



Luke - adult & larvae

Chilocorus circumdatus for Scale

Red *Chilocorus* (Luke) is a helmet-shaped ladybird beetle, approximately 5 mm in length. Adults are a rich orange colour with a fine black margin around the base of their wing covers. Adult females lay cylindrical eggs, 1 mm in length, beneath the cover of scale insects. At 25°C the eggs take about one week to hatch. *Chilocorus* larvae are voracious feeders and have pronounced spines that cover their body. After ten days or so larvae then migrate to a secluded position and pupate.



The adult beetles emerge between seven and nine days later, to mate and lay their eggs. Egg laying starts approximately ten days after emergence. At an optimum temperature of 28°C, their life cycle takes approximately one month. *Chilocorus* beetles live for between four and eight weeks.

Target pests

Armoured scale insects, including:

- Red scale *Aonidiella aurantii*
- Oriental scale *Aonidiella orientalis*
- Oleander scale *Aspidiotus nerii*
- White louse scale (citrus snow scale) *Unaspis citri*

Scale-eating ladybirds prey on a range of armoured scale insects. Red *Chilocorus* beetles feed readily on white louse scale (citrus snow scale), oleander scale, oriental and red scale.

Scale insects feed by sucking sap from plants. A heavy infestation may cause discolouration, leaf drop and shoot distortion, which can lead to twig dieback and even plant death.

Chemical control of scale is difficult because they have hard, waxy protective covers and remain stationary for most of their life. The resistance of scale insects to pesticides is a problem in many regions.

Suitable crops/environments

Like most beneficial insects, Luke prefers an environment protected from extremes of heat and low humidity, that is free from dust and toxic pesticides. He can be used in enclosed areas such as shopping centres, shade and glasshouses, as well as in gardens and orchard situations.

Before release

An outdoor release should be made early in the season before pest numbers build up and damage becomes evident. Luke should be released into indoor or nursery environments whenever scale insects are present. Best results are obtained when a release is made early in the season, followed by regular 'dribble' releases at intervals of between three and six weeks.

Like other beneficial insects, Luke should be protected from extremes of heat and low humidity. Avoid using insecticides for at least two weeks before release.

At release

Luke is supplied in a punnet containing a minimum of 30 beetles. The lid should be opened and the beetles dislodged by lightly tapping the container onto plant foliage near scale infestations.

Recommended release rates

Gardens: Minimum one punnet per 20–50 m². A higher release rate may be required where there is a history of scale problems.

After release

Beetles should rapidly disperse throughout the treated area when released. Adults will begin to consume scale insects immediately but it may be up to two weeks before larvae can be observed feeding on pests.

Regular monitoring is recommended following release to check that beetles have established. Booster releases may be needed where there is a heavy scale infestation. Do not expect to see adult beetles readily after release. Note: Young larvae look very different from adult beetles.



Season long release

For season-long control of scale in areas prone to heavy infestation, follow-up releases should be made every 2 weeks during Spring and Summer (**max 3 releases**).

Cultural practices to aid establishment

Reducing wind and dust will help beetles establish. Avoid releasing the beetles where bright lights may attract them away from an infested area. In shopping centres and office blocks it is best to release beetles out of hours.

A high ant population may interfere with these predators and reduce their performance. In such situations, ants should be controlled or excluded from the release area.

Chemical use

Luke is a very effective predator of scale but may be harmed by pesticides. Copper and nutritional sprays will usually not harm these beetles, while some miticides are also fairly safe. Pyrethroid insecticides however, are toxic. If an insecticide has been applied, a minimum of four weeks should elapse before beetles are released. A clean-up spray of a predator-safe product such as **eco-oil** will help contain pest numbers without harming ladybeetles. 1-2 applications of **eco-oil** should be made at the end of the growing season, and again at the start of Spring to keep pest numbers low. If **fruit fly control** is required, only **eco-naturalure** is considered safe.

Additional information

Luke is dispatched by overnight courier where available and should be received within one or two days. Honey is smeared under the lid of the punnet or tub as food for the beetles. Upon arrival, Luke should be released as soon as possible. In the event of adverse weather such as extreme heat or high rainfall, the beetles may be stored for one or two days in a dark room at about 17°C. Extra honey should be placed under the lid as additional nourishment.

Other natural enemies of scales

- The parasitic wasps *Aphytis spp*
- The parasitic wasps *Comperiella spp*
- Green lacewings *Mallada signata*



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