

Horticulture Tips

February 2020

Oklahoma Cooperative Extension Service
Division of Agricultural Sciences and Natural Resources
Department of Horticulture & Landscape Architecture
Oklahoma State University

GARDEN TIPS FOR FEBRUARY!

David Hillock, Consumer Horticulturist

Trees & Shrubs

- Fertilize trees, including fruit and nut trees and shrubs, according to a soil test. ([HLA-6412](#))
- Most bare-rooted trees and shrubs should be planted in February or March. ([HLA-6414](#))
- Finish pruning shade trees, summer flowering shrubs and hedges. Spring blooming shrubs such as forsythia may be pruned immediately after flowering. **Do not** top trees or prune just for the sake of pruning. ([HLA-6409](#))
- Look for arborvitae aphids on many evergreen shrubs during the warmer days of early spring.
- Gall-producing insects on oaks, pecans, hackberries, etc. need to be sprayed prior to bud break of foliage.
- Dormant oil can still be applied to control mites, galls, overwintering aphids, etc. ([EPP-7306](#))

Fruit & Nuts

- Spray peaches and nectarines with a fungicide for prevention of peach leaf curl before bud swell. ([EPP-7319](#))
- Mid-February is a good time to begin pruning and fertilizing trees and small fruits.
- Collect and store graftwood for grafting pecans later this spring.
- Begin planting blackberries, raspberries, strawberries, grapes, asparagus and other perennial garden crops later this month.
- Choose fruit varieties that have a proven track record for Oklahoma's conditions. Fact Sheet [HLA-6222](#) has a recommended list.

Flowers

- Force spring flowering branches like forsythia, quince, peach, apple, and weigela for early bloom indoors.
- Forced spring bulbs should begin to bloom indoors. Many need 10-12 weeks of cold, dark conditions prior to blooming.
- Feed tulips in early February.
- Wait to prune roses in March.

Turf

- A product containing glyphosate plus a broadleaf herbicide can be used on **dormant**

bermuda in January or February when temperatures are above 50 degrees F for winter weed control.

Vegetables

- Cool-season vegetable transplants can still be started for late spring garden planting.
- By February 15 many cool-season vegetables like cabbage, carrots, lettuce, peas and potatoes can be planted. ([HLA-6004](#))

General

- Base any plant fertilization on a soil test. For directions, contact your county Extension Educator.
- Provide feed and unfrozen water for your feathered friends.
- Clean up birdhouses before spring tenants arrive during the middle of this month.
- Avoid salting sidewalks for damage can occur to plant material. Use alternative commercial products, sand or kitty litter for traction.

Backyard Fruit Tree Workshop

Becky Carroll, Associate Extension Specialist, Fruits & Pecan

What type of fruit trees are adapted to your site? What trees do best in clay soils? How do you plant a fruit tree and when does training and pruning need to begin? We will cover these topics and many more that consumers may have about growing fruit trees in their landscape. The workshop will be held on Saturday, February 15 at 1 p.m. The location is the Cimarron Valley Research Station north of Perkins. The event will be hosted by the OSU Horticulture and Landscape Architecture Department and the Cimarron Valley Research Station.

The workshop is free to attend, but participants must register by February 12 by contacting Stephanie Larimer at 405-744-5404 or via email at stephanie.larimer@okstate.edu. Keep in mind this is an outdoor workshop and dress for the weather conditions. An inclement weather date is scheduled for the following Saturday on February 22.

2020 Grape Preseason Workshop

Becky Carroll

Getting ready for the upcoming grape season will be the focus of the scheduled workshop on February 19. Learning to calibrate spraying equipment, new post-pruning spray options, disease spray schedules and other topics will be on the agenda. The workshop will be at the Cimarron Valley Research Station north of Perkins at 1 p.m. There is no charge for the event but attendees need to complete a survey to register online at <http://grapes.okstate.edu>. Be sure to dress for the weather conditions. For more questions, contact becky.carroll@okstate.edu.

