

4-H Crops and Weeds Contest

When 4-H'ers become members of a team, they learn how to work with one another and to respect the differences of each individual. In addition, as they learn to identify plant and seed samples, they gain an appreciation for the importance of attention to detail and improve their decision-making skills.

Objectives

Local 4-H Crops and Weeds Contests help 4-H members develop their skills in plant and seed identification. This activity can be a vital part of the 4-H Crops Project.

The State 4-H Crops and Weeds Contest is held annually during the Kansas State Fair in Hutchinson. It consists of identification of both plants and seeds of common crops and weeds.

Resources

Plant and seed samples of most field crops and weeds are available at a nominal cost from the Department of Agronomy, Throckmorton Hall, Kansas State University Manhattan, KS 66506, 785-532-6101. Agents and leaders who are assisting 4-H members prepare for the contest may be able to use samples from high school agricultural education programs. Area agronomists also may provide more information and assistance in training a team. This publication includes a list of identification tips for the plant and seed specimens required for the contest.

Excellent resources for teaching identification of weeds are available on the internet and in publications. Some suggested web sites are:

1. USDA Plants Database, <http://plants.usda.gov/java>
2. Bugwood Image Database System (Weed Images, Invasive.org, Forestry Images), <http://images.bugwood.org>
3. Weed ID Guide, University of Missouri, <http://weedid.missouri.edu>
4. Weed Identification, Kansas State University, <http://www.agronomy.ksu.edu/extension/doc2115.ashx>

Some suggested publications are:

1. *Weeds of the Great Plains*, Nebraska Department of Agriculture, <http://www.nda.nebraska.gov/forms/nw11.pdf>
2. *Weeds of the North Central States*, University of Illinois Bulletin 772, http://www.aces.uiuc.edu/vista/html_pubs/WEEDS/list.html
3. *Weeds of the Midwestern United States and Central Canada*, University of Georgia Press, http://www.ugapress.org/index.php/books/weeds_of_midwest
4. *Interactive Encyclopedia of North American Weeds* DVD,

<http://www.thundersnow.com/weedid.htm>

5. *Weed Seeds of the Great Plains: A Handbook for Identification*, University Press of Kansas, 2502 Westbrooke Circle, Lawrence, KS 66045, <http://www.kansaspress.ku.edu/printbytitle.html>

General Rules

1. No communication is permitted among contestants or anyone else, except officials, during the contest. No cell phone use is allowed during the competition. Contestants will be paced to move from one station to the next by a contest official every 30 seconds. Only one contestant will be allowed at each station at a time. Failure to follow directions and rules will be grounds for disqualification.
2. Contestants may bring a small hand lens (with or without battery powered light) to use in both plant and seed identification.
3. A team will consist of four members from one county who are currently enrolled members of 4-H, with the top three scores used for the team score. An individual may compete for individual awards if fewer than three persons are available to form a team from a county.
4. A county may have a maximum of two competing teams, one in the junior division (age 13 and younger) and one in senior division (age 14 and older).
5. Legible writing is important, and judges will consider this factor when scoring papers.
6. Special awards are presented to the top three individuals and members of the top three teams.

Special Rules

Part 1. Plant Identification

1. This part of the contest consists of 50 pressed plant samples mounted on cardstock. Participants earn 1 point for correct identification of each specimen, for a total of 50 points.
2. An answer form with multiple choice answers will be provided, and answers will be recorded by correct letter.
3. In the case of a tie, three tie-breaker plant specimens will be identified without the aid of multiple choice.
4. The time limit for each sample is 30 seconds.
5. Samples will be taken from the provided list of crops and weeds requiring plant identification.

Part 2. Seed Identification

1. This part of the contest consists of 50 seed samples.

Participants earn 1 point for correct identification of each seed sample, for a total of 50 points.

2. An answer form with multiple choice answers will be provided, and answers will be recorded by correct letter.
3. In the case of a tie, three tie-breaker seed samples will be identified without the aid of multiple choice.
4. The time limit for each sample is 30 seconds.
5. Samples will be taken from the provided list of crops and weeds requiring seed identification.

Specimens for Identification

The following are specimens to be used in either the plant or seed portion of the contest, unless specifically listed as plant or seed only.

