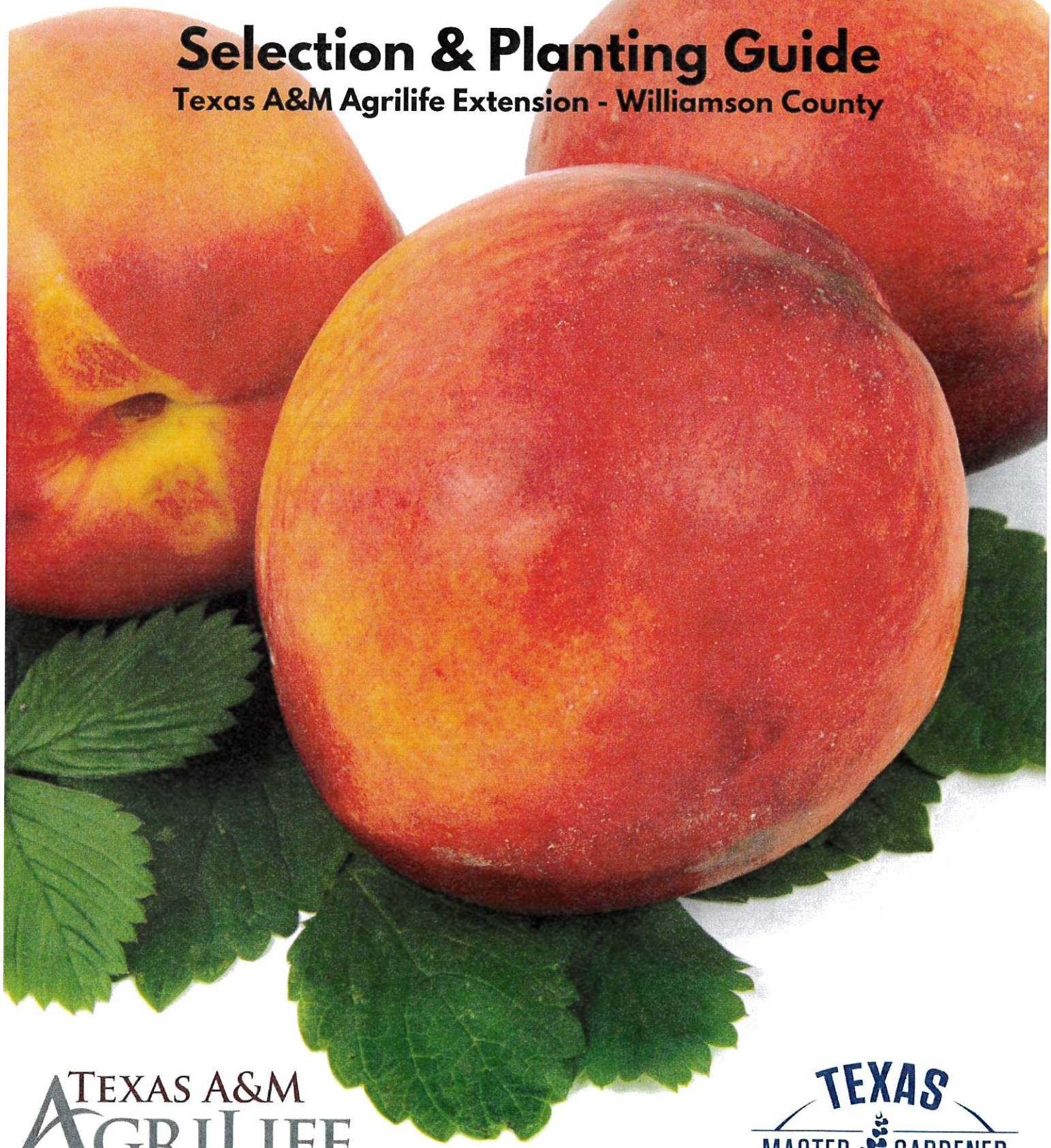
Fruit and Nut Tree

Selection & Planting Guide

Texas A&M Agrilife Extension - Williamson County



TEXAS A&M AGRILIFE EXTENSION

TEXAS MASTER GARDENER
TEXAS A&M AGRILIFE EXTENSION
Williamson County

Williamson County Master Gardener
Fruit/Nut Tree Selection and Planting Guide

Contents

This information in this book is sourced from the Texas A&M Forest Service and Texas A&M AgriLife Extension Service,

Compiled by Garry Bowman, Williamson County Master Gardener, 09/2018

For more information, contact the Williamson County AgriLife Extension Service.

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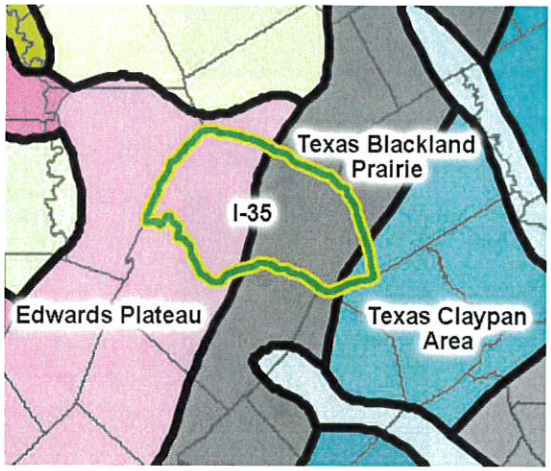
Williamson County Soil - Hardiness Zone - Chilling Hours

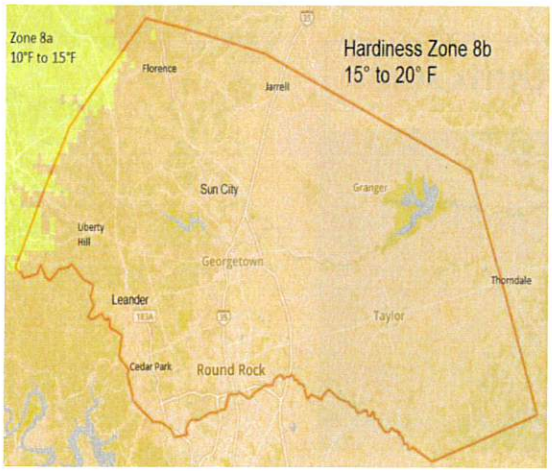
Williamson County has 3 different soil types. All three types are alkaline with an average pH range of 7.5 – 8 which can impact micronutrient uptake. Contact the Extension Office for information on doing a <u>soil test</u>.



The **<u>Edwards Plateau</u>** area lies roughly west of Interstate 35. The terrain is rocky and hilly. The soil tends to be thin, stony and was formed in limestone or limestone marl. Beneath the soil is a layer of caliche often with limestone bedrock below that. Flash floods can occur from storm water runoff.

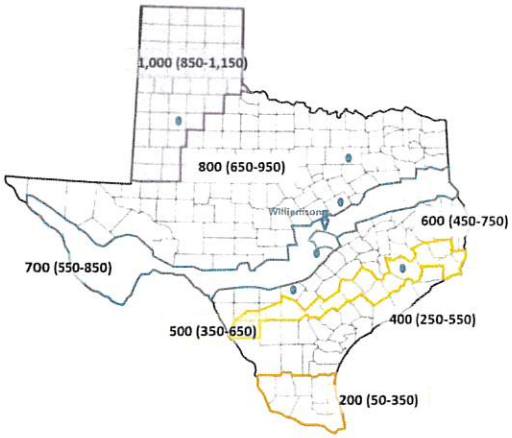
The **<u>Texas Backland Prairie</u>** area is roughly east of Interstate 35. The soil is deep and fertile, black heavy clay soils that formed in marine marls, ancient clayey alluvium, soft limestone and chalk. The land is relatively flat and good for farming and pastures.

The **<u>Texas Claypan</u>** area is in the far southeastern corner of the county. Over most of the area, soils have well developed, clayey, subsoil horizons with sandy and loamy surface textures.



<u>USDA Hardiness Zone:</u> Williamson County is in hardiness zone 8b except for a very small area on the far western edge which is 8a. The average minimum temperature for zone 8b is 15° to 20° F but occasionally can be lower.

<u>Rainfall:</u> On average, Williamson County, gets 34 inches of rain per year.