Deadlines Approaching for 2020 Pecan and Grape Management Course

Becky Carroll

Brochures are now available detailing the 2020 Pecan and Grape Management Courses. The courses offer an opportunity for potential new or veteran growers to learn or refresh their basic management skills needed to successfully grow pecans or grapes. The classes meet one afternoon a month beginning February 25 for pecan and March 5 for grape and continuing for the growing season. Having the classes through the season gives participants the chance to see what management requirements are necessary at specific times. Students learn in both the classroom and in the orchard or vineyard setting. The classes meet at the Cimarron Valley Research Station near Perkins. Classes also travel to a couple of pecan orchards or established vineyards/wineries to learn from other growers. Class dates and other information is available in the brochure.

The cost to enroll in either the pecan or grape class is \$250 per student. Registration for the pecan course is due by February 14 and grape deadline is February 21. County extension educators are encouraged to enroll in the courses for reduced cost and in-service credit is possible.

The link to the brochures are online at <http://okpecans.okstate.edu/pecan-management-course/2020/2020-pecan-mgmt-course> and <http://www.grapes.okstate.edu/grape-management-course/2020/2020-grape-mgmt-course>. Please share this information with interested clientele. If you have any questions, please let me know.

Pecan Grafting Demonstrations

Becky Carroll

Is your county planning to host a grafting demonstration this spring? If you have one planned or want to get one on your schedule, let me know so I can advertise or send participants your way. If you need some help, please contact me at becky.carroll@okstate.edu for potential resources. I may be able to help teach your group or provide you with contacts in your area that could provide a demonstration.

Pecan Graftwood Sources

Becky Carroll

The updated 2020 Pecan Graftwood Source List is available on the pecan webpage located at - <http://okpecans.okstate.edu/PDFs/graftwood-source>.

For information on variety selection or grafting techniques, check out the webpage <http://okpecans.okstate.edu/orchard-establishment-management> for fact sheets or <http://okpecans.okstate.edu/pecan-video-resources> for videos showing different grafting techniques.

Oklahoma Gardening Programming for February

Casey Hentges, Oklahoma Gardening Host

Oklahoma Gardening begins airing new segments on Saturday, February 16. This month you will find information about how to make last season's garden waste improve this season's garden, how to make your own seed starting kit, bermudagrass eradication research being conducted at the Cimarron Valley Research Station, and winter bird care.

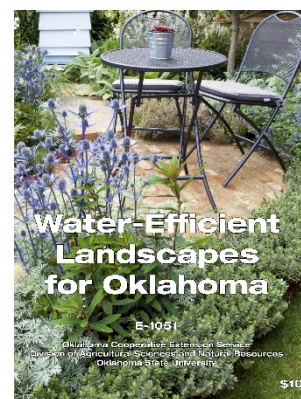
Oklahoma Gardening airs Saturdays at 11 am and Sundays at 3 pm on OETA.

Please note, the weekends of February 29, March 7, and March 14, *Oklahoma Gardening* will be pre-empted with PBS fundraising and will not air on the main channel but can still be found on OETA-World.

New Publication – Water-Efficient Landscapes for Oklahoma (E-1051)

Justin Quetone Moss, Extension Specialist

A new publication has been produced that will assist the homeowner in designing a landscape that is attractive while eliminating wasteful water usage. We have combined two of our publications E-1037 (Drought-tolerant Plant Selections for Oklahoma) and E-1038 (A Guide to Saving Water in the Home Landscape) and created a new, updated publication. The first portion of the new E-1051 publication is focused on water-efficient design strategies using the Seven Principles of Xeriscaping. The second portion of the new E-1051 publication is a guide to plants that perform well in Oklahoma and have low to moderate water requirements.



A pdf of this publication can be found at the Oklahoma Cooperative Extension Service Fact Sheet website at <http://pods.dasnr.okstate.edu> (search for E-1051). Hard copies are also available for purchase for \$10 through the Horticulture and Landscape Architecture website at <http://www.hortla.okstate.edu/>. Look for the Market Place link towards the bottom on the page on the right hand side.

Control Peach and Nectarine Leaf Curl Now!

David Hillock

It is common to get calls in early summer by homeowners wanting to know what is wrong with their peach or nectarine tree. Infected leaves pucker, become deformed, and turn yellow or reddish-brown. Unfortunately, by that time, when symptoms are most evident, it is too late to spray anything. Leaf Curl is the culprit and is one of the most commonly encountered diseases in unsprayed orchards and home yards during cold, wet springs. Diseased leaves eventually wither and fall from the trees. Although new leaves emerge from dormant buds, their growth requirements reduce yield and may weaken the trees.

