

Planting and Establishment of Apple Trees

A Quick Reference Guide - 2018

Watauga County Cooperative Extension Service

NC STATE EXTENSION
Master Gardener | Watauga County

Apple trees require care and attention to grow and produce quality fruit. These guidelines, which favor cultural practices over pesticide use, will help grow healthy and productive trees.

WHEN TO PLANT

- March, April and May are the best times to plant the trees, while they are still dormant (without leaves).
- Plant only containerized trees after they break dormancy in May. Fall planting can be done in areas below 2500 feet in elevation.

TREE SIZE AND SPACING

All our trees are grafted on an MM111 rootstock which:

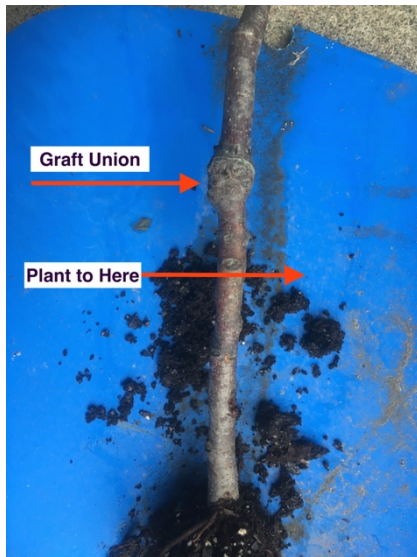
- Withstands wet spells and drought conditions
- Are more disease resistant
- Produce fruit in 4-6 years (3-4 years sooner than standard trees).
- Produce a tree 15-20 ft. tall, and should be planted in an area 15ft. X 15 ft., but 20ft. X 20ft. would be optimum.

SITE SELECTION

- Select an area where the tree will receive direct sunlight for most of the day, get good air circulation and have well-drained soil.
- Gently sloping hillsides facing east or northeast are optimum. Avoid low lying areas that are frost pockets.

PLANTING TREES

- 3-4 weeks before your tree arrives, take a soil sample. You can obtain the boxes and forms, and detailed instructions from the Watauga Extension Office. The samples must be mailed to the N.C. Dept. of Agriculture in Raleigh. You only pay for shipping between April 2nd and November 30th, after then there is a \$4 per sample charge plus shipping. Your report will recommend what to amend the soil with and how much to use.
- Prepare the site by digging a hole 18 in. wide and 12-14 in. deep, or till the area to that depth and incorporate lime and phosphorus fertilizer according to the results of the test. It is important to put the phosphorus in the hole rather than on top of the soil.
- **Note:** Once this is done you do not need to fertilize when planting the tree.
- Plant your fruit trees as soon as possible. If you cannot plant them immediately, then plant in a container and put in a shady location, protected from the wind, and keep the soil moist.
- If you haven't already prepared the soil, dig a hole about 12-14 in. deep and 18 in. wide. Break up the removed soil so that it is loose and free of clods.
- If no pre-planting fertilization has been done, include 2/3 cups of lime and 2/3 cups of phosphorus (0-45-0) or 1 1/3 cups bone meal into the hole. Lightly stir them together in the bottom. Incorporate the same amount of lime and phosphorus or bone meal with the loose dirt you'll use to fill in the hole.



- Hold the tree in the hole so the graft union is 1-2 in. above the ground. Pack the dirt firmly with your hands or feet making the soil surface “level”. After planting, evenly spread 3 cups of lime and of phosphorus or bone meal within an 8 ft. circle around the tree.
- **Never bury the graft union and make sure it remains 1-2 in. above the ground. Do not add a fertilizer containing nitrogen at the time of planting**
- Water the area thoroughly after planting to make sure the roots are very moist and free of air pockets. If it doesn't rain an inch per week, then supplement watering through the first summer, paying close attention during the 1st 30 days.
- Make sure the metal tag stays loosely attached or attach it to a separate stake.