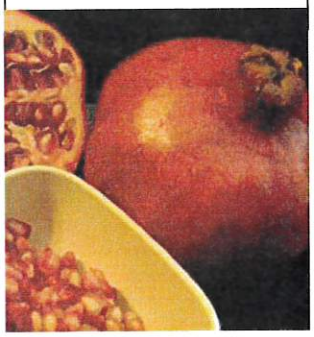
Flowering Pomegranate Tree

Al-sirin-nar

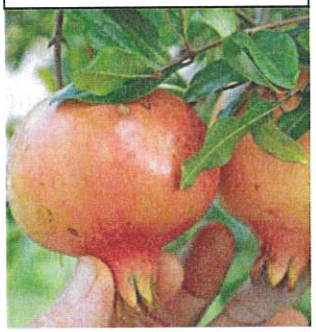
Russian 18

Salavatski

Spanish Sweet



Sumbar



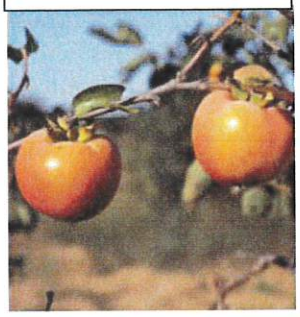
Surh Anor

Wonderful

Pomegranate Varieties for Williamson County		
Varieties	**Ripens**	**Notes**
Al-sirin-nar	Late October	Fruit is glossy red with rosy-pink arils and sweet-tart taste. Has produced some of the best yields to date.
Russian 18	Fall	Cold hardy, medium to large fruit with bright red skin. Good sweet-tart taste. Bears at an early age.
Salavatski	Mid October	Cold hardy large red fruit with reddish arils. Sweet with a hint of tartness.
Spanish Sweet	Mid October	Cold tolerant large red fruit and arils with hard seeds. Tastes sweet but very tart.
Sumbar	Summer	Cold hardy sweet fruit with soft seeds. Ripens early.
Surh Anor	Mid October	Large fruit with high sugar content. Arils alternately clear and red speckled. Consistently productive.
Wonderful	September	The main commercial variety to date. Consistently produces large fruit. Fruit may split near maturity. Not as cold hardy as others.
Description	Its colorful, orange-red flowers and dense, bushy growth habit make pomegranate an attractive ornamental as well as a fruit tree.	
Propagation	Grown from seeds, cuttings, by grafting/budding or purchased as potted or ball and burlap plant. Seeds do not always produce what you expect. For cuttings, use pencil sized cuttings 8-9" long and ¼" in diameter.	
Planting	Can be grown as a tree, bush or hedge. Its natural shape is a bush. Needs full sun for best growth, flower and fruit formation. For tree space, allow 15'-20'. For bush allow 12'-15'. For hedge, plant 10' apart.	
Irrigation	Water dormant plants at planting time and every two weeks. Begin once-a-week when plants leaf out and during growing season. If using drip irrigation, use one 1-gallon-per-hour emitter per tree for the first 2 years. Gradually increase to 4 emitters per tree when the plants are 4 to 5 years old.	
Fertilization	Don't fertilize the first year, but mulch, water regularly and control weeds. If plant does not respond, have the soil tested. The only nutrient normally needed is a light application of nitrogen.	
Pruning	Pomegranates grow naturally as a multi-trunked bush 6'-12' high. As plant begins growing, choose 3-5 trunks, and remove others. Remove suckers annually. If growing as a tree, remove all but the largest trunk. Harvesting will be more difficult as a tree due to height. Prune dead/damaged shoots and interior shoots to maintain the major scaffold limbs.	
Problems	Pomegranates have few pests or diseases. The most likely will be fungal diseases which affect the leaves and fruit, causing leaf loss and fruit splitting as the fruit matures. A copper fungicide used during fruit development in late spring through summer may help. Planted from seed, pomegranate may drop fruit during its first couple of years of production.	

Persimmon Tree with Fruit

Eureka



Hachiya

Tane-nashi

Tamopan

Fuyu

Izu

Fankio

Persimmon Varieties for Williamson County	
Varieties	**Notes**
Eureka	Medium-sized, flat-shaped, red persimmon of very high fruit quality. The tree is relatively small and self-fruitful. Fruit typically contain seeds.
Hachiya	Large, cone shaped, seedless persimmon with bright orange skin. It is an outstanding Texas variety and makes an excellent ornamental tree.
Tane-nashi	Vigorous cone-shaped, orange persimmon. The fruit stores extremely well on the tree and is seedless. Makes an excellent landscape ornamental.
Tamopan	Very large, flat, orange, persimmon with a distinctive ring constriction near middle of fruit. Most vigorous and upright of the varieties grown in Texas.
Fuyu	Medium-sized, non-astringent, self-fruitful persimmon. The fruit is rather flattened, orange colored, and of high quality.
Izu	Medium-sized, non-astringent fruit. Ripens in September.
Fankio	Large, conical, with vivid gold fruit. It is one of the prettiest persimmons; the leaves turn bright red as the gold fruit ripens in the fall.
Description	Attractive landscape ornamentals with dark green foliage that turns orange/yellowish/red in the fall with orange-red ripening fruit. In the fall, when few fruit crops are ripe, the persimmon produces fruit that is attractive and delicious. The wood is used to make golf clubs.
Propagation	Can be purchased as bare root or container trees. Use only trees that are grafted/budded onto common American persimmon rootstock for resistance to root rot disease. Trees grown from seed may succumb to root rot.
Planting	When planting bare root stock, remove half of the top after planting. They have taproots and may require planting in a raised bed on shallow soils.
Irrigation	Supplement rainfall with irrigation during spring growth and summer, especially if the soils are shallow.
Fertilization	Do not fertilize when planting. After a few years, if the mature leaves are not deep green and shoot growth is less than a foot per year, nitrogen fertilizer may be needed. Obtain a soil test if in doubt.
Pruning	Prune into a modified central-leader structure by pruning shoots during the first few seasons during dormancy. Persimmon fruit develops on new branches. To keep limbs from drooping, prune secondary branches so that the bearing shoots remain close to the main branches.
Problems	Persimmons are largely free of serious disease, but occasionally have issues with crown gall and anthracnose. Too much fertilizer, heat, cold, water or drought can cause fruit drop.

Single Trunk Fig Tree

This style grows best in Coastal and South Texas because of reduced chance of freezing.

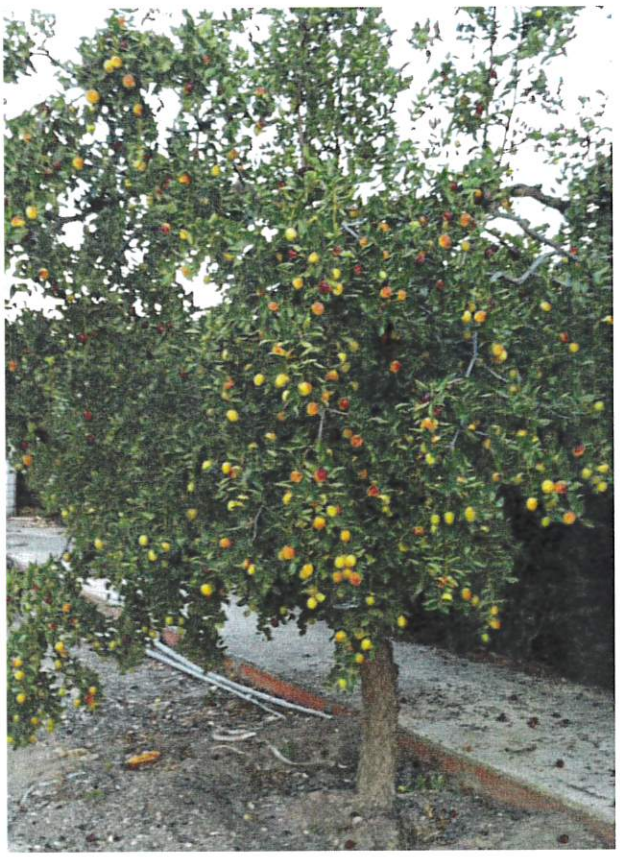
Multi Trunk Fig Tree

Best style for our area due to winter freezing.

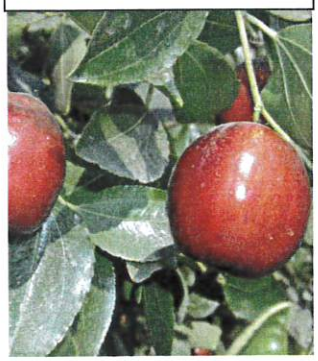
Alma Fig	Celeste or Celestial	Texas Everbearing
		

Fig Varieties for Williamson County		
Varieties	**Ripens**	**Notes**
Alma	**Mid July to first frost**	Frost sensitive when young but does better as it matures. Very high quality, excellent, rich, sweet flavor; skin is unattractive. Highly resistant to fruit rot. It produces at an early age. Will produce little or no fruit in years after a severe freeze if it survives.
Celeste or Celestial	**Mid to late June**	Most cold hardy of all fig varieties in Texas. It is small, brown to purple with an excellent fresh dessert quality with rich, sweet flavor. It makes an excellent fig preserves. Figs can be frozen to preserve. It usually produces fewer fruit in years after winter injury.
Texas Everbearing or Brown Turkey or Ramsey, or Everbearing	**June through August**	This fig goes by several names. It is less cold hardy than Celeste, but usually does well in our area. It will produce a fair to good crop on new growth following severe freeze injury unlike the other two varieties. The fig is medium to large, plump with a short stem, a reddish-brown skin and reddish pink pulp. It has a mild, sweet flavor. The fruit can sour or crack in very wet years.
Description	Fig trees are often problem-free and grow as spreading, multi-trunked trees 10'-20' tall. They have shallow, fibrous root systems and are sensitive to drought stress. The recommended varieties do not require insect pollination.	
Propagation	Propagate from stem cuttings, layering or purchased as bare root or potted plants. Seeds do not grow true to the parent plant. Stem cuttings are taken when plant is dormant and should be 6 to 10 inches long and about ½ to 1 inch in diameter. The bottom end cut should be flat, and the tip cut on a slant.	
Planting	Avoid planting where water stands for more than 24 hours after a rain. Plant fig trees 2"-4" deeper than they were grown in the nursery. Space 12'-20' apart. Do not fertilize at planting. Cut back the dormant trunk by about a third at planting to help compensate for root loss when tree was dug in the nursery.	
Irrigation	Slight leaf wilting in the afternoon is an indication of needing water. Mulching helps maintain soil moisture and reduces weed water competition. Water stress may cause premature fruit drop. Trees planted in shallow sites can be injured when the soil is saturated with water.	
Fertilization	Do not fertilize at planting. Later, small, frequent applications of nitrogen will benefit both young and mature fig trees.	
Pruning	If they survive being frozen to the ground, they will send up new shoots. Select 5-6 two-foot-high shoots for new trunks to keep. Remove the rest over a 2- to 3-week period instead of all at once. After freezing, some varieties produce a crop on current season's growth and others on next year's growth.	
Problems	Fig roots can be invasive. Figs may experience winter injury. The most common diseases are fig rust and fig mosaic virus. Fig rust turns leave brown with orange structures on the lower part of leaf. To control, rake and destroy infected leaves. Organic materials containing copper may be effective at disease onset. Mosaic virus results in small misshapen fruit and mottled blotchy leaves. There is no control for this other than to carefully inspect nursery material before purchase.	

