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Backyard Figs in Virginia: A Grower's Guide

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The fig, Ficus carica, is a small-fruit tree or bush in the mulberry (Moraceae) family. Small fruits are defined as fruits growing on small and woody plants (Cornell Cooperative Extension 2021). These plants are perennial, meaning they live for more than two seasons and produce fruits that are well known for their sweetness and unique texture. Figs are native to the Mediterranean region but are grown readily across the world. The fruit of the fig is a syconium — a group of inverted flowers that grow in a pod — which helps give the fruit a satisfying crunch (Stover et al. 2007). The shelf life of figs is dependent on postharvest storage conditions or whether it is further processed. This fruit can be consumed fresh, dried, or as further processed goods such as jams or preserves.

In Virginia, figs have been growing in popularity for their use in home gardens and landscaping (fig. 1). Before planting, it is important to determine the hardiness zone of the location where the figs will be planted. A hardiness zone is a geographical area that is defined by its average annual extreme winter temperature. This is used to help determine what perennial plants are likely to survive through the winter. The U.S. Department of Agriculture's Plant Hardiness Zone Map divides regions into numbered zones (1-13) and subzones (a and b) based on 10-degree w increments. The lower the number, the colder the climate is. The sub-zones represent the warmer and colder halves of the 10-degree range. Virginia has a hardiness zone range from 5b to 8b. There are many fig varieties that can thrive in these conditions. However, for colder regions in the commonwealth, container growing is recommended so plants can be brought inside over the winter season.

Figure 1. 'Brown Turkey' fig tree in a Virginia Beach landscape during fruiting season. (Photo by Amy Burnett.)

Nutrition

Figs are loved for their taste, but also for their nutritional benefits. Since figs have a shorter shelf life compared to other fruits, nutritional analyses are often performed on dried or semidried fruits. Figs are well known for their fiber content, which is significantly higher than most fruits (Soni et al. 2014). The following list summarizes energy and macronutrient composition per 100g of fig. (USDA FoodData Central, "Figs, dried, uncooked")

- Energy (kcal): 227
- Carbohydrates: 62.8
- Proteins: 3.3
- Fats: 0.92
- Fiber: 9.8
- Water: 30

In addition, figs are full of minerals that are essential for keeping the human body functioning, such as iron, manganese, and copper. These minerals can help build bones, remove toxins, and support the immune system.

Mineral content (per 100 grams of dried figs):

- Calcium: 162 mg
- Iron: 2.03 mg
- Magnesium: 67.6 mg
- Phosphorus: 67 mg
- Zinc: 0.66 mg
- Copper: 0.287 mg
- Sodium: 10 mg

Growth Habit

A fig's natural growth forms a bush as new shoots form at the base of the plant, unlike other fruiting plants. However, a tree form can be achieved by choosing one main shoot from the base and pruning the rest annually or semiannually in the initial years after planting. Bush form is most common in the Southeast because cold temperatures can damage the main trunk and major limbs (Sarkhosh and Andersen [1994] 2019). If plants are container grown or properly protected from cold damage, a tree form can be maintained. There are advantages to each form. Bush form allows for easier harvesting, more bird protection, and more cold protection because of its proximity to the ground. Tree form allows for easier yard maintenance and better air circulation, and it takes up less ground space because most of the growth is significantly above ground level.

Location, Soil Needs, and Planting

Site selection and soil requirements of a fig plant are just as important as fertilizing and watering. The pH of the soil should be slightly acidic, between 5.5 and 6.5 (Kolbe and Williams 1986). A soil test should be performed before any planting to ensure the soil is the proper pH and contains the proper nutrients. This involves collecting samples of soil from various spots in the intended planting area and sending it to a soil-testing laboratory. Virginia Tech and other private laboratories offer this service, and the results generally come back in two weeks. The results will provide guidance in soil preparation and fertilization if necessary.

Plants that are purchased from a nursery should be inspected before planting to ensure that plants are disease free and have a healthy foliage and root system. When selecting a plant, look for vibrant, consistent foliage and firm stems. The roots should not be bound (extremely dense and tangled), as this prevents proper nutrient and water absorption. Signs of an unhealthy plant include leaf discoloration, wilting, stunted growth, and roots that circle the container or are emerging from drainage holes.

