

Evaluating the impact of flower mixtures with nurse crops on beneficial insects and their ecosystem services

Cecil Montemayor Aizpurúa[†] | Yvonne Lawley[§] | Jason Gibbs[†] | Alejandro Costamagna[†]

Department of Entomology[†] and Department of Plant Science[§]

University of Manitoba, Winnipeg, Manitoba

e-mail corresponding author: montemac@myumanitoba.ca

The Canadian Prairies face significant landscape simplification due to large-scale monoculture farming, leading to declines in arthropod diversity and ecosystem services like pest control. Establishing floral habitats offers a promising solution, but effective methods remain uncertain. This study evaluates various flower mixtures: domesticated annuals, domesticated perennials, and native perennials with and without a nurse crop (oats) to enhance flower strip establishment and attract beneficial insects. In 2023, experimental plots were sampled with various traps to measure pollinator, predator, and pest abundance. Bee bowl traps showed higher pollinator abundance in plots with a nurse crop, likely due to improved weed control aiding flower establishment. *Lasioglossum* spp. were the most abundant native bee collected. On the other hand, pitfall traps resulted in fewer ground carabid beetles, and predation on sentinel caterpillars was lower in mixtures without oats, likely due to reduced weed crowns serving as refuges. Clear sticky traps recorded a pest to predator-parasitoid ratio of 3.5:1, with no significant treatment differences. These findings highlight the role of nurse crops in supporting beneficial insects and improving floral establishment, contributing to conservation efforts in simplified agricultural landscapes.