To prevent leaf curl disease, spray peaches and nectarines with a fungicide before bud swell ([EPP-7319](#) – Home Tree Fruit Production and Pest Management). Apply when the trees are dormant and temperatures are above 40 degrees F, usually mid-February through March depending on weather and location in the state. Bordeaux mixtures, copper flowable fungicides, chlorothalonil, and lime-sulfur sprays are commonly used for control of leaf curl.

Fresh Spring Vegetables

David Hillock

The days for fresh vegetables to be picked right from the garden are soon coming. The cold winter temperatures will soon be leaving allowing us to return to the garden and begin growing our favorite vegetables again. By February 15 many cool-season vegetables like cabbage, carrots, lettuce, peas and potatoes can be planted (see chart). The exact time to plant will vary slightly depending on the winter and where you live in the state. The south/southwest region could be as much as two weeks ahead of the northwest and panhandle areas of the state. The thing to remember though is that soil temperatures at planting depth should be at least 40 degrees F.

The ease with which one is able to grow plants is greatly influenced by characteristics of the soil. Modifying or improving the soil prior to and during the gardening season is important.

Various fertilizer elements are necessary for plant growth and many can be easily applied. However, other aspects of soil improvement may not be as easily and readily accomplished. In a very sandy soil, the incorporation of organic matter would reduce rapid drying of the soil and improve nutrient availability. In a very heavy clay soil, organic matter would improve soil aeration, water absorption, and drainage.

Soil should absorb water readily, not form a crust upon drying, and drain sufficiently so that it does not become waterlogged. A porous soil contains more air, which is necessary for vigorous root growth. As organic matter decomposes, soil texture improves and nutrient availability should increase. More information on garden soil improvement is given in Fact Sheet [HLA-6007](#) – Improving Garden Soil Fertility.

The soil must contain a supply of water and available fertilizer nutrients. Soils that produced a vegetable crop the previous year will be more easily managed than those with established grasses and weeds.

Additional fertilizers may be beneficial to stimulate growth and production. These might be incorporated in the soil prior to planting or applied on the soil surface later.

Garden Planting Guide for Cool Season Vegetables

<u>Vegetable</u>	<u>Time to Plant*</u>	<u>Days to Harvest</u>	<u>Method of Planting</u>
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Asparagus	Fall or Spring	-	Crowns
Beet	March	50-70	Seed
Broccoli	March	80-90	Plants
Cabbage	Feb. 15 to March 10	60-90	Plants
Carrot	Feb. 15 to March 10	70-90	Seed
Cauliflower	Feb. 15 to March 10	70-90	Plants
Chard, Swiss	Feb. 15 to March 10	40-60	Seed
Kohlrabi	Feb. 15 to March 10	50-70	Seed
Lettuce, Head	Feb. 15 to March 10	60-90	Seed or Plant
Lettuce, Leaf	Feb. 15 to March 10	40-70	Seed or Plant
Onion	Feb. 15 to March 10	60-120	Sets
Onion	Feb. 15 to March 10	60-120	Plants
Peas, green	Feb. 15 to March 10	60-90	Seed
Potato, Irish	Feb. 15 to March 10	90-120	Tuber pieces 2-3 oz.
Radish	March 1 to April 15	25-40	Seed
Rhubarb	Fall or Spring	-	Crowns
Spinach	Feb. 15 to March 10	50-70	Seed
Turnip	Feb. 15 to March 10	50-60	Seed

*These dates indicate planting times from southeast to northwest Oklahoma. Specific climate and weather may influence planting dates. For cool-season vegetables, the soil temperature at the depth where the seeds are planted should be at least 40°F.

Forcing Spring Flowering Shrubs for Indoor Beauty

Casey Hentges

They say it is always darkest before dawn and I am sure I'm not the only one who feels the drab winter is getting a little boring. If you are anxiously anticipating spring's first pop of color, you may want to try forcing some spring flowering shrubs and use them at flower arrangements to bring a little spring cheer into our home.