Field Crops (FC)

1. alfalfa
2. barley
3. bermudagrass (plant only)
4. big bluestem (plant only)
5. buffalograss (plant only)
6. canola
7. cotton
8. durum wheat (seed only)
9. eastern gamagrass
10. grain sorghum
11. hard red winter wheat (seed only)
12. hard white wheat (seed only)
13. Indiangrass (plant only)
14. Korean lespedeza
15. little bluestem (plant only)
16. oat
17. pearl millet
18. pinto fieldbean (seed only)
19. popcorn (seed only)
20. proso millet
21. red clover
22. rye
23. smooth bromegrass
24. soft red winter wheat (seed only)
25. soybean
26. sudangrass (seed only)
27. sugarbeet (seed only)
28. sumac sorgo
29. sunflower (seed only)
30. sweetclover
31. switchgrass (plant only)
32. tall fescue
33. triticale
34. white dent corn (seed only)
35. yellow dent corn (seed only)

Noxious Weeds (NW)

1. bull thistle (plant only)
2. bur ragweed (plant only)
3. Canada thistle
4. field bindweed
5. hoary cress
6. johnsongrass
7. leafy spurge (plant only)
8. musk thistle (plant only)
9. quackgrass
10. Russian knapweed (plant only)
11. sericea lespedeza (plant only)

Common Weeds (CW)

12. barnyardgrass
13. buffalobur (plant only)
14. cheat
15. common cocklebur
16. common dandelion (plant only)
17. common lambsquarters
18. common milkweed (plant only)
19. common ragweed
20. common waterhemp (plant only)
21. curly dock
22. devilsclaw (plant only)
23. dodder
24. downy brome
25. eastern black nightshade
26. fall panicum (plant only)
27. field pennycress
28. giant ragweed
29. green foxtail
30. hedge bindweed (plant only)
31. hemp (marijuana) (plant only)
32. hemp dogbane (plant only)
33. henbit (plant only)
34. honeyvine milkweed (plant only)
35. horsenettle (plant only)
36. jimsonweed
37. jointed goatgrass
38. kochia
39. large crabgrass
40. longspine sandbur (plant only)
41. morningglory
42. Palmer amaranth (plant only)
43. Pennsylvania smartweed
44. prickly lettuce (plant only)
45. prickly sida
46. prostrate knotweed (plant only)
47. prostrate spurge (plant only)
48. puncturevine

- | | |
|--------------------------------------|----------------------------------|
| 49. redroot pigweed | 56. Venice mallow |
| 50. Russian thistle | 57. western salsify (plant only) |
| 51. shattercane | 58. wild buckwheat |
| 52. smooth groundcherry (plant only) | 59. wild onion (plant only) |
| 53. tansy mustard (plant only) | 60. wild sunflower |
| 54. treacle mustard (plant only) | 61. yellow foxtail |
| 55. velvetleaf | 62. yellow nutsedge (plant only) |

SAMPLE ANSWER FORMS

OFFICIAL FORM - 4-H Plant Identification

Contestant Name or Number _____

Score _____

Write the correct choice on the corresponding line.

- __ 1. (A) wild sunflower (B) common cocklebur (C) velvetleaf (D) Venice mallow
- __ 2. (A) little bluestem (B) big bluestem (C) Indiangrass (D) switchgrass
- .
- .
- .
- __ 49. (A) green foxtail (B) yellow foxtail (C) large crabgrass (D) barnyardgrass
- __ 50. (A) alfalfa (B) red clover (C) sweetclover (D) Korean lespedeza

Tie-Breaker 1. _____

Tie-Breaker 2. _____

Tie-Breaker 3. _____

OFFICIAL FORM - 4-H Seed Identification

Contestant Name or Number _____

Score _____

Write the correct choice on the corresponding line.

- __ 1. (A) pinto fieldbean (B) soybean (C) proso millet (D) popcorn
- __ 2. (A) smooth bromegrass (B) tall fescue (C) yellow foxtail (D) barnyardgrass
- .
- .
- .
- __ 49. (A) green foxtail (B) yellow foxtail (C) large crabgrass (D) barnyardgrass
- __ 50. (A) barley (B) rye (C) triticale (D) oat

Tie-Breaker 1. _____

Tie-Breaker 2. _____

Tie-Breaker 3. _____

4-H Crops and Weeds Contest Identification List —

Hints for Identification

Field Crops (FC)

1. alfalfa

Plant

- _ Trifoliolate, pinnately compound leaves (all three leaflets do not attach at same point like clovers)
- _ Serrations on top third of leaflets
- _ Yellow, white, or purple, raceme inflorescence
- _ Curled pods are black when ripe

Seed

- _ Greenish-yellow to brown color
- _ Most seeds kidney-shaped, but many irregular and variable with some more mitt shaped

2. barley

Plant

- _ Seeds neatly aligned in six rows on the spike
- _ Stiff, straight awns

Seed

- _ Hulls with creases and ridges, ragged at the tip
- _ Pointed at the tips and fat in the middle

3. bermudagrass (plant only)

- _ Perennial with creeping stolons
- _ Digitate inflorescence with four to six spikes
- _ Spikelets on one side of rachis and densely packed

4. big bluestem (plant only)

- _ Tall, upright stems
- _ Purplish color on stems and leaves
- _ Usually three racemes emerge from one spot on each stalk; like a “turkey foot”

5. buffalograss (plant only)

