



## Royal Oak Farm Orchard Fruit Tree Planting Instructions

**READ BEFORE PLANTING! If you read it, they will grow!**

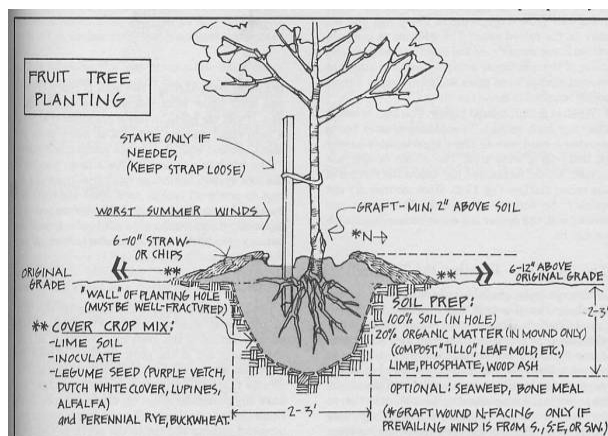


**Seasonal Information.** Apple trees are quite tolerant, withstanding most conditions, including wind and cold. It is recommended that bare root apple trees be planted in early spring or late fall. Container trees can be planted in the spring through fall.

**Location.** Full sunlight and good air circulation are the most important concerns to think about when selecting your planting location. While apple trees can tolerate a wide range of soil types, they will not thrive in areas with poor drainage or high acid levels. Be sure to space your trees according to the size rootstock your tree has.

**Pollination.** Apple trees benefit greatly from cross-pollination, as they are not self-fertile trees. If you do not have a flowering crab apple tree within 50 feet of your apple tree location, you will need to plant at least one other variety that blooms at the same time as your apple tree nearby to get proper pollination.

**Planting Instructions. Potted Tree:** Begin by digging your planting hole about 6” wider than the container of your tree. If the tree is in a root pouch, cut the container up from the bottom towards the top about 10” and spaced about every 6” apart. If the roots have filled the container or are winding around, use your fingers to gently pull the roots apart a bit through the slices, or poke into the root ball with a pointed instrument and wiggle about a bit to loosen the roots and compacted soil. Be sure to leave the soil intact around the roots. Then fill in the hole with the loose topsoil being sure to keep the soil level the same as the planting mix in the pouch. **Bare Root Tree:** Set bare root trees on top of a small mound of soil in the middle of the hole. Spread the roots out evenly. The roots should be directed out and downward when you plant. The very top of the roots (crown of the plant) should be at or just below the soil surface when you are done planting. Keep the graft union 2” - 4” above the soil line. Fill the hole in with soil and pack firmly. **Be sure to water the tree, as this will permit the roots to make good contact with the soil right away. Add a tree stake to maintain the proper growing angle the tree.**



**Watering.** Your apple tree will need to be watered regularly to make certain that the root system becomes well established. The soil surrounding your tree should be moist, but never saturated. Light green leaves can be a sign of over watering, while drooping leaves can be a sign of both over or under watering.

**Fertilization.** It is not necessary to fertilize your tree when planting. For at least the first year, their nutrient needs will be minimal. During this time they are establishing their root systems, and fertilizer (especially nitrogen which stimulates stems and leaves) will not be appropriate. Once established, we recommend Organic Approach Axis 5-2-4 available at <https://www.organicapproach.com/p-3633-axis-5-2-4premium-biological-all-purpose-organic-fertilizer-with-biostimulants.aspx?CatID=72> and Neptune’s Harvest Fish & Seaweed Blend plus Liquid Seaweed available at Amazon or Walmart or direct from Neptune’s Harvest at <https://www.neptunesharvest.com/>.



**Weed Control.** Any weeds that are present around the area of your tree should be removed immediately. You can insulate the tree with 3-4 inches of mulch, being sure to keep mulch away from the trunk by 6” all around.

**Pests & Disease.** The best defense is a healthy tree. Good soil, proper feeding and adequate water are vital to its prosperity. Consult Royal Oak Farm Orchard’s Apple Tree Guide, Home Orchard Blog or web site for proper pest and disease control for your tree.

