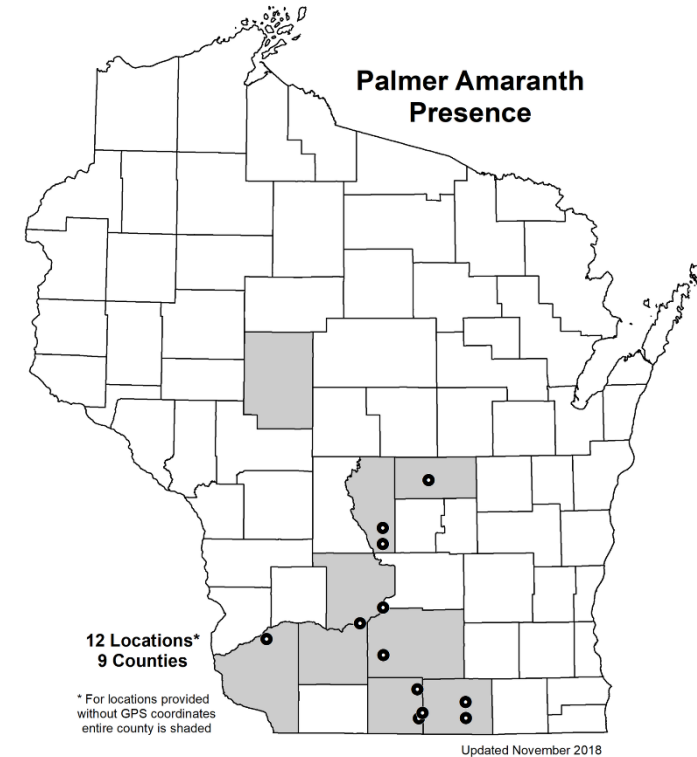
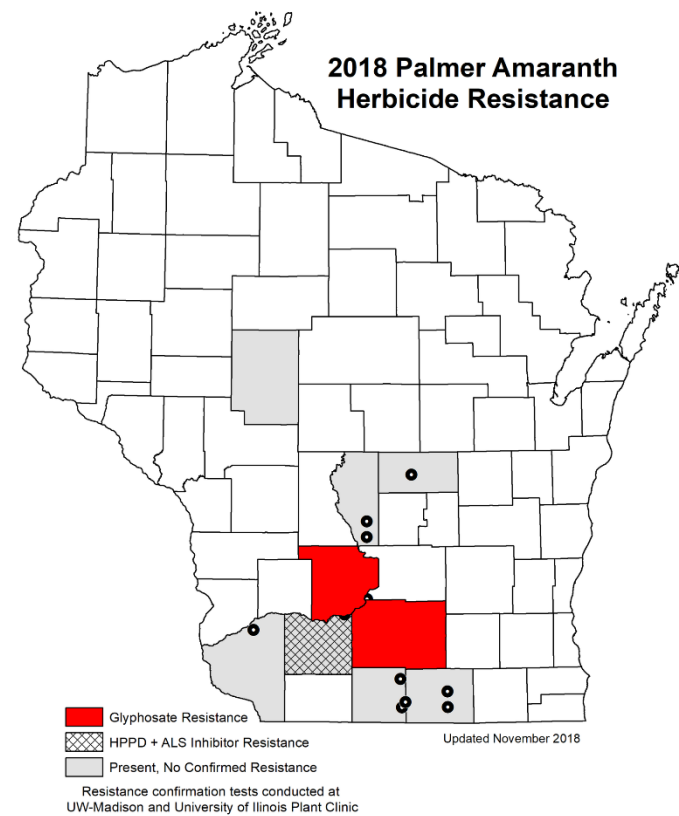
