

WEED WATCH: PALMER AMARANTH

This may possibly be the most important Crop and Pest Report article (weeds) written in the 2014 cropping year. Palmer amaranth is the bane of agriculture in the southern U.S. This is the weed that can produce millions of seeds per plant and grow baseball bat size stems that can stop combines dead in its track. It is the weed that has forced radical changes in weed control because of its relentless ability to reproduce and spread at astounding rates. The latest information shows that glyphosate-resistant Palmer amaranth is now present in every Midwest and Plains state except Minnesota and North Dakota. Sources from Control consultants have indicated Palmer amaranth to be around the Aberdeen, SD area.

Palmer amaranth (*Amaranthus palmeri*) is a pigweed species that is not native to North Dakota or to the northern United States. It is well established in the southern U.S. It was introduced in Michigan and possibly other states through the spread of manure from dairy cows that were fed cotton by-products as a feed supplement. It could easily establish in ND through custom combines moving north into ND and several other ways of weed seed dissemination.

Palmer amaranth has not been identified in ND but has been introduced in the northern latitude of the U.S., demonstrating it could survive in the northern plains. Palmer amaranth was chosen as weed-of-the-year as a proactive approach to increase awareness of its extreme noxious and pernicious capability, to aid in identification, and to encourage land owners to keep a vigilant watch and kill all plants that may arise. Main point of this article: Let's keep this weed out of ND – memorize the identifying characteristics of this weed, keep a steadfast watch, and if you think you find plants – KILL IT! Rephrase: Don't even think, just kill it. In some areas in the south the only option for control is hand-weeding. Consider the choice: Hand weed a couple of plants or a small patch now or deal with a field fully infested a couple of years later. We have glyphosate resistant waterhemp, marestail, ragweed, and kochia in ND. These weeds have complicated crop production in ND but these pale to the impact that Palmer amaranth will have if established here.

