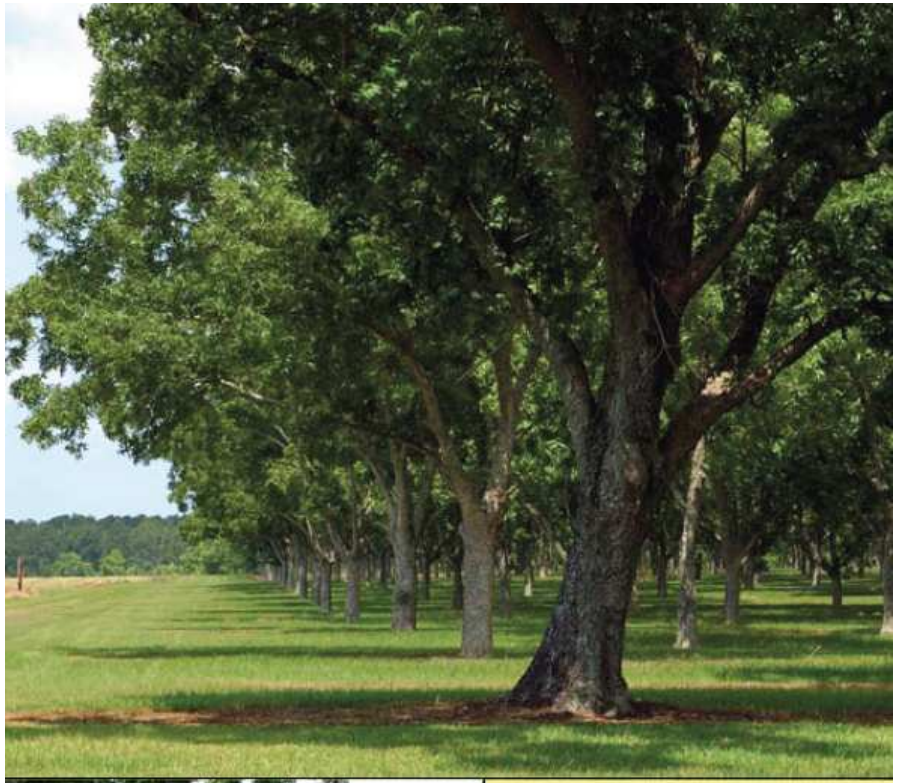


A Guide To Planting & Growing Young Trees

BASS Pecan Company

1-800-PECANS-1
www.basspecan.com

A Guide to Planting and Growing Young Pecan Trees

Table of Contents

At Bass Pecan Company, your interest in growing trees makes you very special to us. When you decide to plant trees, whether 2 or 200, you invest in the future, in beauty as well as bounty. Bass Pecan will be with you every step of the way, beginning with the information presented here.

This Planting Guide is designed for backyard pecan growers and orchardists alike. It covers basic, essential information and provides additional references for you to consult. We also remain ready to answer our customers' growing questions whenever they arise. Visit our website, www.basspecan.com, or call our customer service line (1-800-PECANS1).

Introduction

Bass Pecan Company starts its pecan trees with 2 year-old rootstock which are grafted with preferred varieties for USDA Hardiness Zones 6-10. We grow the trees in containers specially designed to accommodate their root systems. All Bass trees are maintained with drip irrigation at our nurseries and retail stores. We ship only container-grown trees because they transplant most successfully. Once your tree order is confirmed, we select and lightly prune your trees, then ship them within 3 business days.

Words of Wisdom

The two biggest mistakes made when planting pecan trees can be summed up in two words: prune and water. When we ship a tree to you, it comes from one of two categories, 3'-4' or 4'-6'. Both must be pruned at planting time to stimulate new growth from latent buds that form the top of the tree canopy. The second most common mistake involves watering practices. Several options are workable, but make sure your plans include a reliable water source throughout the life of your pecan trees.

Planning to Plant

The longterm health of your pecan tree requires attention to 5 factors outlined in this guide. They are:

1. Site selection and planting design
2. Variety selection for your zone and proper pollination
3. Planting methods and soil essentials
4. Pruning at planting time and beyond
5. Maintenance: irrigation, nutrition, pest and weed control

Factors in Choosing and Planting Pecan Trees

Bass Pecan Company wants you to grow the pecan trees that will satisfy your taste and growing conditions. In this guide, you'll find a chart of pecan tree varieties and their characteristics to assist you in selecting the right trees for you. Pecan trees vary in the number of nuts per pound and the percentage of meat in the harvest. Some are more susceptible to pests and disease, some begin producing sooner than others. As you consider which varieties are right for you, this chart will be a helpful summary. For example, if you like to bake with pecans, your tree will likely be among those with more nuts per pound. But if huge pecans are your goal, look for varieties with fewer (and larger) nuts per pound. If you live where scab disease is prevalent and do not intend to spray, you'll want to review which trees are most resistant. It's important to know when the pollen sheds from your chosen pecans, and to combine varieties for cross-pollination. That information and more is included here, beginning with where to plant.

