

# **Plants Poisonous to Livestock in the Southern US**

John Boyd, University of Arkansas

Fred Yelverton, North Carolina State University

Tim Murphy, University of Georgia

# Conditions of Internal Poisoning

- Grazing animals will not eat poisonous plants unless forced to do so by some unusual or artificial condition.

# Conditions Leading to Poisoning

- Lack of good forage – drought, overgrazing, etc.
- Deficient rations – unbalanced diet
- Waste or trash – garden waste, houseplants, etc.
- Newly cultivated areas – exposed roots
- Dry or partially dry water holes
- Incidental causes

# Poisonous Substances

- Minerals: selenium, molybdenum, copper, lead, cadmium, fluorine. Mostly a problem in central and western US
- Nitrates: sudden change in animals diet to plants with high nitrate content. Nitrate is reduced to nitrite which oxidizes hemoglobin – results in sudden death (alfalfa, Amaranthus)
- Resin or Resinoids: extremely poisonous – affect nervous system ( Rhododendron)

# Poisonous Substances

## ■ Glycosides:

- Cyanogenetic (hydrocyanic acid or prussic acid): rapid death with few obvious symptoms (Hydrangea, Prunus, Photinia)
- Saponic: cause gastric irritations (Aesculus, Agrostemma, Medicago, Phytolacca, Sesbania)
- Goitrogenic: inhibits formation of thyroid hormone (found in mustards)

# Poisonous Substances

- Glycosides (con't):
  - Irritant oils: found mainly in seeds (mustards, Ranunculus)
  - Coumarin: hemorrhagic agent (Aesculus, Melilotus)
  - Cardiac: stimulate the heart (Liliaceae, Apocynaceae)

# Poisonous Substances

- Alkaloids: affect the heart and nervous system (Crotonaria, Taxus, Narcissus, Amaryllis, Crocus)
- Oxalates: cause kidney damage. Produces dullness, depression, and death (Rumex)
- Nonglycoside Oils: irritant effects in the gut, can cause death (Chenopodium, Glechoma)

