



QUICK PLANTING GUIDE

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Grandpa's Planting, Pruning and Training Guide

Follow these tips when planting Grandpa's Orchard® Premium Brand Fruit Trees.

WHEN YOU RECEIVE YOUR ORDER: As soon as you receive your order, please check it against the shipping list to make sure everything you ordered is there. Inspect the trees for damage. Make sure the roots are still damp. Let us know of any damage or quality problems you may see. Do not let the roots dry out after delivery or when planting them. Try to plant as soon as possible.

If you cannot plant right away, you can usually hold your order for a few days by re-wrapping the roots and re-closing the box. Re-dampen the moss if required. Store in a COOL and DARK place like a basement or cellar. **DO NOT STORE WITH ANY FRUITS OR VEGETABLES AS RIPENING FRUIT GIVES OFF ETHYLENE GAS, A POTENT GROWTH REGULATOR WHICH CAN KILL YOUNG NURSERY STOCK. VOIDING YOUR GUARANTEE.**

SOIL AND SITE PREPARATION: Grandpa is not a big fan of the idea that you have to dig a huge hole and amend the soil greatly. The idea is to have the roots grow out of the hole and into the garden area. Sometimes amending the soil too much can create a "pot" effect. Millions of trees are planted directly into the natural soil by commercial growers without amending it. Over amending the soil with peat, manure, or other things can just make for unnecessary work and can sometimes backfire!

Hopefully you had your soil tested. The pH should ideally be in the 6.0 to 7.0 range, but it is OK if it is a little higher or lower. If too acid, lime should be worked into the soil of the orchard before planting, not after if possible.

Most good fruit tree sites should be well drained and elevated above the frost line. If your soil periodically water logs because of flooding or naturally high water table, then you should look for a better site. Almost all fruit trees and their rootstocks like adequately drained soils. It is a waste of time and money to plant your orchard in a really low, frosty site, or a site that periodically floods. Look for a site with some elevation and/or slope so that cold air and water can drain away to lower ground.

Dig a hole big enough to accept all the roots without bending or curling them in. If your soil has a lot of clay, try to make sure that the sides are not "glazed" by the shovel or auger. Glazing of the sides can make it difficult for the roots to grow through, and can also make the hole hold too much water. If your soil is very sandy, then you may want to add a little organic matter to the backfill, but not too much. You want the roots to grow out, not remain in just the richer material.

If you are planting through sod, then it may be advisable to kill the sod for a distance of a couple feet from the tree PRIOR to planting. This dead sod will make good mulch around the tree and you will not necessarily have to remove it. If you are planting into bare ground,

make sure that you can control weed growth through the summer so that the weeds do not compete greatly with the tree. Pulling or cutting off weeds will be much safer than using herbicides to control them for the first year!

PLANTING: Different rootstocks require different planting depths. Planting must not be too deep or too shallow. Planting depth is typically measured based on the “bud union” or “graft union”. This is usually the “crooked” part about 8-12” up from the roots. Look at the planting diagram in the back for guidance. It is better to plant too shallow, than too deep, because you can always throw a little extra soil around the base of the tree. Planting too deep can cause the roots to suffocate from lack of sufficient oxygen.

Standard or seedling rootstocks: Almost all peaches, nectarines, plums, prunes, apricots and many cherries will be on standard or seedling roots. Some pears may be on standard or seedling roots, such as Betulafolia. Plant the tree deep enough to cover the bud union with one to two inches of soil--- **LEVEL A.**

Dwarf, Semi-Dwarf and Semi-Standard “clonal” rootstocks:

Almost all apples, most pears, and dwarf or semi-dwarf cherries will be on clonal or size controlling rootstocks. For apples, they are usually BUD 9, M9, M 26, M 7, Geneva® 30, M 106, M 111, BUD 118 or other “numbered” rootstocks. For pears, they are often OHxF 333, OHxF 87, or OHxF 97. For cherries, they are Gisela® 5, 6, or 12, Krymsk or MaxMa® 14. If you are not sure of what the rootstock identification might be, then ask Grandpa. EMLA, Malling and “M” followed by a number all really mean the same root.

On **ALL** size controlling roots (dwarf, semi-dwarf, or semi-standard) plant the bud union two to three inches above the ground---**LEVEL B.**

Make sure to firmly pack the soil around the roots. A good way is to hold the tree straight and walk around it with your feet and let your body weight press the soil down so there are no air pockets left around the roots. Try to leave a small “cup” or depression around the tree so that you can catch water when you irrigate for the first season. After the tree is well established then you can fill it in.

Be careful about not rubbing buds off the branches and trunks of the trees--- especially when handling sweet cherries where buds are often very much swelled and tender.

PRUNING: It is vitally important for newly planted trees to be properly pruned to balance the energy and food stocks stored in the roots with the energy and nutrient needs of the newly growing tops. Almost all trees have too much top, and not enough root, because people like BIG trees and the nurseries try to accommodate them. Under-pruning is more detrimental than over-pruning. Unfortunately most people are afraid to prune after planting (“After all, aren’t I cutting off some of this expensive tree?”) or are afraid that they will delay fruiting. Neither reason cuts the mustard with Grandpa!