Site Selection and Planting Design

Before you plant anything, it is essential to plan. Whether for a single tree or an entire orchard, you must select the best area on your property. Most trees grow best in full sunshine where fertile, well-drained soil and open or elevated sites allow access to prevailing breezes. Pick a site for your trees that is far enough away from patios, other trees, sewer lines, power lines and water pipes to avoid serious problems as tree tops and roots spread later on. On some sites, in some years, many pecan trees can pollinate themselves and nearby trees. However, planting 2-4 varieties with compatible pollen cycles will greatly increase nut production. We recommend backyard growers choose at least two varieties and that orchardists plant a pollinator tree for every 6-10 trees of the major variety. Tree orientation for optimum breezes contributes to successful pollination, and assists in pest prevention as well. Young pecan trees need annual pruning; both growing and mature trees benefit from space to work around them. Tree spacing and planting design should take into account the expected mature tree size (70'-100' tall and 45' wide) with ample space between. Backyard plantings may be farther apart as size

permits and the landscape plan demands. Pecan growers on a larger scale sometimes use the space between trees to raise other crops until the tree canopy shades the space below. Still others want their orchards to be profitable as soon as possible, so they plant trees closer together with eventual orchard thinning in mind. Highly precocious pecan varieties are those that begin to bear nuts before six years of age. While popular with backyard growers for early bearing, precocious trees may also be used as temporary trees to increase production in the first 10 to 12 years of an orchard. As the trees begin to crowd, they should be removed. It is important to make these decisions before the orchard is designed and varieties chosen.

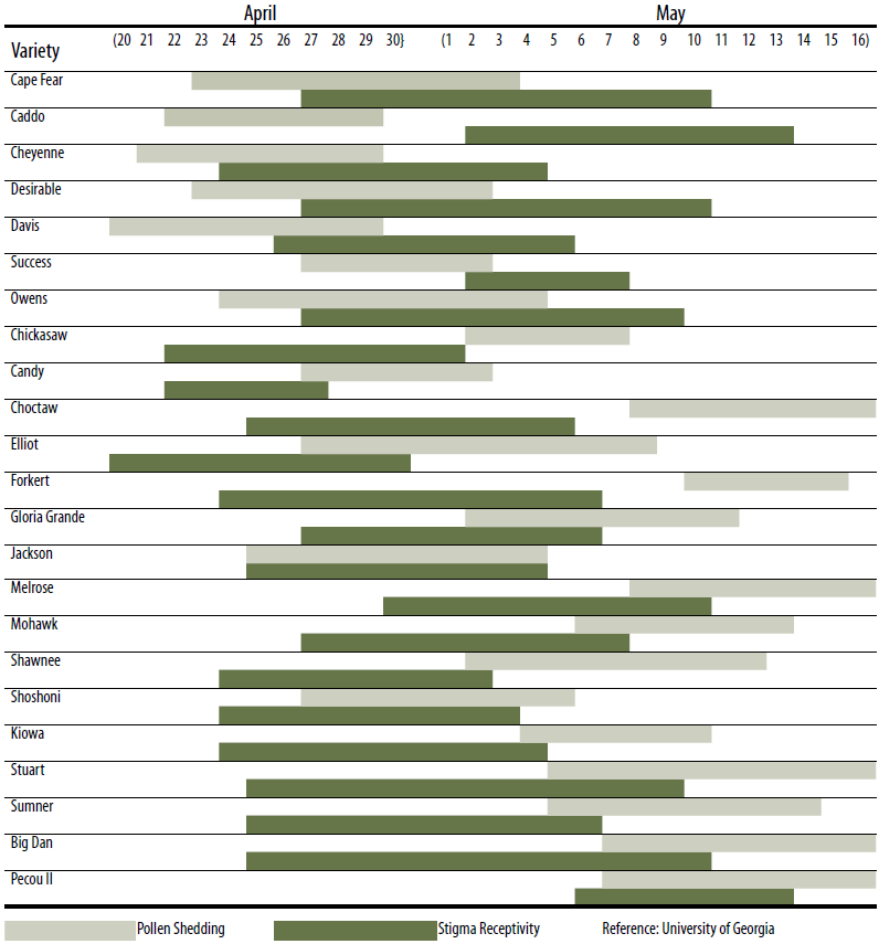
Variety Selection

Pollination at the right time is crucial to nut formation and greatly affects variety selection. Pecans are categorized by the timing of their pollen shed (Type I is early, II is late). Pecan trees have both male and female flowers (pollen and receptor flowers) on the same tree, but the two are not always in sync. Cross pollination with a variety of the opposite type has at least three major benefits. Nut production is not a sure thing in any year on any tree, but cross pollination increases its chances and contributes to genetic strength. Pecan trees are naturally alternate bearers, that is, endowed with a heavy crop every other year. Cross-pollination, quality or the timing of one tree's pollen in the off year, access to other timely pollen sources, along with consistently fertile soil and crop thinning in the heavy year, can combine to reduce alternate bearing. Pecan pollen has been documented to travel half a mile from its source, which explains why lone trees make some nuts even if they are not able to self-pollinate. Unless your neighbor has a compatible variety, don't count on pollen sources outside your pecan planting.

Your notes

Consult Table 3 for pollen shedding of popular varieties.

Table 3 Stigma Receptivity and Pollen Shedding of Pecan Varieties in Mississippi



Planting Methods

How you plant your pecan trees and the care you provide during the first two summers determines their growth pattern and their productivity.