# Toxicity Rating For Plants

Group 1: most likely to cause poisoning or death

Group 2: cause serious poisoning or death but are rarely eaten

Group 3: cause serious poisoning or death but are uncommon in AR

Group 4: cause minor disorders or irritation

Group 5: may cause poisoning but are usually unavailable to livestock



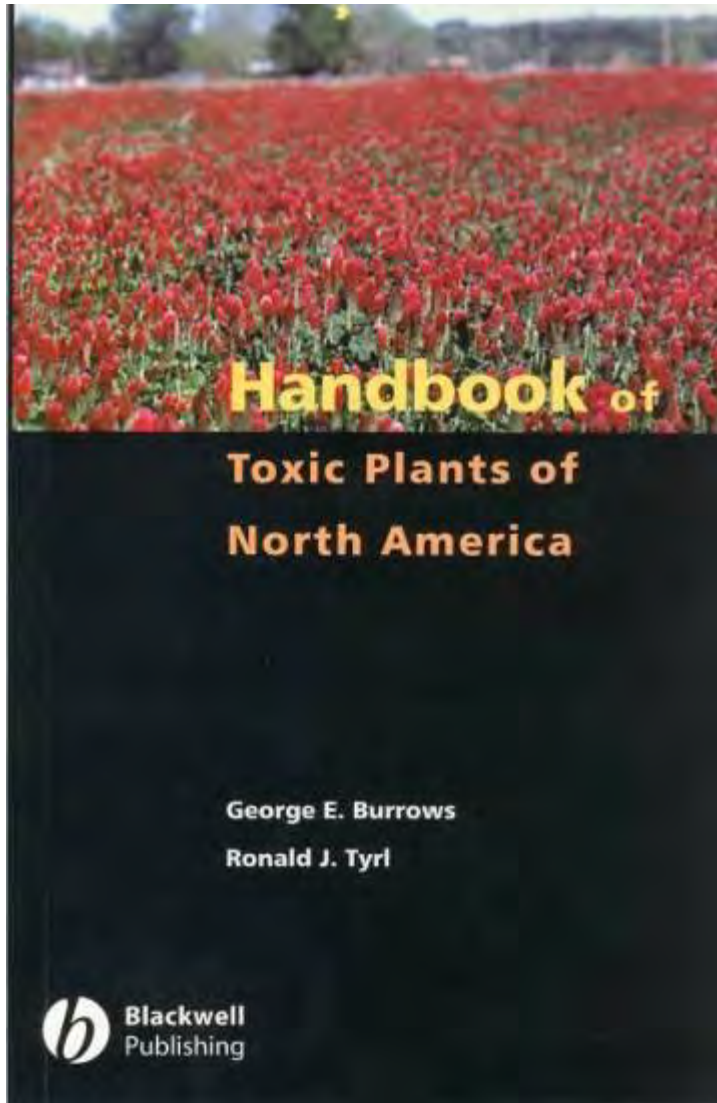
# Poisonous Plants

- Many kinds of plants have a wide range of poisonous effects.
- Poisonous plants cause chemical or physiological disturbances when taken internally.

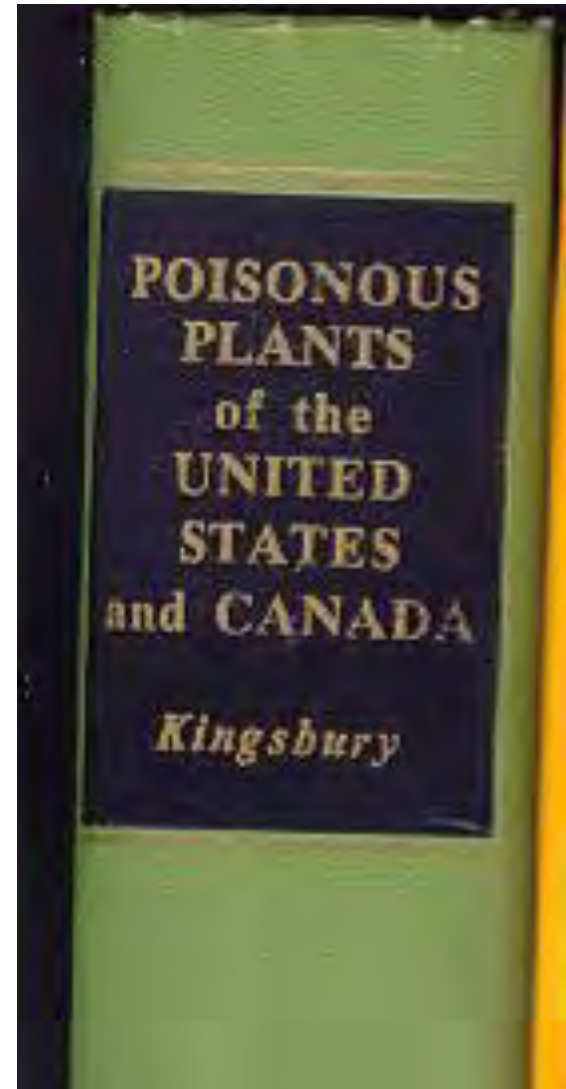
# Poisonous Plants When Taken Internally

- Bacteria and Algae: from farm ponds and polluted streams
- Fungi: mushrooms
- Vascular Plants: herbaceous and woody plants

# Reference Books



Published in 2006



Published in 1964

# Red Maple

*(Acer rubrum)*



- Wilted leaves are toxic.
- Cattle and horses have been poisoned.
- Toxic principle not known.



# Red Buckeye

(*Aesculus pavia*)

- Dangerous
- Parts of Plant young leaves in spring and seeds in fall
- Poisonous Principle: glycosides, alkaloids, and neurotoxins
- Animals Poisoned: horses, cattle, pigs



# Buckeye, Red



- Grazon P+D, Remedy.

