



Identification of common grasses and sedges associated with sugarcane



Calvin Otero

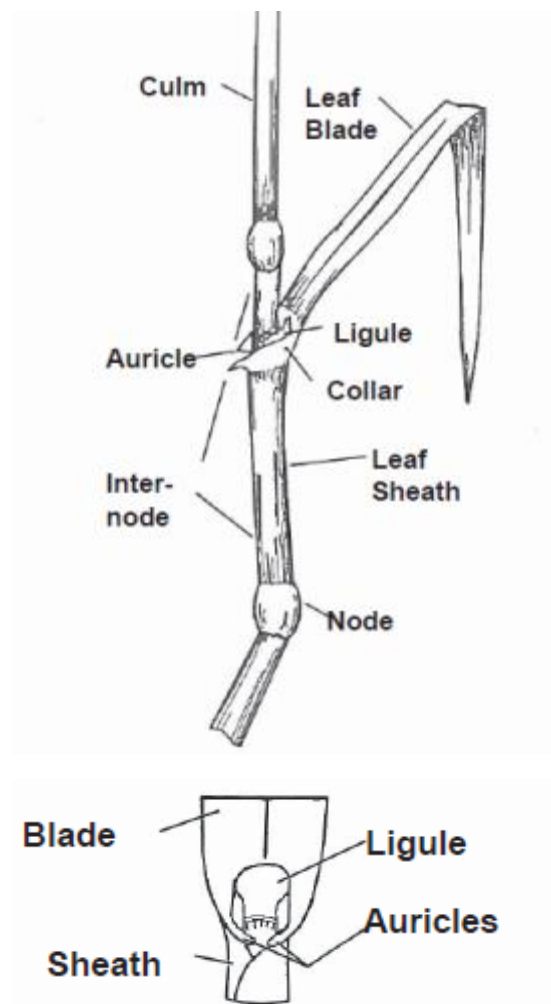
Everglades Research and Education Center

Monocots: grasses and sedges

	Grasses	Sedges (grass-like)
Family	<ul style="list-style-type: none">Poaceae (grass)	<ul style="list-style-type: none">Cyperaceae (sedge)
Stem	<ul style="list-style-type: none">Round, flattenedHollow, occasionally solidNodes (jointed), solid	<ul style="list-style-type: none">Triangular (three-sided)SolidNo nodes
Leaf	<ul style="list-style-type: none">One seed leaf (monocot)Parallel veins, flat, linearExtend in two directions	<ul style="list-style-type: none">One seed leaf (monocot)Parallel veins, flat, linearExtend in three directions
Flower	<ul style="list-style-type: none">Small, inconspicuous	<ul style="list-style-type: none">Small, inconspicuous
Fruit	<ul style="list-style-type: none">Grain	<ul style="list-style-type: none">Nutlet
Example	<ul style="list-style-type: none">Fall panicum 	<ul style="list-style-type: none">Yellow nutsedge 

Grass identification: vegetative parts

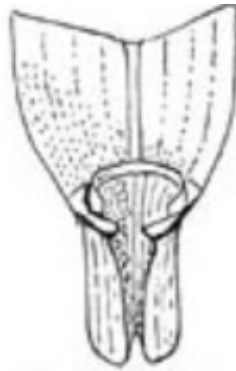
- Leaf blade, blade margin
- Collar margin
- Midvein
- Ligule
- Auricle
- Sheath margins
- Vernation



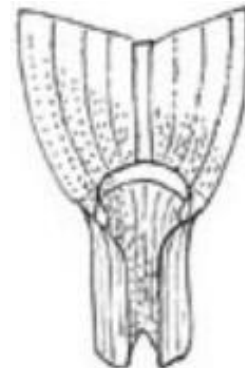
Auricle variations



Prominent
(long, clasping)



Intermediate
(small, rudimentary)



