

Earth-Kind

Texas A&M AgriLife Extension





Earth-Kind Plant Selection

Tim Hartmann

Plant Selection

The right plant can only be right in the right place!





Plant Selection Considerations: Climate

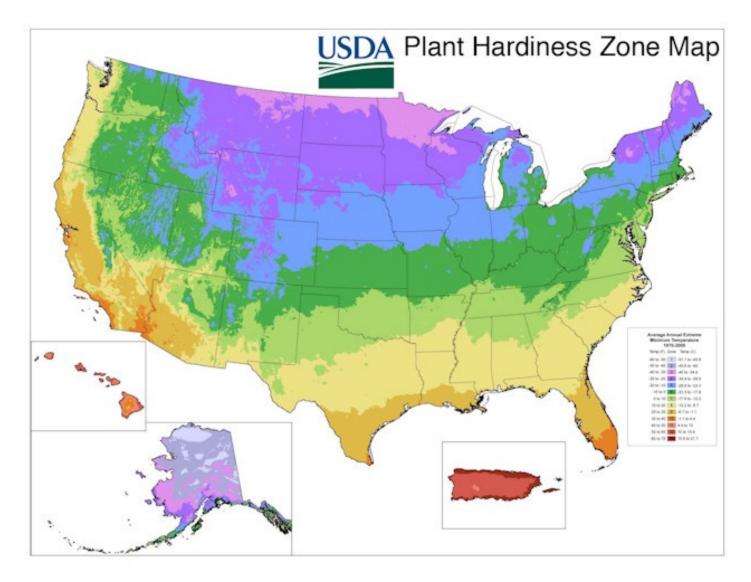
Temperature

- Cold (hardiness and chilling)
- Heat (daytime highs / night temps.
- Humidity / rainfall
- Light
 - Quantity, quality, and timing
- Prevailing wind



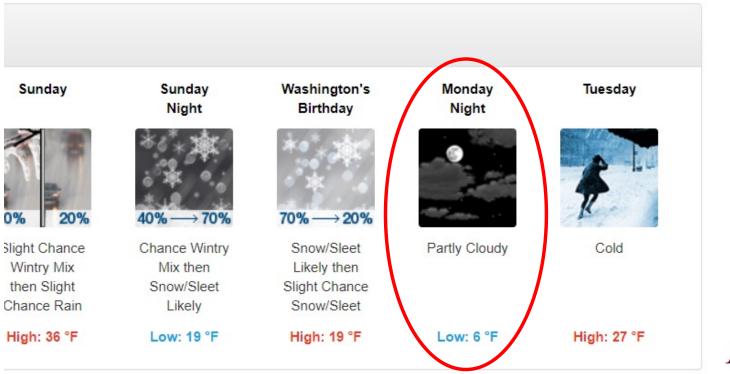


Cold Tolerance





More Information: Local Forecast Office More Local Wx 3 Day History Mobile Weather Hourly Weather Forecast





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TEXAS A&M

College Station, TX February 17th 2021 A.D. ATEXAS A&M GRILIFE EXTENSION







http://ucani/adu/blogs/blogcore/postdetail.cfm?postnum=19122

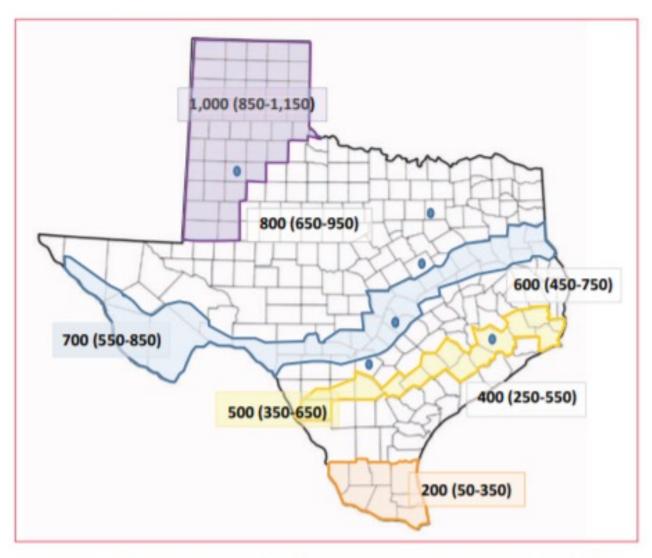


Figure 3. Average number of hours of winter chilling below 45° F in Texas.

