Water-Efficient Landscapes for Oklahoma

E-1051

Oklahoma Cooperative Extension Service
Division of Agricultural Sciences and Natural Resources
Oklahoma State University

$10

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Introduction

The City of Oklahoma City Utilities Department has partnered with the Department of Horticulture and Landscape Architecture at Oklahoma State University and the Oklahoma Cooperative Extension Service to promote outdoor water conservation through proper outdoor watering and drought-tolerant landscaping. Water is a non-renewable resource that we tend to undervalue. In Oklahoma, home landscapes consume 30 to 40 percent of household water use. As much as 50 percent of outdoor water use is lost due to inefficient practices. It is possible to have an attractive landscape while conserving water. The choices made by the individual, as a steward of the land, are what determine how efficiently water is used.

This publication will assist the homeowner in designing a landscape that is attractive while eliminating wasteful water usage. The first portion of the booklet is focused on water-efficient design strategies using the Seven Principles of Xeriscaping. The second portion of the booklet is a guide to plants that perform well in Oklahoma and have low to moderate water requirements. The plants listed in this guide are targeted for Oklahoma City specifically, with many also suitable for the entire state of Oklahoma. All selections were chosen for their heat and drought tolerance, as well as commercial availability. Thank you to the authors of OCES publications E-1037 and E-1038, from which much of this content is adapted.

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The City of
OKLAHOMA CITY
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Seven Principles of Xeriscaping

The word xeriscape comes from combining the Greek word xeros, meaning dry, with landscape. It is a landscape design approach that seeks to reduce or eliminate supplemental watering by considering the native environment and applying seven design principles.

Planning and design - consider function, location and environmental conditions.

Soil improvement - maximize water absorption and water-holding capacity.

Practical turf - size and manage turf based on intended use.

Plant selection and placement - select plants that will thrive in the natural environment.

Efficient irrigation - manage supplemental water effectively.

Use of mulch - reduce evaporation from the soil and regulate soil temperature.

Appropriate maintenance - ensure the health of plants and maintain an attractive landscape.

Planning and Design

Conduct a Site Evaluation

The purpose of the site evaluation is to record existing structures and features of the landscape, identify the positive and negative aspects of the existing landscape and record specific environmental and site characteristics. A site inventory documents all existing elements on the site in their existing location (Figure 1).

First, draw your landscape to scale as best you can. Grid paper is useful for drawing to scale. Mark the location of the house and unattached buildings such as garages or sheds, as well as existing walkways, drives, utilities boxes, patios, fences and other structures. Reproduce the general floor plan of the house, including the locations of windows and doors. Have utility lines mapped and add these to the drawing. Record the locations of existing plant material including trees, shrubs and flowerbeds. Mark the location of tree trunks and use circles to indicate the extent of the tree crown or canopy.

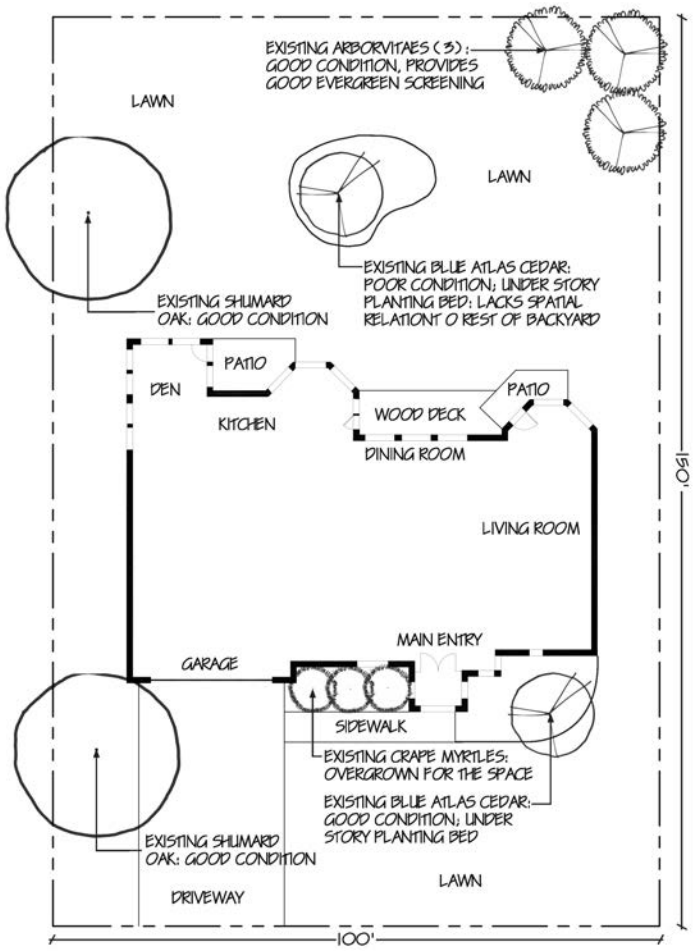


Figure 1. Example site analysis and base map of a property.

Once existing structures are recorded, walk through the landscape and take careful notes regarding environmental and site conditions. Take note of the following characteristics and record them on your site map.

Sun exposure - Indicate areas that receive full sun (six or more hours of direct sun), part sun (four to six hours per day) or shade (less than four hours of direct sun daily).

Wind - Identify areas that are exposed to strong winds and areas that are sheltered by buildings, structures or plants.

Topography - Low spots tend to remain wet and experience more frost than uphill areas. Steep slopes create challenges due to erosion and runoff and may need to be altered.

Temperature - Identify hot spots in the landscape, such as along south-facing walls or near air conditioning units and dryer vents. Areas that receive full sun or afternoon sun will also be hotter (and drier) than shaded sites. Also consider north-facing slopes that will be cold or receive limited sunlight in the winter. This may contribute to winter kill of plants.

Water and drainage - Identify areas in the landscape where water collects. Low spots and areas surrounding drain spouts tend to be wet. Other areas may be exceptionally dry. Record any existing irrigation systems and structures.

Soil type - Soil type will greatly affect the drainage of an area. Sandy soils drain very quickly, while clay soils are slow to drain. Record the soil texture (sand, silt, clay) in different areas of the landscape.

Determine the End Use of the Area

Creating a water-efficient landscape begins in the planning stages. How do you plan to use

the space? Do you need to plan areas for pets or children to play? This may lead to a plan for larger areas of turf. Do you want areas set aside for outdoor dining or relaxation? This might include a new patio or deck. Do you want space for a vegetable garden? This will require an area of the yard that receives full sun. Be thorough and consider all members of the household. Consider long-term plans, as well as immediate ones. Perhaps you someday plan to put in a swimming pool or hot tub. These should be included in the initial planning. Remember — hardscapes will reduce the amount of supplemental irrigation required.

Create a Design Plan

The next step to creating a water-efficient landscape is design. It is a good idea to make several photocopies of your landscape drawing to use for planning. Work in pencil. You will likely make several drafts before coming up with a plan you like. The landscape drawing already indicates the locations of existing structures, trees and other plantings. Remove from your drawing any plants or structures you plan on removing or replacing in the landscape. Now draw bubbles to represent the different use areas you intend to incorporate and label each bubble clearly with the intended use. This is called a bubble drawing or bubble plan. Bubble drawings help define use areas and allow visualization of how different use areas fit together into the landscape. The bubbles roughly correspond to the shape and size of planned use areas, but will continue to be refined throughout the design process (Figure 2). Remember to include service areas where garbage cans may be stored, an area for composting and a location for stacking firewood, if needed. Patios, walkways and sheds can be drawn to approximate the intended shape and size. Be sure to include all planned use areas and proposed structures.

When considering plant placement, it is important to use hydrozoning. This is the practice of grouping plants with similar water needs in the same areas. Separating the plants into water use zones ensures plants receive only the amount of water they require. If plants with high and low water requirements are mixed into the same zone, over- or under-watering the planting bed will occur, which will harm plants and waste water. Plants inside similar water zones also should be arranged in a way that respect their size, color and texture. This will be discussed in more detail in the section titled “Plant Selection and Placement.”

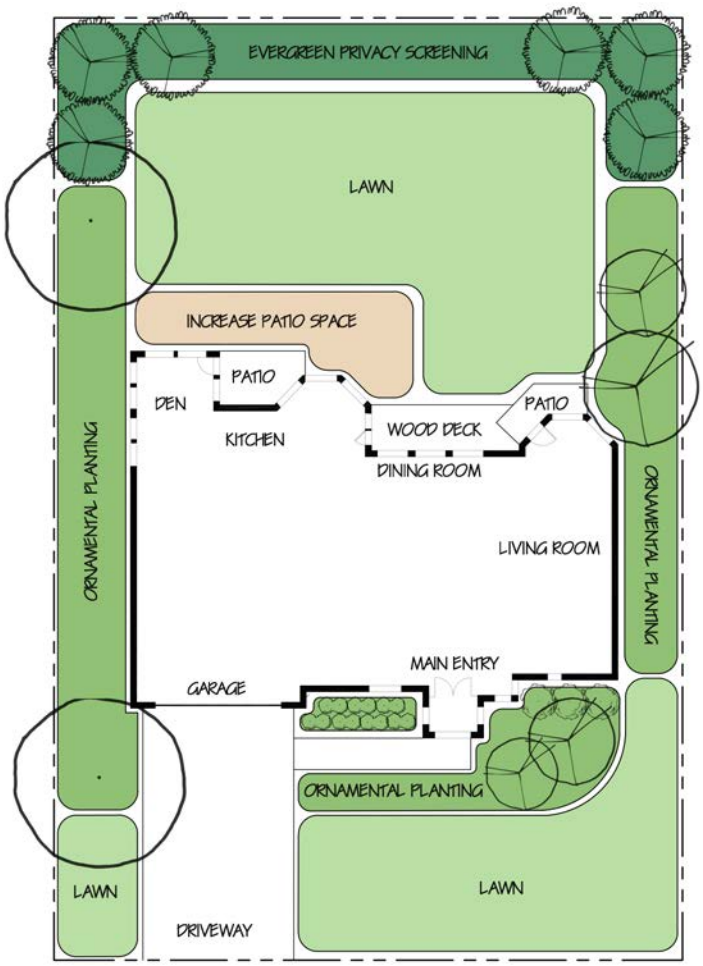


Figure 2. Example landscape design concept for the home landscape.

Soil Improvement

Soil Testing

A healthy home landscape starts with a healthy soil. Homeowners should collect a soil sample to ensure the area has the desired pH and available nutrients required for plant growth. Choosing the correct fertilizer and applying it properly creates a healthy landscape and reduces nutrient losses that can be a threat to water quality. A healthy landscape should only be fertilized according to soil test results and plant needs. Homeowners should have the soil tested every three years minimum.

Collect a Useful Sample

1. Separate the yard by zones or differences in soil fertility, such as: vegetable garden, flowerbed and turfgrass.
2. Separately sample unusual or non-representative areas.
3. Use a soil probe or shovel and take a soil sample from the surface to a depth of 6 inches from 15 to 20 locations in each separate area (Figure 3). Many county Extension offices have a soil probe available for checkout.

Figure 3. Use a soil probe or shovel to sample from 15 to 20 random locations and mix in a clean bucket.

4. Mix the samples in a clean bucket and completely fill a soil sample bag (2 cups of soil), which can be obtained from the local county Extension office or a plastic bag.
5. Repeat for each area in your landscape, making sure to label each bag according to the zone or area collected.
6. Drop the sample off at the local Extension office. Your soil test results will include soil test interpretations to ensure proper fertilization rates.

Soil Texture

Soil texture is based on the percentage of sand, silt and clay particles. Soil texture affects soil water infiltration rates and nutrient- and water-holding capacity. Knowing the texture of the soil will allow for more effective watering.

Sand particles are larger than silt particles, which are larger than clay particles (Figure 4). Sand-sized particles allow for larger pore spaces between soil particles, allowing water and air to flow into the soil. Since the pore spaces are large, sandy soils may need to be watered more often due to low water-holding capacity. Small particle sizes, such as clays, have smaller pore spaces between particles, having less space for water and air flow into the soil. Clay soils may need to be watered less often due to high water-holding capacity.

Many homes are built on compacted “fill dirt” introduced during the construction process. The compacted soils reduce water infiltration rates and restrict root growth. To increase water infiltration, loosen the soil by aerating or incorporating organic matter. It is recommended that turfgrass be planted on a minimum of 6 inches of topsoil.

Improve Soil Quality

Adding organic matter is beneficial for all soil types. For clay soils, it helps decrease compaction and increase drainage. Sandy soils benefit from increased aggregation and higher nutrient-holding capacity. Organic matter is rich with nutrients that are important for plant growth. Organic matter can be added to the soil directly or as compost, which is decomposed organic matter.

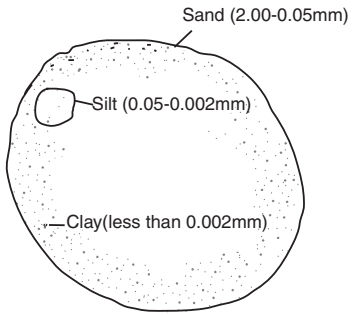


Figure 4. Relative size of sand, silt and clay particles.

Practical Turf

Turfgrass serves a vital role in the landscape. It reduces soil erosion, provides a place for outdoor recreation and increases the value of residential property. Turfgrass also can have a significant water requirement, which must be properly managed. A reduction in the total amount of traditional lawn, targeting practical and essential areas, based on function and aesthetics, will have a corresponding reduction in water use.

Turfgrass varieties vary in their need for supplemental irrigation. Turfgrass selection starts with choosing a grass well adapted to Oklahoma's variable temperature and moisture, site conditions and personal need. Table 1 provides sun requirements, heat tolerance and irrigation requirements of common turfgrass. For more information see Extension fact sheet HLA-6418 "Selecting a Lawn Grass for Oklahoma."