Jujube Tree



Li



Lang

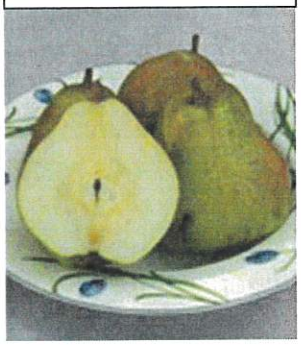
Shanxi Li

Jujube Varieties for Williamson County		
Varieties	**Ripens**	**Notes**
Li	**August - September**	Largest Jujube fruit grown in Texas and best flavored. Can be eaten fresh, dried or processed. Size of egg with a very small seed. Harvest before skin is wrinkled.
Lang	**July - August**	Most widely grown variety in Texas. It produces heavy crops of pear-shaped fruit that matures ahead of the Li variety. It is used mostly for drying or processing. Branches are nearly thornless.
Shanxi Li	**August - September**	The largest of any jujube. Shanxi Li Jujube is also known as the pear jujube and its fruits can reach over 2" long. Very crisp and sweet and great for fresh eating or dehydrating.
Description	Jujubes (Chinese Date) are easy to grow with few pests or problems ever reported other than cotton root rot. Can grow 30'-50' if soil conditions permit but are often shorter. Has an apple like taste when eaten fresh and can be used in place of apples in any recipe. When the fruit is dried, it has a date-like taste.	
Propagation	Trees purchased from a nursery are grafted onto wild jujube rootstock. These rootstocks send up shoots that should be cut or mowed off. The root shoots are not good for propagation.	
Planting	Can grow in almost any soil but require fair to good drainage. They can survive on soils where most other trees would perish. They prefer sunny locations.	
Irrigation	Once established, can be maintained on 8" of rainfall a year. They will not fruit well on 8" but they will live. For good fruiting, they need 20" or more of water a year.	
Fertilization	Don't fertilize when first planted. It has low fertilization needs and normally only nitrogen is applied. Compost worked into the soil is good for those who prefer organic methods.	
Pruning	Pruning is not recommended other than to remove dead limbs and clean up the lower branches. Root suckers coming up around the tree should be mowed off.	
Problems	Cotton root rot in the soil can be a problem if present. Pests or other diseases are rarely a problem. The tree will send up root shoots which should be mowed down.	

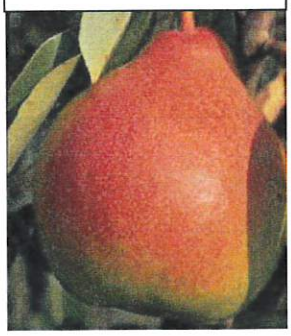
Young Kieffer Pear Tree

Kieffer

Orient

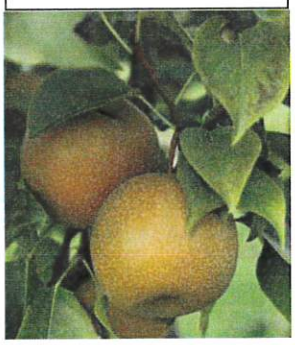


Moonglow



Magness

Shinko



Shinseiki

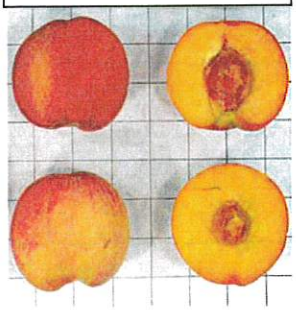
Pear Varieties Williamson County		
Varieties	**Pollinator Group**	**Notes**
Kieffer	A-B	Most widely planted pear in the South. Golden yellow fruit, white flesh, crisp and coarse in texture. Excellent for canning, baking, preserves and pear honey. Harvest late September to October. It can self-pollinate but may do better with another Kieffer nearby.
Orient	B-C	Heavy crops. Yellow fruit has juicy, melting, creamy flesh with a mild flavor. Excellent for canning, desserts, salads, eating fresh. Ripens mid-August/September. It can pollinate self or other pears.
Moonglow	C	Attractive fruit, soft, juicy without being mushy. Resists fire blight. A strong pollinator for other pear varieties. Produces ripe fruit in September. Needs pollinator.
Magness	C	Medium to large, soft, juicy dessert pear, few grit cells. Fire blight resistant. Ruddy yellow when ripe. Sterile, needs a pollinator.
Shinko	C	Asian pear. Large round to slightly flattened with a bronze-russet skin. Flavor is excellent but doesn't store well. Resistant to fire blight. Ripens in September. Tree-ripen for peak flavor and sweetness. Once picked, the fruit will not, ripen further.
Shinseiki	C	Asian pear. Round, yellow skin, medium size fruit, crisp. sweet, low acid has firm texture after months in cold storage. Good producer and is self fruitful (pollinating). Ripens July - August.
Description	Most pear trees need another pollinator variety. If you want only one pear tree, select a self fruitful Kieffer, Orient, or Shinseiki (Asian pear). Pear trees will produce more in pairs than alone. The listed varieties bloom within about 3-4 weeks of each other. However, weather and other factors affect trees differently and impact bloom time. Crop size will be less if bloom times do not overlap.	
Propagation	Purchase as bare root, container or ball and burlap tree. Select 2'-4' tree with ½" or larger trunk diameter. Smaller trees usually grow faster than larger trees. Select pears grafted on Pyrus betulifolia rootstock.	
Planting	Plant bare root in winter/early spring when dormant. Cut tree to about 30" high, remove side branches to compensate for roots lost at nursery. Don't accept plant if roots are not moist. Plant at same depth as grown in nursery.	
Irrigation	Mulch to stabilize soil moisture. Water frequently and when established, provide 1" a week or 5 gallons per tree. More when growing fruit.	
Fertilization	Do not add fertilizer when planting. Do a soil test to determine needs.	
Pruning	Do major pruning in late winter. Prune as central or modified central leader.	
Problems	The most prevalent and damaging disease of pears in Texas is fire blight. Other common diseases are cotton root rot and Fabraea leaf spot.	

Peach Tree Pruned to an Open Center System

Regal

June Gold

June Prince

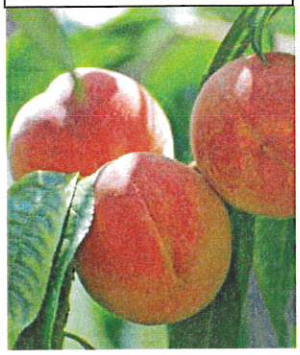


Southern Pearl

Harvester

La Feliciana

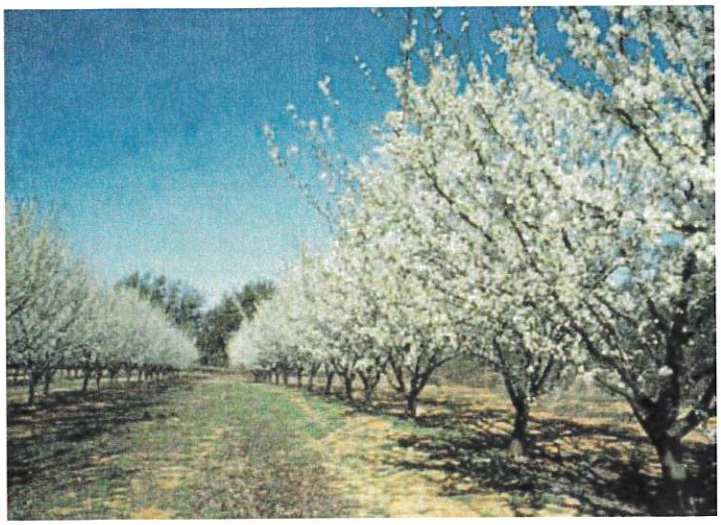
Dixiland



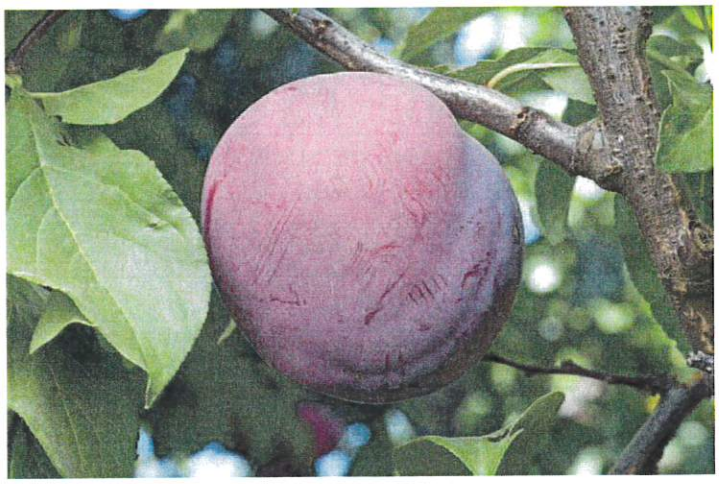
Peach Varieties for Williamson County

Varieties	Stone-Cold Hours	Notes
Regal	Semi - 700 hrs	Ripens mid May. Firm yellow tasty flesh, Semi-clingstone when ripe. Self-pollinating.
June Gold	Cling - 650 hrs	Large, firm, yellow flesh. Ripens last of May. Freestone when fully ripe. Self-pollinating. Frost hardy.
June Prince	Semi - 650 hrs	Moderate yield, average to large size, firm attractive fruit. Ripens end of May. Self-pollinating.
Southern Pearl	Semi - 650 hrs	Large, sweet white flesh, red skin peach. Semi-clingstone. Ripens mid June. Self-pollinating.
Harvester	Free - 750 hrs	Recommended. Ripens mid June. Productive, Firm, yellow flesh of high quality. Self-pollinating.
La Feliciana	Free - 600 hrs	Recommended. Ripens first of July. Moderately large, soft, sweet excellent flavor. Self-pollinating.
Dixiland	Free - 750 hrs	Consistent high quality, sweet, juicy yellow fruit. Yellow skin with red blush. Self pollinating.
Description	Choose a tree between 600 - 800 cold hours for best results. Temperature fluctuations can affect bloom set or freeze blossoms/fruit unexpectedly.	
Propagation	Bare root or container trees should be grafted on **Lovell** or **Halford** rootstock because of our pH soil level. Seeds do not grow trees true to the parent.	
Planting	Well draining soil is required, so do a drainage test. If drainage is not optimal, plant elsewhere or plant in a raised bed. Plant tree at same depth as nursery.	
Irrigation	Trees need more water as the peaches develop. For 1-year old trees, about 7 gal/week in April-May, 14 gal/week in June, 28 gal/week in July-August and taper down in September-October. For 2-year-old trees, double the amounts above. Adjust amounts above for weekly rainfall. Don't overwater.	
Fertilization	Do not fertilize at time of planting. A soil test is the only way to know what the needs are. Soils with a 7.8+ pH can cause serious micronutrient deficiencies.	
Pruning	If the bare root stock does not come pre-pruned, prune it after planting to a single trunk, 24"-36" tall. For older stock, cut back the lateral shoots, leaving stubs to allow new buds to form scaffold limbs. After the growing season when dormant, prune so trunk has three or four permanent scaffold limbs. Train tree into an open center system. Peach trees set more fruit than can be grown to nice size and quality. Thin new fruit to 6"-8" apart and remove double peaches.	
Problems	Control weeds as irrigation and fertilization cannot overcome the ill effects of weed competition. Insect pests are San Jose scale, greater and lesser peach tree borers, plum curculio, peach twig borer, and cat-facing insects. Serious diseases are scab, brown rot, bacterial spot, post-oak root rot, cotton root rot.	