If you had your trees shipped to you, then usually the most important pruning cut has already been made in order to fit the tree into the box. That first cut is the “heading” cut. It greatly reduces the excess top growth to match the root. It is a benefit because it forces the tree to grow new sprouts and branches at a more reasonable height for the first “swirl”

of scaffold branches---about 2-3 feet up. If you picked up your trees, then we may not have headed them, and you will need to make that important heading cut.

FALL SHIPMENTS ONLY--- Grandpa recommends that you not make any more pruning cuts after FALL planting. Let the roots and trees establish themselves through the winter. Wait until early Spring to re-prune and start to work with the tree then as if it had been planted in the spring. Because a fall planted tree may not have reached full dormancy by the time we dug it and shipped it to you, this allows the maximum amount of nutrients that may be in the tops of the trees to be transported down to the roots. Also, re-pruning late in the fall may possibly cause the tree to want to start growing again, rather than go into dormancy for the winter. In the spring, just prior to breaking dormancy is an excellent time to re-prune as described in step one of the “two step” process and continue normal training.

In the Spring, the second most important pruning cuts to make are cuts to side branches that may be on larger trees like 2 year trees and one-year Extra-large 5/8” up caliper trees. Smaller trees will have less branching, and often Medium grade or smaller will have no branches. Look at the diagram for a general idea of how to initially prune newly planted trees.

Grandpa recommends using the “two step” process on all types of trees. The first step is done right away after Spring planting, but delayed until Spring for Fall planted trees. The second step one to three weeks after planting, usually.

Apples: Apples often have many branches. Apples are the easiest fruits to train, since they tend to throw lots of new shoots which can be trained where you want them.

STEP 1: Head ALL trees to about 36” above the ground. Completely remove any dead or broken branches close to the trunk. Cut slightly away from the “growth ring” where the branch comes out of the trunk. Cutting into the growth ring reduces the chances of the wound properly healing over. Try to leave a stub about a ¼” long to allow for good healing. Cut all remaining branches in half. **STEP 2:** Usually in a week or two when you can see some new leaves and shoots start to grow out of the branches and trunks, then you can re-prune with the goal of producing the first scaffold of branches on the trunk and re-establishing a new central, upright leader at the top. On apples, you usually want to have from 3-5 scaffold branches coming out in a height range of about 2-3 feet that are evenly distributed around the trunk. At the top of the tree, you want to encourage a new upright growing leader. If you have a prevailing wind, try to choose a bud or shoot that will grow into the wind. You may have to train it with a stick or pole for a while in order to make it grow upright. On small caliper trees, you may get lots of new shoots all along the trunk. Remove those that are too low, and encourage 6-8 in the preferred branching area and re-establish a new leader with a strong upright shoot. You can prune out any excess branches next spring.

Pears: Pears often have no branches or only a few heavy diameter branches that may not be good ones to keep. Pears are not as easy to “train” as apples, so often you have to let Mother Nature do her thing and work with her, rather than fighting her.

STEP 1: Head ALL trees to about 36” above the ground. Completely remove any dead or broken branches close to the trunk. Cut slightly away from the “growth ring” where the

branch comes out of the trunk. Cutting into the growth ring reduces the chances of the wound properly healing over. Try to leave a stub about a ¼” long to encourage good healing. Cut all remaining branches in half if they are small diameter---less than a third the diameter of the trunk. If the branch is large diameter--- half or more the size of the trunk--- then use your judgment as to whether the branch is in a good location and worth keeping.

STEP 2: Pears often take their time in leafing out and sending new shoots out--- sometimes several weeks. You may want to wait several weeks before re-pruning. When you re-prune, then you can decide whether to try to grow the tree “central leader” style like an apple, or “open center” like a peach. If you choose to go open center, then you really only want to allow 3-5 scaffolds to grow out from the trunk. Encourage them to grow out at a 90 degree angle if possible by pinning them down with a clothes pin for a couple weeks. Make sure to remove the clothes pin when the angle has been established. Because pears are usually upright growing the scaffold branches will often start to turn up in short order. If you can re-establish a central leader that’s great, but don’t feel like a failure if Mother Nature decides otherwise.

Sweet Cherries: Sweet cherries will almost never have nice branches to work with, unless it is a 2 year tree. Often they look just like “sticks” with lots of buds on the trunks. It is the nature of one-year old sweet cherries in the nursery to not branch very much, if at all, so there isn’t much use in complaining to Grandpa about it, because it is Mother Nature who controls this growth habit. On the other hand, most tart cherries often have more branches to work with initially. The easiest system to use on all cherries is open center training.

STEP 1: Head the tree to a live bud growing into the wind if possible. Remove any heavy caliper branches completely, but leave about a ¼” stub near the growth ring, where a dormant bud might grow into a new, flatter branch. Almost all branches on young sweet cherry trees will be too big to keep, unless the tree is a 2 year tree and has some nice branches from last year. Remove any buds that are very low, usually up to 18” from the ground. **BE AS CAREFUL AS POSSIBLE TO NOT RUB OR KNOCK OFF ANY BUDS ON THE REMAINDER OF THE TRUNK.** The goal is to grow as many new shoots with wide crotch angles as possible in the area where you would like the first branches to grow and then up to the terminal tip.

