Purpose
Some of you have planted your fruit trees by now - congratulations, and the rest will hopefully do so this weekend. This is great time because it appears that we will have rain over the next few days helping the trees get settled in their new home.

Some people were unable to attend the tree planting demonstration last week. This PDF will serve as a recap of what was presented at the meeting.

Attached document titled “tree plant directions” from Trees of Antiquity, the vendor where we bought the trees. When in doubt follow their directions - your warranty depends on it.

Planting Time
If for any reason you can not plant your tree by this weekend, please open the bag, spray some water (enough to wet the roots and keep the newspaper saturated) and close the bag tightly. We don't want the root to go dry.

Overview
In order to grow fruit trees successfully, it is important to understand how they grow and the impact of various cultural practices on the development of the trees and the quality of the fruit.

You do not need to be a fruit tree expert in order to grow truly exceptional fruit. There are several stages in the life of a tree and there are specific chores that must be performed in each season. Instead of discussing everything in one sitting, we will cover each task in a timely manner. This way you can read about what you need to do, walk outside and do it. Once you successfully grow one fruit tree, you know most of what you need to know to grow another fruit tree.

How Fruit Trees Grow
Fruit trees, like most other plants, grow by dividing and elongating their cells. This results in what we see as new growth which includes roots, branches, leaves and fruit.

Trees need three elements, sunlight, water and minerals - that’s it! When these elements are provided, the tree creates a woody structure upon which...
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the leaves are spreads. The leaves capture the energy of the sun and convert it into chemical energy (mostly sugar and carbohydrates) which is then used and stored by the tree.

The woody part of the tree acts as the skeleton that keeps the tree upright and stores carbohydrate and minerals during winter (to be used in spring for new growth.) The vascular system inside the woody part, which includes xylem, cambium and phloem, moves water, sugar, minerals and hormones around the tree. The leaves are the workhorse that perform photosynthesis, provide shade and regulate the levels of gas and water pressure inside the tree. The elegance of nature is in the simplicity of its designs.

What Fruit Trees Need

Sunlight - Fruit trees in our area can get by with 6 hours of full sunlight per day, but they prefer 8 hours. This is enough solar energy for the trees to generate the chemical energy as described above.

Water - The trees can absorb a tiny fraction of their water needs from the air. The vast majority of water utilized by trees is absorbed from the soil. It is the fine roots of the tree that absorb the water. One advantage of the clay soil of our area is its ability to store a lot of water. This means that once your tree is established it can be weaned from water and dry farmed.

Nutrients - This is typically referred to as fertilizers. It includes major nutrients (NPK) about 16 trace minerals always packaged with some inert material. Remembering what is the primary function of each major nutrient is easy. Just remember the phrase, “up, down and all around”

N- Nitrogen promotes “up” growth of leaves and branches.

P- Phosphorus promotes “down” growth of roots.

K- Potassium benefits the whole plant.

Clay soil besides it’s water holding properties, is also an excellent store of nutrients.

Detail List of Steps

With that basic introduction out of the way, the rest of this document focuses on planting of your bare root trees, specifically the trees that were recommended for our area which are Apples, Plums, Peaches and Pears.

Select a Site

There are three (may be four) key criteria for selecting a site.

1- Select a site that gets 8 hours of sun during the spring and summer growing season. If you stay away from tall structures and underside of large trees, you should be fine.

2- Fruit trees do not like their roots to sit in water. Stay away from areas in your garden where water collects after a rainstorm.

3- Select a site where you can get water to the trees easily.

4- Optionally select a site where you can enjoy the ornamental beauty of a fruit tree with colorful blossoms in spring, followed by attractive foliage and the magnificent sight of a developing fruit.

Soak in Water

Since your tree has been sitting idle for a few days it is useful, but not essential, to soak your tree in a container of water. You can leave the roots in water from a few hours and no more than 24 hours.

Dig Holes

For each tree dig a hole that is approximately 1 foot radius (about 2 feet wide) and 2 feet deep. Basically the planting hole should be a little larger than the width and depth of the root system. Store the soil that you just excavated nearby for backfilling the hole.
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If you feel energetic and your soil is not muddy wet, loosen some of the soil around and below the hole. Fluffing the soil makes it easier for the roots to spread.

**Loosen sides**

When digging a hole, especially in wet clay soil, the side of the planting hole can be slickened creating a glazed pot effect. Fracture the sides and bottom of the hole with the tip of a shovel or a garden fork. Again, the purpose of fracturing the glaze is to help roots go beyond the planting hole.

**Install gopher cages**

If you are installing a gopher cage, make the hole large enough for the gopher cage to fit inside the hole. Leave about two inches of the wire sticking above the ground. Gophers sometimes travel above ground and this two inch extension is enough of a barrier that stops them from approaching the tree.

**Prune damaged roots**

Before putting the tree into the ground, examine the roots and prune any of the roots that have been broken or are loose.

If your tree has a long tap root extending down (nut trees) do not prune the tap root.

**Position the Tree**

Almost all the bare root fruit trees are grafted. If you look at the bottom part of your tree, (a few inches above the roots) you will notice there is dog-leg shaped area where two species have been joined together by a graft. On one side there is large wound on one side you will find a bud union where the scion (upper part of the tree) has been attached to the rootstock (lower part of the tree including the roots.)

The question is at planting time, in which direction should the wound be faced?

For our area, this can be a confusing discussion subject to hours of debate. The bottom line is that for the trees that were recommended, it does not matter which direction you face the bud union. These trees were selected for people who are new to planting trees and have a strong bud union. However the ideal direction is for the wound to face North. The rational for this recommendation is at the end of this document.

