

# Identification of common broadleaf weeds associated with sugarcane



**Calvin Odero**

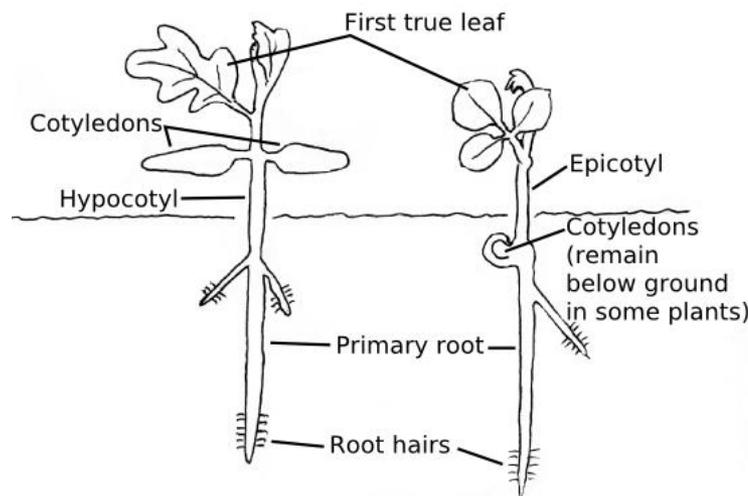
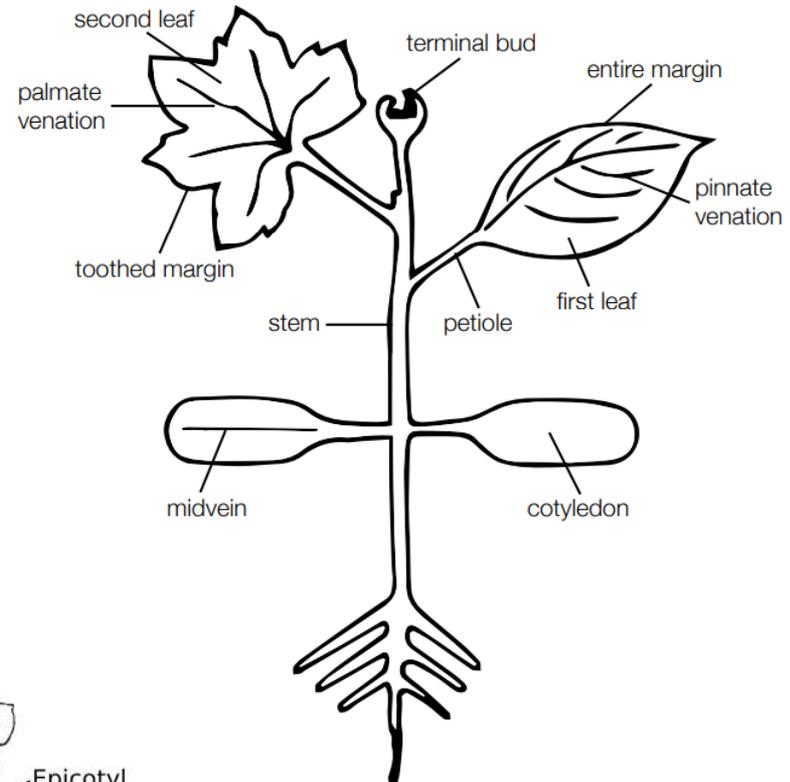
**Everglades Research and Education Center**

# Dicots: broadleaf plants

|                | Forbs  | Shrubs   | Succulents  |
|----------------|--|--|---|
| <b>Stem</b>    | <ul style="list-style-type: none"> <li>• Solid</li> <li>• Pithy</li> </ul>   | <ul style="list-style-type: none"> <li>• Solid</li> <li>• Growth rings</li> </ul>  | <ul style="list-style-type: none"> <li>• Fleshy, thick</li> <li>• Sharp spines</li> </ul>   |
| <b>Leaf</b>    | <ul style="list-style-type: none"> <li>• Net-veined</li> </ul>   | <ul style="list-style-type: none"> <li>• Net-veined</li> </ul>   | <ul style="list-style-type: none"> <li>• Small, fleshy</li> <li>• Seldom present</li> </ul>   |
| <b>Flower</b>  | <ul style="list-style-type: none"> <li>• Small or large</li> <li>• Colored</li> <li>• Showy</li> </ul>   | <ul style="list-style-type: none"> <li>• Small</li> <li>• Showy</li> </ul>   | <ul style="list-style-type: none"> <li>• Showy</li> </ul>   |
| <b>Example</b> | <ul style="list-style-type: none"> <li>• Common lambsquarters</li> </ul>  | <ul style="list-style-type: none"> <li>• Lantana</li> </ul>  | <ul style="list-style-type: none"> <li>• Cacti</li> </ul>  |