TREE SUPPORT

- Trees need support the first couple of years. One option is a single support stake of metal or wood, about 4-6 in. from the tree, 2-3 ft above ground. Tie a nonabrasive rope around both, tight enough to provide good support but not choking the tree. Allowing for some movement will strengthen the tree's base. Keep an eye on the rope to make sure the tree is not growing around it, and remove after 2-3 years.
- Another option is to tie 2 ropes to the stakes that support your deer protection. (See photo)

MULCHING

- Mulching conserves soil moisture and serves as a weed control. During the first 5 years, place 2-3 in. of leaves, pine needles, mixed bark, etc. in a 4-6 ft. radius around the tree.
- Keep mulch 6 in. from the trunk to avoid voles and other pests from feeding on the trunk and roots. Remember to remove any leaves at the base of the tree in the fall after leaf season.

PROTECTION FROM ANIMALS

Apple trees can be damaged by deer and rabbits that eat the young leaves, limbs, and bark.



- For **rabbit** damage: right after planting make a hardware cloth cylinder 2 ft. high and 8 in. wide to encircle the trunk. Black corrugated pipe isn't recommended because it serves as a habitat for rodents.
- For **deer**: one can place a wire cage or hoop around each tree. These must be at least 4 ft. tall and about 6 ft. across. Concrete reinforcement wire is one of the least expensive and most effective choices. Welded wire is also effective but will require additional stakes. Another option: build a fence around the entire orchard.

- Repellants are an option but zero damage may be impossible. They last about a month and you need to rotate between different types. Dryer sheets can be an option.

PAINTING THE TREE

During the first 10 years, warm spells in winter cause the sap to rise in young trees. Warm spells followed by a sudden drop in temperature can expand the sap and split the bark causing severe damage. This is called **Southwest Injury** because the split occurs on the south/southwest side of the tree.

Prevention is the only solution. Apply a thick coat of light colored exterior latex paint to the trunk from the soil level up 3-4 ft. every year or two. (See also borer section)

PRUNING (First year)

The fruit tree you receive may be a single stem whip. Cut the main stem to a height about 10-14 in. higher than you want your first scaffold branches (3-5 ft.).

Training/Pruning in the first few years will make a great difference in the future of your tree's health and fruit production. Refer to the Cooperative Extension "Fruit Tree Pruning" <https://content.ces.ncsu.edu/training-and-pruning-fruit-trees-in-north-carolina>

FERTILIZING YOUNG TREES

- If you fertilized the planting hole, according to the soil test recommendation or the recommendations above, then continue fertilizing your tree as follows:
- 1st year: 6 weeks after planting make one application of 1 Tbsp. of 46-0-0 (a nitrogen only fertilizer) or 1/4 cup of blood meal in a 12 inch circle from the tree trunk.
- 2nd year, apply 1 Tbsp. of 46-0-0 or 1/4 cup blood meal just outside the drip line of your tree in March, May and July.
- 3rd year, apply 2 Tbsp. of 46-0-0 or 1/2 cup of blood meal in March, May and July.
- Increase the amount each year by 1 Tbsp. for 46-0-0 or 1/4 cup of blood meal, so on the 7th year you'll be applying 6 Tbsp. of 46-0-0 oz. or 1 1/2 cup of blood meal
- During the first 7 years we fertilize for tree growth, not fruit. After that, the focus is growing fruit, which requires less nitrogen. Take another soil test and follow recommendations.

INSECT MANAGEMENT

In our area, home orchards are concerned with basically 4 insects and 2 diseases.

The **INSECTS** can be divided into two groups:

- Borers and Scales - put the tree at risk.
- The Plum Curculio and Apple Maggot - put the fruit at risk.



