



Agronomy Alert:

WATERHEMP: IS IT HIDING IN YOUR FIELDS?

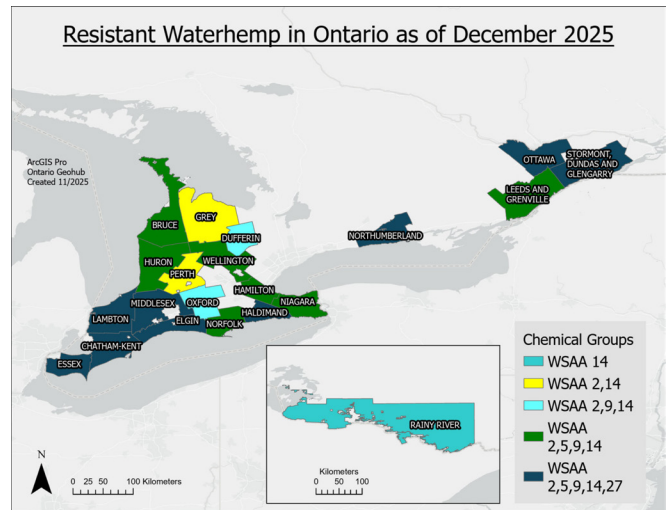
THREAT

Waterhemp is becoming a greater concern across Ontario. Populations resistant to multiple herbicide groups are appearing more frequently and in new counties each year. This highly adaptive species, with its high seed production, has spread across Ontario and can cause significant yield losses.

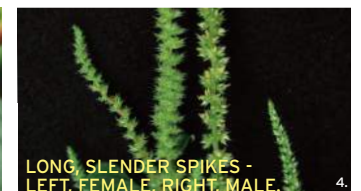
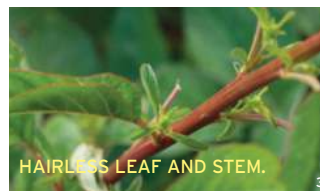
IDENTIFICATION - WATERHEMP VERSUS PIGWEED VARIETIES

IDENTIFICATION

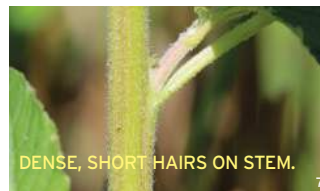
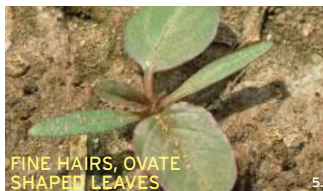
Waterhemp is from the pigweed (amaranth) family. Close relatives include redroot, green, smooth, prostrate, tumble, and the menace, Palmer amaranth. Waterhemp looks similar to redroot and green pigweed, but is distinguished by its lack of hairs and narrow leaves with wavy margins (see photos below). Waterhemp has male and female plants (dioecious) that look like two different weed species when they mature.



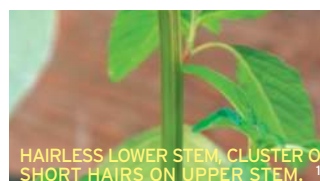
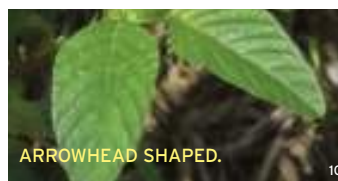
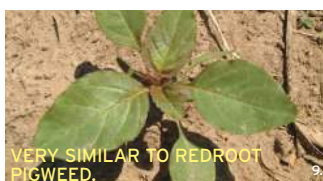
WATERHEMP



REDROOT PIGWEED



GREEN PIGWEED





This information is provided by Grain Farmers of Ontario's agronomy team.

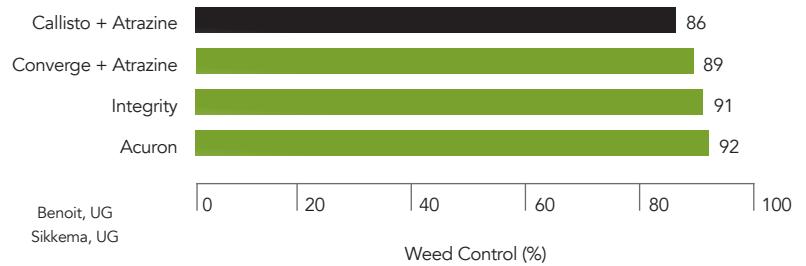
CONTROL

Waterhemp will germinate and emerge throughout the growing season. The following strategies are most effective at controlling waterhemp and minimizing seed return:

- Implement a two-pass herbicide program using residual herbicides with multiple modes of effective action.
- Reduce the spread of this weed by properly identifying and then isolating the contaminated fields by restricting equipment movement to clean fields until the equipment is thoroughly cleaned.
- After harvest, plant a cover crop such as oats, cereal rye or an oats and oilseed radish blend. Cover crops will inhibit waterhemp emergence, growth and seed production. Mowing or clipping may be necessary to minimize seed production of escaped plants.