STEP 2: Sweet cherries usually take off rapidly and shoot growth should be evident in a week or two. When you can determine which branches you would like to keep, then you can re-prune to allow 3-5 nice scaffolds coming off the trunk. You may want to clothes pin these scaffolds to encourage good crotch angles. Try to encourage a single new leader to grow if possible, but don’t feel bad if you end up with an open center tree.

Tart Cherries: Some tart cherry varieties will be well branched when you get them, others may have more similarity to a sweet cherry. Look at your tree and if it is well branched, then treat it like an apple tree. If it is poorly branched, and looks more like a sweet cherry, then treat it like a sweet cherry tree. Still, use the two step method based on those two guides.

Peaches and Nectarines: Peaches and nectarines can be the most challenging of fruits to get off to a good start. It is pretty much futile to try to grow a peach or nectarine into a central leader system--- you just have to fight Mother Nature too much. The goal is to produce a nice open center tree, with 2-4 main scaffolds coming out from the trunk at a 45-90 degree angle. Always head a little lower than other trees--- usually 24-30 inch from the

ground. Always cut branches back by half or more, but **NEVER** "whip" a large caliper 5/8" up Extra Large grade or 2 year grade! Whipping or removing all the branches down to the trunk can kill it, because there may not be enough dormant buds to re-start the tree. Once peaches and nectarines get going though, you can re-prune in Step 2 more vigorously than most other fruits.

2 year grade- Peach/Nectarine: STEP 1: You may not need to prune back as much as you think, since most branches may have already been cut back for shipping. There should be lots of dormant buds on the branches waiting to burst forth into growth. Cut the limb back a little to a bud that will start to grow out from the underside of the branch. Usually you can remove any central leader.

STEP 2: When the branches are showing 3-6 inches of growth around the older branches and wood, then you may prune quite vigorously with a goal of leaving just 2-4 main scaffolds coming out of the trunk. Choose and train one or two new terminal shoots on the branches to grow outward to extend the main branches. Remove shoots that are growing in the wrong directions (straight up, down, back into the tree). Let other branches grow in order to feed the tree through the summer, with the intent of removing many of them next year when you re-train the tree. You may want to consider pinning or tying long scaffold branches down somewhat to discourage upright scaffolds and encourage crotch angles in the 45-90 degree range from the trunk.

1 Year Peach/Nectarine- Extra Large and Large grades: STEP 1: Head the tree to 24-30". If you do not remove this excess top, then all new growth will be on the top with not much new growth happening lower! Remove any dead or dried up branches close to the trunk, but leave about a 1/4" stub so that a possible dormant bud might break out from the base. Cut back any other branches by half or to about 6-10 inches long. Remove any branches that are too low--- usually between the ground and about 18 inches up. **WALK AWAY! DO NOT WHIP OR TRY TO FINAL PRUNE AT THIS STAGE!**

STEP 2: In a couple weeks, you should see some new growth coming from the cut back branches and from dormant buds left on the trunk. At this time, you can start to pick and choose nice, vigorous scaffold branches. You may want to leave 4-8 around the trunk at this time and come back a while later and reduce it further to 3-4 permanent ones. If there is a new leader starting to grow, it is OK to leave it in at this time. It will help shade the center and force the new shoots to grow outward rather than upright. You can remove this central leader next spring. This is a good time to clothes pin scaffolds too as they are very flexible.

Peach/Nectarine 1 year Medium and Small grades: STEP 1: Head the tree to 24-30". Remove dead or dried up branches if there are any branches at all. **WALK AWAY!**

STEP 2: In a couple weeks, there should be lots of new shoots coming off the trunk, since on small caliper trees there usually are lots of dormant buds on the trunks. Rub off too low shoots or branches. Choose several potential scaffold branches and clothes pin them to a flat angle coming off the trunk. Remove the pins after a couple weeks. At this time, you can often choose 2-4 nice permanent scaffolds and remove the unwanted ones and any growth above the top scaffold branch.

Apricots, Plums and Prunes: These stone fruits can be deceiving and somewhat hard to give a "recipe" for training. Every variety is somewhat different. Some types of fruit and

varieties are well feathered with fine branches, some have just heavy branches, some have few if any branches what-so-ever.

Because Mother Nature controls the growth of one-year trees in the nursery, many varieties of European plums and most apricot varieties never seem to have much branching or feathering, and can often look like branchless sticks. Some Japanese plums varieties can be similar, but usually they have more branching. Grandpa has a hard time giving specific guidelines because of this, but he has found over the years, that no matter the level of branching on the tree when you get it, there are usually lots of dormant buds that will grow if you head the tree enough and cut the remaining branches back by half. Then usually let Mother Nature have her way and in one to three weeks you should start to see new buds and leaves growing from the remaining branches, or if no branches, dormant buds growing out of the trunk. But for all plums and apricots, try this two-step method:

STEP 1: Head the tree slightly--- usually higher than a peach or nectarine tree. Cut off any dead or dried up branches, leaving about a ¼” stub at the growth ring. Do not cut into a growth ring as this is where dormant buds are hiding unseen! Cut remaining branches in half or to about 6-10” long.