Absent

All grasses in
Florida sugarcane

Ligule variations

Absent



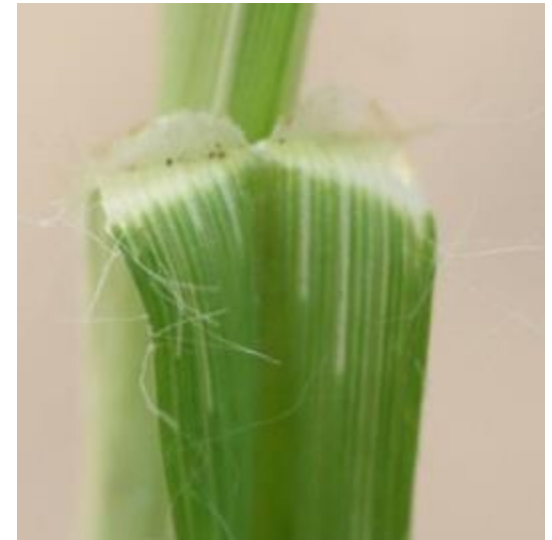
Coast cockspur

Hairy



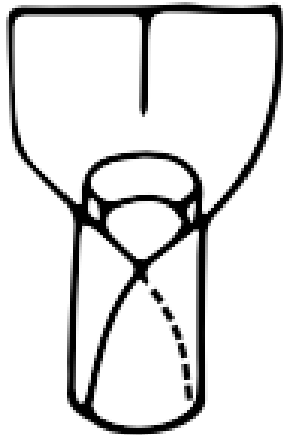
Fall panicum

Membranous

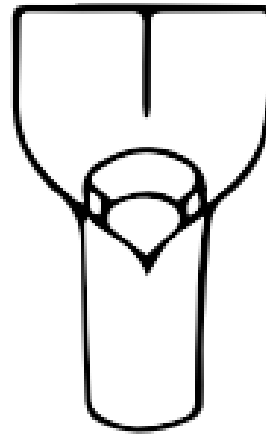


Goosegrass

Sheath variations

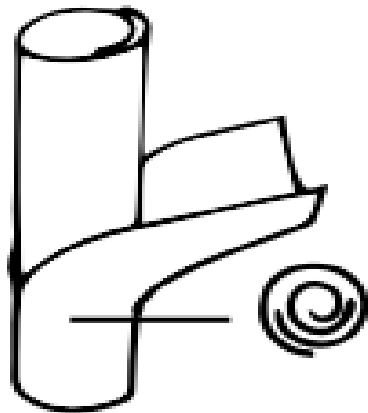


Split and overlapping

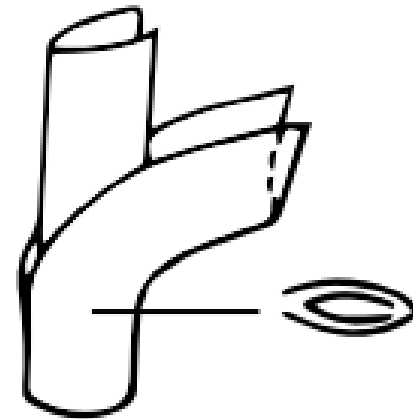


Closed

Leaf vernation



Round



Flat

Growth habit



Rhizomatous

Bunch

Stoloniferous

Step 1 to grass identification

- Overall characteristics
 - Relative length and width of first leaf



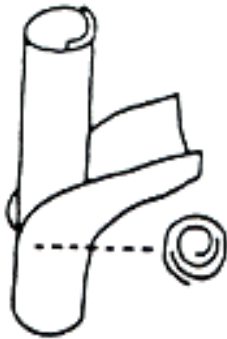
fall panicum
crowfootgrass
Columbus grass
southern sandbur
bearded sprangletop
amazon sprangletop



southern crabgrass
goosegrass

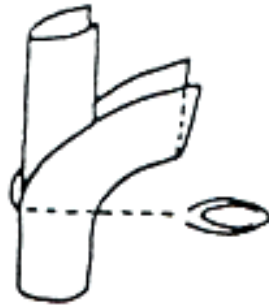
Step 2 to grass identification

- Stem type



Round

fall panicum
bermudagrass
southern crabgrass
crowfootgrass
Columbus grass
torpedograss
napiergrass
bearded sprangletop
amazon sprangletop



Flat

goosegrass
coast cockspur
barnyardgrass
southern sandbur



Triangular

yellow nutsedge
purple nutsedge
flat sedge

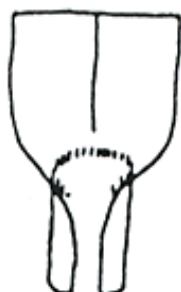
Step 3 to grass identification

- Ligule type



Absent

coast cockspur
barnyardgrass



Hairy

fall panicum
bermudagrass
crowfootgrass
torpedograss
napiergrass
southern sandbur

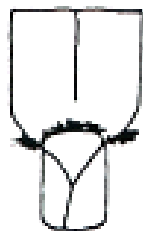


Membranous

goosegrass
southern crabgrass
Columbus grass
bearded sprangletop
amazon sprangletop