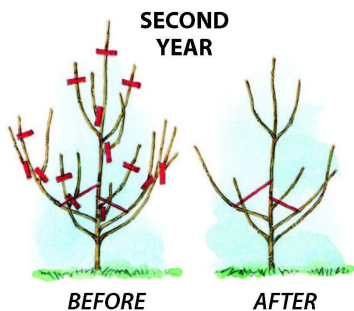
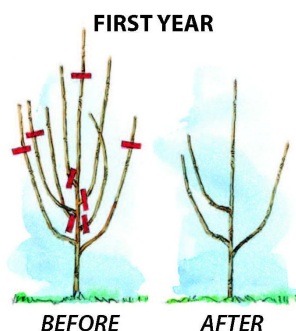
**Pruning.** Your apple tree will need very little pruning during its first year. In year two you can consult Royal Oak Farm Orchard’s Apple Tree Guide or web site for proper pruning techniques. Mature apple trees will require annual pruning.

## Establishing a central leader apple tree

The standard central leader tree training system is ideal for medium density plantings of semi-dwarf apples. This system establishes two or three tiers of permanent scaffolds rather than the temporary scaffolds utilized in the French axe or slender spindle tree.

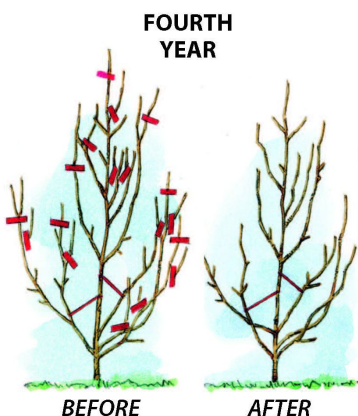
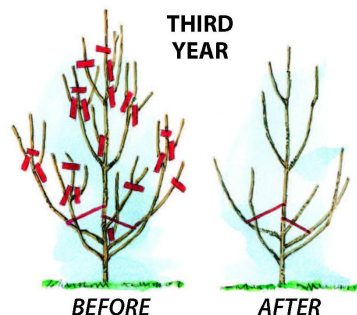
### To establish central leader trees:

**FIRST YEAR:** Head at planting time to 30" to encourage development of the first tier of scaffold branches at a height of 20-30". If wide angle branches are available at planting time, select four and tip lightly. Remove the rest. If all existing branches are undesirable, remove them, leaving 1/4" stub, so as not to damage latent buds at base of branch. In early summer, widen crotch angles of potential scaffolds by spreading with clothespins when shoots are 3-4" long.



**SECOND YEAR:** Complete first tier as stated for first year tree. Remove all unwanted, poorly positioned or narrow angled branches. If central leader has obtained enough height, tip 36-42" above first tier to encourage second tier of 4 wide angled branches at 30-36" above first tier. Tip central leader and scaffolds to stiffen and encourage branching. Limb spreading to 45° off vertical should begin at this point.

**THIRD YEAR:** Remove all unwanted branches from central leader and treat established scaffolds similarly to the leader (single up forks, remove uprights, and tip) to develop more horizontal wood. If possible, tip to promote third tier 30-36" above second tier. Continue spreading as necessary.

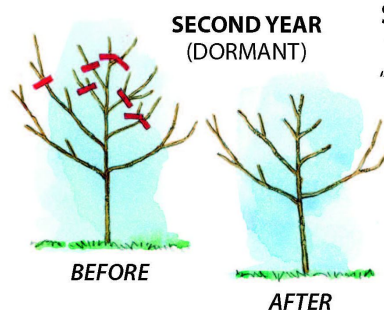
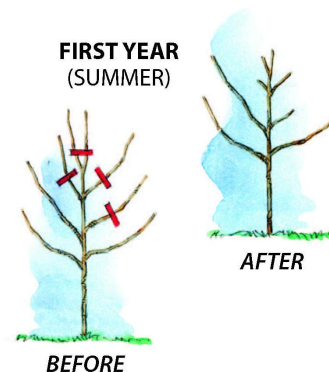


**FOURTH YEAR:** Complete second and third tier as stated for 3 year tree if necessary. Central leader will eventually be headed severely, probably into 2 year wood, to bring it into balance with the rest of the tree. As trees fill space allotted and approach bearing age, make fewer heading cuts and more thinning cuts. Shorten limbs reaching into drive isles or other trees by thinning back to less vigorous side branches. Maintain central leader and pyramidal form on into maturity. Never allow an upper tier to shade out or outgrow lower limbs.

