

Are Intercropped Cover Crops Compatible with Canola Weed Management on the Canadian Prairies?

Abstract authors Janelle Gawiak¹, Yvonne Lawley¹, Maryse Bourgault², Linda Gorim³

Author affiliations: ¹Department of Plant Science, University of Manitoba, Winnipeg, MB. ²Department of Plant Sciences, University of Saskatchewan, Saskatoon, SK. ³Department of Agricultural, Food, and Nutritional Science, University of Alberta, Edmonton, AB

Abstract: The short growing season and limited fall precipitation in Western Canada hinders cover crop adoption. Intercropping is a potential solution by extending the cover crop establishment window but complicates herbicide use in canola. Field experiments compared three application timings (pre-emergence, pre-emergence+in-season, and pre-emergence+season+desiccant) across three herbicide resistance systems (Liberty Link, Roundup Ready, and Clearfield) in 2022 and 2023 at two sites (Carman, Manitoba and Kernen, Saskatchewan). A cover crop mixture of clovers, alfalfa, and Italian ryegrass was drilled with canola in alternating rows. Cover crops established at both sites, however persistence varied across years, locations, application timings, and resistance systems. Low cover crop establishment in 2022 led to increased seeding rates in 2023. The greatest cover crop biomass was achieved in the pre-emergence treatments and decreased with subsequent applications. Following in-season applications, the Clearfield system achieved greater biomass in Carman 2023 whereas Clearfield and Liberty were more successful in Kernen. Where there was greater cover crop biomass in 2023, canola yield penalties occurred. This project demonstrates intercropping's potential to overcome environmental constraints limiting fall cover crops in Western Canada. Further research needed to refine agronomic strategies for optimizing canola and cover crop performance.