is pumped down one duct into the plant tissue and liquefied food is then sucked back into the insect. The insect probably feeds on all parts of the plants but the effects are most clearly seen in growing points and developing fruits. Damaged growing points usually wither and may die.

When southern green shieldbug feeds on pepper plants, it is common for the fruit to be contaminated with globules of sticky liquid (Figure 11). This is believed to be regurgitated food.

Feeding punctures on larger fruit cause hard brown spots and a variety of other imperfections (eg. Figure 12). Feeding on young fruit often results in distortion and discolouration as the fruit swells (Figure 13). In most cases, damaged fruit is unmarketable.

11. Contamination by regurgitated food

12. Surface damage to fruit may take many different forms

13. Distorted fruit

Acknowledgements

The author is grateful to Tristan Bantock (Figures 5, 7 & 9), Keith Edkins (Figure 4) and Ashley Wood (Figures 3 & 10) for allowing reproduction of their images. The website 'www.britishbugs.org.uk', which is managed by Tristan Bantock and Joseph Botting, contains a great wealth of information about plant bugs and is well worth a visit. Finally, thanks to Dominic Eyre, Fera, for comments on the script.

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