## Establishing an open vase peach tree

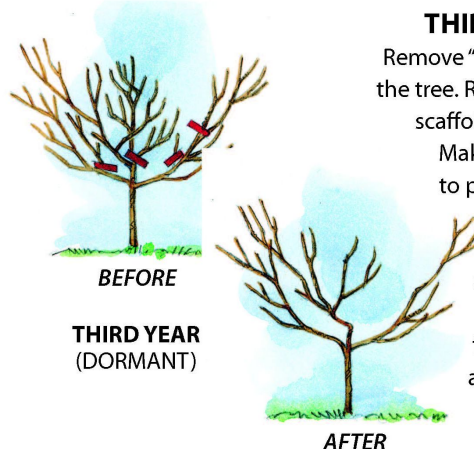
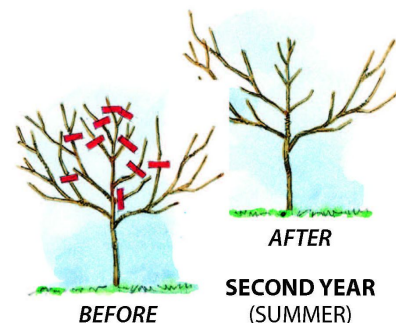
Open center or vase is the most common method of pruning peach and nectarine trees. Peaches will not produce fruit buds in shade, so a very open pruning system is required for best light and air circulation. In addition, most peach varieties are naturally spreading in their growth habit.

**FIRST YEAR (SUMMER):** Head at planting time to 30" and "whip" the tree by removing all branches to a 1/4" stub, so as not to damage latent buds. Early in the first growing season, strip lower shoots, leaving the top six to eight shoots. The top three to four shoots, near heading cut, will be upright and should be summer tipped by removing half the growth. This will encourage lower branches to form wider angles.



**SECOND YEAR (DORMANT):** Tip upper branches again to retain "bush" in top center of the tree and promote spreading of scaffolds. Choose two or three scaffolds avoiding branches headed into the southwest. Only tip scaffolds which are too dominant.

**SECOND YEAR (SUMMER):** Tip again on "bush" to promote vigor in selected scaffold limbs. Severely tip any upright growth which initiates within 15" of the trunk to promote vigorous extension of the scaffolds. Summer pruning during the first and second years may be required more than once.



**THIRD YEAR (DORMANT):** Remove "bush" from upper center of the tree. Remove uprights from main scaffold and "single up" any forks. Make heading cuts as required to prevent dominant scaffolds. Continue thinning and remove vigorous uprights as tree matures. Encourage renewal of first year's fruiting wood by tipping to an outward growing lateral.



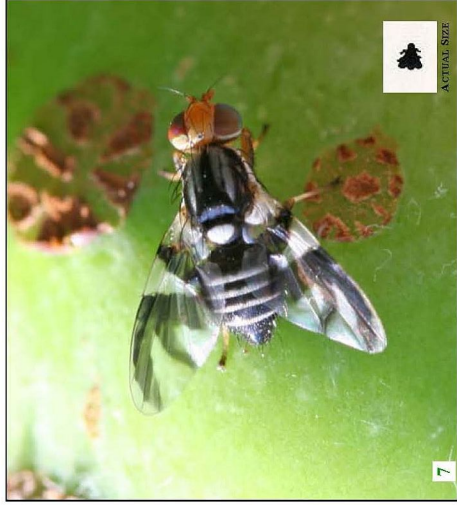
# MANAGING PESTS IN OUR ORCHARD

## MEET THE ENEMY



### Codling Moth

Codling moths have two life cycles a year beginning at petal fall. Female moths lay eggs on or near developing apples. After hatching, larvae continue their development as they tunnel into the center of the apple. As the larvae feed, "frass", or fecal matter, is pushed out and may accumulate around the entry hole. The larval entrance holes, called stings, allow bacteria and fungi to enter the apple, resulting in fruit rot during storage.



