

# How to Identify Palmer Amaranth (Ver. 1 2022)

*Lynn M. Sosnoskie and the Specialty Crop Weed Science Team*

**Why worry about pigweeds?** Pigweeds are some of the most commonly occurring and troublesome weeds that US growers encounter. Several pigweed species, like Palmer amaranth (*Amaranthus palmeri*) and waterhemp (*Amaranthus tuberculatus*), can grow very quickly (sometimes inches per day), often overtaking the crops that they emerge with. Pigweeds can also produce a lot of seed. Under optimal growing conditions, these species can produce tens to hundreds of thousands of seeds. For example, female Palmer amaranth has been reported as producing up to a million seed per female plant. This leads to the development of large seedbanks. Long emergence windows mean that these species can interfere with crop production season-long. Furthermore, pigweed species have evolved resistance to many commonly used herbicides; single populations of Palmer amaranth and waterhemp have confirmed resistances to as many as five different herbicide groups.



Diamond-shaped leaves

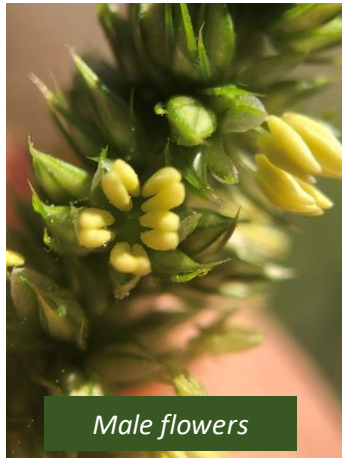


Leaf arrangement appears poinsettia-like



LONG petioles

Palmer can grow extremely large, quickly



Male flowers



Female flowers

## Palmer amaranth characteristics:

**Leaves:** Diamond-shaped and sometimes exhibiting a white or purple, V-shaped watermark (chevron) on them. Leaf petioles (especially older leaves) are as long/longer than the leaf blades.

**Stems:** Smooth (not hairy) and green, red, or green-red striped.

**Height:** Can grow very tall, up to 10 feet, especially in competition with corn. Drought tolerant, so can grow under suboptimal soil moisture conditions.

**Flowers:** Produces male and female flowers on separate plants. Flowers are primarily produced on long (up to 2-3 feet, or more, in length) terminal flower heads or spikes. Male flowers will have yellow anthers with pollen. Female flowers will have sharp bracts associated with them.

**Herbicide resistances in US:** WSSA Groups 2, 3, 4, 5, 9, 10, 14, 15, 27.

**Herbicide resistances in NY:** WSSA Groups 2 (Classic, First Rate), 9 (glyphosate products).

# How to Identify Waterhemp (Ver. 1 2022)

*Lynn M. Sosnoskie and the Specialty Crop Weed Science Team*

## Waterhemp characteristics:

**Leaves:** Long and linear and sometimes oval-shaped. Leaf petioles are shorter or no longer than the leaf blades.

**Stems:** Smooth (not hairy) and green, red, green-red striped.

**Height:** Can grow very tall, up to 10 feet in, especially in competition with corn.

**Flowers:** Male and female flowers on separate plants. Flowers are primarily produced on long (up to 1-2 feet or more, in length) terminal flower heads. Female flowers do not have sharp bracts associated with them. Waterhemp flowers clusters are more widely spaced apart on the flower head than those of Palmer amaranth.

**Herbicide resistances in US:** WSSA Groups 2, 4, 5, 9, 14, 15, 27.

**Herbicide resistances in NY:** WSSA Groups 2 (Classic, First Rate), 9 (glyphosate products).



*Waterhemp in soybean*



*Long, linear, glossy leaves*



*Smooth green to red stems*



*Smooth green to red stems*



*Male flower heads*



*Male (L) and Female (R)*

**Do you have Palmer amaranth or waterhemp on your property? Do you think you have herbicide resistance?**

Please let Lynn Sosnoskie ([lms438@cornell.edu](mailto:lms438@cornell.edu)) and/or CCE personnel know if you have, or suspect you have, these species in your fields. Please make us aware of any herbicide failures, particularly to products in WSSA Groups 4, 14, 15, and 27. Funding for handouts and outreach efforts generously provided by the New York Corn & Soybean Growers Association (NYCSGA - 2021 Corn Research and Education Grant).