

Horticulture Tips

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

Garden Tips for April

David Hillock, Associate Extension Specialist

Vegetables

- Wait a little longer for it to warm up before planting cucurbit crops and okra.
- Plant vegetable crops in successive plantings to ensure a steady supply of produce rather than harvesting all at once.
- Cover cucurbit crops with a floating row cover to keep out insect pests. Remove during bloom time.
- Watch for cutworm damage and add flea beetle scouting to your list of activities in the vegetable garden.

Garden Planting Guide for Warm-Season Vegetables

<u>Vegetable</u>	<u>Time to Plant*</u>	<u>Days to Harvest</u>	<u>Method of Planting</u>
Bean, Lima	April 15-30	90-120	Seed
Beans, Green or Wax	April 10-30	50-60	Seed
Beans, Pole	April 10-30	60-90	Seed
Cantaloupe	May 1-20	80-100	Seed or Plants
Cucumber	April 10-30 or later	50-70	Seed or Plants
Eggplant	April 10-30	80-90	Plants
Okra	April 10-30 or later	60-70	Seed
Pepper	April 10-30 or later	90-110	Plants
Pumpkin	April 10-30	90-120	Seed
Southern Pea	May 1-June 10	85-100	Seed
Squash, Summer	April 10-30 or later	40-60	Seed or Plants
Squash, Winter	May 15-June 15	110-125	Seed or Plants
Sweet Corn	Mar. 25-April 30	80-100	Seed
Sweet Potato	May 1-June 10	100-120	Plants
Tomato	April 10-30	70-90	Plants
Watermelon	May 1-20	90-120	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.

Fruit and Nut

- Don't spray insecticides during fruit tree bloom or pollination may be affected. Disease sprays can continue according to schedule and label directions. ([EPP-7319](#))
- Control cedar-apple rust. When the orange jelly galls are visible on juniper (cedar), following a rain, begin treating apple and crabapple trees with a fungicide. ([EPP-7319](#), [EPP-7611](#))
- Fire blight bacterial disease (EPP-7615) can be controlled at this time. Plant disease-resistant varieties to avoid diseases.
- Continue spray schedules for disease prone fruit and pine trees.

Lawn

- Warm-season grass lawns can be established beginning late April from sprigs, plugs or sod. ([HLA-6419](#))
- Fertilizer programs can begin for warm-season grasses in April. The following recommendations are to achieve optimum performance and appearance of commonly grown species in Oklahoma.
 - Zoysiagrass: 3 lbs N/1,000 sq. ft./year
 - Buffalograss: 2 - 3 lbs N/1,000 sq. ft./year
 - Buffalograss/grama mixes: 3 lbs N/1,000 sq. ft./year
 - Bermudagrass: 4-6 lbs N/1,000 sq. ft./year
 - Centipedegrass: 2 lbs N/1,000 sq. ft./year
 - St. Augustinegrass: 3-6 lbs N/1,000 sq. ft./year

When using quick release forms of fertilizer, use one pound of actual nitrogen per 1,000 sq. ft. per application; water in nitrate fertilizers. ([HLA-6420](#))

- Mowing of warm-season lawns can begin now ([HLA-6420](#)). Cutting height for bermuda and zoysia should be 1 to 1½ inches high, and buffalograss 1½ to 3 inches high.
- Damage from Spring Dead Spot Disease (SDS) becomes visible in bermudagrass ([EPP-7665](#)). Perform practices that promote grass recovery. Do not spray fungicides at this time for SDS control.
- Grub damage can be visible in lawns at this time. Check for the presence of grubs before ever applying any insecticide treatments. Apply appropriate soil insecticide if white grubs are a problem ([EPP-7306](#)). Water product into soil.

Tree and Shrub

- Proper watering of newly planted trees and shrubs often means the difference between success and replacement.
- Remove any winter-damaged branches or plants that have not begun to grow. Prune spring flowering plants as soon as they are finished blooming. ([HLA-6404](#), [HLA-6409](#))
- Control of powdery mildew disease can be done with early detection and regular treatment. Many new plant cultivars are resistant. ([EPP-7617](#))
- Leaf spot diseases can cause premature death of foliage and reduce plant vigor.

