

Weed Identification and Herbicide Injury

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Outline

- 1) Why weed identification is critical
- 2) Important plant characteristics for plant identification
- 3) Resources for weed identification



Correct Plant ID is Important!

- "Know thy enemy and know yourself; in a hundred battles, you will never be defeated."
- Can influence management options
 - Understanding lifecycle
 - Identifying effective herbicide options
 - Reducing potential for animal injury or poisoning
 - May help identify underlying field conditions



Classification - Weed Lifecycles

- Annuals-life cycle completed in 1 year or less (seed to seed)

Winter annuals, germinate in fall or winter finish in spring or summer.

Summer annuals, germinate in spring, grow through summer and mature and die by autumn.

- Biennials-plants that live more than 1 but less than 2 years. First year produces a rosette.

- Perennials-plants that live for more than 2 years. Renewed growth year to year from the same root system. Simple, creeping herbaceous, woody.

Morningglory or Field Bindweed?



Correct Plant ID is Important!

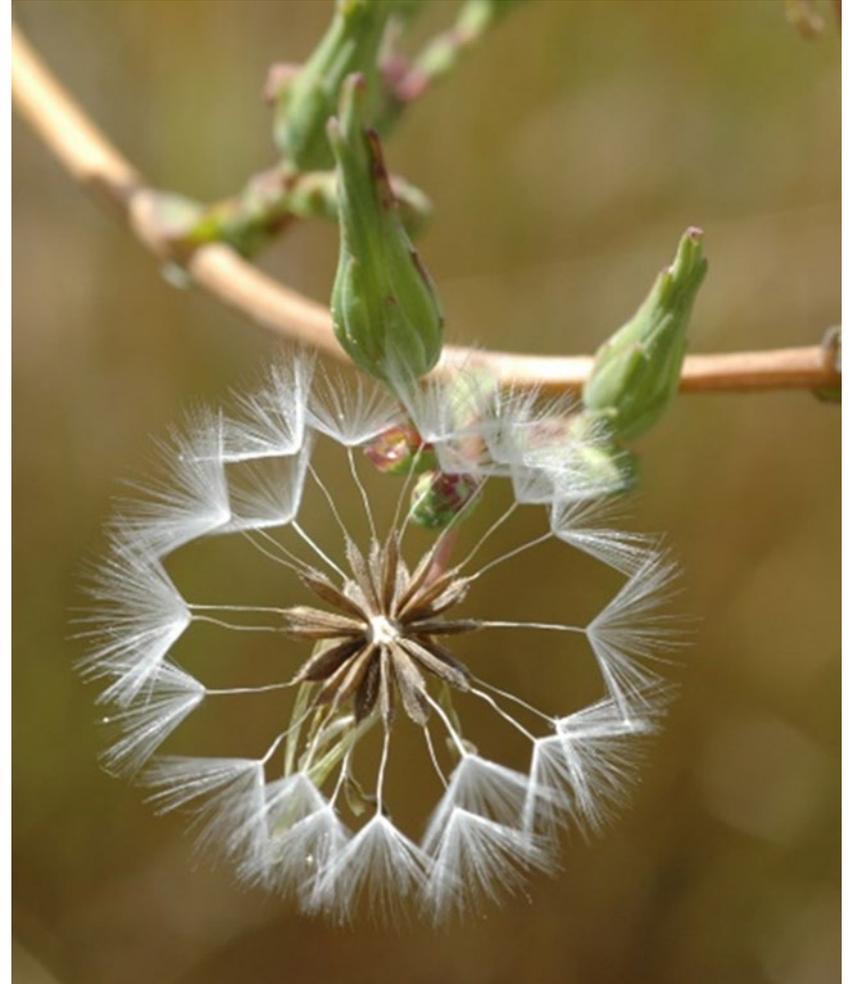
Table 7. Weeds Controlled by Residual Activity of *Chateau* Herbicide SW (continued)

BROADLEAF WEED SPECIES				CHATEAU HERBICIDE SW RATE
COMMON NAME	SCIENTIFIC NAME	ORGANIC MATTER	SOIL TYPE	
Kochia	<i>Kochia scoparia</i>	Up to 5%	All Soil Types	4 oz/A
Lambsquarters, Common	<i>Chenopodium album</i>			
Little Mallow	<i>Malva parviflora</i>			
Marestail/Horseweed	<i>Conyza canadensis</i>			
Morningglories				
Entireleaf	<i>Ipomoea hederacea</i> var. <i>integriuscula</i>			
Ivyleaf	<i>Ipomoea hederacea</i>			
Red/Scarlet	<i>Ipomoea coccinea</i>			
Smallflower	<i>Jacquemontia tamnifolia</i>			
Tall	<i>Ipomoea purpurea</i>			
Mustard, Wild	<i>Brassica kaber</i>			
Nightshades				
Black	<i>Solanum nigrum</i>			
Eastern Black	<i>Solanum ptycanthum</i>			
Hairy	<i>Solanum sarrachoides</i>			

(continued)

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Make Weed ID Personal

- Keep your friends close and your enemies closer!
- How would you describe a robber to the police?
- Would the police officer require specific descriptive terms to be used?
- What features are important in plant identification and what terms best describe those features?
- Leave no leaves unturned!



What Characteristics are Important?

Physical traits

- Leaves, stems, roots, reproductive structures, flowers, seeds, etc.
- Growth habit and size
- Hairs, spines, smell, color, sap