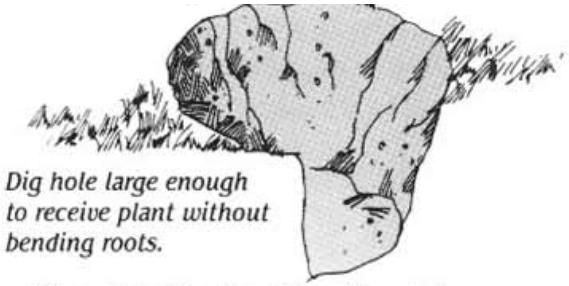
When to Plant

Container grown pecan trees, like any containerized plant material, may be transplanted at any time. In spring and summer, it is especially important to establish a good care routine and to monitor the trees closely to be certain you are providing adequate irrigation and pest monitoring.

Preparing to Plant

Pecans are best grown in soils that drain well and have a pH of about 6.0, or, a slightly acid soil reaction. Most soils in the pecan growing region have a suitable pH, but a soil test can confirm that before planting. Contact your county agent's office for information about soil testing. To check the drainage on your site, dig a posthole (at least 24" deep and 8" wide), and fill it with 5 gallons of water. If the hole empties in less than four hours, the drainage is good. If not, your site needs a raised bed or an underground tile system. Where drainage is good, your task is to cultivate the area to encourage immediate root development. Plan to space pecan trees 40 feet apart and mark where each tree will be planted. Dig up or till a circle extending 5' from each tree marker. Dig deeper at the center of each circle to form a planting hole 3' deep and 3' wide.

If drainage is not good enough, native soils, especially clays, can be amended. In this situation, more is not better. Amending soil should be done sparingly, to encourage strong roots that can penetrate into the native soil rather than



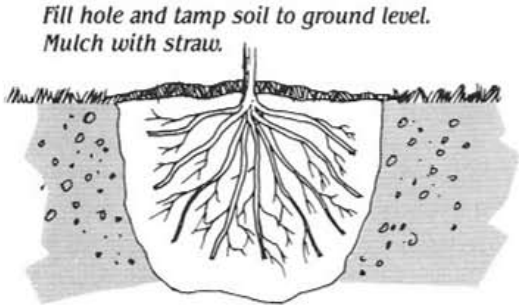
Dig hole large enough to receive plant without bending roots.

circle within the original hole. Add ground barks, compost, or leaf mold to the soil dug from the planting hole, no more than 1 part total organic matters to 5 parts native soil. Work the elements together well, then refill the hole and let the site 'rest' if possible for at least a week before planting. Improving native soils for better drainage will create a slightly elevated planting area, but otherwise, the planting hole should be dug as described above.

Planting Smart

Invert container and let root ball slide out.

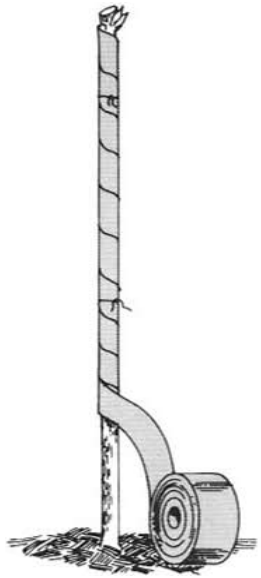
Return enough soil to the planting hole to build a mound just high enough to support the roots and spread them into the planting soil, but be sure to maintain the original planting depth. To remove the tree from the container, invert the container and let the root ball slide into your hand. Never try to lift the plant from the container by the plant top. Leave as much of the container soil attached to the roots as possible. Shake or rub roots to loosen them before planting. Do not prune roots; unwind and spread them over the mound in the hole. Check to be sure the top of the root ball and the bottom of the trunk will be at ground level or perhaps an inch above it. Not deeper and no higher. Back fill the hole halfway and water well to reduce the air pockets that could cause it to sink later. Finish backfilling with soil, tamp down and water well again. If irrigation is not available, provide enough soil to ring the tree 2' from the trunk to capture available rainwater.



Fill hole and tamp soil to ground level. Mulch with straw.

Staking and Wrapping

Your pecan tree arrives with a slender bamboo stake attached to keep it upright. Do not remove it until you can replace it with a stake and tie system made to protect the tree from high winds. It's important to avoid stakes that immobilize the tree completely and to remove all stakes within 2 years of planting. Tree wrap can be used to protect the trunk from sunscald, and is preferred to painting them.



Tree wrap will protect trunk from sunscald.

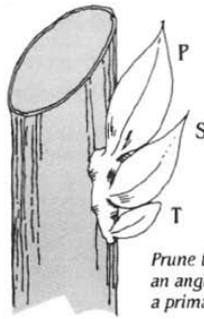
After Planting Notes

- Water new trees in with root stimulator fertilizer or compost tea. No additional fertilizer is needed in the first season.
- A layer of mulch, usually straw or ground bark, will benefit young trees. Put a mulch layer two inches deep in a blanket extending three feet out in a circle around the trunk.
- When planting rows of pecan trees, some growers opt for a sheet of weed barrier cloth to assist in weed control.
- Do not use plastic mulches around pecan trees.