Select spring-flowering shrubs and trees, such as forsythia, quince, and bridal wreath spirea, because they develop their buds in fall before they go dormant. This is also the reason you typically do not want to prune them until after they are finished flowering in the spring, because you would be removing those flowerbuds. However, in this case you are intentionally cutting a few branches to remove. This will not be that big of a loss to the outdoor display and at the same time bring a little color inside.

When looking at a branch to cut, you will notice the flower buds have already been developed. Although these buds developed last season, they have to endure about 8 weeks of temperatures below 40 degrees before you can force them to bloom. Later winter, typically we have past 8 weeks and as we get closer to the time they would naturally bloom the buds begin to swell more and more. This makes it easier to force them or "trick" them into thinking it is time to bloom.

Carefully, cut a few branches from the shrub and make sure to cut the branches close to a branch or bud so as not to leave any stubs. Also, while we normally do not prune spring-flowering shrub at this time of year, since you are cutting back some the branches you want to think about it as if you were pruning it. Therefore, do not simply harvest the branches from one side of the plant, instead take branches from different sides of the shrub to leave an even look overall. Or perhaps, if there is one side that is crowded this is an opportunity to remove some of those branches. Usually you want branches that are 6-18 inches long depending on what container you intend to use. Keep in mind a heavy, taller vase is often better to support large woody stems.

If you want to collect spring blooming fruit trees, then look for branches with several spurs on them. Spurs are these short compact side shoots, which bear the flowers and ultimately bear the fruit on that tree. Keep in mind if you are collecting those branches for flowers, then there is no way those branches are going to produce fruit for you later, but if your tree is a good size that shouldn't be a concern as there would still be ample fruiting branches remaining.

After collecting your branches from the garden, you will want to make a second cut on them. This cut should be at a 45 degree angle creating more surface area for water to be taken up. If you decide to harvest branches when the temperatures are below freezing, after recutting the branches, you will need to immerse the entire branch under cool water for several hours or overnight. You can use either a plastic tub or bathtub. This will gradually acclimate the branches to warmer temperature preventing them from bursting prematurely.

Branches that are cut when temperatures are above freezing do not need to be submerged completely in water. Simply put them in a bucket of warm water (about 110 degrees F) that covers about 3 inches of the stems. Let this set for 20-30 minutes. If you have a floral preservative, you can add it also to help prolong the life of the branches. If you do not have floral preservative, you can make a solution using some items that you likely have at home - white vinegar, sugar, household chlorine bleach, and water. To 1 quart of water, add 2 tablespoons of white vinegar, 2 tablespoons of sugar, and half a teaspoon of bleach. Mix this up and use as a floral preservative.

After about 20-30 minutes, check the branches. They likely have sucked up a lot of the water and you will need to add more, keeping it at a level of about 3 inches. Until these branches break bud, keep a close eye on the water level to ensure they do not dry out. Keep them in a cool, partially shaded area of the house.

When the buds begin to show color, remove them from the storage bucket and arrange them in a more decorative, watertight container or vase. Make sure the container can hold plenty of water for them and taller, heavier containers tend to work better as they will hold the branches upright and not tip over with the weight of the branches.

Because you are just working with branches there is not much design talent required, you can pretty much just stick them in the container, put the taller ones in the center. Vases of one type of plant look very striking, but to add more color you can also mix branches from different spring-flowering shrubs.

You can place your arrangement in more light, but should still keep them out of direct sunlight. Forcing branches is a great way to add a little color to the end of a long winter.

Oklahoma Gardening Video - <https://youtu.be/ocVEYqKWY5Q>

Applying Dormant Oils for Winter Insect Control

David Hillock

For home gardeners and fruit growers an important insect management tool is dormant oil application. Dormant oil is a refined petroleum product formulated for use on trees and shrubs. This refers to the time of application which should be late winter or early spring. Applications should be made when temperatures are above freezing and before bud swell and bud break before new growth forms. Ideal temps are between 40 and 70 degrees.

If applied too early, before hardening off, the trees can sustain winter injury. Also, if the temperature is too low the oil will not mix well in solution and you will not get adequate coverage needed to control overwintering insects. Late February through March should be a good time to make these applications, although check the weather and make sure there will not be any freezing temperatures or rain for a few days after applications.