Plum Orchard in Bloom



Dusty Coating is called Wax Bloom



Methley

Santa Rosa

Ozark Premiere

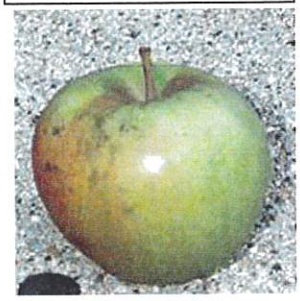
Plum Varieties for Williamson County		
Varieties	**Ripens**	**Notes**
Methley	**Late May Early June**	Small to medium size, mottled purple peel and juicy red sweet flesh. Does not store well. Self-pollinating and pollinates other plums.
Santa Rosa	**Late June Early July**	Large purplish plum with amber flesh. Popular home and market variety across the state. Self-pollinating and pollinates other plums.
Ozark Premiere	**Late June Early July**	Large plums with yellow flesh and reddish skin. Fruit is firm and excellent for cooking, canning, and fresh-eating. Since it needs a pollinator, plant Methley within 18' as a pollinator.
Description	The plum tree has white flowers and sets fruit on buds from previous season's growth. The fruit has a dusty white coating or wax bloom that is easily rubbed off. Plums can be sweet to tart; the skin is typically quite tart. The soil type, site preparation, planting and cultivation of plums is very similar to that of peaches.	
Propagation	Bare root or container trees should be grafted on **Lovell or Halford** rootstock because of our pH soil level. Seeds do not grow trees true to the parent.	
Planting	Well draining soil is required, so do a drainage test. If drainage is not optimal, plant elsewhere or plant in a raised bed. Plant tree at same depth as nursery.	
Irrigation	Trees need more water as the plums develop. For 1-year old trees, about 6 gal/week in April-May, 12 gal/week in June, 24 gal/week in July-August and taper down in September-October. For 2-year-old trees, double the amounts above. Adjust amounts above for weekly rainfall. Do not overwater.	
Fertilization	Do not fertilize at time of planting. A soil test is the only way to know what the needs are. Soils with a 7.8+ pH can cause serious micronutrient deficiencies.	
Pruning	If the bare root stock does not come pre-pruned, prune it after planting to a single trunk, 24"-36" tall. For older stock, cut back the lateral shoots, leaving stubs to allow new buds to form scaffold limbs. After the growing season when dormant, prune so trunk has three or four permanent scaffold limbs. Train tree into an open center system. Plum trees set more fruit than can be grown to nice size and quality. Thin new fruit to one fruit every 2"-3" or fruit pair to every 6".	
Problems	Control weeds as irrigation and fertilization cannot overcome the ill effects of weed competition. Insect pests are San Jose scale, plum curculio, cat-facing insects and stink bugs. Diseases are scab, brown rot, bacterial spot, post-oak root rot, cotton root rot.	

Bitter pit disorder

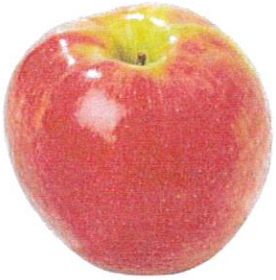
Lenticel blotch pit

Fuji

Mutsu

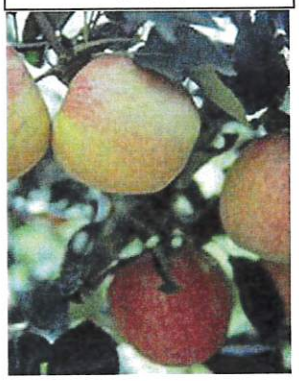


Pink Lady

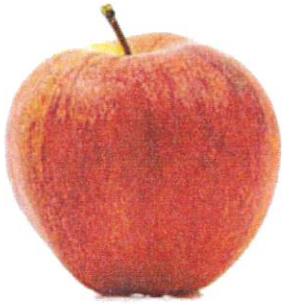


Mollie's Delicious

Gala



Imperial Gala

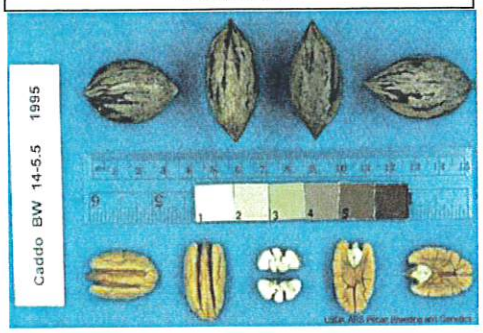


Royal Gala

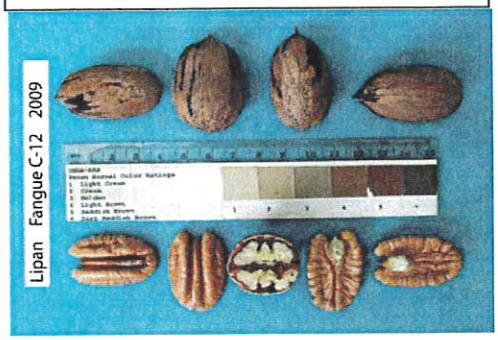
Apple Varieties for Williamson County		
Varieties	**Cold Hrs**	**Notes**
Fuji	600 hrs. Mid-Summer	Medium size, tall rectangular shape. Yellow-green skin with orange to red stripes; crisp, juicy, white flesh. Stores well in cold storage.
Mollie's Delicious	450-500 hrs Summer	Large, attractive, light yellow background with partial red blush. High-quality and flavor, stores 10 weeks in refrigeration.
Gala Imperial Gala Royal Gala	600 hrs. 100-140 days from bloom	**Gala:** Red striping on golden skin, crisp, dense, and aromatic. Excellent quality and stores well. **Imperial Gala:** Medium size, scarlet over yellow skin, extremely firm, juicy, aromatic with yellow, creamy flesh. **Royal Gala:** Medium size, conical to round, red stripes on yellow background, firm, juicy, fine textured, yellow-white flesh; sweet, slightly tart flavor. Gala, Imperial Gala, and Royal Gala will not pollinate each other.
Pink Lady	500-600 hrs. October	Oblong green fruit turns yellow at maturity, overlaid with pink or light red. Fine-grained, white flesh, thin skin bruises easily.
Mutsu (Crispin)	600 hrs-160 days from bloom	Large, round, yellow fruit; crunchy flesh, good juice and tartness. Distinctive, delicate, spicy flavor; good dessert and processing apple; excellent for cider and applesauce.
Description	Warm Texas nights lighten the color of red varieties when ripening, but taste and texture is unaffected. Apples are cross pollinated; you will need to plant more than one variety with overlapping bloom dates (similar chilling requirements) for good fruit production. Apples prefer soil pH to be 5.0 – 6.5 and Williamson County averages 7.5 – 8.	
Propagation	Use grafted stock as seeds do not reproduce true to the original fruit. Purchase as bare root, container or B&B trees. For semi-dwarf trees, choose MM-111 or M-7 rootstock. For dwarf trees, choose M-9 or M-26 rootstock. Dwarf trees need a trellis-type support structure due to their shallow root system.	
Planting	Because good drainage is critical, do a drainage test before planting. Avoid planting in low lying areas which can be frost pockets in cold weather. Pick a higher slope if available and where there is good air circulation for pollination.	
Irrigation	Trees need more water as apples develop. For 1-year old trees, about 7 gal/week in April-May, 14 gal/week in June, 21 gal/week in July-August and 14 gal/week in September. For 2-year-old trees, double the amounts above. Adjust for weekly rainfall. Don't overwater and don't get the trunk wet at the ground.	
Fertilization	Have a soil test done. Apply nitrogen at beginning of growing season and end August 1st. Weeds can rob trees of nutrients.	
Pruning	Apples are traditionally pruned-trained in a central leader system but can be trained as a modified central leader or even an open system.	
Problems	Calcium deficiency can occur even in high calcium soils and cause bitter pit and lenticel blotch pit. Calcium is applied via foliar spray. Disease pathogens include powdery mildew, bitter rot, black rot, apple scab, collar rot and fire blight. Insect pests include apple maggot, coddling moth, scale insects, tarnished plant bugs, flat-headed apple tree borer, red mites and several stink bug species.	

Pecan trees are wind pollinated and can self-pollinate to a degree. However, most do a far better job producing nuts when cross pollinating with other pecan trees. This is because the male and female flowers on the tree are not ready at same time. In Type I trees, the male flower produces pollen before the female flower is ready. In Type II trees, it's the opposite. It works best to plant both types within 300' of each other, but no closer than 40'. The trees will grow fine without another pollinator tree but may have limited or no nut production.

