



Risk Assessment of the Pesticide Envidor with the Active Substance Spirodiclofen

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Authors' contributions

This work was carried out in collaboration among 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

Envidor is a new product in Norway containing the active substance spirodiclofen. The product is applied for use as an insecticide and acaricide in fruit, berries and ornamentals (field, glasshouses and tunnels). The Norwegian Scientific Committee for Food Safety (VKM) was asked by the Norwegian Food Safety Authority to perform a risk assessment on human health, environmental fate and ecotoxicological effects of the active substance and the product. The risk assessment of the product was finalized at a meeting November 25, 2010, by VKM's Scientific Panel on plant protection products (Panel 2). VKM Panel 2's conclusion is as follows:

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Both Envidor and the active substance spirodiclofen showed low acute oral -, dermal - and inhalation toxicities in animal studies, but showed skin sensitising properties. The estimated risk for operators is assessed as minimal provided adequate use of personal protective equipment.

Spirodiclofen may have endocrine disrupting effects, but the in vivo data are not sufficient to make a firm conclusion at this point. Adrenals and other organs of the endocrine system, including the reproductive system, are target organs for chronic toxicity of spirodiclofen. Males seem to be more sensitive than females for adverse reproductive effects of spirodiclofen. Decreased testes and epididymides sizes, testes atrophy and decreased number of sperm were seen both in the parental and subsequent generation of rats. No teratogenic effect of spirodiclofen was seen.

The disturbances in the endocrine system may account for the carcinogenic potential of spirodiclofen as evidenced by tumours in testicles, uterus and liver of animals. Spirodiclofen is not considered genotoxic. The Panel regards spirodiclofen to be carcinogenic and toxic to the reproduction in laboratory animals.

Both spirodiclofen and its metabolites are rapidly degraded in soil, but while spirodiclofen has a low mobility due to high soil sorption, its metabolites are highly mobile.

Use of Envidor with the proposed application regime implies a very high risk for adverse effects on bees and non-target arthropods due to exposure to the active substance spirodiclofen. The risk for adverse effects of spirodiclofen on other terrestrial organisms, and on aquatic organisms provided that a buffer zone of 30 m to surface water is applied, is considered to be minimal.

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

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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