Notes

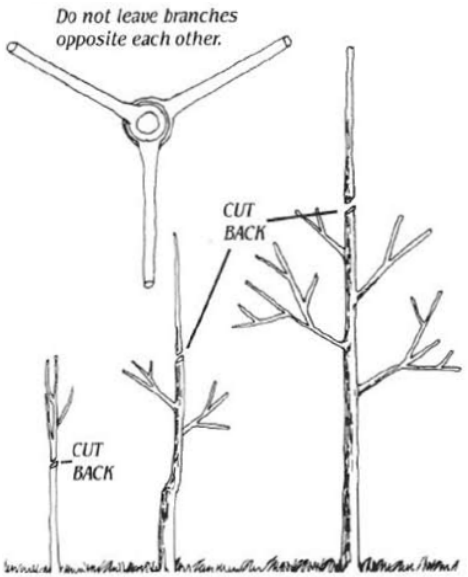
Pruning Young Trees

Pecan trees must be pruned at planting time to stimulate the buds along the trunk. These buds will sprout to become the scaffold branches of the mature tree. Even if they are not evident, there is no cause for alarm, since there are many latent buds the entire length of the tree. These buds will emerge to form the canopy.

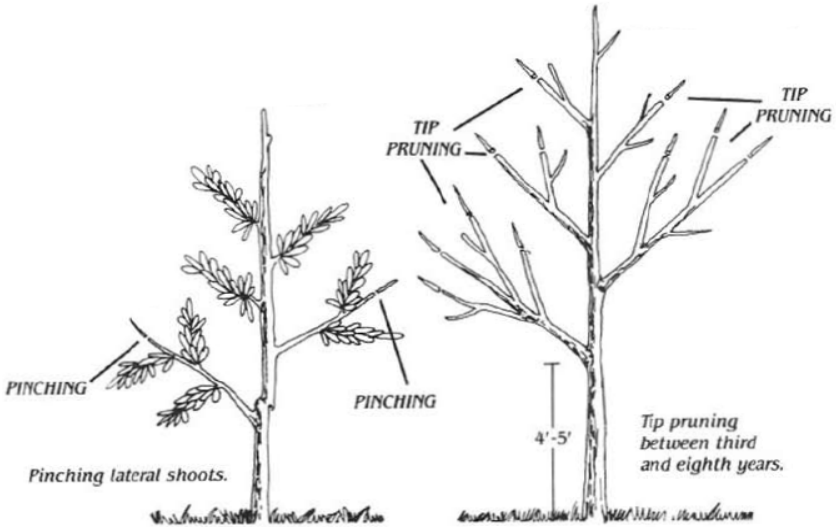


Prune tree at an angle above a primary bud.

How Much? Prune one-third to one-half off the top of the tree, to a primary bud. Use that primary bud as your central leader and the secondary (those below the primary) buds to form a strong lateral framework. Central leader training may increase nut production because it allows maximum leaf exposure. The lateral branches should be arranged around the trunk to resemble the spokes of a wheel with 12-14" vertical spacing. Do not leave two branches opposite each other. The figure at left illustrates the proper branch arrangement and pruning sequence for the year of transplanting and 1st and 2nd dormant seasons.



Pruning technique to force a central leader.



Pinch and Tip Pruning

After the tree leafs out, it will be time for pinch and tip pruning. The lateral shoots are pinched during the growing season. Allow the shoots to grow about 15 inches before the growing point is pinched. This practice will enlarge the shoots, which in turn will cause more terminal growth. An orchardist will sometimes pinch prune for 2 to 3 growing seasons.

Tip pruning

Tip pruning is usually done between the third and eighth years of a planting. It is practiced on permanent limbs by removing 3 to 4 inches of terminal growth in late January through mid-March. This pruning can reduce tree size in the early years and stimulate earlier production.

Permanent limbs

While permanent limbs can begin at 5-1/2 feet or at 1 foot, most growers train the trees with permanent limbs about 5 feet above the ground. Such training allows for good air movement, which helps in controlling scab. It also enables mowing, spraying and harvesting equipment to have easy access throughout the orchard.

Tree Maintenance

When it comes to taking care of pecan trees for long life and plenty of nuts, routine maintenance is the grower's best friend. Irrigation, nutrition, pest and weed control are the keys to success, and the first two years after planting are especially critical to the tree's future health and productivity. Good practices lead to thrifty growth, best described as a steady, consistent progress towards maturity. That's the goal, and maintenance gets you there.

Water

Irrigation is critical to young pecan trees and determines whether mature trees can fill their nuts. Any watering method works so long as it provides an inch of water to the tree's entire root zone weekly. Drip systems, whether in- or above-ground, or individual reservoirs, conserve water and keep leaves dry. Overhead sprinklers are less efficient, but effective. It's important to measure the rainfall or the water you apply.

Water Management	
Sprinkle around trees canopy to drip line and then 10% more.Pecan trees like an abundance of water, but do not like "wetfeet" (standing in water).	
Young Trees	5 gallons per day immediately after planting
Non-bearing	5 gallons per week from April to December
Mature Trees	2 inches per week from April to December
Mature Trees also need water at 5 critical periods	
1.	Initial spring growth, late March to early April
2.	Nut sizing – May
3.	Water stage – August
4.	Kernel filling - Late August to early September
5.	Shuck split - Late September

Very wet or dry conditions can be fatal to young trees and damage mature ones. The effects of too little water are obvious: small, pale leaves, wilting, browning, and leaf drop. Too much water can result in toxic conditions in the root zone. Leaves and new shoots wilt and become discolored or turn black.