# Broadleaf identification: vegetative parts

- Cotyledons - seed leaves
- First true leaf, older leaves
- Midvein
- Leaf apex, margin, shape, arrangement
- Terminal bud



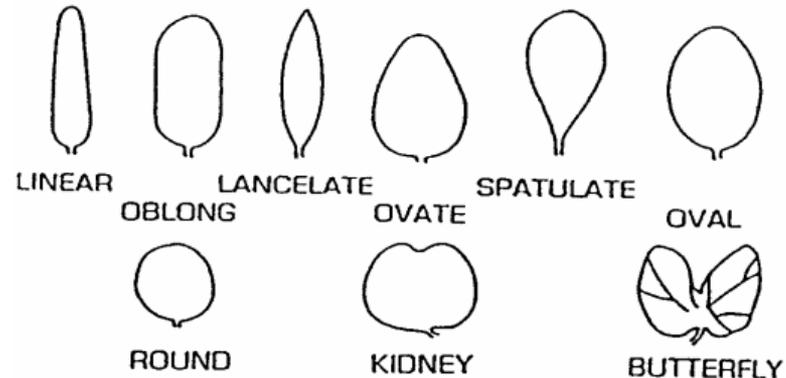
# Step 1 & 2 to broadleaf identification

## Step 1: Overall characteristics

- Size, shape, color of plant

## Step 2: Cotyledons

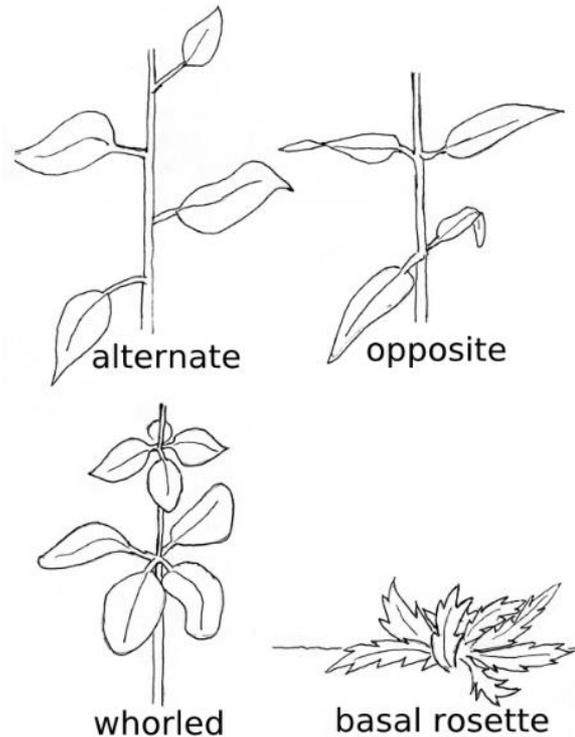
1. Shape
2. Vernation type
3. Hairy or glabrous
4. Coloration



