



ses

school of environmental sciences

The Research Seminar Presentation by

Melanie Raby

will be held on

Tuesday October 27, 2015

At 10:00 am

ALEXANDER HALL 337

Title: Toxicity of neonicotinoids to aquatic invertebrates

Neonicotinoids are a group of water-soluble insecticides used to control insect pests on a variety of field crops. They are the most common agricultural insecticides in the world. In Southern Ontario nearly 100% of corn and 60% of soybean seeds are coated with neonicotinoids prior to planting. Due to their high water solubility, neonicotinoids can be transported to water courses via run-off and agricultural tile drainage, where they have the potential to harm aquatic organisms. Organisms can be exposed to pulses of neonicotinoids, such as run-off from a field after a storm, or to long-term exposure over weeks or months. Neonicotinoids harm organisms by attacking the nervous system and affect feeding and reproductive behaviours, and may cause death at low concentrations. This study will expose a variety (>18 species) of aquatic invertebrates to six neonicotinoids (imidacloprid, clothianidin, thiamethoxam, thiacloprid, dinotefuran, and acetamiprid) under short (<4 days) and long-term (>21 days) exposures to build a library of toxicity data. Because neonicotinoids are often co-applied with fungicides and other insecticides, mixtures of these contaminants can enter receiving waters. This study will investigate the toxicity of these mixtures and create models to better predict toxicity to aquatic invertebrates. Finally, a review will integrate the data produced with other peer-reviewed literature to form a more complete picture of neonicotinoid toxicity. This research is in partnership with the Ontario Ministry of Environment and Climate Change, and results will help derive Canadian Water Quality Guidelines for Aquatic Life Protection.

Everyone is welcome to attend

(This is a Research Proposal presentation by students in ENVS*6900)