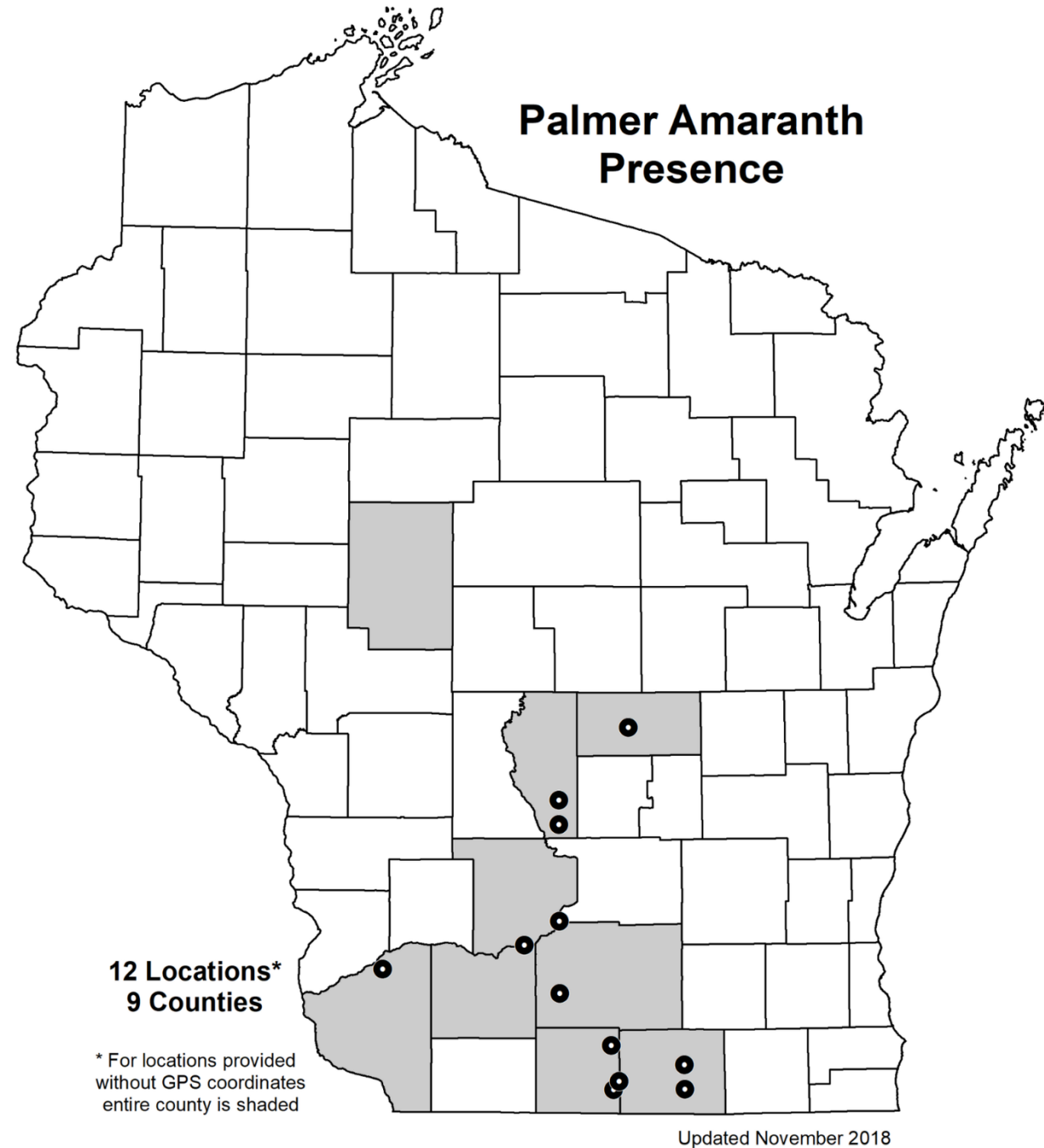
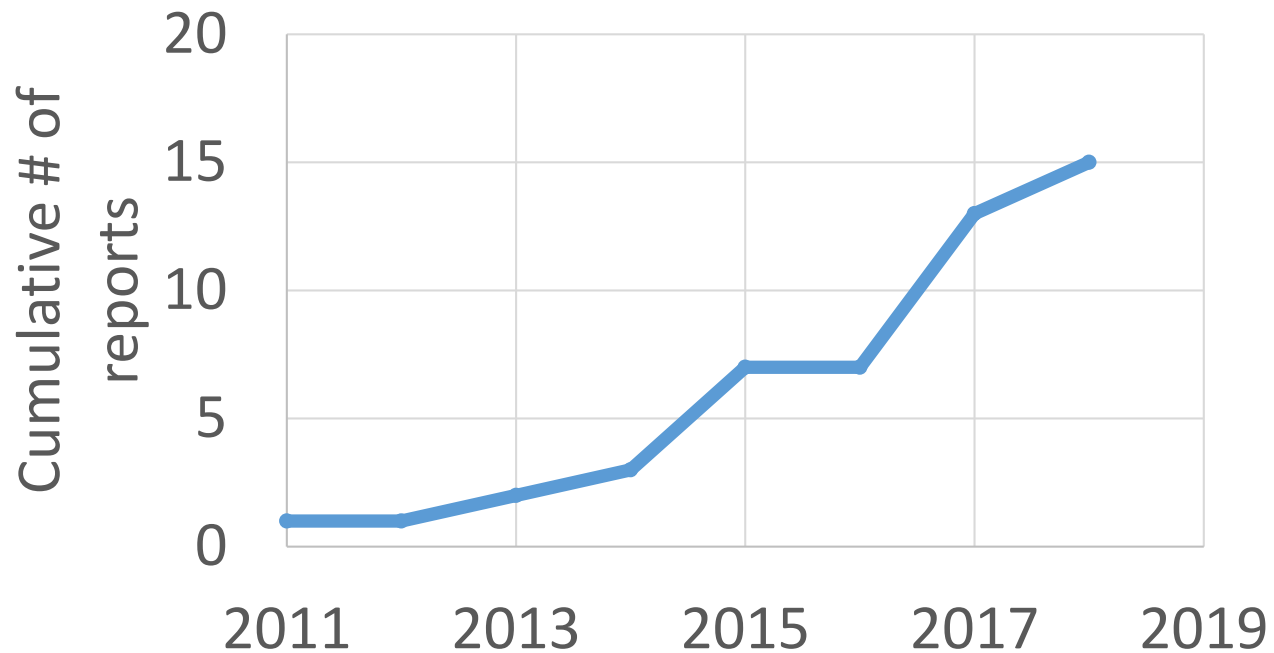


