Lucerne flea
*Sminthurus viridis*

Other common names: Clover springtail

Summary:

The lucerne flea is an introduced pest commonly found in New South Wales, Victoria, Tasmania, South Australia and Western Australia. It is a green-yellow globular insect commonly found in broadleaf crops and pastures. Lucerne fleas have a furcula underneath their abdomen that acts like a spring and enables them to ‘spring off’ vegetation when disturbed. Synthetic pyrethroid sprays should be avoided. Grazing management, border sprays or spot spraying may be sufficient to control lucerne flea populations.

Occurrence:

Lucerne fleas (sometimes also known as clover springtails) are common pests found in New South Wales, Victoria, Tasmania, South Australia and Western Australia. Higher numbers are often found in the winter rainfall areas of southern Australia, including Tasmania, or in irrigation areas where moisture is plentiful. They are generally more problematic on loam/clay soils. Lucerne fleas are often patchily distributed within paddocks and across a region.

The known distribution of lucerne flea in Australia (Source: *cesar*)
**Description:**

The lucerne flea is a springtail; this is a group of arthropods that have six or fewer abdominal segments and a forked tubular appendage or furcula under the abdomen. Springtails are one of the most abundant of all macroscopic insects and are frequently found in leaf litter and other decaying material, where they are primarily detritivores. Very few species, including the lucerne flea, are regarded as crop pests around the world.

The adult lucerne flea is approximately 3 mm long, light green-yellow in colour and often with mottled darker patches over the body. They are wingless and have enlarged, globular shaped abdomens. They are not related to true fleas. Newly hatched nymphs are pale yellow and 0.5-0.75 mm long, and as they grow they resemble adults, but are smaller.

![Adult lucerne flea (Source: cesar)](image)

**Lifecycle:**

Female lucerne fleas lay their eggs in the ground in batches of 20-60. Newly hatched nymphs generally resemble adults but are only about 0.75 mm long and pale yellow in colour. Depending on
temperatures and moisture availability, lucerne fleas can have up to 6 generations per year between autumn and spring. The length of each generation can be from 3-5 weeks. The first generation often hatches from over-summering eggs in March-April after soaking autumn rainfall. In mid to late spring lucerne fleas die off from the onset of warmer weather leaving over-summering eggs on soil surface. The rate of growth of lucerne flea populations is very moisture dependent; they do well in moist conditions or under dense canopies of pasture.

**Behaviour:**

Lucerne fleas have a furcula underneath their abdomen, which acts like a spring and enables them to ‘spring off’ vegetation when disturbed. This pest is distinctively patchy in distribution. These patches of intense feeding can move around paddocks, and can be obvious targets of spot spraying.

**Similar to:**

Other springtails (Collembola), including other plant-feeding springtails that are more solitary in habit.

**Crops attacked:**

All crops and pastures, but broadleaf plants including lucerne and clover are particularly susceptible to attack. Capeweed is a favoured weed host. They can also cause considerable damage to canola, field peas, lupins, faba beans, ryegrass, wheat and barley.

**Damage:**

Lucerne fleas move up plants from ground level, eating tissue from the underside of foliage. They feed through a rasping process, leaving behind a thin clear layer of leaf membrane that appears as transparent ‘windows’ through the leaf. In severe infestations this damage can skeletonise the leaf and stunt or kill plant seedlings. Crops and pastures are most susceptible at the time of emergence.

Lucerne fleas feed through a rasping process, which results in the characteristic appearance of feeding ‘windows’ through the leaf.

![Typical lucerne flea feeding damage to clover (source: cesar)](image-url)
**Monitoring:**

Crops should be inspected frequently at, and immediately following crop emergence, when plants are most susceptible to damage. Pastures should be monitored at least fortnightly from autumn to spring, and more often in paddocks with previous lucerne flea problems. Lucerne fleas are often concentrated in localised patches so it is important to monitor paddocks entirely. Examine foliage for feeding damage, and check the soil surface for sheltering insects. An effective way to sample lucerne fleas is to use a standard petrol powered garden blower/vacuum machine. A fine sieve or stocking is placed over the end of the suction pipe to trap mites vacuumed from plants and the soil surface.

**Economic thresholds:**

As a guide, an average of 20 small holes per trifoliate legume leaf may warrant chemical control. If pasture is severely damaged it may be cost effective to spray (Bailey 2007).

**Management options:**

**Biological:**

The pasture snout mite and spiny snout mite are effective predators, particularly in pastures where they can prevent pest outbreaks. Spiders and ground beetles also prey on lucerne flea. The complex of beneficial species should be assessed before deciding on control options.

**Cultural:**

Grazing management by reducing the height of pasture will limit food resources and increase mortality of lucerne fleas. Control broadleaf weeds (e.g. capeweed) to remove alternative food sources that would otherwise assist in population build up. In pastures, avoid clover varieties that are susceptible to lucerne flea damage, and avoid planting susceptible crops such as canola and lucerne into paddocks with a history of lucerne flea damage.

Grazing pastures in late spring to reduce lucerne flea habitat in problematic areas can reduce damage.

**Chemical:**

If the damage warrants control, treat the infested area with an insecticide three weeks after lucerne fleas first emerge in autumn. This will allow for the further hatching of over-summering eggs but will
be before they reach maturity and begin to lay winter eggs.

Lucerne fleas have a high natural tolerance to synthetic pyrethroids and should not be treated with insecticides from this chemical class. In paddocks where damage is likely, a border spray may be sufficient to prevent movement of lucerne fleas into the crop from neighbouring paddocks. Lucerne fleas are often patchily distributed within crops, so spot spraying may be sufficient. Do not blanket spray unless the infestation warrants it.

A border spray or spot spraying may be sufficient to control lucerne flea numbers. Synthetic pyrethroid sprays should be avoided.

Acknowledgements:

This article was compiled by Paul Umina, Garry McDonald and Sandra Hangartner (cesar).

References:


Bellati J, Mangano P, Umina P and Henry K. 2012. I SPY. Insects of Southern Australian Broadacre Farming Systems Identification Manual and Education Resource. Department of Primary Industries and Resources South Australia (PIRSA), the Department of Agriculture and Food Western Australia (DAFWA) and cesar Pty Ltd.


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<td>Mar-15</td>
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<td>Paul Umina (cesar), Sandra Hangartner and Garry McDonald (cesar)</td>
<td>Alana Govender (cesar) and Bill Kimber (SARDI)</td>
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