**Plant on a mound**

Once the tree is positioned inside the gopher cage, fill the hole with the same soil that was in the hole. You do not need to amend the soil. If you are going to amend it, add about 20% compost to the mix. Tamp the soil gently to get rid of air pockets.

Since clay soil drains slowly, it is a good idea to plant the tree on a slight mound. The bud union should be several inches above the soil and the uppermost roots should be buried just below the soil line. Put enough soil under the tree to create a small hill that is 6 to 12” inches above the original grade.

Planting on a mound will help with drainage. It also ensure that as the soil around the tree is compacted, the tree does not sink below the grade.

**Prune the tree**

Prune the newly planted tree at knee high, that is about 24 to 36 inches above the ground. This is perhaps the most difficult, yet essential step. The volume of upper part of the tree must be in balance with it's roots. When the tree was uprooted from it's original site, it lost a large portion of it's root. By pruning the scion down to size, you bring the tree back into balance.

![30” to 36” Tall](image)

**Required cuts for a first year tree.**

Most often bare root trees do not have lateral branches below 36”. However If there are strong and healthy branches, prune them back severely, leaving only one or two buds. Prune all weak side-branches. They will not survive and only drain the energy of the tree.

**Making a cut**

When heading (cutting off) the bare root tree, make your
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cut at about a 45 degree angle. By cutting at an angle you prevent the morning dew from sitting on the cut where diseases can be formed. A sloped cut will help the water drop reach its critical size quickly and run off the branch, keeping the wound dry.

Secondly always make all your cuts slightly above a bud. Leave a little room above the bud for the wood to dry without effecting the bud.

Paint the trunk
It is easier to paint the trunk at this stage, but you can paint the trunk anytime, up to several weeks after planting the tree. You must paint or protect the trunk before spring growth begins.

In nature trees live next to each other and each tree grows a canopy of leaves that is proportionate to the size of the tree. The proximity of trees, plus the canopy, shades the lower trunk, protecting it from dehydration and cracking.

In our case, the severely pruned tree will not have a canopy and the bark of the trunk, exposed to 100 temperatures of our area, will dry and crack. Once there is a crack in the bark, the tree borer insects enter the tree and will cause the wood to decay forcing the eventual collapse of the tree.

Bark Protection Option
Painting the trunk is the old proven method. However there are possibly better and cheaper options which are discussed later.

To paint your tree, buy a can of white flat latex interior paint and mix it with enough water (around 50% by volume) to make the paint easier to apply. Paint from 2” below soil level up to 2 or 3 feet above ground (the first set of lateral branches.) If you don’t have any lateral branches, paint most of the scion. Do not paint the top 6” of the scion.

Fertilize
Once the tree is planted and pruned, pour a cup of two of gypsum around the base of the tree. Mix the ingredients into the soil.

Add Compost
Lay a 2 to 4” layer of compost on top of the gypsum and fertilizer mixture.

Mulch a 3 feet wide circle
Finally lay a thick layer (6 inches or more) of mulch in a 2 feet radius circle, over the compost and around the tree in a funnel shape. Keep the compost and mulch away from the trunk of the tree.

Water deeply
Once the mulch is in place, give the tree a good drink of water in order to eliminate any remaining air pockets in the soil. Watering the mulch helps bind the mulch particles together creating a solid “blanket” over the soil under the tree. It is under this mulch that the most important citizens of your garden, the microbial life, begin to flourish.

Alternatives to Painting
Nurseries sell organic trunk whitewash products. If you are...
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Going to try them, please let me know. I'd like to observe how they work.

Alternatively several manufactures offer bark protectors where you can enclose the trunk without painting. These tubes wrap around the trunk and not only protect the bark from cracking, it also prevents other rodents common in our area from gnawing on the trunk.

Next Step
You are done! Sit back and enjoy. In a few weeks, the buds on your trees will begin to swell and eventually there will be bud burst. The new buds are mostly vegetative growth.

As summer approaches, the soil will begin to dry. When the level of moisture is sufficiently lowered, you will receive an electronic bulletin asking you to begin watering.

At this stage you must provide 10 gallons of water per tree per week. The best way to protect your tree bark from cracking is regular watering.

Why position your wound to the north?

The most vulnerable part of your tree in its early life is the wound that was made creating the rootstock. Over time, the scion will grow over this cut and completely cover the wound. That is why in a mature fruit tree, it is not easy to see where the tree was grafted. The objective of positioning the tree is to protect this wound.

In most part of the country, it is best to place the wound away from the prevailing winds of the summer, reducing the dehydration of wound which will cause cracking.

The question is which direction does the summer winds blow in N. California? That’s where the debate begins, but as you will see in minute it’s an irrelevant matter.

The Northern California weather in summer is influenced by the location of the semi-permanent high pressure area of north Pacific Ocean. The steady flow of air from the northwest during the summer helps to drive the California Current of the Pacific Ocean as it sweeps southward almost parallel to the California coastline. Therefore you can easily argue that the wound should be faced southwards.

On the other hand you can argue that at our latitude, we are subject to westerly winds and as such the wound should be faced to the east.

The fact is that there is not much of any wind (don’t you wish we had some) in our area during the summer. That is why, as far as the wind is concerned, it does not matter which direction you plant your tree.

Is there an ideal direction? Sure. Put your wound facing the north. That is the side that gets the least amount of direct sun exposure and is in natural shade most of the time.