# Step 3 to broadleaf identification

## Leaves

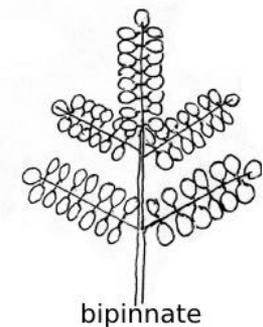
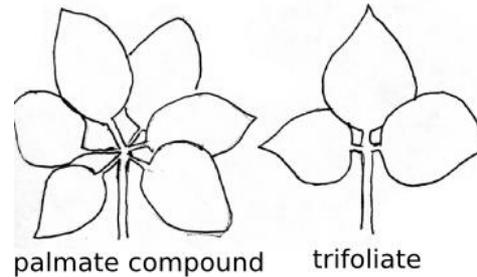
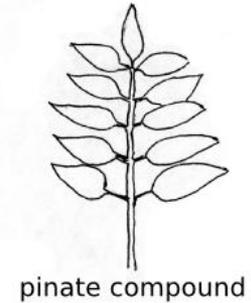
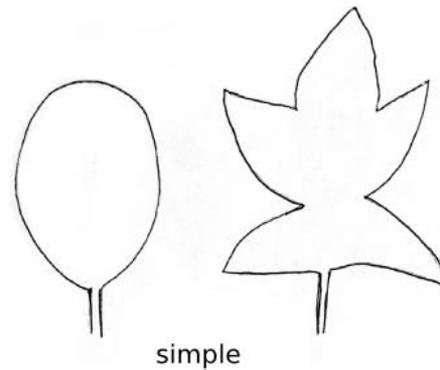
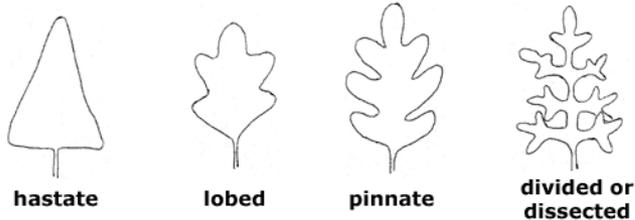
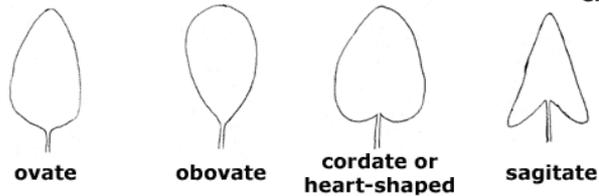
### 1. Leaf arrangement



# Step 3 to broadleaf identification

## Leaves

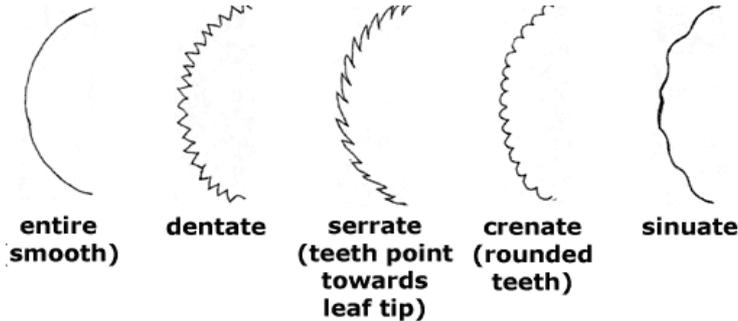
### 2. Shape and structure



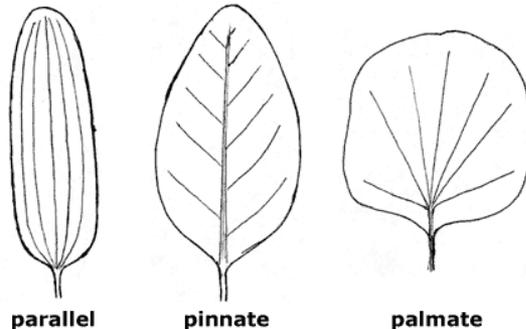
# Step 3 to broadleaf identification

## Leaves

### 3. Margin characteristics



### 4. Vernation



# Step 4 to broadleaf identification

## Root system



Perennial



annual.

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# Common lambsquarters (*Chenopodium album*)

- Annual
- Seedling
  - Cotyledon linear, green
  - First true leaf small, rounded, triangular
  - Leaves with wavy or toothed margin, long petiole, gray-mealy coating, green
  - First pair of leaves opposite, all other leaves alternate
  - Stem covered with mealy white granules
- Mature plant
  - Stem erect, branching, grooved, hairless, light green with red coloration
  - Leaves alternate, light green, gray-mealy underside, smooth, long petiole, egg-shaped, irregularly toothed
  - Flowers dense panicle spikes at tips of branches, upper leaf axils



Common lambsquarters (*Chenopodium album*)

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# Spiny amaranth (*Amaranthus spinosus*)