Fig plants should be planted during late fall or early spring while the plant is dormant to allow for root development (Kolbe and Williams 1986). If there are multiple plants, spacing between them is an important factor. For bush-growth habit, plants should be 10 feet apart within a row and 15 feet between rows. For tree-growth habit, plants should be 15 to 20 feet apart within a row and 20 feet between rows (Krewer and Hendrix [1999] 2023).

Additionally, be cautious of the location of other plants. Do not plant under large trees that cause dense shade because they can block the sun from the fig plants. Figs require a minimum of eight hours of sunlight a day (Niemiera and McConkey 2021). Whether planting a single plant or multiple plants, consider planting in protected areas, such as close to a south-facing wall, to insulate the plant from cold and drying winds. After planting, water the base well to settle the soil around the roots.

Container production is a great option for areas with harsher winters or for individuals with limited space. Figs can grow well in a variety of container types: Plastic, ceramic, and fabric containers will all work if they have proper drainage. At least one hole at the bottom of the container is necessary for excess water to drain. The size of the container depends on the size of the plant. Generally, starting small and transferring to a larger container as the plant grows is better than starting big. This makes it less likely for the plant to develop root rot. There should be 1 to 2 inches of space between the roots of the plant and the walls of the container. As the plant develops and the roots fill the container, move it to a larger pot. Use a good-quality potting soil mix with the appropriate pH level specific for use in container growing. After planting, water the base to settle the soil. Like figs planted outdoors, place containers in protected and full-sun areas. Keep in mind that containers will need to be moved to protected and temperature-controlled areas when winter approaches (Niemiera and McConkey 2021). Sunrooms and home greenhouses are excellent spots for the fig containers to reside from late fall to early spring.

Varieties for Virginia

There are hundreds of fig varieties worldwide that vary widely in their characteristics. Climate is an important consideration, as many varieties won't survive Virginia winters. Additionally, fig varieties that are dependent on fig wasp pollination will not produce fruit because these wasps cannot survive in Virginia's climate. The three varieties that are described are better suited for Virginia because they are "parthenocarpic," meaning they produce fruits without fertilization (Sarkhosh and Andersen [1994] 2019). This results in seedless fruit, so there is no need to have more than one plant for pollinating purposes.

'Brown Turkey' Fig

'Brown Turkey' is a commonly grown variety in the Southeast due to its cold hardiness (fig. 2). 'Brown Turkey' has bronze/copper skin with amber-to-pink pulp and produces small-to-medium fruits (Sarkhosh and Andersen [1994] 2019). The eye of this fig variety, which is an opening (ostiole) on the bottom of the fruit, is medium sized, making these figs more prone to splitting and souring than other varieties. These figs grow best in USDA hardiness zones 6 through 9. Fresh fruit quality is good, and preserving fruit quality is excellent.

Figure 2. Ripening 'Brown Turkey' figs. (Photo by Amy Burnett.)

'Chicago Hardy' Fig

The 'Chicago Hardy' fig, also known as 'Bensonhurst Purple' fig, is another variety that is loved for its cold hardiness. 'Chicago Hardy' has purple/bronze skin with pink, fleshy pulp, and it produces medium fruits (Pyzner 2007). Smaller varieties such as 'Celeste' generally have fewer occurrences of splitting. These plants grow best in USDA hardiness zones 6 through 8 and can sometimes even withstand zone 5. Fresh fruit quality is good, and preserving fruit quality is excellent.

Celeste Fig

'Celeste' is another common variety grown in the Southeast. Like the others, this variety is popular for its cold-hardiness. 'Celeste' has purple/bronze skin with pink, fleshy pulp and produces small fruits (Kolbe and Williams 1986). These plants grow best in USDA hardiness zones 7 through 9. Fresh fruit quality is very good, and preserving fruit quality is excellent.

Training/Pruning

The method of pruning a fig plant depends on whether a fig tree or fig bush is preferred. North Carolina State University Extension has a great guide to pruning and training fig trees and bushes with helpful diagrams ("Fig Culture in North Carolina"; Kolbe and Williams 1986). It is available at https://content.ces.ncsu.edu/fig-culture-in-north-carolina.