# Buckeye, Red





# Smooth Pigweed

(*Amaranthus hybridus*)



- Dangerous
- Parts of Plant: all parts
- Poisonous Principle: oxalates and nitrates – results in cardiac arrest 5 to 10 days after eating
- Animals Poisoned: pigs, cattle, and sheep



# Pigweed





# Spiny Pigweed





# Pigweed, Spiny

- Treat when small (2 to 4 inches) early May
- Cimarron 0.25 to 0.33 oz/acre
- Grazon P+D, Weedmaster, 2,4-D - 1-2 pts/acre, Cimarron Max 1 pt + 0.25 oz
- Germinates all summer. Repeat applications needed.





**Spiny Pigweed**

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# Hemp Dogbane

*(Apocynum cannabinum)*



- Group 1 (dangerous)
- Parts of Plant: green or dry leaves – 15 to 30 g of green leaves can kill horse or cow
- Poisonous Principle: resins and glycosides with cardioactivity
- Animals Poisoned: cattle, horses, and sheep

# Hemp Dogbane



- Very tough to control.
- Surmount at 3 to 6 pts per acre is the best.
- High rate of Cimarron Max is also effective.



Milky juice



# Hemp Dogbane



**Surmount at 3 pts/ac, 30 days after treatment**



**Hemp Dogbane**



**Surmount at 3 pts/ac, 340 days after treatment**



A photograph of a field with two white lines pointing to different vegetation types. The line on the left points to a dense, green, leafy plant, while the line on the right points to a taller, more grassy area. The background shows a line of trees under a blue sky with white clouds.

**Hemp Dogbane**

**Surmount at 6 pts/ac, 340 days after treatment.**



A wide-angle photograph of a field under a cloudy sky. The field is covered with a dense growth of Hemp Dogbane plants, which appear as a thick, brownish-purple mat. In the foreground, a single, taller green plant with a pink tag is visible. The background shows a line of trees on a distant ridge.

## Hemp Dogbane

**Cimarron Max 0.5 oz metsulfuron + 2 qts Weedmaster at, 30 days after treatment**





## Hemp Dogbane

Cimarron Max 0.5 oz metsulfuron + 2 qts Weedmaster at, 340 days after treatment.

# Butterfly Milkweed

*(Asclepias tuberosa)*



- Dangerous, but rarely eaten.
- Parts of Plant: all parts, green or dried (toxicity decreases with maturity)
- Poisonous Principle: cardiac glycosides and resinoids
- Animals Poisoned: sheep, cattle, horses, poultry





# Mustards

(*Brassica*)

- Poisonous principle: mustard oil (isothiocyanates).
- Animals poisoned: pigs, cattle, horses.
- All plant parts are toxic.

# Marijuana

*(Cannabis sativa)*



- Dangerous, but uncommon
- Parts of Plant: leaves and stalks (most toxic)
- Poisonous Principle: resin tetrahydrocannabinol. Depression of central nervous system
- Animals Poisoned: cattle, horses



# Sicklepod

(*Cassia obtusifolia*)

- Weakly toxic.
- Parts of Plant:  
leaves, stems, seeds
- Poisonous Principle:  
anthraquinones,  
glycosides, alkaloids
- Animals Poisoned:  
cattle, possibly  
others



# Coffee Senna

*(Cassia occidentalis)*



- Weakly toxic.
- Parts of Plant: leaves, stems, seeds
- Poisonous Principle: anthraquinones, glycosides, alkaloids
- Animals Poisoned: cattle, possibly others

# Bladderpod

*(Sesbania versicaria)*





# Buttonbush

*(Cephalanthus occidentalis)*



- Poisonous principle: glycosides in the leaves.
- Forage of last resort.
- Found in or near water.