- Annual
- Seedling
  - Cotyledons linear, reddish-green
  - First leaf egg-shaped, hairless
  - Leaves with wavy margin, smooth, long petiole, slightly notched tip, alternate
  - Stem erect, reddish with spines at nodes
- Mature plant
  - Large, upright habit
  - Entire leaves, long petiole, alternate
  - Pair of spines at nodes
  - Flowers are terminal spikes, numerous clusters



Spiny amaranth (*Amaranthus spinosus*)

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# Smooth pigweed (*Amaranthus hybridus*)

- Annual
- Seedling
  - Cotyledons linear, reddish-green
  - First leaf egg-shaped, green, hairless
  - Leaves alternate, hairless, wavy margins, slightly notched tip
  - Stem red to green, reddish towards base, smooth to hairy, no spines at nodes
- Mature plant
  - Stout, erect, branched, smooth or sparsely hairy towards on upper parts
  - Leaves simple, alternate, egg-shaped, long petiole, wavy margins, smooth and hairless
  - Taproot system, may or may not be red
  - Flowers are terminal panicle of many slender cylindrical spikes



Smooth pigweed (*Amaranthus hybridus*)

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# Livid amaranth (*Amaranthus blitum*)

- Annual
- Seedling
  - Cotyledon linear, long narrow, smooth
  - First leaf notched at the tip, hairless
  - Stem reddish, prostrate
- Mature plant
  - Prostrate or erect
  - Alternate leaves, long petiole
  - Notched leaf tips
  - Flowers slender terminal spikes or panicles, auxiliary clusters



Livid amaranth (*Amaranthus blitum*)

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# Alligatorweed (*Alternanthera philoxeroides*)

- Perennial
  - Leaves opposite, linear, smooth, midrib distinctive
  - Low growing, simple or branched
  - Rooting at nodes
  - Hollow stems, red or pink
  - Solitary, small white flowers
  - Vegetative reproduction only



Alligatorweed (*Alternanthera philoxeroides*)

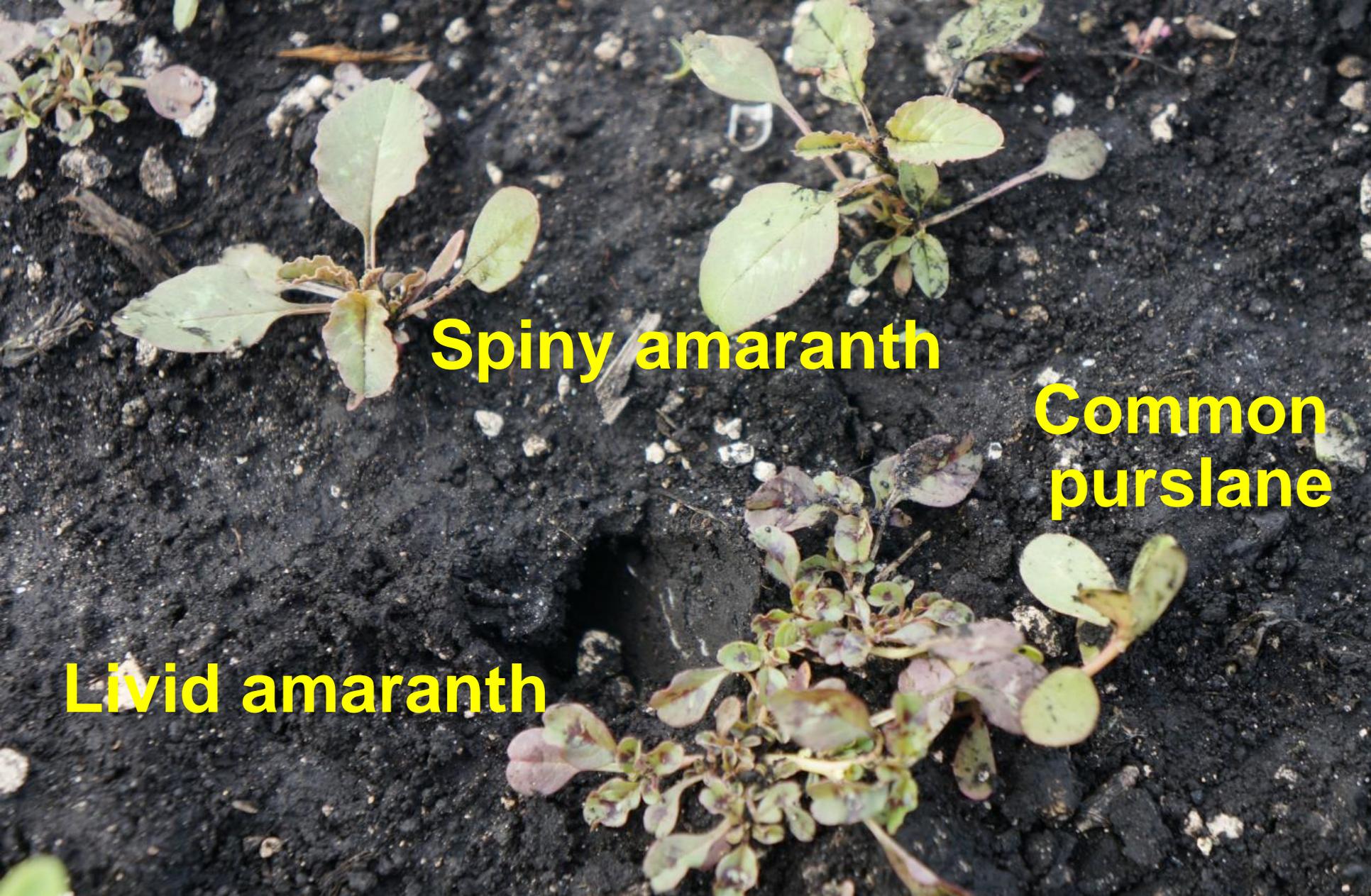
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# Common purslane (*Portulaca oleracea*)