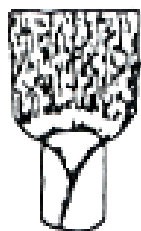
Step 4 to grass identification

- Blade type



Blade
glabrous

fall panicum
southern sandbur
crowfootgrass
amazon sprangletop
torpedograss



Blade
hairy

bermudagrass
goosegrass



Midrib
prominence
and color

napiergrass
Columbus grass



Margin
characteristics

southern
crabgrass



Auricles

ryegrass

Step 5 to grass identification

- Sheath margins



Split and
overlapping

southern crabgrass
fall panicum
amazon sprangletop
bearded sprangletop
bermudagrass
crowfootgrass
southern sandbur
torpedograss
goosegrass
Columbus grass
coast cockspur



United



No hair

fall panicum
amazon sprangletop
bearded sprangletop
bermudagrass
crowfootgrass
Columbus grass
coast cockspur
barnyardgrass



Hairy

southern crabgrass
southern sandbur
torpedograss
goosegrass

Step 6 to grass identification

- Root systems



Perennial with
creeping rhizomes

bermudagrass
torpedograss



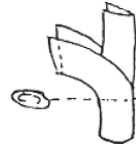
Annual

southern crabgrass
fall panicum
amazon sprangletop
bearded sprangletop
crowfootgrass
southern sandbur
goosegrass
coast cockspur
barnyardgrass

Ligule absent



STEM SHAPE



Flattened

BLADE HAIR

Blade with no hair

COLLAR MARGIN

Sometimes hairy



Barnyardgrass

BLADE HAIR

Blade with no hair

COLLAR MARGIN

Hairy



Coast cockspur





Hairy ligule



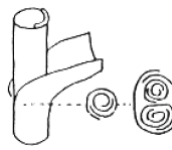
Auricles absent

STEM SHAPE

Flattened

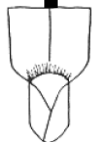


Rounded



BLADE HAIR

Upper surface sandpapery
Blades without hair
Collar margin occasionally hairy
Sheath hairless, occasionally hairy



