

Residual weed population shifts in Manitoba – 1978 to 2022. Leeson, J.Y.¹, Brown-Livingston, K.², Hladun, S. ¹Agriculture and Agri-Food Canada, Saskatoon, SK; ²Manitoba Agriculture, Carman, MB

In 2022, a total of 704 fields of canola, spring wheat, soybean, oat, corn, barley, field pea, pinto bean and sunflower were surveyed in Manitoba. These fields were selected using a stratified random sampling procedure based on ecodistricts. In each field, weeds were counted in 20 quadrats (50 by 50 cm) in late summer. Weed data are summarized using a relative abundance index based on frequency, field uniformity and density. The results from the 2022 survey are compared to results from surveys of 659 fields in 2016, 631 fields in 2002, 452 fields in 1997, 501 fields in 1986 and 1424 fields in 1978-1981. The lowest median weed density and the highest percent of weed-free quadrats was recorded in 2022. Green foxtail (*Setaria viridis* (L.) P. Beauv.) was the most abundant weed in each survey. Wild buckwheat (*Fallopia convolvulus* (L.) Á. Löve) ranked second in 2022 and 2016. Five other species have been ranked amongst the top 20 species in each survey: lamb's-quarters (*Chenopodium* spp.), redroot pigweed (*Amaranthus retroflexus* L.), wild oats (*Avena fatua* L.), Canada thistle (*Cirsium arvense* (L.) Scop.) and pale smartweed (*Persicaria lapathifolia* (L.) Delarbre). Volunteer canola (*Brassica napus* L.) ranked third in 2022 for the first time. Foxtail barley (*Hordeum jubatum* L.) had the largest increase in rank, reaching the top 20 in 2022. Golden dock (*Rumex fueginus* Phil.) and green pigweed (*Amaranthus powellii* S. Watson) also appeared in the top 20 in 2022. Yellow foxtail (*Setaria pumila* (Poir.) Roem. & Schult.), kochia (*Bassia scoparia* (L.) A. J. Scott), and biennial wormwood (*Artemisia biennis* Willd.) also ranked as high or higher in 2022 than previous surveys. Spiny annual sow-thistle (*Sonchus asper* (L.) Hill) and broad-leaved plantain (*Plantago major* L.) have increased since the initial surveys, but declined in 2022 in comparison to 2016.