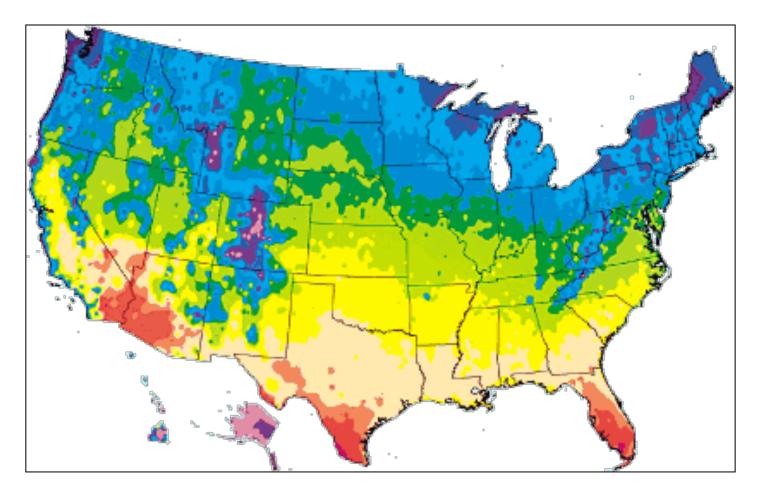






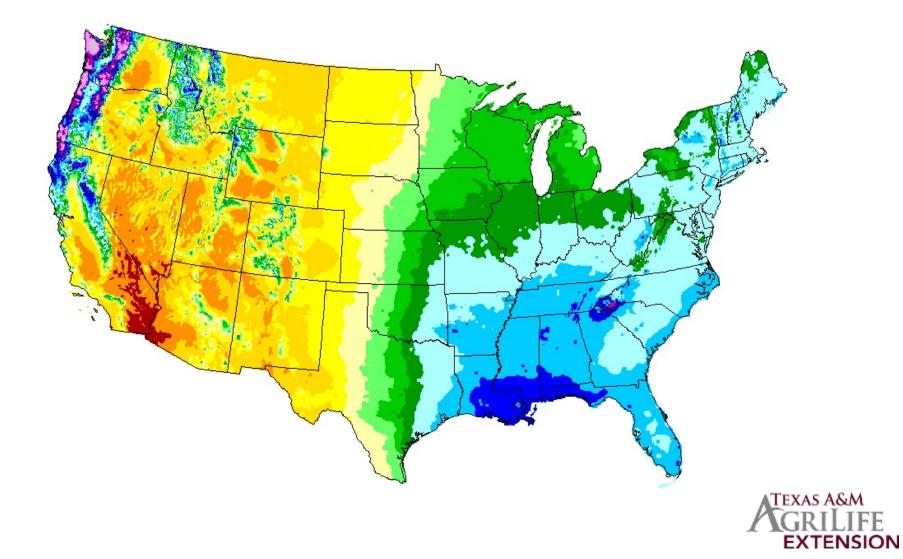


ASHS Heat Zone Map:





Precipitation















Other Environmental Considerations

- Soil-related
 - Texture / structure
 - pH
 - Depth

• Water-related

- Quantity
- Salinity / impurities
- pH / alkalinity

• <u>Pest / Disease</u>













Agarito Berberis trifoliolata

- USDA 7 to 9
- Spread 3 to 5 feet (occasionally to 8 feet in height)
- Full sun to partial shade, alkaline or slightly acid soils
- Native to South and Central Texas, heat and drought tolerant
- Pointy, evergreen foliage with red berries resemble American Holly
- Aromatic flowers in early spring give way to edible berries in May









TEXAS A&M

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Zoning Irrigation

Regular watering:

- Turf grass (sprinklers)
- Annuals
- Vegetables
- Occasional watering:
 - Perennials
 - Some trees / shrubs
- <u>No / limited supplemental irrigation:</u>
 - Most adapted trees, shrubs, and groundcovers





Regular water use plants

- Most turf grasses
- Vegetables
- Wax leaf begonia
- Dianthus
- Sweet William
- Coleus
- Impatiens
- Caladium
- Gerbera daisy
- Geranium
- Pentas

Nasturtium Banana Zinnia Snapdragon Pansy Elephant ear Croton Hosta Day lily Gingers