### Apple Maggot

Apple maggot flies emerge from June to September. The female fly deposits eggs just under the skin of the apple, causing the fruit to take on a dimpled, lumpy appearance. Maggots hatching from these eggs feed on the fruit, leaving brown trails through the flesh of the apple. As the maggots mature, the tunnels begin to decay, causing the apple to soften and rot. If left uncontrolled, the apple maggot will build up to large populations, devastating an orchard.



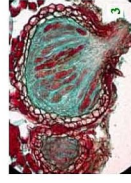
### Plum Curculio

Adult plum curculio beetles, pictured above, emerge in the spring, around apple bloom, to feed on apple buds, flowers, leaves and young fruit. Female beetles cut holes in the young fruit and deposit one egg in each cavity. These sites are easily identified by their crescent shaped cuts. Unlike codling moth, the larvae of plum curculio rarely cause damage to the fruit. The fruit is primarily damaged superficially by the egg-laying and feeding by the adults.



### Apple Scab

Apple scab is the most common and economically damaging apple disease in the Midwest. In the spring, apple scab fungal spores germinate in water on the surface of apple fruits and leaves. Brown to olive green spots appear at the site of infection. If left untreated, these 'scabs' will mature, produce more spores and likely re-infect the tree. With enough moisture, the cycle will continue through the growing season, with the potential to destroy an entire crop.





## Fruit Development Stages

All tree and small fruit have several distinct growth stages as fruit matures. Identifying growth stages is important because recommendations for pesticide applications and cultivation practices are frequently linked to specific growth stages. The next few pages show the common growth stages for the fruit crops described in this publication.