Nutrition

Most trees grow best in soils with a pH of 6.0 to 6.5 and relatively high levels of nutrients. A soil test before planting tells you the current nutrient levels of your site and may be helpful to repeat at five year intervals to insure you are not overfertilizing. Leaf analysis tests done in July are an even better guide for year's plan. While these tests are essential to orchardists, they can be very helpful to backyard growers with even a few trees. Contact your local county extension agent for sampling instructions.

Fertilizer Notes

No additional fertilizer is needed at transplant time, nor in the first summer after planting. After that, every tree needs a steady supply of nitrogen, phosphorus, and potassium for productive growth, supplied annually in the spring. Research shows that it is important to keep the major (Nitrogen, Phosphorus, and Potassium, or NPK) and the minor (or 'trace') nutritional elements in balance for good, healthy tree growth and abundant nut production.

However, excessive nitrogen can burn and damage young trees and adversely affect nut production in older trees. Fertilize with a complete formula (both major and minor elements) made for nut and fruit trees in April and June. Follow label instructions for amounts to use as the tree grows. Zinc is particularly important to your pecan tree, since a zinc deficiency causes a tree disorder known as rosette. For best results use zinc sprays (Z. nitrate or Z. sulfate) monthly between April and August until trees begin bearing. After that, spray 3 times between bud break in April and June. Some growers fertilize mature trees by nourishing the roots in late fall, using a formula such as 0-10-10 that has no nitrogen, then provide nitrogen in the form of compost in spring.

Remember:

- Do not fertilize during the first summer after planting.
- Do not place fertilizer within 8 inches of the tree trunk.
- Do not apply nitrogen later than June, as it may delay nut production and tree dormancy, and increase freeze injury.

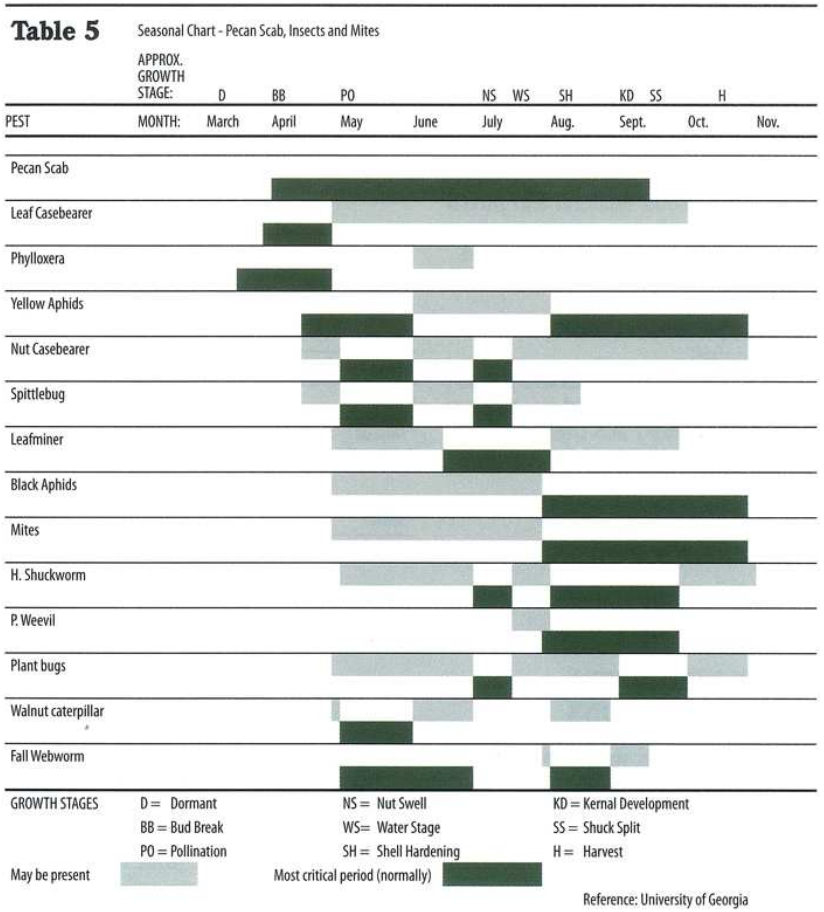
Weed Control

Competition from common weeds can rob nutrients from trees and their presence can attract or sustain insect pests and diseases. Keep a 6' circle weeded around young trees and increase its size as the tree grows so it extends to the edge of the tree canopy. Weed by hand, spray weeds with glyphosate, and/or use mulches under the tree.

Pest Control

Although many pecan varieties grow and produce without any need for sprays, it is helpful to know what may attack them:

Table 5 Seasonal Chart - Pecan Scab, Insects and Mites



Reference: University of Georgia

Spraying Pecan Trees

Pecan scab disease, mites, aphids and other insects can retard tree growth and ruin nuts. Microclimate and variety choice greatly affects pecan tree susceptibility to pests, but a wise person monitors the situation daily. Traps help to keep count of growing insect populations if a regular spray program is not necessary. While individual pesticide recommendations would be impractical to provide here, some general guidelines can be helpful. More information about local pest populations and control products is available from your county agent and local growers. Timing of sprays is always critical to their success and the sooner you recognize that a problem exists, the better. Scab disease can appear without warning, insects and mites reproduce rapidly. Controls work differently for each pest category. For example, fungicides are applied to prevent diseases or suppress their further development, while insecticides are effective only when insects are present. Keep a close eye on your trees, choose products made to control the pests you have, and always read and follow label directions closely.

