

# Integrated Pest Management Solutions

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## BACKGROUND:

One of Ontario's leading agricultural producers, Durham Region boasts the largest area of farmland in the Greater Toronto Area. The region directly employs more than 72,000 agri-food workers who operate 1,454 farms, and is home to some of the most progressive and forward thinkers in the industry. As Canada moves toward data-driven agriculture, innovative technologies are providing farmers with new ways to increase yields, reduce crop damage, and manage their farms. A growing concern to farmers is the inadvertent importation of foreign insects and mites, which invade and ultimately destroy crops. As pesticides have been shown to be linked to health issues as well as the destruction of ecosystems, Canadian farmers must resort to other options. Integrated pest management (IPM) initiatives help the farming industry in terms of the development of plans that consider alternatives that pose fewer risks, including natural predators, pest-resistant plants, and non-chemical pesticides.

Durham College (DC) has an extensive infrastructure that includes a pollinator garden, greenhouse, demonstrator gardens, green roof, agricultural planting zone and arboretum. In order to promote research in the growing sector of agriculture and IPM, two new growth chambers were installed at the college's Whitby campus in the spring of 2015, which along with the chemical and microbiology laboratories, will enable DC researchers to engage with the local farming community in innovative applied research projects. Recently a well-equipped IPM laboratory has also been established at the college that includes, but is not limited to, an insect rearing facility and a potter spray tower for precise pesticide applications. As a result of these infrastructure investments and faculty team expertise, the college is well-positioned to make significant and unique contributions to support the agri-business industry, and IPM techniques, specifically.

## RESEARCH:

DC's collaborations with farmers keen on using innovative solutions for crop management have resulted in the completion of several applied research projects. The college's collaboration with the Ontario Apple Growers Association is to effectively manage the presence of the Apple Leaf Curl Midge (ALCM), an exotic, emerging foliar pest. Faculty and students also worked to test the toxicity of commonly used pesticides on two spotted spider mites, and their natural predators, in urban agriculture. Furthermore, many local growers have expressed an interest in working with DC, to use its new growth chambers and IPM lab to develop advanced IPM programs for insect and mite pests in specialty crops as well as to develop pesticide resistance monitoring programs for major and emerging insect and mite pests in established crops.

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