Neonicotinoid Movement in the Environment

Neonicotinoids are being found throughout the landscape in areas where they were not applied. This figure illustrates some of the main pathways for neonicotinoid movement in the environment and also shows how this movement could expose beneficial insects.

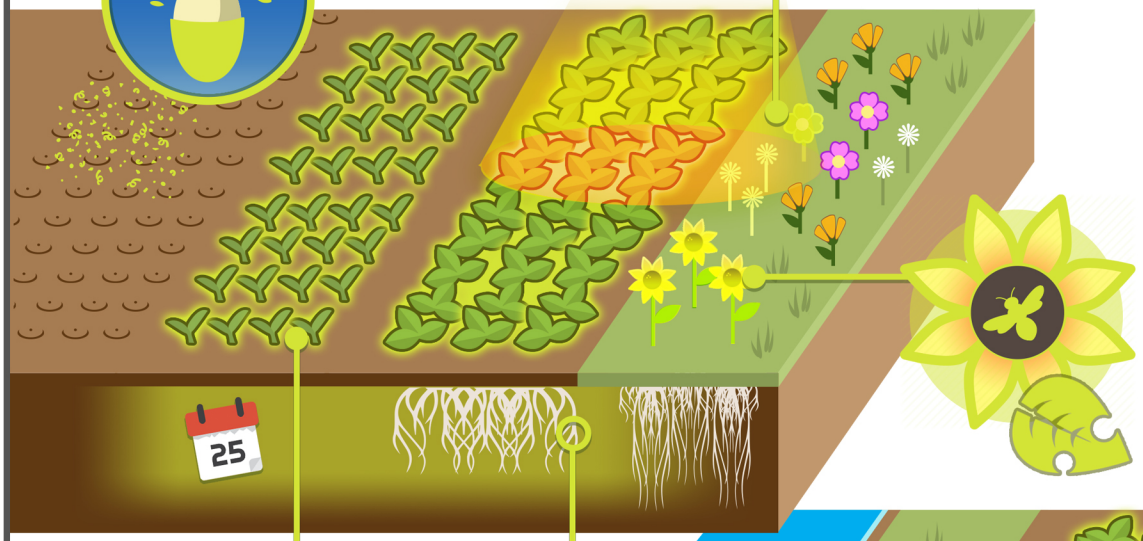
XERCES SOCIETY for Invertebrate Conservation

Dust

Neonicotinoids can be released as dust from coated seeds during mechanized planting. This dust can move off-site exposing bees or contaminating non-target sites.

Spray Drift

When applied as a spray, neonicotinoids can drift off-site directly exposing bees or contaminating non-target sites.



Uptake

Plants take up neonicotinoids, allowing the chemical to spread through the plant's tissues potentially exposing insects that eat pollen, nectar, or other plant tissue.

Persistence

Most neonicotinoids are long-lived. As such they can persist in the environment for months to years after an application.

Leaching

Neonicotinoids can leach into subsurface water where they can enter ground water or be taken up by neighboring plants.

Watershed Contamination

Neonicotinoids are water-soluble by design. This means they can move with shallow subsurface flow or with surface runoff into local waterbodies.

Movement Into Habitat of Ground Nesting Insects

70% of native bees are ground nesting. The habitat of ground nesting insects could become contaminated, especially when neonicotinoids are applied as a soil drench.

Wind Erosion

Neonicotinoids have been found in soil and soil dust. Contaminated soil can be dispersed by wind.

Illustration by the Xerces Society / Justin Wheeler from the report *How Neonicotinoids Can Kill Bees*

xerces.org/pesticides