- _ Wiry, prostrate stolons spread from the crown
- _ Narrow, curly, pubescent leaves
- _ Males have one-sided spike-like racemes on taller stalks
- _ Female flowers in the axils of leaves on very short stalks near base of crown

6. canola

Plant

- _ Smooth, large-lobed leaves with bluish cast
- _ Clasping petioles on leaves surrounding stem
- _ Bright yellow flowers in racemes

Seed

- _ Small, round seed reddish-brown to black color
- _ Most seeds have a longitudinal depression creating “cheeks” on one side

7. cotton

Plant

- _ Huge solitary flowers; produces boll that opens to expose fibers at maturity;

- _ Large palmately lobed leaves

Seed

- _ Black/to brown teardrop shaped
- _ Some fiber stays attached (fuzzy) unless delinted with acid

8. durum wheat (seed only)

- _ Amber color with glassy appearance
- _ Pointed germ and no brush; humped back and indented on “belly” side

9. eastern gamagrass

Plant

- _ Thick-stemmed grass with rigid leaf blades finely serrated on the edges
- _ Inflorescence is a cluster of one to three spikes like big bluestem
- _ Each spike has male flowers on top and females below; males look like a corn tassel

Seed

- _ Thick, cylindrical jointed spike sections break apart at maturity
- _ Shorter and fatter than jointed goatgrass

10. grain sorghum

Plant

- _ Compact panicle on long, fat peduncle
- _ Broad grass leaves with no hairs

Seed

- _ Very rounded; threshed free of glumes
- _ May be any color (red, orange, white, yellow, pink)

11. hard red winter wheat (seed only)

- _ Oval shape, dark brown color (may have some yellow berry if not of top quality);
- _ Rounded cheeks and shallow, tight crease

12. hard white wheat (seed only)

- _ Oval shape, creamy white color
- _ Rounded cheeks and shallow, tight crease
- _ May have some more chalky kernels if not of top quality

13. Indiangrass (plant only)

- _ Tall uprights stems similar to big bluestem
- _ Clawlike ligule on leaf
- _ Long, dense, golden brown panicle inflorescence with numerous, hairy awns

14. Korean lespedeza

Plant

- _ Glabrous, palmately trifoliolate leaves
- _ Broad, heart-shaped leaflets
- _ Large, papery stipules with no chlorophyll (tan or brown)
- _ Distinct leaflet venation (fish bone appearance)

Seed

- _ Flat, oval shape; shiny black in color
- _ Often covered with a thick, veined, brown/gray pod; one seed per pod

15. little bluestem (plant only)

- _ Slightly curved, slender inflorescences branch from upper stem nodes
- _ One raceme per peduncle
- _ Hairs on pedicel attaching sterile spikelets more prominent and fuzzy than on big bluestem

16. oat

Plant

- _ Open, branched panicle (tree-like) inflorescence
- _ Spikelets covered with large, papery, distinctly veined glumes

Seed

- _ Seed covered with straw colored hulls
- _ Smoother than barley; more uniform in width from top to base compared to barley

17. pearl millet

Plant

- _ Long, dense spike; looks like a possum tail or cattail plant when mature
- _ Dense with off-white to gray seeds when mature
- _ Immature spike has a feathery appearance

Seed

- _ Dull, gray color
- _ Teardrop shaped; may be slightly shriveled
- _ More pointed germ end than white grain sorghum seeds or other millets

18. pinto fieldbean (seed only)

- _ Tan color, marbled with brown speckles
- _ Medium to large, oblong kidney shape

19. popcorn (seed only)

- _ Very hard texture
- _ Rounded or pointed on top, with no dent

20. proso millet

Plant

- _ Large open panicle
- _ Three papery glumes with distinct veins

Seed

- _ Glossy, shiny lemmas cover the seed
- _ White, yellow, orange, red, green, or gray
- _ Larger than foxtail millet; elliptical shape

21. red clover

Plant

- _ Pubescent (hairy) stems and petioles
- _ Pubescent, palmately trifoliolate leaves
- _ White variegation on leaflets
- _ Large stipule with prominent, purple veins

- _ Rounded head generally with no peduncle, thus sits directly on top of leaf and stipule

Seed

- _ Yellow to purple color, usually bicolored with dark base fading to light at top
- _ Mitt-shaped; thumb a fourth as long as mitt
- _ Slightly angled crease between the thumb and mitt

22. rye

Plant

- _ Neatly organized spike with narrow, pointed glumes
- _ Sawtooth edge on lemmas

Seed

- _ Light to dark brown to grayish color
- _ Pointed germ end and no brush compared to wheat

23. smooth bromegrass

Plant

- _ Open, erect panicle inflorescence
- _ Large, papery glumes overlapping like shingles
- _ Several florets per spikelet with no awns