# Goosefoot, Mexican Tea

(*Chenopodium ambrosioides*)



- Dangerous but rarely eaten.
- Parts of Plant: seeds
- Poisonous Principle: oxide ascaridol – causes nausea, muscular weakness, and vertigo
- Animals Poisoned: poultry (eating seeds)
- Folk remedy for worms





**Mexican tea,** *Chenopodium ambrosioides*





**Mexican tea,** *Chenopodium ambrosioides*



# Poison Hemlock

(*Conium maculatum*)



- Dangerous but rarely eaten.
- Parts of Plant: leaves and unripe fruit
- Poisonous Principle: alkaloids, also contains coniine and coniceine which are teratogenic
- Animals Poisoned: horses, cattle, swine, poultry, goats, sheep



# Hemlock, Poison



Grazon P+D or Weedmaster at 1 qt per acre





**Poison  
Hemlock**



**Poison Hemlock**



# Crotalaria

*(Crotalaria spectabilis)*



- Dangerous
- Parts of Plant:  
leaves, stems, roots,  
seeds (dry or green)
- Poisonous  
Principle:  
pyrrolizidine  
alkaloid  
monocrotaline

# Crotalaria



- Animals Poisoned: all livestock – 2 g of seed fed daily for 7 days will kill 50 lb hog, 9 lb of dried leaves will kill 300 lb steer in 4 days.

# Jimsonweed

(*Datura stramonium*)



- Dangerous
- Parts of Plant: all parts, but particularly seeds. 0.06 to 0.09 % of animal weight is fatal to cattle.



Jimson weed, *Datura stramonium*





# Teens ending up in ER after ingesting jimson weed



FERNANDO SALAZAR, WICHITA EAGLE/MCT

What many people might not realize about the jimson weed (pictured above) is that consuming it can trigger a powerful hallucinogenic effect, and that the plant's chemical effects can be fatal.

**TIM POTTER**

*McClatchy Newspapers*

WICHITA, Kan. — Over the years, jimson weed has drawn

police Lt. Jimmy Queen. The teen went to a hospital and was released the same day, Queen said.

Police found the patch of

**Jimson weed,**

*Datura stramonium*

# White Snakeroot

*(Eupatorium rugosum)*



- Dangerous
- Parts of Plant: all parts, green or dried
- Poisonous Principle: alcohol (trematol) and glycosides. Daily digestion necessary for toxicity
- Animals Poisoned: cattle, sheep, hogs, horses, mules, and goats

Nancy Lincoln (Abe's Mother) died at the age of 35 from drinking the milk of a cow that has grazed on the poisonous white snakeroot. Abe was 9 at the time.



# Bitter Sneezeweed

*(Helenium amarum)*



- Group 1 (dangerous)
- Parts of Plant: leaves, stems, flowers, and fruit
- Poisonous Principle: sesquiterpene lactone
- Animals Poisoned: sheep, cattle, horses

Very common in Western Arkansas

# Bitter Sneezeweed



**Small, threadlike leaves  
of bitter sneezeweed**



**The central flowers are in  
a ball like cluster.**

The plants have a strong odor and bitter taste.



# Bitter Sneezeweed

- Apply when 1 to 3 in. tall, usually in May
- 1-2 pts/acre:
  - 2,4-D
  - Grazon P+D
  - Weedmaster
  - Cimarron Max 1 pt + 0.25 oz
- Cimarron 0.25 to 0.33 oz/ac





# Bitter Sneezeweed Control

2,4- D 1 pint acre

untreated







# Sumpweed

*(Iva annua)*

- Poisonous to cattle.
- Rare
- Not well researched
- Often found in swampy areas
- Shown to be toxic to embryos.

# Lantana



- Parts of plant: all
- Poisonous Principle: Contains triterpenoid and other compounds that irritate the mucosa lining the gastrointestinal tract.
- Animals poisoned: cattle, sheep, humans, horses.
- Used as an ornamental. Often winter kills in AR



# Sweet Clover

*(Melolitus)*

- Poisonous Principle: Moldy hay may contain dicoumarin which interferes with blood clotting.
- Animals Poisoned: cattle, horses, sheep.