Flowers

- Most bedding plants, summer flowering bulbs, and annual flower seeds can be planted after danger of frost. This happens around mid-April in most of Oklahoma. Hold off mulching these crops until spring rains subside and soil temperatures warm up. Warm-season annuals should not be planted until soil temperatures are in the low to mid 60s.

- Harden off transplants outside in partial protection from sun and wind prior to planting.
- Let spring flowering bulb foliage remain as long as possible before removing it.

Landscape - General

- Hummingbirds arrive in Oklahoma in early April. Get your feeders ready using 1-part sugar to 4-parts water. Do not use red food coloring.
- Keep the bird feeder filled during the summer and help control insects at the same time.
- Lace bugs, aphids, spider mites, bagworms, etc. can start popping up in the landscape and garden later this month. Keep a close eye on all plants and use mechanical, cultural, and biological control options first.
- Be alert for both insect pests and predators. Some pests can be hand picked without using a pesticide. Do not spray if predators such as lady beetles are present. Spray only when there are too few predators to be effective.

Hardening Off Transplants

Casey Hentges, Associate Extension Specialist

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Without knowing exactly when warmer weather will finally arrive, mid-April is typically a good time to plan to place warm-season crops in the garden. The planting date can vary based on the location in the state. While the beginning of April is an appropriate planting date for southern Oklahoma, planting in the panhandle should wait a little longer. Paying close attention to the weather forecast in April will give insight as to when to plant.

Growing transplants indoors from seed means they will need to acclimate to the real world before planting in the garden. It's like pushing your kids out of the nest and giving them some tough love, while they are still somewhat protected.

As young seedlings, everything has been provided to ensure they get the best start. While this has likely paid off by growing successful transplants, those transplants are not considered truly successful until they have acclimated and established themselves into their new garden home. Even if they are checked on daily, the natural environment will bring variable challenges from day to day for the new transplants. For example, Oklahoma winds are stronger than what they are used to indoors.

Before the transplants can go into the garden, they need to be hardened off. Hardening off is the process of exposing transplants gradually to outdoor conditions and is typically done about a week before they go into the garden. An easy way to do this is to expose them to the outside elements for short periods of time. Start by putting them outside for a few hours in the morning or in the evening. Even though they have been under bright lights such as a grow light, they will not be used to the full afternoon sun. To get them acclimated, add a little time each day until they can spend a full day outside. The same goes for the evening temperatures, however, it may still get cold in the evening. While exposure to some cooler temperatures is part of the process, don't leave them outside on those especially cold nights when temperatures drop below 50°F. This gradual exposure will help the transplants acclimate to the sunlight, temperatures, and the wind.

Another thing to take into consideration is to start reducing the frequency of watering. They will need significant watering at this stage because they are exposed to warmer conditions and stronger, drying winds. Allowing them to experience some thirst (but not wilting) between watering is likely what they will soon be experiencing in the garden. It is better to do it sooner, when they can be monitored closely rather than later, when they might get accidentally overlooked in the garden.

Putting transplants outside for a few hours a day starting in the morning or evening and slowly working up to a full day is the best way to harden them off. Do not put them in direct sun right away. Instead, consider placing them under a covered porch or in the shade of a tree, while allowing them to slowly adapt to their new environment.

<https://www.youtube.com/watch?v=2gT8dJeRCnU&t=124s>

Oklahoma Pecan Growers Association Annual Meeting

Becky Carroll, Associate Extension Specialist

The Oklahoma Pecan Growers Association (OPGA) will be hosting their annual meeting on June 1-3, 2023, at the Cox Business Convention Center in Tulsa. We have a great slate of speakers lined up to provide content to potential or experienced pecan growers.

Be sure to reserve your hotel room by May 11, 2023. The OPGA has a block of rooms at the DoubleTree by Hilton that joins the convention center. The phone number is (855) 610-8733. Ask for the OPGA rate of \$159. There are other hotels in the area if you want to stay elsewhere.

