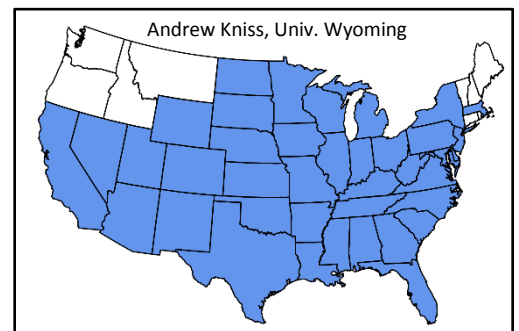


Palmer amaranth (*Amaranthus palmeri*)

History and distribution: Palmer amaranth is a fast-growing summer annual forb native to the desert regions of the southwestern U.S and northern Mexico. It was accidentally transported to the southeastern U.S. where it became a serious weed in cotton and other crops. Palmer amaranth has been moving north and now threatens corn and soybean production in the midwestern U.S. More recently, Palmer amaranth has been found in the upper Midwest in conservation plantings using native seed mixes where it likely was a contaminant in the seed mix. Palmer amaranth has been reported in nearly every state in the U.S. (map, below right). It spreads through contaminated seed, hay, and forage; custom combining equipment; wildlife; water; and wind. Early detection and rapid response are critical to prevent this weed from establishing across the northwestern U.S.



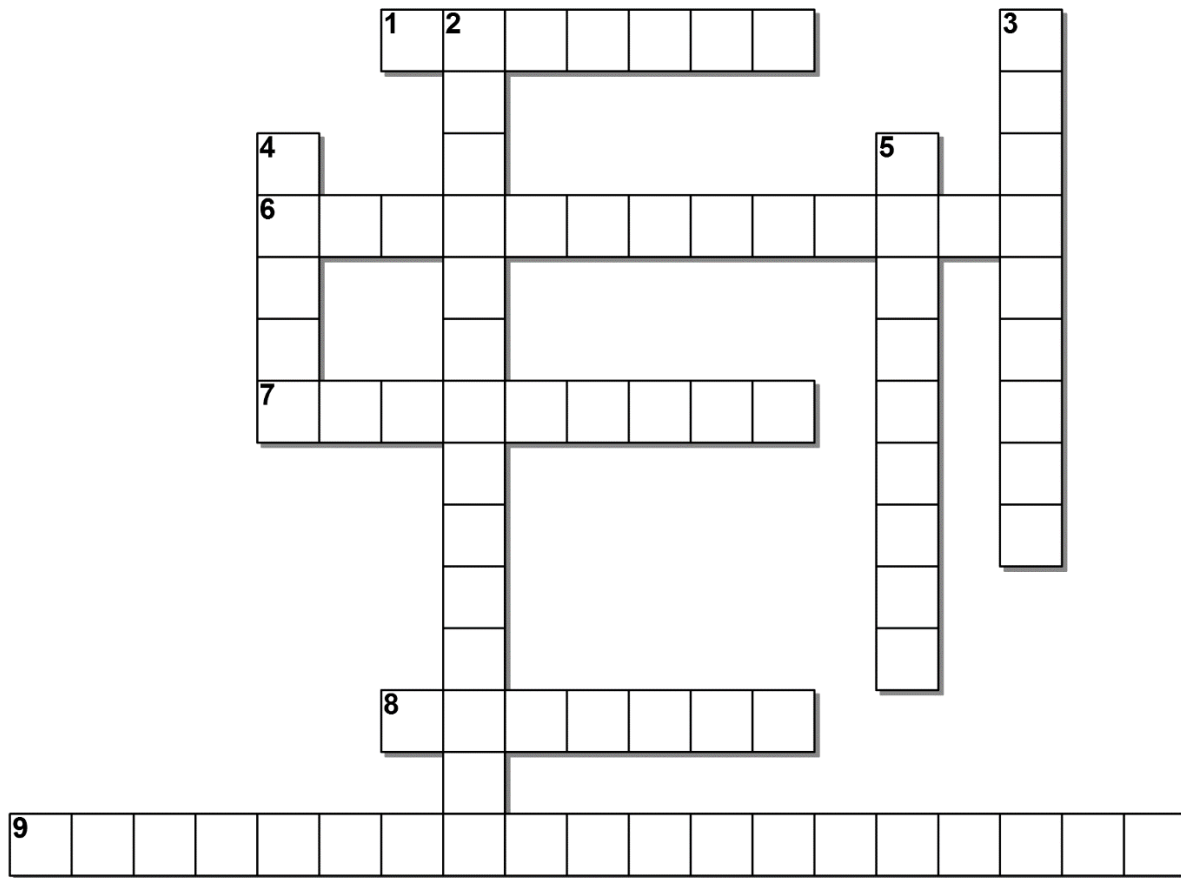
Biology and impacts: Palmer amaranth is dioecious, meaning individual plants are male or female. Female plants produce hundreds of thousands of tiny seeds. Seedlings can emerge throughout the growing season. This weed has a high photosynthetic rate and has been documented to grow several inches per day under ideal growing conditions. It can grow up to 6 feet tall. To date Palmer amaranth has primarily impacted crop production in those areas where it is well-established. Its biological traits are conducive to rapid evolution of herbicide resistance, and many populations of the species are resistant to glyphosate and acetolactate synthase (ALS) inhibitor herbicides, presenting this species' primary management challenge. Impacts in perennial systems like range and pasture are unknown, but populations in such areas could impact adjacent croplands.



Identification: Knowing how to identify Palmer amaranth is critical to preventing its establishment in Montana and neighboring states. Palmer amaranth looks similar to another common weed in the genus *Amaranthus*, redroot pigweed (*A. retroflexus*), and grows in similar habitats (crop fields, road sides). The easiest way to tell the two species apart is to look for hairs on the stems and leaf surfaces—Palmer amaranth does not have hairs, and redroot pigweed does. The leaves of Palmer amaranth are usually ovate to diamond-shaped, and the stem bearing each leaf (petiole) is usually longer than the leaf itself (below, left). Female plants have a long, terminal seed head with stiff, sharp bracts that give the seed head a prickly feeling when touched (below, center). The leaves of some Palmer amaranth plants have a white, V-shaped mark on them (below, left), and some plants have a single leaf tip hair (below, right). Both of these characteristics are variable, so use them only to help confirm the identify of Palmer amaranth after looking for other key features (i.e., lack of hair on stem and leaves, extended petiole, prickly seed head). [Learn more about Palmer amaranth from North Dakota State University.](#)



Crossword: Test your knowledge of Palmer amaranth



Across:

- 1 Seed heads feel this way. Ouch!
- 6 Palmer amaranth belongs to this plant family
- 7 Region of U.S. where Palmer amaranth is native
- 8 The length of this anatomical feature is key for identifying Palmer amaranth
- 9 This trait of Palmer amaranth, facilitated by heavily reliance on chemical control, makes management very challenging (2 words)

Down:

- 2 Weed that looks similar to Palmer amaranth
- 3 Term for plant that has separate male and female plants
- 4 The absence of these is helpful for differentiating between *Amaranthus palmeri* and *A. retroflexus*
- 5 Vector for Palmer amaranth movement (2 words)

Solutions are posted to the MSU Extension Invasive Plant Ecology and Management website:

http://msuinvasiveplants.org/extension/monthly_weed_post.html