Southern sandbur

BLADE HAIR

Blade with hair
prominent midrib



Perennial

Napiergrass

Blade with little
or no hair

ROOT SYSTEM

Annual

Perennial

Sheath margins with
no hair

Stolon root system
Tufts of hair at
base of ligule



Bermudagrass

Bending and rooting
at lower nodes

Blade margins
hairy



Crowfootgrass

No bending and rooting
at lower nodes



Fall panicum

Membranous ligule



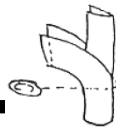
Auricles absent

SHEATH MARGINS

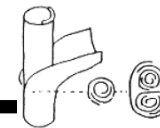


Split with overlapping margins

STEM SHAPE



Flattened



Rounded

ROOT SYSTEM

Weak perennial, prominent midrib

Annual

BLADE SHAPE

First blade is long and narrow

First blade wide and often blunt

SHEATH MARGINS

Sheath margin not hairy

Sheath margin hairy

Midrib not green

Green midrib

Hairy

Not hairy

**Southern
crabgrass**

**Smooth
crabgrass**

Red sprangletop

Bearded sprangletop

Amazon sprangletop

Goosegrass

Blade midrib white
above and prominent
below

Columbus grass

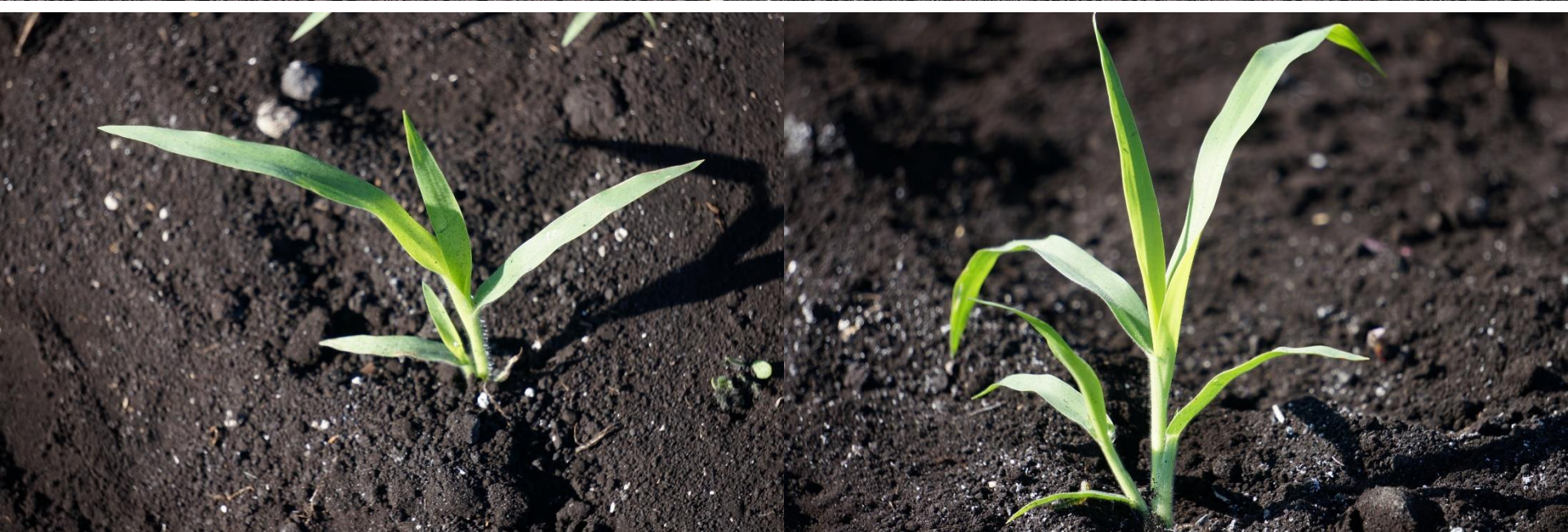


Fall panicum (*Panicum dichotomiflorum*)

- Annual
- Seedling
 - First blade linear, longer than wider, opens parallel to the ground
 - Ligule hairy
 - Leaves rolled in a bud
 - First few leaves densely hairy only on the lower side
 - Leaf sheath hairy on first few leaves
 - Collar densely hairy
 - Seedlings become less hairy with age
- Mature plant
 - Ligule a fringe of hairs
 - Blades smooth on both sides
 - Midvein conspicuously light green to white
 - Sheath smooth (hairy on some biotypes)
 - Stem has waxy appearance, erect bent at nodes (no rooting), branched
 - Fibrous root system
 - Seedhead large, freely branched, spreading panicle



Fall panicum (*Panicum dichotomiflorum*)



Fall panicum (*Panicum dichotomiflorum*)



Fall panicum (*Panicum dichotomiflorum*)

Goosegrass (*Eleusine indica*)

- Annual
- Seedling
 - Ligule membranous
 - First leaf longer than wider, opens parallel to the ground
 - Sheath smooth, prominently flattened, light green to white at base
- Mature plant
 - Ligule membranous, cleft at the center
 - Blades folded along midvein, smooth, occasionally sparsely hairy on both surfaces, rough margin
 - Sheath smooth, whitish at the base
 - Collar is broad white, sparsely hairy at the edges
 - Low growing, stem erect to spreading, white, flattened
 - Root system is fibrous
 - Seedhead 2-13 fingerlike spike, one spike is below the others



Goosegrass (*Eleusine indica*)



Goosegrass (*Eleusine indica*)

A close-up photograph of two young grass seedlings growing in dark, moist soil. The seedlings are small, with two green leaves each and a tiny yellow flower. The soil is dark brown and has a granular texture. The text 'Goosegrass' is written in yellow to the right of the seedling on the right.

Goosegrass

Fall panicum



Goosegrass

Fall panicum



Goosegrass

Fall panicum



Goosegrass

Fall panicum

Crowfootgrass (*Dactyloctenium aegyptium*)

- Annual
- Seedling
 - Ligule fringed membrane
 - Leaf and sheath smooth, long stiff hair along blade margin
- Mature plant
 - Ligule fringed with hairs
 - Blades smooth or with long stiff hairs, margin with long stiff hair
 - Sheath smooth
 - Stems bending, rooting at lower nodes
 - Root system is fibrous
 - Seedhead 1-7 spikes at tip of the stem, like crow's foot