### TREE FRUIT

### Apple



Dormant



Silver tip



Green tip



Half-inch green



Tight cluster



Pink



Bloom



Petal fall



Fruit set

# Apple Spray Guide



**Table 7. Apple Spray Guide**

**\*Spray all products in early evening after honey bees have stopped flying**

Time to Spray	Pest(s)	Pesticide	Remarks
Delayed dormant (when leaf tips start to protrude from buds)	scales, aphids, mites	superior oil	If these pests were not a problem last year, omit this spray. <b>Bonide All Seasons Horticultural Spray Oil</b>
	fire blight	copper	Cease application before half-inch green or fruit will russet. When using oil, captan within two weeks of the oil application. <b>Bonide Copper Fungicide</b>
Half-inch green (1/2 inch of green tissue has grown)	apple scab	captan	<b>Hi-Yield Captan or Mancozeb</b>
	both insects and disease	Bt.	Insects are not usually a problem before petal fall. MPFS is designed to control insect and disease problems. Use only when both are present. Pesticides should only be used when needed. <b>Bonide Thuricide (Bt.K) if needed.</b>
Tight to open cluster (when fruit buds are visible)	apple scab	captan and/or myclobutanil <sup>2</sup>	Myclobutanil ( <b>Immunox</b> <sup>®</sup> ) is best for early season scab control and supplies cedar apple rust control. Captan alone is not effective against rust. Hi-Yield Captan
	both insects and disease	Bt.	Use only when when needed. <b>Bonide Thuricide (Bt.K.) only if needed.</b>
Pink (when blooms are showing pink but not yet open)	apple scab	captan and/or myclobutanil <sup>2</sup>	Myclobutanil ( <b>Immunox</b> <sup>®</sup> ) is preferred material if cedar rust or powdery mildew have been a problem. <b>Hi-Yield Captan can be mixed with Immunox.</b>
	both insects and disease	MPFS <sup>1</sup>	MPFS is designed to control insect and disease problems. Use when both are present. Pesticides should only be used when needed. <b>Do not use an MPFS during pink or bloom</b>
Bloom (when 50% of blossoms are open)	apple scab	captan or myclobutanil <sup>2</sup>	See Pink above.
	fire blight	streptomycin	If fire blight has been a problem, use streptomycin according to label directions (see Purdue Extension publication BP-30-W, <i>Fruit Diseases: Fire Blight on Fruit Trees in the Home Orchard</i> ). <b>Fertilome Fire Blight Spray</b>
Petal fall (when 75% of petals have fallen)	plum curculio	spinosad or MPFS	Pesticide application at this time is very important for plum curculio control. To prevent fruit drop, do not use carbaryl (Sevin <sup>®</sup> ) within 30 days after full bloom. Picking up and disposing of fallen fruit will reduce problems with plum curculio, other insects, and many plant diseases. <b>Capt. Jack's Dead Bug Brew or Bonide Fruit Tree &amp; Plant Guard</b>
	apple scab, sooty blotch, fly speck, rust	captan or thiophanate-methyl or myclobutanil <sup>2</sup>	Myclobutanil ( <b>Immunox</b> <sup>®</sup> ) does not protect against fly speck or sooty blotch, but is very good against rust. Thiophanate-methyl is sold under several trade names, including Thiomyl Systemic Fungicide 3336. <b>Hi-Yield Captan can be mixed with Immunox.</b>
	fire blight	streptomycin	If fire blight has been a problem, use streptomycin according to label directions. <b>Fertilome Fire Blight Spray</b>
	both insects and disease	MPFS <sup>1</sup>	MPFS is designed to control insect and disease problems. Use when both are present. Pesticides should only be used when needed. <b>Bonide Fruit Tree &amp; Plant Guard</b>
First cover (7-10 days after petal fall)	plum curculio, codling moth	captan plus spinosad <sup>3</sup> and/or kaolin clay	Important spray for codling moth control during first cover. To prevent fruit drop, do not use carbaryl (Sevin <sup>®</sup> ) within 30 days after full bloom. <b>Hi-Yield Captan/Capt. Jack's Dead Bug Brew/Surround</b>
	apple scab, sooty blotch, fly speck	captan plus myclobutanil <sup>2</sup>	Will provide the best management for sooty blotch/fly speck. Myclobutanil ( <b>Immunox</b> <sup>®</sup> ) does not protect against fly speck or sooty blotch. <b>Hi-Yield Captan/Immunox</b>
	both insects and disease	MPFS <sup>1</sup>	MPFS is designed to control insect and disease problems. Use when both are present. Pesticides should only be used when needed. <b>Bonide Fruit Tree &amp; Plant Guard</b>
Second cover (7-10 days after first cover)	plum curculio, codling moth, apple maggot	same as first cover spray	Apple maggot flies begin to emerge about mid-June. Use red sticky balls to tell when maggot flies are present. <b>Capt. Jacks Dead Bug Brew/Hi-Yield Captan</b>
	apple scab, sooty blotch, fly speck	same as first cover spray	
	both insects and disease	same as first cover spray	
Additional cover sprays (apply at two week intervals until harvest restriction date)	codling moth, apple maggot, Japanese beetle	spinosad <sup>3</sup>	Read container labels for number of days between final spray and harvest. carbaryl (Sevin <sup>®</sup> ) provides Japanese beetle control. <b>Capt. Jacks Dead Bug Brew if needed.</b>
	apple scab, fruit rots, sooty blotch, fly speck	captan	Read container labels for number of days between final spray and harvest.
	both insects and disease	MPFS <sup>1</sup>	MPFS is designed to control insect and disease problems. Use when both are present. Pesticides should only be used when needed. <b>Bonide Fruit Tree &amp; Plant Guard if needed.</b>
End of season	apple scab, sooty blotch, fly speck, rots	none	Rake and dispose of infected leaves or mulch fallen leaves with a lawnmower. Apply a solution of 5% urea to fallen leaves to hasten decomposition, which reduces overwintering fungi. Pick up and dispose of fallen fruit.

<sup>1</sup>MPFS = multipurpose fruit spray. It is best not to use an MPFS unless it is a last resort.

<sup>2</sup>Do not apply myclobutanil (**Immunox**<sup>®</sup>) more than 10 times per season.

<sup>3</sup>Observe limits on the amount of spinosad and acetamiprid that can be applied per season.