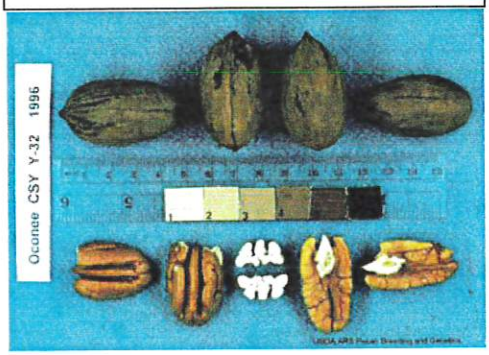
Caddo



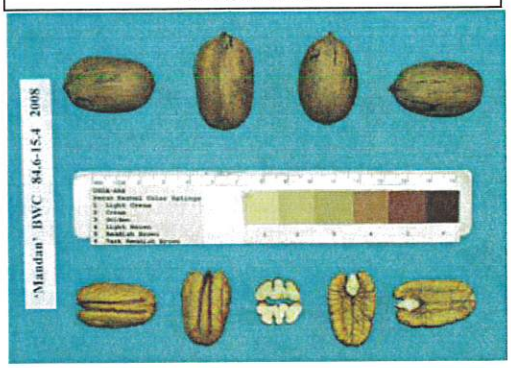
Lipan



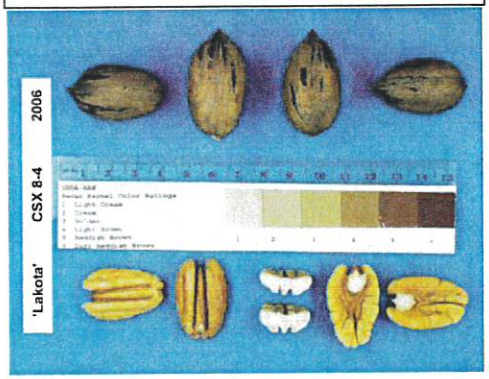
Oconee



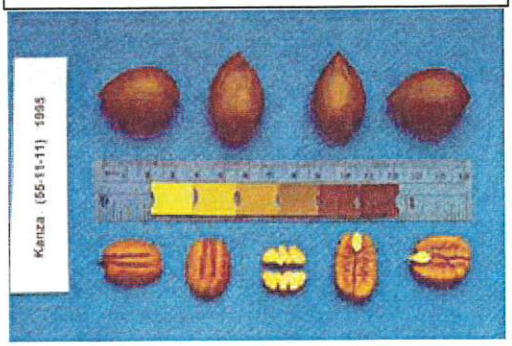
Mandan



Lakota



Kanza



Varieties	Notes
Caddo	Type I Pollinator. Nuts are 56% kernel. Excellent yard tree, strong limbs. Ripens mid-season. Small but high-quality nuts. Bears in 5-6 years and usually yearly. Moderate scab resistance. Plant with Lakota.
Lipan	Type I Pollinator. Nuts are 55% kernel. High nut quality, high yield, medium-early nut maturity. Ripens mid-season. Resistant to scab, medium susceptibility to yellow/black aphids. Plant with Lakota or Kanza.
Oconee	Type I Pollinator. Large nuts are 56% kernel. Nut matures about October. Moderate scab resistance and fair resistance to downy spot and vein spot. Plant with Lakota, or Kanza.
Mandan	Type I Pollinator. Nuts are 64% kernel. High quality & yield. Nut matures mid-September. Tree is tall, narrow with strong branches. Resistant to scab and medium susceptibility to yellow/black aphids. Plant with Lakota, or Kanza.
Lakota	Type II Pollinator. Nuts are 62% kernel. Nut maturity is mid-September. Up-right growth, strong limb angles, wind-resistant. Resistant to scab, medium susceptibility to yellow/black aphids. Plant with Lipan, Oconee or Mandan.
Kanza	Type II Pollinator. Nuts are 54% kernel. High quality nuts, Excellent scab resistance. Plant with Lipan, Oconee or Mandan.
Description	Pecan trees need a cross pollinating tree close by for best nut production. If nuts are not a priority, a tree can be grown by itself. This short incomplete list identifies a few good varieties for our area. If interested in commercial or orchard production, contact the Williamson County Extension agent.
Propagation	Trees including natives can be grown from seed but do no reproduce true to the parent seed. Use a grafted variety (bare root, container or balled & burlapped) if you want a certain nut or tree variety.
Planting	Pecans prefer full sun and well drained deep soil. They will not get as big if grown in shallow soil. Plant trees at least 15' from driveways or foundations due to roots, and 40' apart if planting two or more.
Irrigation	A producing pecan tree needs about 100 to 200 gallons of water per day from April through October or about 2" per week. To a home owner, this represents about 1,000 to I,500 gallons of water per tree, depending on tree size, up until the time of shuck split.
Fertilization	A soil test can identify what if any nutrients are needed. Nitrogen and a zinc foliar spray are often recommended, but other nutrients vary.
Pruning	Most pecans are pruned into a central leader with wide angle branches. Unpruned trees may develop several trunks with narrow branching angles. These narrow forks are weak and can split under high winds or heavy crops.
Problems	Fungal disease includes pecan scab and down spot, insect and vertebrate pests are pecan nut casebearers, hickory shuckworms, stink bugs, and pecan weevils. Pecan weevils and nut casebearers are the most serious.

Mature Open Center Olive Tree

Arberquina

Arbosana

Mission

Olive Varieties for Williamson County	
Varieties	**Notes**
Arberquina	Grows 12'–15' tall. Cold hardy and self pollinating. Oil is sweet with almond overtone. Can also be brined for table olives. Most popular Texas variety.
Arbosana	Grows 12'–15' tall. Moderate cold hardiness. Pollinated by Arberquina. Good quality and can be processed for oil or brined for table olives.
Mission	Grows less than 20' high. Medium size olive. Good cold hardiness and self pollinating. Can be processed for oil or brined for table olives.
Description	Fresh olives contain bitter compounds and must be processed to be edible by being pressed for the oil or brined to make table olives. Trees begin bearing a harvestable amount in 4-5 years. Trees may produce more one year than the next. Fruit is ready mid September - early October. Flower buds are set in the winter by cool nights and warm days. Spring fruit set can be impaired by rain, cold, humidity and hot, dry winds during bloom. In some years, trees may freeze to the ground here if not protected.
Propagation	Olive trees purchased at nurseries may be either grown from cuttings or grafted. Buying trees grown from cuttings provides an advantage if the tree gets frozen as they usually grow back unless the root crown is frozen.
Planting	When planting, cut the tips off the branches at 30" to stimulate the tree to produce lateral, or secondary, branches. Olive trees have shallow root systems, so the soil need not be deep. If soil is thin, raised beds can be used. The soil must be well drained, and the trees don't tolerate wet soil for an extended period. Full sun is needed, and the tree only bears fruit on new wood on the outer periphery of the tree. If planting more than one, space about 30' apart for hand harvesting.
Irrigation	Water the trees thoroughly at planting and regularly afterward. Although the olive is drought tolerant, it grows best when irrigated. To mature properly, olive fruit need water, and the tree needs water to store reserves for a potential crop next year. Keep weeds down under the tree.
Fertilization	A soil test will determine fertilization needs. Fertilize in the spring when new growth begins. If growth is poor, more fertilizer may be applied in the summer. Excessive nitrogen will stimulate growth at the expense of fruiting and luxuriant late season growth is more susceptible to freeze damage.
Pruning	At planting, tip-prune long, whip like trunks to 30" high to stimulate lateral branching and select 3-5 scaffold branches the first growing season. The most common pruned form is open center system. Do minimal pruning the first 3 yrs except to control height, remove water sprouts and suckers and keep interior open for light penetration. Olive trees store nutrients in their leaves and excessive pruning can stunt growth. Don't prune in winter or fall.
Problems	Freezing and heat stress are the main cause of olive tree death in Texas. In late November, mound soil around base of tree trunk and lower limbs for freeze protection. Remove in March when freeze threat has passed. This is not needed when tree is 4-5 years old. Cotton root rot, a soil borne fungus, has been the most damaging pathogen. The main insect injuries to olive fruit in Texas have been caused by leaf footed bugs and/or stinkbugs. Lesser problems have been associated with nematodes, borers, thrips and deer.

Nectarines, Apricots, Cherries, Almonds, Prunus hybrids, Pistachios

Nectarines are not particularly well adapted to Texas because their smooth skin is especially vulnerable to wind scarring and brown rot. They are also susceptible to fruit splitting and bacterial leaf spot. Nectarine culture is essentially the same as for peaches, only more intensive because of the increased disease and insect issues. Varieties for trial use are: Karla Rose, freestone, 600 chilling hours; Redgold, freestone, ripens late summer; Rose Princess, freestone, ripens mid-July; ArmKing, cling pit, ripens in late May. Use on **Lovell** or **Halford** rootstock.

Apricot fruiting is inconsistent on all varieties. Frost damage can cause crop loss, but fruit often fails to set regardless of temperature. Fruit buds can lose cold hardiness if there are wide temperature swings in late winter. Do not expect annual crops.

Sweet Cherries have performed poorly in Texas, because most commercial varieties require extensive chilling and are susceptible to brown rot. Developing fruit is also very prone to bird damage. To protect the ripening fruit from birds, some have built plastic pipe frameworks around the trees and covered them with netting. Low chill varieties from California may not perform as well here as they do in California.

Almonds generally do not produce well in Texas because they bloom too early in the spring and cold weather injures the developing flowers. Most varieties are susceptible to brown rot and bacterial leaf spot. No variety is highly recommended because they generally fail to set crops. 'All-In-One' is the most common variety being tried today.

Prunus hybrids are available. Commonly known as "plumcots," "pluots," or "apriums," depends on the breeding program that released them. In Texas they have been disappointing. So far none are winter hardy, all suffer from bacterial canker infestation, and few have produced adequately. More breeding and development are needed before they can be recommended for cultivation in Texas.

Pistachio (*Pistacia vera*) Pistachio nut trees can be grown in West Texas, but not in our area. They require a long hot summer and a cold winter for dormancy. Our weather here is usually too erratic. Diseases include bacterial blight, Cylindrosporium leaf spot, and viruses. Do not confuse with the Mexican Pistachio (*Pistacia Mexicana*) or Texas or American Pistachio *(Pistacia texana)* which does not produce edible nuts.