STEP 2: Wait at least a week or more, checking periodically to see where new growth is coming from. Be patient on plums and apricots as they can take their time in forcing dormant buds. When you have lots of new shoots and branches to choose from, then you may re-prune your tree to open center (most typically) or to a central leader system if it appears the variety is prone to that nature.

CLOTHES PINNING, BRANCH SPREADING AND WIDE CROTCH ANGLES: On almost all fruit it is important to train for wide crotch angles of at least 45 degrees from the trunk, rather than allow narrow crotch angles of less than 45 degrees. There are several reasons for this goal, and it can vary between stone fruits (those fruits with stony pits like peach and cherry) and pome fruits (apples and pears). In general, a narrow crotch angle is weaker and more prone to breaking from crop load and weather on all fruits, so having a good crotch angle is very desirable for strong healthy trees.

Stone fruits should usually have wider crotch angles 45 degrees upright to 90 degrees out from the trunk. Achieve this on new shoots early in the season by using spring load clothes pins attached to the trunk and over the shoot to hold down the young shoot for several weeks until the wood hardens and can maintain the proper angle. Don't leave them on all summer because then other problems will be created! Wide angles not only are stronger, but because there is little bark “inclusion” there is less chance of diseases like canker starting in the inclusion. (A bark inclusion is excess bark growth in the narrow angle part.) On woodier branches where clothes pins are not strong enough, you can tie the branches down somewhat or even use weights (pin small soil filled plastic bags to the branch) to achieve the same purpose. Again, don't keep them tied or weighted down all summer.

Pome fruits should have similar crotch angles to stone fruits, but in many cases should be closer to the 45 degree angle than straight out. Older fruiting scaffold branches should always have some upright angle to them, rather than be flat out or hang down, because they will be more productive and maintain a better amount of vigor than flat or hanging branches. Often on pome fruits, you should try for good crotch angles, and then as the tree ages and becomes more productive, avoid long (3 foot or more) downward hanging

branches. Apple and pear varieties can vary widely on how the branches naturally grow. Many pears are quite upright growing, with natural narrow crotch angles. Some apples are like that, such as Red Delicious, while many others are easy to train. In some cases, you will be urging Mother Nature to do something that doesn't come naturally!

TREE GUARDS and TREE PAINTING: Grandpa provides spiral tree guards with every tree for a reason--- rabbit, mouse and other "critter" control. The spiral tree wraps are easy to put on and should be put on shortly after planting. It is often advisable to bury the bottom end an inch or two into the soil so that it protects from mice and voles that may burrow just under the surface. Sometimes a new sprout will grow between the spirals, so periodically check and remove those shoots. In a couple years when the tree is filling out the wrap, then it can be removed. If you are concerned about further damage in later years, then you can replace the spiral wrap with a larger piece of corrugated plastic pipe, split up the side. However, after a few years, the bark of the tree is usually thick enough and not as tasty to chewing rabbits and mice. **Tree guards will not protect from deer!**

Spiral guards can also help protect the young trunk from some winter damage. The bright winter sun can reflect off the snow onto the trunk at the snow line or shine directly onto the trunk from its lower angle in the winter sky. This warming up can lead to winter damage when the trunks heat up during the day and then refreeze at night, particularly on the southwest side of the tree. A better way to protect from this "southwest damage" is to paint the trunks with white latex (**do not use oil base**) paint. Paint from the ground level all the way up into the first branches. This is particularly helpful on tender stone fruits, like peaches, nectarines, apricots, plums and cherries, but it doesn't hurt to paint apples or pears either. The white paint will reflect much of the winter sun. You can thin the paint down with water somewhat to make it easier to apply. A quick way is to use a glove or sponge to put it on.

DEER CONTROL: If you live in an area with **ANY** deer, then you are running the risk of deer nibbling on the new, tasty, tender shoots on your newly planted fruit trees. Believe ole Grandpa--- "Bambi" will "hit and run" during the night! Before you realize it, they will nibble enough growth to set back your trees. Use any trick you can to deter deer:

1. Spray on deer deterrents periodically--- some really work well.
2. Tie small bars of soap to the tree--- although some other critters may eat it because of the fat content.
3. Pin or staple the most fragrant fabric softener sheets to the tree--- the "human-like" smell deters the deer. Be sure to replace them after a couple weeks of exposure to the weather.
4. Scare crows hanging from ropes or chains and which can twist and swing in the wind have been used with pretty good success by Grandpa. The key is to fool the deer into thinking people are around and making them avoid your trees.
5. Set Fido, your dog, loose at night and maybe he can earn his keep! However, I have heard that soon the deer just learn to ignore dogs too.
6. Caging individual trees with at least a 6 foot tall wire cages made from woven fencing can be really effective when dealing with a small number of trees. Make sure the cage is about 3 foot in diameter and secure it and support it with a couple poles so that the deer cannot move it to start browsing on the tender shoots. In a couple years it can be removed

and used on newer trees.