Lifecycle

Habitat



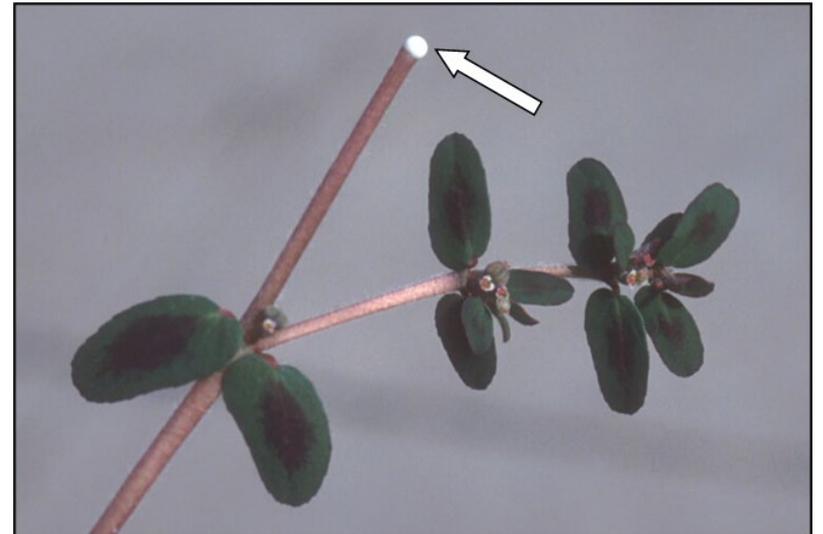
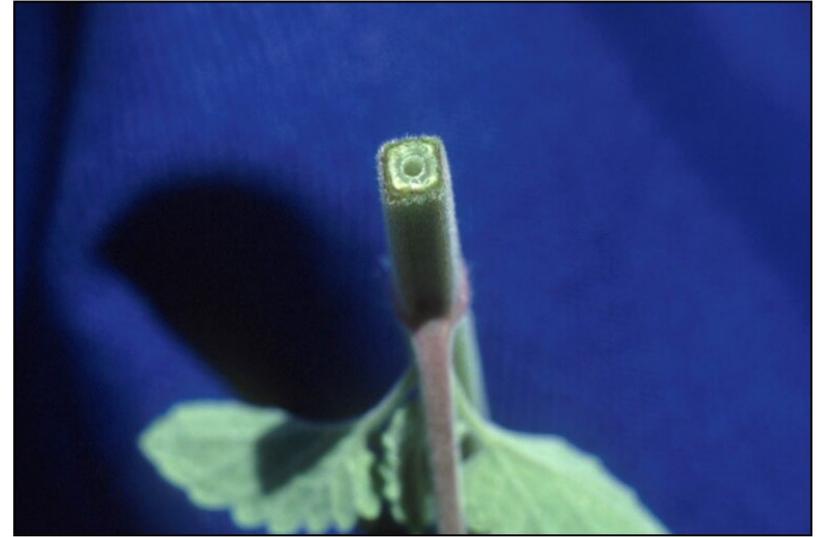
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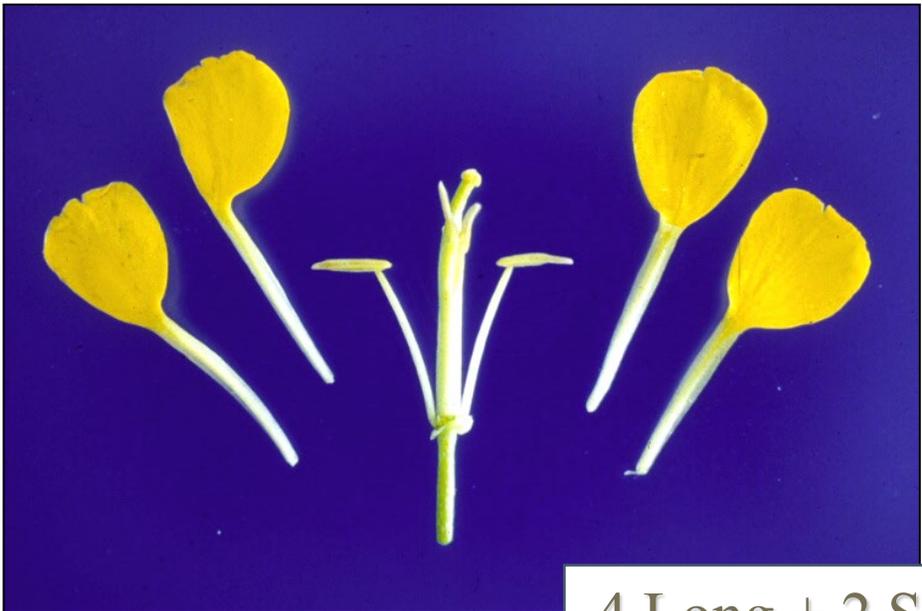
Lifecycle

Habitat

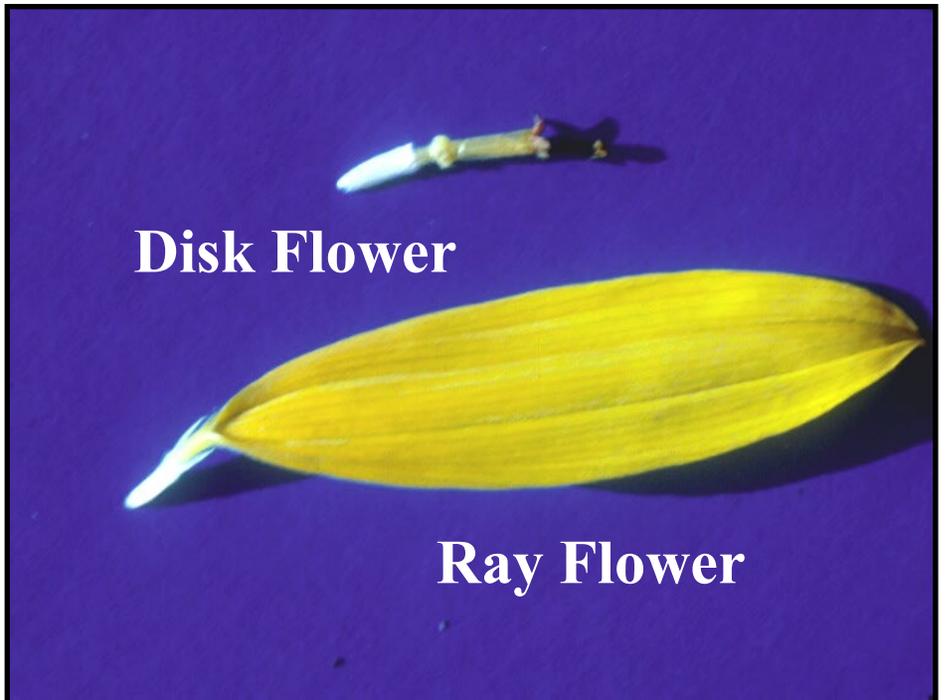
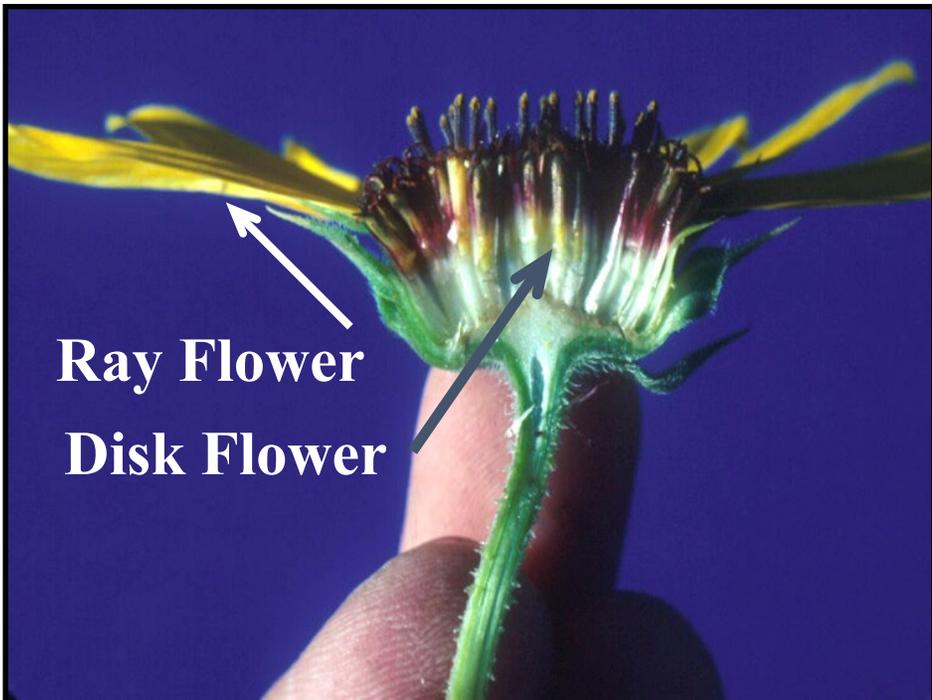
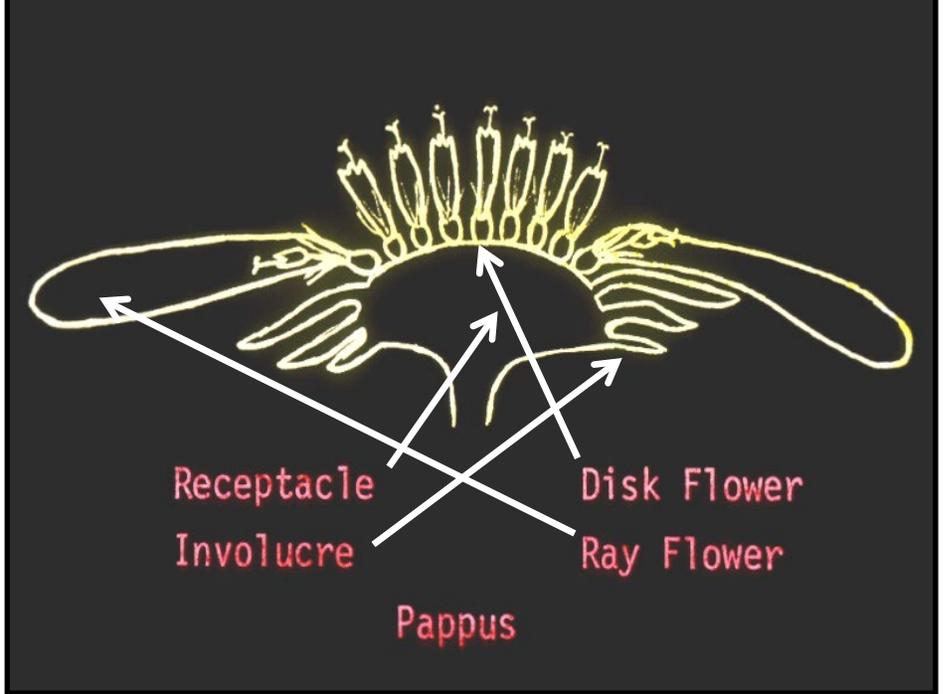