Dormant oils control scale insects, aphids, and mites that are overwintering on the trees. The oil must be applied with enough water to get thorough coverage (read label recommendations). Coverage is very important so that the spray can reach in between the cracks and crevices of the bark where many insects hide. The oil coats the insects and fills the spiracles. Insects use their spiracles to breathe so when they are blocked they smother. Dormant oils will suppress insects by killing overwintering adults and eggs which will slow the seasonal build up in the spring. This is well worth the extra time. Some insects controlled by dormant oils include aphids, scales, and mites.

Applications should be made to apples, pear, plum, pecan and crabapples. Peaches, nectarines, apricots and plums often do not require dormant oil sprays, but if certain insect pests have been an issue in the past it could be beneficial. Dormant oils can also be beneficial for shade trees and woody ornamentals. Consult your label before application to make sure the plant is listed. Some plants are sensitive to dormant oil applications.

Precautions: Do not apply too early or too late. Avoid temperature extremes. Avoid using on plants that are oil sensitive. There will be a list on the label.

Dormant oils will kill annual flowers; do not make applications to trees close to annuals. Do not apply in combination with sulfur containing pesticides such as captan. This will cause plant injury.

Benefits far outweigh the negatives. It is fairly inexpensive. Less toxic than other sprays used to control these pests with little toxicity to birds and mammals. This will provide your plants with a jump start into spring.

Dormant oils can be purchased at any garden center and are relatively inexpensive. Remember to read the label and follow all label recommendations!

Growing Seedlings

David Hillock

Buying transplants in the spring from local garden centers and nurseries is an easy way to get a garden started, but if you are up for a challenge and want more variety when it comes to cultivar selection you might try starting your own plants indoors from seed. After seeds have germinated, they must be promptly given the best possible growing conditions to ensure stocky vigorous plants for outdoor planting. Cultural requirements must be considered carefully.

Light – Seedlings must receive bright light promptly after germination. Place them in a bright south-facing window if possible. If a large, bright window is not available, place the flats or pots under fluorescent lights. A fixture containing two 40-watt fluorescent tubes is adequate. Place the seedlings about 6 inches from the tubes and keep lights on for 14 to 16 hours each day. As seedlings grow, the lights may need to be raised to prevent leaf burn as seedlings touch the tubes.

Plants need some red and infrared radiation. Since this is not supplied by common fluorescent tubes, additional light from incandescent lamps or windows is necessary. If this cannot be given, use a fluorescent tube specially designed for plant growing. These are available under a variety of trade names. LED lights specially designed for growing plants are also available now.

Temperature – Most annual plants and vegetables prefer nighttime temperatures between 60 and 65 degrees F. Day temperatures may run about 10 degrees higher. If temperatures are warmer than this, leggy plants result. Cool-season vegetable crops and a few flowers prefer night temperatures no higher than 55 degrees F and day temperatures near 65 degrees F. An unused bedroom, basement or sun porch is often a good location.

Moisture – Good humidity is an asset for producing good plants. A humidifier may be used, or shallow pans of gravel filled with water may be placed as close to the growing area as possible. Flats should be kept moist at all times, but never soggy. Allow drying between watering, but don't allow seedlings to wilt at any time.

Fertilization – Seedlings will need some fertilization for best development. Those in totally artificial mixes need prompt and regular fertilization. Use a soluble house plant fertilizer as sold in garden centers and nurseries. Young, tender seedlings are easily damaged by too much fertilizer. Apply fertilizer at about half the recommended strength a few days after seedlings have germinated. After that, fertilize at two-week intervals with the dilution recommended by the manufacturer. Water and fertilize carefully.

“Damping Off” – When seedlings fall over at the ground level, they are being attacked by a fungus disease known as “damping off”. If only a few seedlings are attacked, dig out and discard the infected plants and soil. Drench the entire soil mass with a fungicide if the disease is scattered throughout the flat or pot. This may not provide complete control. High temperature,

poor light, or excess moisture stimulate spread of the disease by weakening plants to make them more susceptible to it. Best control is cleanliness and prompt action when the disease appears.

