



This Booklet Prepared By:  
Hamilton County Soil and Water Conservation District  
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# Maintenance Recommendations and Fun Activities for Your Tall Grass Prairie



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## **Prairie Restoration Maintenance and Weed Control<sup>1</sup>**

One of the many benefits of prairie restoration projects is the low maintenance aspect of the areas. However, restored prairie areas are not completely low maintenance until they mature, a process which takes about three years. During the establishment period, a number of important steps must take place. Starting with site preparation and continuing through the first few years of weed management, careful attention to these steps will help ensure a successful prairie, ultimately providing a low-maintenance area for years in the future.

### **Maintenance**

A prairie takes time to develop, requiring patience and careful management the first few years. However, if your prairie was planted correctly and you follow these maintenance instructions, your prairie should mature into a unique, self-sustaining natural habitat.

### ***Year one***

Most prairie plants are perennials. Although perennial seeds will germinate the first year, the focus during the seedling stage is upon root growth. The young seedlings' root growth will be two to three times their above-ground growth. While they are establishing their deep root systems, they may not flower. While this lack of visual growth can be frustrating, keep in mind that it is the deep, strong root system of prairie perennials which enables them to be low maintenance at maturity.

During this early stage of establishment, weeds will take advantage of the lack of above-ground vegetation and appear on your site. To minimize the adverse effects of tall weeds shading prairie seedlings and to prevent these weeds from setting seed, you should plan to cut your planting up to three times during its first growing season (generally when weeds reach 10 to 15 inches in height, but always before they set seed). This is generally done by bush hogging on 30-day intervals. Bush hogging is effective, but it is important to keep the blade set as high as possible. A height

## **Additional Resources**

### **Hamilton County Soil and Water Conservation District**

[www.hamiltonswcd.org](http://www.hamiltonswcd.org)

### **Indiana Dept. of Natural Resources, Div. of Fish & Wildlife**

<http://www.in.gov/dnr/fishwild/>

### **Tall Grass Prairie In Illinois**

<http://www.inhs.uiuc.edu/~kenr/tallgrass.html>

### **Prairie Nursery**

<http://www.prairienursery.com/store/>

### **Native Plant Sites in Hamilton County**

Cool Creek Nature Center

Strawtown Koteewi Park

West Park, Carmel

Central Park, Carmel

MacGregor Park, Westfield

Ritchey Woods, Fishers

River Road Park

Liberty Park, Westfield

## **Credits**

The narratives for the plants came from the USDA/NRCS Plants Database at website: <http://plants.usda.gov/java/>

Captioned photos were taken from the USDA/NRCS Plants Database. Other photos were taken by Shaena Reinhart, employed by the Hamilton County Soil and Water Conservation District

Dan McCord, Hamilton County Urban Conservation Association, wrote the "Prairie Restoration Maintenance and Weed Control" article.

## Violet prairie clover *Dalea purpurea* Vent.

Alternate Names- purple prairie clover

### Description

Violet prairie clover is a native, warm-season legume which grows to a height of 30 to 90 cm. Several stems may grow from a single base. The flowers are pinkish-purple on elongated spikes which are 2-4 cm long. The flower head at the end of a wiry stem is



cylindrical, with a fringe of rosy petals on a partly bare cone. Violet prairie clover flowers the last of May through September. The leaves are divided into 3-5 narrow leaflets which may be sparingly hairy.

### Uses

Violet prairie clover can be used in roadside plantings, as wildlife food and habitat, in wildflower gardens because of its attractive flowers, and as a small component in a seeding mixture for prairie restoration. Tea can be made from

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vigorous taproot to reduce fever in measles victims. This plant is highly palatable and nutritious. It is grazed often and tends to decrease under heavy use. Violet prairie clover fixes nitrogen in the soil.

### Adaptation and Distribution

Violet prairie clover occurs in prairies, rocky open glades, along railroads, and rocky or open woods. It ranges from Indiana to Saskatchewan and Montana, south to Tennessee, Arkansas, Texas and New Mexico; also in Alabama and introduced east to New York. It is most abundant in the upland of the true prairie. It also occurs in sand prairies, hill prairies, and gravel-hill prairies.

of six to eight inches is generally used on the first mow and raised as needed in order to cut above the native plant growth. While the mowing will control weed seed development, it can also reduce blooming of desired plants especially if a non-aggressive annual is added to the planting.