4 Petals



4 Long + 2 Short Stamens



Fruits



Leaf Shape

SHAPES



Linear



Oblong



Lanceolate



Oblanceolate



Cuneate



Spathulate



Ovate



Obovate



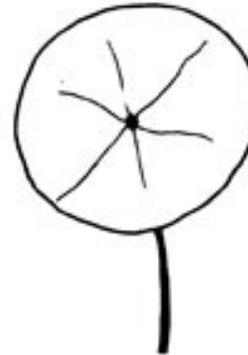
Elliptical



Rhomboid



Deltoid



Orbicular
(also Peltate)



Reniform



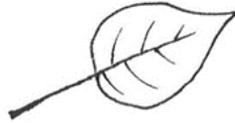
Cordate

Leaf Type and Arrangement

Leaf Types:

Simple

single leaf

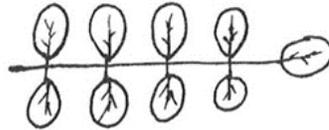


Compound 3 or more leaflets

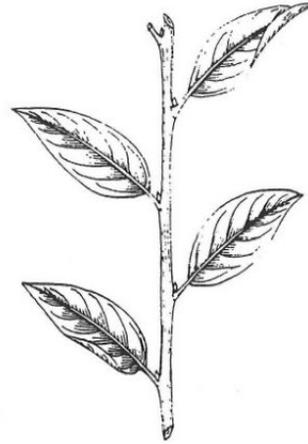
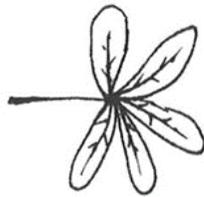
Trifoliate



