Risk Assessment of the Biological Control Product «Gulløyelarver» with the Active Organism Chrysoperla Carnea

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Authors' contributions

This work was carried out in collaboration between all authors. The opinion has been assessed and approved by the Panel on Plant Protection Products of VKM. All authors read and approved the final manuscript.

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ABSTRACT

Gulløyelarver (green lacewing larvae, Chrysoperla carnea) is a product for biological control. The application is for use against aphids in green-houses and tunnels.

Gulløyelarver was used in Norway from 1985-1993. An assessment in 2001 concluded however that the use of products with Chrysoperla carnea could represent an environmental risk since it was not known if the species in the products were the same as the ones with natural occurrence in Scandinavia.

In this regard, The Norwegian Food Safety Authority would like VKM to perform an assessment of possible risks related to health and environment in light of possible new data.

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VKM’s conclusions are as follows:

Health:
The larvae of Chrysoperla carnea have hollow jaws through which they can inject digestive enzymes into their prey. In contact with humans, the larvae are capable of delivering painful bites which may cause local swelling. Such bites are however not considered dangerous, and can be avoided with preventive measures.

Allergic asthma and rhino conjunctivitis has been reported in persons working in the production of biological agents with Chrysoperla carnea, but it is the opinion of VKM that such effects are not likely to be relevant for users of the agents.

Environment:
A previous assessment in 2001 concluded that the use of products with Chrysoperla carnea represented an environmental risk because of the risk of genetic interference with natural populations of the species in Norway.

Lacewings belonging to the Chrysoperla carnea complex are considered established and indigenous in Norway, and a recent study by the Norwegian Institute for Agricultural and Environmental Research (Bioforsk) strongly suggests that the lacewings in the commercial products belong to the same cryptic species complex as individuals sampled in Norway. In case the species in the products is different from those present in Norway, any genetic interference with local populations in Norway is prevented by differences in duetting songs.

If an invertebrate biological control agent is indigenous and has limited direct or indirect effect on the environment, it is the opinion of VKM that it could be authorized for release in greenhouses or plastic tunnels.

Chrysoperla carnea is polyphagous and cannibalistic. They prefer aphids, but may also consume other insects and mites. It is however the opinion of VKM that the environmental risk from this will be minimized in greenhouses and tunnels where the release will be in a contained environment and directed against aphid colonies.

Establishment, host range and dispersal ability should be carefully reviewed, even if the species is indigenous. Chrysoperla carnea may establish in the greenhouse and plastic tunnels and may also possess the ability to disperse and survive in the field. However, it is the opinion of VKM that the direct and indirect effects of this are at most moderate, although it cannot be completely excluded that Chrysoperla carnea species in the products might also have properties that have not been reviewed.

Keywords: VKM; assessment; Norwegian Scientific Committee for Food Safety; carnea.

Available: https://vkm.no/download/18.2994e95b15cc54507161ec69/149823261770/20a4ccaf17.pdf


NOTE:
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**COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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