Sweet Clover, *Melilotus* sp





Sweet Clover, *Melilotus* sp



Sweet Clover, *Melolitus sp*





Sweet Clover, *Melolitus* sp



# Millet

*Pennisetum americanum*

Due to nitrate accumulation related to environmental conditions. Much more likely in hay versus fresh forage.





# Perilla Mint

*(Perilla frutescens)*



- Dangerous.
- Eaten during dry summers when forage is scarce.
- Parts of Plant: leaves and stems
- Found along the edge of woods and streams

# Perilla Mint

*(Perilla frutescens)*



- Poisonous  
Principle:  
perilla ketone,  
egomaketone,  
isoegomaketone
- Animals  
Poisoned: cattle  
and horses





Perilla Mint



# Perilla Mint Control

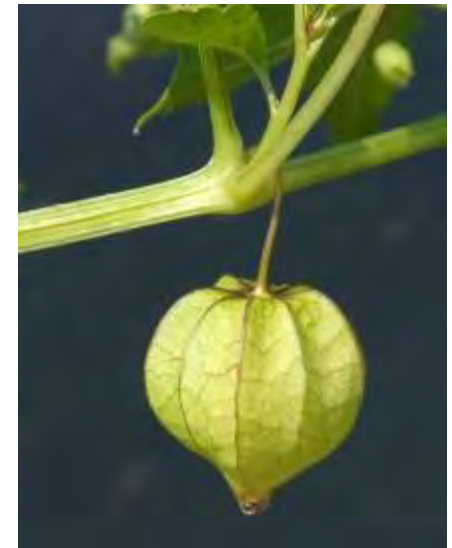


- Cimarron 0.25 to 0.33 oz/acre
- 2,4-D 1 qt/acre
- Grazon P+D 1 to 2 pts/acre
- Weedmaster 1 to 2 pts/acre
- Cimarron Max 1 pt + 0.25 oz



# Ground-cherry

*(Physalis spp)*



- Dangerous but rarely eaten.
- Parts of Plant: tops and unripe fruit
- Poisonous  
Principle: solanine glycoalkaloids
- Animals Poisoned: cattle



# Pokeweed

*(Phytolacca americana)*

- Dangerous
- Parts of Plant: roots (most toxic), shoots, leaves, and berries
- Animals Poisoned: cattle, horses, hogs (roots), causes abortion in cows





Pokeweed, *Phytolacca americana*





Pokeweed



# Pokeweed Control

- Cimarron 0.25 to 0.33 oz/acre
- 2,4-D 1 qt/acre
- Grazon P+D 1 to 2 pts/acre
- Weedmaster 1 to 2 pts/acre
- Cimarron Max 1 pt + 0.25 oz



# Black Cherry

(*Prunus serotina*)

- Dangerous
- Parts of Plant: leaves, twigs, bark, seeds
- Poisonous Principle: hydrocyanic acid (prussic acid), hydrogen cyanide is released in stomach when fresh leaves are eaten
- Animals Poisoned: cattle, horses, sheep, goats, dogs, birds





**Cherry Laurel**  
(*Prunus caroliniana*)



Cherry bark

# Bracken Fern

*(Pteridium aquilinum)*

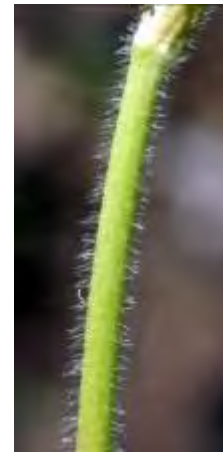


- Dangerous
- Parts of Plant: leaves and rhizomes, fresh or dry
- Poisonous Principle: causes thiamine deficiency
- Animals Poisoned: cattle, horses, sheep, chickens, hogs



# Buttercup

(*Ranunculus spp*)



- Minor importance
- Parts of Plant: top leaves and stems
- Poisonous Principle: irritant oil (protoanemonin)
- Milk of cows is bitter and reddish in color
- Animals Poisoned: cattle, other animals less frequent