- Annual
- Seedling
  - Cotyledon linear, hairless, succulent, purplish red
  - First true leaf lance-shaped, becoming egg-shaped to oblong, rounded tip
  - Leaves succulent, not petioled, red-tinged, entire/smooth, opposite, hairless
  - Stems prostrate, reddish
- Mature plant
  - Prostrate, succulent, fleshy, smooth, purplish red
  - Rooting at nodes
  - Leaves small, smooth, entire, opposite or alternate
  - Small, yellow flowers



Common purslane (*Portulaca oleracea*)



**Spiny amaranth**

**Common  
purslane**

**Livid amaranth**

**Spiny amaranth**



**Livid amaranth**



**Spiny amaranth**

**Common  
purslane**

**Spiny amaranth**

**Common  
purslane**



**Livid amaranth**

**Spiny amaranth**

**Common lambsquarters**

**Spiny amaranth**



**Common lambsquarters**

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## American black nightshade (*Solanum americanum*)

- Annual
- Seedling
  - Cotyledon small, green on both sides
  - Leaves covered in short hairs along margin
  - Petiole covered in small hairs
  - Stem purplish
- Mature plant
  - Stem erect or spreading, alternate leaves, usually entire to somewhat lobed, smooth or hairy
  - White flowers
  - Fruit (berry) green, turns purple on maturity
  - Seems quite competitive



American black nightshade (*Solanum americanum*)

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# Ragweed parthenium (*Parthenium hysterophorus*)

- Annual
- Seedling
  - Leaves a basal rosette, pinnately lobed, hairy
- Mature plant
  - Erect, branching
  - Leaves alternate, lobed, hairy
  - Lower leaves form basal rosette, lobed, hairy
  - Upper leaves entire to slightly lobed, hairy
  - Common along canals, ditch-banks, noncrop areas but now encroaching into cultivated fields
  - White flowers



Ragweed parthenium (*Parthenium hysterophorus*)

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# Common ragweed (*Ambrosia artemisiifolia*)

- Annual
- Seedling
  - Cotyledon round, thick, deep purple underneath
  - First true leaf lobed, hairy
  - Later leaves lobed, compound, hairy
  - Stem erect, hairy
  - Youngest leaves opposite, alternate at fourth node
- Mature plant
  - Stem erect, green to purple, hairy
  - Leaves deeply dissected, opposite near base, alternate towards apex, hairy on upper and lower surface
  - Flowers small, green, inconspicuous



Common ragweed (*Ambrosia artemisiifolia*)