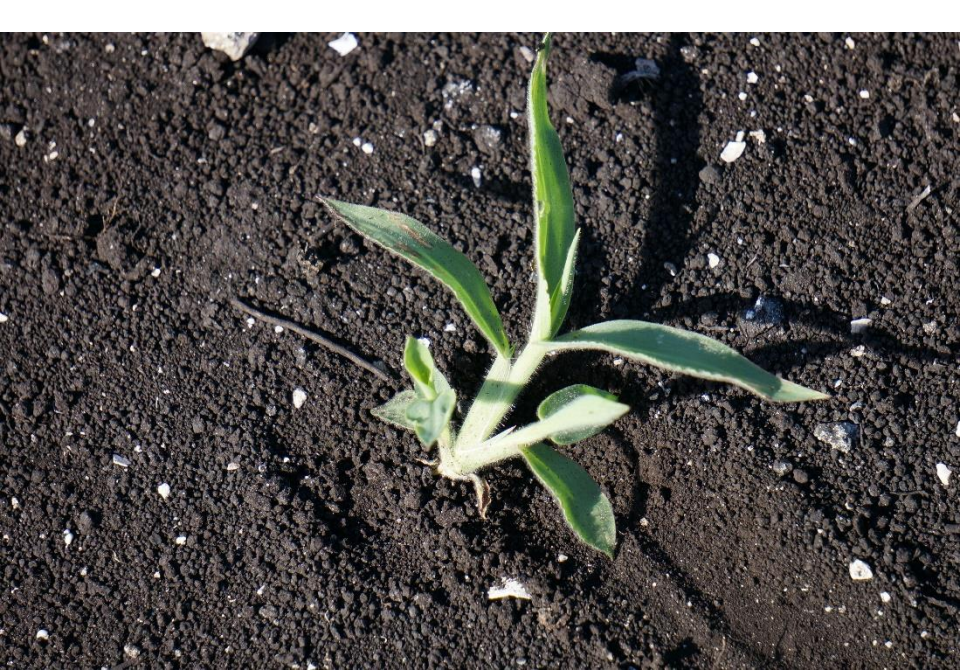
Crowfootgrass (*Dactyloctenium aegyptium*)



Crowfootgrass (*Dactyloctenium aegyptium*)

Southern crabgrass (*Digitaria ciliaris*)

- Annual
- Seedling
 - Ligule membranous
 - First leaf linear, longer than wide, opens parallel to the ground
 - Leaves rolled in a bud
 - Sheath hairy
- Mature plant
 - Ligule membranous
 - Blades only hairy near the collar
 - Upper leaves occasionally hairy on upper surface only
 - Sheath, margins densely hairy
 - Stem spreading, branched, rooting at nodes, hairy nodes
 - Root system is fibrous
 - Seedhead 2-9 fingerlike branches



Southern crabgrass (*Digitaria ciliaris*)



Southern crabgrass (*Digitaria ciliaris*)



Crowfootgrass

Goosegrass

southern crabgrass

Goosegrass

Crowfootgrass

Southern sandbur (*Cenchrus echinatus*)

- Annual
- Seedling
 - Ligule hairy
 - Leaves folded in a bud
 - Blade rough (sandpapery), hairless
 - Sheath hairless, except for fine hairs at mouth and sheath margin
- Mature plant
 - Ligule hairy fringe
 - Leaves smooth
 - Sheath compressed (flattened), occasionally hairy margin
 - Occasionally hairy on lower nodes
 - Occasional bending of stems and rooting at the lower nodes
 - Root system fibrous
 - Burs with 8 to 40 spines



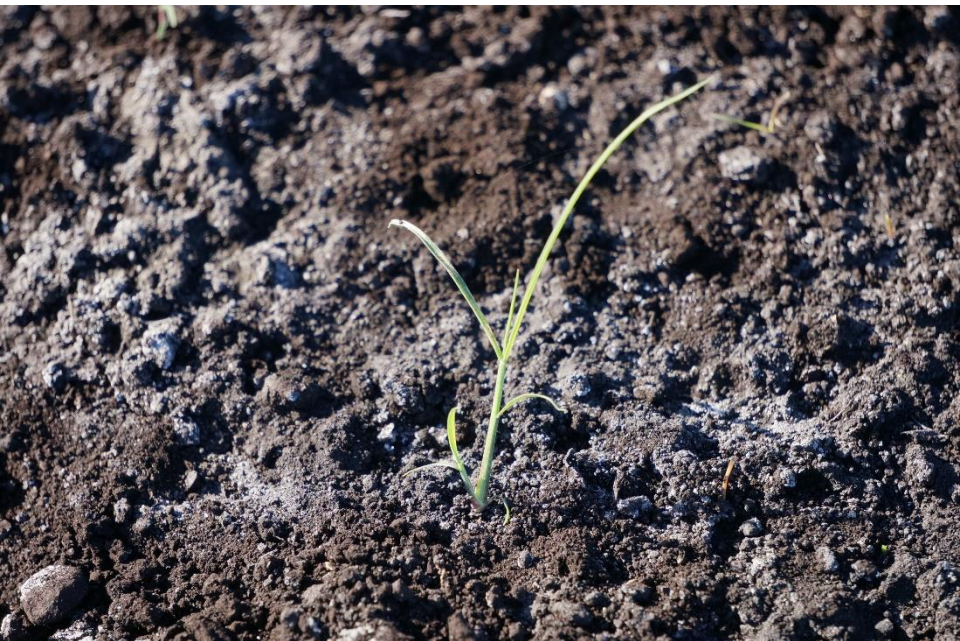
Southern sandbur (*Cenchrus echinatus*)