7. Permanent Fencing--- It is expensive but can be worthwhile in areas where there is severe deer pressure and you have a large planting you need to protect. There are many different types of fencing that can be used. If using a single fence, it should likely be at least 6-8 foot tall or higher as a deer can jump less than that easily. Some people have had good luck with double electrified fences about 4 feet tall and separated by 3-5 feet. Apparently the distance between the fences fools the deer and they refuse to try to jump it. Also a touch of the nose to the electric fence will "educate" them pretty fast!

WATERING AND FERTILIZING: After planting be sure to properly water (not too much and not too little!) and carefully place proper amounts of fertilizer

Watering--- Make sure after you plant to give the newly planted tree a good drink of water. A few gallons around each tree in the cup you left at planting will soak down to the roots, helping to fill in any remaining air pockets and letting the soil make good contact with the roots. Thereafter, a weekly watering may be needed depending on your climate and weather. Grab a handful of soil from around the base of the tree. If moisture squishes out freely, then you don't need to water. If it retains its shape and feels damp, then it is almost ideal. If it doesn't hold its shape and crumbles, then watering may be necessary. It is important to NOT OVERWATER too. Too much water around the roots is as bad as too dry. Use common sense and test using the clumping conditions of the soil.

Fertilizing--- Young trees usually do not require any fertilizer at planting. They have yet to re-establish a root system capable of taking up fertilizer. That can take a few weeks. Some people swear by fertilizer stakes or packets at planting. They are OK if they do not break down right away. Then they can possibly overdose the tree and burn the roots. Mixing a little soluble fertilizer in with the irrigation water is a good way of gently fertilizing the tree. (About ½-3/4 ounce per gallon of water) You can continue to use it through most of the summer, but be sure to stop fertilizing by August so that the tree can start to harden off for the fall.

If you use granular fertilizer, then make sure you place it a foot or more away from the trunk and in a place where rain can't suddenly wash it into the hole. If that happens, you can possibly burn the roots and kill the tree when all that fertilizer suddenly dissolves and washes around the roots. The idea is for it to slowly dissolve and leach straight down into the soil where to new roots can grow into the fertilizer. Complete fertilizers like 12-12-12 would require only a two to three handfuls scattered around the tree through the first season --- ending before August 1st. Many soils may have sufficient levels of phosphorus and potassium, but not enough nitrogen, so fertilizers that contain just nitrogen like calcium nitrate, ammonium nitrate, or potassium nitrate are good choices too. If you are planning to grow organically, then probably most sources of nutrients in organic fertilizers will not be of such high level that you have to worry as much about burning the roots. NEVER FERTILIZE LATE IN THE SUMMER OR EARLY FALL AS THE TREES ARE STARTING TO HARDEN OFF AND GO DORMANT. IT IS POSSIBLE TO "RESTART" THEM GROWING, WHICH WILL LIKELY LEAD TO WINTER DAMAGE OR DEATH DURING THE WINTER.

Manure--- Many gardeners swear by manure! If you use it make sure that it has been well composted and is not fresh. Too fresh manure can have high salt and nutrient content and

can possibly burn the roots. In any case, if you can work it into the planting site WELL before planting, then you will have improved the organic level of your soil tremendously. Most sandy and clayey soils will benefit by some manure or compost. Adjust other fertilizer accordingly.

HARDENING GROWTH OFF FOR FALL AND WINTER: Depending on your climate, you want your new trees to make nice growth before the fall. There is no specific general rule of thumb to go by on how much is too much or too little growth for a tree, because it can depend on the variety, rootstock and other factors. However, Grandpa feels that a nice target is at least one foot of new growth on a scaffold branch during the first season if possible. Less than that and you likely have not provided enough fertilizer and/or irrigation. Some trees might make 2 to 3 feet. Usually anything more than 2 ½ to 3 feet might be considered excessive growth. For the newbie backyard orchardist, it may take a couple years of planting trees and gauging growth to know how much fertilizer will give you the growth you want. In any case, it is probably better to have a little too much growth than to have too little--- 6 inches or less. By August, you should stop fertilizing if you have had adequate growth. If you have inadequate growth, you may want to fertilize just a little more in early August, but by September all fertilizing should be stopped. By late August you should start to see terminal buds setting and little or no additional growth. Through September, the green new growth should be slowly changing to darker wood. By October, you should have no active growing points and all the new growth from the summer should be mature.