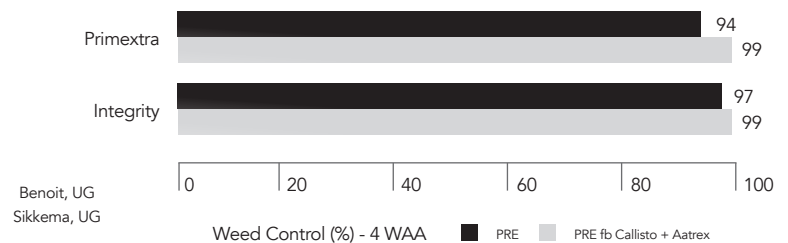
CORN PROGRAM CONTROL ON MULTIPLE-RESISTANT WATERHEMP

CORN PRE-EMERGENCE



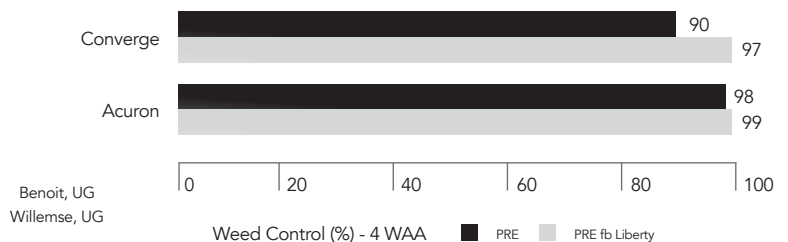
TWO-PASS PROGRAMS IN CORN

Callisto + Atrazine = 95 N= 5



TWO-PASS PROGRAMS IN CORN

Liberty = 85c N= 5





This information is provided by Grain Farmers of Ontario's agronomy team.

TESTING FOR RESISTANCE

If you suspect you have resistance or want to confirm that you have waterhemp or pigweed at seedling stage or later, you can send samples of the weed to a lab for bioassay or genetic testing. Testing requires a small amount of leaf tissue at any growth stage. Sample kits and directions can be sources by contacting Mike Cowbrough, Ontario Ministry of Agriculture, Food and Agribusiness (OMAFRA) mike.cowbrough@ontario.ca, 519-820-2336.

More weed control recommendations can be found on the Pest Manager App (<http://gfo.ca/about/mobile-apps/>)

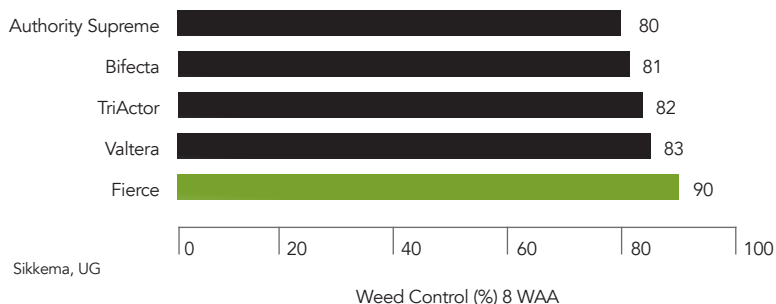
Information sources: Data, graphs and picture acknowledgements to Peter Sikkema, University of Guelph, Mike Cowbrough, and Kristen Obeid, Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). Herbicide research compiled by University of Guelph weed research team; individual researchers credited on the graphs.

Photos on reverse are courtesy of:
Christy Shropshire: 1, 5, 6, 7, 9, 10, 11, 12
Lauren Benoit: 2, 3
Peter Smith: 4, 8

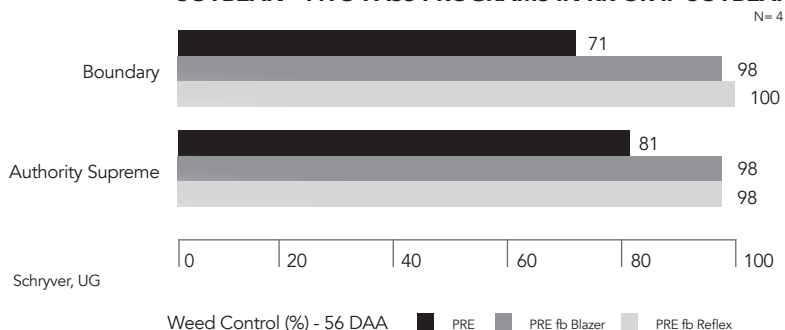


SOYBEAN PROGRAM CONTROL ON MULTIPLE-RESISTANT WATERHEMP

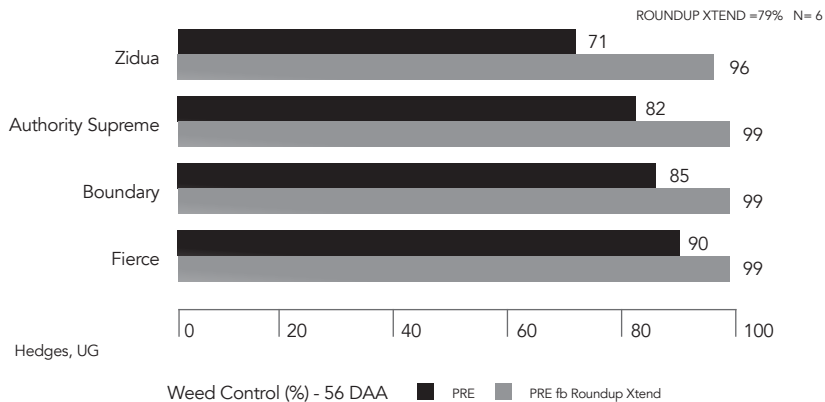
SOYBEAN - SOIL APPLIED HERBICIDES



SOYBEAN - TWO-PASS PROGRAMS IN RR OR IP SOYBEANS



SOYBEAN - TWO-PASS PROGRAMS IN XTEND SOYBEAN



SOYBEAN - TWO-PASS PROGRAMS IN E3 SOYBEANS

