

Planting Citrus Trees Successfully

by Roger Smith

WHEN & HOW ARE KEY COMPONENTS

Planting citrus trees seems like such a basic concept, but it is more complicated than it looks. If planting is done improperly, it can damage a citrus grower's tree investment.

Not only do growers need to know the "how" of tree planting, but they also need to understand the "when." This is a key component to develop citrus property successfully.

CITRUS INDUSTRY VOL. 3 STATES:

"In California and Arizona, most citrus trees are planted between late February and May, after the danger of severe frost has passed and before the onset of high summer temperatures. Trees planted during this period become well established through the long growing season and are better able to withstand the low temperatures the following winter. Trees planted in summer are subjected to greater shock from high temperatures and often fail to start properly...Trees that are dug for planting while in an active growth flush do not resume growth after planting as well as those trees dug just before a growth flush."

In recent years, the effort to redevelop poor performing citrus properties has increased, which has caused many growers to attempt to harvest the crop, push, pile, burn and prepare the land in a period of a few months. When you add the variable factor of weather into that equation, many plantings are often delayed well into the summer because the property just isn't ready. Although success can be achieved when planting after July 1, there are many problems that could occur and are difficult to prevent.

Trees that are dug from a field-grown nursery undergo a certain degree of shock when they

are harvested. This shock is not a major factor in the February-to-May time period, when trees are not faced with higher temperatures after they are dug. However, when this same tree is dug in the later part of June through August, the trees in the nursery are more active and many tend to die back within the first couple of weeks after they are dug and planted. This dieback is random and is often not preventable, especially on navel orange trees. The best way to eliminate this problem is to insure your property is ready for planting prior to July 1.

SITE PREPARATION

The goal of any new citrus development is to have a well-prepared site prior to the winter rain. This means that if an older orchard is being pushed out, this should occur in late spring or summer. The problem that has arisen recently is that it is difficult to burn during this period and many growers have turned to chipping the trees as an alternative (see photo below).

For citrus trees, it appears that tub grinders are a better piece of equipment than the alternative machines. At one time, chipping of citrus

trees was free because the chips were used in a cogeneration plant to generate electricity. Chips are still used in cogeneration plants, but often the supply of agricultural waste outpaces the demand. This has made it more difficult for chipping companies to find a home for citrus product, so the cost has gone up a bit. Nevertheless, considering the air quality regulations, it may be simpler to hire a chipper. Burn days are becoming less frequent and waiting could cause serious land preparation delays.

It is also important to rip the ground after a grove is removed. The best time for ripping is when the soil is dry, so it is best achieved in the late summer or fall.

This allows you to achieve the highest level of fracture through any hardpans or plowpans. Since 85 percent of citrus roots are in the top 18 inches of soil, ripping to 3 feet is sufficient unless you need to attack hard pans that are deeper.

The moral of the story is to get trees pushed in the late spring and early summer, thus allowing adequate time for proper site development.

It's also a good idea, once the site is cleared

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“Industry Interview”



Ron Cosart has been managing ag properties for over 20 years. He currently manages citrus, pistachios, grapes and olives for David Evans Farming with properties from Orange Cove to Kern County. Over the course of his farm management career he has directed the development of more than 2,000 acres of new groves and orchards.

TS: How do you remove an old citrus orchard?

Ron: I still use a dozer. I've tried snipping and chipping, but wasn't happy with the results. **When** you remove the trees is important, although getting the last crop off normally determines when you can start. You hope to get in early enough to get the site dried out so when you push you can get most of the roots. Early fall, if not summer, is the better time frame to push. When you roll the hoses up, you're committed.

TS: How long would you wait to replant?

Ron: The more time you give yourself the better. If it was a perfect world I'd let it lie fallow 2 years to let the nematodes die and give the ground a rest, but the economics force you to get it replanted quickly.

TS: In the process of redeveloping, what problems could you encounter?

