

DO ESCAPED TRANSGENES PERSIST IN NATURE? THE CASE OF AN HERBICIDE RESISTANCE TRANSGENE IN WEEDY POPULATIONS OF *BRASSICA RAPA*. Suzanne .I. Warwick, Anne Légère, Marie-Josée Simard and Tracey James, Research Scientist, Agriculture and Agri-Food Canada (AAFC), Ottawa, ON K1A 0C6; Research Scientist, AAFC, Saskatoon, SK S7N 0X2; Research Scientist, AAFC, Québec, QC G1V 2J3; Technician, AAFC, Ottawa, ON K1A 0C6.

This is the first report of the persistence and apparent introgression of an herbicide resistance transgene from canola (*Brassica napus*) into the gene pool of its weedy relative, bird rape (*B. rapa* L., also birdsrape mustard), monitored under natural commercial field conditions. Hybridization between glyphosate-resistant (HR) *B. napus* and *B. rapa* was first observed at two Québec sites, Ste-Agathe and St-Henri, in 2001. *Brassica rapa* populations at these two locations were monitored in 2002, 2003 and 2005 for the presence of hybrids and transgene persistence. All plants were scored for the HR trait (HR+/HR-), presence of species-specific AFLP molecular markers from both parental species, pollen viability, and ploidy level. Hybrid numbers decreased over the 3-year period, from 85 out of ca. 200 plants surveyed in 2002 to only 5 out of 200 plants in 2005 (St-Henri site). Most hybrids had the HR trait, reduced male fertility, intermediate genome structure, and presence of both species-specific AFLP markers. Both F1 and backcross hybrid generations were detected. One introgressed individual, i.e. with the HR trait and diploid ploidy level of *B. rapa*, was observed in 2005. The latter had reduced fertility but produced ca. 480 seeds. Forty-eight of the 50 progeny grown from this plant were diploid with high pollen viability and 22 had the transgene (1:1 segregation). These observations confirm the persistence of the HR trait over time. Persistence occurred over a six year period, in the absence of herbicide selection pressure (with the exception of possible exposure to glyphosate in 2002), and in spite of the fitness cost associated with hybridization.