Surface Water Pesticides of Concern
CLOTHIANIDIN AND IMIDACLOPRID
(Neonicotinoid Insecticides)

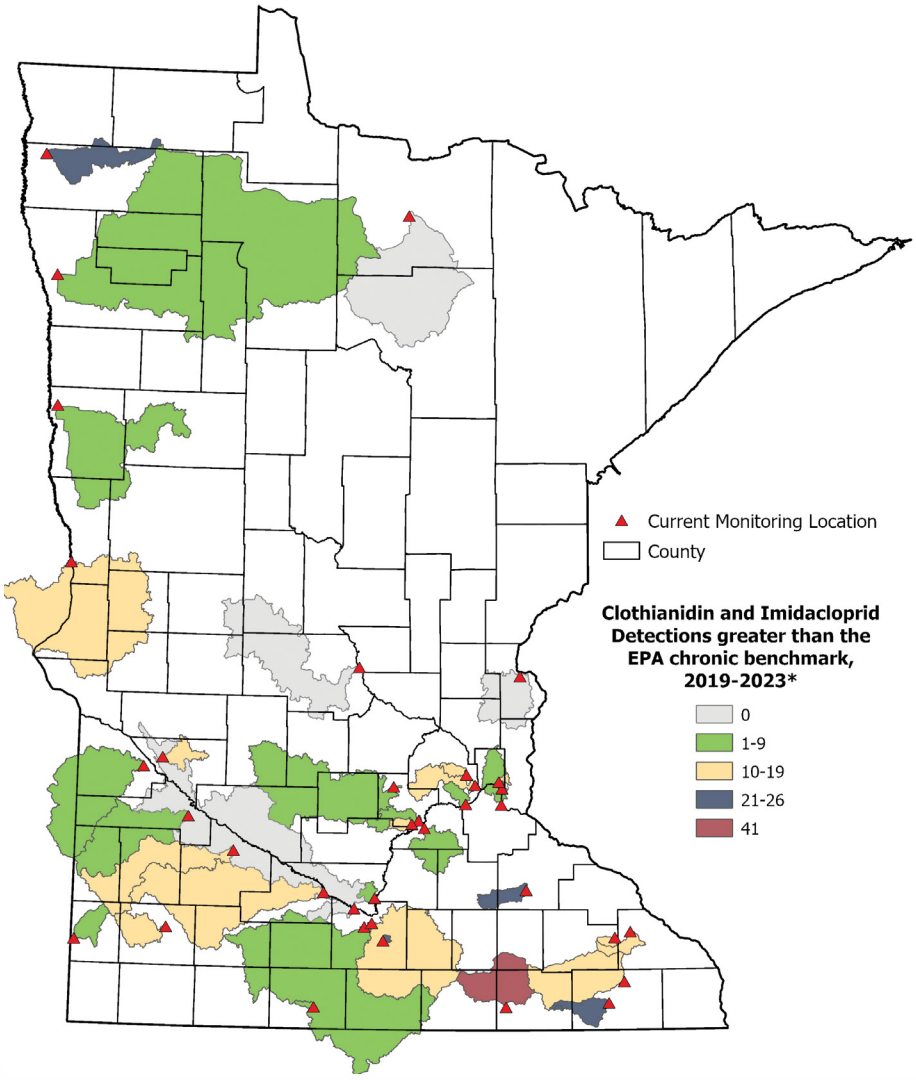
DEPARTMENT OF AGRICULTURE

Common products

Arena, Belay, Poncho (clothianidin), and Gaucho, Admire, Macho, Enforce, Skyraider (imidacloprid)
(No discrimination is intended, and no endorsement is implied).

- Clothianidin and imidacloprid were designated as "Surface Water Pesticides of Concern" by the Commissioner of Agriculture in 2020. A Surface Water Pesticide of Concern status starts the development and promotion of voluntary best management practices and may result in additional monitoring.
- Both clothianidin and imidacloprid are frequently detected in agricultural waterways, and imidacloprid is frequently detected in urban rivers and streams.
- Detections are often at or above the Environmental Protection Agency aquatic life benchmarks. These levels can harm aquatic invertebrates in rivers and streams.
- High clothianidin and imidacloprid detections in rivers and streams in agricultural regions often occur early in the season following planting of treated seeds.

Watersheds with Clothianidin & Imidacloprid Detections Above Chronic Benchmarks, 2019 – 2023



Clothianidin Chronic Benchmark = 50 ng/L*
Imidacloprid Chronic Benchmark = 10 ng/L*

*The map shows clothianidin and imidacloprid detections with concentrations above the EPA chronic benchmark numeric values and does not account for the duration component

April 2025

Key Water Quality Best Management Practices (BMPs) for Clothianidin and Imidacloprid

Base seed treatment decisions on field risk, including past pest issues and weather. Consider using untreated seed if pest risk is low.

Scout fields regularly and use economic thresholds to guide neonicotinoid use. Use multiple pest control tools within an integrated pest management strategy.

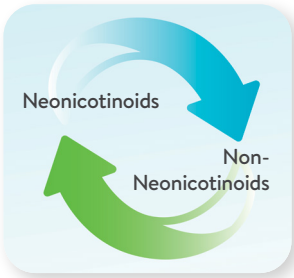
Follow label-recommended application rates, including per acre, per application, per season, and per year limits to minimize resistance.

Do not apply during rain or on saturated soil. Avoid foliar applications when rain is forecast within 24 – 48 hours.

Follow label-recommended nozzle type, boom height, spray buffer zone, and wind speed restrictions to minimize spray drift.

Maintain vegetative filter strips between the field edge and aquatic habitats, including vegetative buffers near tile outlets, drainage ways, and field boundaries.

Adopt practices like conservation tillage and cover crops to reduce soil erosion and surface runoff.



Rotate neonicotinoids with insecticides that have different modes of action (e.g., pyrethroids, insect growth regulators) both year-to-year and within the season.

Minimize seed dust and drift by properly handling treated seed and avoiding planting in windy conditions (>15 mph) or when the wind blows toward nearby waterbodies.

Prevent spills and properly dispose of unused pesticides through the MDA's Waste Pesticide Collection Program. For guidance on disposing of treated seed, consult your local landfill or the Minnesota Pollution Control Agency.

Scan to see the full list of imidacloprid and clothianidin BMPs.

For more information, contact the Minnesota Department of Agriculture (MDA) at ptu.mda@state.mn.us.