



### **Amaranth, Palmer**

*(Amaranthus palmeri)*

also called Palmer pigweed

Palmer amaranth is an upright summer annual pigweed that may reach 6½ feet in height. Seedlings have narrow cotyledons that are green to reddish. First true leaves are alternate, ovate and slightly notched at the leaf tip. Mature leaves are alternate, hairless and lance- or egg-shaped. Leaves are 2 to 8 inches long and ½ to 2½ inches wide, and occur on petioles that are usually longer than the leaves. Stems are hairless. Seed heads are terminal panicles that reach ½ to 1½ feet in length. Smaller lateral inflorescences occur between the stem and the leaf petiole. The poinsettia-like leaf arrangement, long petioles, long seed head, and hairless stems are key in distinguishing palmer amaranth from related pigweeds.



### **Amaranth, Powell**

*(Amaranthus powellii)*

Powell amaranth is a summer annual weed that closely resembles smooth and redroot pigweeds. It is more common in cooler, more northern environments compared to the other pigweeds. Cotyledons are narrow and may have a reddish tint. First leaves may appear tapered at the end, unlike smooth and redroot pigweeds, which have rounded first true leaves. Mature leaves are typically egg-shaped, tapered or rounded near the tip, and 1 to 6 inches long by ½ to 3 inches wide. They may become slightly hairy as the plant matures. Stems are upright, minimally branched, usually lightly hairy, and red to green. Inconspicuous flowers cluster at the end of stems. The seed head is minimally branched relative to smooth and redroot pigweeds. Each branch is 4 to 8 inches long and typically thicker than branches of other pigweed seed heads.





Drift from imidazolinone herbicides can cause stunted corn with foliage that is more purple than typical.



Imidazolinone can cause soybean to be stunted and the new trifoliates to be chlorotic (left). Prominent veins on the leaf's underside may turn red or purple (right).



Maize dwarf mosaic virus causes reddening symptoms that are often confused with imidazolinone herbicide injury.



Imidazolinone-herbicide injury on corn can result in purpling of the leaf edges and midvein.



### Chemical group

benzoic acid, carboxylic acid, phenoxyacetic acid

### Herbicides

- aminopyralid (Milestone – pastures)
- clopyralid (Hornet, Stinger, others – corn, sorghum, pastures, turf)
- dicamba (Banvel, Clarity, Status, in Marksman, DiFlexx, others – corn, grain sorghum, wheat, pastures, turf)
- fluroxypyr (Starane, part of GoldSky, part of Rave, others – wheat)
- MCPA (part of Orion – wheat, barley, oats)
- quinclorac (Clearpath – rice, Paramount, others)

- triclopyr (Garlon – noncrop areas)
- 2,4-D (2,4-D, Weedar 64, others – corn, grain sorghum, rice, and small grains, grass forages)

### Site of action

The Group 4 herbicides act similarly to the plant's natural growth hormone auxin. Saturating the plant with synthetic auxins is thought to increase cell size, which can lead to rapid growth of stems, but to inhibit cell division and growth of growing points.

### Characteristics of activity

The T1R1 synthetic auxin herbicides provide control of annual and some perennial broadleaf weeds, are rapidly absorbed by roots and foliage,



The leaves of soybean injured by dicamba or aminopyralid will have a cupped appearance and may be chlorotic on the edges. The leaves may be mottled (top left), and the meristems will die (bottom right).