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Georgia Pecan Nut News

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Pruning/Thinning

There are currently two or three main schools of thought concerning opening up more sunlight to trees in the orchard. All agree that there comes a time when it is necessary to take steps in this direction in order to improve pecan production in almost every orchard.

It is commonly accepted that 50% of the orchard should be covered with tree canopy and 50% should have sunlight reaching the orchard floor. This goal can be reached through selective limb pruning, alternate row thinning, or selective thinning.

Selective limb pruning involves creating an imaginary box around the pecan tree with the bottom of the box at a level high enough for sprayers and equipment to

pass below. The top of the box will reach 30 ft. above the bottom of the box and the sides of the box will extend $\frac{1}{2}$ way to the trees on all sides of the one being pruned. Any limb extending outside the box should be pruned back to an intersection with another limb within the box and removed without leaving a stub. Only one to three limbs are removed from a given tree at a time. This will help distribute energy into the remaining limbs and will mold and hold the tree within manageable dimensions for spray coverage. This is probably the most conservative method of opening up the orchard to light for those who are hesitant to remove entire trees. However, bear in mind that it is very labor intensive and may be costly.

Alternate-row thinning is a common method of getting light to the orchard. This involves removing every or every other tree (depending on age of the orchard) on alternating rows, usually on the diagonal. Removing every tree in alternating rows takes out $\frac{1}{2}$ the trees, while leaving them in a square, although the orientation is rotated 45° . This type of thinning normally results in a loss of yield per acre for the first few years after thinning, but the loss will

normally be made up in succeeding years. Alternate-row thinning is the most aggressive manner of opening up light to the orchard and does not take into account the yield potential of each tree and will undoubtedly remove some high yielding trees.

Selective thinning is probably the most efficient method of bringing light into the orchard but can be complicated, labor intensive, and requires knowledge of the orchard and individual trees. This method was developed by Dr. Bill Goff at Auburn University and has been used with success in many orchards. Trees are individually rated by making a visual assessment of a tree's profit potential. This is determined by yield, pest pressure, nut quality, and value.

Variety, yield, tree condition, foliage, rots, lightning strikes, crown gall, and limb-breakage are also involved in the rating. Ratings are subjective but still reflect profit potential. For example, a good canopy with a good off-season yielding Stuart tree may rate a 10, whereas a poor variety like Frotscher or Moore may rate low because of low nut quality. A Stuart with no crop in an off year would still rate low even though it's a good variety. Making an orchard map will help in keeping up with what trees you remove. This will allow you to get a better idea of when you have reached the 50/50 canopy/open floor objective.

When thinning an orchard, research indicates that it is best to do prior to an "on" year. Trees can also be moved with tree spades to other locations where land is available, rather than simply cutting the tree down.

Overcrowded trees become stressed as their roots receive insufficient sunlight, water, and nutrients to fill the nuts and store carbohydrate reserves for the following season. A variety of options exist for opening up light to an orchard. Often the

most suitable method will depend on the particular grower.

Treating Scales

Scale insects can cause die-back of pecan limbs and branches. Pecan may be a host of a number of scale species, but the most common is the obscure scale. Scale insects can often be overlooked. The texture and color of these insects are very similar to that of the pecan bark. The waxy covering of the female is approximately 1/16 to 1/8" in diameter, flat, dark, and circular in shape.

Infested trees will have less vigor and are more susceptible to wood-boring insects. Infested branches up to 3" in diameter may be killed. Larger branches can be weakened, which limits production. Inspect trees and limbs for sign of scale, which normally begin on the lower 1/3 of the tree and move from inside toward the terminals. Treat scale-infested trees with a 2% dormant oil until runoff and again 10-14 days later. Treat when temperatures are between 32 and 50 degrees. Do not treat for scales when trees are wet and do not combine with sulfur. High volumes of spray (200 GPA) are required for thorough coverage.

Nickel Sprays/Mouse Ear

The condition known as mouse ear has recently been shown by Dr. Bruce Wood (USDA SE Fruit & Nut Lab, Byron, GA) to be the result of a Nickel (Ni) deficiency in the pecan tree.

Ni is a micro-nutrient which, among other things, activates an enzyme called urease, which can affect nitrogen utilization by the tree. The most severe symptoms of Ni deficiency result from an accumulation of urea in the tip of the leaf that destroys tissues, causing a blunt leaf tip. This is the

condition referred to as “mouse ear”. Most mouse ear is tied to high soil content of Zn, Cu, Ca, Mg, which will inhibit uptake of Ni. Dr. Wood has shown that foliar applications of Ni provide a 100% cure of mouse ear.

A new product called Nickel Plus from NIPAN LLC, has recently been labeled for pecans. This is the first and currently the only nickel nutrient supplement for pecans.

There have been reports of growers using other materials, such as industrial compounds, etc. containing Ni for application to pecan trees, however it must be pointed out that such products are not labeled for pecans and can result in serious injury to the pecan tree. In addition, such materials may pose serious health issues for applicators.

Nickel Plus contains 6% Ni as nickel lignosulfonate and 10% nitrogen. The nickel lignosulfonate form of Ni is the only labeled form of nickel available for pecans.

