

## ROTATIONAL CROPS

- **Small grains:** Fall-planted grains offer one of the best options for managing Palmer amaranth or waterhemp. These fall-planted grains will be already established before Palmer amaranth or waterhemp may emerge in late spring or early summer. Spring-planted grains are also a good option for managing these weeds. In addition, grains offer numerous herbicide options for managing these weeds. Grains are typically harvested before these pigweeds go to seed. Please note that these pigweeds can still produce seed after grain harvest even if they emerge late. They must be controlled after grain harvest to prevent viable seed set.
- **Alfalfa:** Fall-planted alfalfa will be established before these pigweeds start to emerge the following spring. There are also various herbicides labeled for use in alfalfa that will provide good control of these pigweeds. Multiple alfalfa harvests during the summer also reduce/prevent seed production from these pigweeds.
- **If possible, avoid planting corn, sugar beet, dry bean, or potato next year:** If planting any of these crops, please note that any Palmer amaranth or waterhemp introduced into Idaho may be resistant to HRAC group 9 (ex. Roundup®) and possibly HRAC group 2 herbicides (ex. Harmony®, UpBeet®).
- **Use soil-applied herbicides to provide preemergence control of these pigweeds.** HRAC group 15 herbicides (ex. Dual®, Outlook®, Warrant®, Zidua®) are among the most effective. Please note that some populations of Palmer amaranth and waterhemp may be resistant to HRAC group 15 herbicides but this is not widespread.

- Any Palmer amaranth or waterhemp that survives preemergence control must be controlled using effective postemergence herbicides or hand weeding to prevent the escapes from going to seed.



**Please report sightings to:**

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University of Idaho



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## Early Detection and Rapid Response to Palmer amaranth or Waterhemp in Idaho and Oregon



Dr. Albert Adjesiwor, Assistant Professor and Extension Specialist, University of Idaho, Clarke Alder, Research Agronomist, Weed Science, Amalgamated Sugar Company, and Dr. Joel Felix, Weed Scientist, Oregon State University



## AT HARVEST

- **Harvest infested fields last.** Harvest fields with suspected Palmer amaranth or waterhemp last to reduce the spread of seeds to other fields.
- **If necessary, shred.** Palmer amaranth or waterhemp should be flailed before topping the beets to avoid whole plants from making it to the receiving stations and into the pile.
- **Sanitation:** Clean equipment after harvest infested fields before moving to other fields or farms. This will reduce the spread of seeds to other fields/farms. Pigweed seeds are small and can easily be lodged in wet foliage, especially in the defoliator.
- **Shallow fall tillage:** If possible in your operation, use shallow fall tillage instead of deep plowing. This results in a light amount of soil covering the weed seeds. This is most effective at stimulating seed germination next year to help exhaust the soil seed bank. Deep tillage will bury weed seeds deeper and induce dormancy which can last 3-5 years.



## Waterhemp *Amaranthus tuberculatus*

- Elongated seed head - 6-8" long
- **Smooth, shiny oblong (oval-shaped) to lanceolate (narrow/boat-shaped) leaves**
- Upper leaves thinner and more lanceolate than lower leaves
- Smooth stem - similar to Palmer
- Tend to be more branched overall than Palmer amaranth
- Shorter petioles with leaves close to stem
- Documented resistance to HRAC **Groups 2, 4, 5, 9, 14, 15, 27**

### Key Descriptors:



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- Elongated seed head - up to 24" long
- Non-way, diamond-shaped leaves
- **Petioles longer than leaf blades**
- Smooth stem - thinner than Redroot pigweed
- Poinsettia-like leaf whorl
- Leaves more rigid than other pigweeds - almost reaching upward with less "droop"
- Documented resistance to HRAC **Groups 2, 3, 4, 5, 9, 10, 14, 15, 27**

## Palmer amaranth *Amaranthus palmeri*