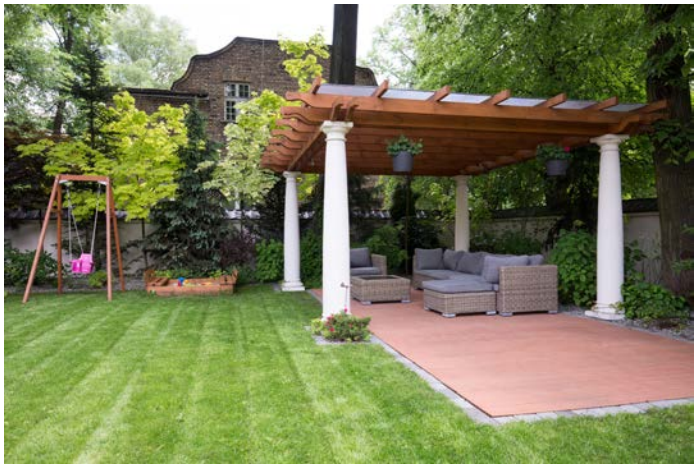


Figure 5. Combining turfgrass and water-pervious hardscapes, like pavers, can enhance the landscape, while reducing irrigation demand and managing run-off.

Table 1. Turfgrass selections and requirements.[1]

Turfgrass	*Region*	*Sun Requirements*	*Drought Resistance*	*Heat Tolerance*	*Irrigation Requirements*
Warm-season Turfgrass					
Bermudagrass	Statewide (May be susceptible to winter kill in northern areas)	Full sun	Excellent	Excellent	Low
Buffalograss	Central, western	Full sun	Excellent	Excellent	Low
St. Augustinegrass	Southern, along the Red River	Full sun to light shade	Good	Excellent	Medium
Zoysiagrass	Central and eastern	Full sun to light shade	Very Good	Excellent	Medium
Cool-season Turfgrass					
Kentucky Bluegrass	Northern, eastern	Full sun to shade[2]	Good	Fair	High
Perennial Ryegrass	Northern, eastern	Full sun to shade[2]	Poor	Fair	High
Tall Fescue	Statewide	Full sun to shade[2]	Good	Good	High

[1] When considering these ratings, only compare warm-season grasses to other warm-season grasses and cool-season grasses to other cool-season grasses.

[2] Recommended for lightly shaded areas. Requires more maintenance and irrigation in full sun.

Plant Selection and Placement

Plants add value to the home, provide shade, define spaces and elevate mood. Deciding which plants to use and where to place them in the landscape can be a rewarding task. Oklahoma supports hardiness zones 6a, 6b, 7a, 7b and 8a, depending on location. Make sure the plants you choose can survive in the hardiness zone for your area.

Deciding the goals for the landscape and conducting a site evaluation precede plant selection and placement. Within a landscape, there may be micro climates where particular plants thrive, while others may perform poorly (i.e. close to the south-facing wall of a house, under a large shade tree, etc.). Think about the plant maintenance needs such as proper watering, fertilizing, mulching, mowing and pest management. Determining the environmental conditions that exist within the landscape and choosing the right plant for the right space ensures successful landscape results. Consider the following five plant selection factors when choosing plants for the landscape.

1. Water Requirements

Proper plant selection and placement in the landscape ensures water savings for the future. Choose plants well adapted to Oklahoma's climate. Consider the potential placement of the plant and water use requirements. For example, plants in the shade may require less water than plants receiving direct sunlight. Plants conserve water by particular physical characteristics such as:

- Hairs on leaves and stems
- Waxy cuticle
- Bulbs and tubers
- Dormancy
- Leaf size and shape
- Small plant size
- Fleshy leaves
- Gray leaves

Keep in mind — plants do not waste water — we do. Check the soil moisture before watering to increase deep, strong root growth. Place plants with similar water and light requirements together to help conserve water, while also keeping plants healthy. Newly planted plants require more frequent watering than established plants. This publication includes a plant selection guide that provides a number of attractive plants that have low water requirements and can thrive in Oklahoma.

2. Mature Height

Before a beautifully mature landscape is achieved, there is a grow-in phase. Remember that the plants are going to grow for several years, depending on the plant. Annuals, which live only one year, typically grow fast. Perennials may grow fast or slow, depending on the species and cultivar. Trees and shrubs may take three to five years or more to become established. Some plants will grow very tall and should not be placed close to a structure or right next to surrounding plants. Give plants time to grow into the space. Once the plants have been established, they require less water. Make sure to adjust irrigation schedules accordingly.

3. Color

Choosing plants with different bloom times and colors creates year-long interest. Three basic color schemes work well in the garden (Figure 6).

- **Analogous colors:** Colors that are next to each other on the color wheel add contrast in the garden.

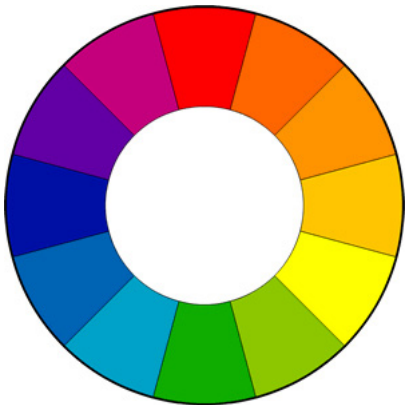


Figure 6. Use the basic color schemes to create variety and interest in the garden.

- **Complementary colors:** Colors directly opposite on the color wheel intensifies each individual color.
- **Monochromatic colors:** Colors of a single hue, creating a peaceful appearance.

Place plants with different bloom times and complimentary bloom colors together. Some plants may flower early in the spring or late in the fall. Plants with warm, bright colors, like yellow and white, work best for shaded areas. All colors work well in sunny areas.

The bloom of a plant is not the only aspect of importance when choosing plant location. Select plants with interesting foliage to provide beauty in the landscape between flowering times (Figure 7). This also can be used to highlight focal points in the landscape. Consider how foliage may change during the different seasons to create a landscape with year-round interest. Certain plants may not be as attractive during the late fall months and can be placed near more showy selections like ornamental grasses and evergreen plants to help balance the appearance of the landscape.

Figure 7. Plants with interesting foliage colors create interest between flowering types. Shown above: ornamental pepper (left) and dusty miller (right).

4. Form

Form or object shape should be considered when placing plants in the landscape. Different shapes in the landscape provide visual interest and variety. Evergreen and deciduous attributes of plants can be a major contributing factor to a plant's form. Deciduous plants tend to vary slightly in form throughout seasonal changes, while evergreen plants tend to maintain a consistent form with slight variations, depending on different environmental conditions. Figure 8 shows typical plant forms that may assist in choosing the right plant for the right place.

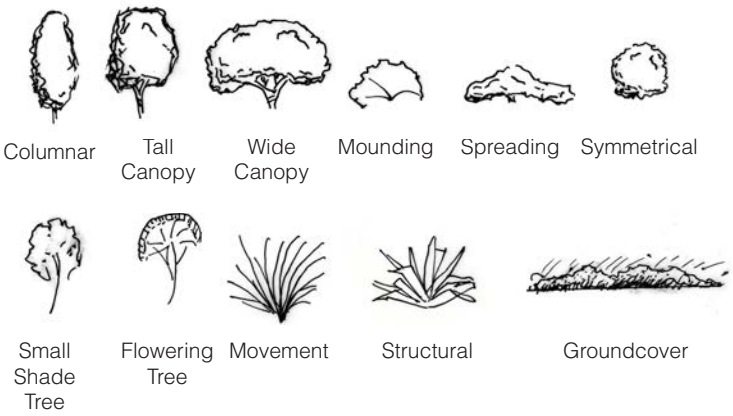


Figure 8. Typical plant forms to consider while selecting plants for the landscape.

5. Texture

Plant textures are typically defined as coarse, medium and fine. Texture provides contrast and interest in the landscape. Plants with a coarse texture have large leaves or flowers and fine-textured plants have small leaves and create a soft look (Figure 9). Fine elements provide a soft background and coarse textured plants can be used to create contrast in the landscape. Selecting the correct plant for the right location can look attractive and help reduce water waste in the landscape.

Figure 9. Differences in plant texture provide contrast in the landscape. Shown above: Left: variegated smooth agave (left) and Mexican feather grass (right).

Efficient Irrigation

Water is essential for plant photosynthesis, nutrient transport and transpiration. Proper irrigation management maintains healthy plants while also conserving a limited resource. The goal of efficient irrigation is to provide supplemental water if needs of the plant is greater than rainfall received. This will change throughout the year, based on environmental conditions and must be managed regularly. Overwatering plants and turfgrass can potentially cause disease and fungal growth. Smart technology can assist homeowners in managing irrigation effectively. Establishing a periodic maintenance schedule of irrigation equipment also is critical to prevent water waste while supporting healthy plant growth.

Know how Much Water the Plant Needs

The term evapotranspiration (ET) combines evaporation and plant transpiration, or how much water the plant uses for metabolic processes. In Oklahoma, the most widely used warm-season grass is bermudagrass and the majority of cool-season grass is tall fescue. Warm-season grasses have a lower ET rate, therefore require less water than cool-season grasses. Table 2 shows the approximate average monthly irrigation needed for warm- and cool-season turfgrasses.

Select Efficient Irrigation Equipment

When installing or updating irrigation systems, consider efficient technology, proper design, installation and maintenance. Installing drip irrigation uses 50 percent less than in-ground sprinklers.[1] Additionally, using water-efficient sprinkler technologies can reduce water use by 30 percent compared to standard pop-up sprinklers.[2]

1. *Low-Volume Irrigation*
   Drip irrigation and soaker hoses deliver water slowly and near the ground, so it is not wasted through runoff and evaporation. Drip irrigation

[1] EPA's WaterSense program. November 3, 2011, op. cit.
[2] Dukes, Michael D. and Haman, Dorota Z. University of Florida IFAS Extension. August 2002. Residential Irrigation Rainfall Shutoff Device.

Table 2. Average monthly evapotranspiration (ET_{turf})[1], precipitation[2] and requirement for supplemental irrigation in Oklahoma County[3].

Month	*Average ET (Warm)*	*Average Precipitation*	*Average Irrigation Need[3]*	*Average ET (Cool)*	*Average Precipitation*	*Average Irrigation Need[3]*
	Warm-season Turfgrass			**Cool-season Turfgrass**		
	Inches					
April	3.1	3.7	0.0	4.7	3.7	1.0
May	3.5	4.5	0.0	5.3	4.5	0.8
June	4.1	4.8	0.0	6.2	4.8	1.4
July	4.7	3.5	1.2	7.1	3.5	3.6
August	4.3	3.1	1.2	6.4	3.1	3.3
September	3.1	3.0	0.1	4.6	3.0	1.6

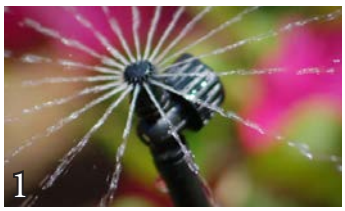
[1] Average ET from measurements recorded at the Spencer Oklahoma Mesonet site in Oklahoma County from 1998-2018 (www.mesonet.org).
[2] Average Precipitation from measurements recorded at the Spencer Oklahoma Mesonet site in Oklahoma County from 1998-2018 (www.mesonet.org).
[3] Average irrigation need assuming all precipitation infiltrated into the soil profile and no water was lost through surface runoff.

can be manually operated or as part of a zone with automatic irrigation. The emitters minimize water contact with the aboveground portion of the plant, which decreases incidence of disease. Drip irrigation is the most efficient watering method and works well for a water-smart landscape. Since the plants are individually watered, weeds become less competitive. Drip irrigation works well in flowerbeds, vegetable gardens and around shrubs and trees. Similar to drip irrigation, soaker hoses slowly emit water into the soil. Water is emitted over the entire surface of the hose and efficiently waters shrubs, trees and flowerbeds.

2. *Types of Sprinkler Heads*
   Some types of sprinkler heads are more efficient than others. Table 3 shows different types of sprinkler heads along with the best use for each type. In general, rotary spray heads that deliver water in a thick stream are more effective than mist spray heads. Efficient sprinkler heads can help save water if installed and used properly. They should be part of a properly designed irrigation system. Sprinkler heads should be operated between 30 and 45 psi.

Table 3. Different types of sprinkler heads and best use for each.

Type	*Best Use*
Micro-spray (1)	Containers, shrubs, trees, flowerbeds
Spray head (2)	Medium to small turf areas
Multi-stream rotational (3)	Medium to small turf areas
Rotor (4)	Large turf areas



Micro-spray

Spray head

Multi-stream rotational

Rotor

3. *Smart Technology*
   Watering the landscape based on a set schedule rather than plant requirement wastes water and may prevent plants from growing deep roots. Smart Water Application Technologies (SWAT) consist of climate-based controllers, soil moisture sensor-based controllers and rain sensors. These smart controllers can save water and time if they are properly installed. There are many irrigation system controllers available that schedule according to plant needs. The Environmental Protection Agency has a list of WaterSense products that are independently certified to minimize excess irrigation while maximizing irrigation effectiveness. Purchasing a smart irrigation controller may be more expensive up front, but is likely to pay off with water savings and ease of scheduling. Additionally, soil moisture sensors that plug into existing irrigation controllers also are available to homeowners and have shown water savings between 30 and 50 percent.
   Consider installing a rain sensor that interrupts the irrigation cycle during and immediately after rainfall events. When updating or replacing an irrigation system, work with the contractor to design and install a water-efficient irrigation system.

Irrigation Design Considerations

Even the most efficient irrigation equipment will not make up for a poor system design. New systems should be designed with the following considerations in mind. Existing systems may benefit from modifications to improve the system design. Consult an irrigation professional to ensure proper design.

1. *Utilize Hydrozones*
   Irrigation zones based on the water requirement of the plants should be designed. Separate the zones based on the type of plants in the area. For example, warm season turfgrasses in full sun should be on a separate zone from shrubs and perennials in a shady area next to a house. Soil type and exposure to the sun and wind also can impact irrigation needs. Heavy clay soils take longer to absorb water, but hold it longer

than sandy soils. Many irrigation controllers have a “cycle and soak” option to help efficiently apply water to clay soils while minimizing runoff.