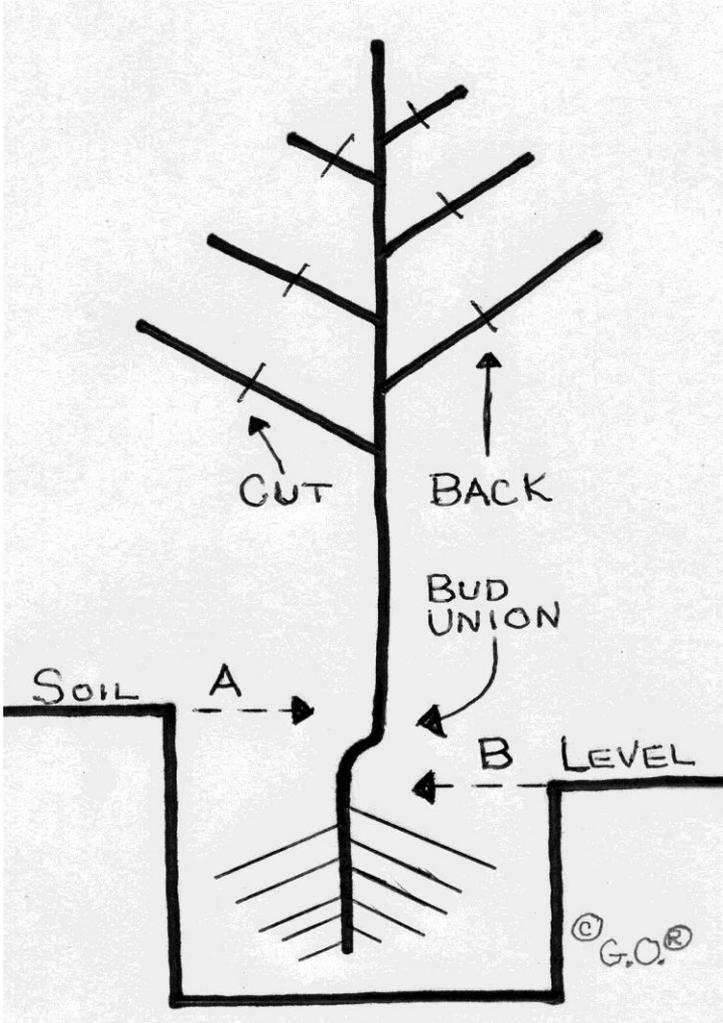
Trees that are too lush and have not hardened off properly for the fall are susceptible to winter injury from cold snaps and cold temperatures through the winter. Trees that have inadequate growth are susceptible as well, and have a harder time surviving the winter because they have less root bound nutrient reserves after they go dormant in the fall.

ADJUST THE ABOVE GUIDELINES FOR YOUR PARTICULAR CLIMATE AND ZONES! More northerly areas, like Zones 4 or colder, have shorter growing seasons so care must be made to not fertilize too long into the summer. More southerly, warmer zones, like Zones 6 or warmer will have longer seasons, so growth can go longer into the summer and early fall.

PRUNING SECOND YEAR AND OLDER TREES: Check www.GrandpasOrchard.com website for further growing tips for how to prune and train older trees.

INSECTS AND DISEASES: No matter the varieties or types of fruit you have planted, you will have to protect your trees and orchard from insects and diseases. Heavy infestations of both will reduce growth on your trees and make it hard for you to succeed. It pays to have a good resource to refer to for insect and disease control. The book "Backyard Fruit Production" that sells on Grandpa's Orchard is an excellent resource for the beginner and covers insect and diseases and their control for a wide range of fruits and small fruits. There are many other resources out there you can use for both conventional (with chemicals) or organic growers, such as the local Agricultural Extension Service and University. Check on Grandpa's Orchard for Growing Tips. We plan to add articles regarding identifying common insect and disease problems.

PROBLEMS AND POSSIBLE CLAIMS: Sometimes trees just don't start and grow properly. If you have pruned properly at planting and watered and fertilized properly, you should start to see new growth within a few weeks. If it's a month or more, contact Grandpa and he can talk to you about what possibly may be wrong. Sometimes trees just don't start properly. Grandpa stands behind his trees. We will usually replace them the next season, but not if you are negligent or if you have planted a variety in a location or climate zone where they just will not survive. In any case, if you have problems, please let us know as soon as possible the first growing season. Because of the vagaries of winter weather and Mother Nature, we cannot guarantee that a tree will always survive the winter, even if it grows well through the first season.



ONLINE AND WEBSITE SALES TERMS AND CONDITIONS OF SALE

The following terms and conditions of sale represent the entire Agreement between Buyer and Seller, and regulate all sales, purchases, and deliveries of plant and product material made by the BUYER from the SELLER, (also known as Grandpa's Orchard, LLC, PO Box 773, Coloma, MI 49038), through its website www.GrandpasOrchard.com or via other forms of communications to same.

1. **PRICES AND SALES TAXES:** All prices quoted herein are subject to change without notice. Residents of the State of Michigan shall be charged 6% sales tax on all orders of plant materials and supplies.
2. **PAYMENT:** UNLESS OTHERWISE AGREED IN WRITING SIGNED BY BUYER AND SELLER, BUYER WILL MAKE PAYMENT IN FULL PRIOR TO SHIPMENT, OR IF CREDIT TERMS HAVE BEEN APPROVED BY THE SELLER, WITHIN THIRTY (30) DAYS OF DATE OF PLANT MATERIAL INVOICE. SERVICE CHARGES WILL BE CHARGED ON OVERDUE ACCOUNTS AT THE MAXIMUM LEGAL RATE OR 1 1/2% PER MONTH (18% PER ANNUM), WHICHEVER IS LESS, ON ACCOUNTS UNPAID MORE THAN SIXTY (30) DAYS FROM INVOICE DATE
3. **ORDER HANDLING AND SHIPPING CHARGES AND INFORMATION:**

All material shall be shipped F.O.B. from a Grandpa's Orchard, LLC fulfillment center and shipping and/or handling charges shall be added to Buyer's invoice.