Medium water use plants

- Lantana
- Verbena
- Firebush
- Most ornamental grasses
- Esparanza
- Bird of Paradise (*Caesalpinia*)
- Artemeisa
- Hibiscus
- Most Iris
- Perennial herbs
- Turk's cap
- Perennial phlox
- Crinum lily
- Amaryllis
- Liriope

Cast Iron Plant Asparagus fern Mealy sage Echinacea Autumn sage Mexican bush sage Mexican mint marigold Gomphrena Purslane and moss rose Wandering Jew Vinca Rock rose Society garlic Holly fern



Low water use plants

- Asiatic jasmine
- Yaupon holly
- Possumhaw
- Crepe myrtle
- Oleander
- Primrose jasmine
- Flowering quince
- Red yucca
- Elaeagnus
- Natal plum
- Cotoneaster
- Pitosporum

Earth-kind roses Crimson barberry **Desert willow** Chinese pistache Cedar elm **Bald cypress** Yuccas Agaves Texas redbud Mexican plum Monterrey and Chinkqpin oak Live oak



What about microclimates???

- Sun / shade patterns
- ✓ Air movement (hedges, fences, etc.)
- Pavement
- Modification of soil (compaction, amendments)
- Irrigation
- ✓ Mulch
- Planting pattern (crowding)





Microclimates around structure

North side: shade & heavy water-users

• East side: part shade / heavy water users

West / Southwest: arid / heat-tolerant

• South side: tropical / tender plants



Microclimates around structures

North side: shade & heavy water-users

• East side: part shade / heavy water users

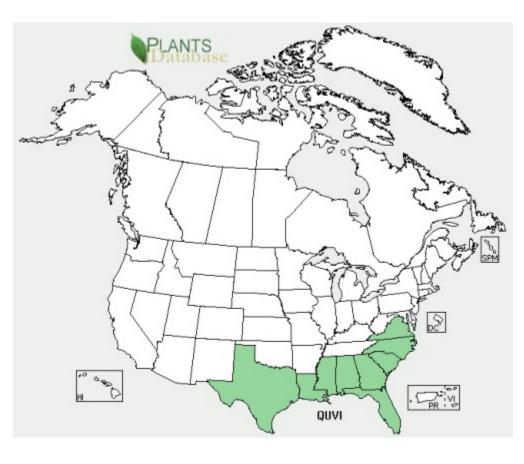
West / Southwest: arid / heat-tolerant

• South side: tropical / tender plants





What about provenance?





Slide credit: Laura Miller

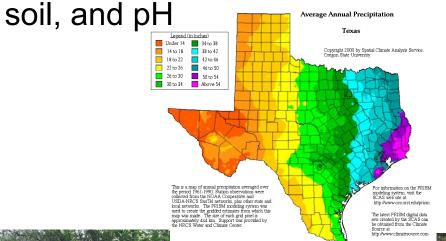
GRILIFE EXTENSION

Texas Natives



Native, to what region?

Considerations: Temperature, precipitation,









What is a Non-native

"A plant introduced with human help (intentionally or accidentally) to a new place or new type of habitat where it was not previously found. Note: Not all non-native plants are invasive. In fact, when many non-native plants are introduced to new places, they cannot reproduce or spread readily without continued human help (for example many ornamental









What is an Invasive?

"A plant that is both non-native and able to establish on many sites, grow quickly, and spread to the point of disrupting plant communities or ecosystems. Note: From the Presidential Executive Order 13112 (February 1999): 'An invasive species is defined as a species that is 1) non-native (or alien) to the ecosystem under consideration and 2) whose introduction





Can a Native be Invasive?

"A native plant that is able to take advantage of disturbance to the soil or existing vegetation to spread quickly and outcompete the other plants on the disturbed site".

-NRCS





Plant Diversity is important!





Monocultures can be native too....





Hardiness can be "bred out" of natives







Other Adapted Plants





Plant Quality Considerations

- Final height and width
- Growth rate
- Form and growth habit
- Aesthetic quality
 - Color, texture, bark, flowers, fall color, etc.
- Plant use
 - Tree, shrub, perennial, ground cover, etc.



