

# Ison's Nursery & Vineyard

## Planting Instructions

### Hardy Kiwi Fruit

#### Hardy Kiwi fruit



No minor fruit has received more attention in recent years than the kiwifruit. It has been planted as an experimental commercial crop in many southeastern states. There are two types of kiwifruit, the most common of which is the grocery store or commercial type (*Actindia chinensis* or *A. deliciosa*).

The fruit grows on a vigorous vine with large, nearly round leaves the size of a saucer. The fruit is the size of a hen's egg and is brown on the outside and covered with fuzz. The pulp is green and white with black seeds. The fruit has an acid flavor reminiscent of strawberries and watermelon. The vines are extremely cold-sensitive when young and may be damaged or killed to the ground by early fall freezes or late spring freezes. In midwinter, the vines are about as cold hardy as figs, withstanding temperatures to 10 degrees F.

The second type of kiwifruit is cold hardy enough to be grown in New England. Several species will grow in Georgia, including *Actindia arguta*, *A. kolomikta* and *A. polygama*, but there are few reports of heavy fruit production in Georgia. Most of the named varieties are derived from the *A. arguta* species. The fruit also grows on a vine, but these leaves are pointed and smaller than those of commercial kiwifruit. The fruit is usually green, smaller than commercial kiwifruit and fuzzless. Fruits may be eaten like seedless grapes.

Like muscadine and bunch grapes, kiwifruit produce flowers on current season's growth that sprouts from last year's buds. Male and female vines of commercial kiwifruit must be planted to produce fruit. Usually one male is planted for every eight female vines. There are a few varieties of self-fertile cold hardy kiwifruit, such as the 'Issai' variety, but male vines are usually needed for cold hardy kiwifruit production.

Kiwifruit require careful attention to water management. Irrigation is a must in growing kiwifruit to keep the vines from dying the first year. They are the most drought sensitive fruit grown in Georgia, but they are also one of the most sensitive to overwatering. Kiwifruit grow best on a soil such as a sandy loam or sandy clay loam with good internal drainage. Raised beds are suggested in areas with marginal soil drainage at any time of the year. Adjust soil pH to 6.0 to 6.5 before planting.

Fertilize kiwifruit with 4 ounces of 10-10-10 in March, May and July of the first year. Scatter the fertilizer over a circle 24 inches in diameter around the plant. Increase this amount to 8 ounces the second year and to 1 pound the third year if the plants are growing well. Increase to 2 pounds per application for plants 4 or more years old if they have filled the trellis. Increase the area of fertilizer distribution as the plant grows. Kiwifruit need a strong trellis and require a significant amount of pruning. They may be grown on an overhead arbor (pergola) or on a T-bar trellis (Figure 1).