Pinnate



Palmate



Alternate



Opposite



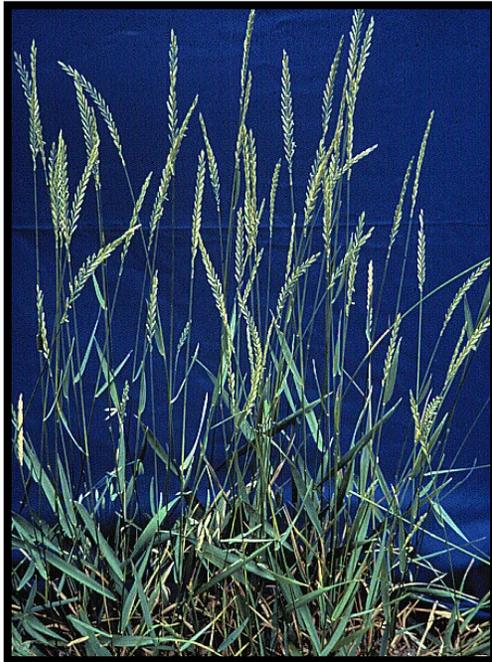
Whorled



Irregular

Quackgrass

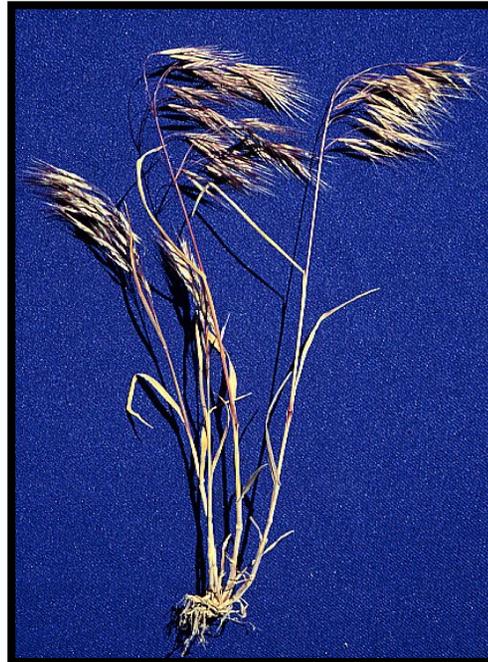
Elymus repens



Perennial grass

Downy Brome

Bromus tectorum



Winter annual grass

