UCLouvain

Acetamiprid

Setting the record straight

SYTRA

1. Impact on yields: Highly variable effects across years

In sugar beet cultivation, yield losses in the absence of neonicotinoids are neither systematic nor uniform[1, 2] :

The local nature of beet yellows virus infections can cause substantial impacts for some farmers, without significantly altering regional average yields.

- In 2019, following the restriction on neonicotinoid use, IRBAB estimated that average yield losses due to this infection were limited to 1.2% at field scale.
- In 2020, sugar beet yields exceeded the 2014–2018 average (before the neonicotinoid ban).
- During this period, a sharp increase in foliar insecticide use likely helped to limit yellows damage.

Similar findings are found elsewhere :

In the UK, rapeseed yields did not increase between 1994 and 2013, despite widespread adoption of neonicotinoids leading to near-universal use by 2013[3]. In some cases, neonicotinoids proved counterproductive: in Finland, winter turnip rape yields significantly declined due to reduced pollination by wild pollinators negatively affected by these insecticides[4].

1. Impact on yields : Highly variable effects across years

@SPW 2024 (DAEA_DEMNA_SPW ARNE) – Etat de l'Agriculture Wallonne

Source :

DAEA. 2024. State of agriculture in Wallonia. Sugar beet: products, costs and gross margin
https://etat-agriculture.wallonie.be/contents/indicatorsheets/EAW-C_III_b_5.html#

2. Authorizations, uses and persistence of acetamiprid in Wallonia

In Belgium, 24 acetamiprid-based formulations are authorised across 74 crops[5] :

At the EU level, acetamiprid use in sugar beet has been heavily restricted but remains authorised nationally through annual derogations.

In 2022, 194 kg of acetamiprid were still used in Walloon agricultural systems[6].

Application rates and total quantities remain highly dependent on annual pest pressure and regulatory context.

In Wallonia, recent findings[7] on the risks of contamination by neonicotinoids show that :

- 78% of soils in intensive farming regions (loamy region and Condroz) contain detectable neonicotinoid residues (mainly imidacloprid and clothianidin).
- 59% of these soils contain contaminated floral resources attractive to pollinators.
- Contamination is also found in untreated soils, confirming neonicotinoid mobility.

3. Risk assessment: a framework to be strengthened

Current evaluation protocols are unsuited to chronic and sublethal effects[8] :

EU pesticide authorization and ban procedures are slow, opaque, and prone to conflicts of interest, partly due to manufacturer involvement.

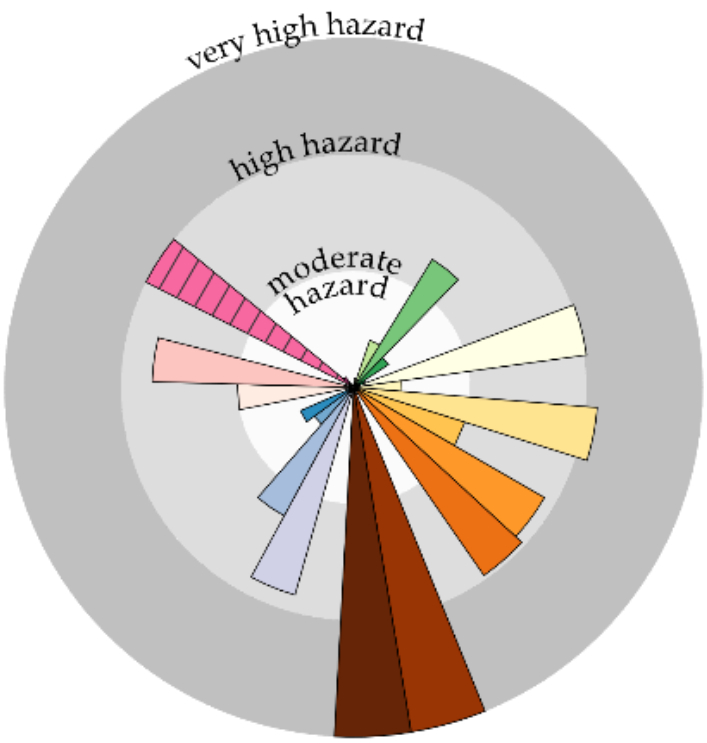
Derogations prolong the use of already banned substances, while post-market monitoring remains weak and poorly responsive to emerging risks.

A profound reform is needed to ensure rapid, evidence-based decisions grounded in actual toxicity, including rigorous assessment of transformation products.

Physicochemical properties of acetamiprid indicate that[9] :

- Relatively mobile, it moves through the environment via water flows.
- It is extremely toxic to predatory mites and parasitic wasps (beneficial crop auxiliaries). It is highly toxic to birds (acute and chronic toxicity) and earthworms (acute toxicity), mammals (acute toxicity) and bees (acute toxicity).
- It is toxic to humans (acute and chronic toxicity, potentially reprotoxic) and to freshwater aquatic plants (acute toxicity).
- Its main metabolites also pose problems (persistent, mobile, toxicity to freshwater crustaceans, earthworms and mammals).

3. Risk assessment: a framework to be strengthened



Acetamiprid

- Soil persistence (DT50 soil)
- Water persistence (DT50 water)
- Surface water transfer (Kfoc)
- Groundwater transfer (GUS)
- Aquatic biome transfer (BCF)
- Birds (acute oral)
- Birds (chronic oral)
- Earthworms (acute soil)
- Earthworms (chronic soil)
- Honeybees (acute oral/contact/…)
- Mammals (acute oral)
- Mammals (chronic oral)
- Predatory mites (acute contact)
- Parasitic wasps (acute contact)
- Algae (acute aqueous)
- Aquatic plants (acute aqueous)
- Aquatic invertebrates (acute aq.)
- Aquatic invertebrates (chronic aq.)
- Fish (acute aqueous)
- Fish (chronic aqueous)
- Mammals (acute dermal)
- Mammals (acute inhalation)
- Humans (carcinogenicity)
- Humans (genotoxicity)
- Humans (reprotoxicity)
- Humans (cholinesterase inhibition)
- Humans (neurotoxicity)

Source :

Vandevoorde. 2025. Pesticide Load : Update of the Danish PPP risk indicator for Wallonia. Sytra.
https://sytra.be/fr/publication/charge-en-pesticides/

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