

Palmer Amaranth



What is Palmer amaranth?

Palmer amaranth (*Amaranthus palmeri*) is a problematic annual broadleaf weed in the amaranth genus. It has several common names including carelessweed, dioecious amaranth, Palmer's amaranth, Palmer amaranth and Palmer's pigweed.

Palmer amaranth is native only to the Southwest and is considered a weed throughout the country. Field staff at the U.S. Department of Agriculture, Natural Resources Conservation Service, their partners, as well as farmers and landowners are working to eradicate these infestations before they spread to new areas.

Why the concern?

Palmer amaranth is a very fast growing weed that has spread out of native areas. Populations have developed resistance to multiple classes of herbicides with different modes of action, including glyphosate, making it very difficult and expensive to control, especially on productive farmland. It also is a highly competitive weed, and has been shown to be the most competitive of the pigweed species. Palmer amaranth has an extended germination and emergence window, rapid growth rates and high water use efficiency, and it produces large quantities of seed. It is a very prolific seed producer, producing up to 250,000 seeds from one plant.

Palmer amaranth has a fast growth rate of approximately 2–3 inches per day and commonly reaches heights of 6–8 feet, greatly inhibiting productive crop growth. Yield losses have been reported up to 91% in corn and 79% in soybeans. The weed can also compete with and decrease other agricultural crop production.

Palmer amaranth can also be toxic to livestock animals due to the presence of nitrates in the leaves.



Top banner photo: Palmer amaranth can be very prolific; one plant can produce up to 250,000 seeds (seeds shown above). Above: A male Palmer amaranth plant found in a farm field.

What can you do?

As landowners and farmers, be proactive in identifying palmer amaranth on your property to prevent establishment. Familiarize yourself with the identification of this species, and actively search for it in your crop fields, borders, ditches, conservation lands and around dairies.

If you suspect Palmer amaranth on your property, immediately call your local county extension agent and/or crop consultant to report it and get recommendations for control. Avoid entering areas where the plant is suspected or confirmed. If you must enter an infested area, always clean vehicles, equipment and clothing prior to exiting the area that has come in contact with the weed. Be certain machinery is clean when moved field to field.

Palmer Amaranth Key Points

- Palmer amaranth is a problematic annual broadleaf weed.
- Palmer is native to the southwest U.S. but has spread across the country.
- Palmer has a fast growth rate of 2–3 inches per day and commonly reaches heights of 6–8 feet.
- Landowners and farmers can help by being proactive in identifying Palmer.
- Report any Palmer on your property to your local county extension agent and crop consultant.

Helping People Help the Land

If planting grasses and flower mixes for conservation plantings, use only local reputable sources to ensure native plants are compatible with the area's climate. Obtaining a seed laboratory report before purchasing a seed mix is recommended. Reject any seed lots which have "pigweed" or "amaranth" as a weed component unless the pigweed seed has been genetically tested to not be Palmer amaranth. Palmer amaranth seed is visually indistinguishable from other amaranth seed. Limit soil disturbance and utilize cover crops, like cereal rye, to prevent and help suppress weed infestations. Hay may also be planted to help provide protection against this weed.

How do you identify Palmer amaranth?

- Palmer amaranth is a summer annual that commonly reaches heights of 6–8 feet, but can reach 10 feet or more.
- Green leaves are smooth and arranged in an alternative pattern that grows symmetrically around the stem. Leaves are oval to diamond-shaped. There is a small, sharp spine at the leaf tip. Some Palmer amaranth leaves have a whitish V-shaped mark on them. Not all plants display this characteristic.
- There are separate male and female plants.
- Palmer amaranth looks similar to other pigweeds such as common waterhemp, redroot, and smooth pigweeds.
- Redroot and smooth pigweeds have fine hairs on their stems and leaves. Palmer amaranth and waterhemp do not have these hairs.
- The stalk connecting a leaf to the stem of Palmer amaranth is longer than the length of the leaf. For common waterhemp, the stalk connecting a leaf to the stem will only be half the length of the leaf.
- Seedhead spikes on female Palmer amaranth plants are much taller, up to 3 feet long, and more prickly than waterhemp, redroot and smooth pigweed spikes. Palmer flower heads are sharp and prickly to the touch with bare hands.



A female Palmer amaranth plant found in a Dane County, Wis. farm field. Photo courtesy of University of Wisconsin–Extension.



Comparison of a Palmer amaranth petiole (the stalk that joins a leaf to a stem) length to the leaf blade length. Photo courtesy of University of Wisconsin–Extension.



Comparison of Palmer amaranth (left) to other similar species. Photo courtesy of University of Illinois.