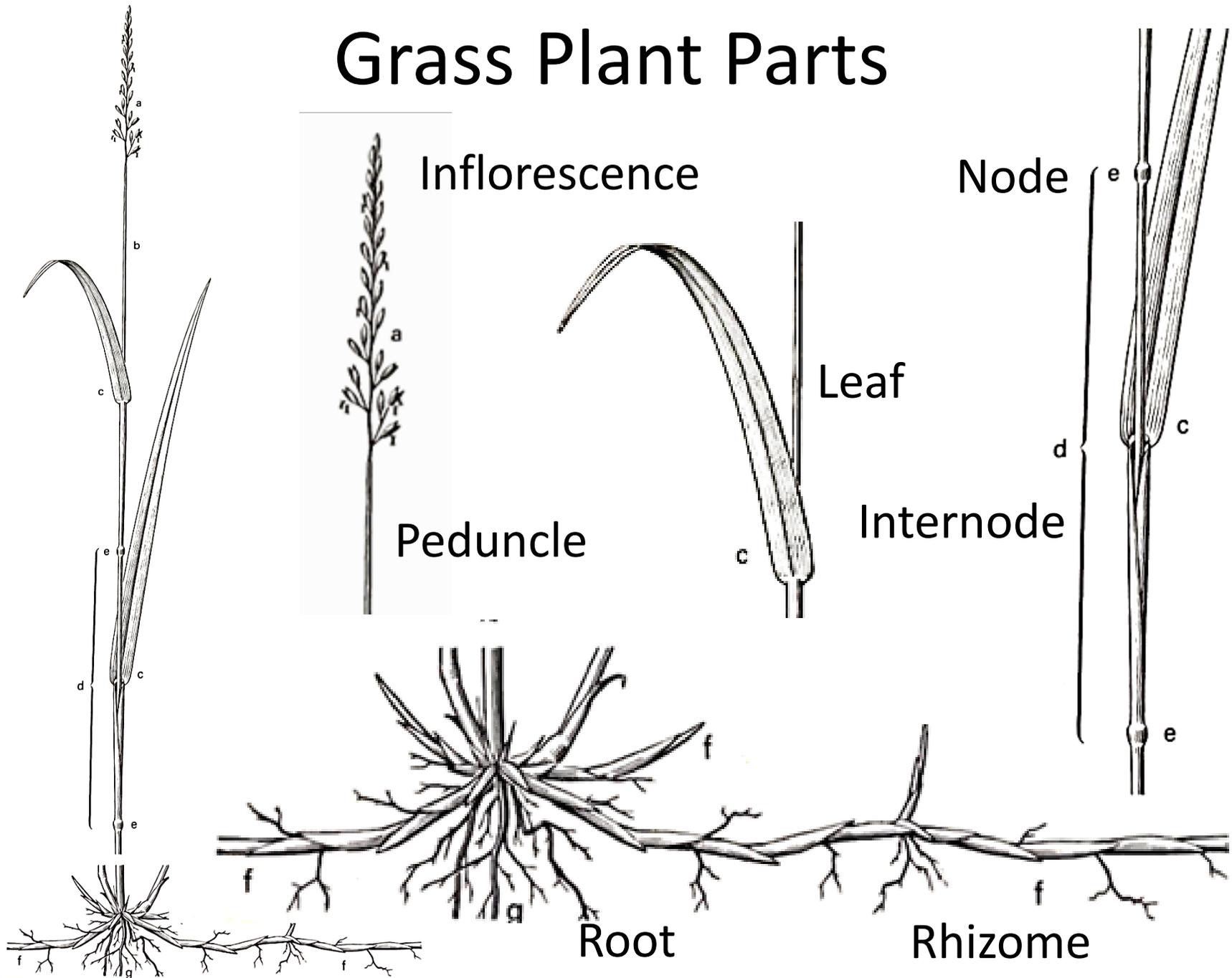
Green Foxtail

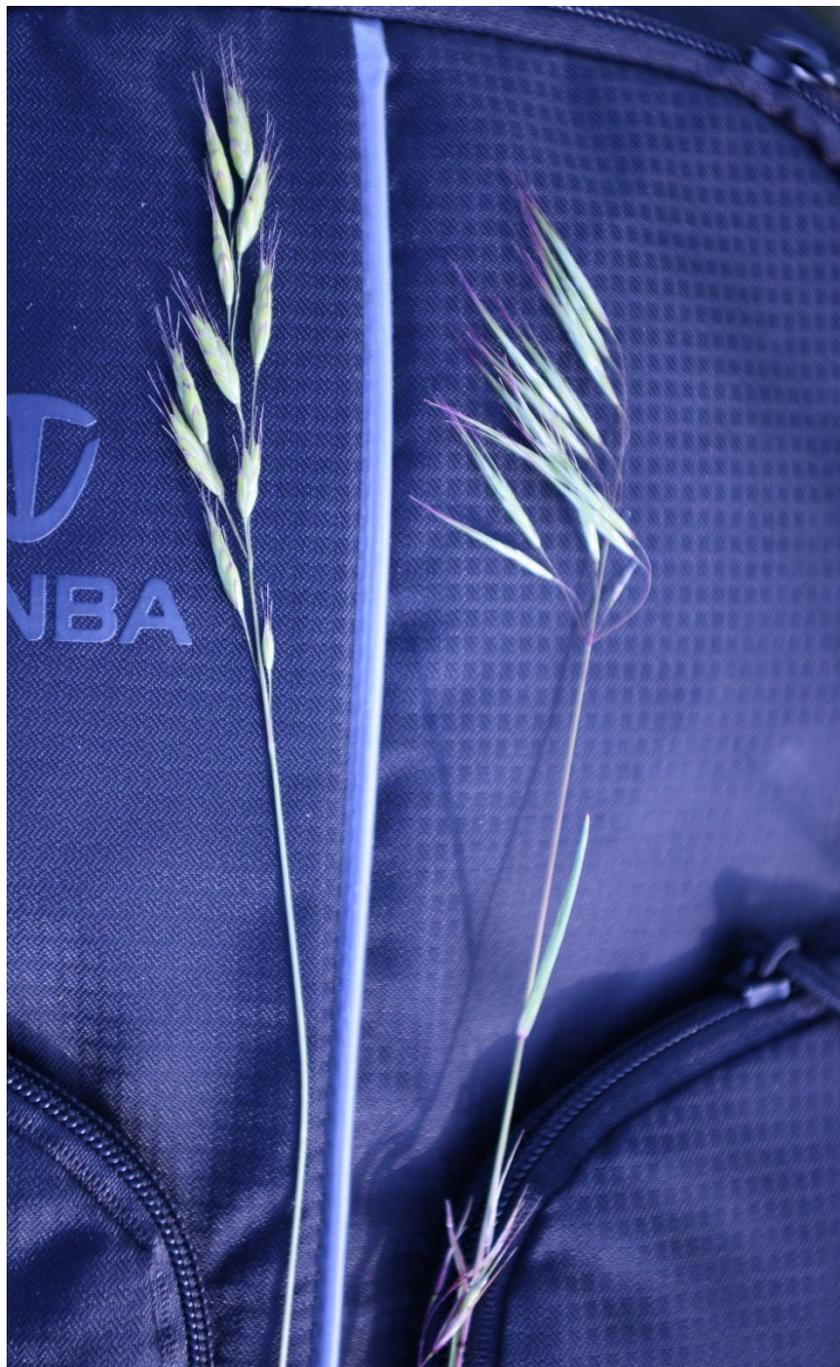
Setaria viridis



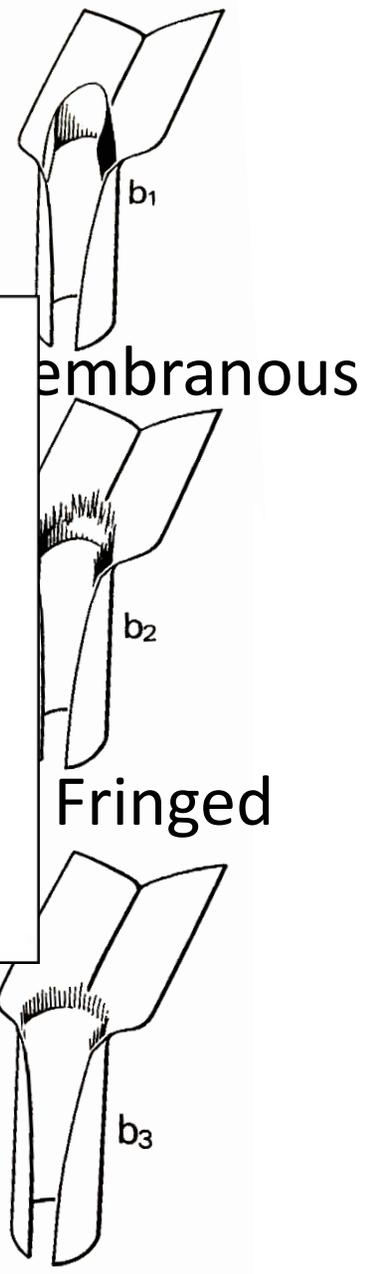
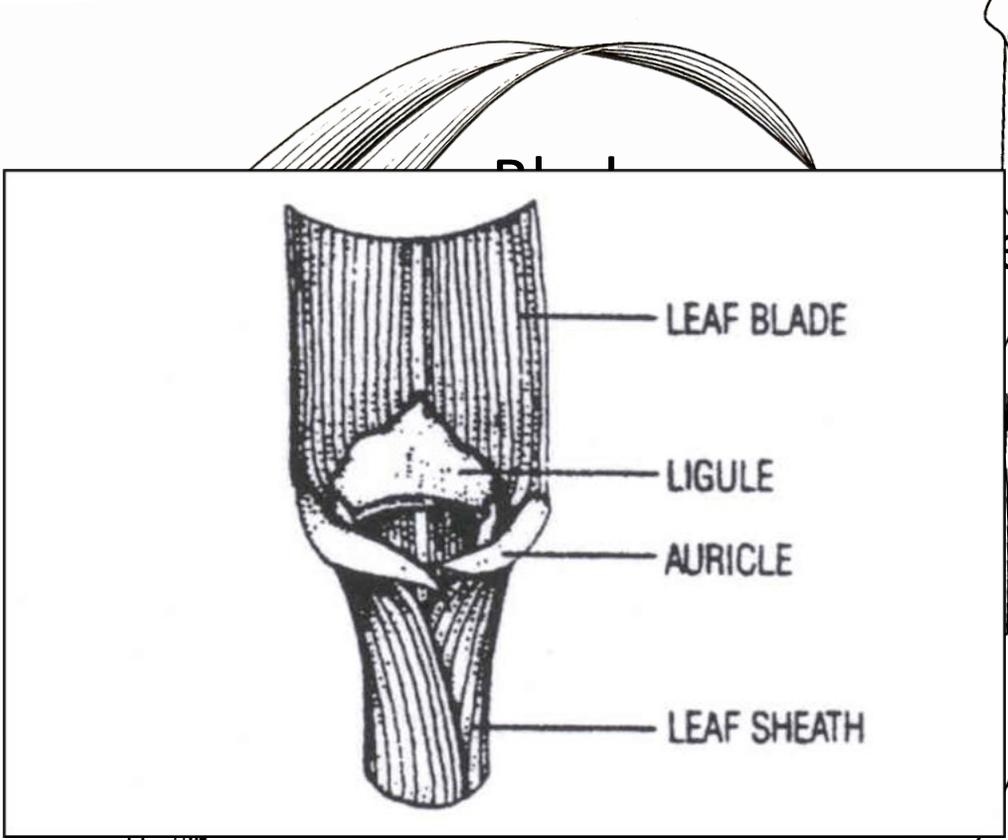
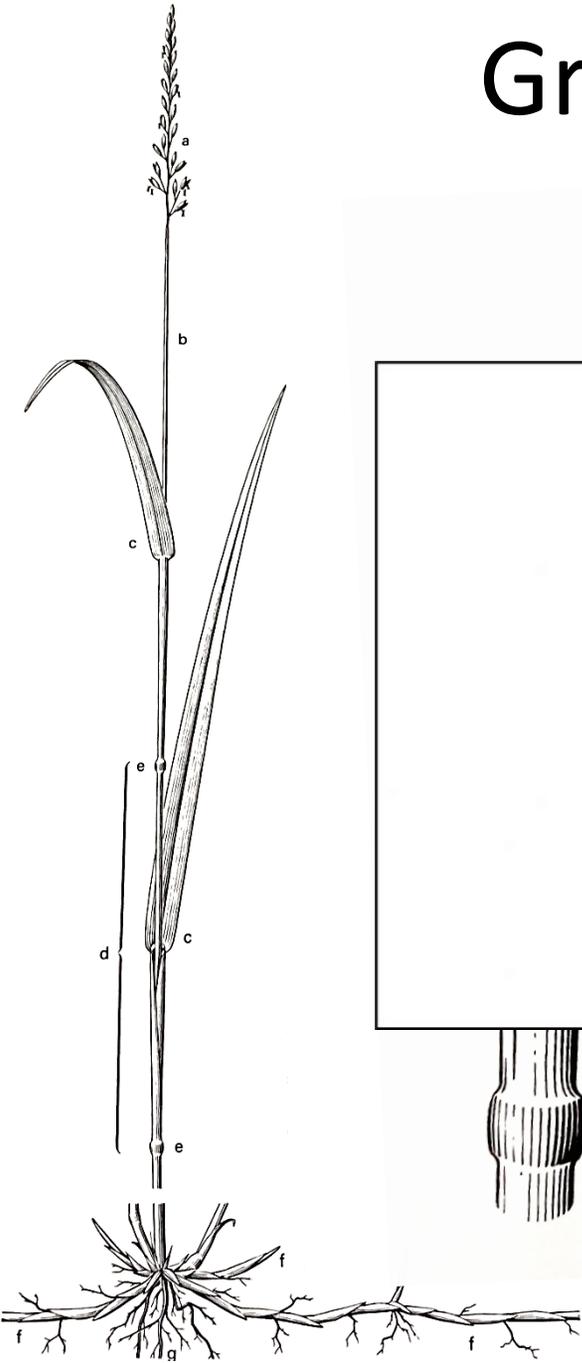
Summer annual grass