Purchasing Shrubs and Trees

Bare-root Bare-root Bare-root Bare-root Second S

- Dormant-planted deciduous plants
- Lower cost, but short shelf-life

Balled-and-burlapped (B&B)

- Field-grown deciduous or evergreen with root ball
- Longer planting window, but more costly

Container-grown

- Trees: 5 to 10 gallon
- Shrubs: 1 to 5 gallon
- Others: 4" to 1 gallon (perennial / groundcover)





TEXAS A&A



Purchasing Shrubs & Trees: considerations

Plant size: bigger isn't always better!



Plant architecture and shape



Root : Shoot proportion



Plant health and condition





Planting Shrubs and Trees: preparation

Circling roots on container plants should be cut with a knife or shovel to prevent stunting and severe damage later.



Broken / damaged and circling / crossing roots should be removed from bare-root plants before planting.

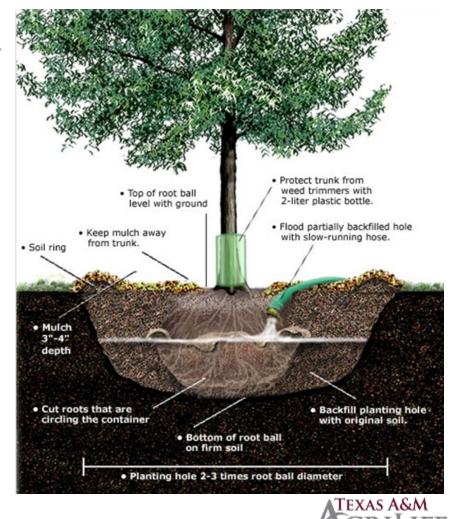




Proper Planting:

Because a million dollar hole doesn't make a million dollar tree!

- 1. Dig hole twice as wide, no deeper
- 2. Plant at original depth
- 3. Backfill with ORIGINAL soil
- 4. Soil ring and mulch
- 5. Water deeply
- 6. Stake loosely (if necessary)
- 7. Trim back top as necessary



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Plant Use Types

- Trees
- Shrubs
- Vines
- Groundcovers
- Perennials
- Annuals
- Turf





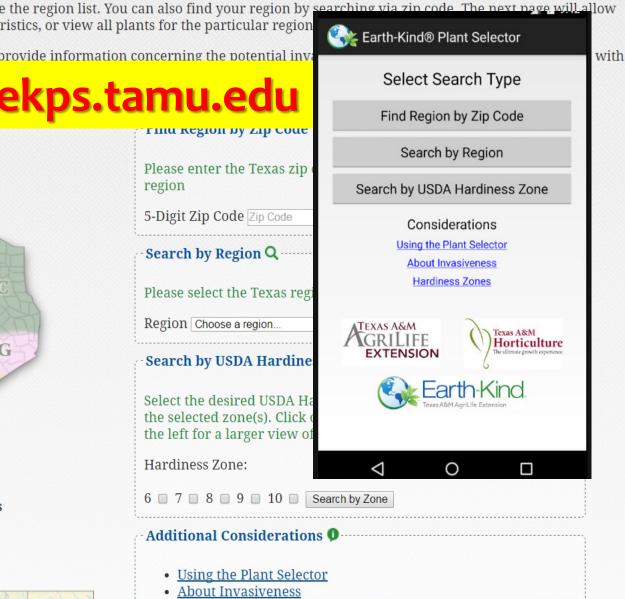
u.edu

Earth-Kind[®] Plant Selector

Select your general region on the map or use the region list. You can also find your region by searching via zin code. The next name will allow you to search for plants by specific characteristics, or view all plants for the particular region

The Earth-Kind® Plant Selector DOES NOT provide information concerning the potential inv a high Earth–Kind® index value will gene Invasiveness for more information.





"Region B - North and Central Texas"

Fill in the information to refine your search, or select "Show ALL Plants for Region" to see all plants listed for your region/zone. Plants will be ordered by those most well adapted to your region. Photos are not available for all plants at this time.