Seed

- _ Brown to straw colored
- _ Large and flat with distinct veins on the lemma
- _ Ragged, blunt tip

24. soft red winter wheat (seed only)

- _ Uniform yellow-brown in color (yellowberry)
- _ Rounded cheeks with deep, open crease

25. soybean

Plant

- _ Trifoliolate leaves covered with hairs
- _ Very small flowers; short very fuzzy pod with three seeds
- _ Leaves and stems very hairy; no stipules

Seed

- _ Yellow ball with shallow, patch-like hilum

26. sudangrass (seed only)

- _ Covered with hard, shiny glumes; may be various colors
- _ Pedicels do not have knobs like johnsongrass
- _ Thinner than shattercane, thicker than johnsongrass

27. sugarbeet (seed only)

- _ Dark tan to brown with very irregular shape
- _ Seeds enclosed in rough, hard, cork-like capsule
- _ May be multi-germ or mono-germ (mono-germ a third as large)

28. sumac sorgho

Plant

- _ Sorghum relative
- _ Compact, dense panicle with maroon color

Seed

- _ Round seed threshes free like grain sorghum, but only half the size
- _ Dark maroon color

29. sunflower (seed only)

- _ Seed (the part you eat) enclosed in a hard outer hull (the part you don't eat)
- _ Black hull (oilseed types) or white and gray striped hull (confectionary types)

30. sweetclover

Plant

- _ Trifoliolate, pinnately compound leaves (leaflets do not all attach at same point like other clovers)
- _ Serrations all the way around the oval leaflets (vs. alfalfa, which are only on the outer half)
- _ Very long, yellow or white raceme inflorescence
- _ Brown to black, one-seeded pods

Seed

- _ Yellow to brown color; each seed single color vs. red clover
- _ Mitt shape, thumb not as rounded as red clover
- _ Crease in seed parallel to thumb
- _ Seed smells sweet

31. switchgrass (plant only)

- _ Large, open panicle (tree-like) inflorescence
- _ One floret per spikelet
- _ Glumes slightly separated at the tip of the spikelet, giving a V-like appearance

32. tall fescue

Plant

- _ Bunch grass with open, nodding panicle
- _ Upper surface of leaf blades are heavily ribbed
- _ Small glumes; not awned
- _ Several florets per spikelet

Seed

- _ Dark straw color
- _ ¼ inch long and enclosed in the lemma and palea
- _ Slender, round, knobbed rachilla (golf tee appearance)

33. triticale

Plant

- _ Cross between wheat and rye
- _ Head similar to wheat but more symmetrical; awns not twisted like in wheat
- _ Broad glumes cover lemma versus thin-pointed glumes on rye

Seed

- _ Color similar to winter wheat
- _ More pointed germ than wheat with more distinct brush
- _ May be slightly wrinkled compared to wheat

34. white dent corn (seed only)

- _ White seed with distinct dent on top

35. yellow dent corn (seed only)

- _ Yellow seed with distinct dent on top

Noxious Weeds (NW)

1. bull thistle (plant only)

- _ Biennial
- _ Lobed leaves with pointed tip, toothed margins tipped with very sharp spines
- _ Hairy leaves compared to musk thistle; green, topside and gray-green hairy (villous) underside
- _ Solitary (single) head, much larger than Canada thistle with pinkish-purple flowers
- _ Spines generally longer and sharper than on Canada thistle

2. bur ragweed (plant only)

- _ Perennial that regrows from lateral roots
- _ Deeply lobed, fern-like leaves
- _ Similar to common ragweed but distinctly gray to silver on both sides

3. Canada thistle

Plant

- _ Perennial that regrows from lateral roots
- _ Irregularly lobed, dark green, crimped leaves with white undersides; slightly hairy on surface
- _ Spines on the leaf margin, mid-rib and the stem; spines not as long as on bull thistle
- _ Corymb-like clusters of small flower heads with pink to purple petals (rarely white)

Seed

- _ Light to dark brown color
- _ Oblong, curved, and smooth
- _ Smaller than bull or musk thistle

4. field bindweed

Plant

- _ Perennial that regrows from deep, lateral roots
- _ Vine-like growth habit
- _ Spade-shaped leaves that are parallel on sides
- _ Trumpet-shaped white to pink flowers; flowers smaller than hedge bindweed
- _ Bracts on the flower stalk about halfway down to the stem

Seed

- _ Dull, grayish-brown color with rough surface
- _ Three angled with rounded corners (tall morningglory and wild buckwheat have more angular corners)

5. hoary cress

Plant

- _ Perennial with rhizomes
- _ Erect stems with very fine hairs best seen near the base
- _ Bottom leaves are spatulate; top leaves are broad with clasping bases
- _ White flowers in flat-topped clusters
- _ Seed pods rounded with projecting stigma