Pest Control Products

Whether you get pest control information from us, your county agent, or other sources, it is important to understand what the products are that may be recommended, as well as what they do and do not do.

Insecticides fall into 2 general categories based on the insects they control, either those with small mouth parts (like aphids) or those with large mouth parts (like caterpillars). They are further distinguished by their mode of action, controlling immediately on contact or systemically, after the plant has taken up the chemical The different kinds may be combined in a multi-purpose formula, but are not individually interchangeable. The exception to this rule is clarified oil of neem, which has the unusual combination of insecticide/miticide/fungicide control properties. When choosing insecticides, read their labels to be certain the product can control the pests that are present. Fungicides are either broad spectrum or specific in diseases controlled. Homeowners may use the former, but large growers with acres of trees often choose the latter and rotate the active ingredient for better scab control. Sprayers used to apply fungicides and insecticides should always be kept separate from those used for herbicides. Never use a sprayer intended for herbicides to apply insecticides or fungicides.

Reading List

1. Anonymous, “How to Plant”. L. W. Ramsey Company, Davenport, Iowa. 1979. Online at www.ramseyadagency.com. One of a series, this clever booklet has an abundance of basic information.
2. Crockett, James Underwood, *The Time-Life Encyclopedia of Gardening Trees.* Time- Life books. 1978. Many used copies of this classic are available from booksellers.
3. Mullenax, Richard, “Establishing an Orchard”. Mississippi Cooperative Extension Service. Information sheet 493 AND IS1462 Fruit and Nut Review: “Pecans in the Home Landscape”. Order online from: msucares.com. Most states in pecan country have articles like these by resident experts.
4. “Sustainable Pecan Production”, Steve Diver and Guy Ames, 2000. ATTRA publication #IP077. Online at http://attra.ncat.org/attra-pub/pecan.html. The area of sustainable pecan production grows each year as practices are refined and reported, as with this article.
5. University of Georgia, *Southeastern Pecan Growers’ Handbook*, Bulletin 1327. March, 2007. An unparalleled collection of articles and bulletins that is essential to pecan growers.
6. Williams, Bob, *Raising Top Quality Pecans: A Grower’s Perspective*. Capstone Publishers, Jackson, MS. 2001. A very personal and engaging story of growing pecan orchards in LA.

From the Q/A Archive at www.basspecan.com/treebarkblog

- Do you have a tree guarantee?

We guarantee that the tree you purchase will be the variety you selected, and that it will reach you in good condition for immediate planting.

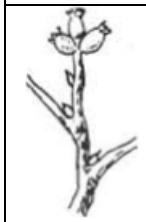
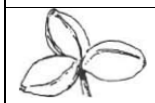
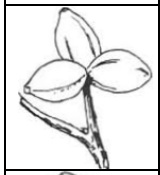
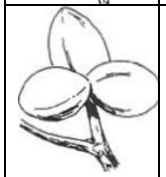
- If my tree top dies back and a sprout grows from below ground level, do I still have the same variety that I purchased?

More than likely, no. The bud or graft probably died. New growth is a seedling from the rootstock.

- What if my tree doesn’t leaf out, or drops leaves, but is green?

1. If you pruned at planting, cut another 6 to 8 inches off the top. However, if you did not prune at planting, take ½ off the tree top.
2. Water with a root stimulator fertilizer or compost tea. Repeat.
3. Water thoroughly as often as needed during dry periods to provide one inch each week to the entire root zone area. Apply 2 to 3 inches of organic mulch.

Spray Schedule for Pecan Trees

	Time of Application	Primary Pest	Pesticides	Instructions and Remarks
	First spray: When first buds have opened (3/4" long). Bud scales have been pushed away leaving the green bud.	Scab Downy spot	Pecan fungicide	
		Phylloxera	Pecan insecticide	Treat trees with a recent history of heavy infestations and surrounding trees. Time spray based on bud break of earliest cultivars.
	Second spray: Leaves are obvious and stamens are encased in sheaths	Scab Downy spot Phylloxera	Pecan fungicide and insecticide	The first two spray applications are extremely important for scab and downy spot control. Early sprays prevent scab from becoming established. Heavily infested orchards will require two sprays for complete Phylloxera control.
	Third spray: When young nuts first appear or two weeks after second spray. Pistillate flowers and stigmas have dried and browned:catkins have dropped	Scab Downy spot	Pecan fungicides and insecticides	
		Nut casebearer	Pecan fungicides and insecticides	Light infestations causing occasional damage do not require control in normal crop years. Treat when 3% of the nut clusters have casebearer eggs and/or damage. Make a second application one week later if current infestations are heavy.
		Aphids	Pecan fungicides and insecticides	Prior to June 1: treat if yellow aphid numbers exceed an average of 30 per compound leaf based on a thorough random sample of compound leaves from trees throughout each orchard. Between June 1 and August 1: treat if yellow aphid numbers exceed an average of 20 per cound leaf. After August 1: tread if yellow aphids average 10 per compound leaf.
		Mites	Pecan fungicides and insecticides or miticide	Treat when mites and mite damage are evident. Insecticides used for aphids often keep mites suppressed. If mites become serious problem apply one of the miticides and repeat in 7 days.
	Fourth spray: Three weeks after third spray	Scab Downy spot Powdery mildew Zonate leafspot	Pecan fungicides and insecticides	If aphids, mites or spittlebugs require control at this time apply materials as previously directed. Alternation of insecticides during the season is suggested to reduce the chance of outbreak of leaf miners or other secondary pests.
	Fifth spray: Two to three weeks after fourth cover spray	Scab Brown leaf Powdery mildrew Zonate leafspot	Pecan fungicides and insecticides	Along with the fungicide spray, an insecticide may be needed in 1st week of July if the orchard has a history of early nut drop caused by hickory shuckworms.
	Sixth spray: Two to three weeks after fifth spray	Scab Brown leafspot Powdery mildew Zonate leafspot	Pecan fungicides and insecticides	If excessive nut drop results from pecan weevil feeding punctures before pecan shells begin to harden, apply a pecan weevil spray at once. Control yellow aphids as previously directed if their number exceeds an average of 10 per compound leaf. Control black pecan aphids when there is an average of one such aphid or damaged area per compound leaf.
	Pecan Weevil Sprays:Every 10-12 days from the time pecan shells begin to harden (about Aug 10-15) until mid September and later if adult weevils are still present.	Pecan Weevils Shuckworms Scab	Pecan fungicides and insecticides	For shuckworm control, make the first of three applications when pecan shells begin to harden. Applications should be made at two week intervals. In normal years, scab sprays can stop at mid September.
	Late Season	Black Pecan Aphid Shuckworm Mite	Insecticide or miticide	Additional insecticide applications may be necessary for black pecan aphid, hickory shuckworm or mite control.