Grass Plant Parts

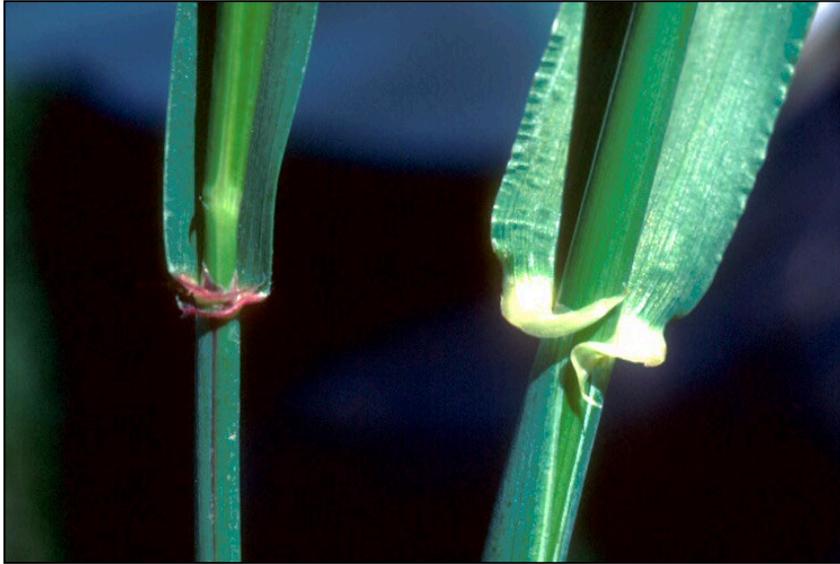




Grass Leaf Parts



Hairy



Wheat

Barley



Green Foxtail

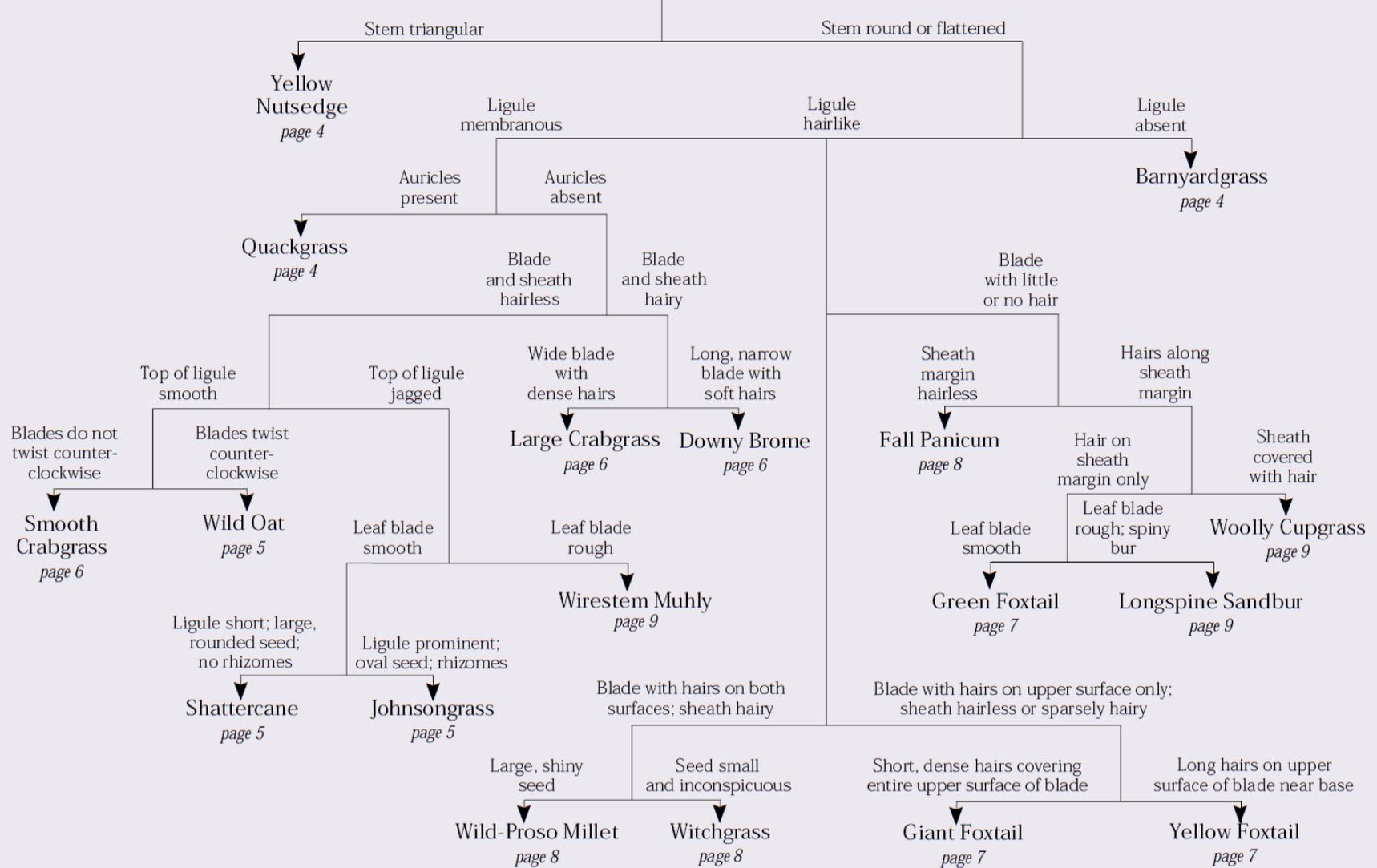


Downy Brome



Barnyardgrass

Begin Here



What About Weed Seedlings

- Obviously fewer traits to evaluate
- Focus on cotyledons and first leaves
- Looks for attached seeds
- Look for existing mature plants or remnants
- What weeds were there last year?
- See what develops from unknown seedlings

Cotyledon Leaf Shapes

SECTION 1 pages 4 to 29



linear: resembling a line; long and narrow with more or less parallel sides



lanceolate: lance-shaped; much longer than wide, with the widest point below the middle; pointed, not round at tip

SECTION 2 pages 30 to 93



oval: broadly elliptic in outline, the width over one-half the length



oblong: two to four times longer than broad with nearly parallel sides



ovate: egg shaped in outline and attached at the broad end



obovate: inversely ovate, shaped like an egg, with the attachment at the narrower end

SECTION 3 pages 94 to 111



round

SECTION 4 pages 112 to 123



heart-shaped

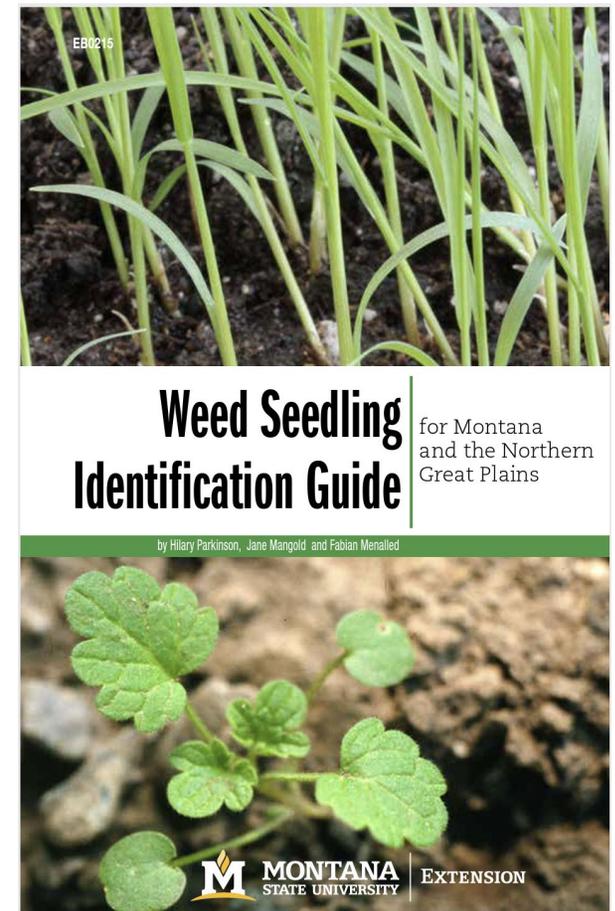
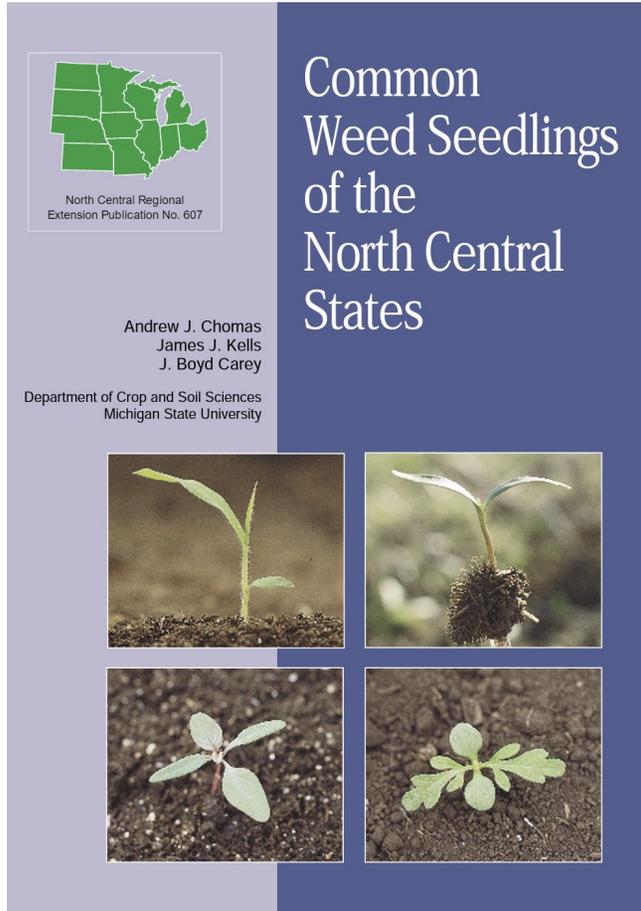
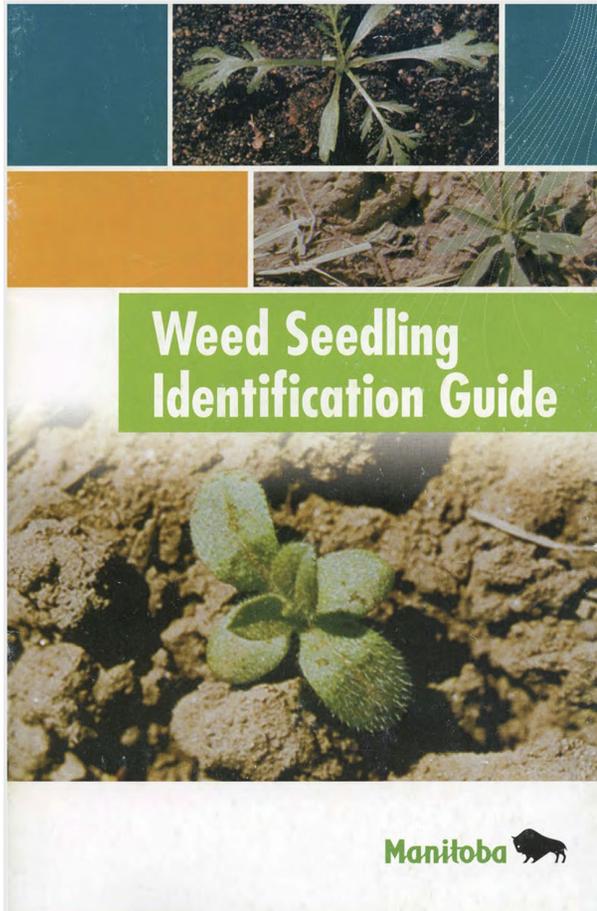