Palmer Amaranth in Wisconsin



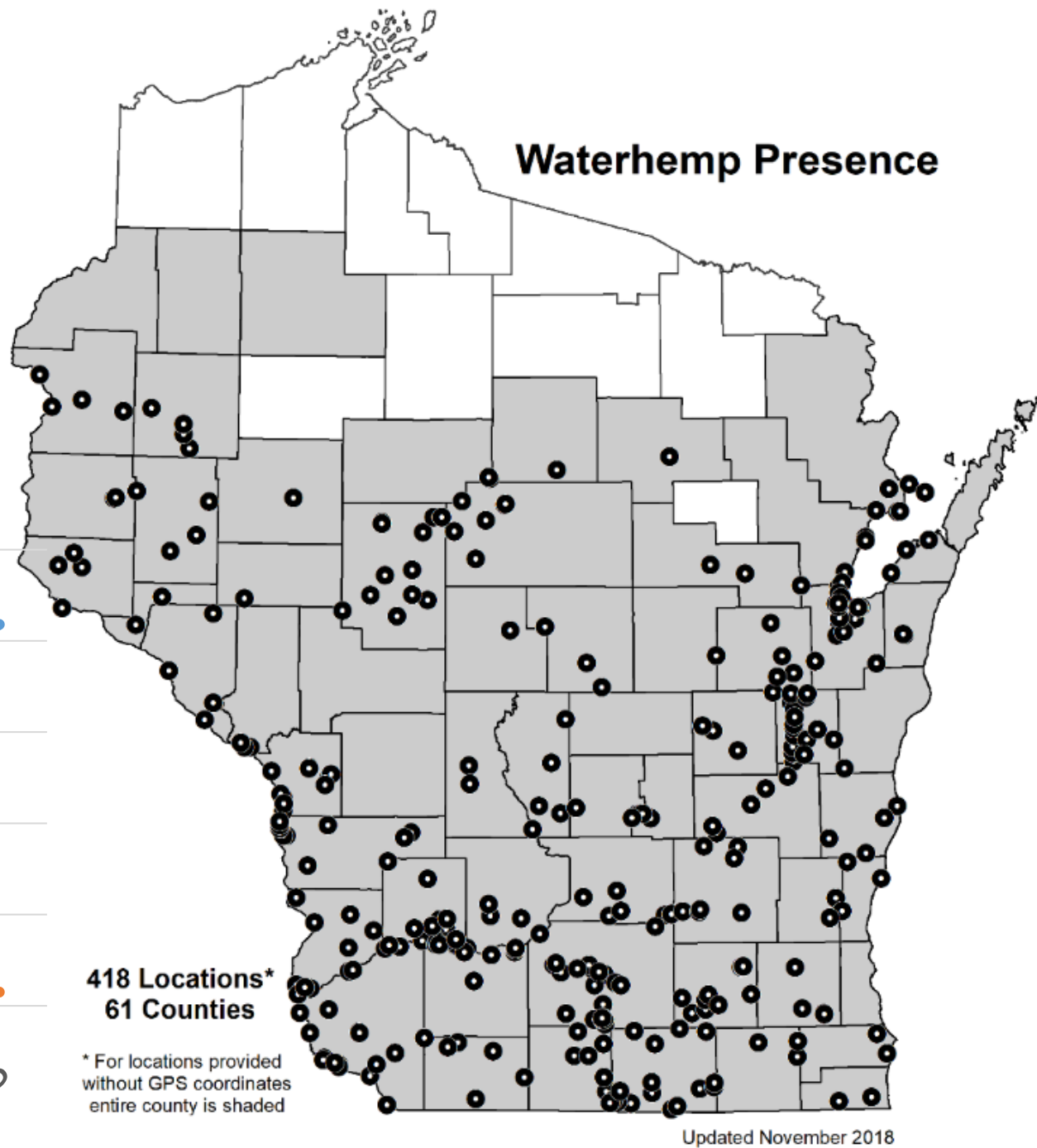