## Buttercup Control

- Treat in the seedling stage. Late winter to early spring.
- 1-2 pt/ac 2,4-D or...
- Grazon P+D
- Weedmaster
- Cimarron 0.25 to 0.33 oz/acre
- Cimarron Max 1 pt + 0.25 oz



Buttercup



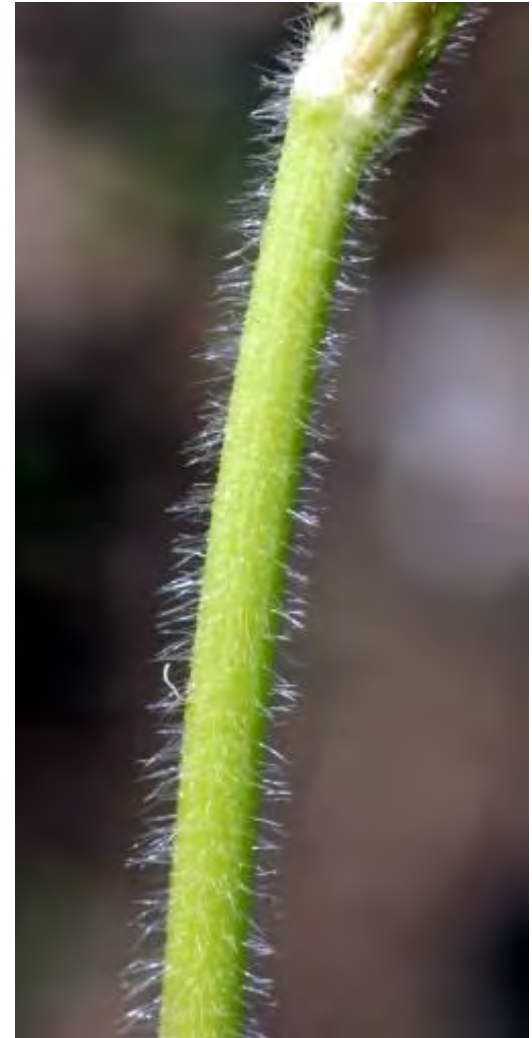




**Buttercup**



# Buttercup



Hairy buttercup stem

# Castorbean

(*Ricinus communis*)



- Dangerous
- Parts of Plant: leaves and seeds (contaminated grain)
- Poisonous Principle: alkaloids, hydrogen cyanide
- Animals Poisoned: horses, cattle, sheep, pigs, poultry, and dogs



# Black Locust

*(Robinia pseudoacacia)*



- Dangerous
- Parts of Plant: inner bark, root sprouts, wilted leaves, and seeds
- Poisonous Principle: alkaloids and glycoside
- Animals Poisoned: all livestock



A close-up photograph of a Black Locust (Robinia pseudoacacia) branch. The branch features several pinnate leaves, each composed of multiple oval-shaped leaflets. Sharp, dark thorns are visible along the stem. The background is a dense, out-of-focus green field.

# Black Locust





**Black Locust**



**Black Locust**



# Black Locust





# Groundsel

*(Senecio)*

- Contains alkaloids.
- Suspected of poisoning cattle and horses.





# Hemp Sesbania

*(Sesbania hederacea)*

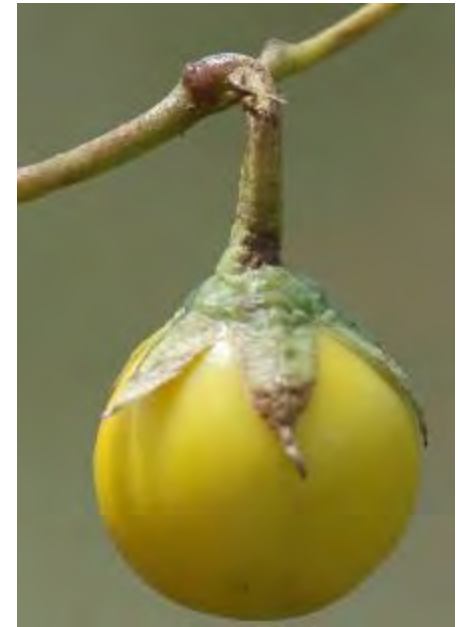


- Dangerous
- Parts of Plant: seeds
- Poisonous Principle: saponin
- Animals Poisoned: cattle