oval with narrow tip



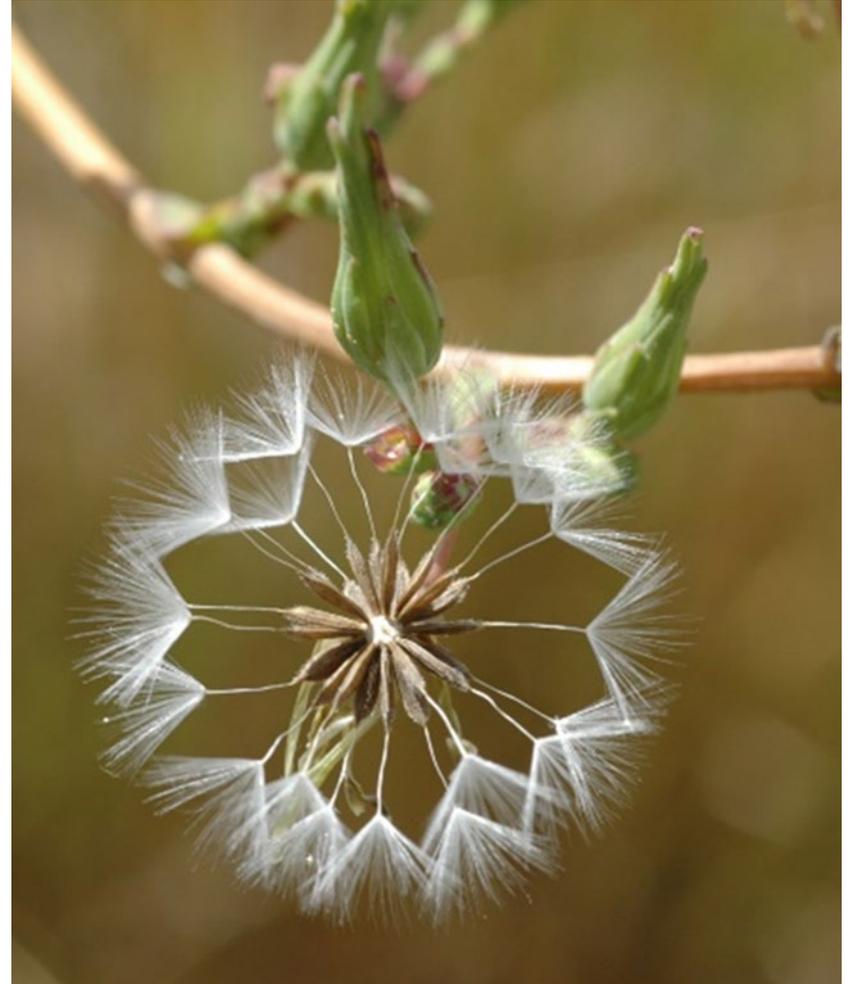
kidney-shaped

Weed Seedling Identification Guides



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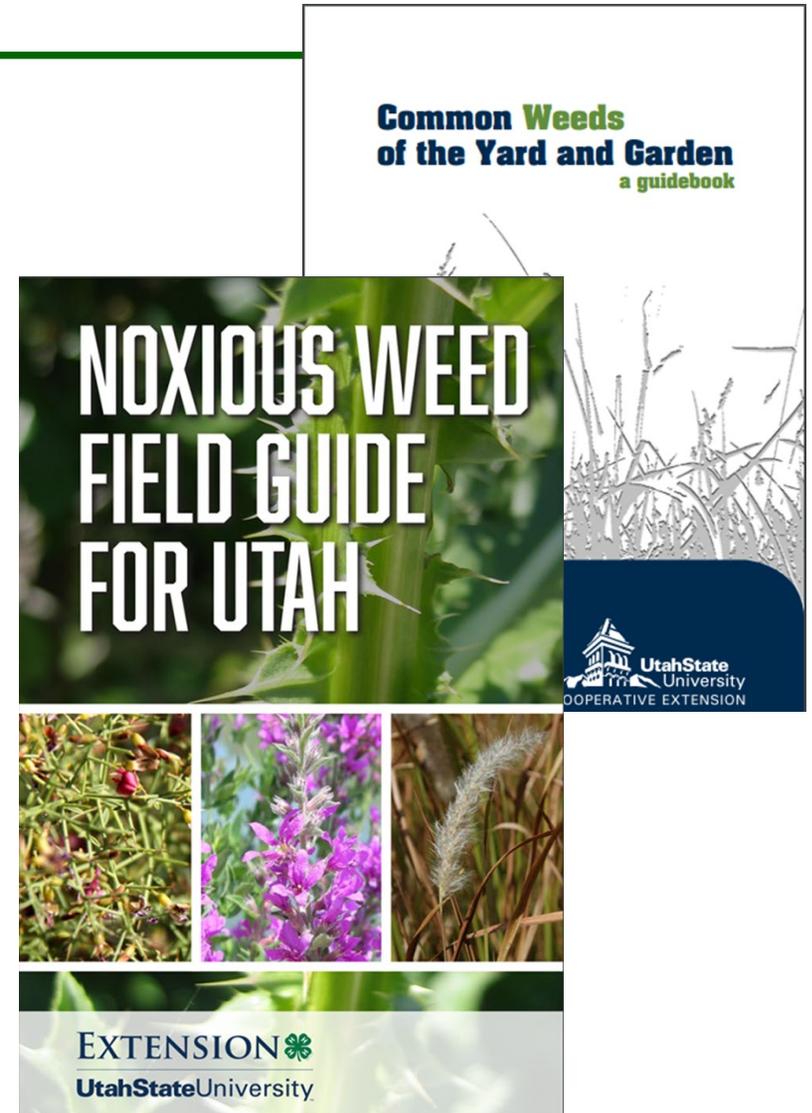


Identification Resources

- Learn botanical terminology
- Taxonomic keys
- Books
- Guides
- Internet searches
- Phone apps
- Pest diagnostics labs

County extension, county weed supervisors, specialists

Search for grass with retrorse hairs



Good pictures are Key to Plant Identification

- Overview picture
- Plant parts, root, stem, leaves, flowers, fruit, seed
- Close-up (hairs, spots, collar region of grasses)
- Phone images through hand-lens



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Weed Identification Apps

6 Most Accurate Weed-Identifying Apps

September 23, 2022 | Posted in [Crop Protection](#)

A Michigan State University study found the top 6 apps correctly identified anywhere from **11-67%** of weeds.