Southern sandbur (*Cenchrus echinatus*)

Bearded sprangletop (*Leptochloa fusca*)

- Annual
- Seedling
 - Ligule membranous
 - Leaf blades rough on both sides
 - Sheath rough
- Mature plant
 - Ligule membranous
 - Leaf blades rough on both sides, tightly rolled when dry
 - Sheath rough
 - Erect stem
 - Uppermost leaf sheathing longer than inflorescence
 - Inflorescence a panicle
 - Root system fibrous



Bearded sprangletop (*Leptochloa fusca*)



Bearded sprangletop (*Leptochloa fusca*)

Amazon sprangletop (*Leptochloa panicoides*)

- Annual
- Seedling
 - Ligule toothed membranous
 - Leaf blades smooth or rough
 - Sheath smooth
- Mature plant
 - Ligule toothed membranous, long
 - Leaf blades smooth, green midrib
 - Sheath smooth or rough, keeled
 - Erect stem
 - Inflorescence an erect spreading panicle
 - Root system fibrous



Amazon sprangletop (*Leptochloa panicoides*)

The image shows two grass plants against a dark, textured background. The plant on the left has a seed head with multiple small, reddish-brown spikelets. The plant on the right has a seed head with several long, thin, green spikelets. Both plants have green stems and leaves.

Bearded sprangletop

Amazon sprangletop

Coast cockspur (*Echinochloa walteri*)

- Annual
- Seedling
 - No ligule
 - Leaf blades smooth, rolled in a bud
 - Sheath hairy
- Mature plant
 - No ligule
 - Leaf blades rough
 - Sheath hairy
 - Erect stem
 - Inflorescence an erect bristle head, awned
 - Root system fibrous



Coast cockspur (*Echinochloa walteri*)



Coast cockspur (*Echinochloa walteri*)



Jungle rice

A photograph of two types of rice plants. On the left is a 'Jungle rice' plant with a single, long, and dense spikelet. On the right is a 'Coast cockspur' plant with multiple, smaller, and more branched spikelets. Both plants have green, lance-shaped leaves. The background is a blurred, dark, watery surface.

Coast cockspur



Fall panicum

**Bearded
sprangletop**



**Coast
cockspur**

**Bearded
sprangletop**



Coast
cockspur

Bearded
sprangletop

Goosegrass

Fall panicum

Bermudagrass (*Cynodon dactylon*)

- Perennial
- Seedling
 - Ligule hairy
 - Leaves rolled in a bud
 - Blade smooth on both surfaces, relatively short, narrow, rough margins
 - Sheath green and smooth
 - Collar narrow, white, smooth on youngest seedling only, hairy on older seedlings
- Mature plant
 - Ligule hairy (inconspicuous)
 - Leaves flat, with a ring of white hairs at collar
 - Blades small, smooth or with hairs at the base
 - Sheaths strongly compressed and smooth or with few hairs in the collar region
 - Stems from stolons, rhizomes, erect, rooting at nodes, mat forming
 - Roots present at the nodes of both rhizomes and stolons
 - Seedhead 3-9 fingerlike spikes, radiating from a central point in the terminal end of the stem
 - Produces seed, spreads vegetatively



Bermudagrass (*Cynodon dactylon*)



Bermudagrass (*Cynodon dactylon*)

Columbus grass (*Sorghum alnum*)

- Weak perennial
- Seedling
 - Ligule membranous, toothed
 - Leaves rolled in a bud, smooth, prominent midvein
 - Sheath smooth
- Mature plant
 - Ligule membranous with some hairs
 - Blades smooth, margins rough, prominent white midvein
 - Sheath open, smooth except for a few hairs
 - Stem erect
 - Root fibrous from rhizomes with short curled tips
 - Seedhead open panicle



Columbus grass (*Sorghum alnum*)



