

Disease & Pests

Fire Blight is a bacterial infection that is easily spread by bees. There is no cure for it once it is established. The bacteria that causes it, propagates around freshly cut limbs and injuries. Treat with copper fungicides or Streptomycin to prevent spread of bacteria. Streptomycin can be found in products such as Agri-Mycin and Bonide Fire Blight Spray. Copper fungicides include Tri-Basic Copper Sulfate and Kocide. There are also resistant cultivars such as Hope 13 and Maxine.

Quince Rust is a fungal infection that creates powdery rust like lesions on leaves and fruit. Trees should be treated with a broad-spectrum fungicide when in bloom to prevent fungal infections and fruit loss. Products such as Rally and Immunox Multipurpose Fungicide will control this disease. It is harbored in eastern red cedars and may be prevalent where these trees are near Mayhaws.

Deer and rabbits will browse and destroy young trees. Containerized plants should be fenced to protect them from browse damage. Common insect pests include plum curculio, aphids, flat-headed apple borer, white flies, and foliage feeders. Plum curculio, if present, may require an insecticide application program to prevent extensive damage to the crop.

Harvesting

Mayhaws ripen from mid-April to early May depending on the tree. In pond or swampy areas, Mayhaws may be scooped off the water with fine meshed nets. Ponded areas are not required for production and a bed sheet or tarp spread under the tree works well for collecting fruit that falls from the trees either naturally or by vibration. Fruit is subject to sun scalding and begins to rot quickly when in contact with the ground or impermeable membranes, such as plastic tarps. Some trees will hold fruit longer than others, and ripe berries may be picked straight from the tree.

Plan of Action

Purchasing locally adapted cultivars developed from wild Mayhaws such as ‘Maxine’ are recommended over making wild collections. These cultivars have a known level of performance and reduce issues of disease and frost damage. They are uniform in growth and will create a much more productive nursery. Mayhaw seeds hold true to the tree that it came from, so expansion of the orchard is possible through collected seed and cuttings from purchased material.

Immediate Plan of Action

- ◆ Find a location for the orchard with suitable soils that is near a water source and electricity, if possible, in Spring of 2020.
- ◆ Lay out orchard and plant purchased trees. Fertilize at planting with slow release fertilizer and water trees in to seal off the roots, May-June 2020.
- ◆ Irrigate as needed through the summer to maintain growth, Summer 2020.
- ◆ Make cutting from purchased trees in the following spring after they have started to put on leaves and root them in growth media, Spring 2021.
- ◆ Move the rooted material to the High Tunnel House to promote rapid growth, April-March 2021.
- ◆ Transplant to the field when root bound in containers, May-June 2021.
- ◆ Continue process until orchard reaches desired size.

USDA Natural Resources Conservation Service

101 S. Main Street

Temple, Texas 76501

254-742-9800

East Texas Plant Materials Center

6598 FM 2782

Nacogdoches, Texas 75964

936-564-4873

936-552-7924 (Fax)



United States
Department of
Agriculture

USDA NRCS
Plant Materials Center
Nacogdoches, Texas



Species Information

Western mayhaw, *crataegus opaca*, is a small deciduous tree that grows in the forests of the southeastern United States. Reaching 30 feet in height with trunks approximately 8 inches in diameter, they are typically found in low areas that receive periodic flooding or partial shading. They are members of the Hawthorne family and come with or without thorns. White blooms appear in late February or early March and produce small, red to orange, crabapple like fruits toward the end of April and the beginning of May. The fruit is used to make tart jellies, syrups, and juices that are highly prized.

**Pictured above are the Mayhaw trees ready for harvest at LSU AgCenter.*

Soils

Mayhaws will tolerate wet and very acidic soils. Wild mayhaws are typically found in low flooded areas and along creek banks, but flooding is not required to cultivate trees and produce fruit.

For optimal growth Mayhaws require full sun with moist, well drained soils with a pH of 6-6.5. Soil testing is required to determine soil pH and nutrient levels.

For soil testing requests, please contact Pittman Labs at 936-645-3276 or Steven F. Austin State University Soils Lab at 936 468-4500.



USDA is an equal opportunity provider,
employer, and lender.

Natural
Resources
Conservation
Service

tx.nrcs.usda.gov

Cultivars

There are many commercial cultivars of trees available with many different attributes. Some are heavy fruit producers, some hold fruit longer, some are more disease resistant, and some produce exceptionally large fruit. An internet search can reveal a lot of information on cultivars available from various nurseries. When selecting cultivars avoid early blooming varieties as they will encounter freeze damage and crop loss in East Texas.