2. *Avoid Mixing Sprinkler Heads in a Zone*
   Generally speaking, spray heads and rotors apply water to the landscape at drastically different rates. Mismatched sprinkler heads reduce irrigation uniformity, causing wet and dry spots in the yard. This leads to overwatering to compensate for dry areas. Matched precipitation rate spray heads and rotors are available and can be used to replace mismatched heads in existing systems.

3. *Ensure Head-to-head Coverage*
   The output from a sprinkler head should cover the area to the adjacent sprinkler head (Figure 10). The amount of water applied decreases as the distance from the sprinkler head increases. Head-to-head coverage ensures uniformity throughout the yard and reduces overwatering.

4. *Regulate System Pressure*
   The components that make up an irrigation system are designed to operate within a specified range of pressures. If pressure is too high or too low, the performance of the system will suffer. Spray heads are generally designed to operate at a pressure of 30 psi, while rotors are designed for an operating pressure of approximately 45 psi. Misting is indicative of the pressure bring too high at the spray head. Misting wastes up to 50 percent of water applied during an irrigation event because mist droplets are carried to non-target locations by wind. If the pressure is too low, it can cause a loss in irrigation efficiency. The spray head or rotor will not throw water as far as it should and the spray pattern will not be uniform. Check the pressure yourself or call a professional irrigation company.

Figure 10. Head-to-head coverage ensures uniform water distribution.

Maintain the System with an Irrigation Checkup

A simple irrigation checkup may reduce outdoor water use by helping identify problems with your irrigation system. Over time, even a well-designed system can begin to waste water due to broken or out-of-adjustment equipment. OSU Extension Fact Sheet HLA-6615 *Simple Irrigation Checkup for Home Sprinkler Systems* is a helpful resource when conducting an irrigation checkup.

A simple irrigation checkup is a three-step process:

1. Check controller settings: The most waste of water is due to unnecessary or improper start times and lengthy run times. Run times should be adjusted to meet deficiencies between plant evapotranspiration and actual rainfall. This requires diligence on the part of the homeowner. Using a smart controller that collects weather and/or soil moisture data can simplify this process greatly. If using a conventional controller, consider performing an irrigation audit to determine the irrigation rate (inches per hour) of each zone in your system and suspend operation of irrigation after periods of rainfall. OSU Extension Fact Sheet HLA-6610 *Simple Irrigation Audit for Home Lawns in Oklahoma* provides information on how to perform a simple irritation audit to estimate the output of each zone in your system.
2. Run each irrigation zone: Turn on each irrigation zone one at a time and observe the operation of the equipment. Most systems are scheduled to run in the early morning, so it is easy for significant problems to go unnoticed.
3. Identify problems and make repairs: While the system is operating, visually inspect each sprinkler head and make note of any that require attention. Common problems are sprinklers that spray onto streets or sidewalks, broken or leaking spray heads, excessive system pressure causing misting at the heads, low pressure causing poor spray distribution, mismatched sprinkler heads in a zone (spray heads and rotors) and plant materials blocking a spray head. Flag or mark problems to make them easy to identify when making repairs. Some problems are fairly easy for a homeowner to address, while others will require assistance from an irrigation professional.

Use of Mulch

Maintaining a layer of mulch in flowerbeds, vegetable gardens and around trees and shrubs is an easy way to save water in the landscape while also complimenting plant materials. Many types of mulch are available, depending on your need. Advantages to applying mulch are:

- Creates an attractive landscape.
- Reduces soil moisture loss so you can water less frequently.
- Regulates soil temperature, which insulates and protects plants.
- Prevents soil compaction and erosion.
- Protects plants from soil-borne diseases.
- Prevents weed seeds from germinating.
- Prevents trunk damage from string trimmers and lawn mowers.
- Provides a home for beneficial organisms like earthworms.
- Organic mulch increases soil tilth as it decomposes.

Types of Mulch

Different types of mulch are available in Oklahoma and have advantages and disadvantages. Organic mulches are derived from natural materials such as straw, wood chips or leaves. They are relatively low cost, can deter pests, increase soil quality as they decompose and allow water infiltration. Inorganic mulches include rubber, recycled glass or rocks. They do not need to be replaced as often, but may hold heat, which can be tough on plants. Table 4 shows the types of mulch and characteristics.

Table 4. Types of mulch.

Types of organic mulch	*Advantages*	*Disadvantages*	*Comments*
Dyed mulch	Long lasting	Supplier uses available wood, dye fades	Retains moisture, decreases weed growth
Shredded bark, bark chips	Long lasting, does not easily blow away	May float in the rain	Works well for walkways
Wood chips, shavings	Long lasting, readily available	Color and texture may not be uniform	Increases organic matter as it breaks down
Eastern redcedar mulch	Long lasting, can be purchased from local companies	May be difficult to find	Supports the local economy, more sustainable than cypress mulch
Cocoa-bean hulls	Attractive dark brown color	May be costly and attracts pets	Smells like chocolate and decomposes within a season
Leaves	Easy to find, may be composted and used as a soil amendment	Unattractive	Composting or shredding leaves recycles nutrients and saves landfill space
Pine needles	Does not easily wash away, allows air and water to infiltrate	May be difficult to find	Does not create a crust, remains loose, allowing water to infiltrate
Straw	Protects plants in the winter	Easily blown away and may introduce weeds	May be more suitable for a vegetable garden
Grass clippings	Great mulch for the lawn, provides nitrogen	Do not spread clippings around plants after chemical application on the lawn	Use a mulching lawn mower. Don't bag it, recycle your grass clippings
Pecan hulls	Slow to decompose, works well for acid-loving plants	May be costly	Easy to find in Oklahoma

Appropriate Maintenance

Maintenance preserves the intended beauty of the landscape and saves water. Proper mowing height, fertilizing, pruning and weeding all help promote a healthy landscape.

Lawn Maintenance

Mow Correctly - Increasing the mowing height to 1.5 to 3 inches for warm-season grass and 3 to 4 inches for cool-season grass during the summer will help conserve soil moisture. Grass acts as a natural mulch, retaining soil moisture and shading out weeds. Keep mowing equipment sharp and in good operating condition.

Figure 11. Increased mowing heights will help shade the soil and reduce water loss due to evaporation.

Don't Bag It - From March to October, grass clippings increase the volume of residential solid waste 20 to 50 percent. Instead of bagging grass clippings, use a mulching lawn mower, compost the clippings or spread the clippings around the yard. Bagging grass clippings removes valuable nutrients from the lawn and takes up space in the landfill.

Reduce Thatch - Thatch is dead, undecomposed roots and stems caused when plant tissue production exceeds decomposition. Excessive thatch can reduce water, air and nutrient movement into the root zone of the soil. This can lead to shallow root development. The thickness of the thatch layer can be determined by observing a 3- to 4-inch plug. If the thatch is thicker than 0.5 inch, the yard would benefit from dethatching. Dethatch warm-season grasses like bermudagrass and zoysiagrass before the grass greens up in the spring. Use a dethatching machine or a power rake to reduce the thatch layer. For small lawns use a thatch rake to reduce thatch layers.

Aerate the Lawn - Aerating is the process of taking small plugs out of the ground or forcing tines into the soil to reduce soil compaction. In high traffic areas, soil can become compact, which prevents air flow, water infiltration and nutrient intake. Aeration will benefit turfgrass by increasing the effectiveness of irrigation and fertilization. Different types of aerating machines can be rented or purchased from local stores.

Plant Maintenance

Maintain large plants - Trim and maintain plant materials to preserve system performance.

Prune lightly at the right time - Pruning stimulates growth, which increases the amount of water the plant is using. Most plants should be pruned in the fall or winter when they are dormant.

Know how to check for signs of water stress in plants - Many plants will turn from shiny to dull green when they become water stressed. Leaves

Figure 12. Prune shrubs and trees in the fall or winter when they are dormant.

will wilt and roll inward. Yellowing of leaves, scorching at leaf edges or loss of leaves are signs of more significant water stress.

Check for weeds periodically - Weeds compete with desirable plants for water. Hand weed and use mulches to keep weeds in check.

Reduce fertilizer rates and use slow-release fertilizer - Like pruning, improper fertilizing stimulates plant growth and increases water use. Take a soil test before fertilizing to ensure proper application rates.

Irrigation System Maintenance

Do a regular maintenance check on your irrigation system. Check nozzles and emitters to make sure they are watering properly.

Fix or replace broken sprinkler heads. Heads and nozzles are relatively inexpensive. First, dig out around the sprinkler head. Unscrew the sprinkler head, making sure not to get dirt into the riser. Take the broken irrigation head with you when buying a new one to ensure a proper replacement.

Figure 13. Check the performance of irrigation components on a regular basis. Adjust or repair as needed to prevent watering streets and driveways.

Repair stuck sprinkler heads. If you have a pop-up sprinkler that is stuck in the up position, unscrew the spray head and clean the wiper seal.

Check for leaks. If you have a sudden increase in your water bill, soggy areas in your yard or have overgrown turf areas, there might be a leak. To locate the leak is, find your water meter and turn off everything that uses water indoors and outdoors. If the water meter dial is still moving, you have a leak. Check the control valves and each irrigation zone. A good contractor also can check for leaks.

Realign sprinkler heads. Ensure sidewalks, roadways and other hardscapes are not being watered.

Consider low volume, micro-irrigation for gardens, trees and shrubs. Drip irrigation and micro-irrigation slowly apply water, which minimizes evaporation and runoff.

Check for buried or clogged sprinkler heads. If they are clogged or broken, make sure to replace them.

Consider upgrading to a "smart" controller. Smart controllers evaluate weather or soil moisture conditions and automatically adjust the irrigation schedule to meet the specific requirements of your landscape.

Install a rain sensor. This inexpensive sensor can be retrofitted to most systems and will turn your irrigation system off during a rain event.

Update the system based on the season. If you have an automatic timer, set it to water once a month or less in the winter, depending on precipitation and temperature.

Plant Selections

This section is separated by annuals, perennials, ornamental grasses, vines, groundcover, shrubs, trees and turfgrass. Each plant is listed alphabetically by its scientific name within each category. There also is an index in the back, listing plants by common and Latin names. The mature height and width are listed, which should be kept in mind when planning a landscape. The growing conditions include light, water and soil pH requirements. Each plant has the season(s) of interest shown. This list also indicates whether each plant is native to Oklahoma, the continental U.S. or outside of the continental U.S. Many plants listed are considerably more drought resistant when properly mulched. Consumers should note that some plants listed can be toxic to pets and humans when ingested. Some plants may cause dermal reactions. People with young children or pets that may ingest landscape plants should check with their garden center or nursery professional if potential toxicity is a concern. The following plant list is not comprehensive and many other plants not listed in this booklet may be appropriate for the landscape.

Light Requirements	
Full Sun	
Full Sun to Partial Shade	
Partial to Full Shade	

Plant Size	
Height	
Width	

Soil pH Requirements	
Acidic (Low pH)	L
Neutral (pH 7.0)	N
Alkaline (High pH)	H

Water Requirements*	
Moderate	
Low	
Very Low	

Season of Interest	
Summer	SUM
Fall	FALL
Winter	WIN
Spring	SPR
All	ALL

Place of Origin	
Outside of US	Not Native
Continental US	Native
Oklahoma	OK-Native

*Water requirements can be drastically reduced by the liberal use of mulch. Some plants listed are marginally xeric in the absence of mulch. For more information about mulch go to facts.okstate.edu and check out L-436 and HLA-6005.

Annuals

Plants last through only one growing season

Copperleaf
Acalypha wilkesiana

SUM | pH: N

24 to 48 inches ↑ | 24 to 48 inches →

Not Native

Grown for its beautifully colored foliage, not its flowers. Fast-growing evergreen with 4- to 8-inch heart-shaped leaves in a variety of colors.
Photo courtesy David Hillock, OSU (left).

Joseph's Coat Amaranth
Amaranthus tricolor

SUM | pH: N

24 to 48 inches ↑ | 12 to 24 inches →

Not Native

Grown for its beautifully colored foliage, not its flowers. Photos courtesy David Hillock, OSU.

Summer Snapdragon
Angelonia angustifolia

SUM | pH: N

12 to 24 inches ↑ | 12 to 24 inches →

Not Native

Continuous flowers through the season, won't flower if over fertilized. Various flower colors available.

Asparagus Fern
Asparagus spp.

SUM | pH: N

18 to 36 inches ↑ | 18 to 36 inches →

Not Native

Very tough, drought-tolerant plant. Many varieties available. Plant may be brought indoors before frost to serve as a houseplant.

Wax Begonia
Begonia spp.

SUM | pH: L

8 inches | 12 inches | Not Native

Pretty in shade and sun. Light requirements vary, depending on the selection. Blooms with minimal care.

American Bellflower
Campanulastrum americanum

SUM | pH: N

4 to 6 feet | 18 to 24 inches | OK-Native

Self-sows freely; deadhead to prevent volunteer seedlings next season.
Photos courtesy Sally and Andy Wasowski, LBJ Wildflower Center (left) and R. W. Smith, LBJ Wildflower Center (right).

Ornamental Peppers
Capsicum spp.

SUM | pH: N

18 inches | 12 inches | Native

Works well as a garden border or in containers. Attractive fruit add color and texture to the plant. Various colors available.

Indian Paintbrush
Castilleja indivisa

SPR | pH: L

12 inches | 12 inches | OK-Native

Self-sows freely; deadhead to prevent volunteer seedlings next season. Commercially available from seed. Photos courtesy Sally and Andy Wasowski, LBJ Wildflower Center (left) and Joseph A. Marcus, LBJ Wildflower Center (right).

Periwinkle
Catharanthus roseus

SUM | pH: N

8 inches | 12 inches | Not Native

Does not perform well in cold, wet soils. Various flower colors available.

Cockscomb
Celosia spp.

SUM | pH: N

12 inches | 12 inches | Not Native

Good for sunny, dry borders. Plumes provide a very soft texture and brilliant color throughout the summer. Various flower colors available.

Spider Flower
Cleome spp.

SUM | pH: N

24 inches | 36 inches | Not Native

Taller varieties good for back of the border plantings. Flowers fully open in morning and evening. Photos courtesy OSU.

Giant Larkspur
Consolida ajacis

SUM | pH: N

24 to 48 inches | 12 to 18 inches | Not Native

Easy to grow. Reblooms.