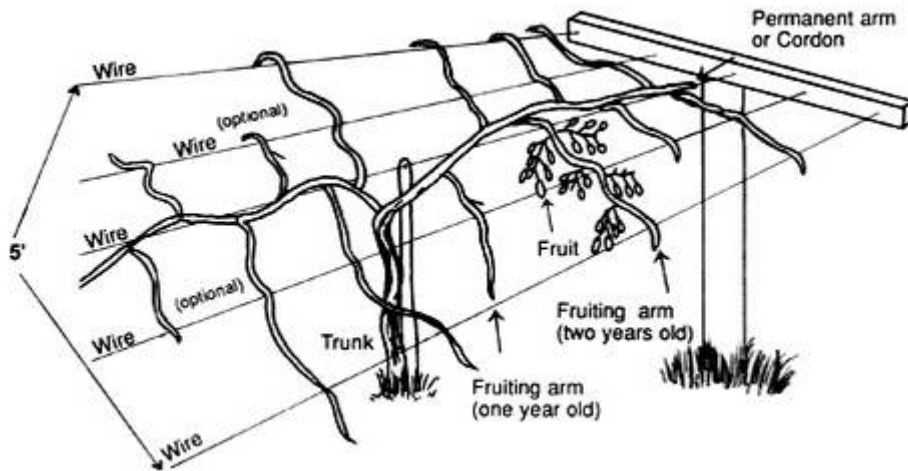


Figure 1: A Horizontal T-Bar Trellis for Kiwifruit

Set plants 8 to 15 feet apart depending on the amount of space available. The trellises should be 15 to 20 feet apart. In training a kiwifruit vine on a T-bar trellis, grow the vine as a single trunk to 6 inches below the wire. Then pinch out the top bud and train one shoot in each direction down the center wire to form a permanent arm or cordon. Kiwifruit have a habit of growing vigorously for several feet and then going into a twining phase. It is best to prune off this growth and allow the next stage of vigorous growth to occur down the wire. Wrap the vine loosely on the center wire as it grows and tie it to the wire with degradable string, tape or cloth.

Allow fruiting arms to develop on both sides every 10 to 14 inches for commercial kiwifruit and every 24 to 30 inches for cold hardy kiwifruit. Allow fruiting arms to grow over the edge of the trellis and, if desired, to trail nearly to the ground. In the following year, the buds on these fruiting arms emerge and fruit is borne on the current season's growth (Figure 2). The next winter, remove the old fruiting arm if a replacement arm has grown. If no replacement arm is available, save the old arm and cut off last year's side shoots at 6 to 8 inches. New kiwifruit growth is very subject to wind damage, so tie new canes to the trellis as soon as possible.

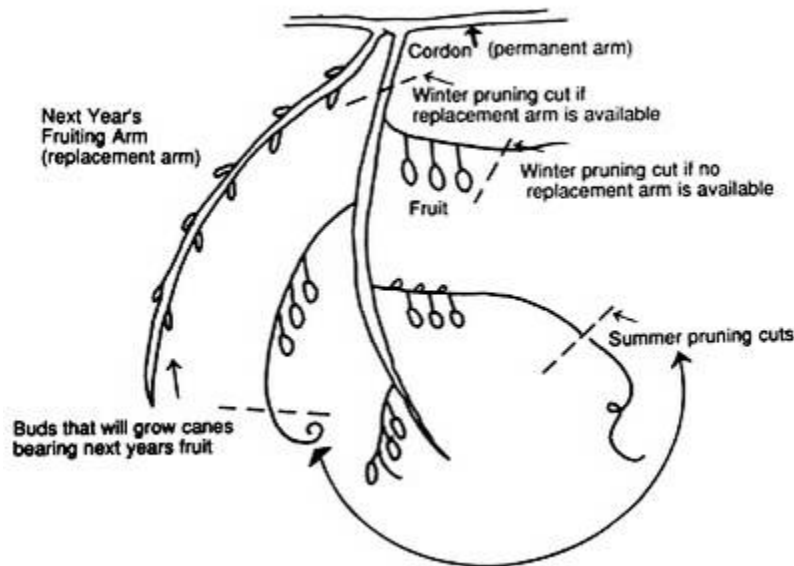


Figure 2: Pruning of Kiwi Fruiting Arms



## Ison's Nursery & Vineyard

### Pecan Tree Planting Instructions

#### Growing Pecans



#### Location and Spacing

It is important to plant pecan trees well away from structures, buildings and overhead power lines because of the ultimate size the trees will reach.

Yard and home orchard trees should be spaced at least 60 to 80 feet apart so they will not crowd as they reach maturity and so thinning will not be required. Crowding can cause misshaped trees and decreased production.

#### Planting Trees

Pecan trees are most commonly planted as bare-root transplants. Bare-root trees should be transplanted while dormant, between December and March — the earlier the better — to get good root establishment by spring. Adequate soil moisture is a necessity.

If possible, plant trees the day they are received from the nursery. If trees appear dry, soak them in water for several hours to refresh them prior to planting. The major causes of death and/or low vigor in young pecan trees are drying before planting and failing to supply adequate moisture for the first two years following transplanting.