Hand weeding is also useful during the first growing season, especially to remove individual noxious weeds such as thistle. These aggressive weeds may have to be treated with spot herbicide spraying. This can be accomplished by the landowner using a backpack sprayer or outsourcing the service. At no time should fertilizers be used. Prairie plants are well-adapted to their environment and do not need fertilization. This

expensive practice is not only unnecessary in a natural habitat, but is detrimental because it can encourage weeds and other undesirable vegetation.



### Year two

During the second season, residual seeds from the first season will germinate and some of the faster growing native plants will flower and produce seed. However, there may still be a need for weed control. One bush hogging might be necessary sometime between mid-June and mid-August. The height and density of the weed cover should help determine if and when to mow. In areas where weeds are especially dominant, the advantages of cutting the weeds and preventing them from setting seed offset any disadvantages of cutting prairie plants. If mowed, the height will generally be 12 inches or more. Bush hogging and the continued development of

prairie species should eliminate the weeds in time. However, spot spraying individual noxious weeds might still be necessary.

### **Year three**

By the third year (and in the years to follow) your patience will begin to pay off. Both native grasses and wildflowers will be mature, providing a beautiful, low-maintenance habitat. While not required, one cutting per year can be used as a clean-up procedure if the area looks too ragged for the landowner. The best time to cut off old prairie vegetation is in early Spring or late Fall.

### **Once Established**

Once a planting becomes established and undesirable plants are under control, some type of periodic disturbance will maintain the health and vigor of the prairie species and will help keep invading woody species in check. This disturbance will generally involve bush hogging or burning all or part of the planting. Prairie species evolved with fire and grazing; therefore, they benefit from this activity.



A backpack sprayer is a great tool for applying herbicide to unwanted plants in the prairie.

In nature, fire has been the primary disturbance method. Therefore, a controlled burn is a useful maintenance tool, but requires expertise. In addition, fire may not be an option in the urban setting or where gas pipelines are present. Be certain to check local regulations and permit procedures prior to this procedure and always use caution.

## **Eastern purple coneflower *Echinacea purpurea***

### **Description**

*General:* Sunflower  
Family (Asteraceae).

*Echinacea purpurea* is a perennial herb 1.5-6 dm (0.5-2 ft) tall, with a woody rhizome or tough caudex. The plant has one to several rough-hairy stems, mostly unbranched. Basal and lower cauline leaf blades are ovate to ovate-lanceolate with serrate edges, up to 2 dm long and 1.5 dm wide,



and slightly heart-shaped at the base. The flowers are in heads like sunflowers with the disk up to 3.5 cm across. The drooping ray florets have ligules 3-8 cm long, and are reddish-purple, lavender, or rarely pink. The disk florets are 4.5-5.5 mm long, and are situated among stiff bracts. Flowers bloom from June to August

**Ethnobotanic:** Purple coneflower (*Echinacea purpurea*) was and still is a widely used medicinal plant of the Plains Indians. It was used as a painkiller and for a variety of ailments, including toothache, coughs, colds, sore throats, and snake bite (Kindscher 1992). The Choctaw use purple coneflower as a cough medicine and gastro-intestinal aid (Moerman 1986). The Delaware used an infusion of coneflower root for gonorrhea and found it to be highly effective. *Echinacea* is widely used as an herbal remedy today. A purple coneflower product containing the juice of the fresh aerial parts of *Echinacea purpurea* was found to make mouse cells 50-80 percent resistant to influenza, herpes, and vesicular stomatitis viruses. This product was available in Germany in 1978 (Wacker and Hilbig 1978). Other research has shown that the purple coneflower produces an anti-inflammatory effect and has therapeutic value in urology, gynecology, internal medicine, and dermatology (Wagner and Proksch 1985).

## Partridge pea *Chamaecrista fasciculata* (Michx.)

### Description

*General:* Pea Family (Fabaceae). Partridge pea is an annual sub-erect native legume plant that reaches a height of 1 to 3 feet. The leaves consist of 10 to 15 pairs of small, narrow leaflets that are somewhat delicate to the touch. The showy yellow flowers, about 1 inch across, grow 2 to 4 together in clusters on the stem. Flowers normally bloom July-September. The fruit is a straight, narrow pod 1½ to 2½ inches long, which splits along 2 sutures as it dries; the pod sides spiral to expel the seeds some distance from the parent plant.