Cosmos
Cosmos spp.

SUM | pH: N

18 inches | 24 inches | Native

Over fertilization and overwatering lead to fewer flowers. Various flower colors and heights available.

Firecracker Plant
Cuphea ignea

SUM | pH: N

12 to 24 inches | 12 inches | Not Native

Flowers are attractive to hummingbirds and butterflies. Prefers light, well-drained soil.

Silver Falls™ Dichondra
Dichondra argentea 'Silver Falls'

SUM | pH: H

2 to 4 inches | Varies | Native

Accent for hanging baskets and containers. Round, silver foliage provides nice contrast for mixed containers. Photos courtesy OSU (left) and David Hillock, OSU (right).

California Poppy
Eschscholzia californica

SUM | pH: N

12 to 18 inches | 12 to 18 inches | Native

Tolerates dry, sandy soils, needs excellent drainage. Deadhead to encourage continuous blooms. Vigorous reseeder.

Fire-on-the-Mountain
Euphorbia cyathophora

SUM | pH: N

12 to 36 inches | 6 to 24 inches | Native

Red blotches near base of bracts: blooms July to October. Moist to dry soil. Can be weedy or invasive. Photos courtesy David Hillock, OSU.

Diamond Frost® Euphorbia
Euphorbia graminea 'Inneuphdia'

SUM | pH: N

18 inches | 24 inches | Not Native

Works well in containers, may have problems in chronically wet soils. Photo courtesy OSU (left).

Snow-on-the-Mountain
Euphorbia marginata

SUM | pH: N

36 inches | 24 inches | OK-Native

Attracts butterflies and can reseed aggressively. Available in seed. Photos courtesy Sally and Andy Wasowski, LBJ Wildflower Center (left) and Casey Hentges, OSU (right).

Globe Amaranth
Gomphrena globosa

SUM | pH: N

12 inches | 18 inches | Not Native

Drought and heat tolerant. Flower heads are produced from summer until first frost. Flowers are easy to dry for "everlasting" arrangements.

Firebush
Hamelia patens

SUM | pH: N

30 inches | 36 inches | Native

Attracts hummingbirds and butterflies. Leaves turn red during fall. Photos courtesy OSU (left) and Rachel Cywinski, LBJ Wildflower Center (right).

Helenium
Helenium amarum 'Dakota Gold'

FALL | pH: N

12 inches | 24 inches | OK-Native

Works well in beds, containers, rock gardens, and as an accent. Dakota Gold is an improved selection of an Oklahoma native. Photos courtesy OSU.

Sunflower
Helianthus annuus

SUM | pH: N

2 to 6 feet | 6 to 12 inches | OK-Native

May repel certain insects. Taller varieties should be planted in an area that will be sheltered from strong winds.

Strawflower
Helichrysum bracteatum

FALL | pH: N

24 inches | 12 inches | Not Native

High humidity, rainy conditions and too much watering can harm the plant. Popular in dried arrangements.

Sweet Potato Vine
Ipomoea batatas

SUM | pH: N

18 inches | 40 inches | Not Native

This plant works well as an annual groundcover and in containers. Grows well in heat and humidity. Foliage available in several colors.

Lantana
Lantana camara

SUM | pH: N

24 inches | 36 inches | Not Native

Excellent performance under hot conditions; attracts butterflies. Various flower colors available.

Texas Bluebonnet
Lupinus texensis

SPR | pH: N

6 to 12 inches | 12 to 15 inches | OK-Native

Texas state flower. Most readily available by seed. Photos courtesy Melody Lytle, LBJ Wildflower Center (left) and Lisa Henry, LBJ Wildflower Center (right).

Variegated Tapioca
Manihot esculenta 'Variegata'

SUM | pH: N

40 inches | 40 inches | Not Native

Attractive foliage with bright green leaves variegated along the midrib/veins with yellow. Poisonous. Photos courtesy Casey Hentges, OSU.

Blackfoot Daisy
Melampodium leucanthum

SUM | pH: N

18 to 24 inches | 12 to 14 inches | OK-Native

Excellent performance under hot conditions; attracts butterflies. Various flower colors available.

Pentas
Pentas lanceolata

SUM | pH: N

24 inches | 36 inches | Not Native

Can take cuttings at the end of the summer and will continue to bloom in a warm, south-facing window. Does well in containers. Attracts butterflies.

Cape Plumbago
Plumbago auriculata

SUM | pH: L

12 to 36 inches | 15 feet | Not Native

Clear light blue or white flowers. Does well in hot and dry; well-drained soil. Pest free. Poisonous. Photos courtesy David Hillock, OSU.

Rose Moss
Portulaca grandiflora

SUM | pH: N

6 inches | 12 inches | Not Native

Not hardy, but may self-seed the following year. Various colors available. Some varieties have flowers that remain open all day.

Wingpod Purslane
Portulaca umbraticola

SUM | pH: N

6 inches | 9 to 12 inches | OK-Native

This plant is attractive to bees, butterflies, and birds. Good selection for trailing container plant or hanging basket. Various colors available.

Mexican Bush Sage
Salvia leucantha

SUM | pH: N

36 inches | 48 inches | Not Native

Produces purple and white flower spikes that attract hummingbirds and butterflies. May overwinter.

Scarlet Sage
Salvia splendens

SUM | pH: N

12 to 24 inches | 9 to 18 inches | Not Native

Attracts birds, hummingbirds and butterflies.

Fan Flower
Scaevola aemula

SUM | pH: N

12 inches | 12 inches | Not Native

Very low growing. Works well in hanging baskets. Plant has glossy leaves and continuous flowers. Also available in pink and white. Photos courtesy Kevin Moore, OSU.

Dusty Miller
Senecio cineraria

ALL | pH: N

2 feet | 2 feet | Not Native

Useful as an edging or in containers, may overwinter. Silver foliage useful for unique flower bed designs.

Marigold
Tagetes spp.

SUM | pH: N

24 inches | 36 inches | Not Native

Popular choice for companion planting in vegetable gardens. Available in dwarf and tall selections.

Yellow Bells
Tecoma stans

SUM | pH: N

4 feet | 4 feet | Not Native

Tropical plant used as an annual in Oklahoma. Attracts butterflies and hummingbirds. Photos courtesy OSU (right).

Mexican Sunflower
Tithonia rotundifolia

SUM | pH: N

48 inches | 36 inches | Not Native

Attracts butterflies. Very heat tolerant and makes an excellent background annual in the flower bed. Photo courtesy Casey Hentges (right).

Mexican Zinnia

Zinnia angustifolia

SUM | pH: N

12 inches | 12 inches | Not Native

Deadhead for continuous bloom. Colors available include white, yellow, pink, red or orange flowers. Does well in containers or borders. Photo courtesy OSU (left).

Zinnia

Zinnia spp.

SUM | pH: N

6 to 48 inches | 6 to 18 inches | Not Native

Deadhead for continuous bloom. Colors available include white, yellow, pink, red or orange flowers. Does well in containers or borders. Photos courtesy David Hillock, OSU.

Perennials

Plants that grow back every year

Yarrow
Achillea spp.

SUM pH: **N**

12 inches ↑ 36 inches →

OK Native

Works well as an edging or in mass grouping. Various colors available.
Photo courtesy Janice Lynn, LBJ Wildflower Center, (right).

Hyssop
Agastache spp.

FALL pH: **N**

24 inches ↑ 18 inches →

Native

Flowers are fragrant and attractive to bees, hummingbirds, butterflies. Several cultivars are available. Photos courtesy David Hillock, OSU.

Parry's Agave
Agave parryi

ALL pH: **N**

12 inches ↑ 9 inches →

Native

Plant has spines or sharp edges; site accordingly and use extreme caution when handling. Marginally winter hardy in Oklahoma.

Arkansas Bluestar
Amsonia hubrichtii

FALL pH: **N**

36 inches ↑ 36 inches →

OK-Native

Blue flowers in early summer, foliage turns yellow/orange in the fall.

Eastern Red Columbine
Aquilegia canadensis

SPR | pH: H

2 to 3 feet | 1 to 1.5 feet | OK-Native

A wonderful addition to native plant gardens, woodland gardens, cottage gardens or naturalized areas. Photos courtesy Sally and Andy Wasowski, LBJ Wildflower Center, (left) and Stephan Bloodworth, LBJ Wildflower Center (right).

Wormwood
Artemisia spp.

FALL | pH: N

24 inches | 36 inches | Not Native

Grown for its fine-textured silver foliage. Photo courtesy Kevin Moore, OSU (left).

Butterfly Weed
Asclepias tuberosa

SUM | pH: L

48 inches | 36 inches | Native

Attracts butterflies to the garden. Flowers followed by interesting seed pods. Photos courtesy David Hillock, OSU.

Green Antelopehorn
Asclepias viridis

SUM | pH: L

18 to 30 inches | 12 to 24 inches | Native

Host plant for monarch butterflies. Unusual and attractive blooms for a milkweed. Photo courtesy David Hillock, OSU (left).

Japanese Painted Fern
Athyrium niponicum

SUM | pH: N

12 inches | 18 inches | Not Native

Very low maintenance, contrasts well with many shade-loving plants.

Blue False Indigo
Baptisia spp.

ALL | pH: N

36 inches | 48 inches | OK-Native

Works well in the back of flower borders. Showy flowers followed by persistent seed pods for winter interest. Photos courtesy Sally and Andy Wasowski, LBJ Wildflower Center (left) and R. W. Smith, LBJ Wildflower Center (right).

Snow-in-Summer
Cerastium tomentosum

SUM | pH: N

6 inches | 12 inches | Not Native

Prefers dry soil, root rot may occur on wet soils.

Hardy Plumbago
Ceratostigma plumbaginoides

FALL | pH: N

8 inches | 15 inches | Not Native

A good plant for inter-planting with spring bulbs. True blue flowers, bronze fall color. Excellent ground cover. Photo courtesy David Hillock, OSU (right).

Hairy Lipfern
Cheilanthes lanosa

ALL | pH: N

6 inches | 14 inches | OK-Native

Works well in a rock or wall garden. Photos courtesy Alan Cressler, LBJ Wildflower Center.

Blue Mistflower
Conoclinium coelestinum

ALL | pH: N

18 to 36 inches | 18 to 36 inches | OK-Native

Profuse blooms of fuzzy, blue-violet flowers that are attractive to butterflies. Spreads vigorously by rhizomes and seeds, cut back plants after blooming to control reseeding.

Coreopsis
Coreopsis spp.

SUM | pH: N

18 inches | 36 inches | OK-Native

Early summer blooms provide brilliant yellow color. Good for perennial borders and prairie gardens. Photos courtesy Casey Hentges, OSU.

Montbretia
Crocosmia x *curtonus* 'Lucifer'

SUM | pH: L

2 to 4 feet | 1 to 2 feet | Not Native

Provides a tropical flare to the landscape. Mulch for enhanced winter hardiness.

Hardy Cyclamen
Cyclamen spp.

WIN | pH: N

12 inches | 12 inches | Not Native

Fast growing, with heart-shaped foliage and attractive blooms..

Carolina Larkspur
Delphinium carolinianum ssp. *virescens*

SPR | pH: N

24 to 36 inches | 9 to 12 inches | OK-Native

This cool season plant will go dormant during hot weather and regrow in the fall.

Bundleflower
Desmanthus illinoensis

ALL | pH: N

2 to 4 feet | 1.5 to 2 feet | OK-Native

Seeds are desirable for birds. Species is available by seed. Photos courtesy Janice Lynn. LBJ Wildflower Center (left) and Joseph A. Marcus, LBJ Wildflower Center (right).

Purple Coneflower
Echinacea purpurea

SUM | pH: N

24 inches | 18 inches | OK-Native

Native to the tallgrass prairie. Blooms attract birds and butterflies.

Sea Holly
Eryngium planum

SUM | pH: N

24 to 36 inches | 12 to 24 inches | Not Native

Seeds are desirable for birds. Species is available by seed. Photos courtesy David Hillock, OSU.

Rattlesnake Master
Eryngium yuccifolium

ALL | pH: N

4 to 5 feet | 2 to 3 feet | OK-Native

Yucca-like foliage. Greenish-white flowers tightly packed into globular, 1-inch diameter heads. Photos courtesy David Hillock, OSU.

Myrtle Euphorbia
Euphorbia myrsinites

FALL | pH: N

6 inches | 12 inches | Not Native

Excellent for rock gardens and green roofs. Photo courtesy Casey Hentges, OSU (left).

Bronze Fennel
Foeniculum vulgare

SUM | pH: N

48 inches | 24 inches | Not Native

Culinary use. Can spread but not invasive.

Blanket Flower
Gaillardia spp.

SUM | pH: N

12 inches | 24 inches | OK-Native

Oklahoma state wildflower; attracts butterflies. Photos courtesy OSU.

Gaura
Gaura lindheimeri

SUM | pH: N

30 inches | 36 inches | Native

Easily propagated by seed. Narrow foliage is quite showy.

Oxeye Sunflower
Heliopsis helianthoides

SUM | pH: N

36 to 60 inches | 24 to 48 inches | Native

Works well in the back of perennial borders. Deadhead for continuous bloom. Various cultivars available. Photos courtesy Thomas Muller, LBJ Wildflower Center (left) and R. W. Smith, LBJ Wildflower Center (right).

Hardy Heliotrope
Heliotropium amplexicaule

SUM | pH: N

6 to 12 inches | 24 to 36 inches | Not Native

Violet flowers with yellow centers. Excellent groundcover. Photo courtesy David Hillock, OSU (left).

Lenten Rose
Helleborus orientalis

ALL | pH: L

18 inches | 18 inches | Not Native

Evergreen, blooms in winter.

Helleborus
Helleborus spp.

WIN | pH: N

12 to 24 inches | 12 to 18 inches | Not Native

Evergreen; flowers in late winter and early spring. Photos courtesy David Hillock, OSU.

Daylily
Hemerocallis spp.

SUM | pH: N

12 inches | 36 inches | Not Native

Hundreds to choose from, deadhead for rebloom. Foliage ranges from deciduous to nearly evergreen.