**Bare-Root Trees** — Bare-root pecan trees have long taproots and require a deep planting hole. In most situations, the hole should be at least three feet deep and 12 to 24 inches wide so that all side roots can be properly positioned as the hole is refilled.

When centered in the hole, trees should be set at the same depth they stood in the nursery — usually indicated by a color change on the bark. It is critical that the tree not be planted too deeply because the roots may die from lack of oxygen, leading to tree stress or death. Additionally, trees set too deeply are often easily blown over in a storm when they reach 15 to 20 years of age.

Roots should be arranged in a natural position. Limited root trimming is permissible, but should be kept to a minimum. Twisted, broken or excessively long roots should be trimmed to fit in the hole. Every effort should be made to keep the taproot as intact as possible; however, excessively long taproots may be trimmed. **Do not place fertilizer in the hole.**

After the tree is set at the appropriate depth, begin filling the hole with water. When the hole is  $\frac{1}{2}$  to  $\frac{3}{4}$  full, push dirt into the hole while the water continues to run. When the water level approaches the top of the hole, turn the water off and fill the rest of the hole with dirt. This will prevent air pockets from developing around the roots. Level — do not pack — the soil around the tree. Very little soil settling should occur, but if it does, additional soil can be added to bring the soil level with the surface again. It is not necessary to create a berm or basin around the tree to hold water.

After planting, prune  $\frac{1}{2}$  to  $\frac{1}{3}$  of the top of the tree and remove any branches to compensate for the large percentage of roots lost when the tree was dug.

The trunk should be protected from cold damage, herbicides and wildlife for the first three years. This can be done by painting the trunk with white latex paint or by placing a 2½- to 3½-foot growing tube or sleeve over the tree. Four-inch corrugated drain pipe is often used for this purpose, and horticultural suppliers also sell pre-cut and ready-made sleeves. Split tubes or sleeves down the length of one side so they can be removed after two years.

Finally, mulch trees with a six-inch layer of pine straw, leaves or old sawdust. This helps hold moisture and limits competition from grass and weeds.

### Care of Young Trees

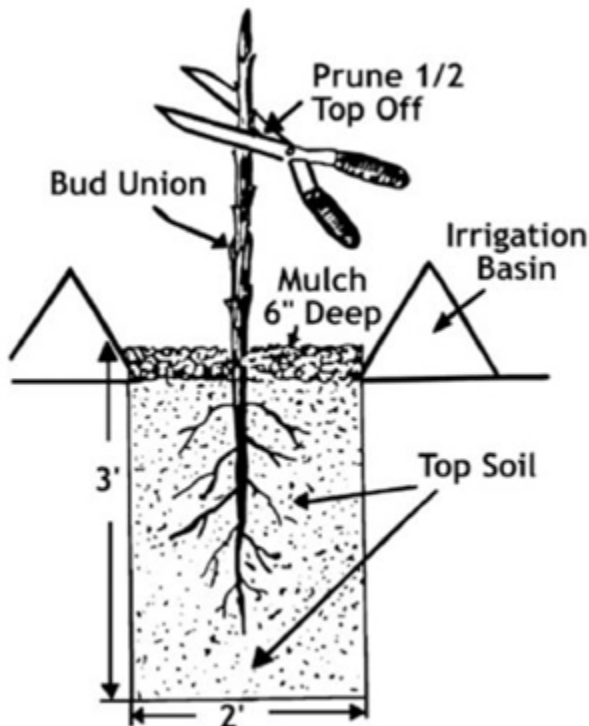


Figure 1. A properly-planted pecan tree.

