MPRnews #1

Concern grows over effects of treated seeds on birds

Dan Gunderson · Outside Crookston, Minn. · Sep 20, 2017 Environment

Charlotte Roy, left, and Megan Zagorski, research scientist with the DNR, scope out a field looking for seed spills in May near the Tympanuchus Wildlife Management Area outside Crookston, Minn. *Jesse Trelstad for MPR News*

LISTEN **Story audio**

4min 18sec (https://www.mprnews.org/listen?name=/minnesota/news/features/2017/09/20/20170920_gunderson_20170920_64.mp3)

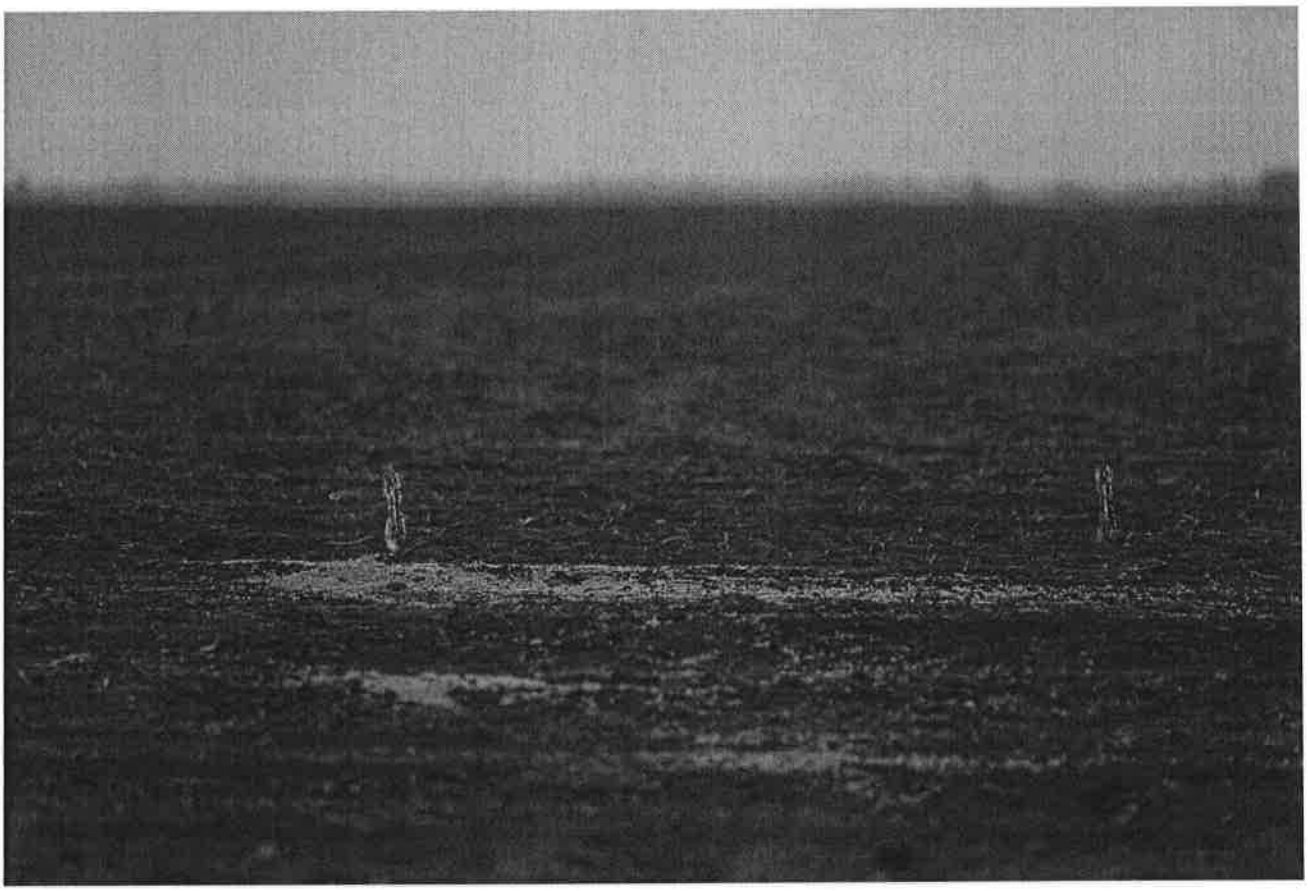
Minnesota researchers are finding cause for concern about the effects on wild birds of neonicotinoid insecticide, which has been linked to bee losses for nearly a decade.

"What we're doing is very preliminary but it's going to have significant ramifications," said Julia Ponder, a University of Minnesota researcher working on some of the data that's coming out as regulators at the federal and state level are reviewing the registration for some neonicotinoid insecticides.

When neonicotinoids came on the market 20 years ago, they were considered a safer alternative to conventional insecticides. The insecticide is most commonly applied by putting it on corn or soybean seeds before planting. The plants take up the chemical, so it targets primarily pests that eat the plants.