The recommended application is 1-2 pts/a, with the first application made at the parachute stage of leaf development, followed by a 2nd application in mid-July. It normally takes 3-4 weeks for a growth response to occur with an application of Nickel Plus, therefore, if mouse ear symptoms are visible, apply 2 pts/a in early October before leaf fall as well, in order to ensure adequate Ni levels in the tree at budbreak.

Nickel Plus can be tank-mixed with all other nutrient and pest control products.

FURTHER EFFECTS OF STORM DAMAGE POSSIBLE

Damage from 2004's hurricane season may spill over into the 2005 crop and possibly even beyond. Estimates are that we lost 30-40% of last year's pecan crop to storms. Much of the damage to pecan orchards may still be found in trees yet standing in the orchards.

Strong winds caused not only loss of

nuts but loss of foliage as well.

Often, when trees are defoliated before late October they won't possess sufficient carbohydrate reserves to set fruit the following year. Additionally, much of this year's fruiting wood may have been lost in the storms, which could significantly reduce the 2005 crop.

Loss of foliage/fruit can disturb the tree's equilibrium and carb utilization. Recovery from such damage can be slow and may develop into a long-term problem. Five to ten years may be required to recover relatively stable fruit production and nut quality.

Further damage may have been done to the trees' vascular system. Trees whipped by wind, even without broken branches may exhibit reduced kernel filling and delayed shuck split due to damage to the vascular system (xylem, phloem) during hours of wind lashing. Trees cannot transport water and nutrients with efficiency after the vascular system is damaged. This leads to a reduction in photosynthesis which causes a tree to go into dormancy with reduced energy reserves and reduced crop set the following year

Clover Release / Poast Plus Application

Clover is present in many pecan orchards across the state and can provide enormous benefits for pecan trees.

As the clover root and stem decompose, stored N is released and available to the pecan tree. Second, clovers harbor large aphid densities which attract beneficial insects that feed on aphids and other insects. When the aphid densities on the legume decline or the legumes senesce, the beneficial insects associated with the legumes seek another food source such as aphids and other pests in the pecan canopy.

Therefore, proper selection and management of legumes as the orchard floor cover may reduce or eliminate the need for supplemental N fertilization and may reduce the number of pesticide applications necessary for pecan production.

Clover is actively growing in late winter, flowering in early spring, and normally seeding out in late spring to early summer. However, ryegrass growing in many orchards over the winter and early spring can compete with and limit the growth of clover.

In order to release clover from this limiting competition, Poast Plus can be applied during February at a rate of 16 oz./A. A cheaper option may be to apply 16 oz. Poast + 1 qt. of crop oil. Poast Plus will already have the crop oil included.

Clover also has high water requirements, so irrigation will be necessary to obtain all the benefits that clover has to offer. Irrigation will be particularly important before bud-break in order to insure adequate soil moisture levels for both pecans and clover.

In some cases, a good stand of clover can supplement a spring nitrogen application.

However, this should be based on leaf sample results. Clover mixes will provide more N to the orchard than a single variety of clover. A mix of crimson clover + white clover can provide 75-120 lbs N/acre. With proper management, this mixture can last up to 5 years before re-seeding is necessary.

Training Young Pecan Trees

Many consistently bearing and high yielding pecan varieties like Desirable and Cape Fear are susceptible to limb breakage, particularly during high winds, as a result of weak crotch angles. Proper training of

young trees beginning the 2nd year after transplant can help produce stronger crotch angles, making them less susceptible to breakage.

When a pecan transplant is planted, the leader will be cut and all but the top-most buds removed.

The 2nd year after transplanting, check the crotches of scaffold limbs for weak angles by pulling gently on the scaffold and looking for separation in the crotch, where the limb meets the trunk.



Ideally, you are trying to create limbs with angles >60°.

Begin approximately 18" above the highest scaffold limb and select a bud to leave on the opposite side of the tree from the previous scaffold limb. Cut a notch (pictured at left) no lower than 3" above the selected bud.

Do this at 18" spacings on all new growth and cut the leader just below the area where the buds begin to cluster tightly together, leaving a bud just below the cut.

Remove all other buds and/or branches on the new growth besides the ones selected.

Repeat the process again the 3rd year after transplant. Training young pecan trees in this manner will encourage a central leader and will make trees otherwise highly susceptible to breakage, more tolerant of high winds.

Early work by Dr. Darryl Sparks also indicates a high rate of tree growth using this method.



Young pecan tree before training.



Young pecan tree after training.

PECAN SCOUT SCHOOL

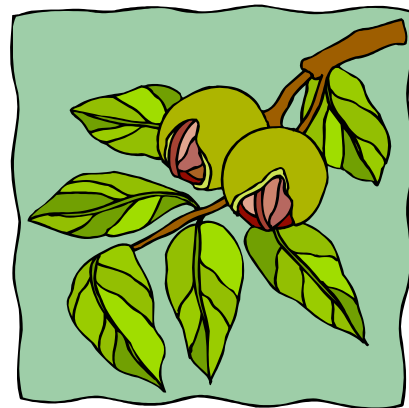
March 9, 2005

Rural Development Center

Tifton, GA

8 am-12 noon

Contact Debbie Rutland (229) 386-3424 for
more information



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