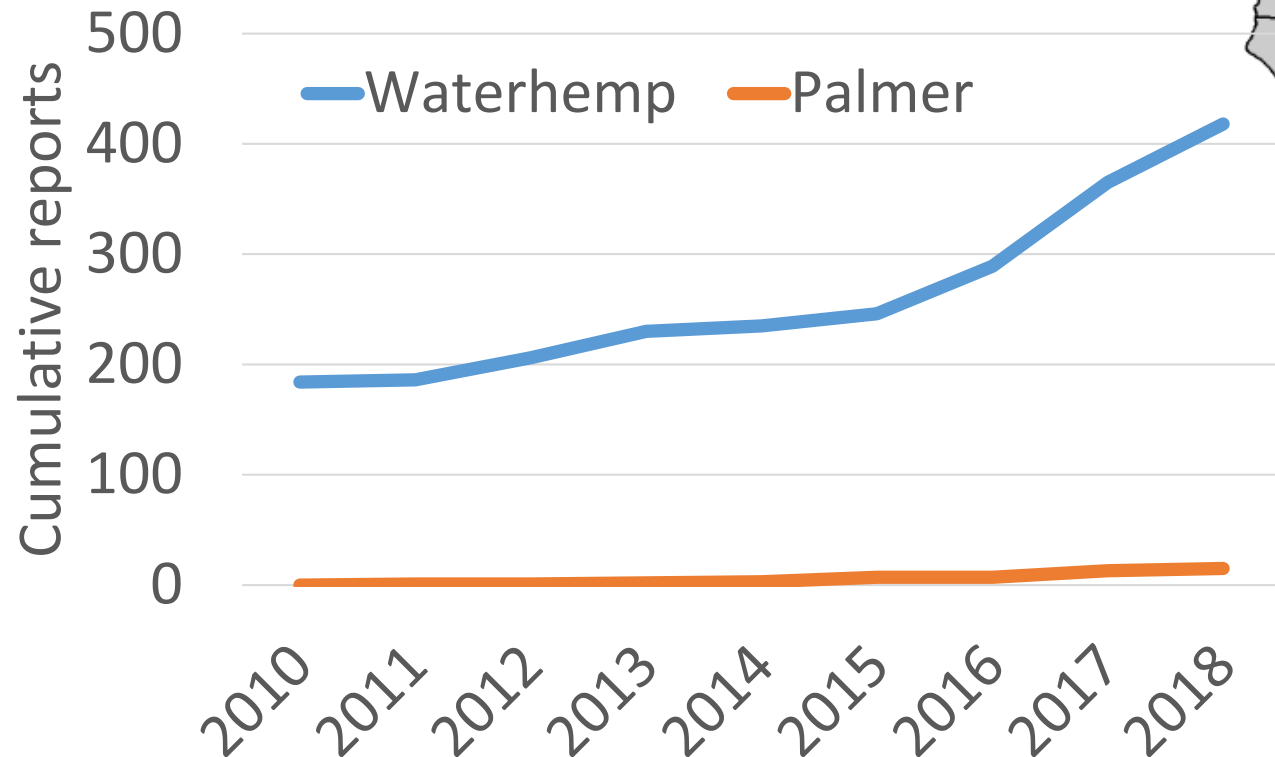
How much Palmer is in Wisconsin?