Many cultivars have been produced from cuttings or seed from superior wild trees in East Texas and western Louisiana. These would make excellent nursery stock and some of the top choices include:

- ♦ Maxine: Originated from a tree located in De Ridder, LA. It is a very late bloomer which reduces freeze damage crop losses. Blooming typically occurs around March 20th. It has an excellent natural tree shape and requires little pruning. It is a heavy producer that holds fruit well and will release 95% of the fruit with one

Propagation

Mayhaws can be grown from seed, root and stem cuttings, or by grafting onto a rootstock. Trees bloom between February and March and set fruit in late April and early May. Ripe fruit can be harvested for seed. Seed viability varies greatly between trees, but unlike many fruit trees, the seedlings hold true to the characteristics of the tree they were produced from. Propagation by seed is slow. Seed requires 12 weeks of cold stratification (store in plastic bag with moist paper towel or damp sand in the refrigerator) and may take up to 18 months to germinate. Stratified seed should be

shaking. It is very Fire Blight resistant and is considered the best tree taken from the wild by many producers.

- ♦ Double G: A cross of Texas Star and Royal Star, the fruit is dark red with red pulp. This variety requires no manual shaping via pruning. It produces fruit at an earlier age than other cultivars. It blooms around March 10th. It holds fruit well but has some susceptibility to fire blight.
- ♦ Red Champ: A hybrid of Maxine and Double G, it has good fire blight resistance. It is a heavy producing cultivar with large, dark red fruit. It blooms around March 15th and will release about 95% of its fruit with a single shaking.



planted in early spring. Ripe fruit may be planted in containers and left outside to over winter and stratify naturally but is less reliable.

Soft wood cuttings may be rooted by taking cuttings from new growth of existing trees. Cuttings should be about 6 inches in length and will include some of the following steps:

- ♦ Remove all but the top two leaves and cut them horizontally to reduce water loss from leaf pores. A root promoting hormone dip applied to the cut end will increase the chances of successful rooting.

Propagation (cont.)

- ♦ Plant cuttings in a small container with well drained potting mix.
- ♦ Cover the containers with a plastic bag or some other covering that will allow transfer of light and maintain high humidity. There are many commercially available trays for this process available.
- ♦ Place potted cuttings in indirect lighting as direct sunlight will scorch plants in the plastic containers. A greenhouse heating pad under the pots will expedite rooting.
- ♦ Check frequently for rooting and transplant to larger containers once root growth has established. Containers may then be moved to a greenhouse, shade house, or other protected area until ready to plant in an orchard.

Mayhaws cuttings may also be grafted to existing root stock or other hawthorne root stock. Parsley hawthorns accepts grafts from mayhaw readily. There are many types of plant grafts, and the process requires some specialized tools. Timing is critical and should be done to root stock in spring as it starts to show new growth. An excellent write up and video on grafting fruit trees can be found at: <https://www.mossoak.com/our-obsession/blogs/how-to/step-by-step-guide-to-grafting-fruit-trees>

Spacing

Mayhaws are long lived and may reach 30 feet in height and canopy diameter. For permanent nurseries, plant trees 15-20 feet apart with 18 to 20 feet between rows. This spacing should yield 109-160 trees per acre.

Pruning

Trees should be pruned to resemble an upside-down umbrella with cutting being done in winter and early spring before blooming. Some cultivars such as Maxine and Double G require little to no pruning to achieve desired growth forms. Cut out limbs that cross over one another and also cut out any limbs that are lower than about 4 feet from the ground.

Fertilization

Annual application of 5-10-10 at a rate of one pound per inch of trunk should be applied to mature trees in February or early March. Another application can be made in August through September if trees are not growing vigorously. Make certain there is adequate water via rainfall or irrigation during the late summer application of fertilizer to prevent leaf scorching. One-year old trees should receive a ½ pound of 5-10-10 in February and ¼ pound of 5-10-10 in March and May. Fertilizer should be broadcast evenly under the drop zone of trees and do not apply fertilizer within 8 inches of the trunk. Seedlings in containers will benefit from light applications of Osmocote every few months.

Irrigation

Mayhaws require moist soils and need irrigation. Drought periods will stress trees and reduce their productivity. Young trees are susceptible to loss and damage from dry periods and require adequate moisture to develop strong, deep roots. Drip emitters placed at every tree are an excellent, highly efficient way to supply adequate moisture to the trees. Trees may be grown in ponded areas and flooded to irrigate, or traditional sprinklers and soaker hoses may be used under trees.