General Planting Instructions

Location Matters:

1. Place fruit and nut trees where they will receive full sun. Too much shade can severely limit production, size, quality and health.
2. Do a water drainage test to ensure the tree will have adequate drainage. Soil that doesn't drain well can impair growth and kill a tree.
3. Good air circulation is needed for trees that cross or self pollinate.
4. If the tree is at risk of freezing, plant in a protected location such as south side of building.
5. Plant fruit trees away from walkways as dropped fruit can be messy.
6. A soil test is better than guessing when applying fertilizer. Too much of one nutrient can be as detrimental as a deficiency of another.
7. Do not plant where cotton root rot disease in known to exist. There is no soil test to detect its presence.

Tree Size: When choosing a location, think about how big you want the tree when it is mature. Some fruit trees can get 25'-30' tall. Trees with semi-dwarf rootstocks get 12'-15' tall. Dwarf rootstock trees get about 8'-10' tall. Dwarf rootstock trees often need a trellis or some type of support due to their shallow root system. Don't substitute semi-dwarf or dwarf roots if other rootstocks are recommended as they may not do well in our soil. Pruning the tree after planting and yearly thereafter can help keep the tree to a manageable size. (See pruning section).

Chilling Hours: A major factor limiting the selection of nut and fruit trees (except citrus) is the chilling hour requirement (hours between 32°- 45° F.). The average number of chill hours in Williamson County is 700 but can vary between 550 to 850 hours. Fruit/nut varieties need to be matched within 150 hours of our 700 chill hour average.

The required chilling hours break down the tree's internal growth inhibitors so the tree can break dormancy for flowers and leaves to emerge at the right time. If trees do not get enough chill hours, flowers may not emerge in time or at all for pollination to occur and leafing may be delayed. Consecutive years with lower than normal low-chilling hours can stress and harm fruit trees. If a tree gets its entire chilling hour requirement too early, it may break dormancy too soon and a late freeze could kill the blossoms and possibly damage or kill the tree.

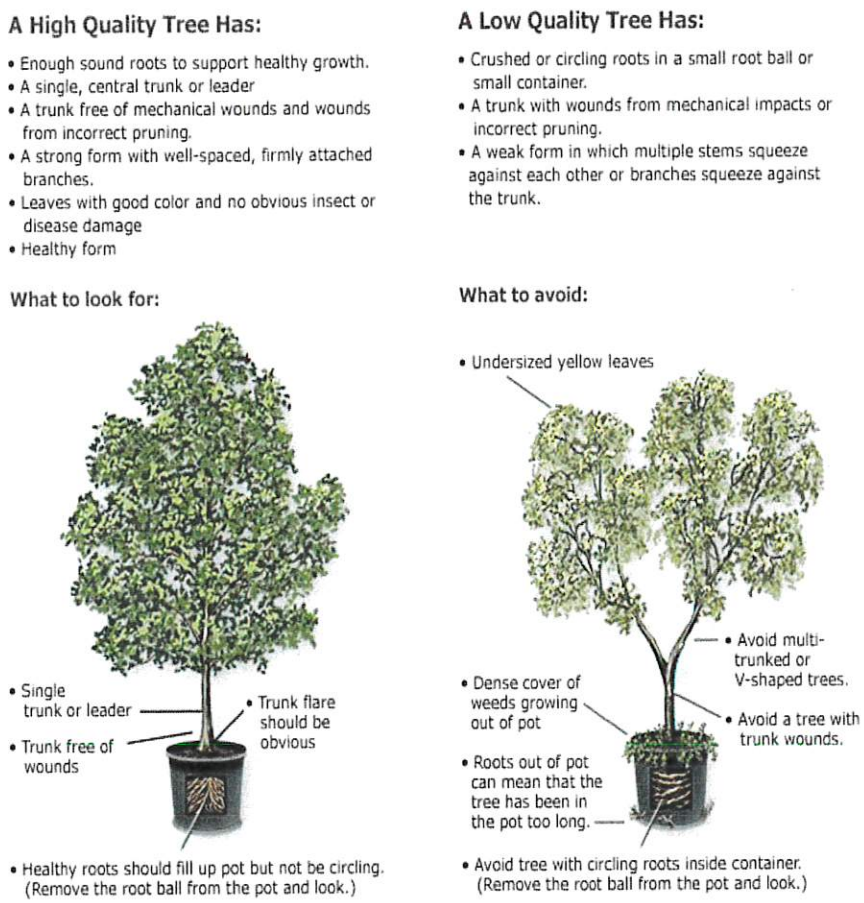
Pruning: Generally, bad pruning while not advised is better for fruit trees than no pruning at all. Almost all fruit trees will grow too big for a backyard orchard if not pruned.

Rootstocks: A rootstock is the stump of a related species onto which a separate fruit tree is joined by grafting or budding. The resulting tree will be stronger and quicker to establish and bear fruit. The rootstock will control the size and height of the tree and may have certain disease resistance and soil type tolerances that other rootstocks do not. Dwarf rootstocks produce the same size fruit as larger trees. If a rootstock is recommended, it is because it has done best in our Central Texas soil and climate trials.

Trunk Sunburn: To protect newly planted trees from sunburn, paint the trunk with white latex paint. Aluminum foil wrapped loosely around the trunk of new transplants can be used instead of paint but should be removed after one season. Do not wrap tightly around the base.

1. Choose quality nursery stock:

Most fruit trees purchased from nurseries are propagated through grafting or cuttings.



Bare-Root: Bare-root trees have no soil around their roots. The maximum height is usually 6 to 8 ft. Bare-root stock must be planted in early spring before growth begins. Bare root is the most economical way to purchase trees.

Balled and Burlapped (B&B): Large trees are often sold balled and burlapped and are the most expensive. The root ball is dug up and wrapped in burlap and sometimes supported with wire baskets. They can be planted anytime but care is needed in the hot summer months. Be sure to check for and avoid circling roots.

Container-grown: The trees have usually been grown in a container for 1-2 seasons and have developed a root system. Usually smaller in size and lower in price than B&B stock. The planting times are the same as for B&B stock. Be sure to check for a healthy root system and avoid circling roots. Lay the tree and container on its side, tap container sides and bottom to loosen. Slide the root ball out to inspect. Do not pull the tree straight up out of the container by the trunk.

Look for trees that have good leaf color and no damage to the trunk or signs of disease. Ask how long the tree has been potted - over two seasons is too long! If a tree is in its second season in a container be sure it has the low limb structure you want. Cutting back an older tree at knee height may result in only one or two new shoots, not the 3-4 you need.

2. Soil drainage percolation test: Fruit tree roots need to breathe and take in oxygen. Soils with standing water or ones that remain saturated for even a day or two following a heavy rain are unsuitable for fruit trees. To test drainage, dig a hole where the tree will go, 6"-12" wide and 12" deep with straight sides and a flat bottom. Fill hole with water and let it sit overnight for the most accurate result. The next day, fill to almost the top of the hole and measure the water level drop per hour.

1"-3" drop per hour is acceptable while 2" is ideal. If less than 1" per hour, soil will be too wet for most trees. Either consider another location or planting in a raised bed, 8"-12" high and 10"-12" wide. If drainage is greater than 3" per hour, then supplemental watering may be needed for some trees during fruit development.

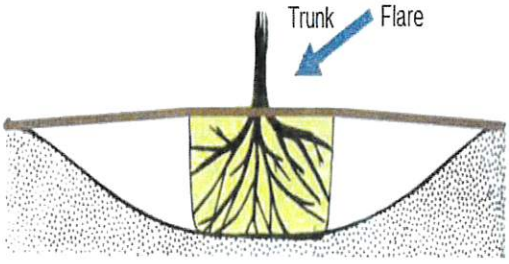
If your soil has poor drainage, you may still be able to grow fruit by planting trees in well-drained berms, mounds or raised beds above the present soil line. Prepare beds by bringing in or scraping up topsoil into a 6" to 12" high mound at least 8' to 10' across. Avoid high organic potting soil mixes because they encourage continual fall growth and make young trees more vulnerable to winter freeze injury. A raised bed can be framed with edging timbers or landscape blocks for a more attractive appearance.

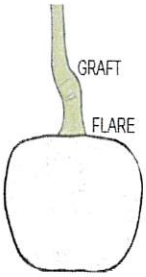
Another option may be to install a French drain. A French drain is a trench filled with gravel or rock or containing a perforated pipe that redirects surface water and groundwater away from an area. Consult your neighbor to avoid problems if the redirected water will go their way.

3. Preparing root ball and planting hole size and shape: Remove all foreign materials including wires, twine, cords, burlap, paper/pulp or other type containers and bags. This allows water to better seep in and the roots to grow out. Remove any ties and loosen any name tags/identifiers attached to the trunk or limbs.

If there are circling roots on the trunk or in the root ball, these must be straightened out or cut away. If the root ball is root bound, it will look like it has a "mat" of roots on the sides and bottom of the ball. If not corrected, the roots will continue to grow in this fashion which will eventually harm or kill the tree. Conventional treatment has been to slice down the 4 sides of the root ball to a depth of 1.5" and to make a large X cut, 1.5" deep, side to side on the bottom. Newer research from the University of Florida has suggested removing the outer 1" of root mass and soil on the sides and bottom of the root ball. Texas A&M Forest Service has suggested washing the root ball to expose all the roots. The large mass of fine roots covering the main roots will need to be pruned away to reveal the main root system to prune or straighten the circling roots. With this method, be sure not to let the roots dry out. These treatments will not normally harm the root ball if it has adequate irrigation after planting. If a lot of root pruning is done, the tree will need to be staked for stability.