- 15 populations spanning 9 counties
 - Only 12 provided GPS coordinates



Much less compared to waterhemp

- 418 locations (61 counties)



How did Palmer arrive at these areas?

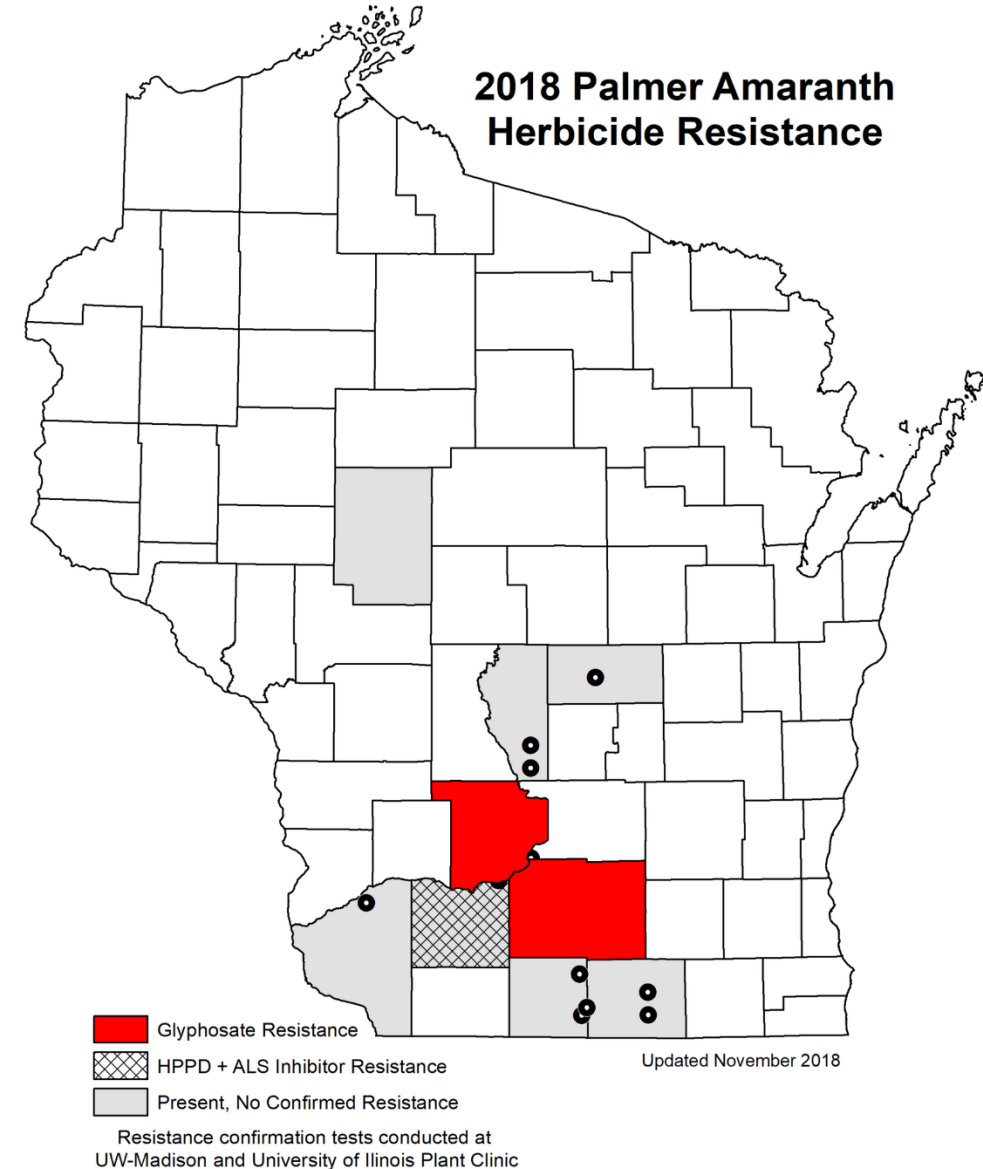
ALL FIELDS ARE IN ANNUAL ROW CROP PRODUCTION

- One at a county/UW research farm (2011)
- Seed production company (2014)
 - Brought in on equipment and spread to other farms (2015)
- Two from large dairy operations (2018)
 - cotton seed purchased from out of state????
- Eight reports with limited to no information (2013, 2017-2018)