**Watering** — To successfully grow pecan trees, it is important to adequately water them (10 to 15 gallons at regular weekly intervals, either by rainfall or irrigation) for the first two to three years. Most young pecan trees lose a large percentage of their roots during digging and transplanting, and their limited root system must be supplied regularly with water. **This is one management practice that must not be neglected.**

**Fertility and pH** — Do not place fertilizer in the planting hole as it may burn the roots, damaging or killing the tree. To accurately determine fertilizer and lime needs, take a soil sample prior to planting. If no soil test was made, use a general rate of about one pound of 5-10-15 fertilizer distributed in a 25-square-foot area around the tree. Make this application in June following planting. The following year, apply one pound of 10-10-10 fertilizer in March and again in June. **Do not place fertilizer within 12 inches of the trunk.**

Young trees should make between two and four feet of terminal growth each year. Where growth is less, apply one pound of ammonium nitrate fertilizer per inch of trunk diameter in June or July. As a general recommendation, apply one pound of zinc sulfate per tree for the first three years following planting. Spread the fertilizer and zinc sulfate in a circle around the tree outside of the planting hole.

### Care of Bearing Trees

**Fertilizing** — Fertilization is one of the most important practices for bearing trees. If the trees are to produce a good crop, terminal growth should be six inches each year. In the absence of a leaf analysis or soil test, broadcast four pounds of a complete fertilizer such as 10-10-10 for each inch of trunk diameter (measure 4½ feet above soil level), up to a maximum of 25 lbs. per tree. Ammonium nitrate may also be used at a rate of one lb. per inch of trunk diameter, up to a maximum of eight lbs. per tree. This fertilizer should be applied in mid- to late March.

Zinc nutrition is especially important in pecan production. Zinc needs are best determined by analyzing leaf samples taken in late July or early August. Mailing kits and instructions for taking samples are available from your county Extension office. The leaf analysis report will tell you how much zinc to apply.

In the absence of a leaf analysis, apply one pound of zinc sulfate to young trees and three to five pounds to large trees each year. A soil pH of 6.0 to 6.5 assures the availability of essential nutrients. If the pH is too low or too high, uptake and use of nutrients is impaired. Apply lime as suggested in

the soil test report to correct low soil pH.

**Water** — Water has more of an effect on pecan production than any other environmental factor, particularly where nut quality is concerned. Drought stress affects nut size and filling, as well as leaf and shoot growth. Adequate soil moisture is important at bud break for stimulating strong, vigorous growth; from bloom through shell hardening for nut size; and during the nut filling stage for optimizing kernel percentage. If trees do not receive adequate soil moisture levels late in the season, shuck split and energy reserves are affected.

The nut sizing period normally occurs from May 1 through August 15. Even though this is not a critical water-use stage for pecan, serious drought conditions during this period can affect yield. The most common visible effects of an extended drought during this period are excessive nut drop and “shell hardening” on small nuts. Lack of sufficient water during the nut sizing period also causes small nuts and may lead to water stage fruit split, which results from a sudden influx of water during the nut filling stage in some varieties.

The nut filling stage occurs from about August 15 to the first week of October, depending on variety. The most critical period for water use is during the first two weeks of September. Reports from other areas of the country indicate that as much as 350 gallons of water per day can be required by each tree during the nut filling stage. Lack of sufficient water during the nut filling stage will lead to poorly-filled nuts, poor nut quality and increased alternate bearing.

**Insect Control** — Although backyard or home orchard pecan trees seldom develop serious insect problems, treating the trees if pests do begin to build can be difficult. Whole-tree spraying is not an option. However, some of the most likely pests can be controlled effectively with insecticides that are available without a pesticide license, using application techniques that are safe to use around children and pets and are compatible with the typical home environment. Follow all label directions to minimize risks.

**Livestock Control** — If trees are planted in pasture areas, they will need to be fenced in to prevent animals from feeding on them.

### **Harvesting Pecans**

Harvesting the nuts as soon as they mature is essential for preventing nut loss due to predation and deterioration, and ensures better quality. One of the quickest ways to lose nut quality is to let them lay on wet ground. Harvest early and store nuts in a clean, dry place.

Courtesy: The University of Georgia Cooperative Extension