Fertilizing Asparagus

David Hillock

Asparagus is a wonderful spring vegetable requiring minimal maintenance. To promote a good crop, fertilizer needs to be applied to the crop twice each season; once in late February or early March and again at the end of the harvest season. The first fertilization stimulates shoot development and the second feeds the growth of ferns. Promoting vigorous fern growth will replenish the energy reserves in the roots for next year's harvest.

Before applying fertilizer, remove last year's dead ferns and move those to the compost pile. Apply a side dressing of fertilizer. Side dressing means applying the fertilizer to the soil around the plant, keeping the fertilizer from contacting the plant directly. Generally, nitrogen only is needed, which is the first number listed on a fertilizer bag. Only apply phosphorus and potassium if a soil test indicates a nutrient deficiency.

The fertilizer is applied at a rate of about one half to one pound of actual nitrogen per 50 square feet. As an example a bed about 25 square feet, would need one-quarter to one-half pound of actual nitrogen. An organic source of nitrogen in the form of blood meal has a nutrient content of 12-0-0. This means nitrogen makes up 12 percent of the fertilizer by weight or .12 pounds of nitrogen per pound of fertilizer. If the goal is to apply $\frac{1}{4}$ pound of nitrogen to the 25 square-foot asparagus bed, 2 pounds of blood meal will need to be applied.

2020 Oklahoma Proven Selections

David Hillock

Each year a set of plants is chosen by horticulturists that will help consumers choose plants appropriate for Oklahoma gardens. The program began in 1999 by selecting a tree, shrub, perennial and annual worthy of Oklahoma landscapes. The plant selections for 2020 are listed below.

Tree – *Carpinus* species, Hornbeam

The genus *Carpinus* includes the native *C. caroliniana*, American hornbeam and *C. retusus*, the common or European hornbeam.

Carpinus caroliniana is easily grown in average, medium moisture soil in part shade to full shade and prefers moist, organically rich soils. American hornbeam is a slow-growing, deciduous, small to medium-sized understory tree with an attractive globular form. It typically grows 20-35' tall. The smooth, gray trunk and larger branches of a mature tree exhibit a distinctive muscle-like fluting that has given rise to another common name of musclewood. Flowers appear in spring in separate male and female catkins, with the female catkins giving way to distinctive clusters of winged nutlets. Dark green leaves often produce respectable shades

of yellow, orange and red in fall. American hornbeam is an attractively shaped, low-maintenance understory tree for shady sites and may be grown in lawns or naturalized in woodland areas.

Carpinus betulus is easily grown in medium moisture, well-drained soils in full sun to part shade. European hornbeam needs little pruning when grown as a tree, but responds well to hard pruning if grown as a hedge; it is best pruned during late summer to mid-winter to avoid significant bleeding. European hornbeam is a medium-sized, deciduous tree that grows 40-60' tall with a pyramidal to oval-rounded crown. Dark green leaves are clean and attractive throughout the growing season with little susceptibility to foliar diseases and turns an undistinguished yellow to orange in fall. Monoecious flowering catkins form in early spring before the foliage emerges. 'Fastigiata', sometimes called Upright European hornbeam, displays a narrow, fastigiate form in youth, but gradually acquires a tear drop or oval-vase shape with age, typically maturing to 40' tall and 30' wide. It is much more common in commerce than the species.

Columnar forms are available in both species – *C. betulus* 'Frans Fontaine' and 'Lucus' are 10' wide, 'Columnaris Nana' 6-8' H and 3-4' wide; *C. caroliniana* Firespire® 10' wide, orange-red fall color.

No serious insect or disease problems. Leaf spots, cankers and twig blight are occasional disease problems.

- Exposure: Full sun to part shade
- Soil: Moist, well-drained
- Hardiness: USDA Zone 3-9 (*C. c.*), 4-8 (*C. b.*)

Shrub – *Hesperaloe parviflora*, Red Yucca

Not a yucca, this member of the Century-Plant family (Agavaceae) produces soft, yucca-like, evergreen leaves, 2-3 ft. in length, crowded on the perennial's short, woody base. The flower stalk rises 5 ft. and bears showy, coral-colored, tubular flowers on arching, wand-like, pink stems. Leaves are plum-colored in winter; blue-green other times. Red Yucca is evergreen, drought-resistant, and adaptable to a variety of soils. Deer browse the foliage, while the flowers attract hummingbirds. *Hesperaloe parviflora* 'Perpa', Brakelights® Red Yucca has vibrant, brake light-red blooms. This compact newer selection rarely sets seedpods, meaning more prolific flowering over an exceptionally long season. Use in mass plantings for a dramatic effect in xeriscape and waterwise gardens; it is also a good container specimen.