### Uses

*Wildlife:* The seed is one of the major food items of northern bobwhite and other quail species because it remains in sound condition throughout the winter and early spring. Partridge pea was found to be one of the most important fall and winter foods of bobwhite quail in Alabama. Partridge pea seeds are high in phosphorus content and protein value, and low in crude fiber and lignin



making digestibility generally high. Partridge pea is considered an important honey plant, often occurring where few other honey plants are found. Nectar is not available in the flowers of showy partridge pea but is produced by small orange glands at the base of each leaf. Ants often seek the nectar and are frequent visitors. The common sulfur butterfly lays its eggs on the leaves, and the larvae use the leaves as a food source.

**Ethnobotanic:** Cherokee Drug (Sports Medicine): root medicine used to keep ball players from tiring. Cherokee Drug (Stimulant): compound infusion given for fainting spells. Seminole Drug (Antiemetic): cold decoction of plant used for nausea.

<sup>1</sup> This article on “Prairie Restoration Maintenance and Weed Control” was written by Dan McCord, Hamilton County Urban Conservation Association

### Additional Activities in the Prairie

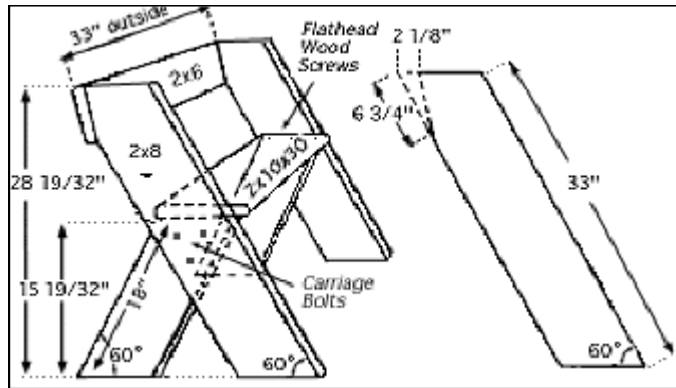
- ◆ Birding or starting a bird viewing group in the neighborhood will bring people closer to the prairie.
- ◆ Providing sources of water for birds and small mammals where there are none. Bird baths and garden ponds will help fulfill the habitat requirements for animal life.
- ◆ Additional natives can be added to the prairie to add further diversity. Seed or plants can be purchased from local nurseries or mail order from native plant specialist.
- ◆ Harvesting seed from prairie flowers is a way to expand the flowers and help fill in any bare spots. The seeds can be removed by hand from the pods in



removed by hand from the pods in September. In late November open up bare spots with a rake and broadcast the seed on the ground. Lightly rake over the seeded area. Mixing the seed with sand or vermiculite (4 parts inert material to 1

part seed) will provide better distribution of the seed.

## Build a Bench Along the Path



To spy a Leopold bench in someone's yard is to know something about the family who there resides. Even if you haven't read Leopold's opening lines, ***"There are some who can live without wild things, and some who cannot. These essays are the delights and dilemmas of one who cannot,"*** from A Sand County Almanac, you will appreciate this easy-to-build bench. If left untreated, this stable bench develops a characteristic gray patina, however, putting some preservative where bench meets ground will prolong its life. Its form, resting alone under a tree or in congregation around a firepit, reminds us of Leopold's thoughtfulness:

***"The last word in ignorance is the man who says of an animal or plant, 'What good is it?' If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering."***

**Materials:** One 2x6x33", one 2x10x30", one 2x8x10', six 3/8"x 3 1/2" carriage bolts with washer and nut, twelve 3/8" x 3 1/2" #12 or #14 flathead wood screws. Use Douglas Fir for your Leopold bench, if you can, and customize its size to suit you. The materials listed will make a 33" bench, but you may choose to build out to 48".