Red Yucca
Hesperaloe parviflora

All | pH: N

36 to 48 inches | 24 to 36 inches | Native

Heat and drought tolerant, red yucca is wonderful for rock gardens. Yellow-flowering selections also available. Photo courtesy Sally and Andy Wasowski, LBJ Wildflower Center (right).

Stonecrop
Hylotelephium spectabile

FALL | pH: N

18 inches | 24 inches | Not Native

Plant alone or in combinations in borders or containers.

Standing Cypress
Ipomopsis rubra

SUM | pH: N

3 to 5 feet | 3 to 6 feet | OK-Native

This plant is attractive to bees, butterflies and birds. Photos courtesy Laura Payne, OSU.

Blackberry Lily
Iris domestica

ALL | pH: N

24 to 36 inches | 9 to 24 inches | Not Native

Deep orange flowers with red spots, followed by shiny blackberry-like seeds that persist into winter. Photos courtesy David Hillock, OSU.

Iris
Iris spp.

SUM | pH: L

36 inches | 12 inches | Not Native

Avoid high nitrogen fertilizer. Various colors and flower forms available. Non-aquatic varieties should be selected for drought-resistant landscapes. Photos courtesy Casey Hentges, OSU.

Kalimeris
Kalimeris incisa

FALL | pH: N

12 to 18 inches | 12 to 18 inches | Not Native

Plants may self-seed in ideal growing conditions. Performs well in hot and humid summers. Yellow centers with pale blue petals.

Red Hot Poker
Kniphofia triangularis

SUM | pH: N

24 inches | 36 inches | Not Native

Great tolerance for drought and summer heat. Avoid wet, poorly drained soils.

Lavender
Lavandula spp.

SUM | pH: N

24 to 36 inches | 24 to 48 inches | Not Native

Needs very well-drained soil.

Lion's Ears
Leonotis leonurus

FALL | pH: N

36 inches | 36 inches | Not Native

Late blooming, but colorful and showy until freeze. Photos courtesy David Hillock, OSU.

Shasta Daisy
Leucanthemum x *superbum* 'Becky'

SUM | pH: N

36 to 48 inches ↑ | 24 to 36 inches →

Not Native

Long-term summer blooming. Photos courtesy David Hillock, OSU.

Prairie Blazing Star
Liatris pycnostachya

SUM | pH: L

24 to 48 inches ↑ | 12 to 24 inches →

OK-Native

Good tolerance for drought, summer heat and humidity. Intolerant of wet soils in winter. Multiple species are native to Oklahoma. Photo courtesy Casey Hentges, OSU (left)

Turk's Cap
Malvaviscus arboreus var. *drummondii*

SUM | pH: N

24 to 36 inches ↑ | 24 to 36 inches →

Native

Attracts birds, hummingbirds and butterflies. Pink-flowering form available. Photos courtesy David Hillock, OSU.

Four O'Clocks
Mirabilis jalapa

SUM | pH: N

24 to 36 inches ↑ | 24 to 36 inches →

Not Native

Vigorous reseeder. Poisonous. Photo courtesy David Hillock, OSU (left).

Spotted Beebalm
Monarda punctata

SUM | pH: N

2 to 3 feet ↑ | 15 to 18 inches →

OK-Native

Deadhead flowers to prolong summer bloom. Aromatic foliage. Photo courtesy Beth Anderson, LBJ Wildflower Center (left).

Catmint
Nepeta x *faassenii*

SUM | pH: N

24 inches ↑ | 30 inches →

Not Native

Thrives in heat and drought once established. Aromatic foliage. Photo courtesy OSU (left).

Evening Primrose
Oenothera macrocarpa

SUM | pH: N

9 inches | 12 inches | OK-Native

Can work as a dense foliage groundcover in shade, but won't bloom without adequate sunlight. Photo courtesy OSU (right).

Prickly Pear
Opuntia macrorhiza

ALL | pH: L

6 to 12 inches | 6 to 12 inches | OK-Native

Spines and tufts of bristles 2 to 3 inches long can be harmful to humans and pets. Spineless prickly pear are commercially available. Photo courtesy Joseph A. Marcus, LBJ Wildflower Center (right)

Foxglove Beardtongue
Penstemon digitalis

SUM | pH: N

36 to 48 inches | 18 to 24 inches | OK-Native

Avoid wet, poorly drained soils. Attracts hummingbirds.

Mexican Beardtongue
Penstemon mexicali

SUM | pH: H

12 to 24 inches | 12 to 24 inches | Not Native

Good tolerance for drought, summer heat and humidity. Avoid wet, poorly drained soils.

Russian Sage
Perovskia atriplicifolia

SUM | pH: N

30 inches | 24 inches | Not Native

Useful in the back of the border. Grey-green foliage, very ornamental.

Garden Phlox
Phlox paniculata

SUM | pH: L

24 to 48 inches | 24 to 36 inches | Native

Select powdery mildew-resistant cultivars. Photos courtesy David Hillock, OSU.

Christmas Fern
Polystichum acrostichoides

SUM | pH: L

12 to 24 inches ↑ | 12 to 24 inches →

OK-Native

Does not tolerate heavy clay soils or standing water. Photos courtesy Sally and Andy Wasowski, LBJ Wildflower Center, (left) and Stefan Bloodworth, LBJ Wildflower Center (right).

Mexican Hat
Ratibida columnifera

SUM | pH: N

2 to 3 feet ↑ | 1 to 1.5 feet →

OK-Native

Very tough, drought tolerant plant. A good selection for wildflower or prairie gardens. Most readily available by seed in garden centers. Photo courtesy Joseph A. Marcus, LBJ Wildflower Center (right).

Rosemary
Rosmarinus officinalis

SPR | pH: H

6 feet ↑ | 2 to 4 feet →

Not Native

Works well in containers, may have problems in wet soils. Very fragrant foliage.

Giant Coneflower
Rudbeckia maxima

SUM | pH: N

5 feet ↑ | 3 feet →

OK-Native

Attracts butterflies. Will self seed in ideal growing conditions. Flower stalks attract birds after blooming season. Dramatic, ornamental leaves.
Photos courtesy David Hillock, OSU.

Black-eyed Susan
Rudbeckia spp.

SUM | pH: N

3 to 4 feet ↑ | 24 to 30 inches →

OK-Native

Bright-yellow blooms with dark centers. Flowers attract pollinators and will continue to bloom throughout the summer with deadheading.
Photos courtesy David Hillock, OSU

Germander Sage
Salvia chamaedryoides

ALL | pH: N

12 inches ↑ | 18 inches →

Not Native

Grey-green leaves with striking blue blossoms throughout the summer and into the fall. Attractive to bees, butterflies and hummingbirds.
Photo courtesy Courtney Keck, OSU (left).

Mealycup Sage
Salvia farinacea 'Henry Duelberg' and 'Augusta Duelberg'

ALL | pH: **N**

36 inches ↑ | 36 inches →

Native

Both are heavy bloomers all season. Attractive when planted in pairs.

Autumn Sage
Salvia greggii

SUM | pH: **N**

18 inches ↑ | 18 inches →

Native

Attracts hummingbirds and butterflies. Photo courtesy Kevin Moore, OSU (left) and OSU (right).

Wood Sage
Salvia x *sylvestris* 'May Night'

SUM | pH: **N**

18 to 24 inches ↑ | 12 to 18 inches →

Not Native

Very colorful and blooms heavily.

Lavender Cotton
Santolina spp.

SUM | pH: **N**

24 inches ↑ | 24 inches →

Not Native

Very low growing, works well in hanging baskets.

Hens and Chicks
Sempervivum spp.

ALL | pH: **N**

4 inches ↑ | 4 inches →

Not Native

Performs well in pots, on rock walls and foreground of perennial beds. Plant will slowly spread horizontally and is good for filling in areas.

Compass Plant
Silphium laciniatum

FALL | pH: **N**

4 to 6 feet ↑ | 1.5 to 2 feet →

OK-Native

Compass plant has a large, woody taproot that may reach down 15 feet. Commercially available from seed. Photos courtesy Sally and Andy Wasowski, LBJ Wildflower Center (left) and Paul Cox, LBJ Wildflower Center (right).

Arkansas Bells Sinningia

Sinningia 'Arkansas Bells'

FALL | pH: N

30 inches ↑ | 30 inches →

Not Native

Blooms have a fruity scent and attract hummingbirds. In central to northern Oklahoma, it will need full sun, good drainage and southern exposure to survive winter. Photos courtesy Courtney Keck, OSU.

Dwarf Goldenrod Little Lemon®

Solidago 'Dansolitlem'

SUM | pH: N

12 to 18 inches ↑ | 12 to 18 inches →

Native

Good for erosion control, attracts butterflies. Pollen is normally not an allergen. Photos courtesy Kevin Moore, OSU.

Goldenrod

Solidago spp.

FALL | pH: N

30 inches ↑ | 30 inches →

Native

Bright yellow. Very showy. Photos courtesy David Hillock, OSU.

Lamb's Ear

Stachys byzantina

ALL | pH: N

6 to 12 inches ↑ | 12 to 15 inches →

Not Native

Very tough, drought tolerant plant. Small hairs on the foliage provide a soft texture giving reason for its common name.

Indian Pink

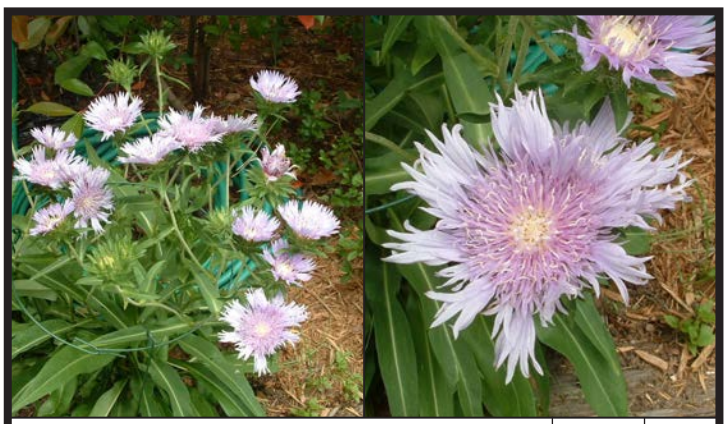
Spigelia marilandica

SUM | pH: L

12 to 24 inches ↑ | 6 to 18 inches →

Native

Hummingbirds and butterflies are attracted to the beautiful, tubular flowers. Photos courtesy David Hillock, OSU.



Stokes' Aster

Stokesia laevis

SUM | pH: L

12 to 24 inches ↑ | 12 to 18 inches →

Native

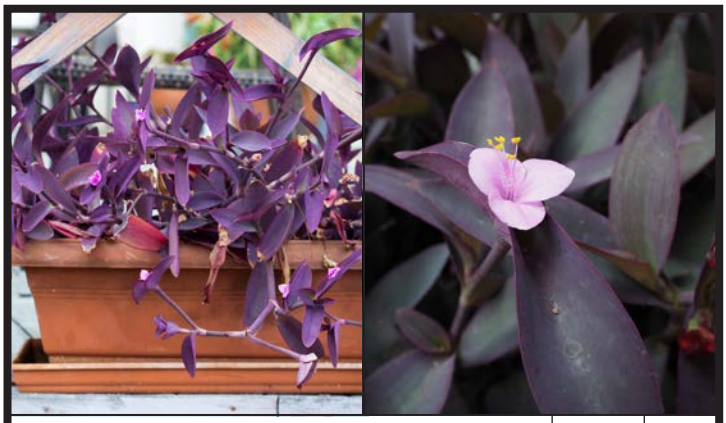
Evergreen; flowers early to mid-summer. Deadhead to encourage additional blooms. Photos courtesy David Hillock, OSU.

Bluejacket
Tradescantia ohiensis

SUM | pH: N

2 to 3 feet | 9 to 12 inches | OK-Native

When touched in the heat of the day, the flowers shrivel.



Purple Heart
Tradescantia pallida 'Purpurea'

ALL | pH: L

16 inches | 12 inches | Not Native

Drought-tolerant. Easily propagated by cuttings. Cuttings can be overwintered. Container planters can be brought indoors during winter.

Verbena-on-a-Stick
Verbena bonariensis

SUM | pH: N

36 inches | 24 inches | Not Native

Blender plant to fill in gaps in the flower border. Profusely reseeds, so plant accordingly.

Verbena
Verbena canadensis

SUM | pH: N

4 inches | 12 inches | OK-Native

Overwatering or poor air circulation will harm the plant. Various colors available.

Narrowleaf Ironweed
Vernonia lettermannii

SUM | pH: L

30 to 36 inches | 30 to 36 inches | Native

Fine foliage, frilly purple flowers in late summer. Attracts butterflies. Photos courtesy David Hillock, OSU.

Ironweed
Vernonia spp.

SUM | pH: N

24 to 48 inches | 18 to 36 inches | OK-Native

Purple flowers in late summer attract butterflies and other pollinators.
Photos courtesy David Hillock, OSU.

Yucca *Yucca filamentosa*			**ALL**	pH: **N**
48 inches	36 inches			**OK-Native**

Adds unique vertical element to design. Evergreen foliage and seed pods offer winter interest. Photos courtesy David Hillock, OSU.

Ornamental Grasses

and related species

Generally not mowed during the growing season

Big Bluestem
Andropogon geradii

ALL | pH: **N**

3 feet | 4 feet | **OK-Native**

Works as a tall background or a screen, cut back in the spring before new growth starts. Photo courtesy Sally and Andy Wasowski, LBJ Wildflower Center (left).

Sideoats Grama
Bouteloua curtipendula

SUM | pH: **H**

1.5 to 2.5 feet | 1.5 to 2 feet | **OK-Native**

Often found growing with Little Bluestem (*Schizachyrium scoparium*). Photo courtesy Beth Anderson, LBJ Wildflower Center (left).

Blue Grama
Bouteloua gracilis

SUM | pH: **N**

8 to 24 inches | 1.5 to 2 feet | **OK-Native**

An important component of the Great Plains shortgrass prairie.
Photos courtesy David Hillock, OSU (left) Sally and Andy Wasowski, LBJ Wildflower Center (right).