Columbus grass (*Sorghum alnum*)

Torpedograss (*Panicum repens*)

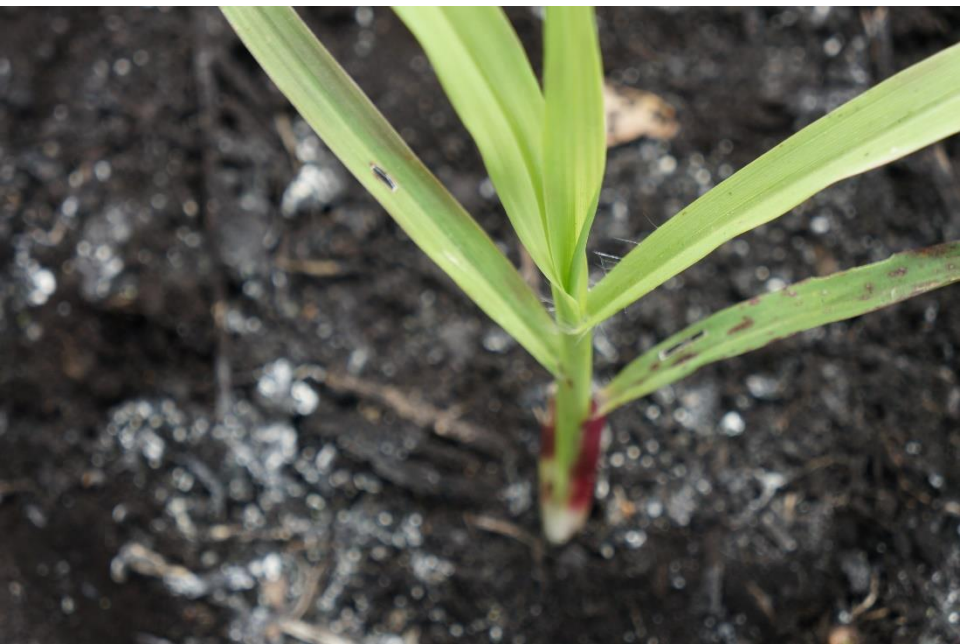
- Perennial
- Seedling
 - Ligule fringe of hairs
 - Leaves smooth or sparsely hairy
 - Sheath covered with soft hairs
- Mature plant
 - Ligule fringe of hairs
 - Leaves flat or folded, stiff and erect, smooth or with scattered soft hairs
 - Sheath covered with scattered soft hairs, lower sheath without blades
 - Roots fibrous, from creeping rhizomes
 - Sharply pointed rhizomes
 - Seedheads with stiff, ascending branches
 - Occurs in wet areas



Torpedograss (*Panicum repens*)

Napiergrass (*Pennisetum purpureum*)

- Perennial
- Very robust plant
 - Forms dense clumps in fields
 - Ligule hairy
 - Hairy leaf blades, margins
 - Long, wide leaves with finely toothed margin
 - Up to 12 feet tall
 - Seedhead has “bottle brush” appearance

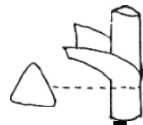


Napiergrass (*Pennisetum purpureum*)



Napiergrass (*Pennisetum purpureum*)

STEM SHAPE



Triangular

LEAF

Gradual taper

Sharp point

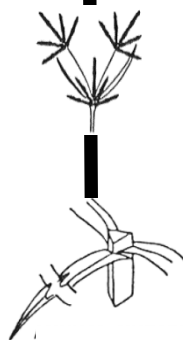
Inflorescence yellow
Tubers at end of rhizomes

Inflorescence green

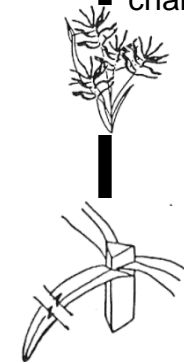
Inflorescence purple
Tubers connected in chains



Yellow nutsedge



Annual nutsedge



Purple nutsedge

Yellow vs purple nutsedge

- **Yellow nutsedge**

- **(*Cyperus esculentus*)**

- Perennial
- Seedling small, inconspicuous
- Leaves gradually taper to a sharp point
- Flowers yellowish-brown
- Tubers smooth, round shaped, at ends of rhizomes, sweet almond flavor

- **Purple nutsedge**

- **(*Cyperus rotundas*)**

- Perennial
- Seedling small, inconspicuous
- Leaves abruptly taper to a sharp point
- Flowers purple to brown
- Tubers rough, irregular shaped, connected in chains, bitter flavor