**Common ragweed**

**Ragweed parthenium**



**Ragweed parthenium**

**Common  
purslane**

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# Coffee senna (*Senna accidentalis*)

- Annual
- Seedling
  - Cotyledon rounded, smooth above, white hairs below (distinguishing it from sicklepod)
  - Veins prominent
  - First leaf compound, leaflet egg-shaped, pointed tip
- Mature plant
  - Erect
  - Leaves alternate, pinnately compound, leaflets ovate
  - Spherical gland near base of petiole in axils
  - Yellow flowers, pod



Coffee senna (*Senna accidentalis*)

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# Sicklepod (*Senna obtusifolia*)

- Annual
- Seedling
  - Cotyledon rounded, 3-5 distinct veins, smooth above, no white hairs below (distinguishing it from coffee senna)
  - Leaflets may develop wrinkles on young plants, egg-shaped, rounded tip
- Mature plant
  - Erect
  - Leaves alternate, pinnately compound, leaflets 4-6, terminal pair largest, basal pair smallest
  - Leaves and stems with distinct odor when crushed
  - Yellow flowers, pod



Sicklepod (*Senna obtusifolia*)



Pitted morningglory (*Ipomea lacunosa*)



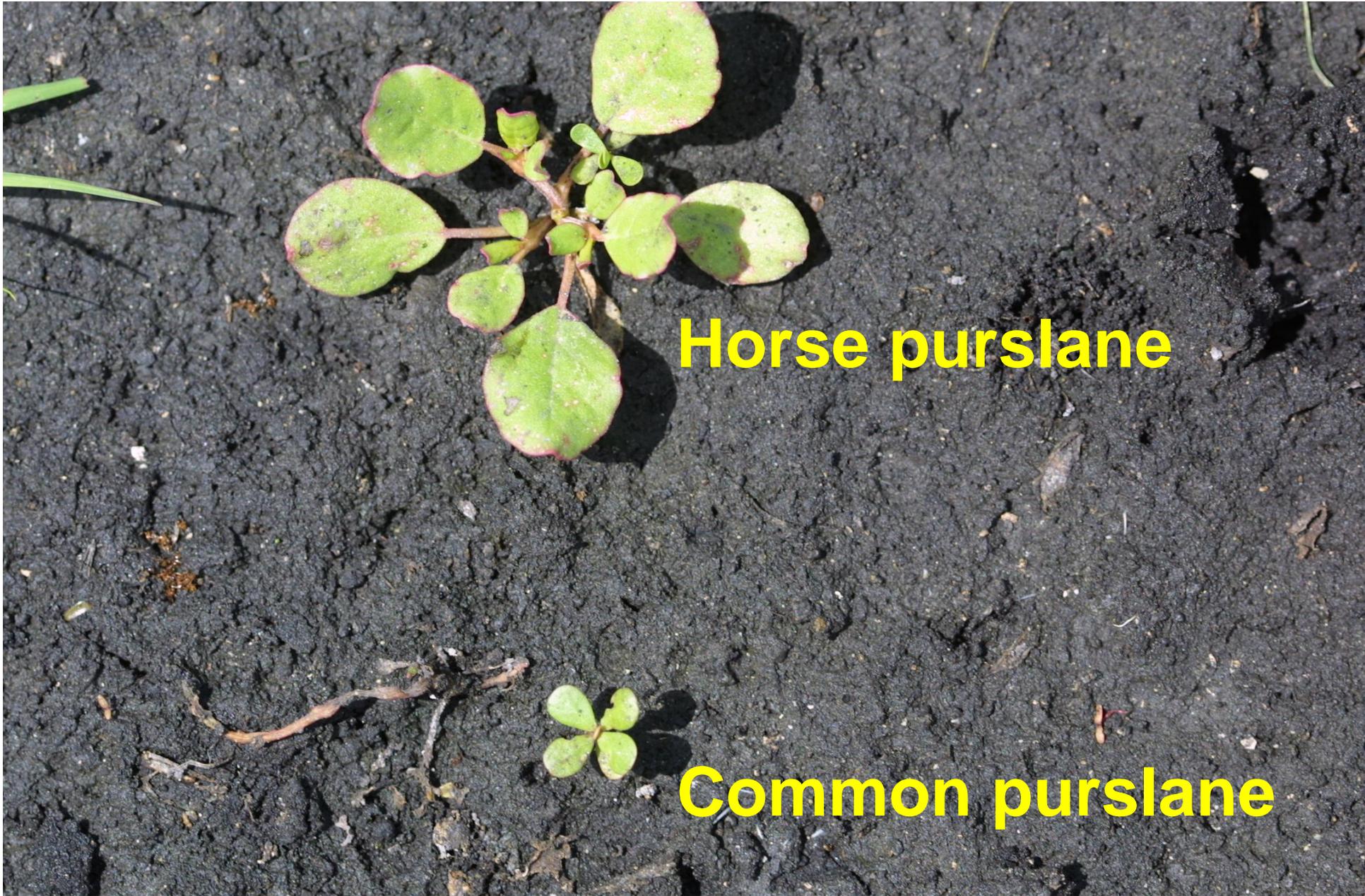
Tall morningglory (*Ipomea purpurea*)