In planning your planting dates, please allow time for transit. We will ship most orders via UPS, unless otherwise requested and recompensed for it. UPS does not provide protective services, so we will avoid shipping at times when there is a danger of freezing en-route. During the SPRING shipping season, we will attempt to ship plant materials at times during the February, March, April and May seasons that will allow planting in your area conducive to good plant growth.

During the FALL shipping season, we will most likely ship during a short window in late October or early November, when we can be sure trees are sufficiently "hardened off" to ship and when the weather permits.
3. **STATE AND FEDERAL PHYTOSANITARY LAWS:** Due to State and/or Federal Phytosanitary Restrictions, Rules or other reasons, we may not be able to ship certain plant materials into certain areas or states. Any inability to ship plants for these reasons is beyond Seller's control, and Seller may not be held liable. We apologize for any inconvenience this may cause. We will not ship to Hawaii under any circumstances, nor into Canada or any other country outside of the USA.

4. **WARRANTIES AND SELLER'S LIABILITY:** Seller warrants that its plant materials are of the varieties true to name as described in this invoice. Upon written proof to Seller's satisfaction submitted by November 1st following the first fruiting season that the plant materials delivered to Buyer are not of the varieties described in the invoice, Seller, at its discretion, will either replace such original plant material or refund the portion of the original purchase price that relates to such plant materials.

Any other claims concerning plant materials must be submitted by Buyer in writing to Seller within the following periods after receipt of such plant materials by Buyer.

A. Within 10 days of receipt of order: Claims for incorrect counts, sizes, or damage, subject to the provision of the sections and statements below.

B. By August 1st following date of delivery of SPRING shipped trees: Claims for mortality of bareroot fruit, flowering or shade trees and, claims for variety errors on bareroot flowering or shade trees.

C. By June 1st following delivery of FALL shipped trees: Claims for mortality of bareroot fruit, flowering or shade trees and, claims for variety errors on bareroot flowering or shade trees.

This warranty does not apply to any plant or tree that is planted in a hardiness zone colder than a variety is customarily described to survive in according to information provided on the Grandpa's Orchard® website.

This warranty does not apply to any plant which thrived during the first growing season after planting, but subsequently may die from winter or spring cold or frost damage in any following season. Grandpa's Orchard is not in control of the environment and cannot be held liable for extreme climatic or environmental changes or weather.

This warranty does not apply to plant materials damaged or injured during shipments on contracted carriers, due to Buyer's negligence, improper care, unreasonable use or abuse. Under no circumstance shall Seller be liable for any amount greater than the original purchase price.

Disclaimer of Warranties:

With the exception of the Limited Warranty set forth above, the Seller disclaims all warranties of any kind, express or implied, specifically including but not limited to the Warranty of Merchantability and the Warranty of Fitness for a Particular Purpose. The Seller cannot warrant either the productivity (either in terms of the yield, size, quality, and color) or the marketability of the potential crops due to factors beyond its control after the delivery of the products into the hands of the Buyer. The factors which introduce variables that can affect productivity and marketability include but are not limited to (a) environmental conditions such as the growing year's weather conditions, local "microclimates," drought, cold, heat, wind, and maturity rate variables such as elevation and geographic location of the orchard; (b) horticultural conditions and growing practices such as soil type, soil nutrient levels, the pH of the soil, soil drainage, irrigation practices, planting density, pruning practices, the nature of the canopy and canopy development, trellis configuration, fertilization practices (such as nitrogen levels), the tree's vigor (and whether the tree is being "pushed", age of the trees, prior use of the land, the tree's uptake of nutrients (including nitrogen) and water, the type of rootstock, the thinning practices and the location of apples on the tree, and the timing of the harvest; and (c) conditions including but not limited to the timing of harvest, crop size, variety.

Variety, Cultivar, Trademarks & Trade Names: Fruit trees are generally categorized by variety, such as Red Delicious, Golden Delicious, Gala, Fuji, Braeburn, etc. Within each variety, sport mutations may be discovered, which may result in new cultivars of that variety. These cultivars have individual characteristics making them unique in some respects from other cultivars within the same variety. Sometimes new varieties or cultivars are patented and sometimes they are not. Often a nursery will market a cultivar using a trademark or brand name separate from the cultivar name or varietal name. The same cultivar may be sold under different trademarks or brand names by different nurseries. Buyers should be alert to the fact that a fruit tree product sold by SELLER under one trademark may be the same cultivar marketed by another nursery under a different trademark. The use of a trademark or brand name to market a cultivar does not necessarily mean that the product is a cultivar sold exclusively by Seller.

Replacement and Replacement Price of the Product: The Warranty provides the Buyer with the option of recovering the purchase price of the product, or replacement of the product, as its limited exclusive remedies in the event the Buyer establishes a breach of contract. In the event that

the Buyer elects to recover the price of the product, the dollar value shall be the actual purchase price paid by the Buyer for the product, plus any associated tax(es), shipping, assessment, or handling at the time of the original contract. It shall not be the price of a new product at any subsequent period of time, and it shall not be the dollar value of a matured producing tree at any subsequent period of time. If the Buyer having established a breach of the contract elects as a remedy the replacement of the product, it shall be replaced with a product of like kind as of the original date of delivery of the product to the Buyer. This shall be deemed completely satisfied by delivery of a qualifying replacement to the Buyer. However, if the Seller is unable to locate replacement material, then the parties may agree upon a substitution upon agreeable terms and conditions. If the materials are not available and the parties are not able to come to an agreement on substitution, then the Buyer must elect the refund of the purchase price. Seller shall not be responsible for the costs (if any) of actually removing the old product or replacing it with the new product.

