



Weed Identification

University of Nebraska-Lincoln Extension
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1. What is this weed?

- A = morning glory
- B = bull thistle
- C = musk thistle
- D = Canada thistle





2. Which weed has the most known resistance to herbicides?

- A = marestail
- B = water hemp
- C = dandelion
- D = kochia



3. Palmer Amaranth has a _____ Petiole Compared to Waterhemp?

- A = Same Length
- B = Longer Length
- C = Shorter Length

B





4. What is this weed?

- A = knapweed
- B = tansy mustard
- C = red root pigweed
- D = leafy spurge



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5. What is this weed?

- A = marestail
- B = kochia
- C = scouring rush
- D = shepherd's purse



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Pest Development and Biology

- **Weeds** - annuals, biennials, perennials



Growth Habits





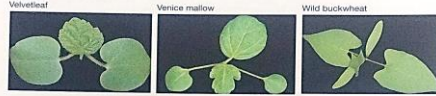
Grass vs Broadleaf



- Broadleaves:
 - Dicots (two cotyledons)
 - Palmate or pinnate venations
 - Unique leaf margins
 - Petioles
 - Stems (round, triangle, square)
 - Ocreas
- Grasses
 - Stems (round or flat)
 - Bunch or creeping
 - Blade
 - Ligule
 - Collar
 - Auricle
 - sheath

Common Annual Weeds in Nebraska Crops

Broadleaf Weeds



Source: S. J. Nisam and D. E. Wilson,
Department of Agricultural Sciences
and Pest Management, Colorado State
University, Fort Collins, Colo. 80523-1177

Grass Weeds



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Noxious vs Invasive



- **Noxious:** A weed which is considered to be harmful to the environment or animals, especially one which may be the subject of regulations governing attempts to control it.
- **Invasive:** A plant that is both non-native and able to establish on many sites, grow quickly, and spread to the point of disrupting plant communities or ecosystems.





Noxious Weeds in Nebraska

NWCA Nebraska Weed Control Association

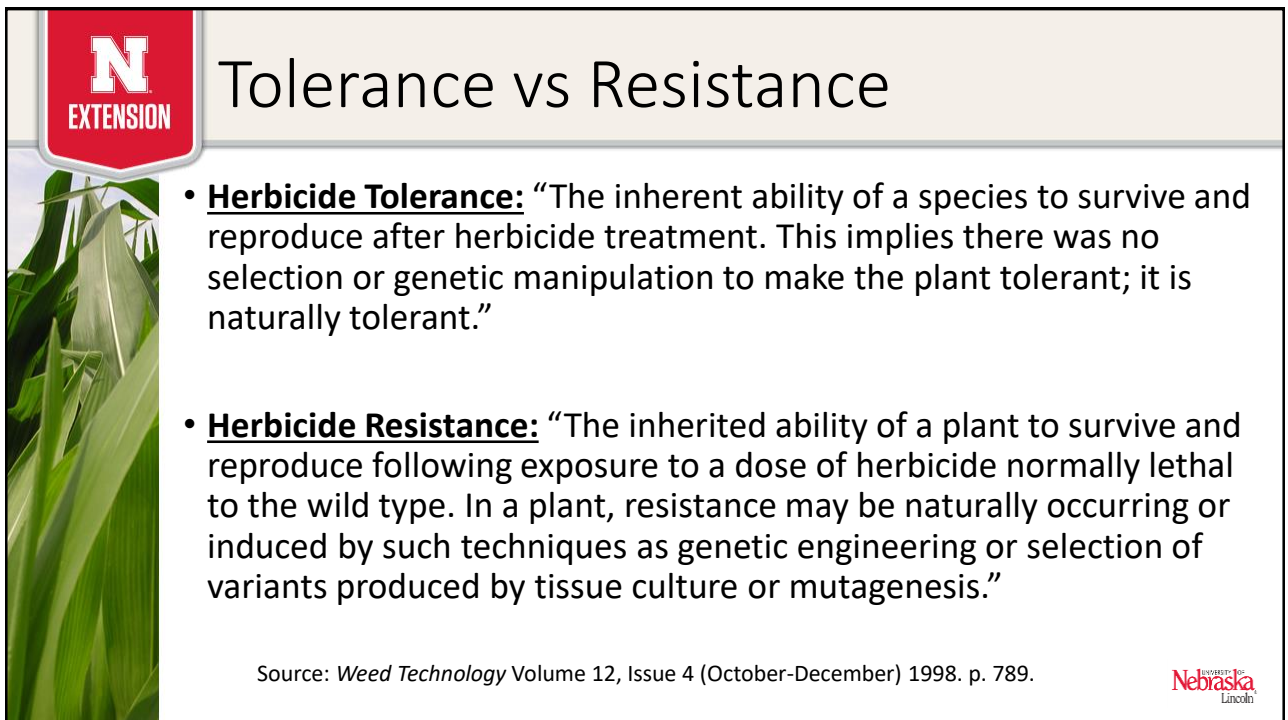
Home Weeds Calendar Map Training Links Contact Login