For more details and to register online visit <https://www.okpecangrowers.com/annual-convention>.

On Thursday, June 1, registration starts at 12:30 p.m. We will then begin our mini-pecan class at 1:00 p.m. We will be offering 2 pesticide applicator CEUs for the Thursday afternoon session. Our great vendors will be set up on Thursday and Friday to be available to show the latest and greatest in the pecan world. The 2022 State Pecan Show winners will be displayed for your viewing on Thursday and Friday. Thursday evening, we will have a social. Always lots of fun visiting with old and brand-new friends.

Friday the 2nd is chocked full of pecan fun and education. Plan to bring your best pecan baked goods to enter in the pecan food show. Registration is from 7:30 – 10:00 a.m. and judging begins at 10:00 a.m. Winners will receive ribbons and Grand Champions have bragging rights for another year plus some great prizes. Those Grand Champions will be auctioned off at the Awards Banquet on Friday evening to benefit pecan research. The educational program will begin at 8:00 a.m. The agenda is posted online with speakers and topics scheduled for the event. The line up has something for everyone! We hope to provide another 2 CEUs on Friday.

Saturday the 3rd, we will travel to Great Buffalo Pecan Farm just about 15 minutes from the convention center for our field day and lunch. The address is 6998 N. 52nd West Ave., Tulsa,

OK 74126. Dewey Bartlett, Jr., and JP Bennett will share how they got started and some of the new projects they have incorporated.

If you are interested in moderating or helping with the field day, please let me know. I can provide free registration for those educators assisting with the meeting.

Early Bloom and Freezing Temperatures Mean Problems for Peaches

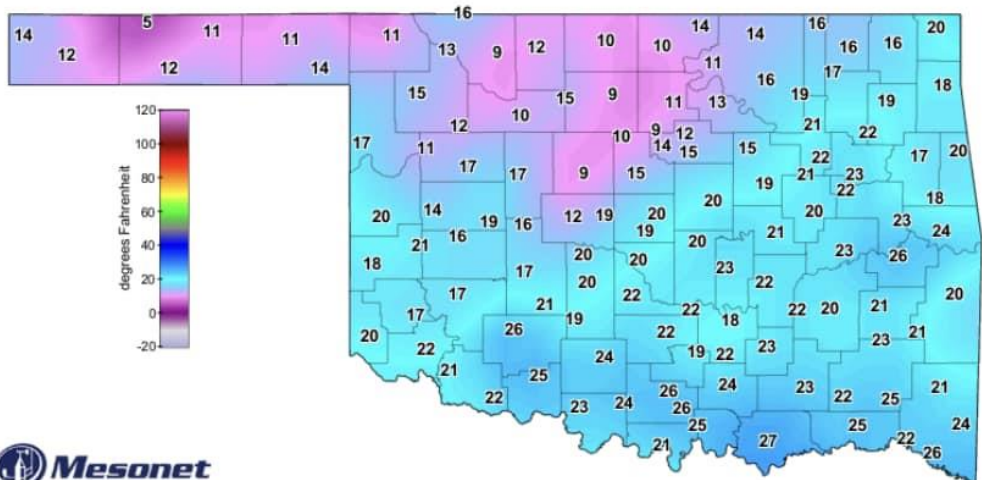
Becky Carroll, Associate Extension Specialist

This spring, peaches and nectarines were blooming at least 2-3 weeks earlier than the average bloom date here in Oklahoma. The warmer temperatures across the southeastern US has plants waking up and starting their growth much earlier this year.

The chart below shows the critical temperatures to cause injury to peach flower buds at different stages of development. Dormant buds are safe down to -12 before injury would occur on a healthy peach tree. These temperatures are for about a 30-minute time span. Once the buds start progressing in development, they are less resistant to cold temperatures. So, a peach at first pink (or popcorn stage) can be damaged at about 25 degrees to lose 10% of the crop and 15 degrees will take the majority of buds. Those at full bloom will have some damage at 27 degrees and major damage at 24 degrees. According to the Mesonet map of low temperatures on March 19, Perkins dropped down to 15 degrees and many other areas were below that critical full bloom temperature of 24 degrees.