Name 🗣	
Common Name: Common Name	
–Scientific Name 🛓	
Scientific Name: Scientific Name	
Habit or Plant Use: groundcover	
–Exposure 🕿	
Partial sun 🗷 Shade 🔲 Sun 🗷	
-Blooming 🏶	
Flower Color: Flower Color	
Bloom Period: Fall 🔲 Spring 🔲 Summer 🗔 Winter 🗔	
-Leaf Character 🎾	
Annual \square Deciduous \square Evergreen \square Herbaceous perennial \square	Semievergreen 🔲
-Firewise Index 🖪	
Firewise Index: Choose a firewise index 🔻	
-USDA Hardiness Zone &	
The dropdown below only lists hardiness zones found in the curr	ent region
USDA Hardiness Zone: Choose a hardiness zone ▼	
Click image for enlarged map of USDA Hardiness Zones	
Search by Above Criteria Clear Form	

Landscaping

"	1	2	»
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« 1 <u>2</u> <u>»</u>				Results Per Page: 20 🔻
🙆 Photo	🗣 Common Name	📥 Scientific Name	📽 Exposure	🗑 Earth-Kind® Index
	Rockrose	Pavonia lasiopetala	sun, partial sun	10.00
	<u>Turk's Cap</u>	Malvaviscus arboreus var. drummondii	sun, partial sun, shade	10.00
	<u>Eastern Redcedar</u>	Juniperus virginiana	sun	10.00
	<u>Coralberry</u>	Symphoricarpos orbiculatus	sun, partial sun, shade	10.00
	<u>Asian Jasmine</u>	Trachelospermum asiaticum	sun, partial sun, shade	10.00
	<u>Salvias or Sages</u>	Salvia spp.	sun, partial sun	



Back to Search Results

Common Name:

Rockrose

▲ Scientific Name:

Pavonia lasiopetala

Family Name:

Malvaceae

Description:

Rockrose is a small deciduous to semi-evergreen shrub, subshrub, herbaceous perennial or summer annual depending upon the region in which it is grown. Plants have irregularly rounded crowns and look best in masses. The small cordate leaves and pink hibiscus-like flowers add seasonal interest. It works best as summer color, a tall bank or groundcover, in mixed perennial borders, for naturalizing, or low shrub in warmer regions.

Plant Habit or Use:

warm season annual, perennial, groundcover, shrub, small shrub

Exposure:

sun, partial sun

Flower Color:

Pink

Blooming Period:

Spring, summer, fall

Fruit Characteristics:

Schizocarp

I Height:









Landscaping

Schizocarp

I Height:	
1 ft to 5 ft	
- Width:	
2 ft to 5 ft	
G Farth_Kind® I	dex

10.00

Explanation of the Earth-Kind® Index numerical value

- Heat Tolerance: High Heat Tolerance
- Water Requirements: Low Water Use
- Soil Requirements: Low Soil Requirements
- Pest Tolerance: High Pest Resistance
- Fertility Requirements: Low Fertility Requirements

Explanation of the Earth-Kind® Index breakdown

Firewise Index

10.00 Explanation of the Firewise Index numerical value

& USDA Hardiness Zones:

7, 8, 9, 10, 11

Regions that intersect these hardiness zones:

Region A - Panhandle and High Plains • Region B - North and Central Texas • Region C - Northeast and East Texas • Region D - West Texas • Region E - Upper Rio Grande • Region F - Hill Country and Central Coast • Region G - Southeast Texas • Region H - Rio Grande Valley



Click image for enlarged map of USDA Hardiness Zones

Additional Comments:

Plants are marginally hardy in USDA zone 7 and are usually subshrubs or herbaceous perennials in zone 8.



Criteria for Selecting a Texas Superstar®

1) Must be attractive and useful to the gardening masses.

2) Must be unique and offer desirable and ornamental characteristics not usually available in commonly sold plants.

3) Must consistently perform well for Texas consumers regardless of their plant expertise and growing locations.

4) Must be as pest resistant as possible (deer proof an added bonus).

5) Must be able to be propagated and mass-produced in sufficient numbers to meet the increased consumer demand.

6) Must be so attractive in the sales container that it sells itself to the consumer who has never heard of the many attributes of the plant.



Texas Superstar® Executive Builty

• Brent Pemberton, Chair

Texas A&M AgriLife Research-Overton, TX

• Mike Arnold

Texas A&M University-College Station, TX

Tim Davis

Texas A&M University-College Station, TX

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Larry Stein

Texas A&M AgriLife Extension-Uvalde, TX





Texas Superstar® Plants Strong and Stunning Plants for Texans

Texas Superstar[®] plants have survived several years of extensive field trials and proven themselves to be super-performing plants under Texas growing conditions. They receive minimal soil preparation, minimal water and no pesticides. What does that mean for your garden? It means landscape success with beautiful, proven, Texas-tough plants.

