Understanding How Bees Foraging Will Improve Plant and Pollinator Health

Johanne Brunet
ProfessorResearch Ecologist

CURRENT RESEARCH

Using a novel bee simulation model to track pollinator foraging in fields and limit the spread of genetically-modified genes

Bee populations are in a steady decline. As a top pollinator, they play an important role in agricultural crops and many wild ecosystems. However, in bee-pollinated crops, they're also responsible for the movement of genetically engineered genes (transgenes) via pollen, which results in the presence of transgenes in unwanted places, such as in organic fields, fields destined for the export market, and wild plant populations. For these reasons, Dr. Johanne Brunet, Research Ecologist with USDA-ARS and Professor at the University of Wisconsin-Madison studies how bees move (forage) over landscapes in order to understand how pollinator behavior affects the movement of genes. Her work will enable the development of pollinator management strategies to limit gene flow and therefore the spread of transgenes. Preventing crop contamination is important for the coexistence of agricultural markets and maintenance of a transgene-free section of a market. Dr. Brunet's research also contributes to a better understanding of how different bees forage in agricultural fields and the ways this influences bee nutrition and health.

Dr. Brunet's work integrates diverse expertise in order to solve various problems with pollinators and transgenes. She created a novel simulation model to look at gene flow, combining the study of pollinator behavior, modeling, and knowledge of plant reproductive ecology to thoroughly examine how pollinators move genes via pollen over the landscape. She examines and contrasts the behavior of three different types of bees—bumble bee, honey bee, and alfalfa leaf-cutting bee. A bee's level of sociality may impact its foraging patterns. Bumble bees are social (they form a colony), but have an annual...

Read More at benefunder.com/

AFFILIATION

University of Wisconsin-Madison

EDUCATION

- Ph.D., Ecology and Evolution 1990 ,Stony Brook University

AWARDS

- Fellowship, Natural Sciences and Engineering Research Council of Canada
- Fellowship, FCAR

RESEARCH AREAS

Environment, Agriculture, Ecology, Evolution

FUNDING REQUEST

Your contributions will help fund Dr. Brunet's continued research on identifying pollinator behavior and movement to prevent gene flow and understand how to better protect bees. Donations of any amount will help fund the $35K/year needed to support a graduate student and $50K-$55K/year to support a postdoctoral student or technician. $20K/year funds the cost of supplies, such as pollinators, a greenhouse rental, and farmland for experiments. Pollinators are crucial for our ecosystem; fund Dr. Brunet.