Distribution and Herbicide Resistance

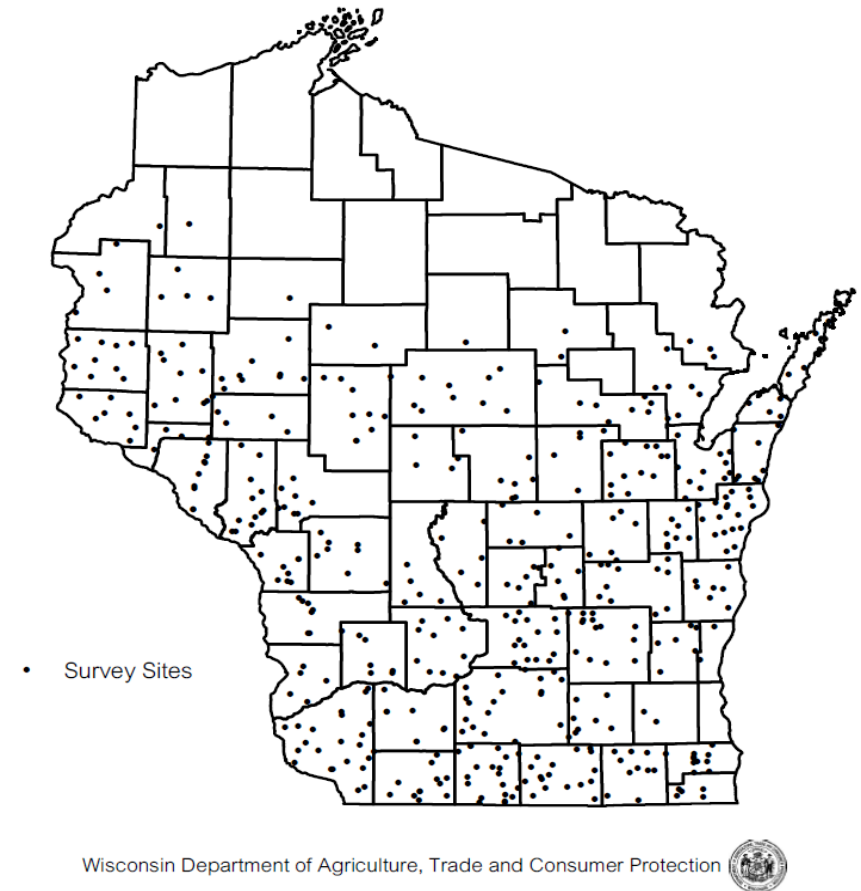
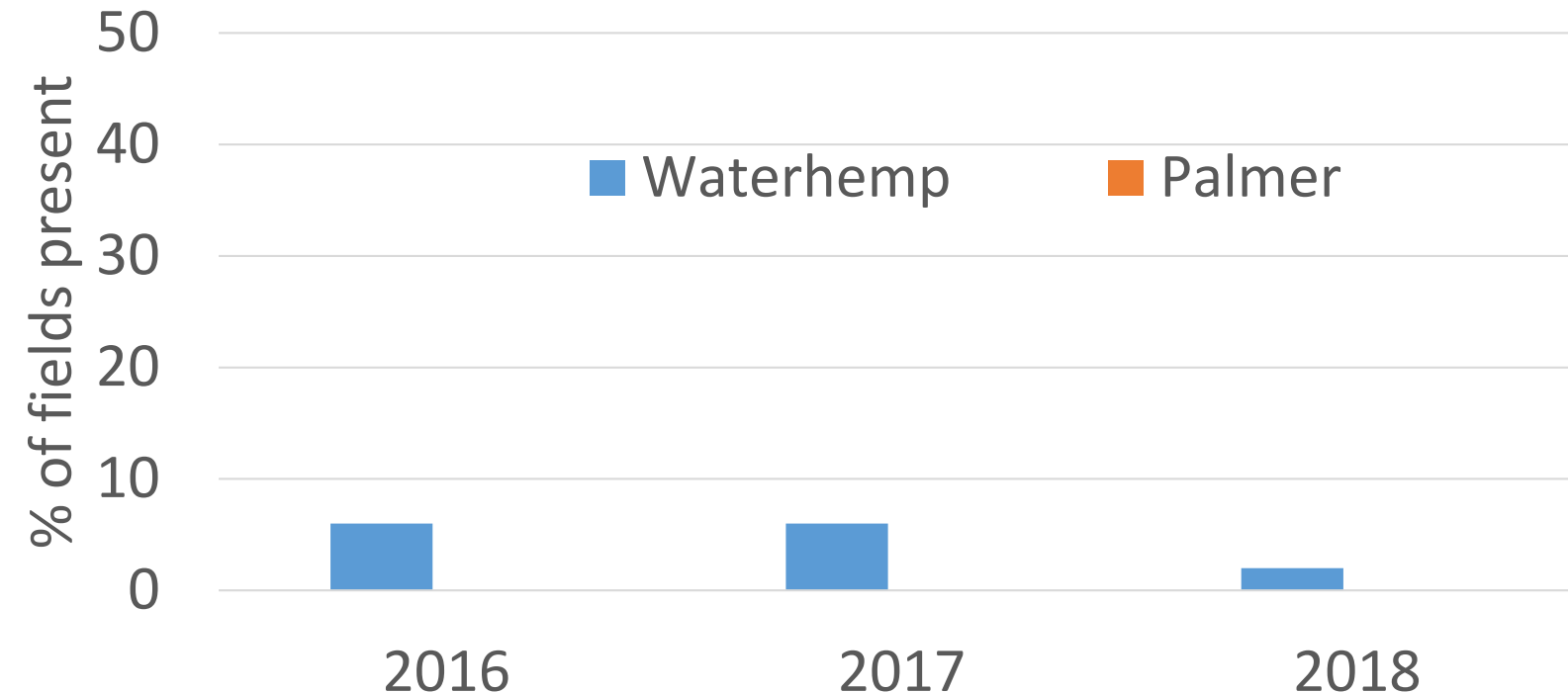
- Glyphosate resistance
 - 2 populations
- HPPD + ALS inhibitor Resistance
 - 1 population
 - sensitive to glyphosate

Most populations have not been tested!