Whether spring, summer, fall or winter, Texas is unsurpassed when it comes to the natural beauty and color of our flowers and plants.



Put Down Texas Superstar[®] Roots – and Enjoy the View!

TEXAS DEPARTMENT OF AGRICULTURE



E-mail Grow.Texan@TexasAgriculture.gov for a free copy of the Texas Superstar® Strong and Stunning Plants for Texans brochure.

Groundcovers



Asiatic Jasmine Trachelospermum asiaticum

- USDA 8 to 11 (Apocynacea)
- Full sun to shade
- 6" to 24" layer-forming mound
- Glossy evergreen foliage (seldom flowers)
- Rapidly spreading, but does not climb
- Tolerant of drought, salinity, pest/disease
- Variegated forms less vigorous
- Cold damage further Notrth(typically returns)
- "Go-to" groundcover for most of Texas







Ornamental Sweet Potato

Ipomoea purpurea





English Ivy Hedera helix

- USDA 4 to 8 (Araliaceae)
- Mostly sun to dense shade
- Widely adapted as groundcover or vine
- Many cultivars, including variegated forms
- Climbs via aerial rootlets (benefit or liability)
- Unattractive adult form should be pruned out











Beauty can be fleeting......





Liriope / Lilyturf

- USDA 6 to 10 (Liliaceae)
- Sun to shade (variegated forms need shade)
- 8" to 18" tall, quickly spreading
- Clump-forming grass-like groundcover or edging
- Appreciable white to purple flowers in late summer
- Tolerant of heat/drought once established
- Periodic shearing to ground









Mondo/Monkey Grass Ophiopogon japonica

- USDA 6 to 10 (Liliaceae)
- Partial sun to shade
- Dark green grass-like mat; groundcover / edging
- 2" to 12", depending on variety
- Finer texture than Liriope, less attractive flowers
- Less tolerant of heat/sun than Liriope
- Drought tolerant once established









Setcreasea / Purple Heart Tradescantia pallida

- USDA 9-13 (survives 8b)
- Full sun (best color) to dense shade
- 12" to 18" tall, spreading
- Warm season perennial in cooler regions
- More compact improved selections
- Good drainage, tolerates some drought









Mondo/Monkey Grass Ophiopogon japonica

- USDA 6 to 10 (Liliaceae)
- Partial sun to shade
- Dark green grass-like mat; groundcover / edging
- ⊙ 2" to 12", depending on variety
- Finer texture than Liriope, less attractive flowers
- Less tolerant of heat/sun than Liriope
- Drought tolerant once established









Prostrate Rosemary Rosmarinus officinalis 'Prostratus'









Cross Vine Bignonia capreolata

- USDA 6a to 10 (Bignoniaceae)
- Full sun to partial shade
- Woody, evergreen vine native to E. Texas
- Yellow to orange trumpet-shape blooms
- Early spring, sporadically throughout summer
- Tolerates heat, drought, and range of soils









Coral Honeysuckle

Lonicera sempervirens

- USDA 4 to 9 (Caprifoliaceae)
- Sun to partial shade
- Evergreen vine with tubular red/pink flowers in spring
- Texas native is better behaved than its Asian cousin
- Requires less support than many vines
- Tolerant of salinity, drought, and pests/disease





Shrubs



Coralberry Symphoricarpos orbiculatus

- USDA 3 to 9
- Full sun to mostly shade
- Spread: 2' to 4', spreading from rhizomes
- Native for naturalizing or groundcover
- Tolerant of wide range of soils, drought tolerant
- Showy pink berries persistent through winter









Rosemary Rosmarinus offincinalis

- USDA 7 to 10
- Spread: 2 to 5 feet, prostrate form 1 foot tall and spreading
- Full sun to partial shade, needs well-drained soil
- Mediterranean plant tolerant of drought and heat and variety of soils
- Gray-green to blue-green needle-like foliage is extremely aromatic
- Tiny tube-shape lavender flowers in spring and summer









Possumhaw Ilex decidua

• USDA 4 to 9

 \odot

- Full sun to almost full shade
- Max. spread: 8'-12' tall x 6'-10' wide
 - Texas native that is tolerant of heat, drought, and heavy soils
- Deciduous foliage gives way to red berries persistent through fall and winter
- Best to plant named female clones