Smellmelon (*Cucumis melo*)



Horse purslane (*Trianthema portulacastrum*)



**Horse purslane**

**Common purslane**

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# Spreading dayflower (*Commelina diffusa*)

- Annual
- Commelinaceae family
- Seedling
  - First leaf blade oblong to oval with a rounded tip
  - Parallel leaf veins
  - Blades wider than those of grasses, smooth
  - Erect, unbranched initially, grass-like, becoming prostrate and profusely branched
- Mature plant
  - Stem and leaves thick, fleshy
  - Leaves simple, lack petioles, widest near base, taper to the tip, parallel veins, hairless
  - Sheaths at base of the blade clasp the stem
  - Roots fibrous
  - Blue flowers

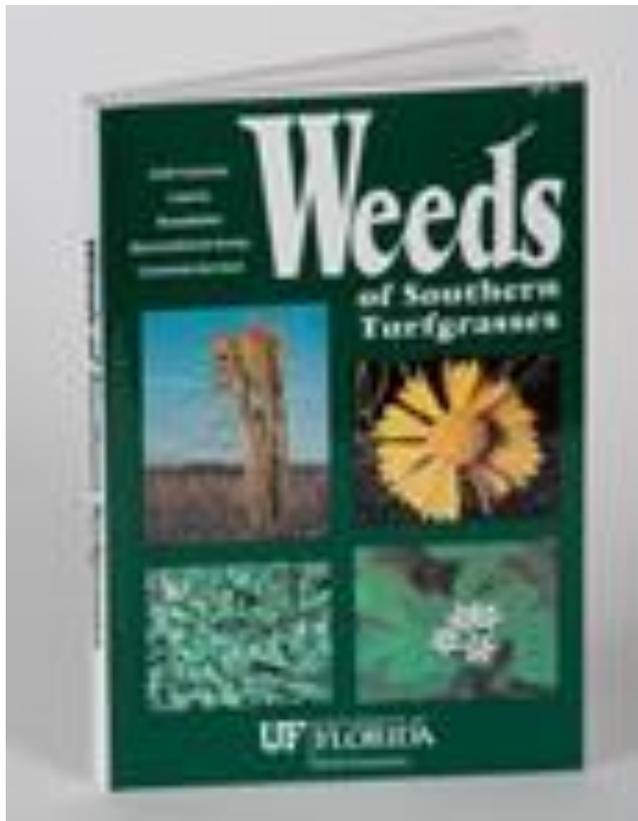


Spreading dayflower (*Commelina diffusa*)



Texasweed (*Caperonia palustris*)

# Weed identification manuals



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# If you need help with identification

- Actual plant samples are the best to collect
  - Store in plastic bag with damp paper towel
  - Press between two pieces of paper
    - Change paper often while drying
    - Will last indefinitely
  - Store on truck dashboard
    - **Please don't!!**
  - Bring several plants
    - Different growth stages if possible
    - Flowers and seeds if possible

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# If you need help with identification

- Pictures
  - Overall view (growth habit)
  - Specific characteristics
    - Ligule (grasses)
    - Hair characteristics
    - Leaf shape
    - Root system
      - Tubers, rhizomes, stolons
    - Stem shape
    - Seeds or flowers if available
    - Other characteristics we looked at earlier



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