- Exposure: Full sun
- Soil: Dry soils, excellent drainage
- Hardiness: USDA Zones 5-10

Perennial – *Acorus gramineus* 'Ogon', Golden Variegated Sweet Flag

'Ogon' is a dwarf plant which features iris-like tufts of narrow, grass-like, variegated leaf blades (6-12" tall and 1/4" wide) which are striped with yellow and green, but primarily appear as yellow.

Acorus gramineus is commonly called grassy-leaved sweet flag. It is native to wetland areas of China, Japan, Korea, India, Thailand, Myanmar and the Philippines. It is a semi-evergreen, marginal aquatic perennial that features a grass-like tuft of narrow, linear leaf blades that fan outward. Tiny, insignificant, yellow-green flowers bloom from spring to early summer on lateral, sedge-like flower spikes. Flowers give way to very tiny, reddish, fleshy berries. Tufts will slowly spread over time by rhizomes to form a dense ground cover. Plants thrive in wet soils and are commonly grown in water gardens and boggy areas for foliage accent or ground cover purposes. Although it looks like a grass and its common name suggests a grassy appearance, grassy-leaved sweet flag is not a member of the grass family. Originally it was assigned to the arum family (which includes calla lily and jack-in-the-pulpit), but recently it has been transferred from arum to its own family called Acoraceae. Foliage is sweetly fragrant when bruised (hence the common name of sweet flag).

Easily grown in average, medium to wet soils in full sun to part shade. Plants perform well in both boggy conditions (including shallow standing water to 3-4" deep) and consistently moist garden soils. Never allow soils to dry out. Scorched leaf tips and withering leaves are often the first signs of drying soils. In water gardens, plants are typically planted in containers with water covering the crowns or in wet soils at the water's edge. Plants appreciate some relief from hot summer sun (e.g., afternoon shade or filtered sun) when grown in hot summer climates. Plants will slowly naturalize by spreading rhizomes, but are not considered to be invasive.

- Exposure: Sun, part shade
- Soil: Moist or dry soils, but well-drained
- Hardiness: USDA Zone 5-9

Annual – *Verbena bonariensis*, Brazilian Verbena (improved cultivars)

Verbena bonariensis, commonly called Brazilian vervain or verbena, is a rapid-growing, clump-forming tender perennial. Plants typically form a 1-foot tall basal clump of serrate, lance-shaped, dark green leaves from which rise erect, slender, wiry, branching, sparsely-leaved, stems to 3.5' tall bearing clusters (to 2" across) of tiny rose-violet flowers.

In Oklahoma Brazilian verbena often grows as an annual in average, moist, well-drained soils in full sun to part shade. The plant tolerates poor soils as long as drainage is good. Seed may be sown directly in the garden after last frost date. For earlier bloom, start seed indoors 6-8 weeks before last frost date. If sited in sheltered locations with southern exposures, plants can survive mild winters. Even if plants do not survive winter, they often remain in gardens for a number of years through self-seeding. Brazilian verbena has no serious insect or disease problems, though powdery mildew can occasionally be found on lower leaves. Plants are very heat and drought resistant, make great cut flowers, and attract hummingbirds and butterflies.

Improved cultivars are available – 'Little One', 'Lollipop' and Meteor Shower®. 'Little One', 14-24" H, maybe more mildew resistant; 'Lollipop', compact, 30" H and W; Meteor Shower®, 14-24" H and W, sets little seed.

- Exposure: Full sun to part shade
- Soil: Moist, well-drained soil

- Hardiness: Use as an annual

To see all the plants recommended by the Oklahoma Proven Plant Selection Program, visit our web site at <http://www.oklahomaproven.org/>.

For more information about Oklahoma Proven, contact David Hillock, 405-744-5158, david.hillock@okstate.edu.