# Horsenettle

*(Solanum carolinense)*



- Plant Parts: ripe berries, green berries and leaves.
- Poisonous Principle: toxic alkaloid solanine.
- Animals Poisoned: all livestock



# Horsenettle

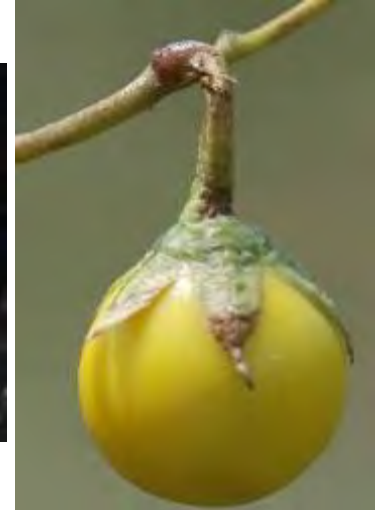




# horsenettle







## Horsenettle Control

- Apply at mid-bloom through fruiting
- Best – Grazon P+D at 3.0 pts./acre or Grazonext at 2.6 pts/ac
- Fair – WeedMaster at 4.0 pt./acre or 2,4-D at 3 pts/ac
- Add a nonionic surfactant at 0.25% v/v.

# Black Nightshade

(*Solanum nigrum*)



- Dangerous
- Parts of Plant: leaves and especially unripe green fruit
- Poisonous Principle: solanine glycoalkaloids, causes death from respiratory paralysis
- Animals Poisoned: livestock and pets



Black nightshade, *Solanum nigrum*







Black nightshade, *Solanum nigrum*





**May cause poisoning due to nitrate accumulation related to environmental conditions. Much more likely in hay versus fresh forage.**

**Johnsongrass (*Sorghum halepense*)**





**Johnsongrass**



**Big ligule**



**White midrib**



# Johnsongrass Control

## Outrider

- Rate 1.33 oz per acre
- No injury to bermudagrass
- 14 day grazing/haying restriction
- About \$15/acre

# Outrider (sulfosulfuron) Use

- Add 0.25% surfactant
- Apply to 18 to 24 inch johnsongrass
- Aim for spraying after the johnsongrass re-grows after the first cutting – early June.
- Johnsongrass must be actively growing. Warm temperatures, good moisture required.
- Do not spray big, tough, full seed head, drought stressed johnsongrass.





**Untreated**

**Outrider treated plot**

# Poison Ivy

*(Toxicodendron radicans)*



- Toxic Principle:  
phenolic  
compound  
urushiol
- Mucous and  
membrane irritant
- No effect on  
livestock.
- Breathing smoke  
may cause  
irritation.





**Poison ivy, *Toxicodendron radicans***





Poison ivy





# Poison ivy, *Toxicodendron radicans*







**Poison ivy, *Toxicodendron radicans***





**Poison ivy, *Toxicodendron radicans***



**Poison ivy,**  
***Toxicodendron***  
***radicans***





# Common Cocklebur

*(Xanthium strumarium)*



- Dangerous
- Parts of Plant: seeds and very young seedlings
- Poisonous Principle: Diterpenoid glycoside (animals can develop a tolerance)
- Animals Poisoned: swine, cattle, and sheep. Death occurs in 12 to 24 hours



**Cocklebur**











**Common Milkweed**  
*Asclepias syriaca*



# Milkweed

(*Asclepias*)



- Cardiac failure due to physiologic effects

# Common Milkweed Control

- Grazon P+D 2-3 pts/acre
- Surmount 3 pts/ac