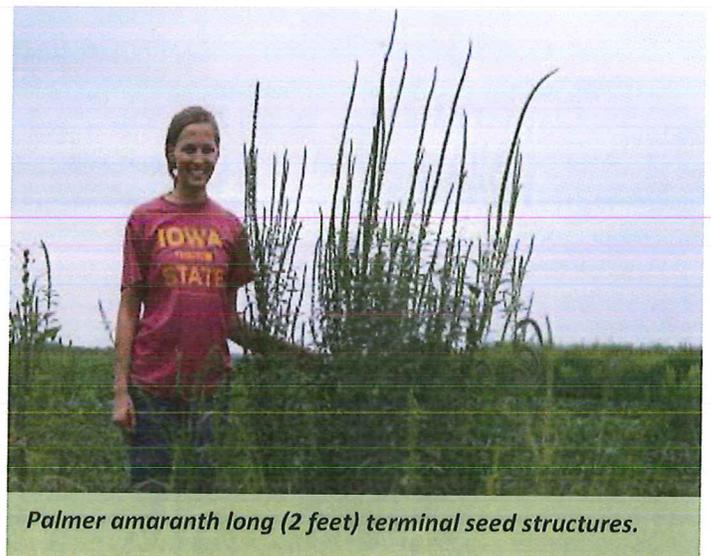
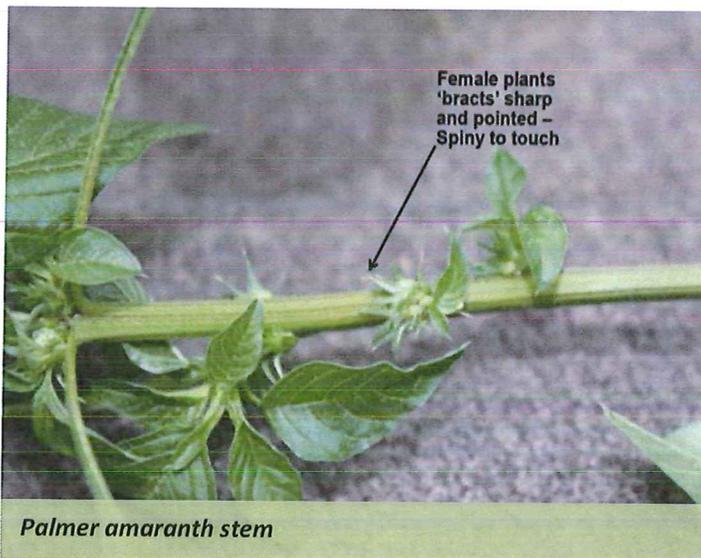
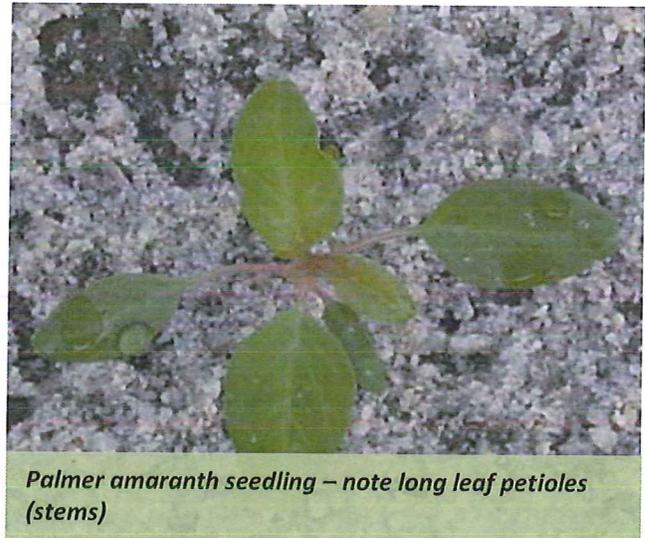
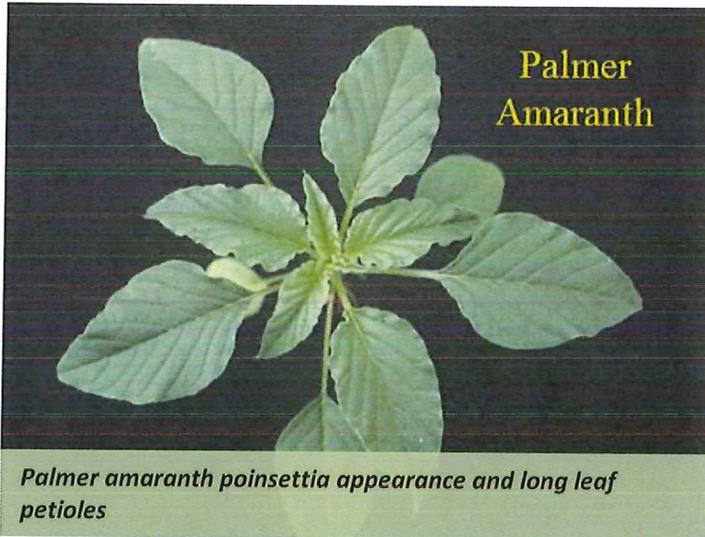
Below are some reasons why it is being called "Satan" and why growers should quickly destroy any plants found.

1. Biotypes of this weed are resistant to one or more of the following herbicide site of action groups: ALS (2), atrazine (5), glyphosate (9), and HPPD inhibitors (27) herbicides, leaving very few herbicide options available for weed management.
2. One of the fastest weed growth rates known – near 2 inches/day.
3. Long emergence pattern from mid-May through August.
4. Can exploit even slight canopy openings.
5. Produces more than 1 million seeds/plant.
6. Seed is short-lived and only 2% of seed is viable after 6 years but the sheer number of seeds produced by a female plant makes eradication difficult once established.
7. Female plants can grow to more than 10 feet tall with a 5-6 inch stem girth and seed heads more than 1 foot in length. Male plants are small and generally non-competitive.
8. Pulled plants can re-root and produce seed.
9. Can cause 78% yield loss in soybean, 91% in corn.

Palmer amaranth's prolonged emergence period, rapid growth rate, prolific seed production, and propensity to evolve herbicide resistance quickly makes this the biggest weed threat that ND farmers have ever faced. Please refer to page 136 in the 2014 North Dakota Weed Guide for management recommendation and additional information. Please contact myself or another NDSU Weed scientist to confirm positive identification.

Identifying characteristics of Palmer amaranth:

- Stem and leaf surfaces with no/few hairs
- Leaves have a symmetrical (poinsettia) arrangement
- Leaf petioles are as long as or longer than the leaf blades
- Male and female flowers are on separate plants
- Spiny bracts are at leaf axils on female plants
- Flowering structures are unbranched, and 1 to 2 feet long
- Male flowering structures are soft and spread pollen
- Female flowering structures are spiny and contain seed



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