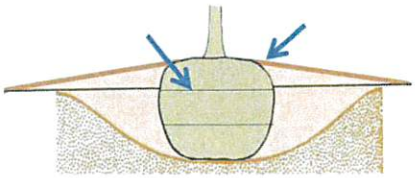
Planting hole size and shape: The hole should be about 1"-2" less in depth than the root balls height so the tree's trunk flare is above grade level when planted. The flare is a slight widening of the trunk above ground where it meets the soil and the roots begin. If it is hard to find, it will be just above where the first root emerges from the trunk. Burying or covering this portion of the trunk when planting can damage and even kill the tree over time.





If the flare is not visible in the container grown or B&B tree, remove the excess soil on top of the root ball till it is exposed before planting the tree. If the tree has been grafted, the graft union will always be above the trunk flare. The graft can look like a swelling, crook or offset in the trunk. Plant the root ball so the trunk flare is 1"-2" above ground.

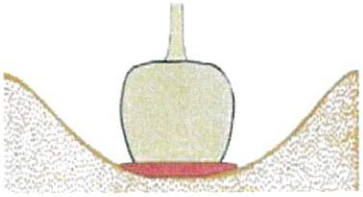
In thin soil such as the Edwards Plateau, dig a saucer shaped hole 3-4 times the root ball width. In deeper soil such as Blackland, dig a saucer shaped hole 3 times the root ball width. In Edwards Plateau soil, if caliche is at the bottom of the hole, it should be busted up to allow some root penetration which can help aid the trees stability. If this is done, ensure that the root ball is sitting on firm soil in the bottom and will not sink down after planting and watering, so the trunk flare is not below grade.



In heavy clay soil such as Blackland Prairie, a tree that does not tolerate wet feet may have to be planted a little shallower in depth than normal or in a 8"-12" high and 10"-12" wide raised bed or mound above ground. Plant so the first level of primary lateral roots is at or near the soil surface. Taper the backfill soil from the edge of the hole up to the top edge (knee) of the root ball.

Avoid digging the hole if the soil is wet. If the sides of the hole are smooth, glazed or shiny from digging, roughen them up with the shovel to allow for easier root penetration. Roots can penetrate crevices, fissures and roughened surfaces easier than smooth or glazed surfaces. Modifying the soil by adding expanded shale can loosen and aerate heavy clay soils allowing them to breathe and drain better.

4. Placing the tree and back filling the hole: Hold the tree by the root ball (not the trunk) to avoid root damage and place the tree in the center of the hole. The soil in the center should be firm enough that the tree will not sink down. Measure to ensure the root flare is 1"-2" above grade. A small ring of backfill soil placed around the base of the root ball will help stabilize it.



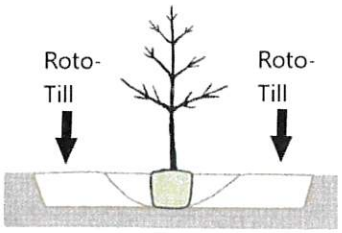
Use only native soil that came from the hole for backfilling: Do not amend the backfill soil with compost, manure or fertilizer amendments. Research has found that amending can harm the tree long term. All newly planted trees experience transplant shock. Amendments that stimulate growth will increase rather than decrease shock and can affect root development adversely.

In richly amended backfill soil, the roots tend to grow and circle in the planting hole where the nutrients are rather than growing out into the less rich native soil. The circling or girdling roots that are formed will continue to grow in that circular pattern and can stunt the growth and make the tree easier to be blown over in a windstorm. If the root girdling is severe, it can compromise trees health and kill the tree.

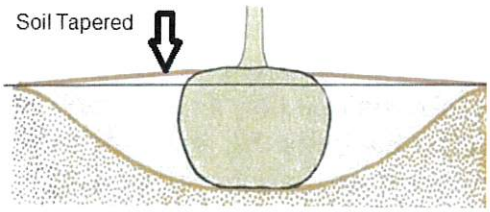
In unamended native soil, the roots grow outward, rather than circling in search of nutrients. This outward root growth stabilizes the tree as nature intended and helps ensure adequate nutrient and water for future growth. The one exception to modifying backfill soil is to add expanded shale to heavy clay soils in the Blackland Prairie area. Expanded shale does not

add nutrients but will loosen and aerate heavy clay soils allowing them to breathe and drain better which aids root development.

Heavily Compacted Soil: If the soil is heavily compacted, it may help to dig or roto-till a ring around the backfill area 4-5 times the width of the root ball diameter after the tree is planted. This may help roots spread into the surrounding compacted soil better. This should be done after planting is complete, otherwise the tilled soil could be compacted by foot traffic during the planting process



When backfilling, add some soil, then water and repeat. This process settles the soil better than packing and removes voids. Do not cover the top of the root ball with soil. Instead taper the soil from the edges of the planting hole to the round top edge (knee) of the root ball.



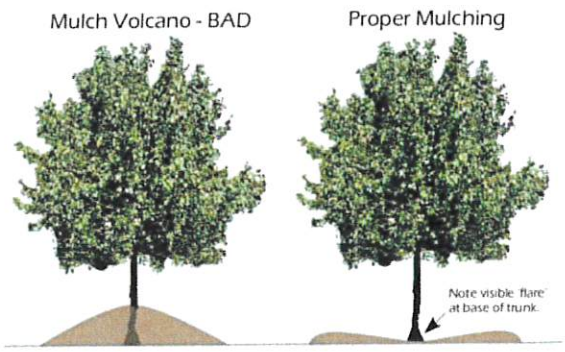
5. Planting bare root trees: If possible, have the planting hole ready before the bare root tree arrives. Bare-root trees should be planted as soon as possible after you receive them. Keep them covered and moist until ready to plant. Left exposed to air and sun, roots can dehydrate and die in as little as 30 minutes and tiny feeder roots in just minutes. If the plant starts leafing out, it must be planted immediately as survivability will drop rapidly.

Heeling In: If planting will be delayed for more than a few days after receiving the bare root trees, they can be heeled in until time to plant. Dig a shallow hole (or a trench if there are several trees) in a shady location and protect from freezing. Lay the trees on their side at 90° angle with the roots in the hole or trench and cover the roots with soil. Keep soil moist, but not wet. A 3" layer of mulch over the soil will help keep the moisture in. A wheelbarrow can also be used for heeling and moved to a shady location where protected from freezing. Put some soil in the bottom, add the trees and cover the roots with more soil.

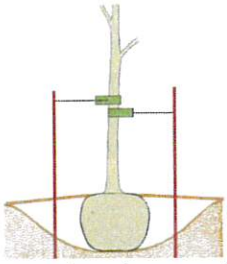
When ready to plant, unpack the roots to measure root spread. Repack to protect roots while the hole is dug. Dig a saucer shaped planting hole, three times the diameter of the root spread. The hole should have a mound of firmed soil in the middle on which the roots will be spread.

Adjust the mound as needed so that at least two structural roots are within the top 1"-2" of the soil surface. Spread roots on the soil mound and backfill, lightly packing soil around the roots. Pay attention to the correct planting depth of the tree. Add soil and water alternately to backfill the hole. The trunk flare should be 1"-2" above grade. Taper the backfill soil from the edge of the hole up to the trunk flare. Most bare root trees will need staking. Mulch the disturbed soil around the tree, up to but not touching the trunk. Not sure if your tree is still alive? Use your thumbnail to scratch a thin sliver of bark off on a branch. If there is a thin layer of green under that bark, that branch is alive.

6. Mulching and staking: Spread mulch 3"-4" deep over the area where the soil was disturbed or to the trees drip line, whichever area is larger. Keep mulch 2" away from the trunk. Wood chips, pine bark or needles, leaf litter and hay (without herbicides) are good mulches. Mulching keeps soil temperature steadier, boosts soil moisture retention and keeps competing weeds and grass at bay. Construct a mulch berm around the edge of the mulch bed to help contain water.

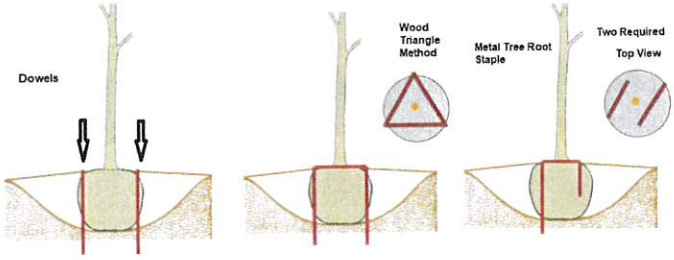


Staking: Bare root trees need staking, but properly planted container and B&B trees may not. Stake the tree only if necessary. Improper staking can harm tree bark, retard tree root spread, affect the tree trunk taper and make tree more storm damage prone. In many home landscape settings, no staking is necessary if the tree is set on undisturbed soil (where it cannot sink and tilt), with soil firmed around the base of the root ball before backfilling. Exceptions to this are if the tree needs protection from human activities, there is high wind in the area or the tree has a floppy trunk that is not self-supporting.



Above ground staking: For small to average-sized trees (up to 10'-12' in height), wooden stakes are enough. Use 2X2 stakes, 5' long. For larger or heavier trees, or trees in particularly windy situations, metal fence stakes may be necessary. Drive 2 stakes into the ground, at least 15"-18" away from the trunk. Connect to the tree using wide flat straps to reduce bark damage. Do not stake rigidly. It is best if the trunk has some flexibility to move. Wind movement encourages root growth and trunk taper development. Never tie a post to the trunk as it can cause the trunk to grow at a tilt due to shading.

Underground stabilization: There are several stabilization methods. They are done prior to backfilling the planting hole. **1)** Two or three wood dowels driven into the ground at the edge of the root ball. **2)** A 2×2 wood triangle over the top of the root ball is screwed into 2×2 wood stakes driven into the ground at the edge of the root ball. The wood will decompose over time. **3)** Two metal root staples. The long leg of the staple goes into the ground at the edge of the root ball. The short leg of the staple goes into the root ball. The metal staple may pose a problem if the tree stump needs to be ground out in the future.