Stage	10% kill	90% kill
Dormant	-12	-18
Swell	18	1
Calyx green	21	5
Calyx red	23	9
First pink	25	15
First bloom	26	21
Full bloom	27	24
Petal fall	28	25
Shuck split	31	29



Needless to say, those flowers at full bloom showed almost immediate petal damage and dried up within a few days. Apricots, almonds and plums at full bloom were all damaged as well. Below are a few pictures of blooms that were dissected. Some buds that were at a delayed stage, may survive. Looking at a few of the flowers, specific parts were damaged, and other parts look healthy. This would not allow the flower to be pollinated properly or develop a fruit. So even if the buds still look alive, parts of the flowers could be damaged inside.



Ovule looks green but other flower parts both male and female are damaged.



Ovary is brown indicating damage. All other flower parts are damaged.



Ovules and style look green. Stigma looks like its darkening and parts of the anthers are damaged. Some petals are remaining.



Ovule, style, and stigma look green and healthy. Hard to tell on anthers if they are damaged.

Feeding the Birds

David Hillock, Associate Extension Specialist

Supplying bird feeders in the landscape will create additional opportunities to watch birds feed. Place bird feeders where they can easily be seen from the house and enjoy the activities of the birds. Keep feeders stocked. Shrubs or trees should be no closer than 10 feet so birds can escape in case of danger.

Bird feeders should be cleaned regularly. Diseases can grow in wet and moldy seed, in bird droppings, and in warm sugar water. To clean your feeders, soak them in warm soapy water and thoroughly scrub with a brush or rag. Thoroughly rinse all parts. To make sure they are thoroughly clean and free of any potential diseases you can soak your feeders for a few minutes in a bleach solution of nine (9) parts water to one (1) part bleach. Remove from bleach solution and thoroughly rinse all parts, let the feeder dry completely before refilling with fresh food. It is a good idea to move your feeders each season to give the ground underneath time to break down the seed debris and bird droppings or rake up the seed debris and place it in the compost pile.

Seed feeders are visited by cardinals, juncos, sparrows, chickadees, finches, mourning doves, blackbirds, squirrels, chipmunks, and others. Fruit feeders (wedges of oranges, apples, bananas) are favored by orioles, bluebirds, towhees, woodpeckers, tanagers, brown thrashers, catbirds, and robins. Nectar feeders attract hummingbirds, orioles, and occasionally a variety of other seemingly unlikely birds such as woodpeckers and chickadees.

Resistance, Our First Defense to Pests

David Hillock, Associate Extension Specialist

One of our best defenses to common pest problems in the garden and landscape is plants with natural resistance. By selecting varieties of plant species, or species that are inherently resistant to common pest problems, the use of pesticides needed to keep our plants looking good can be reduced.

When buying seeds or plants, try to choose those with built-in resistance to diseases, insects, and nematodes. Sources for this information include OSU Extension Fact Sheets, seed catalogs, and plant and seed packages. It may be better to forego some production capability in favor of the increased pest resistance, if you must make such a choice.

During the growing season, stressed plants can lose their resistance to pests, so be sure the crop has the water and nutrients it needs. When shopping for seeds and plants, check the labels for indications of pest resistance. For example, many garden phlox and crapemyrtles are susceptible to powdery mildew fungal disease; however, several varieties are available that are resistant to powdery mildew. When purchasing vegetables, check labels or packaging for abbreviations like these, used to designate various types of pest resistance or tolerance:

A— <i>Alternaria</i> stem canker	N—nematode
ALS—angular leaf spot	NCLB—northern corn leaf blight
ANTH—anthracnose	PM—powdery mildew
CMV—cucumber mosaic virus	SCLB—southern corn leaf blight
DM—downey mildew	St— <i>Stemphylium</i> (gray leaf spot)
F— <i>Fusarium</i> (race 1)	SW—Stewart's wilt
FF— <i>Fusarium</i> (races 1 & 2)	TMV—tobacco mosaic virus
L—leafspot	V— <i>Verticillium</i>
MDM—maize dwarf mosaic	