Ron: Deep tillage is needed and the most problems result when people don't do their ground prep properly. When the trees are gone, it's the last time you're going to have a chance to do major work on the site for 30 years or more. Early on if you don't know the ground, you need to get a backhoe in to do due diligence to see what you have underground. There may be a heavy pan layer 1½ feet deep or a sand layer 3 feet down. A couple hours with a backhoe can tell a story on the ranch. You're going to make a huge

investment and some time spent in advance is well worth the effort. Deal with drainage issues because the old grove may have had a pothole where trees have died off and you'll repeat the same thing if you don't fix it. If you think there'll be difficulties channeling water, you need to decide what to do before you rip it. After you put the trees in you can't do any of this and you may also have put trees where they have no business being planted. Usually, it's a water issue, but if it always freezes in certain spot, why plant it?

TS: What do you mean by deep tillage?

Ron: Well, it really depends on the soil type and soil depth. Minimum ripping should be at least 4-5 feet because you're setting the drainage up that you can't do again. Ripping in two directions may not buy you anything in some soils if one pass does a good job. Some guys skim at 2 feet and in wet years the water backs up into the root zone. Remember, you're building a reservoir for the tree when you irrigate and you're trying to get air into it to revitalize the stuff. Sometimes, adding a pass with a slip plow will pull a sandier layer up and can lighten the profile up. There's some good and bad with that, though, as some West Side guys have pulled up salts that they have spent years pushing down.

TS: How do you smooth the ground after deep tillage?

Ron: On flat ground a land plane works well, but there's a lot of ways to go and it again depends on your soil and the size of the property.

TS: If it's been a few months since the site was prepared, do you do anything to it prior to planting?

Ron: Well, it depends on the weeds, but if it's been a while since the ground was worked I like to go back through after they put in the irrigation system. When they mark for the system, I only mark where the laterals go instead of the whole field. When installing a system, people drive all over the field spreading pipe and parts and a lot of times birds will pull up the straws. Put the system in and when you get done, re-disc it, get your ground just right, and then you're ready to straw it (marking is done with soda straws) and lay out your hose.

TS: What kind of tree planting method do you prefer?

Ron: I think you get better soil contact with shovel planting if your land prep was properly done. When I was a kid, my Dad impressed on me that a posthole digger was better than an auger. His philosophy was that if you had ground that wasn't prepared well enough, the auger compacted the sides. I know a lot of people don't agree with that, but it always seems to come back to having proper land preparation.

TS: Any pointers on how to manage the day of planting?

Ron: Tree handling is important. Use a bin trailer and make sure the guys don't throw them and bust off the bottom half of the root-ball. It's also important to make sure they are planted to the right depth. An experienced planting crew is almost at a dead run when planting trees and are doing a nice job, but inexperienced guys can do a poor job even though they're going slower. The hole has got to be deep enough and you have to be aware of the tricks the planters use to get away with planting shallow. (They're paid piece rate and shallow trees saves them time.) They'll jump on the top of the ball or fracture the bottom of a container tree to make the root-ball shorter to fit a shallow hole.

TS: What about once they're planted?

Ron: Water them up. I normally have guys supporting the planting crew. They put the spaghetti hose next to the tree, put on tree wraps, and then check the irrigation that we do to settle the roots. I like to use a fanjet with a "top hat" that puts the water close to the tree. People disagree about the volume of water to put on, but I usually tend to go more than less for a given location. Getting the tree to resettle after the first irrigation is almost impossible, so I don't mind drowning them and then lay off the water for a while until they need it. When we had furrows, watering in was easy, but with a fanjet, making sure there are no air pockets is a big deal. As a general rule, we water them in for 12-24 hours. I don't think you need basins around the tree all the time, but it goes back to how good the soil prep is. You got to make sure the water isn't running off.

TS: Thanks Ron.



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and leveled in the fall, to apply herbicides such as Trifluralin or Goal to eliminate the need to disk winter weeds prior to planting in the early spring. When you don't have to contend with weeds, all you need is the soil to be dry enough to spread the trees through the field, which could allow a much earlier planting date.