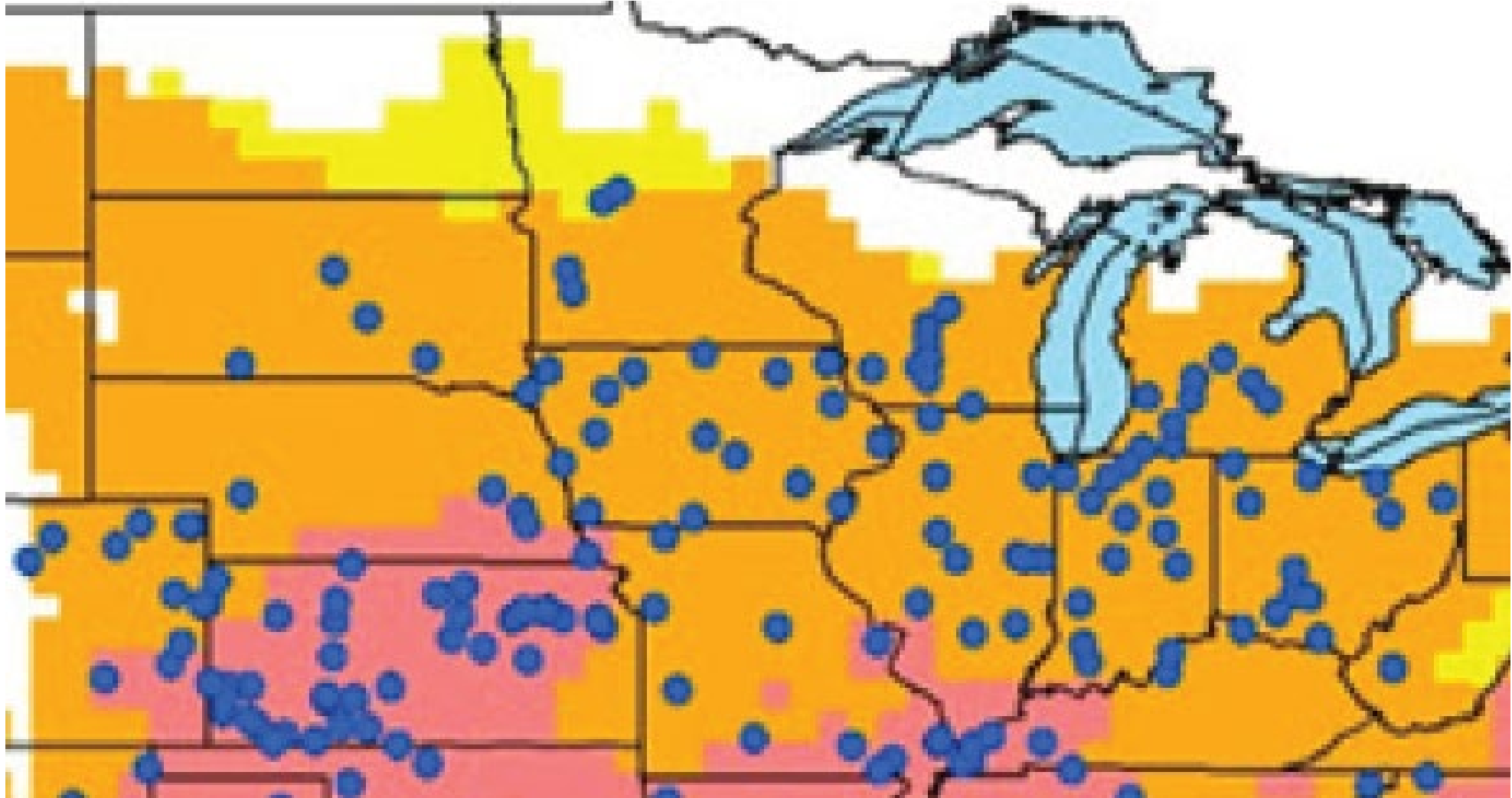


2016-2018 DATCP Survey

- DATCP visited between 300-500 fields the last three year and scouted for Palmer and Waterhemp
 - July-September



Models suggest much of WI and MN are suitable



Kistner and Hatfield 2018

What about conservation plantings

- We have not observed or been contacted about any potential palmer amaranth in conservation plantings
- WI NRCS has recommended practices (Job sheets) that limit risk
 - **Seed must meet Wisconsin seed laws certification**
 - Seeding methods/timings
 - Management
- We know BMPs are not being followed, but it is unclear why we haven't seen any Palmer to date....



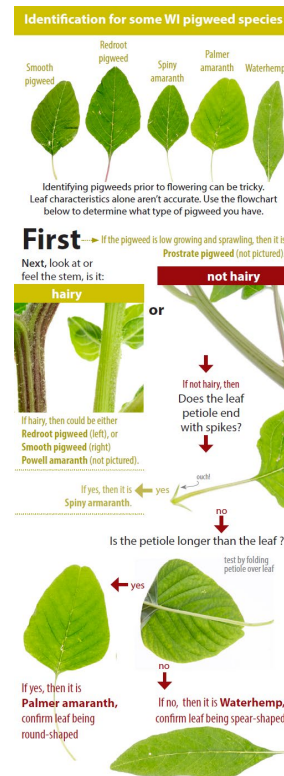
How has Wisconsin regulated Palmer?