TEXAS A&M

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Feijoa / Pineapple Guava Acca sellowiana

• USDA 8 to 11

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• Full sun to partial shade (some afternoon shade beneficial)

Showy (edible) pink flowers give way to tasty fruit in late fall

- Spread: 8'-12' high x 7'-9' wide with gray-green foliage
- Tolerant of a variety of soils, but prefers well-drained
- Moderate heat and drought tolerance











Small Trees



Texas Mountain Laurel Sophora secundiflora

- USDA 8 to 10 (can survive in 7 with some occasional damage)
- Max spread 8'-12' tall x 4'-8' wide
- Full sun to partial shade with good drainage
- Showy evergreen foliage with very fragrant purple pea-shaped flowers in spring

TEXAS A&*N*

EXTENSION

• Great native with excellent heat and drought tolerance



Mexican Plum Prunus mexicana

- ⊙ Small 15' to 20' deciduous tree
- USDA 7 to 9
- Full sun to part shade
- Drooping leaves, white flowers, and edible fruit
- Attractive peeling bark and nice winter form
- Tolerant of alkaline soils and cotton root rot



• Needs good drainage









Chinese Fringetree Chionanthus retusus

- Small to medium, 15 to 30 feet \odot
- USDA 6 to 9 (\bullet)
- Full sun / part shade \odot
- Multi-trunked with corky bark \odot
- Dark green deciduous leaves \odot
- Fragrant white flowers in spring \odot
- Widely tolerant of soil types \odot
- Improved selections grafted \odot







Medium and Large Trees



Texas Red Oak / Spanish Oak Quercus buckleyi (Q. texana)

- USDA: 6 to 9 (Fagaceae)
- ⊙ Full sun
- Medium size deciduous tree, 30 to 50 feet
- Smaller version of shumard oak
- Variable red/orange color in late fall
- Better suited to drought, alkalinity than *Q. shumardii*
- Susceptible to Oak Wilt
- Requires good drainage



Cedar Elm Ulmus crassifolia

- USDA: 6 to 9 (Ulmaceae)
- ⊙ Full sun
- Medium to large upright/oval tree (40 to 70 feet)
- Fairly dependable creamy yellow/gold fall color
- Rugged and widely adapted TX native
- Well-adapted to limitations of urban plantings:
- Tolerant of heat, drought, salinity, compacted soils
- Better tolerance to D.E.D. than *U. americana*





Bur Oak Quercus macrocarpa

- ⊙ Large, 60' to 80' deciduous tree
- USDA 3 to 9, full sun
- Stout trunk with coarse "clubby" growth
- Deeply lobed leaves and very large acorns
- Too large for most residential applications
- Tolerant of drought and variety of soils









Perennials



Mealy Cup Sage Salvia farinacea





Autumn Sage Salvia greggii



'Gold Star' Esparanza Tecoma stans



Firebush Hamelia patens

- USDA: 8b to 11 (summer annual elsewhere)
- Full sun to partial sun
- Herbaceous perennial (small shrub in tropics)
- 3 to 5 feet spread, to 8 feet in the tropics
- Dense green foliage with red blush
- Brilliant red to yellow-orange tubular flowers
- Great for hummingbird / butterfly gardens
- Extremely heat-tolerant; best in middle of summer
- Tolerant of drought, salinity, and alkaline soils





Pride of Barbados Caesalpinia pulcherrima

- USDA: 8b to 11 (annual elsewhere)
- Full sun to partial sun
- Herbaceous perennial, tropical shrub in S. Texas
- 3 to 6 feet spread (to 15 feet in Tropics)
- Panicles of stunning orange/yellow, mimosa-like foliage
- Great choice for areas with reflected heat
- Tolerant of heat, drought, salinity, and alkaline soils
- Requires at least decent drainage
- Often planted with Tecoma stans (Esparanza)





Ornamental Grasses



Gulf Coast Muhly Grass Muhlenbergia capillaris



'Princess Caroline' Napier Grass







Other Resources

http://aggie-horticulture.tamu.edu/earthkind/

http://aggie-horticulture.tamu.edu/ornamental/

http://texassuperstar.com/

http://urbanlandscapeguide.tamu.edu/

http://texastreeplanting.tamu.edu/

http://ipm.tamu.edu/

http://itc.tamu.edu/Drip%20Project.php