Cucumbers and Zucchini – Getting Ahead of Pests

David Hillock, Associate Extension Specialist

Many are excited by the thought of fresh cucumbers and squash and eagerly set about planting them in the garden. But before long, enthusiasm can dwindle when the squash bugs arrive. Squash bug is the most serious pest of squash and pumpkins in the US and seems to be particularly troublesome in southern regions where it produces multiple generations per year. Their feeding behavior causes plants to wilt, yellow, and often die back, as they transmit viral infections from plant to plant. Squash bugs are by far the insect that we receive the most questions about. It is also one of the most difficult to control.

Squash bugs feed on summer squash, winter squash, pumpkins, melons, and cucumber. However, some cultivars are more susceptible than others to squash bug feeding and damage. So, our very first line of defense against squash bug damage is in the vegetable varieties we select for the garden. For example, yellow straightneck and yellow crookneck summer squash are

highly susceptible to squash bug damage. Substituting zucchini for the yellow squash because it has demonstrated higher tolerance to squash bugs in numerous studies can reduce squash bug problems. However, there is one zucchini cultivar called 'Cocozele' that has shown considerable susceptibility to squash bugs and should be avoided. Experiment with different cultivars of squash listed as resistant to determine which works best in your garden.

While cucumbers are also attacked by squash bugs, cucumber beetles tend to be a greater problem. Again, many cultivars are resistant to or are tolerant of cucumber beetle damage. Cucumber beetles are stimulated to feed by the chemical cucurbitacin, which is the chemical that gives some cultivars a bitter taste and causes gas in some people. Varieties listed as "burpless" or "non-bitter" contain little to none of the chemical compound and so are less attractive to cucumber beetles.

Selecting resistant cultivars is just one line of defense against squash bugs and cucumber beetles. We need to implement multiple strategies to manage these pests. Covering planted rows with floating row covers excludes both squash bugs and cucumber beetles from the plants, preventing egg-laying. The row covers must be tightly secured to the ground to exclude pests. We have used bags of sand, which are gentler on our row covers than rocks, bricks or boards.

Cucumbers and squash are insect pollinated crops, so we must remove the row covers once plants begin flowering. At that time, hand picking insects and smashing egg masses provides additional control. You can also place wooden boards near the plants, where the squash bugs will congregate overnight. In the morning, you can lift the boards and remove the insects. The key to successful control of these pests is frequent monitoring for their presence and then taking immediate action to reduce the potential infestation.

Purple Martin Houses

David Hillock, Associate Extension Specialist

Purple Martins are one of America's most well-loved songbirds for many reasons; their chattering song, aerial acrobatics, insect-eating habits, and their tolerance of humans. They are gregarious birds that typically live in large colonies, and they are the only bird in North America east of the Rocky Mountains entirely dependent upon human-supplied nesting cavities. The adult male birds are a dark, steely-blue color, with black eyes and beak. Females are brown-gray above and have a lighter colored breast. They belong to the swallow family of birds.

There are many different styles of martin houses available in a diversity of building materials. Purple Martin houses are built of wood, aluminum or plastic. In Oklahoma, where summer temperatures often soar, wood is the best house material. Wood provides better insulation for the purple martins against extreme heat. Wooden housing should be made from untreated material only. Lumber of 3/4" stock will provide better insulation against heat and cold. Cedar, cypress, pine or redwood work well.

Plastic and aluminum houses are much less expensive than wooden houses. Plastic housing should be of thick, UV-resistant material and should not allow light to filter through.

Transparency creates a “greenhouse effect”; this heat can be harmful or deadly for nestlings. A layer of insulation in the attic of plastic or metal housing will protect martins during periods of extreme temperatures.

The following information from The Purple Martin Conversation Association (<http://purplemartin.org>) will help guide you in selecting and building a martin house.

Your chances for success will be better if your housing is easy to manage. Choose a pole that telescopes, or is equipped with a winch or lanyard, and housing that has easy access to compartments. Avoid housing that only allows access by removing the roof, or layers of the house, or through entrance holes. Paint houses white or a light color. White housing attracts martins best, and reflects sunlight, keeping nestlings cooler.