- NR40 (Invasive Plant Rule)
Wisconsin DNR
 - Discussed but not assessed in 2008
 - Will be assessed in 2019
- ATPC 20 (Seed labeling and sale)
Wisconsin DATCP (2018)
 - Added **Palmer** and Waterhemp to the list of prohibited noxious weed seeds



What have we done to improve education/detection

- In 2016 began active detection programming
 - Created outreach material and distributed
 - Videos
 - Factsheets
 - Bookmarks
 - Newsletter articles
- Disseminated to various groups
 - Wisconsin First Detection Network
 - Report a pigweed
 - Agriculture stakeholders



2017 Weed Identification Series



Palmer Amaranth

Annual broadleaf that germinates April-August. Commonly found in agronomic and horticultural crops as well as highly disturbed areas.

Leaves: Diamond or spade shaped, 3-6 in long, alternate on the stem and have a small hair at the tip of the leaf. *Petiole is longer than the length of the leaf blade on mature leaves.* Leaves can also have a watermark but many

sharp bracts; male seed heads are soft as they do not contain the sharp bract.

Similar Plants: This plant is often confused with other common pigweeds, especially waterhemp and spiny amaranth, which also lack hairs on the stem. Waterhemp petioles are shorter than its leaf blades. Spiny amaranth has a distinct spine below leaves. For more information, visit the Report a Pigweed [website](#).



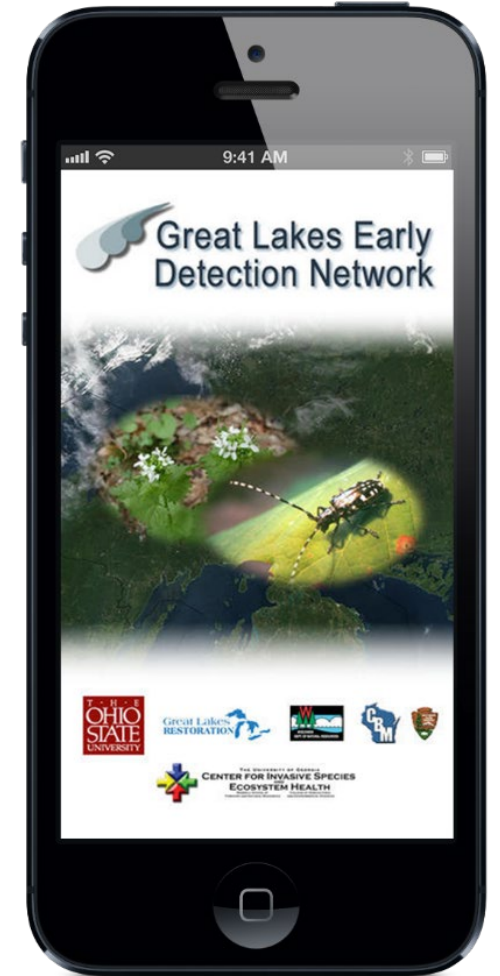
How have producers and agricultural groups responded?

- Ag-business has been very active
 - All reports have been volunteered (none detected by random surveys)
 - Crop consultants and industry are actively looking for and reporting this plant
 - Like that we don't require locations and are not a regulatory body
- Unclear how active farmers/producers are
 - They are barraged by the news media on this topic
 - Concerned about image or how it can affect agreements with neighbors
 - Only reports from farmers are in conjunction with county extension staff



How have we been tracking/reporting

- Promoting use of the GLEDN app (EddMaps)
 - Easy to verify and goes into a national database
 - Can be marked as private so location isn't shared
- Accept information any way they want to provide it
 - Most are email submissions that we manually enter (if GPS coordinates provided)



EDDMapS
Early Detection & Distribution Mapping System

Summary/My Opinion

- Palmer amaranth is spreading throughout Wisconsin
 - Will it continue to spread? YES but the rate of spread is unclear
 - What habitats/areas will it spread to? Currently only agricultural lands
- How is it being introduced?
 - Observations suggest contaminated equipment and feed from infested states are the main pathways, but little hard evidence
- Will it take over agricultural fields and become a primary weed?
 - UNKNOWN. It clearly can grow but its competitive ability compared to existing weeds is not known
- WI has not taken steps to regulate plants, unclear if regulation will help
 - Likely to be listed as a prohibited species (NR40) but enforcement is unlikely

WE can slow/stop the spread, but stakeholders are hesitant about active regulation of pathways

- Agriculture industry does not like rules that involve required action by state agencies
- importation of feeds that are contaminated could be regulated
 - Challenging to monitor
 - Dairy industry unwilling to forgo the use of cotton seed
- Equipment moves between heavily infested states and Wisconsin
 - Could require cleaning, especially harvesters