M.Sc. Opportunity
Department of Entomology
University of Manitoba

Determining the role of crop and non-crop habitats to provide sustainable aphid suppression in soybeans
Supervisor: Dr. Alejandro Costamagna

Study Description:
Soybean aphids are major pests in North America and reach outbreak levels in some fields in Manitoba every year. Our previous research demonstrated widespread control of soybean aphid by generalist predators in Manitoba. This pest control ecosystem service depends on the presence and quality of habitats supporting predator populations in agricultural landscapes. However, the mechanisms mediating the interaction among predators, landscape habitats and aphid control remains poorly understood. We showed that the proportion of different crop and non-crop habitats in the landscape and the rates of predator movement from neighboring fields are associated with varying levels of aphid suppression in soybeans. However, the specific role of different habitats in the landscape remains unclear, since previous studies showed that some habitats can only maintain predator populations whereas others have enough prey and resources to contribute to actual increases in predator populations. Furthermore, the quality of the resources present in different habitats affects the fitness of the predators present in the landscape, which in turn affects their mobility (i.e. how far they will travel from their original habitat and into field crops to attack pests) and their fecundity (how many predacious offspring are they able to provide to control pest population outbreaks). In this project we will: 1) determine the effect of field size and distance to the nearest source of natural enemies on soybean aphid control, 2) determine landscape effects on the fitness of predators suppressing aphids in soybeans, and 3) identify key crop and non-crop habitats in the agricultural landscape that produce healthy and effective assemblages of generalist predators. The study will consist of a combination of cage studies and field sampling on different habitats. This research will estimate for the first time the fitness and associated efficacy of predators of soybean aphid in North America. This study will provide the basis to manage predator populations that suppress aphids in soybeans and other pulse crops

Position Details: The M.Sc. position starts May 1, 2017 (or as soon as possible after that date). It is based in the Department of Entomology. The student will be supervised by Dr. Alejandro Costamagna and will work within a team of Research Associates, Technicians and other graduate and undergraduate students in the Departments of Entomology. See for more details http://umanitoba.ca/afs/entomology/index.html; https://home.cc.umanitoba.ca/~costamac/index.html

To apply: Please send transcript, resume and names of two references to: Dr. Alejandro Costamagna, Department of Entomology, University of Manitoba (Ale.Costamagna@umanitoba.ca) by **March 15, 2017**. Applicants should hold (or expect to hold by Fall 2017) a Bachelor's degree with a strong background in entomology, ecology or agricultural sciences. Interest in insect ecology and experience in entomology laboratory activities is desired. Annual MSc stipend: $20,000 per year, for a maximum of two years. There are scholarship and teaching assistant opportunities available to supplement the stipend above this base level.