# CONVENTIONAL (C) AND NATURAL (N) SPRAY PRODUCT OPTIONS

**Bonide All Seasons Horticultural Spray Oil** - A superior type paraffinic oil that may be used as a growing season spray, dormant spray (no leaves) or delayed dormant (green tip) spray to control overwintering eggs of red spiders, scale insects, aphids, bud moths, leaf roller, red bug, codling moth, blister mites, galls, whitefly, mealy bugs and other insects and diseases. Highly recommended for use on fruit trees, shade trees, shrubs, ornamentals, roses and vegetables. Safe and pleasant to use for Organic Gardening.. (C) (N)

**Bonide Copper Fungicide RTU** - Copper Octanoate for controlling early and late blight, apple scab, leaf spots, downy mildew, anthracnose and certain other fungal diseases on various vegetables, flowers, ornamentals and fruits. Won't burn plants and approved for organic gardening. (C) (N)

**Bonide Captan** - Multipurpose fungicide for ornamentals and fruits. Controls damping\_off, powdery mildew, botrytis blossom blight, anthracnose, rust, brown rots, early blight and late blight on various plants. Unlike many other fungicides, Captan has never indicated a disease resistance problem! (C)

**Spectracide Immunox** - Multipurpose fungicide for ornamentals and fruits. Controls scab, black spot, blight, crown rot, leaf spot, powdery mildew, rust and scab. It provides systemic protection to leaf tissue and last up to two weeks. It also has a reach back of up to 96 hours and, once dry, cannot be washed off for several weeks. (C)

**Serenade** - This broad spectrum, preventative bio fungicide is recommended for the control or suppression of black spot, powdery mildew, rust, gray mold, late blight and scab. It may be used on roses, vegetables, fruits, nuts, flowers, houseplants, foliage, trees, shrubs located in residential landscapes and may be applied any time of day, in full sun and high temperatures, without stressing or burning foliage. It can be applied up to and including the day of harvest and can be used on the day of harvest and on all fruits and vegetables used in canning. For Organic Gardening. (N)

**Bonide Captain Jack's Deadbug Brew RTU** - Captain Jack's Deadbug Brew® contains Spinosad (spin\_OH\_sid), a product first isolated from a naturally occurring soil dwelling bacterium that was collected on a Caribbean island from an abandoned rum distillery. Deadbug Brew® kills bagworms, borers, beetles, caterpillars, codling moth, gypsy moth, loopers, leaf miners, spider mites, tent caterpillars, thrips and more! Use on fruits, vegetables, berries, citrus, grapes, nuts and ornamentals and approved for organic gardening. (C) (N)

**Bonide Citrus, Fruit & Nut Orchard Spray RTS** - This all natural, all in one, insect and disease control concentrate is perfect for those customers that prefer a natural choice. Great for citrus, fruit and nuts, and also vegetables, ornamentals, houseplants and lawns. Truly effective and all purpose. Use as little as 2 1/2 oz./gal. Available in convenient, no\_mix ready\_to\_spray bottles for easy application to trees and larger areas. Contains sulfur plus pyrethrin, natural organic compounds normally derived from Chrysanthemum flowers that have potent insecticidal activity. (N)

**Bonide Fruit Tree & Plant Guard**-This is a multi-purpose fruit spray that is a complete concentrate that contains insecticide, fungicide, miticide, aphicide, and scalicide. Designed specifically to protect home orchards from the ravages of listed insects and diseases. The active ingredients are Lambda-cyhalothrin: 0.5%, Pyraclostrobin: 3.06%, and Boscalid: 5.622%. When using a multi-purpose spray, no other insecticides need be used, but other fungicides can be rotated with the MPFS. (C)

**Fertilome Fire Blight Spray** - Ferti-lome Fire Blight Spray is the solution to fire blight problems. It contains streptomycin sulfate that is effective in treating various bacterial infections. It is formulated to target and control fire blight on trees like apples and pears. This concentrated formula helps in preventing infections in trees before they have a chance in forming. (N)

**CONVENTIONAL PACKAGE PRODUCTS - (C)**

**NATURAL PACKAGE PRODUCTS - (N)**