Sedges
Carex spp.

SPR | pH: **N**

12 to 36 inches | 12 to 36 inches | **Native**

Works as a tall background or a screen, cut back in the spring before new growth starts. Photos courtesy David Hillock, OSU.

Northern Sea Oats
Chasmanthium latifolium

ALL | pH: N

24 inches ↑ | 36 inches →

OK-Native

One of the more shade tolerant ornamental grasses, may self-seed.

Blue Fescue
Festuca glauca

ALL | pH: N

6 to 10 inches ↑ | 6 to 10 inches →

Not Native

Good accent plant. May go dormant in hot summers.

Blue Oat Grass
Helictotrichon sempervirens

ALL | pH: N

24 to 36 inches ↑ | 24 to 36 inches →

Not Native

Best blue color in dry soils. Tolerates light shade but performs best in full sun.

Blue Lyme Grass
Leymus arenarius

SUM | pH: N

24 inches ↑ | 36 inches →

Not Native

Spreading grass best used in containers or large masses.

Ruby Grass
Melinis nerviglumis

SUM | pH: N

24 inches ↑ | 24 inches →

Not Native

Ruby pink plumes, blue-green foliage. Not cold hardy in Oklahoma. Photos courtesy David Hillock, OSU.

Maiden Grass
Miscanthus sinensis

ALL | pH: N

4 feet ↑ | 3 feet →

Not Native

Great as specimen or in groupings. Can spread quickly and become a nuisance if not maintained.

Pink Muhly Grass
Muhlenbergia capillaris

FALL | pH: N

2 to 3 feet ↑ | 2 to 3 feet →

Native

Unusual and attractive feathery look when in bloom. Photos courtesy David Hillock, OSU.

Mexican Feather Grass
Nassella tenuissima

ALL | pH: N

18 inches ↑ | 12 inches →

Native

Remove the top third of the plant in the spring. Will reseed each growing season and can spread vigorously if not maintained.

Switchgrass
Panicum virgatum

SUM | pH: N

3 feet ↑ | 3 feet →

OK-Native

Useful as a screen, very vigorous plant. Many selections available. Photo courtesy David Hillock, OSU (left).

Annual Fountain Grass
Pennisetum setaceum

SUM | pH: N

36 to 60 inches ↑ | 24 to 48 inches →

Not Native

Remove the top third of the plant in the spring. Will reseed each growing season and can spread vigorously if not maintained. Photo courtesy David Hillock, OSU (left).

Little Bluestem
Schizachyrium scoparium

ALL | pH: N

2 feet ↑ | 3 feet →

OK-Native

Works well as a background plant or in mass planting. Photo courtesy Sally and Andy Wasowski, LBJ Wildflower Center (right).

Indiangrass
Sorghastrum nutans

FALL | pH: N

3 feet ↑ | 3 feet →

OK-Native

Cut back in late winter or early spring. Many cultivars available. Photos courtesy Nan Hamton, LBJ Wildflower Center (left) and Rob Bowen, LBJ Wildflower Center (right).

Prairie Dropseed
Sporobolus heterolepis

ALL pH: **N**

2 to 4 feet ↑ 2 to 4 feet →

OK-Native

Foliage maintains a golden-bronze color through winter. Flowers are noted for unique fragrance in late summer-fall. Photos courtesy Bonnie Harper, LBJ Wildflower Center, (left) and Stefan Bloodworth, LBJ Wildflower Center (right).

Vines

A climbing or trailing plant

Chocolate Vine
Akebia quinata

ALL pH: **N**

20 to 40 inches ↑ | 6 to 9 feet →

Not Native

Vigorous spreading vine. Purple-brown flowers have a chocolate scent and are followed by edible seedpods if more than one vine are present. Control with regular pruning. Photos courtesy David Hillock, OSU.

Crossvine
Bignonia capreolata

SPR pH: **N**

50 feet ↑ | 50 feet →

OK-Native

Evergreen, blooms in spring, grows very quickly and may need to be pruned.

Trumpet Vine
Campsis radicans

SUM pH: **N**

35 feet ↑ | 35 feet →

OK-Native

Extremely vigorous, should be pruned frequently, can become weedy; attracts hummingbirds.

Silver Lace Vine
Fallopia baldschuanica

SUM pH: **N**

15 to 25 feet ↑ | 15 to 25 feet →

Not Native

Unusual and attractive color.

Carolina Jessamine
Gelsemium sempervirens

SPR | pH: N

20 feet ↑ | 20 feet → | Native

Attracts butterflies. Early-blooming vine provides bright yellow flowers in early spring.

Trumpet Honeysuckle
Lonicera sempervirens

SPR | pH: N

10 to 20 feet ↑ | 10 to 20 feet → | OK-Native

Flowers are not fragrant. Tolerates some shade, but blooms more prolifically in full sun. Photo courtesy Casey Hentges, OSU (left).

Virginia Creeper
Parthenocissus quinquefolia

FALL | pH: N

30 to 50 feet ↑ | 30 to 50 feet → | OK-Native

Vigorous vine and easily grown. Red fall color and showy fruit.

Boston Ivy
Parthenocissus tricuspidata

FALL | pH: N

30 to 50 feet ↑ | 30 to 50 feet → | Not Native

Turns scarlet in the fall. Will clasp onto structures such as brick and concrete walls.

Climbing Roses
Rosa spp.

SPR | pH: N

20 feet ↑ | 20 feet → | Native

Needs good air circulation to prevent disease.

American Wisteria
Wisteria frutescens

SPR | pH: N

15 feet ↑ | 15 feet → | OK-Native

The bean-like seed pods can be showy and very numerous.

Groundcovers

Low-growing, spreading plants

Bugleweed
Ajuga reptans

SPR | pH: N

6 to 8 inches | 6 to 12 inches | Not Native

Plants may be mowed after blooming in order to remove spent flower spikes and to tidy their appearance. Plants have blue flowers.

Winecup
Callirhoe involucrata

SUM | pH: N

6 to 12 inches | 1 to 3 feet | OK-Native

Fits well into both formal garden areas as well as wild/naturalized areas. White flowering form available. Photos courtesy Sally and Andy Wasowski, LBJWildflower Center (left) and Norman G. Flaigg, LBJ Wildflower Center (right).

Spotted Bellflower
Campanula punctata

SUM | pH: N

18 inches | 9 to 18 inches | Not Native

Makes an excellent groundcover and fills in quickly. Flowers in late May and comes in a variety of colors. Photos courtesy David Hillock, OSU.

Ice Plant
Delosperma spp.

ALL | pH: L

3 inches | 9 to 18 inches | Not Native

Needs well-drained soil. Evergreen foliage with bright flowers. New colors are available. Photos courtesy David Hillock, OSU.

Creeping Juniper
Juniperus horizontalis

ALL | pH: N

8 inches | 24 inches | Native

Some cultivars will turn purple in the winter.

Monkey Grass
Liriope spp.

SUM | pH: N

6 inches | Varies | Not Native

Mow in the early spring to remove old growth.

Creeping Mahonia
Mahonia repens

ALL | pH: L

9 to 12 inches | 9 to 18 inches | Native

Early clusters of bright yellow flowers, followed by clusters of blue, grape-like fruit. Evergreen; leaves turn purple in winter. Photos courtesy David Hillock, OSU.

Wire Vine
Muehlenbeckia axillaris

SUM | pH: N

6 inches | 24 to 30 inches | Not Native

Some cultivars will turn purple in the winter. Photos courtesy David Hillock, OSU.

Mondo Grass
Ophiopogon japonicus

SUM | pH: L

3 inches | 3 to 12 inches | Not Native

Attractive dark green foliage.

Pachysandra
Pachysandra terminalis

SPR | pH: L

6 to 12 inches | 12 to 18 inches | Not Native

Attractive foliage.

Rock Pink
Phemeranthus calycinus

SUM | pH: N

6 inches | 6 inches | Native

Makes a nice addition to any rock garden. Flowers are neon pink atop 2- to 5-inch stems. May not tolerate overwatering. Photo courtesy Campbell and Lynn Loughmiller, LBJ Wildflower Center (left).

Creeping Phlox
Phlox subulata

SPR | pH: L

6 inches | 12 inches | Native

Works well in rock gardens. White and pink flowering varieties also available.

Sedum
Sedum spp.

FALL | pH: N

4 to 6 inches | Varies | Native

Approximately 400 species. Growing requirements differ between species in terms of cold hardiness and heat tolerance. Works for green roofs.

Creeping Thyme
Thymus spp.

ALL | pH: N

1 inch | 12 inches | Not Native

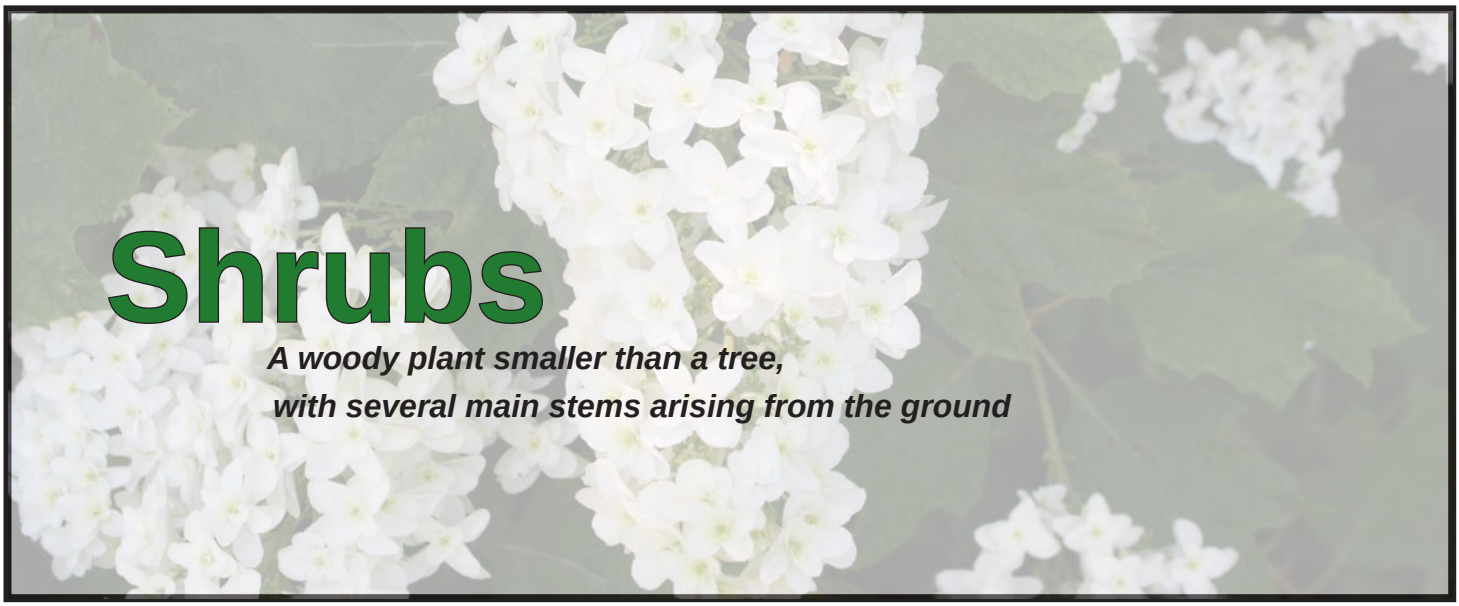
Very low-growing plant, flowers in late spring and early summer. Aromatic foliage.

Dwarf Periwinkle
Vinca minor

ALL | pH: N

4 to 6 inches | 12 inches | Not Native

Mowing the patch low after blooming every couple of years will help to keep it thick and weed resistant. Semi-evergreen foliage.



Shrubs

A woody plant smaller than a tree, with several main stems arising from the ground

Glossy Abelia

Abelia x *grandiflora*

ALL | pH: **L**

3 to 6 feet ↑ | 3 to 6 feet →

Not Native

Fragrant flowers attract pollinators and hummingbirds. Photos courtesy David Hillock, OSU.

Lead Plant

Amorpha canescens

SUM | pH: **N**

24 to 36 inches ↑ | 24 to 36 inches →

OK-Native

Very drought tolerant; grows in infertile soils. Cut back occasionally to keep full. Photos courtesy David Hillock, OSU.

Red or Black Chokecherry

Aronia arbutifolia and *A. melanocarpa*

ALL | pH: **N**

6 to 10 feet ↑ | 3 to 6 feet →

Native

Can form colonies from suckers, which makes it great for erosion control. Edible berries. Photos courtesy David Hillock, OSU.

William Penn Barberry

Berberis x *gladwynensis*

SUM | pH: **N**

36 inches ↑ | 48 inches →

Not Native

Low-growing, compact plant. Good choice for a low hedge or used as an accent in larger planting beds. Photos courtesy Kevin Moore, OSU.

Bird of Paradise
Caesalpinia gilliesii

SUM | pH: N

7 to 10 feet ↑ | 7 to 10 feet →

Not Native

Unusual Blooms. Very attractive and showy. Photos courtesy David Hillock, OSU.

American Beautyberry
Callicarpa americana

WIN | pH: L

4 to 6 feet ↑ | 4 to 6 feet →

OK-Native

Fruits provide fall to early winter beauty. Photos courtesy David Hillock, OSU.

Blue Mist Spirea
Caryopteris x clandonensis

SUM | pH: N

24 inches ↑ | 36 inches →

Not Native

Attracts bees and hummingbirds. True blue flowers all summer long.

Flowering Quince
Chaenomeles speciosa

SPR | pH: N

6 to 10 feet ↑ | 6 to 10 feet →

Not Native

Early spring flowers. New cultivars have larger, showier flowers. Photos courtesy David Hillock, OSU.

Red-twig Dogwood
Cornus sericea

ALL | pH: N

3 to 6 feet ↑ | 3 to 6 feet →

Native

Bright red stems in the winter are particularly showy. Photo courtesy Courtney Keck, OSU (left).