Pecan Variety Chart

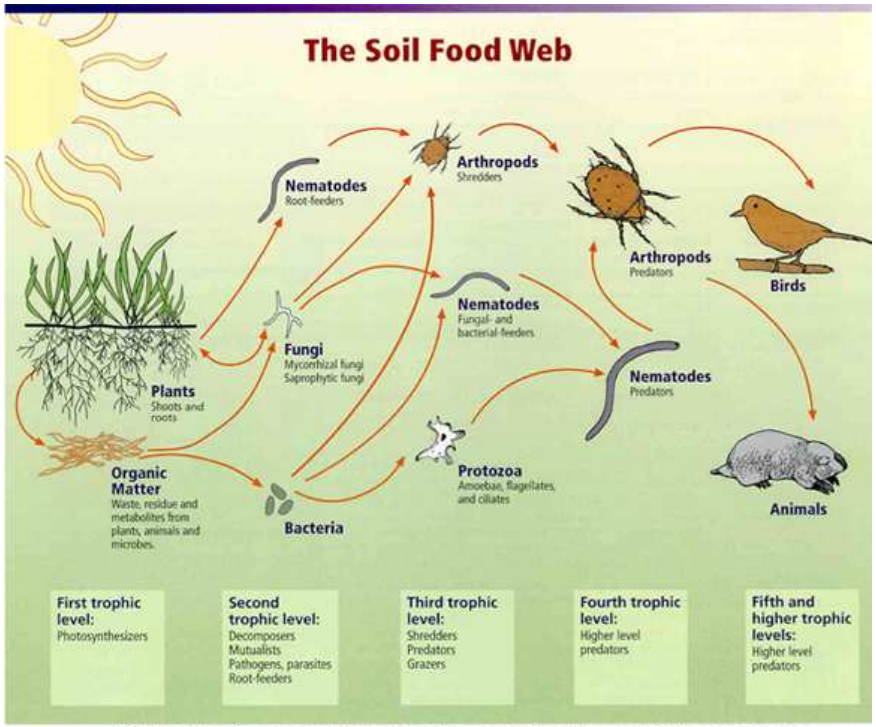
Variety	Zones	Nuts/lb	%Meat	Pollen Shed	Scab	Prod	Nut Season	Description	Origin
Caddo	6,7,8,9,10	67	55%	I Early	L	6 to 7 P	early-mid	superior and consistent yields	Philema, GA
Candy	6,7,8,9,10	78	50%	II Mid-Late	L	6 to 7 P	early-mid	attractive leaves; LA fav	Ocean Springs, MS
Cape Fear	6,7,8,9,10	55	51%	I Early	L	5 to 6 P	mid	low maintenance	Willard, NC
Cheyenne	6,7,8	50	59%	I Early	M	5 to 6 P	mid-late	slow grower; large yields	Brownwood, TX
Choctaw	7,8,9,10	37	58%	II Late	L	7 to 8	late	high yield, quality large nuts	Brownwood, TX
Creek	6,7,8,9	55	48%	I Early	L	6 to 7 P	mid	low maintenance	Brownwood, TX
Desirable	7,8,9	48	51%	I Early	H	7 to 8	mid	precocious with scab mgt.	Ocean Springs, MS
Elliot	8,9,10	77	51%	II Late	L	8 to 9	mid	low mtn. in warm climates	Santa Rosa Cty, FL
Forkert	7,8,9	53	58%	II Late	L-M	5 to 6 P	mid-late	high yield when mature	Jackson Cty, MS
Gafford	7,8,9	56	50%	I Early	L	6 to 7 P	early-mid	consistently high yields	Butler Cty, AL
Jackson	7,8,9	35	58%	I Early-Mid	L-M	6 to 7 P	mid	low maintenance	Ocean Springs, MS
Kanza	6,7,8,9	74	52%	II Late	L	6 to 7 P	early-mid	disease resistance, cold	MajorxShosoni USDA
Kiowa	7,8,9,10	48	53%	II Late	L	6 to 7 P	mid	strong yield, large nuts	Brownwood, TX;
Mahan	7,8,9	32	58%	II Late	H	5 to 6 P	late	inshell favorite with scab	Monticello, FL
Oconee	6,7,8,9,10	48	53%	I Early	L	5 to 6 P	mid	low maintenance; cold	
Pawnee	7,8,9,10	56	54%	I Early	M	7 to 8	early	yellow aphid resistance, cold	
Podsednik	7,8,9,10	23	53%	II Late	M	7 to 8	late	largest nuts; attractive tree	Arlington, TX
Stuart	6,7,8,9,10	55	46%	II Late	L-M	7 to 8	mid	widely planted orchard pecan	Jackson Cty, MS
Sumner	7,8,9,10	56	49%	II Late	L	5 to 6 P	mid-late	consistent top quality nuts	Tift Cty, GA