11-67%



PictureThis

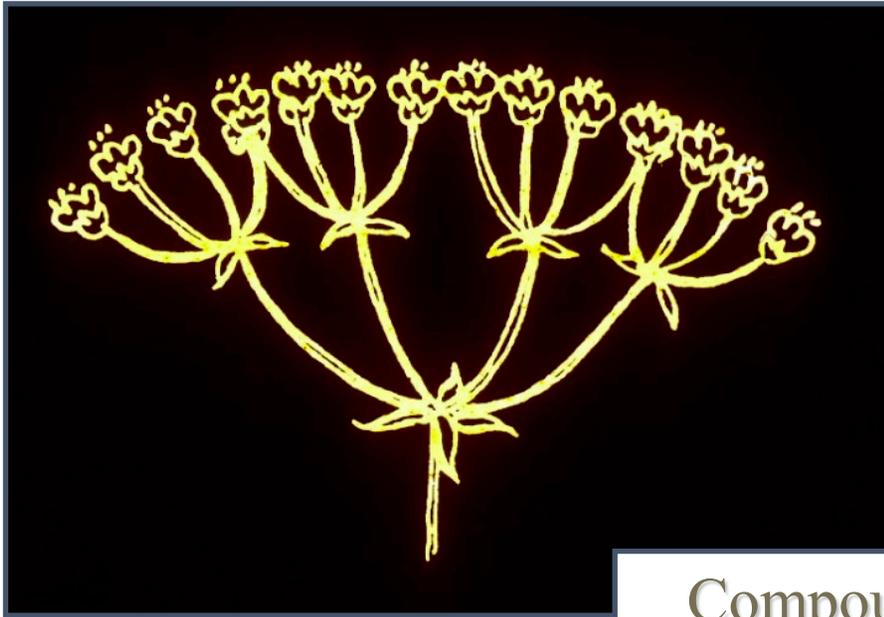


iNaturalist

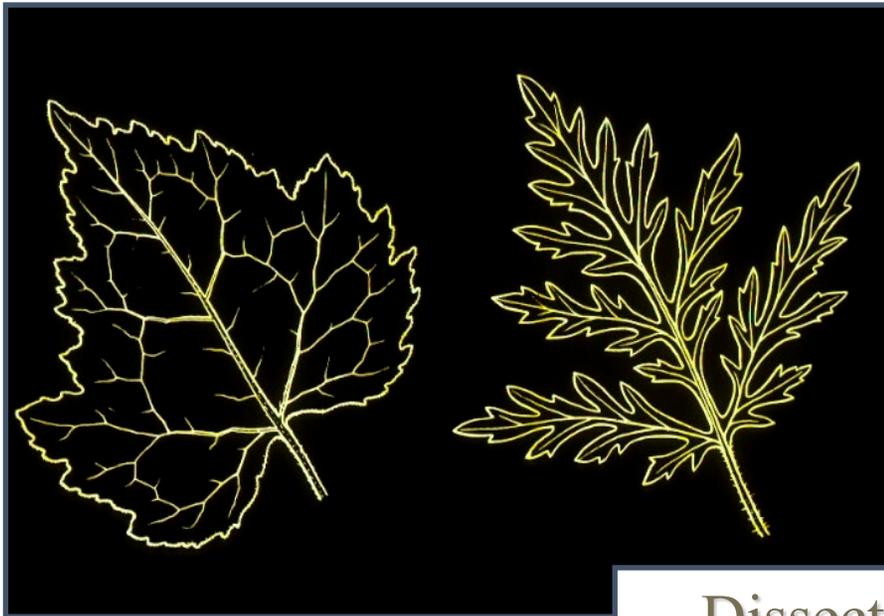
Unique Attributes?

Poison Hemlock





Compound Umbel



Dissected Leaves

Unique Attributes?

Field Bindweed



Alfalfa Herbicide Injury

Alfalfa herbicides can and do injure alfalfa



A few select examples of herbicide injury

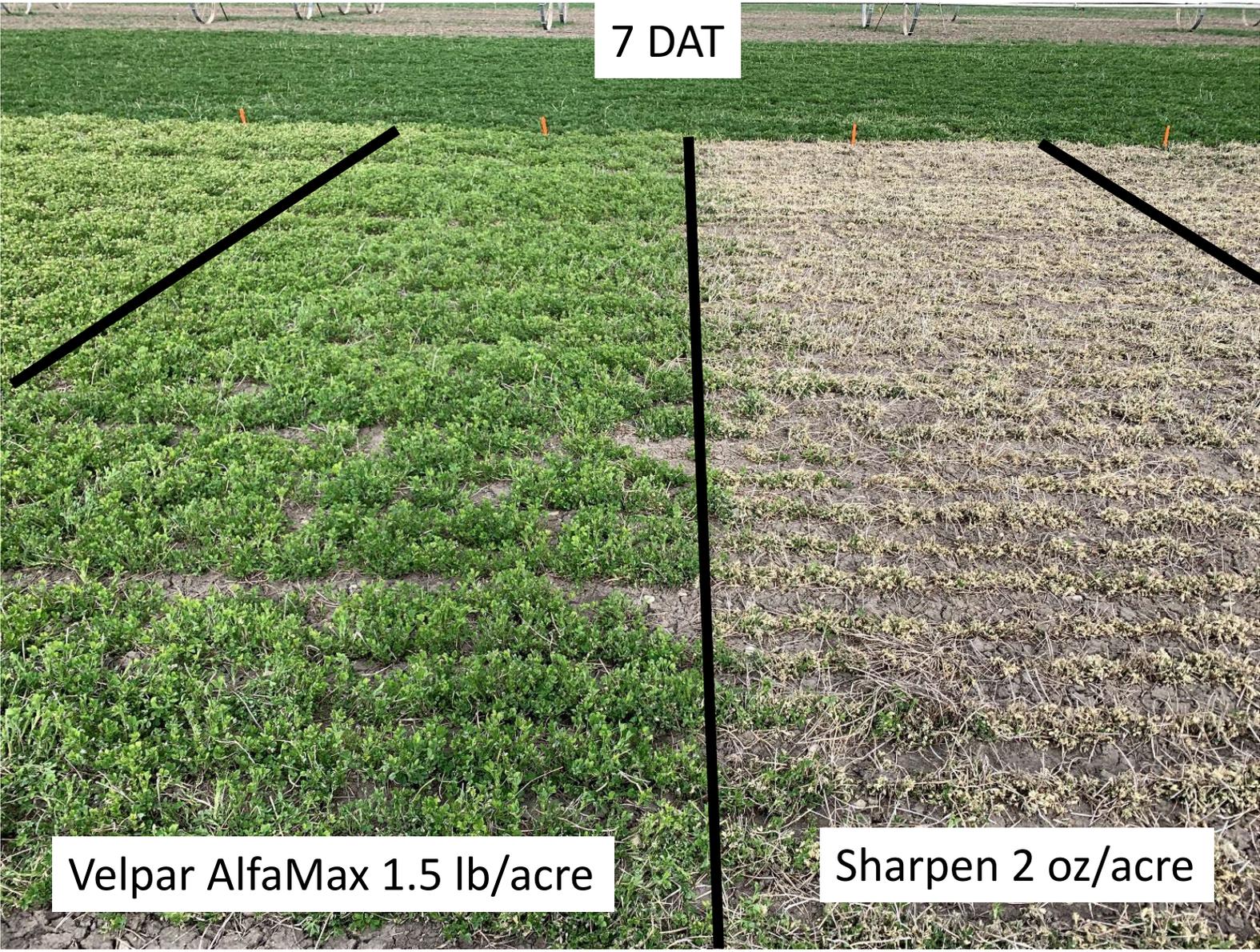
- Improper timing
 - Velpar
 - Sharpen/Aim
- Weather events
 - Butyrac – moisture
 - Glyphosate - cold

Improper Timing - Photosynthesis Inhibitors

- ❑ Hexazinone (Velpar)
- ❑ Metribuzin (formerly Sencor)



7 DAT



Velpar AlfaMax 1.5 lb/acre

Sharpen 2 oz/acre

Cell Membrane Destroyers

- ❑ Carfentrazone (Shark or Aim)
- ❑ Saflufenacil (Sharpen)







Growth Regulator

- 2,4-DB (Butyrac)



Avoid moisture within 7-10 days



Glyphosate on RR alfalfa in cold temperatures



What does glyphosate injury in RR alfalfa look like?



Earliest we have observed injury in the spring has been 10 days to 2 weeks after application. An untrained eye would have difficulty picking up these very initial symptoms.





Symptoms staggered