Smoke Tree
Cotinus coggygria

SUM | pH: N

10 feet ↑ | 10 feet →

Not Native

Tiny flowers in large fuzzy clusters give the plant a smoky appearance. Plants are available in various summer leaf colors.

Bearberry Cotoneaster
Cotoneaster dammeri

FALL | pH: N

24 inches | 48 inches | Not Native

Slow-growing evergreen. Effective in rock gardens or as groundcover. Fall foliage has a purple tinge that is complimented by small red berries.

Seven-Son Flower
Heptacodium miconioides

FALL | pH: L

15 to 20 feet | 8 to 10 feet | Not Native

Colorful rose-purple septals in late summer into fall. Attractive peeling bark. Photos courtesy David Hillock, OSU.

Rose of Sharon
Hibiscus syriacus

SUM | pH: N

12 feet | 8 feet | Not Native

Works well as a border or screen, yearly pruning in early spring will improve flowering. Sterile selections are available to prevent re-seeding.

Oakleaf Hydrangea
Hydrangea quercifolia

ALL | pH: N

6 to 8 feet | 6 to 8 feet | Native

Attractive in all four seasons with blooms, seed head and exfoliating bark. Photos courtesy David Hillock, OSU.

Deciduous Holly
Ilex decidua

WIN | pH: L

8 feet | 6 feet | OK-Native

Red berries on female plants in late summer. Plants also available with orange or yellow fruits. Photo courtesy OSU (left).

Yaupon Holly
Ilex vomitoria

WIN | pH: L

Varies | Varies | OK-Native

Very durable and adaptable, needs to be pruned two or three times per year to maintain a neat appearance. Available in dwarf and weeping varieties.

Virginia Sweetspire
Itea virginica

SUM | pH: L

3 to 5 feet ↑ | 3 to 5 feet →

OK-Native

White flowers on drooping spires in spring. Excellent fall color. Henry's Garnet has larger flowers. Photos courtesy David Hillock, OSU.

Winter Jasmine
Jasminum nudiflorum

WIN | pH: N

6 feet ↑ | 8 feet →

Not Native

Great covering for steep slopes, spilling over a wall or planted in groups. Starts blooming during cold weather before the new year.

Japanese Kerria
Kerria japonica

ALL | pH: N

4 feet ↑ | 5 feet →

Not Native

Species blooms well and is more drought resistant in partial shade. Single flowered varieties also available. Photo courtesy OSU (left).

Crapemyrtle
Lagerstroemia indica

ALL | pH: N

Varies ↑ | Varies →

Not Native

Available in a wide range of heights and flower color, severe pruning can stimulate basal sprouting, which may be a nuisance. Photos courtesy OSU.

Grape-holly
Mahonia spp.

ALL | pH: L

5 to 7 feet ↑ | 7 to 10 feet →

Not Native

M. aquifoliumis native to the NW U.S., but grows well here. Early clusters of bright yellow flowers followed by clusters of blue, grape-like fruit.

Southern Waxmyrtle
Morella cerifera

ALL | pH: L

10 to 15 feet ↑ | 8 to 10 feet →

OK-Native

Evergreen, large-shrub or small tree with aromatic, olive-green foliage. Female plants will produce pale blue berries if male plants are present.
Photos courtesy Kevin Moore, OSU.

Nandina
Nandina domestica

ALL | pH: N

Varies ↑ | Varies →

Not Native

Low-maintenance shrub, prune once per year in the winter to keep it from looking leggy. Many different selections are commercially available.

Ninebark
Physocarpus opulifolius

SPR | pH: N

6 feet ↑ | 5 feet →

OK-Native

Exfoliating bark provides some winter interest. Several cultivars have striking reddish, purple foliage. Photo courtesy David Hillock, OSU (left).

Mugo Pine
Pinus mugo

WIN | pH: N

3 to 20 feet ↑ | 3 to 12 feet →

Not Native

Slow-growing plant. Can be yellowish-green in winter. Dwarf varieties available.

Fragrant Sumac
Rhus aromatica

ALL | pH: L

5 feet ↑ | 4 feet →

OK-Native

Males and females are separate plants, fruit is only produced if a male plant is available. Dwarf selections available. Photos courtesy Kevin Moore, OSU

Coralberry
Symphoricarpos orbiculatus

SUM | pH: N

2 to 5 feet ↑ | 4 to 8 feet →

OK-Native

Colorful berries in fall; great understory plant. Photos courtesy David Hillock, OSU.

Koreanspice Viburnum
Viburnum carlesii

SPR | pH: N

4 to 6 feet ↑ | 4 to 6 feet →

Not Native

Slow-growing, symmetrically rounded shrub. Very fragrant flowers that give way to non-showy dark blue berries in late summer. Photo courtesy OSU (left)

Chaste Tree

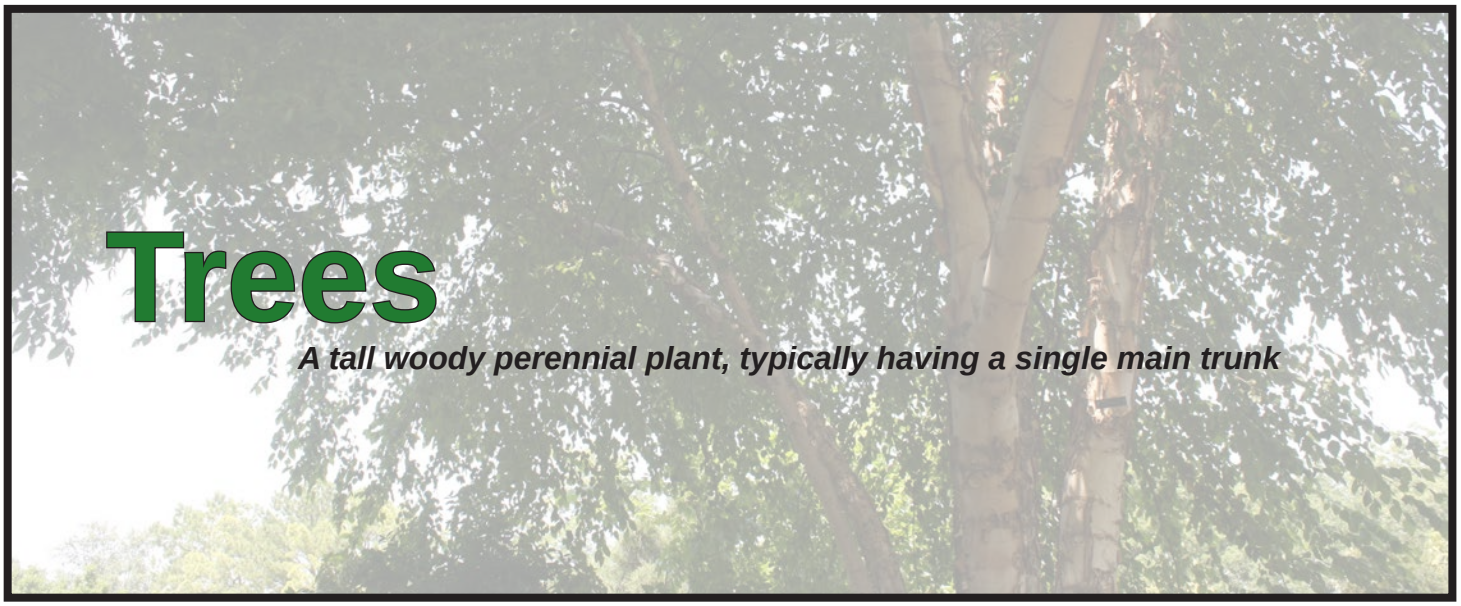
Vitex agnus-castus

SUM pH: **N**

10 feet | 15 feet | **Not Native**

Flowers attract bees. Flowers appear on new growth. Can be pruned to the ground in early spring and maintained as a herbaceous perennial.

Photo courtesy David Hillock, OSU (left).



Trees

A tall woody perennial plant, typically having a single main trunk

Hedge Maple
Acer campestre

SUM pH: **N**

25 to 35 feet ↑ | 15 to 35 feet →

Not Native

Fall color is yellow to yellow green; perfect for smaller, urban landscapes.
Photos courtesy David Hillock, OSU

Red Maple
Acer rubrum

FALL pH: **L**

60 feet ↑ | 40 feet →

OK-Native

Its rapid growth and red fall color makes red maple a popular shade tree.

Caddo Sugar Maple
Acer saccharum 'Caddo'

FALL pH: **L**

50 to 60 feet ↑ | 20 to 35 feet →

OK-Native

Very drought tolerant, sensitive to over watering. Attractive fall color. Limited availability. Photos courtesy David Hillock, OSU (left).

Shantung Maple
Acer truncatum

ALL pH: **N**

20 feet ↑ | 25 feet →

Not Native

Excellent small tree for urban areas. New leaves emerge in red and purple hues throughout the growing season. Photos courtesy David Hillock, OSU (left).

Atlas Cedar
Cedrus atlantica

ALL | pH: N

40 to 60 feet | 30 to 40 feet | Not Native

Substitute for Colorado spruce. Give plenty of room to grow.

Hackberry
Celtis spp.

ALL | pH: N

40 to 80 feet | 40 to 50 feet | OK-Native

Can develop galls on leaves. Bark is very coarse in texture and resembles small warts or ridges of cork-like layers.

Oklahoma Redbud
Cercis canadensis var. *texensis* 'Oklahoma'

SPR | pH: N

20 to 30 feet | 25 to 35 feet | OK-Native

A cultivar of Oklahoma's state tree. Best known for its pink to purple blooms that occur in early spring. Photo courtesy David Hillock, OSU (left).

Desert Willow
Chilopsis linearis

SUM | pH: N

20 to 30 feet | 15 to 25 feet | OK-Native

Works well as a wide screen. Does not tolerate overwatering.

Winterberry Euonymus
Euonymus bungeanus

WIN | pH: N

20 to 24 feet | 15 to 18 feet | Not Native

Can be grown as a tree or shrub, depending on pruning. Good tolerance for urban conditions. Photo courtesy David Hillock, OSU (left).

Ginkgo
Ginkgo biloba

ALL | pH: N

30 to 50 feet | 30 to 50 feet | Not Native

Select male trees, female fruit may be messy. Rich yellow fall color.

Kentucky Coffeetree
Gymnocladus dioicus

ALL | pH: N

60 to 75 feet | 40 to 50 feet | OK-Native

Grows slowly, female trees produce pods. Male (seedless) selections are commercially available. Photo courtesy OSU (left).

Arizona Cypress
Hesperocyparis arizonica

ALL | pH: N

40 feet | 30 feet | Native

Pyramidal in form resembling a Juniper. Foliage is bluish-gray. Works very well as a screen or windbreak. Attractive cones and showy bark. Photo courtesy David Hillock, OSU (left).

Golden-Rain Tree
Koelreuteria paniculata

ALL | pH: N

25 to 40 feet | 25 to 40 feet | Not Native

Produces small yellow flowers. Flowers give way to yellowish-brown seed pods that resemble small lanterns.

Osage Orange
Maclura pomifera

ALL | pH: N

40 to 60 feet | 40 to 60 feet | OK-Native

Produces large, grapefruit-sized fruit, which can be a problem in residential areas, but there are male thornless, fruitless cultivars. Photo courtesy David Hillock, OSU (left).

Crabapple
Malus 'Prairiefire'

ALL | pH: L

15 to 25 feet | 20 to 25 feet | Not Native

Hundreds of cultivars available with various colored fruit and growth habits. Look for disease-resistant cultivars. Photo courtesy OSU (right).

Persian Parrotia
Parrotia persica

ALL | pH: N

20 to 40 feet | 20 to 35 feet | Not Native

Yellow, red or orange fall color. Exfoliating bark adds interesting color and texture. Partial shade may also be desirable. Photos courtesy David Hillock, OSU (left).

Pinyon Pine
Pinus edulis

ALL | pH: N

20 to 30 feet | 20 to 30 feet | OK-Native

Does not tolerate shade or overwatering. Tolerant of poor soil conditions. Seeds are as pine nuts and edible. Performs best in western Oklahoma.

Shortleaf Pine
Pinus echinata

ALL | pH: L

50 feet | 30 feet | OK-Native

This is the hardiest and most adaptable of the southern pines. Photos courtesy Lady Bird Johnson Wildflower Center, Sally and Andy Wasowski (both) and Lady Bird Johnson Wildflower Center, Harry Cliffe (right).

Limber Pine
Pinus flexilis

ALL | pH: N

40 to 60 feet | 25 to 40 feet | Native

Tolerant of alkaline soils. Dark blue-green needles. Flexible branches less prone to storm damage. Bluer cultivars available. Photos courtesy David Hillock, OSU.

Ponderosa Pine
Pinus ponderosa

ALL | pH: N

70 to 80 feet | 70 to 80 feet | OK-Native

Very tall and broad, may not be suitable for residential areas.

Loblolly Pine
Pinus taeda

ALL | pH: N

60 to 100 feet | 30 to 50 feet | Native

Excellent pine that tolerates Oklahoma's adverse conditions, including poorly drained soils and drought.

Chinese Pistache
Pistacia chinensis

FALL | pH: N

25 to 35 feet | 25 to 35 feet | Not Native

Bright red, yellow or orange fall color. Female trees have red to blue berry-like fruits that appear in fall. Photos courtesy David Hillock, OSU (left).

Mexican Plum
Prunus mexicana

ALL | pH: H

20 feet | 15 feet | OK-Native

This plant attracts bees, butterflies and birds and is drought-tolerant. White blooms and edible fruits make this a good addition in orchards.
Photo courtesy Paul Cox, LBJ Wildflower Center and Sally and Andy Wasowski, LBJ Wildflower Center (right).

Sawtooth Oak
Quercus acutissima

FALL | pH: L

35 to 45 feet | 35 to 50 feet | Not Native

Foliage has a serrated edge, giving reason for its descriptive common name. Photo courtesy Kevin Moore, OSU (left)

Bur Oak
Quercus macrocarpa

ALL | pH: L

60 to 80 feet | 70 to 80 feet | OK-Native

Very slow growing. Foliage remains on the tree late into the fall after leaves have turned. Has very attractive acorns almost 2 inches in diameter.