Key to Variety Chart

Zones are USDA Hardiness Zones
Nuts/lb and %Meat are averages of annual production: more nuts/lb = bigger pecans, higher % = more pecan per shell
Scab Ratings: Low - scab is seldom an issue**, Moderate -** scab will appear in some years**, High -** scab disease is predictable on this variety.
Production Age: P means trees bear nuts at a younger age than average
Nut Season: Early - September to early October, **Midseason** - October, **Late** - November

The Soil Food Web: How Roots Grow

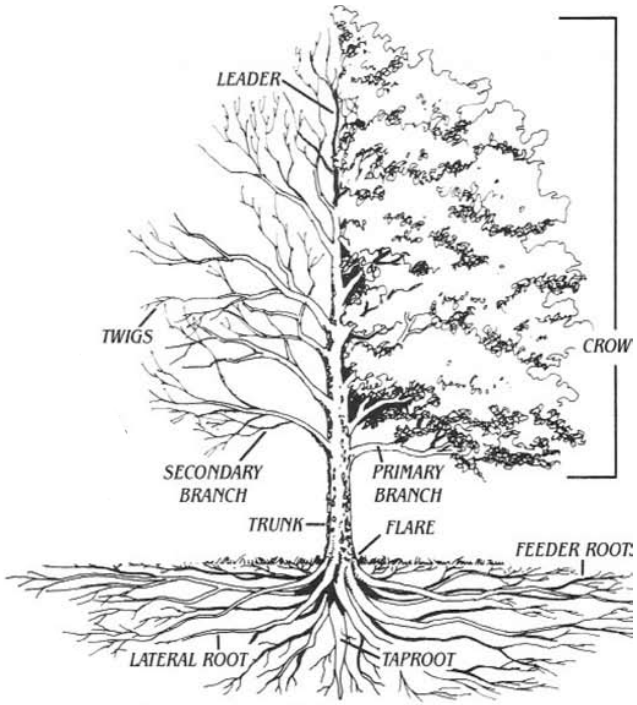
The soil food web is created when plant roots touch soil. Awareness of this dynamic contributes to good soil management. Look for mor information at: www.soilfoodweb.com.



Relationships between soil food web, plants, organic matter, and birds and mammals
Image courtesy of USDA Natural Resources Conservation Service
http://soils.usda.gov/sqi/soil_quality/soil_biology/soil_food_web.html.

Botany Bonus: How a Tree Grows

With the aid of sunlight, a typical 40-foot tree take up over 50 gallons of dissolved nutrients from the soil and converts it to approximately 10 pounds of carbohydrate food. Oxygen is released into the air as a byproduct of this process known as photosynthesis.



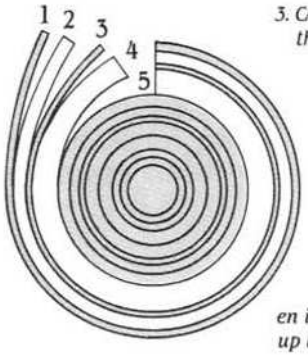
Underground the roots of a tree feed and support the aerial structure above. While the diameter of the root system may run 2 to 3 times the spread of the crown the surface area of the roots.

The most active part of a tree's root system lies at the tips of its feeder roots. The tree nutrients are absorbed by the microscopic root hairs that surround these feeder roots. Root hairs function only a short time; new ones are constantly being initiated while the older ones decline.

The tree's trunk is composed of concentric rings of cells that form five distinct layers: bark, phloem, cambium, xylem, heartwood. The cambium along the outside becomes phloem, those rings inside become xylem.

1. *BARK—Wrapping the tree like a protective overcoat, the bark is made up of several layers.*

2. *PHLOEM—Just beneath the main part of the bark lies the phloem, a fibrous, moist sleeve that carries food from the leaves to the rest of the tree.*



3. *CAMBIUM—Only one cell thick, the cambium layer is the life-giving inner sheath of the tree, manufacturing cells from spring to frost.*

4. *XYLEM—The young xylem tissue that carries water and minerals from the roots to the leaves makes up the sapwood.*

5. *HEARTWOOD—As xylem cells age they clog and harden into heartwood, which makes up the central core of the tree.*

Published by:
Bass Pecan Company
1-800-PECANS-1
www.basspecan.com