Seed

- _ Reddish-brown color
- _ Slightly flattened and egg-shaped
- _ Small crease upward from the small end

6. johnsongrass

Plant

- _ Perennial with rhizomes
- _ Large, purplish, hairy, open panicle
- _ Thinner stem and panicle branches than sudangrass

Seed

- _ Reddish-brown to black in color (although some tan, immature seeds may be present)
- _ Two-knobbed pedicels equal in length
- _ Smaller and thinner than sudangrass

7. leafy spurge (plant only)

- _ Perennial with rhizomes
- _ Slender, oblong leaves with a distinct midrib
- _ Lower leaves in whorls
- _ Broad leaves at the base of the flower
- _ Yellow flowers in an umbel

8. musk thistle (plant only)

- _ Biennial, grows as a rosette first year, flowers second year
- _ Spiny leaves without hairs
- _ Spines not as long and sharp as bull thistle
- _ Dark green with white halo around the outer edge

Seed

- _ Larger than Canada thistle
- _ More distinct lines than bull thistle

9. quackgrass

Plant

- _ Perennial with rhizomes
- _ Alternate spikelets with broad sides lay flat against the rachis, but pushed to the side
- _ Spikelets attach flat to the rachis
- _ Clasping auricles

Seed

- _ sucker mouth on rachilla
- _ Teeth on edges of the palea
- _ Slight gap between edge of the palea and lemma

10. Russian knapweed (plant only)

- _ Perennial with rhizomes
- _ Very branched stems
- _ Leaves broadly lanceolate with whitish underside
- _ Pink to purple flowers
- _ Small cup shaped head with scaly bracts

11. sericea lespedeza (plant only)

- _ Perennial that regrows from a crown
- _ Stiff, woody stem with densely packed trifoliolate leaves with grayish color
- _ Leaflets narrower at the base than the tip

- _ Stems straight and long; generally unbranched until near top
- _ Small, bluish white flowers in the axils of each leaf

Common Weeds (CW)

12. barnyardgrass

Plant

- _ Annual grass
- _ Smooth, broad leaves
- _ No ligule
- _ Dense, somewhat hairy panicle inflorescence

Seed

- _ Yellowish-gray color
- _ Hullless seed is glossy on convex side (compared to washboard of yellow foxtail)
- _ Flat on one side, convex on the other
- _ Short awn with spiny hairs on sterile lemma and palea

13. buffalobur (plant only)

- _ Annual broadleaf
- _ Prickly stem with spines
- _ Deeply lobed leaves, often with spines
- _ Yellow flower
- _ Spines on seed pod

14. cheat

Plant

- _ Annual grass
- _ Heavy drooping panicle with five to 15 florets per spikelet

Seed

- _ Deep groove on palea side, lemma rolled giving canoe appearance
- _ Coarse teeth on margin of palea
- _ Awned, but shorter than on downy brome
- _ Rachilla curved with a bulged top

15. common cocklebur

Plant

- _ Annual broadleaf
- _ Rough stem with black spots
- _ Rough, sandpapery leaves with a long petiole
- _ Toothed leaf margins
- _ Small flowers in compact composite head in upper leaf axils
- _ Flower bud first appears without spines

Seed

- _ Found in spiny bur
- _ Burs oblong with hooked spines radiating perpendicularly along its entire length
- _ Two unevenly sized seeds per bur

16. common dandelion (plant only)

- _ Perennial
- _ Leaves in a basal rosette

- _ Deeply lobed leaves with smaller teeth on margins; lobes point back toward base
- _ Yellow ray flowers in a head borne on a long, leafless stalk

17. **common lambsquarters**

Plant

- _ Annual broadleaf
- _ Upright, grooved stems, often striped
- _ Leaves grayish-white on underside; Christmas tree shape
- _ Green or purple flowers on narrow panicles

Seed

- _ Often contained in a papery, gray hull
- _ Hulled seed is dull or shiny black, lens-shaped, with a slight notch on one side
- _ Not quite as uniformly ovate or as shiny as redroot pigweed

18. **common milkweed (plant only)**

- _ Perennial that regrows from lateral roots
- _ Large, smooth, oval shaped, opposite leaves
- _ Thick stems contain milky juice
- _ 3- to 4-inch fat seed pods with projections on surface
- _ Large pear-shaped, pointed, dry follicle fruit opens on one side to expose seeds with large fluffy pappus

19. **common ragweed**

Plant

- _ Annual broadleaf
- _ Upright, branched stem
- _ Deeply lobed, finely divided leaves
- _ Yellow male flowers in terminal raceme of small drooping heads at top of the plant
- _ Female flowers in the leaf axis

Seed

- _ Gray, "woody" color
- _ Crown shape, but less pronounced than giant ragweed
- _ Smaller than giant ragweed