Borer entry point with frass

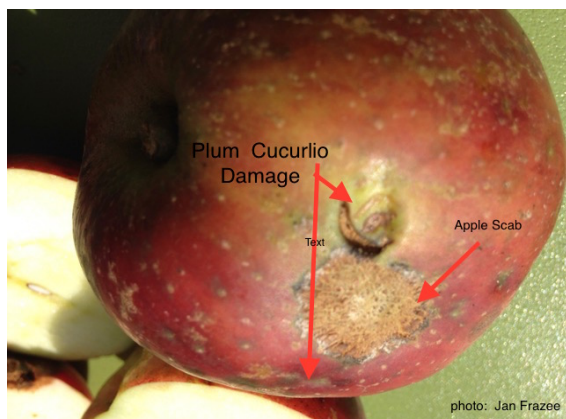


Borer exit hole

BORERS – Dogwood Borer can cause severe damage and often death to a tree during the first 10 years. Borers cannot be scouted, but they can be prevented.

- An organic approach is to brush a heavy coat of light colored exterior latex paint. Kaolin clay and/or diatomaceous earth can be added to it. Apply this paste from the soil up the trunk 3-4 ft. Make a couple of applications the first year and then reapply each spring for 10 years.
- There is a product labeled for home orchards called Permethrin that provides very good borer protection. It will require monthly applications on the trunk of the tree, from May 15th to July 30th. Follow label rates and guidelines. Thorough coverage from the soil surface up the trunk 3-4 ft is important, but especially the burr knots near the graft union, which attract borers.

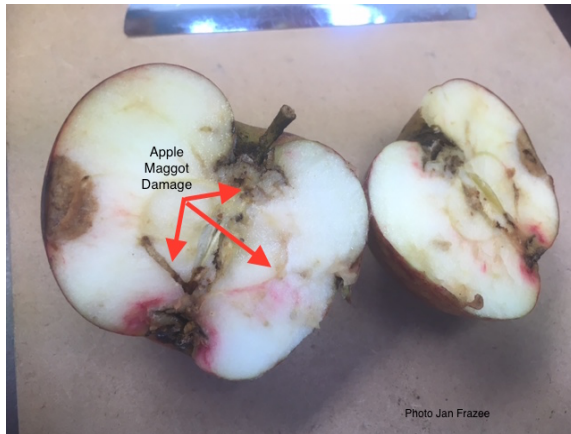
PLUM CURCULIO is a type of weevil that inserts its eggs into young apples during the 3 weeks following “petal fall” when temperatures are around 70°F.



Raking the leaf litter and disposing of it prevents it from overwintering around the tree.

Another option is one treatment of Sevin made 2-3 weeks following complete petal fall. Apply it on a sunny day as it will cause some fruit thinning, but using it on a cloudy day can encourage too much thinning. Follow label rates and all safety instructions.

APPLE MAGGOT larva marbles the fruit with fine trails.



This is the classic wormy apple that drops off the tree early.

July 1st through end of August is the time to monitor and trap them. Apple Maggot monitoring traps will help trap adults and achieve some level of control. However, sometimes populations are high enough that spraying may be necessary. Sevin can provide effective control, refer to the Plum Curculio treatments above.

FIRE BLIGHT is a difficult bacterial disease to prevent. It appears during the first weeks of growth, so watch for rapid wilting and a dark color or burned look. Infection often follows spring storms during the bloom period. Early detection and pruning of infected shoots is essential.

APPLE SCAB is a common disease caused by abundant rainfall and heavy humidity. Some apple varieties are resistant, while others are prone to it. The following sanitation practices may prevent the need to spray fungicides:

- Provide good air circulation through proper pruning and site selection.
- Rake and dispose of leaves and rotten fruit.
- Mow and shred the leaves to help decomposition and destroy apple scab.

If you have any questions or need more information regarding any of the above points, call the Cooperative Extension Office at 264-3061.

Recommendations for the use of agriculture chemicals are included as a convenience to the reader. The use of brand names and any mention or listing of commercial products or services does not imply endorsements by North Carolina State University nor discrimination against similar products or services not mentioned. Individuals who use agricultural chemicals are responsible for ensuring that the intended use complies with current regulations and follows the product label.

NOTES: