

A short introduction to lily beetle (*Lilioceris lili*) and its management

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Lily beetle (syn. *Crioceris lili*, *Lilioceris liliorum*)

Hosts:

Convallaria majalis (rarely), *Fritillaria* spp., *Lilium* spp., *Polygonatum* spp. (rarely)

Transmission:

adults fly

Reproduction, overwintering:

1 – 4 gen./year, adults overwinter in soil

Symptoms:

Often the leaf is eaten away down to the stem. The flower buds can also be damaged. The lily beetle eats the leaves from the edges. The adult beetles, which have a length of about 8 mm, stand out because of their bright red colour, their abdomen is dark brown to blackish (**Fig 1**).



Fig 1. Adult lily beetle and its damage on a lily leaf.

When beetles are disturbed they drop themselves to the ground and it is hard to find them, but usually return back to the plant to feed after about 30 to 60 minutes. At the time of oviposition eggs are orange to brick red in colour, later they turn to reddish-brown to brown. Eggs are deposited in groups on the underside of the leaves (**Fig 2**).



Fig 2. Eggs of lily beetle on the underside of an Oriental lily hybrid. Photo credit: Tamás HEGYI. The larvae emerge in 5-10 days after oviposition – depending on weather – and are dirty yellow, about 5 mm in size. They quickly grow to approximately 15 mm large, orange-red to dirty brick red larvae by eating directly from the leaves. The larvae look like bird droppings, as they are often covered in a thick dark brown layer of slimy dirt (their excrement) (**Fig 3**).



Fig 3. Stage 1 larvae feeding on the underside of an LA hybrid lily a day after hatching. Note the empty egg cases and the excrement covered larvae looking like bird droppings. Photo credit: Tamás HEGYI.

The larvae first graze the leaf from the underside to the top epidermis, the larger ones eat the leaf as is (**Fig 4**).



Fig 4. Final stage larvae feeding on lily cultivar Golden Stone. Note that the larvae are capable of eating whole leaves back to the stem.

They then pupate in the soil. Depending on the weather conditions, several generations can develop per year. The beetles can be found early in spring (April) on lilies and *Fritillaria*. The first eggs are not laid until May. It usually takes 45 – 50 days for a generation to emerge. Here in Hungary the first generation emerges in late June, the second in August. Adults may stay in a diapause in the soil till next year, so the spring population is always bigger than the rest. The lily beetles are rarely if ever encountered in the cultivation of bulbs, as the crop is sprayed regularly against aphids; they are common where lilies are planted in parks, home gardens (Sáringer 1990; de Best et al. 2000; Reddy 2016). A very similar animal is the onion beetle (*Lilioceris merdigera*) which can also feed on lilies. Both animals are native to Europe.

Control:

- mechanical
 - scout for beetles when plants have foliage in spring
 - regularly catch and destroy beetles and larvae by smashing them between your fingers or drop them in dishwasher-soapy water to drown them. Animals are usually slower to escape in the early morning hours.
- repellents
 - spraying lilies with smashed garlic cloves soaked in water or water diluted lavender essential oil may deter lily beetles. The effectiveness can vary from year to year.
 - alcohol based sprays are only deterring the animals, but do not kill them, after the alcohol evaporates beetles return to feed on the plants.
- biological
 - entomopathogenic nematodes can be useful, if available. Look for Capsanem (*Steinernema carpocapsae*) or Larvanem (*Heterorhabditis bacteriophora*).
- chemical
 - contact agents (like Decis, Lamdex/Karate, Cyperkill) are effective and very fast acting, they are more effective on newly hatched larvae. These do not have to be absorbed into the plant, however as larvae usually feed on the lower side of the leaves it is very hard to get the spray there in a home garden. For home garden use:

Asda Outdoor Bug Killer Spray, Baby Bio Houseplant Bug Killer, BugClear Max, Bugclear Ultra 2, etc...

- Coragen, Benevia, Exirel, Altacor, Vantacor, Verimark are also very effective, though they need to be absorbed by the plant first. They are also very good against older, feeding larvae. For home garden use: BugClear Ultra Gun!, Provanto Smart Bug Killer, etc...

Please **ALWAYS** follow local laws, rules and instructions of the labels about applying pest management products!!!

References

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