## Lance-leaf coreopsis *Coreopsis lanceolata* L.

### Description

This plant is a clump-forming perennial herb with short rhizomes. Leaves may or may not be hairy; basal leaves are divided and the upper leaves are entire and oval-shaped. The flower heads are borne singularly or in small groups on upright stems from April to June. They are 1-2 inches in diameter and yellow with a yellow center. The seed are dark brown, winged, and curved to almost semi-circular.

### Uses

This plant is used mainly for landscape beautification. It has potential for use in cultivated, garden situations, in naturalized prairie or meadow plantings, and along roadsides.

### Adaptation and Distribution

Lance-leaf coreopsis prefers full sun, but will tolerate light shade. On sites that are heavily shaded, plants produce fewer flowers and the stems grow taller. It can grow on many soil types, but prefers a well-drained soil. Natural stands are often found on dry, infertile sites.



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## Illinois Bundleflower *Desmanthus illinoensis*

### Description

**General:** The Legume family (Fabaceae). Illinois bundleflower is a warm season, self-pollinating, herbaceous, perennial, leguminous forb. Multiple stems grow from a woody caudex which is attached to the perennial root system of this legume species. Stems are glabrous, angled, longitudinally grooved and erect. The plant stands .6 to 1.3 meters in height. Its bipinnately compound leaves are alternately attached to the stem. Leaves are sensitive to external stimuli such as sunlight or touch which causes infolding of the leaflets. Flowers are white and five parted

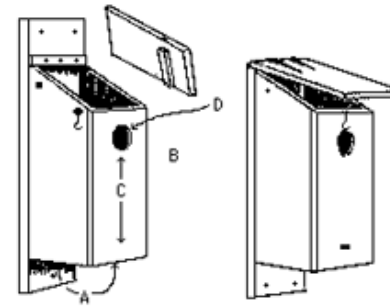


R. Alan Shadow, NRCS East Texas PMC, Nacogdoches, TX.

with 5 sepals, petals and stamens. The peduncles or stalks supporting the inflorescences are located in the leaf axil. The white globose heads produce clustered flat scythe-shaped pods which are slightly spirally twisted. Two to several seeds are contained within the dry dehiscent pods. The dark brown pods are broadly oblong and flat being 3 to 4 times longer than wide. Seeds are brown and 3 to 5 mm long, nearly as wide and mature in August. Kulakow (1999) indicated that certain accessions of bundleflower exhibited an indehiscent legume pod which would provide a means of breeding shatter resistant lines of bundleflower.

**Uses:** Recommended for use in range seedings and for wildlife food and cover. Illinois bundleflower is a nutritious plant and is readily eaten by all classes of livestock, deer and pronghorn antelope. It decreases under heavy grazing and is an important range condition indicator. Its seeds are readily consumed by birds and rodents. It is considered one of the most important native prairie legumes (Stubbendieck and Conard, 1989). It is frequently used in range revegetation projects. Illinois bundleflower was a minor medical plant for Native Americans (Kindscher, 1992). The Omaha and Ponca tribes called it rattle plant because the seeds in the dried pods were used by children as rattles while imitating the dance rituals of adults. Pawnees used the boiled plant leaves to produce a wash which was used to relieve itching. Illinois bundleflower is being studied as a potential human grain crop by the Land Institute of Salina, Kansas (Jackson, 1985).

## Make and Hang Birdhouses



This simple design will serve all bird-box-nesting species. It is the size of the house and its dimensions that influence which birds you will attract. By making the roof or a side detachable, it will be easy to clean

Type of Bird	A Size of Floor (inches)	B Depth of Box (inches)	C Height of Entrance above Floor (inches)	D Diameter of Entrance Hole (inches)	Height above Ground (feet)
Bluebird	5x5	8	6	1-1/2	5-10
Chickadee	4x4	8-10	6-8	1 1/8	6-15
Titmouse	4x4	8-10	6-8	1 1/4	6-15
Nuthatch	4x4	8-10	6-8	2-20	--
House Wren and Bewick's Wren	4x4	6-8	4-6	1-1 1/4	6-10
Carolina Wren	4x4	6-8	4-6	1 1/2	6-10
Violet-green Swallow and Tree Swallow	5x5	6	1-5	1 1/2	10-15
Finch	6x6	6	4 1/2	1 1/2	8-12
Starling	6x6	16-18	14-16	2	10-25
Flicker	7x7	16-18	14-16	2 1/2	6-20
Red-headed Woodpecker	6x6	12-15	9-12	2	12-20
Downy Woodpecker	4x4	8-10	6-8	1 1/4	6-20