The primary limitations to an early planting in January or February are rain and frost. Typically, any freeze that occurs after Feb. 1 will not be severe enough to affect a field-grown nursery tree. Field-grown trees are still in dormancy and don't even know that they've been dug. A mild freeze that could occur in February would have no effect on these trees.

While rain does not hurt newly planted citrus trees, it can inhibit the ability to get equipment into the field. As stated above, growers who have successfully prepared their property for a February planting may often find that they can get the trees planted between rainstorms.

HOW TO PLANT CITRUS

How to plant a citrus tree can be a topic that yields great debate. The economic realities of our times have forced many growers to pursue the cheapest planting method. Some companies may still pursue planting citrus trees with a tractor-mounted auger, but this has become rare. Augured holes are certainly the most effective way to insure a tree is properly planted because it reduces the possibility of air gaps around the roots. However, because of the higher cost of this method, a vast majority of citrus trees are now shovel planted (see photo at right). The shovel method costs about half of what the auger-planted tree costs. Professional planting crews are fast and efficient and an experienced tree planter can liter-

ally plant a tree every 30 to 40 seconds.

This high degree of efficiency gets the trees into the ground, but does not guarantee they have been planted properly. The rows and trees might be straight, and planted to the right depth, but it is likely that air gaps remain around the rootball which will slow the tree's initial growth.

In some soil conditions, air gaps can be eliminated by the irrigation that occurs directly after planting. A means to discover if air gaps exist in the newly planted orchard is to walk through the property and randomly select trees to test for air gaps. Take a soil probe or a $\frac{3}{4}$ inch piece of re-bar and probe the area right next to the tree's rootball. If the probe penetrates the soil easily, then it's likely an air gap exists underneath the soil surface.

Discovering just one or two air gaps during your survey would be enough reason to go through the entire planting and tamp in the trees to insure air gaps have been eliminated. Although an extra cost, eliminating air gaps can be the best investment you make because it insures roots develop into all the surrounding soil instead of waiting for the gap to collapse by itself.

For more information on the citrus planting process, contact the TreeSource Nursery office at (559) 592-2304, or drop by our booth in Pavilion A during the World Ag Expo in Tulare and pick up our "how to" brochure. When you consider that a crew can plant a tree every 30 to 40 seconds, it is important to have a good plan in place prior to the arrival of the planting crew. This brochure

will help you develop that crucial plan.

For details on post-planting practices, look at the summer 2002 issue of TreeSource News or visit our Web site at www.citrustreesource.com and click on "TreeSource publications." You'll find it under TreeSource News (Summer 2002).

Putting the odds in your favor when planting citrus trees requires careful planning. Letting a redeveloped site "rest" through the winter is always preferred to the springtime effort to push, pile, burn/chip,



prep and plant. Spring is a good time to start preparing for next year's planting, and it's certainly not as stressful as trying to get everything done in a few months! At TreeSource, we are here to help facilitate your efforts and help relieve some of the stress. Call us if you have any questions.

Tree Pick-up Procedures

Call Joelle Morris at (559)592-2304 about 2-3 weeks before the day you want to plant.

SHE NEEDS TO KNOW:

- The EXACT tree count. Please don't rely on the count of the crew that marks the field. Sometime they make mistakes and it is best to double-check their count before you call us. Always count a field twice to avoid errors.
- The address and the county of the planting location for the Ag Permit
- Name of the bins you are providing for the trees. We put 50 trees in each bin and request you drop them at the nursery 7-10 days prior to your planting date.
- Whether you want us to deliver the trees or you want to pick them up yourself. We charge a modest delivery charge and use Danny Lopez who provides us with very fair rates. His drivers are also experienced tree haulers and forklift drivers. If you have less than 200 trees, it pays to pick them up yourself.
- Time you'll need the trees delivered. Once scheduled, make sure we know of any delays. We try to be ready in advance of your planting date, so please notify us right away if problems arise.

Good communication helps us serve you the best, so give us some time to handle your order properly. Tulare County regulations require a Moving Permit for ALL citrus trees and budwood. Even small orders need a minimum of 48 hours notice for us to get the paperwork done!