Watering and Fertilizing

Understanding the specific watering and fertilizing of fig plants is essential to their health. Proper irrigation techniques and nutrient management enhances fruit quality, promotes plant growth, and improves resistance to disease and pests. Fig plants should receive 1 to 1.5 inches of water per week, whether through rain or irrigation (Krewer and Hendrix [1999] 2023). Fig plants in clay soils typically need less water, while those planted in sandy soils need more. If a plant is receiving too little or too much water, there are often warning signs. An underwatered plant will show yellowing of leaves or will drop leaves, while overwatering can cause reduced fruit quality and water-logged roots. Humidity, temperature, and cloud cover are all important variables to consider when watering. Increased temperature and sun intensity increases the rate of water evaporation from the soil. Low humidity increases the rate of transpiration (process where plants release water vapor into the atmosphere), which causes plants to lose water more quickly. For example, on a hot summer day with lower humidity, plants may require a longer watering session as water is dissipating at a faster rate.

Figs grow well in moderately fertile soils with limited fertilizer application. However, fertilizer may be needed in areas with heavy competition or low-fertility soils. The results of a soil test should help guide fertilizer requirements. A general guideline is to use fertilizer with an analysis of 8-8-8 or 10-10-10 (nitrogen-phosphorus-potassium) (Krewer and Hendrix [1999] 2023). Do not fertilize at the time of planting. Immature plants should receive 1.5 ounces of fertilizer three times a year: in the early spring, mid-May, and mid-July. Mature plants can receive 0.5 to 1.0 pound of fertilizer per foot of height

once a year in the early spring. When applying fertilizer, leave at least 1 foot of distance between the base of the plant and the fertilizer.

Diseases and Pests

While figs are known to be quite resilient plants, there are a variety of diseases and pests that can compromise their overall health and productivity. This section discusses some of the most common threats to fig plants by investigating their symptoms, impact, and management techniques. Being well-versed in fig diseases and pests is crucial to ensuring a fig plant is healthy and productive throughout the growing season.

Root-Knot Nematodes

One of the most damaging pests with fig plants is the root-knot nematode, Meloidogyne spp. These parasitic roundworms live in soil, feeding on the roots of a wide range of host plant species, including many weed species. Root-knot nematodes also lay their eggs inside of plant roots, which gives them a knotted appearance. This root damage prevents the plant from gaining sufficient nutrients and water. Additionally, plants that are infected by nematodes are more susceptible to other fungal and bacterial diseases. Symptoms of root-knot nematodes include galled or decaying roots, wilting, yellowing, low yield, poor-quality fruit, and stunted growth (Ritchie 2013).

Before planting, check the roots of the plant to make sure they have not been affected. A soil test can also ensure that no nematodes are present in the soil; if nematodes are present, do not plant in that area. Unfortunately, once a plant is infected with root-knot nematodes, there is no way to kill the pest without also killing the plant. However, if the problem is caught early, steps can be taken to ensure the pest doesn't spread to other parts of a garden. Crop rotation can be beneficial because some species of Meloidogyne are selective of their host plants (Ritchie 2013). Sanitization is key because they can spread easily through plant material and tools. A good practice to maintain is the sanitation of tools and footwear. Additionally, nematodes will feed on common weeds, so keep gardening areas weed-free.

Anthracnose

Anthracnose is a fungal disease that is caused by the genus Colletotrichum. This fungus attacks both the fruit and foliage of the plant, creating dark-colored lesions. Over time, these lesions will spread over entire sections of fruits and leaves. If left untreated, anthracnose will cause the plant to stop producing fruit, and eventually the plant will die. The most obvious symptom of this disease is the dark lesions that form, but premature fruit drop, soft rot, wilting, and brown leaf margins are other signs that a plant may be infected. Anthracnose can spread to other plants easily through infected garden tools and plant litter, so be sure to keep tools clean (Downer et al. 2020).

Cultural management techniques include pruning to improve air circulation and proper sanitation, including raking up fallen leaves and branches. There are also several commercially available fungicides that can be used as a preventative and protectant for healthy tissue.

Fig Rust

Fig rust is a common concern for growers, especially in areas with more humid climates. This disease is caused by the fungus Cerotelium fici. Early signs of fig rust are small, yellow lesions on the leaves that eventually grow larger and turn into a reddish-brown color (Ferrin and Overstreet 2010). These lesions can be covered with a dusty yellow mass of rust spores (fig. 3). It is important to note that fig rust shares this symptom with many other conditions such as sunburn, leaf spot, sooty mold, and fig mosaic virus. While fig rust typically won't kill the plant, repeated exposure to the fungus will weaken the plant and impact growth and fruit yield. If infection is not controlled, it can lead to defoliation, causing a ragged appearance (Pyzner 2007).