20. **common waterhemp (plant only)**

- _ Annual broadleaf, type of pigweed
- _ Smooth stems and leaves
- _ Leaves narrower than redroot pigweed or Palmer amaranth

21. **curly dock**

Plant

- _ Perennial broadleaf, regrows from crown on large taproot
- _ Leaves in a rosette; broad, lance-shaped, crinkled edges
- _ Prominent white sheath (ocrea) surrounds stem at the nodes
- _ Spear-like leaves in the inflorescence
- _ Papery seedhead with winged pods in dense clusters; turns dark brown at maturity

Seed

- _ Shiny, reddish-brown color when hulled
- _ Triangular shape with sharp corners

22. **devilsclaw (plant only)**

- _ Annual broadleaf
- _ Very hairy, thick, large opposite leaves
- _ Large 5- to 6-inch-long seed pods borne in pairs
- _ Pods fat at the base and narrowing to a distinct hook with a sharp point at the end

23. **dodder**

Plant

- _ Annual parasite, anchors itself onto stems of other plants
- _ Vine-like growth habit
- _ No leaves or chlorophyll
- _ White flowers borne in knobby clusters

Seed

- _ Yellow to brown color
- _ Rough coat and dull appearance
- _ Generally rounded, but irregular in size and shape

24. **downy brome**

Plant

- _ Annual grass
- _ Pubescent stems
- _ Soft, drooping panicle

Seed

- _ Red, brown, or straw color
- _ Long, slender, and flattened; more pointed tip than smooth brome grass or cheat
- _ Long awns and pubescent lemma

25. **eastern black nightshade**

Plant

- _ Annual broadleaf
- _ Erect, widely branched stems
- _ Shiny, smooth green leaves; often purple on underside
- _ Tiny, "tinker-bell," white flowers
- _ Flower branches attached at leafless node
- _ Round, black, toxic berries at maturity

Seed

- _ Yellow to dark brown color
- _ Small, flat seed with dull surface
- _ Shape of a pepper seed but very much smaller

26. **fall panicum (plant only)**

- _ Annual grass
- _ Large, branched, open panicle with single seeded spikelets
- _ Spikelets smaller than switchgrass

27. **field pennycress**

Plant

- _ Annual or winter annual broadleaf
- _ Oblong, somewhat notched leaves with no hairs
- _ White flowers in long racemes
- _ Papery, winged pods with a notch in the top
- _ Leaves and stems "smooth like a penny" (versus peach-fuzz hairs on hoary cress)

Seed

- _ Dark, flat, reddish-brown color
- _ Teardrop-shaped
- _ Has eccentric spiny ridges that resemble a “thumbprint”

28. **giant ragweed**

Plant

- _ Annual broadleaf
- _ Upright, pubescent stem
- _ Leaves usually three-lobed, except near the top of the plant where they may not be lobed
- _ Leaves are opposite and serrated
- _ Yellow male flowers in terminal raceme of drooping heads at the top of the plant
- _ Female flowers in the leaf axils below the males

Seed

- _ Gray, “woody” color
- _ Large, crown shape
- _ High central protrusion in the crown

29. **green foxtail**

Plant

- _ Annual grass
- _ Leaves without hairs on upper blade surface
- _ Dense, cylindrical panicle with one to three bristles per spikelet
- _ Seeds smaller and arranged randomly within head compared to yellow foxtail

Seed

- _ Yellowish brown to olive green color
- _ Dull appearance
- _ Glume on convex side covers most of the seed
- _ Narrower and smaller than yellow foxtail

30. **hedge bindweed (plant only)**

- _ Perennial from deep lateral roots
- _ Vine-like growth habit
- _ Five-pointed arrowhead leaves with squared bottom lobes
- _ Large, white, trumpet-shaped flower
- _ Larger flowers than field bindweed
- _ No bracts on flower stalk like field bindweed
- _ Two large sepal-like bracts cover base of flower (cover the bud before petals show)

31. **hemp (marijuana) (plant only)**

- _ Annual broadleaf
- _ Distinct palmately compound leaves with seven to nine serrated leaflets
- _ Leaflets dark green on top and gray on bottom
- _ Separate male and female flowers

32. **hemp dogbane (plant only)**

- _ Perennial that regrows from rootstocks
- _ Smooth, oval shaped leaves attached opposite on stiff, thin branches

- _ Upper stems often highly branched
- _ Thin, round seed pods borne in pairs; 2 to 3 inches long

33. **henbit (plant only)**

- _ Annual broadleaf
- _ Slender, smooth, square stems
- _ Opposite, hairy leaves with rounded teeth
- _ Leaves generally sessile, except at base of stem where they may be petioled
- _ Pinkish to purple flowers in whorls in the axis of upper leaves