Nebraska Weed Control Authorities

newweed.org

Click on map or

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Tolerance vs Resistance

- **Herbicide Tolerance:** “The inherent ability of a species to survive and reproduce after herbicide treatment. This implies there was no selection or genetic manipulation to make the plant tolerant; it is naturally tolerant.”
- **Herbicide Resistance:** “The inherited ability of a plant to survive and reproduce following exposure to a dose of herbicide normally lethal to the wild type. In a plant, resistance may be naturally occurring or induced by such techniques as genetic engineering or selection of variants produced by tissue culture or mutagenesis.”

Source: *Weed Technology* Volume 12, Issue 4 (October-December) 1998. p. 789.

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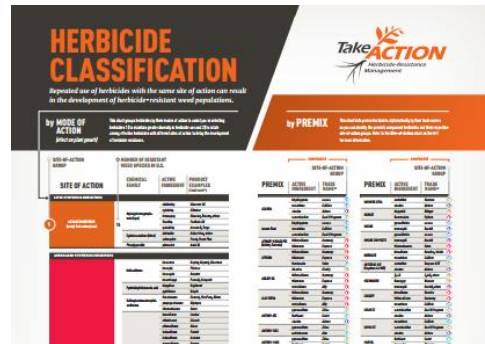
Tolerance vs. Resistance



Managing Herbicide Resistance



- Proper identification
- IPM strategies
- Herbicide management plans
- Scouting routinely
- <https://iwilltakeaction.com>





Pesticide Resistant Weeds in Nebraska



- **Common ragweed** – Glyphosate
- **Giant ragweed** – Glyphosate
- **Kochia** – Glyphosate; Glean; 2,4-D; Dicamba; Atrazine
- **Horseweed** – Glyphosate, FirstRate
- **Palmer Amaranth** – Glyphosate, Pursuit, Classic, Callisto, Laudis, Impact, Armezon, Buctril, Atrazine
- **Common Waterhemp** - Glyphosate, Pursuit, Classic, Callisto, Laudis, Impact, Armezon, Atrazine
- **Redroot pigweed** – Atrazine
- **Shattercane** – Accent, Beacon
- **Johnsongrass**—Accent/Zest, Pursuit



Using a Key Activity



Broadleaf weed seedling identification key

Vegetative broadleaf plant parts
Leaflet: Lobe, Petiole, Primary vein, Secondary vein, Tertiary vein, Vein, Axillary vein, Midrib, Epidermis, Stomach, Hypocotyl, Root

STEP 1 - Identify collection shape
STEP 2 - Are first true leaves alternate or opposite?
STEP 3 - Answer question yes or no.

Opposite leaves: One blade opposite per node or opposite sides of stem. Leaves at the same node are of similar size. Often the first true leaves are opposite but later leaves are alternate.

Alternate leaves: One leaf per node. Leaves of similar size. Leaves larger than preceding leaf.

Classification: Linear or Lanceolate (leaves nearly parallel), Oval (leaves at 90 and 180).

Flowchart:

- Large cotyledons with prominent, rounded notches?
 - Yes: Jimsonweed, Redroot pigweed, Common or Smartweed, Wild buckwheat.
 - No: Proceed to next question.
- Are the first true leaves alternate or opposite?
 - Yes: Common cocklebur, Russian thistle, Common lambsquarters, Kochia.
 - No: Proceed to next question.
- Are the first true leaves alternate or opposite?
 - Yes: Fall panicum, Wild grove millet, Woolly cupgrass.
 - No: Proceed to next question.
- Are the first true leaves alternate or opposite?
 - Yes: Fall panicum, Wild grove millet, Woolly cupgrass.
 - No: Proceed to next question.

Other weeds with opposite cotyledons and first true leaves alternate: Fall panicum, Wild grove millet, Woolly cupgrass.

Other weeds with alternate cotyledons and first true leaves opposite: Common cocklebur, Russian thistle, Common lambsquarters, Kochia.

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ID these weeds with your key!!



Weed ID Activity





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Questions?

- Check out UNL CropWatch <https://cropwatch.unl.edu/>
- Check PSEP (Pesticide Safety Education Program) for more information <https://pested.unl.edu/ipmpolicy>
- Crop Protection Network: <https://cropprotectionnetwork.org/>
- Contacts:
 - Jenny Rees (jenny.rees@unl.edu)
 - Megan Taylor (mtaylor42@unl.edu)
 - Sarah Sivits (sarah.sivits@unl.edu)