Compartment floor dimensions should be at least 6" x 6" but larger compartments (7" x 12") are preferred by the martins and offer better protection from predators and rain. Larger compartments are also attractive to European Starlings, but a special entrance hole will minimize starling problems. Height of compartments can be 6" or 7". Place entrance holes 1" above the floor. An entrance hole of 2 1/8" is preferred by the martins, but they will use a range from 1 7/8" to 2 1/4". Make sure there is adequate ventilation and drainage in each compartment. Many plans for martin housing, and some manufactured houses, are made to incorrect dimensions, so if your housing is unsuccessful, check the dimensions and modify where necessary.

Most houses can be improved. Add insulation to the attic, remodel interiors to offer double-size compartments, and add porch dividers. Dividers help keep males from claiming extra compartments and can double occupancy rates. They also keep nestlings from wandering to other compartments, where they can get lost and die, or steal food from younger nestlings, causing them to starve.

Location, location, location! Choosing the right location for your martin housing is one of the most important steps in attracting Purple Martins. Martins prefer open areas with clear flyways around their housing. Choose the center of the largest open spot available, about 30-120 feet from human housing and at least 40-60 feet from trees.

Onion Care and Handling

David Hillock, Associate Extension Specialist

Whether in a home or market garden, onions are a favorite of many vegetable growers. If you planted onions from transplants this year, they should begin vigorous growth soon if they have not done so already. Do not overlook the need for nitrogen fertilizer for producing large onions. Unless you have a garden with very fertile soil, now is the time to apply nitrogen fertilizer to enable vigorous growth. Two possible sources are ammonium nitrate or urea. A rough estimate of how much of these fertilizers to use is ¼ of a pound for 20 feet of row. Scatter the fertilizer along the 20 feet distance so that it covers 1½ feet on each side of the row. Do not put the fertilizer directly on the plants and do not concentrate it at the base of the plants. Doing so could

cause injury to shallow plant roots. Fertilizer can be left on the surface or scratched lightly into the soil surface. Water gently following fertilizer application.

Primary pest problems observed in onions in southeast Oklahoma in recent years include thrips, purple blotch, and black mold. There are additional pests that affect onions one should also watch for. Thrips are tiny insects that feed on the leaf surface. Heavy infestation will result in leaves taking on a silvery appearance. Thrips are most easily observed when leaves are gently separated at the onion neck. The insect will appear as tiny yellow or dark colored specks that move when disturbed. Although tiny, thrips can be very damaging to onions. Two species are commonly present: onion thrips and western flower thrips. The two species are not readily distinguished by an untrained observer. Insecticide treatment for thrips will depend on the producer's situation. Inspect onions frequently to determine if the plants have an infestation. Contact your County Extension Office for information on insecticides to use for thrips.

Fungal diseases are another concern in onions. Healthy leaves are needed to produce an onion bulb. Diseases of the foliage can quickly destroy healthy plants. Purple blotch is one of these and it is first observed as tiny water-soaked lesions on the leaves. If conditions are suitable the lesions can enlarge and destroy the leaf. The way to control purple blotch is to use preventive fungicide applications. This means the fungicide needs to be applied before the disease is observed. The threat of this disease is greatest under rainy, wet, and humid conditions. When conditions such as these are forecast, the use of fungicide in advance of the wet weather is highly recommended. Your County Extension Office can provide information on suggested fungicides for purple blotch and other vegetable diseases.

Finally, black mold is a disease that has been observed in onions harvested in summers during a rainy period. The onion bulbs may appear normal at harvest but begins to develop a black powdery material under the dry outer scales. This is a mold that infected onions due to extremely wet conditions at harvest. Suggested control measures are to store onions at temperatures below 60. Note that storage at temperatures cooler than that provides additional benefits. Avoid bruising onions during harvesting and handling.