## Plant Identification

### Grasses

**Big Blue Stem** *Andropogon gerardii* Vitman (also known as turkey foot)

#### Description

*General:* Grass Family (Poaceae). Big bluestem is a perennial warm-season grass. It can be distinguished from other warm-season grasses by blue coloration at the base of the culm



and purplish, 3-parted flower clusters that resemble a turkey's foot. The culms are erect, up to 3 m tall, stout, and are usually covered with a blue-tinted waxy layer. Leaf blades are flat, 15-60 cm long, 0.5-1 cm wide, smooth below and rough above. The inflorescence is typically composed of three spike-like racemes, but can have as many as seven. The racemes bear paired spikelets that are about 1 cm long. Flowering takes place July through October. The foliage changes color seasonally, and culms stay erect through the winter.

*Ethnobotanic:* Chippewa Indians used the root of big bluestem as a diuretic and to alleviate stomach pains. Extracts of the leaf blades were used as a wash for fevers or as an analgesic. The plants were also used to fasten the support poles of dwellings. Moist grass was laid on hot stones to prevent steam from escaping during cooking. It was also used to cover fruit during ripening and under fruit while drying.

*Wildlife:* Big bluestem provides shelter for nesting birds and insects. Songbirds and prairie chickens consume the seeds while white-tailed deer and bison graze vegetative parts.

**Gray-headed Coneflower** *Ratibida pinnata* (Vent.) Barnh.

### Description

Gray-headed coneflower is a native perennial forb growing up to 4 feet tall on a hairy, slender stem. The leaves are pinnately compound, mostly with five to seven lanceolate segments with harsh and scurty surfaces (Bruggen 1976). The basal leaves are on long stalks, with the blade of the leaf up to 7 inches long. The upper leaves are smaller and often undivided. Flower heads are about 3 inches wide and on long individual stalks. Each head has a bullet-shaped disk, gray at first and then becoming brown with age. The disks less than 1 inch tall and usually taller than wide, surrounded by up to 13 downward pointing, yellow, petal-like ray flowers. The seed heads are sharply aromatic when crushed.



### Adaptation and Uses

Gray-headed coneflower can be used for roadside plantings, prairie restoration, wildlife cover, landscaping, and plant diversity in prairie communities.

Gray-headed coneflower grows best in sunny locations with well-drained loam, clays and sandy soils, prefers calcareous soils that are neutral pH 6-7. to be planted 1/8 inch deep. Gray-headed coneflower is best seeded in the winter



## Forbs (native wild flowers)

### **Black Eye Susan** *Rudbeckia hirta*

#### **Description**

*Rudbeckia hirta* L., black-eyed Susan, is a biennial forb about 1 m tall with yellow ray flowers and dark brown spherical centers. After germination, the seedling grows into a rosette with oblong leaves. Sometimes flower stalks will appear in the first summer, but typically black-eyed Susan blooms from June to September of the second year. After flowering and seed maturation, the plants die. The seed is very small (1,746,000 per pound) and black, about 2 mm long and 0.5 mm in diameter.

#### **Uses**

*Wildlife:* This plant offers protection and food to several song and game birds.

*Recreation and beautification:* Black-eyed Susan can be used for landscaping and in wildflower gardens.



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#### **Adaptation and Distribution**

Black-eyed Susan is naturalized in most of the states east of Kansas and the bordering areas of Canada. It is adapted throughout the Northeast on soils with a drainage classification range from well-drained to somewhat poorly drained. It will perform acceptably on droughty soils during years with average or above rainfall, but best growth is achieved on sandy, well drained sites. It is winter hardy in areas where low temperatures are between -30 ° and -20 °F.