34. **honeyvine milkweed (plant only)**

- _ Perennial that regrows from deep rootstocks
- _ Vining stem with opposite, heart shaped leaves with distinct white veins
- _ Flower clusters borne at the nodes
- _ 3- to 4-inch, fat, follicle seed pods open on one side to expose seeds with large fluffy pappus
- _ Pods smoother than common milkweed

35. **horsenettle (plant only)**

- _ Perennial that regrows from lateral roots
- _ Stem covered with yellow spines
- _ Large, wavy lobed leaf with spines on underside along midrib
- _ Lavender flowers with large yellow stamens
- _ Yellow/orange berries look like small tomatoes

36. **jimsonweed**

Plant

- _ Annual broadleaf
- _ Sturdy, erect stems
- _ Large, flat, lobed, glabrous leaves
- _ Large, trumpet-shaped flower
- _ Huge, pointed calyx tube covers flower bud until petals show
- _ Spiny seed pods look like giant cocklebur

Seed

- _ Brown to dull black color with pitted surface
- _ Gentle, smooth edges on top of wrinkles versus buffalobur
- _ Distinct hilum scar

37. **jointed goatgrass**

Plant

- _ Winter annual grass
- _ Jointed and cylindrical head, with long awns on terminal spikelet at the tip
- _ One spikelet per node

Seed

- _ Threshes as a complete spikelet
- _ Cylindrical with one short awn (except terminal spikelet)
- _ Top seed has several long awns

38. **kochia**

Plant

- _ Annual broadleaf
- _ Erect and freely branching stems
- _ Simple, narrow leaves; longer at base of stems, but decrease to ½ inch or less at top
- _ Flowers greenish, changing to red when ripe
- _ Seed pods usually in pairs in the leaf axil

Seed

- _ May be covered by papery, star-shaped calyx
- _ Seed in the hull is flat and star shaped
- _ Seed without hull is dull black, teardrop shaped, and concave on both sides

39. **large crabgrass**

Plant

- _ Annual grass
- _ Hairy sheath and stem, stems often grow prostrate
- _ Three or more racemes per stem
- _ Single seeded spikelets lay flat against rachis, alternating along one side
- _ Mid vein of rachis weaves back and forth

Seed

- _ Flat on one side, rounded to oval on the other
- _ Striped and may be hairy
- _ Three veins on the flat side of the seed
- _ Narrow, pointed glume often still attached and extending about half way up the back

40. **longspine sandbur (plant only)**

- _ Annual grass
- _ Bunch grass with short internodes
- _ Short, zigzag spikes with very spiny, round spikelets attached

41. **morningglory**

Plant

- _ Annual broadleaf
- _ Vine-like growth habit
- _ Heart-shaped leaf
- _ Hairy stem and leaves
- _ Purple to blue, trumpet-like flower

Seed

- _ Flat black or brown with a dark hilum
- _ Wedge-shaped like an orange slice (larger and edges sharper than on field bindweed)

42. **Palmer amaranth (plant only)**

- _ Annual broadleaf, type of pigweed
- _ Smooth, broad leaves on long petioles
- _ Separate male and female plants
- _ Elongated male heads are smooth, females are spiny

43. **Pennsylvania smartweed**

Plant

- _ Annual broadleaf

- _ Erect red stems with swollen nodes and papery ocrea
- _ Simple, long, lanceolate leaves
- _ Pink flowers in a short, dense spike

Seed

- _ Reddish-brown to glossy black color
- _ Round and flat, except for pointed tip on basal end
- _ May still be covered by a pink or brown papery petals

44. **prickly lettuce (plant only)**

- _ Annual broadleaf
- _ Elongated, lobed leaves with short spines all along the bottom of the midrib
- _ Small yellow flowers on thin branched inflorescence
- _ Stems with milky juice

45. **prickly sida**

Plant

- _ Annual broadleaf
- _ Stems erect, branching widely
- _ Two to three spiny projections below each node
- _ Alternate, oblong leaves with toothed edges
- _ Flowers with five pale yellow petals in leaf axils

Seed

- _ Pods have two sharp spines at the top
- _ ¼-inch-long, three angled, egg shaped
- _ Dull, dark reddish brown to gray

46. **prostrate knotweed (plant only)**

- _ Annual broadleaf
- _ Prostrate stems with swollen nodes
- _ Simple, lanceolate leaves with a bluish cast

47. **prostrate spurge (plant only)**

- _ Annual broadleaf
- _ Creeping stems with small, oval, leaves attached opposite
- _ Stems with milky juice

48. **puncturevine**

Plant

- _ Annual broadleaf
- _ Weak, prostrate, hairy stems with pinnately compound leaves
- _ Leaflets opposite and elliptical-shaped
- _ Single, yellow flower and seed clusters found in the leaf axil

Seed

- _ Yellow bur with broad, sharp spines
- _ Wedge shaped (looks like a goat-head)