Fertilizing Fruit Crops

David Hillock, Associate Extension Specialist

Regular maintenance of fruit-producing shrubs and vines maximizes quality and yield of fruit. A holistic maintenance program involves proper irrigation, fertilization, insect and disease management, and pruning. Plant health depends upon healthy soils and weed management. Regular disease and insect pest scouting are critical issues for many fruit crops.

Several fruit crops need to be fertilized at the start of the growing season. Fertility management is important to maintaining the health of perennial fruit crops during their life span. Because fruit crops are long-lived, it is important to assess and improve soils prior to planting. Improving soil tilth, adjusting pH, and addressing fertility needs prior to planting will result in stronger plant growth and production. Nutrients such as phosphorous and potassium do not move through the

soil readily and are best managed prior to planting. Soil pH is particularly critical for blueberries, which require acidic soils. It is worthwhile to take time to adjust pH prior to planting.

Fruit crops growing in soil that was properly prepared prior to planting generally require only small additions of nitrogen throughout the life of the planting. It is important to treat each crop individually — not all fruit crops have the same nutritional requirements. Specific nitrogen requirements and appropriate fertilizer rates for each small fruit crop are outlined in OSU Fact Sheet [HLA-6259](#) – Small Fruit Fertilization and Maintenance Schedule. Rates presented in this publication represent average annual nitrogen needs for mature plants. Recommendations for fertilization of fruit and nut trees can be found in OSU Fact Sheet [HLA-6232](#) – Fertilizing Pecan and Fruit Trees. Refer to specific fact sheets for fertilizer rates of immature plants. Visual growth inspections will help tailor nitrogen needs. If plants are growing too vigorously, reduce nitrogen application rates. Slow growth may indicate a need for higher nitrogen rates.

Soil tests deliver more accurate nutrient requirement recommendations based on the specific growing location and are recommended every three years. Some crops require applications of macronutrients or micronutrients in addition to nitrogen. If a nutrient deficiency is suspected, conduct a soil test to determine if additional fertilizer is needed.

Consider soil characteristics and plant requirements when selecting fertilizer. For example, blueberry and kiwi crops require acidic soils (low pH) for optimum plant nutrition. Specifically, blueberries perform best in soils with pH between 4.0 and 5.5 and kiwi performs best in a pH of 5.0 to 6.5. Soil pH can be amended through applications of sulfur prior to planting (Extension Fact Sheet [HLA-6248](#) – Blueberry Production for the Home Garden). Clay soils are more difficult to amend than sandy soils. Fertilizers useful for acid-loving plants include sulfur-coated urea, ammonium sulfate and cottonseed meal.

Apply fertilizers uniformly around the drip line of the plant and one foot outward, but never near the base of the plant. Be careful to ensure fertilizer does not come in contact with the trunk or branches as this will damage the plant. It is best to apply fertilizer when the foliage is dry. Avoid getting any on the leaves. If the fertilizer does come in contact with leaves brush it away immediately. Gently work fertilizer into the soil with a rake, taking care to avoid plant roots. Apply one inch of water if rain is not expected within one or two days. Failure to work fertilizer into soils will result in loss of nitrogen to the atmosphere when air temperature is high.

Some gardeners prefer organic sources of nitrogen. Blood meal and cottonseed meal are often used as organic fertilizers. It is important to note that cottonseed meal also contains small amounts of phosphorous and potassium. Manure is often used as an organic fertilizer, but care must be taken. Only use manure from a reliable source and be sure it has been composted at least six months. Growers must also be cautious of herbicide residues in composted manure. Manure is most effectively used in pre-planting soil preparation or in fall applications. Incorporate 0.5 pounds of manure per square foot into soil or apply as a side dressing for established fruits. For vines and shrubs, spread manure in a four-foot circle around each plant, keeping the manure at least one foot away from the base of the plant. If using poultry manure, apply only 2.5 ounces per square foot.

Common small fruit crops that can be grown throughout the state include strawberries, blackberries, blueberries, grapes, elderberry, and gooseberries. Other crops are best suited for only portions of the state. Raspberries are not heat tolerant and will perform best in northeastern areas of Oklahoma. Kiwi and passionflower are best suited to wetter areas of the state in the east and southeast.