Blackjack Oak
Quercus marilandica

SUM | pH: L

20 to 40 feet | 20 to 40 feet | OK-Native

Native to the Cross Timbers area of Oklahoma and Texas. Dense, crooked branches that often remain attached after dying. Bell-shaped, three-lobed leaves. Photo courtesy Kevin Moore, OSU (left).

Chinkapin Oak
Quercus muehlenbergii

SPR | pH: L

40 to 60 feet | 50 to 60 feet | OK-Native

Acorns very desirable to wildlife. Under-utilized shade tree. Photos courtesy Julie Makin, LBJ Wildflower Center (left) and R.W. Smith, LBJ Wildflower Center (right).

Shumard Oak
Quercus shumardii

SUM | pH: L

40 to 60 feet | 40 to 60 feet | OK-Native

Requires less maintenance than some other oak trees. More resistant to yellow foliage (chlorosis) than Pin Oak. Photo courtesy Shelley Mitchell, OSU (left).

Post Oak
Quercus stellata

ALL | pH: L

35 to 50 feet ↑ | 35 to 50 feet →

OK-Native

Native to the Cross Timbers area of Oklahoma and Texas. A slow-growing tree that tolerates poor soil but is susceptible to overwatering. Leaves have a cross-like shape. Photo courtesy Stephanie Brundage, LBJ Wildflower Center (right).

Japanese Tree Lilac
Syringa reticulata

SUM | pH: N

15 to 25 feet ↑ | 15 to 25 feet →

Not Native

Produces large white flowers, has showy bark.

Chittamwood
Sideroxylon lanuginosum

SUM | pH: N

40 to 50 feet ↑ | 25 to 35 feet →

OK-Native

Young plants often require training to create a tree-like form. Photos courtesy Sally and Andy Wasowski, LBJ Wildflower Center (left) and Melody Lytle, LBJ Wildflower Center (right)

Bald Cypress
Taxodium distichum

ALL | pH: L

50 to 75 feet ↑ | 50 to 75 feet →

OK-Native

Not an evergreen, needles fall off in the fall. Grows very well in wet soils or near water. Dwarf selection available. Photos: OSU.

Cedar Elm
Ulmus crassifolia

SUM | pH: N

50 to 70 feet ↑ | 30 to 40 feet →

OK-Native

Withstands heavy, poorly drained soils. Dark foliage and "winged" branches add to ornamental appeal. Photo courtesy Sally and Andy Wasowski, LBJ Wildflower Center (right).

Lacebark Elm
Ulmus parvifolia

ALL | pH: N

50 to 70 feet ↑ | 50 to 60 feet →

Not Native

Exfoliating bark is a noteworthy feature of this tree. Tree has small, refined leaves. Photo courtesy Kevin Moore, OSU (left)

Japanese Zelkova
Zelkova serrata

ALL pH: **N**

50 to 80 feet ↑ 50 to 80 feet →

Not Native

Graceful shape, clean foliage, attractive bark; substitute for American elm. Photos courtesy David Hillock, OSU.

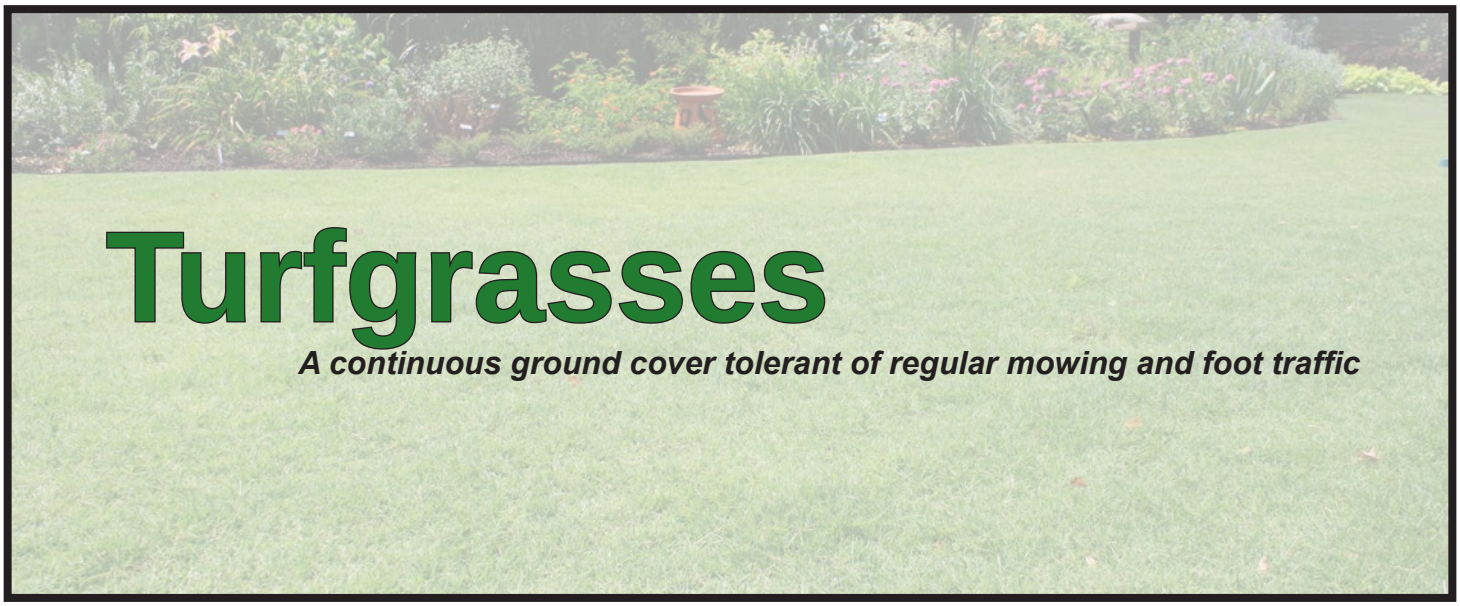
Jujube
Ziziphus jujuba

SPR pH: **N**

15 to 30 feet ↑ 15 to 25 feet →

Not Native

Attractive foliage and branching structure with the added bonus of attractive, edible fruits. Photos courtesy David Hillock, OSU.



Turfgrasses

A continuous ground cover tolerant of regular mowing and foot traffic

Buffalograss
Bouteloua dactyloides

SUM | pH: **N**

Mowing height: 3 inches | **OK-Native**

Warm-season grass, drought resistant. May be hard to establish in areas formerly planted in Bermudagrass. Does not tolerate shade. Photos courtesy Dennis Martin, OSU.

Common Bermudagrass
Cynodon dactylon

SUM | pH: **N**

Mowing height: 1 to 2 inches | **Not Native**

Warm-season grass, drought resistant. Common cultivars 'Yukon,' 'Riviera,' 'Astro' and 'Monaco.' Does not tolerate shade. Photos courtesy Dennis Martin, OSU.

Hybrid Bermudagrass
Cynodon dactylon x *C. transvaalensis*

SUM | pH: **N**

Mowing height: 1 to 2 inches | **Not Native**

Warm-season grass, drought resistant. Common cultivars 'Latitude 36,' Northbridge,' 'Tahoma 31' and 'TifTuf.' Does not tolerate shade. Photos courtesy Dennis Martin, OSU.

Tall Fescue
Festuca arundinacea

FALL | pH: **N**

Mowing height: 3 inches | **Not Native**

Cool-season grass, best suited for shaded areas. Turf-type is best for yards. Thins during summers, thus reseeding is required in fall. Photos courtesy Dennis Martin, OSU.

St. Augustinegrass

Stenotaphrum secundatum

SUM pH: **N**

Mowing height : 3 inches

Native

Warm-season grass. Less drought resistant than bermudagrass, but more disease resistant than tall fescue. Only appropriate in the far southeastern corner of Oklahoma. Photos courtesy Dennis Martin, OSU.

Zoysiagrass

Zoysia spp.

SUM pH: **N**

Mowing height : 1 to 2 inches

Not Native

Warm-season grass. Similar appearance to bermudagrass but grows better in the shade. Susceptible to large patch disease and zoysiagrass mites. Photos courtesy Dennis Martin, OSU.

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Additional Resources

Numbered documents can be found at: facts.okstate.edu

Soil

Soil Testing...the Right First Step L-249
Oklahoma Homeowner's Handbook for Soil and Nutrient Management E-1003
Backyard Composting in Oklahoma HLA-6448
Improving Soil Quality L-435
How to Get a Good Soil Sample PSS-2207
Oklahoma Soil Fertility Handbook E-1039

Landscape Planning and Design

Homeowner Garden Design Series: Elements and Principles of Design HLA-6441
Homeowner Garden Design Series: Planning the Landscape HLA-6440
Xeriscape Demonstration Garden L-332
Annual Flowers for Specific Uses in Oklahoma: An OBGA Series Fact Sheet HLA-6425
Sustainable Landscapes: Designing a Rain Garden for Residential Property HLA-6454

Turfgrass Management

Lawn Management in Oklahoma HLA-6420
Thatch Management in Lawns HLA-6604
Establishing a Lawn in Oklahoma HLA-6419
Don't Bag it: Leaf Composting L-252
Managing Turfgrass in the Shade in Oklahoma HLA-6608
Landscape Maintenance Schedule HLA-6408

Irrigation

Simple Irrigation Audit for Home Lawns in Oklahoma HLA-6610
Design of Rainwater Harvesting Systems in Oklahoma BAE-1757
Managing Pressure in the Home Irrigation System HLA-6617
Simple Irrigation Checkup for Home Sprinkler Systems HLA-6615
Turf Irrigation Water Quality: A Concise Guide HLA-6612
Turf Irrigation Water Quality: A Reference Guide HLA-6613

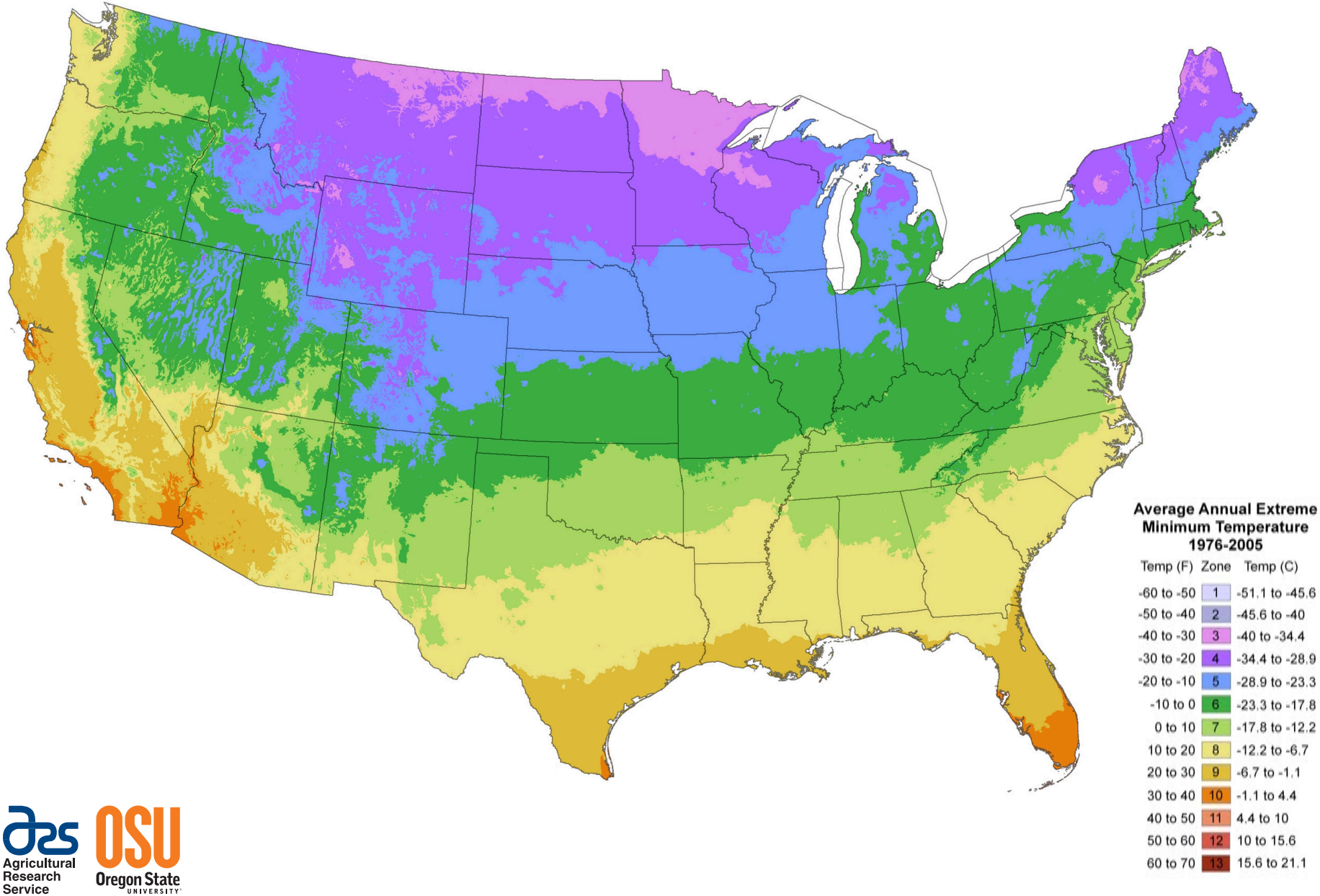
Mulch

All You Need to Know About Mulch L-436
Mulching Garden Soils HLA-6005
Mulching with Wood Chips L-251

Websites

Oklahoma Cooperative Extension Service Fact Sheets facts.okstate.edu
Oklahoma State University Water Conservation: Thinkwater.okstate.edu
Oklahoma City Utilities Department: Squeezeeverydrop.com
EPA Water Sense: EPA.gov/watersense/
OSU Department of Horticulture & Landscape Architecture: hortla.okstate.edu
OSU Turfgrass Science: turf.okstate.edu/
Oklahoma Proven: Oklahomaproven.org
Soil, Water and Forage Analytical Laboratory: soiltesting.okstate.edu

USDA Plant Hardiness Zone Map



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