Seller is not making any recommendations as to Variety or Quantity - Those Decisions are Solely the Buyer's: Seller offers several different varieties of products for sale. Seller is not in the business of providing consulting services or recommendations to Buyers regarding what varieties of fruit trees they should purchase, planting locations and densities. Those decisions are beyond the ability of Seller to make given all of the variables and thus those decisions are solely the Buyer's. Buyer shall make no claim against Seller based on an allegation that Seller made a recommendation that was either incorrect or negligent, and Buyer hereby disclaims, waives and relinquishes any such right or cause of action.

Marketing Materials: Like many other nurseries, Seller may publish marketing materials and may also run advertisements promoting its products. The pictures and descriptions of the fruit in these publications are intended to be examples of ideal fruit under ideal conditions, and are not intended to be representative examples of all of the fruit that will be produced by the fruit trees. The variables set forth elsewhere herein can and do affect the fruit, and the pictures and descriptions of the fruit in the above-referenced publications are not intended to be a warranty (either express or implied) as to the quality or characteristics of the fruit under any and all combinations of potential variables. Buyer should not rely on those pictures or descriptions of fruit in those marketing materials or advertisements as a basis for its decision to purchase the product as those pictures and descriptions do not necessarily depict the resulting crop for any of a number of reasons beyond our control.

THE FOREGOING WARRANTY IS A PART OF THE BARGAIN HEREIN AND IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REPLACEMENT OF THE PURCHASED PLANT MATERIALS F.O.B. AT THE PLACE WHERE SELLER ORIGINALLY SOLD TO BUYER, OR REFUND OF THE ORIGINAL PURCHASE PRICE, AT SELLER'S OPTION, IS BUYER'S EXCLUSIVE REMEDY UNDER THIS WARRANTY, AND IN NO CASE SHALL SELLER BE RESPONSIBLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES REGARDLESS OF WHETHER THE PROBLEMS OR DEFECTS ARE DISCOVERABLE OR LATENT. THE EXHIBITION OF A SAMPLE OR MODEL OF THE GOODS SHALL NOT BE REGARDED AS PART OF THE BASIS OF THE BARGAIN AND SHALL NOT CREATE AN EXPRESS OR IMPLIED WARRANTY THAT THE WHOLE OF THE GOODS SHALL CONFORM TO THE SAMPLE OR MODEL. THE GOODS ARE SOLD "AS IS" AND "WITH ALL FAULTS". SUBJECT ONLY TO THE EXPRESS WARRANTY SET FORTH ABOVE.

5. CONTINGENCIES: Seller reserves the right without notice to Buyer to substitute the closest possible size at Seller's current corresponding price of plant material in stock if Seller is unable to furnish size ordered by buyer.
6. RISK OF LOSS OR DAMAGE: All risk of loss or damage to the plant material shall be on Buyer from and after delivery to a carrier or to Buyer, whichever delivery occurs first, and such loss shall not relieve Buyer from any obligations.
7. DEFAULT AND REMEDIES: Time is of the essence of the agreement. If Buyer becomes insolvent, fails to make any payment within the time required, or fails to perform any other obligation imposed by this invoice, or by law, Buyer shall be in default and Seller may immediately enforce any and all remedies provided by law.
8. COSTS AND ATTORNEY'S FEES: If Buyer fails to perform in accordance with this agreement; Buyer shall pay all collection costs and attorney fees incurred by Seller, whether or not suit is filed. The parties agree that Berrien County, Michigan is the site of the transaction and the proper venue for any action regarding this agreement.
9. ASSIGNMENT: The rights and benefits of Buyer are personal to it and may not be transferred or assigned, voluntarily or involuntarily, without the prior written consent of Seller. Subject to this limitation, this invoice shall be binding upon and inure to the benefit of the parties, their successor and assigns.
10. NON-DELIVERY OF STOCK: Non-delivery of stock shall be excused in case of fire, frost, floods, drought, strikes, winter injury, and shortages of nursery stock, error in count or other causes beyond Seller's control.
11. PLANT PATENT RIGHTS: Under the laws of the United States, the owner of a plant patent has the right to control who propagates the patented plant. Similarly, the owner of a trademark for a plant variety or other product has the right to control who uses the trademark in commerce. It is a violation of the law to propagate any patented or trademarked plant material without the permission of the patent or trademark owner.
12. ENTIRE AGREEMENT: Buyer and Seller agree that this invoice is the complete and exclusive statement of the agreement between the parties relating to the subject matter of this invoice. Written acceptance of this order or acceptance of delivery of the plant materials constitutes acceptance of the above terms and conditions of sale.
13. SEVERABILITY: If any terms or conditions of this Agreement are deemed illegal, void or unenforceable for any reason, then that term or condition shall be severed from this Agreement. All remaining terms and conditions shall remain in full force and effect.

(Revised 9/24/10)