Similar to anthracnose, management techniques include using fungicides, sanitizing, and pruning. Fungicides with copper or sulfur are effective against rust. Neem oil can also be used for a more natural solution. Keep all tools used in infected areas clean and remove any infected leaves or other plant matter that has fallen off. Proper pruning practices will allow for better air circulation and sunlight penetration, which will help leaves dry out faster, thus minimizing disease incidences.

Figure 3. Fig rust spores on a leaf. ("Rust of Fig Leaves in Hawai'i [Manoa Valley, Island of Oahu] Caused by the Plant Pathogenic Fungus, "*Cerotelium fici*"; photo courtesy of Scot Nelson.)

Fig Mosaic Virus

Fig mosaic virus (FMV) is a viral disease that poses significant threats to fig cultivation. Fig mosaic has been associated with at least 12 different viruses (Preising et al. 2021). This virus gets introduced to plants through fig mites (Aceria ficus) and vegetative cuttings or grafting. A fig mite is a type of eriophyid mite that feeds on fig trees, damaging the leaves (fig. 4). Both the foliage and fruit are affected by FMV, which causes yellow mosaic spots (Davis and Beddes 2011). Other symptoms include mosaic leaf patterns, leaf distortion, reduced fruit yield, deformed growth, and low vigor. Once a plant is infected, the disease cannot be completely eradicated — only managed. Before planting, check the leaves of the plant to ensure they have not been infected. Controlling the mites is critical to preventing FMV. Natural pesticides such as diatomaceous earth can reduce the number of disease-carrying mites. This virus can be spread by humans, so cleaning hands and garden tools used in infected areas reduces the risk of contamination. Mites overwinter under bud scales and emerge when the plant comes out of dormancy. The bud scales can be cut out during the winter.

Figure 4. Discoloration from fig mosaic virus on leaf. ("Fig mosaic [pathogen: Fig mosaic virus, FMV]"; photo courtesy of Scot Nelson.)

Other Pests

There are plenty of bird and insect species that enjoy figs as much as we do. While some insects, like beetles, are just looking for some ripe fruit to eat (fig. 5), other insect species can be more damaging to the health and productivity of the plant. Fruit flies don't damage the plant, but they will lay their eggs inside the fruit. When the eggs hatch, fly larvae feed on the fruit, causing premature fruit drop and fruit rot. Aphids and thrips suck sap from the leaves and stem, causing the leaves to curl and drop. Aphids also secrete a substance called honeydew, which can cause sooty mold. Integrating management approaches, such as applying insecticide and pruning infected areas, can help keep insects at bay. There are a variety of techniques to keep birds out of the garden, such as hanging reflective tape, placing butterfly netting around the plants, displaying decoy predators, and placing bird feeders away from the garden (Pyzner 2007).

Figure 5. June beetle feeding on ripe 'Brown Turkey' figs. (Photo by Amy Burnett.)

Wintering

While the suggested varieties are cold hardy, it is still important to protect plants against winter injury. For figs that are planted outdoors, any remaining leaves or fruits need to be removed after a hard frost (temperature less than 29 F). The base needs to be protected; it should be mulched 6 to 12 inches from the center with organic materials (Kolbe and Williams 1986). The branches should be pruned back to manageable lengths to encourage new growth in the spring season. One of the most important aspects of wintering is tree wrapping. Tie back the flexible branches with string or twine and cover them with breathable wrapping, such as burlap or canvas. Do not use plastic; it will create a moist environment for mold and fungi. The tree should then be encased in cardboard or a similar material and loosely filled in with straw or other dry material to leave space for air. Then, place a tarp over that, leaving room at the bottom of the plant for air circulation.

Of course, it is much easier to protect plants when they are grown in containers and easily transferable. Container-grown figs need to be moved indoors as temperatures drop, preferably to an unheated, insulated, and dark room. After the hard frost has passed, remove any unripe figs or leaves that may be left. In winter, water plants monthly until the soil is just moist. It is important not to overwater because there is no sunlight to evaporate excess water. When warm weather returns in the spring, take plants outside for a few hours a day to help them acclimate to outdoor conditions. During

evening frost events, move the plants back inside. After the last frost event, figs can be placed outside for the warm seasons.

Conclusion

Figs can be a wonderful addition to a home landscape or community garden. They can be grown in USDA zones 5B to 8B and are adaptable to container growing.

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