### **Little Blue Stem** *Schizachyrium scoparium*

#### **Description**

Little bluestem is a medium height grass with coarse stems and basal leaves. As a warm season grass it begins growth in late spring and continues through the hot summer period until the first killing frost. It is easily mistaken for common broomsedge. Little bluestem has very flat bluish basal shoots. Plants are green, but often purplish at base of stem and the entire plant has a reddish cast after frost. Leaves are smooth, but frequently are covered with hair at the base next to the sheath. Leaves tend to fold with maturity. Seed head clusters about three inches long. The cluster stems are hairy. Plant height varies from 18 inches on droughty sites to 3 feet on deep, fertile soils. There are 255,000 seeds per pound.

#### **Uses**

*Wildlife:* Little bluestem seed is eaten by songbirds and upland gamebirds. The plant provides cover for ground birds and small mammals.

*Landscaping:* With its blue-green leaves during the growing season and attractive rusty color with white fluffy seedheads in the fall, little bluestem is useful in ornamental plantings.



#### **Adaptation and Distribution**

Little bluestem is one of the most widely distributed native grasses in North America. It will grow on a wide variety of soils but is very well adapted to well-drained, medium to dry, infertile soils. The plant has excellent drought and fair shade tolerance, and fair to poor flood tolerance. It grows preferentially on sites with pH 7.0 and slightly higher. Little bluestem is distributed throughout the United States. For a current distribution map, please consult the Plant Profile page for this species on the PLANTS Website.

## Indiana grass *Sorghastrum nutans*

### Description and Adaptation

Indiangrass (*Sorghastrum nutans* [ L.] Nash), is a native, rhizomatous, perennial, warm-season bunchgrass. It is a major component of the tall grass vegetation which dominated the prairies of the central and eastern United States. It is common in longleaf pine understory communities. Indiangrass grows 3 to 7 feet tall. Even when young, it can be distinguished by the “rifle-sight” ligule occurring where the leaf blade attaches to the leaf sheath. The leaf blades grow to 3 feet long, and narrow at the point of attachment.



The seed head is a single, narrow, bronze-yellow plume-like panicle maturing to brown. The seed is light and fluffy with small awns attached. There are approximately 175,000 seeds per pound. Indiangrass is adapted from Florida, north to Canada, and west to North Dakota, Wyoming, and Utah. It grows well in deep, well-drained floodplain soils and in well-drained upland sandy loam soils. It is tolerant of poor and well-drained soils, acid to alkaline conditions, and textures from sand to clay.

### Uses

**Erosion control:** Critical areas, roadside cover and areas subject to wind erosion

**Pollinators:** Indiangrass constitutes part of the native plant community in support of pollinators.

**Restoration:** Indiangrass is used in restoration of native prairie areas and longleaf pine understory sites.

**Wildlife:** White-tailed deer browse Indiangrass foliage. A mix of Indiangrass and other native warm-season grasses and forbs provide nest, brood and escape cover for bobwhite quail. Indiangrass seed is consumed by birds and small mammals.

## Side-oats Grama-*Bouteloua curtipendula*

### Description

**General:** Side-oats grama is a deep rooted, perennial grass. The plants crown will spread very slowly by means of extremely short, stout rhizomes. A mid-grass in height, it has rather wide leaves and a very distinct inflorescence consisting of a zigzag stalk with small compressed spikes dangling from it at even intervals. The short spikes dangle from one side of the stalk, thus providing the plant with its common name. In the vegetative state the grass is easily recognized by the long, evenly spaced hairs attached to the margins of the leaf near its base. Side-oats grama possesses the C-4 photosynthetic pathway common to warm-season grasses (Waller and Lewis, 1979).

### Uses

**Wildlife:** Side-oats provides some forage for antelope and deer when actively growing. Elk will use this grass as forage throughout the year. Leithead et al. (1971) indicated that the seed of this species was consumed by wild turkeys.

**Distribution:** . One of the most widely distributed of the grama grasses. It has a widespread distribution eastward from the Rocky Mountains to near the east coast except in the southeast.

**Habitat:** Side-oats grama grows effectively in the dryer mid-grass prairie section of the Great Plains that has an annual rainfall of 12-20 inches. This species occurs naturally in mixed stands with blue grama (*Bouteloua gracilis*) and little bluestem (*Schizachyrium scoparium*). This grass is better adapted to calcareous and moderately alkaline soils than to neutral or acidic soils (Leithead et al., 1971)



Photo by: Alan Shadow, East Texas Plant Materials Center, Nacogdoches, Texas