

Wally's Weekly News 28th November 2009
Written by Wally Richards.

MORE ON THE TOMATO/POTATO PSYLLID

The tomato/potato psyllid is going to be a big concern for many gardeners this season as well as commercial growers.

(From Crop and Food Research web site) The tomato potato psyllid (*Bactericera cockerelli*) is a pest attacking tomatoes and capsicums (both indoors and outdoors) and potatoes in New Zealand and can cause a reduction in fruit yield and quality. The nymphs cause plant damage but adults also feed on the plants. While feeding, the tomato potato psyllid (TPP) nymphs inject toxic saliva into the plant, causing the condition known as "psyllid yellows" in potatoes and tomatoes. In capsicums young plants can be severely damaged by direct feeding of the nymphs. The TPP was first identified in an Auckland greenhouse tomato crop in April 2006. TPP is now an established pest in New Zealand. The pest is well established in the north of New Zealand (Thames upwards) and has been identified in the Waikato, Poverty Bay, Hawkes Bay, Central Taupo region, Taranaki, Manawatu, Wellington, Marlborough and down the East Coast of the South Island up and down from Christchurch.

These are areas which have been surveyed and the pest has been found, which is not to say that other areas are not affected as yet.

It is a pest that is not easy to see on your plants. Small white waxy beads (psyllid sugar) is the symptom that you are most likely to see on the plants. The eggs are yellow, oval shaped and stand on stalks. Eggs can be hard to spot, but look on the leaf margins where they are easiest to see. The nymphs feed most often on the undersides of the leaves and will move when disturbed.

The adult psyllid is about 3 mm in size with distinct white markings. When first hatched the adults are light yellow/brown in colour, but after five days they become grey/black and banded in white. The adults jump when disturbed. End.

(From The Biosecurity Web Site) The psyllid has three life stages. The life stages are egg, nymph and adult. Outdoors in North America there are thought to be 4-7 overlapping generations per year. In greenhouses development and survival can occur from between 15.5°C and 32.2°C, optimum development occurring at 26.6°C. The development threshold is 7°C. In a greenhouse averaging 18°C psyllids will take 33 days to complete the life cycle.

Psyllid adults can mate more than once. The first mating usually occurs 2-3 days after emergence.

Females lay up to 510 eggs over their lifetime. Eggs are laid over a period of about 21 days. Eggs hatch 3-9 days after laying.

The nymph goes through five scale-like nymphal stages. The psyllid remains a nymph for between 12-21 days. Over this time they change from light yellow to tan to greenish brown in colour. The nymph will grow to 2mm in length and feed on the underside of the leaf. Wing buds appear in the third instar and become obvious in the fourth and fifth instars. The wing buds distinguish the psyllid from whitefly nymphs.

Adult psyllids are 3-4mm in length with long clear wings. The adult can resemble miniature cicadas.

On emerging the adults are light yellow in colour. After 2-3 days they change to brown or

green in colour. After 5 days they become banded grey or black and white in colour. Psyllids feed like aphids. Psyllids insert stylets into the plant, suck the sap and excrete the excess water and sugar as honey dew or as a solid waste (psyllid sugar). Psyllid sugar is the symptom that you are most likely to see on your plants. Nymphs and possibly adults inject a toxin into the plants when they feed. The toxin causes discoloration of leaves and the plant to become stunted exhibiting 'psyllid yellow' and 'purple top'. Leaf edges upturn and show yellowing or purpling. The plants internodes shorten and new growth is retarded.

If the psyllids are removed, the plant may start to grow normally.

In tomatoes, psyllid feeding can cause plants to produce numerous small poor quality fruit or prevent fruit forming. In potatoes, the psyllid can cause a reduction in the numbers of tubers, size of tubers and production of secondary tubers. Harvested tubers often sprout prematurely. Not all host plants show 'toxic' plant reaction symptoms. Overseas the psyllid is reported to have host plants in 20 families, but has only been found breeding on three families, one of which (Lamiaceae) was in a greenhouse only. Solanaceous species (capsicum, egg plant, potatoes, tomatoes and black nightshade) are the preferred hosts, but it may breed on species of Convolvulaceae, including kumara, especially if high populations are nearby.

Known wild hosts present in New Zealand include *Solanum nigrum* (black nightshade), *Physalis* spp (cape gooseberry), *Ipomoea purpurea* (common morning glory) and *Convolvulus arvensis* (field bindweed). Ornamental solanaceous plants are potential hosts. The native species of *Solanum* (ie poropora) may also be a suitable host. Adult psyllids are strong fliers and are dispersed by the wind. They will spread from outdoor crops when the plants are no longer suitable. They will also be spread by the movement of plants, e.g. from nurseries and garden centres. End.

As from my earlier articles on this pest some gardeners have found that the use of **Neem Tree Granules** placed in the planting hole and sprinkled on the soil surface has assisted in the pest's control.

This should also be supplemented by spraying **Neem Tree Oil** and **Key Pyrethrum** just prior to dusk, over and under the foliage of crops affected for a complete coverage. The same spray can be used over the Neem Granules on the soil to increase their potency. The granules should be refreshed about every 6 to 8 weeks to keep a continual supply of the active ingredients entering the root system of the plants.

Originally I was under the impression that only tomatoes and potatoes were effected but now it has been shown that capsicums, (peppers) egg plants, cape gooseberry and possibly kumara can be damaged.

Refer to the above for other plants and ornamentals that can be hosts to the pest such as nightshade.

The removal of these plants or controls as suggested should also be applied to them to prevent re-infesting on your target plants (tomatoes etc)

If there are host plants growing nearby such as in neighbouring properties then your control sprays will need to be increased in frequency.

The facts as I see them are; they are hard to spot and many gardeners will suffer crop losses thinking their crops are ok and not apply any controls, a female laying up to 510 eggs in 21 days makes for massive population increases which means they become harder

to control.

Your best bet is preventative controls used from the time of planting and right through the growing season. If you had the problem last season, then as sure as apples you are likely to have the problem again.

Problems ring me at 0800 466464 (Palmerston North 3570606)