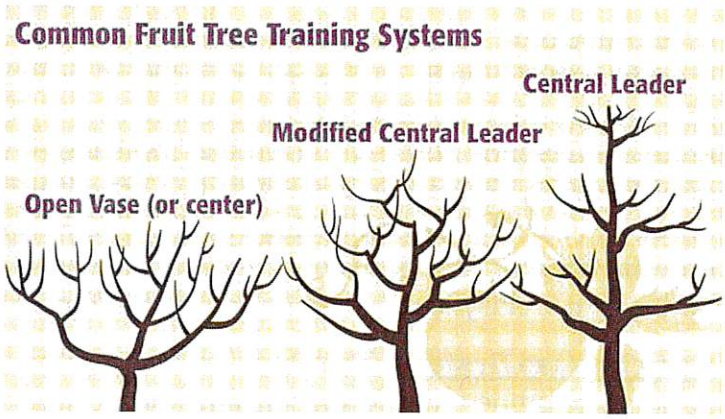
7. Watering and fertilizing: A newly planted tree requires six to eight gallons of water for every diameter inch of trunk — per week for the first year. However, do not overwater and keep the roots saturated. More may be needed during the hot summer and during drought conditions. A thorough soaking to wet the soil 8"-12" deep is far better than light, frequent watering that wets only the upper few inches. Light frequent watering encourages tree root growth towards the surface and should be avoided. Tree roots grow more horizontally than vertically, and a root system normally extends beyond the width of the canopy to catch rainwater. Roots responsible for nutrients and moisture are usually just 8" to 12" below the soil.

Keep this in mind when deciding where to plant a tree because of where the tree roots might go. Avoid planting close to something the roots could interfere with.

Deep Watering: The goal of watering deeply is to get the soil moist 8"-12" down. Light frequent watering will encourage roots to come up to or close to the surface and should be avoided. Skip Richter, County Agent with the Texas AgriLife Extension Service, suggests using the screwdriver test to know when to water established trees. Poke a long 8"-plus screwdriver into the soil. If you can't poke it at least 6" due to dry soil, then it's time to water.

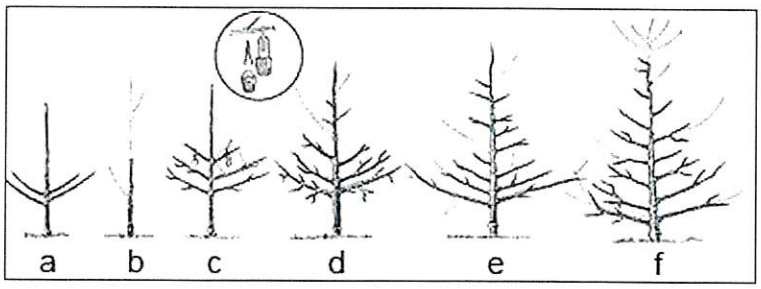
Fertilizing: Do not fertilize the tree when planting it. Refer the fertilization recommendations for your specific fruit/nut tree. The tree's biggest job in getting established is developing and expanding its root system which was damaged somewhat by the transplant process. An established root system is needed to support future upper growth and canopy development. Water is much more important at this stage than fertilizer. There is usually enough potassium in our Williamson County soil for good root development and plant health. Have a soil test done as adding too much of a nutrient can be as detrimental to growth as not having enough. Don't allow fertilizer to touch the trunk as it can burn it.

8. Pruning: Most fruit tree pruning (other than olives) is done in late January to early February for our area. Removal of dead or damaged limbs can be done anytime.



Pruning helps keep trees a manageable size and grow larger fruit. It lets light and air into the lower branches better ensuring a yearly harvest. There are 3 common systems of pruning fruit trees. Central Leader, Modified Central Leader and Open or Vase System. Some systems work better for some trees than others.

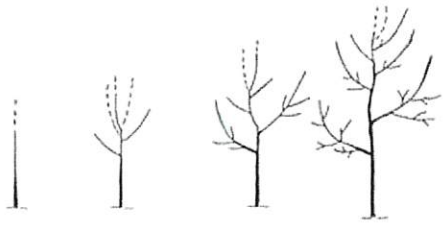
For all three systems, remove any tree suckers and water sprouts. Suckers are branches growing up from the base of the tree, below the graft union. Water sprouts usually grow from the trunk or branches of a tree. They appear as strange, out of character growth, sometimes growing in bunches and other times as vertical limbs growing straight up from branches.



Central Leader: The shape is a conical, "Christmas tree" that is tall and tapered. It is often used for apple, pear, persimmon & pecan trees. The shape allows high production, due to the light and air circulation, but may grow too tall to be practical for a fruit tree in a home orchard. A homeowner can use this training system, though, when working with a dwarf tree. The central leader is the trunk of the tree and the main branches are called scaffolding branches, the first of which is 18"-24" off the ground. Choose 3 to 5 branches, each on a

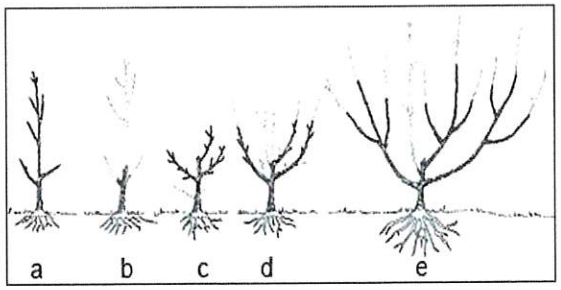
different quadrant of the tree trunk for the bottom tier. None should be on top of the other. Scaffolding branches should be 8" - 10" apart vertically. Choose 3-4 around the second tier, and one or two branches for the third tier. Remove the rest. The image shows tree growth over time and the way the branches were shaped. Grey shading in the images shows where branches were removed. Branches should have an angle from the trunk of 45°- 60°. If a well-placed branch is almost 45°, one option is to put a limb spreader or weight on it. Another is to wrap something around the branch and pull it down and stake it so it will grow at a greater angle. Remove it after 1 season.

Modified Central Leader: This shape can be used in place of a Central Leader. A Modified Central Leader has a more rounded appearance and is a cross between a central leader and an open system. It is not as tall which makes it easier to harvest fruit. Can be used for apple, fig, olive, peach, pear, pecan, persimmon, plum, and pomegranate trees.



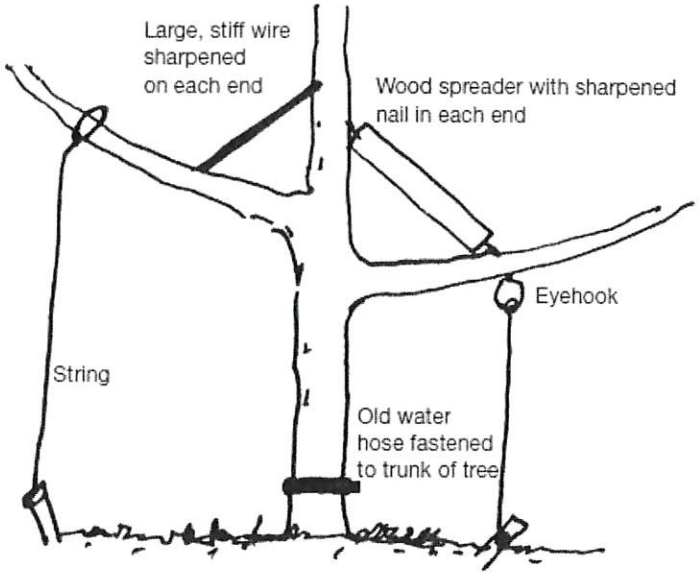
Choose 3-4 scaffolding branches on different trunk quadrants with 45°-60° angle from the trunk, the first of which should be 18"-24" from the ground. None should be on top of the other. Scaffolding branches should be 8" - 10" apart vertically. A well-placed branch less than 45° can be opened and trained with a limb spreader or limb weights. Also, you can wrap something around the branch and pull it down and stake it so it will grow at a greater angle. Remove it after 1 season. Prune the non scaffolding branches back to about 6". Cut the central leader about 20" from the top scaffolding branch. This will stimulate more scaffolding branches to grow for another tier. When they are pruned, you will have 5-7 scaffolding branches altogether for the tree. Finally, cut the central leader back just above the tallest scaffolding branch.

Open or Vase System: The Open or Vase System is simple to prune and allows plentiful sunlight in its open center. It also creates the shortest tree shape making it the easiest to harvest. All stone fruits are very susceptible to brown rot. Open-center trees allow better air circulation and light penetration within the tree--both important factors in reducing the development of brown rot on fruit.



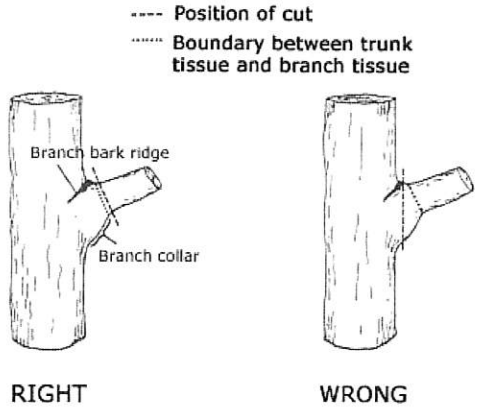
Cut the trunk off at knee to waist high making sure you have 3-5 good 45° angle scaffolding branches below the cut. This cut will be the most emotionally challenging. It forms the crotch of the tree and the lower the crotch, the easier it will be to keep the tree small. Also prune or remove branches that cross over each other or that grow into the tree.

Well placed scaffolding branches a little less than a 45° can be trained at a better angle using limb spreaders or small weights on the limbs or tie downs attached to the limbs. For apple trees, a 90° angle is the strongest limb angle.



Pruning Tips: When shortening a limb or branch, cutting above an outward facing bud will cause it to grow outward. Cutting above an inward facing bud will cause it to grow inward. Make clean cuts (within ¼") of a bud to not leave stubs.

When cutting a limb or branch off, cut as close to the collar as you can without cutting the collar. The collar is the slightly swollen part where the limb connects to the trunk or larger limb.



Water shoots are unruly looking stems\branches that can grow in bunches on the side of a tree or straight up from a limb. They will never bear fruit, so remove them.

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