Yellow nutsedge





Purple nutsedge



Yellow nutsedge

Purple nutsedge

Yellow nutsedge

Purple nutsedge

Yellow nutsedge

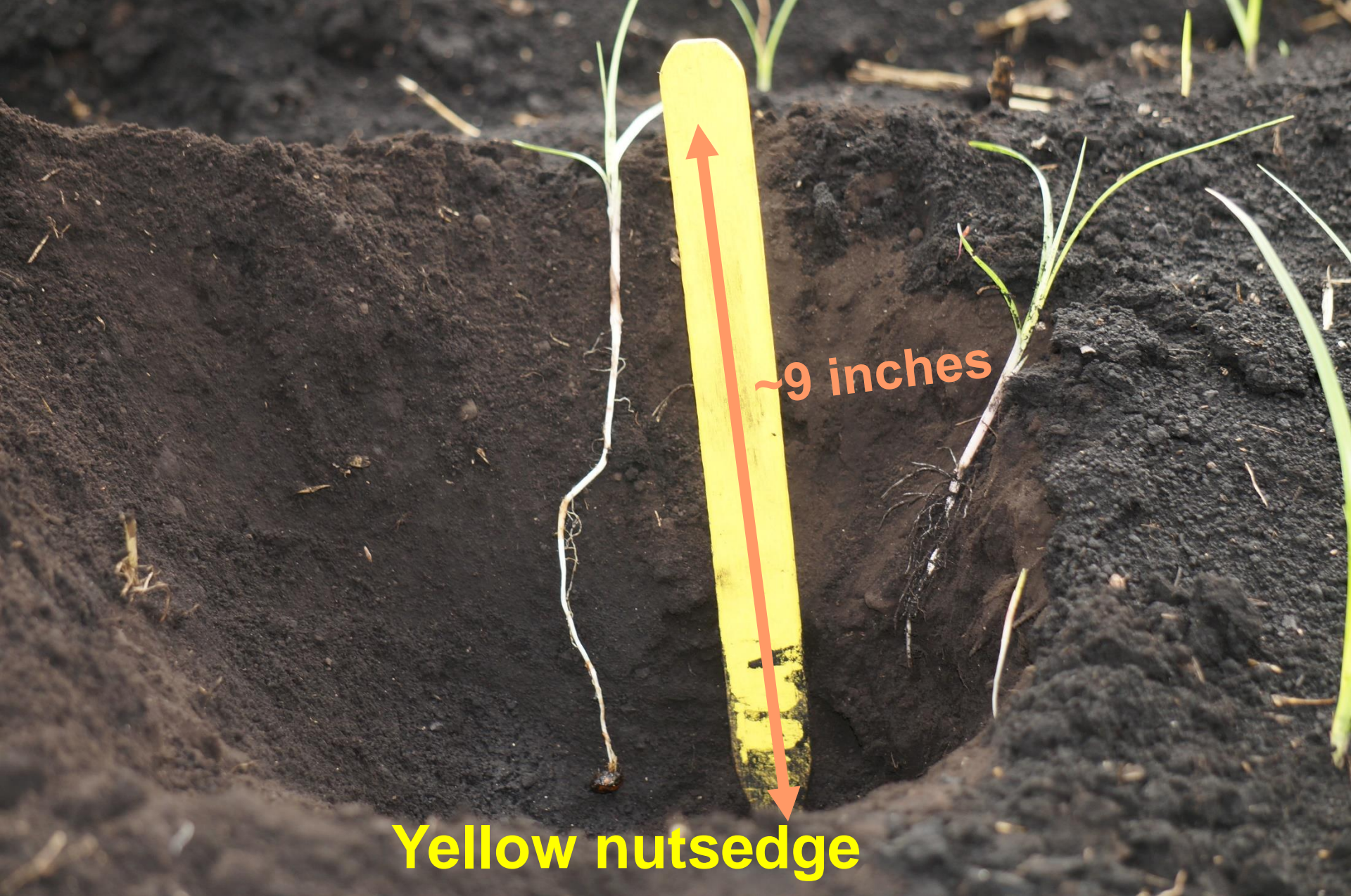
Purple nutsedge



Purple nutsedge



Yellow nutsedge





Flat sedge (*Cyperus odoratus*)



Rice flatsedge (*Cyperus iria*)



Annual sedge (*Cyperus compressus*)

Weed identification manuals



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

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 mentioned earlier



Calvin Odero
dcodero@ufl.edu; 561-993-1509