But it turns out those treated seeds get spilled a lot during planting, and birds and other animals eat them.

· In May: As the seed treatment market grows, so do pesticide concerns (https://www.mprnews.org/story/2017/05/10/as-seed-treatment-market-grows-so-do-pesticide-concerns)



Spilled seed on the edge of a field near the Tympanuchus Wildlife Management Area outside Crookston, Minn., in May. *Jesse Trelstad for MPR News*

"Everything from pheasant to blackbirds, house sparrows, deer, raccoons, bunnies, mice, squirrels. Lots of different animals are coming to the spills," said Department of Natural Resources research scientist Charlotte Roy, who has set up cameras and collected thousands of images of animals feeding on spilled seeds.

To get an idea of how many seed spills there are, crews surveyed 38 Minnesota townships from Iowa to the Canadian border. Based on what they found, they estimate at least 15,000 large seed spills happened on Minnesota farm fields in a single spring planting season. A large seed spill is one that's easily visible from the road, probably containing a few thousand seeds.

Researchers also surveyed recently planted fields and found some seeds exposed on the surface in 25 percent of those fields, another potential source for scavenging birds to be exposed to the treated seeds.

The companies that sell these treated seeds recognize this risk. They put labels on the seed bags that say seed treatments are toxic to wildlife and tell farmers to clean up or cover spills with dirt.

Bayer and Syngenta, two of the largest sellers of neonicotinoid insecticides, were contacted by MPR News for reaction. Bayer said it couldn't comment without reviewing the study data.

In a statement, Syngenta said, "Neonicotinoids are an essential crop protection tool for farmers and, when used according to the label, safe for the environment." The company added that it works to "educate farmers on the proper stewardship of treated seed to minimize the risk of exposure to non-target organisms, like pollinators, birds and other wildlife. Tags on Syngenta treated-seed bags direct users to "cover or collect treated seeds spilled during loading" to prevent or minimize exposure to wildlife."

Charlotte Roy holds a bagged pellet sample. *Jesse Trelstad for MPR News*

Roy is focusing her research on game birds, sharptail grouse and prairie chickens. She's finding clear evidence birds are exposed to neonicotinoid insecticides. Researchers collected livers from birds killed by hunters and fecal pellets from the spring breeding grounds of grouse and prairie chickens.

They found nearly nine in 10 grouse livers and 80 percent of grouse fecal pellets tested positive for at least one neonicotinoid. The numbers were slightly lower for prairie chickens.

"Based on the findings that we've had thus far, I think there's certainly cause to continue looking and to have concern," said Roy. "These birds are being exposed to neonics. There's no doubt about that."

But exposure doesn't necessarily equal harm.

Syngenta pointed out in its statement that "[d]espite the potential for exposure, populations of grouse and prairie chickens in Minnesota are doing well, according to the North American Breeding Bird Survey, a long-term, large-scale, international avian monitoring program that has been tracking the status and trends of North American bird populations since 1966."

Recent DNR population surveys show sharptail grouse populations peaked in 2009 and declined since. The birds typically experience population swings on a 10-year cycle. DNR surveys show prairie chicken numbers declined over the past several years in conjunction with a loss of land enrolled in the federal conservation reserve program, but the population is now stable.

Nicole Benson stores the pellet sample on dry ice in a container secured in the back of her pickup near the Tympanuchus Wildlife Management Area near Crookston. *Jesse Trelstad for MPR News*

Researchers say it's very challenging to link pesticide exposure to population effects. This research does not attempt to make that link.

But to get an idea of how those treated seeds might affect individual birds, Julia Ponder at the University of Minnesota Raptor Center has been testing various doses on chickens. They're comparable in size to grouse or prairie chickens.

"It appears at this point that we are well within what one bird can consume in one day and the chickens are laying over and falling asleep," said Ponder. "Actually they're not just falling asleep, they're becoming profoundly stuporous."

The chickens also often have muscle spasms.

Ponder says these effects wear off in a few hours and the chickens appear to recover.

But in wild birds, even those temporary effects could be deadly.

Spilled seed on the edge of a field near the Tympanuchus WMA. *Jesse Trelstad for MPR News*

"Are birds actually being exposed and neurologically suppressed in the wild so they're more susceptible to predators and disease?" asked Mark Jankowski, an adjunct professor at the U of M and an ecotoxicologist with the U.S. Environmental Protection Agency who helped design these studies. "It's definitely a first step and we hope to keep going with it."

This research is still preliminary. It hasn't been peer reviewed.

But Ponder is confident the research shows the birds are being exposed, sometimes to high levels of the insecticide. And she says the findings challenge conventional wisdom that there is little risk birds will be exposed to a chemical that's found mostly inside plants, and was designed to target insect brains.

"We have a whole new set of questions to ask as far as the safety of these pesticides being broadly used on almost all of our agriculture crops," said Ponder.