49. **redroot pigweed**

Plant

- _ Annual broadleaf
- _ Upright, pubescent stem and petioles (common water-hemp and Palmer amaranth are both smooth)
- _ Red tinge on the lower stem
- _ Flowers in dense head with bristly bracts

Seed

- _ Glossy black and very slick
- _ Ovate and convex on both sides

50. Russian thistle

Plant

- _ Annual broadleaf
- _ Bushy, upright growth with many branches
- _ Mature plants with slender, stiff leaves ending in spines
- _ Immature plants with longer, needle-like or grass-like leaves
- _ Flowers and seeds in leaf axis

Seed

- _ Gray to tan color
- _ Conical seed, shaped like a cup (no protrusion from the top of the cup like common ragweed) (more thickness versus the flat appearance of kochia in the hull)
- _ Spirally grooved, appearing like a cinnamon roll if hulled out

51. shattercane

Plant

- _ Annual grass
- _ Sorghum relative; taller, thinner stem than grain sorghum
- _ Panicle inflorescence that is more compact than johnsongrass; shiny seeds shatter easily when ripe

Seed

- _ Surrounded by shiny, hard black to brown glumes
- _ Similar in size to grain sorghum, larger than johnsongrass

52. smooth groundcherry (plant only)

- _ Perennial broadleaf that regrows from rootstocks
- _ Smooth, elliptical leaves with undulated edges
- _ Yellow flowers in small clusters arising between leaf nodes
- _ Berry fruits surrounded by large, closed calyx (lantern-like) (versus eastern black nightshade with exposed berries)

53. tansy mustard (plant only)

- _ Winter annual broadleaf
- _ Stems simple below and branched above
- _ Fern-like leaves with many delicate lobes
- _ Yellow flowers in terminal racemes
- _ Long, slender pods with a knob on the end

54. treacle mustard (plant only)

- _ Winter annual broadleaf
- _ Highly branched stems gives plant a rounded shape
- _ Only about 1 foot tall
- _ Small yellow flowers in stiff racemes
- _ Thin seed pods 1 to 2 inches long

55. velvetleaf

Plant

- _ Annual broadleaf
- _ Tall, erect, velvety stems
- _ Simple, rounded, pointed, velvety leaves
- _ Orange-yellow flowers
- _ Seed in hairy, round, beaked capsules with many chambers

Seed

- _ Gray color and rough surface
- _ Notched on one side; catcher's mitt shape
- _ Larger than Venice mallow

56. Venice mallow

Plant

- _ Annual broadleaf
- _ Erect, spreading hairy stem
- _ Alternate, irregularly shaped and lobed leaves
- _ Pale yellow to white flowers often with a purple margin and dark center
- _ Hairy seed pod capsule surrounded by papery calyx

Seed

- _ Grayish black color
- _ Rough, kidney-shaped with dimple on one side
- _ Smaller and more rounded than velvetleaf

57. western salsify (plant only)

- _ Monocarpic perennial, regrows vegetatively for several years, but then dies after seed production
- _ Thick, round, unbranched stems with fleshy grass-like leaves
- _ Daisy-like yellow composite flowers about 1 to 2 inches in diameter
- _ Mature head forms large, round pappus ball (looks like a giant dandelion)

58. wild buckwheat

Plant

- _ Annual broadleaf
- _ Vine-like stems
- _ Arrow-shaped leaf with pointed tip and pointed basal lobes
- _ Multiple flowers and seeds per stalk
- _ Papery covering (ocrea) around nodes

Seed

- _ Glossy black color
- _ Three-sided with sharp corners (compared to field bindweed with rounded corners)
- _ Brown hull often attached

59. wild onion (plant only)

- _ Perennial growing from bulbs
- _ Hollow slender stems; onion-like
- _ Flowers replaced by bulblets

60. wild sunflower

Plant

- _ Annual broadleaf
- _ Simple, rough, serrated leaves
- _ Rough stem with scattered short white hairs
- _ Flowers are daisy-like with yellow rays and brown disk flowers in center

Seed

- _ Gray to brown color with light stripes
- _ Wedge-shaped achene
- _ Smaller than cultivated sunflower

61. yellow foxtail

Plant

- _ Annual grass
- _ Long hairs at the base of the leaves near collar
- _ Dense panicle with five or more bristles per spikelet; gives foxtail appearance
- _ Seeds larger and arranged in neat rows within the head compared to green foxtail

Seed

- _ Straw yellow color
- _ Short glume on convex side covers less than half of the seed
- _ Surface of the lemma has irregular, transverse ridges (washboard appearance)
- _ Larger than green foxtail

62. yellow nutsedge (plant only)

- _ Perennial that regrows from tubers
- _ Triangular stem and three-ranked leaves
- _ Leaves similar to grasses
- _ Yellowish-brown, “bushy” flower cluster

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