



Redwood Empire Chapter Newsletter

April, 2011

Grafting Clinic

by: Geoff Wells

The chapter's annual grafting clinic was held this year on Sunday, February 19, at the home of our biomanager, David Ulmer, in Sebastopol. About 20 people came to learn grafting techniques and eat a potluck lunch.

David began the clinic with a talk explaining why grafting of fruit trees is done and how it works. He began with something about his personal background and how he got into fruit growing. David grew up in Mississippi. As a young man and self-styled "fruit geek," he happened to learn about NAFEX, the North American Fruit Explorers, and its magazine, "Pomona." He also met T.O. Warren, the developer of the legendary Warren pear. Warren, also from Mississippi, invited David to come to his farm and learn grafting. David got the bug and was irreparably transfixed. His own orchard grew until he had 150 varieties of plums and growing peaches commercially. Then he moved to Sebastopol and had to start over, growing a new orchard in a very different climate.

As David explained, there are a number of reasons why we graft plants. Some of them are:

- To propagate a plant that has a hard time rooting
- To propagate a unique variety that may not come true if grown from seed due to genetic variability
- To incur dwarfing, disease resistance, suitability towards a certain soil, precocity (early and ideally larger fruiting)

Grafting

The equipment you will need can be pretty simple. The most important thing you will need is a good, *sharp grafting knife*. Grafting and budding knives are available at hardware stores and nurseries. You can get an affordable knife, such as a Victorinox, for \$16 to \$20 at Sebastopol Hardware or Harmony Farm Supply. They come in different styles, for just grafting, budding, or both. If you take care of your knife, and don't lose it, it will last a lifetime.

A grafting knife should have a bevel on only one side of the blade. Needless to say, most knives are beveled to suit right-handed grafters. You can use them left-handed, but you lefties can make your grafting life easier by buying a left-handed knife or getting a knife sharpening service to change the bevel for you.

Upcoming Events

June 5, 2011: Chapter meeting, spring citrus event, and bud grafting clinic: Sonoma State University Environmental Technology Center. Details to be announced on the listserv and in the group calendar.

July 16, 2011: Plant sale, 8 AM to noon, Santa Rosa Farmer's Market, Veteran's Building, 1351 Maple Avenue, Santa Rosa.

Volunteers are always needed for chapter events. If you can help, please contact Linda Robertson at (707) 766-7102 or lrobertson09@gmail.com.

RECRFG now has an events calendar on Google. Members can find information on upcoming events, both in our chapter and elsewhere, at: <http://tinyurl.com/RECRFG-Calendar>.

If you know of an event other chapter members might be interested in, contact our events coordinator, Tony Bryhan, at abryhan@comcast.net, to add it to the calendar.

Keep your knife sharp, with the bevel at 12 to 15 degrees. You can sharpen it with a sharpening stone or a leather strop.

Knife Safety: Take care - the safest knife is one that is sharp, but knife technique is important. In making cuts for grafting, the thumb is always put next to the knife blade; if you do this you cannot cut yourself. Pull the knife and your thumb towards you, but make sure you keep them together. Or you can pull the scion away from you. The mistake is pulling the knife towards your thumb. The position is somewhat counterintuitive until you learn the grafting cut. Call Fred the master grafter, or any of the other master teaches in Redwood CRFG; they will help you out. Again, practice is best- use small diameter wood that is easy to cut. Go slow. If you get frustrated, put it down and come back later. Once you get the hang of it it will become quite natural and easy.

You will also need a **sealant**, which binds and seals the wound, and you need to have bindings to keep the wound from drying out and to keep the grafted joint stable and strong while the graft knits. The bindings must be removed eventually, to avoid girdling the stem as it grows.

[more p.2]

The 2011 Scion Exchange

This year's scion exchange, at the Veteran's Hall in Sebastopol, was possibly the biggest yet. An estimated 650 people attended, and about 70 signed up as new CRFG members.

The exchange occupied two rooms of the building, with the scion tables, silent auction, and hospitality in the main hall, and rootstock sales, grafting, and demonstrations in a second meeting room. The sturdy group of volunteers who set up and staffed the exchange were busy from 9:00, when the exchange opened to members only, all the way until closing at about 2:00. Pruning and grafting demonstrations were standing room only; there were lines at the grafting table; and we sold out of rootstock by around 11:00. The hospitality table, staffed by Mary Frost, was kept filled with baked goods, dried fruit, cheese and crackers, and other goodies donated by members and businesses.

Our income and expenses from the exchange, by category, were:

Income:

Admissions: \$3,100

Auction: cleared about \$830

Drawing (raffle) cleared about \$340

Misc. Sales brought in about \$60

Rootstock sales brought in about \$1450

Grafting brought in about \$160

Total taken in: \$5940

Expenses:

Facilities use: \$765

Rootstock purchased for our club: \$745

Misc expenses: \$200

Total expenses: \$1710

Our profit was about \$4230, a great boost to the chapter treasury.

Mark your calendars for the 2012 exchange, on Saturday, January 29 at the same time and place.

(Grafting)

Masking tape, parafilm, and budding rubbers are seals that will usually fall off on their own after a few weeks. Plastic tape and electrical tape work well too, but they don't break down quickly, so they need to be slit 4 to 8 weeks after grafting - which means one has to remember everywhere one did a graft!

Parafilm has become very popular. It seals well and stretches. Plants can push through it as they grow, and it deteriorates and falls off on its own. Laboratory grade is best. There is another developed for horticultural, but reports say it breaks too easily when stretching. Laboratory grade parafilm is available locally for \$50 a roll or online for \$15- 20.

Grafting itself is, in essence, joining two separate pieces of plants together, a rootstock (or limb) and a scion (a young stem).

Grafting requires joining together the cambium layers of the rootstock and scion and holding them together long enough that they grow together and heal. The cambium layer is a layer of living tissue just inside the plant's bark. It can be seen as a thin pale green line between the bark and the wood. It is where the plant's xylem and phloem are, which are roughly analogous to blood vessels which move fluids and nutrients around the plant.

The best times for grafting dormant wood - wood that has not yet leafed out - are late January to mid-May, when the weather is not too cold or too warm.

One important (and surprisingly easy to overlook) detail: Make sure you graft to the right end of the scion. Check to see that the buds on the scion are upright - they won't grow if you attach them upside down. This is usually easy to see if you pay attention, though grapes and kiwis can at times be challenging.

There are many types of grafts, but the two types most used for dormant wood are cleft grafts and whip-and-tongue grafts.

Cleft grafts are ideal when the rootstock is larger than the scion.

For a cleft graft, start by making a clean cut across rootstock or limb, then make a nice split down the middle of it - $\frac{3}{4}$ to $1\frac{1}{2}$ inches long. Be careful to not let the knife slip. Some people like to support the rootstock on the table and press down keeping fingers out of the way. Others like to slowly wiggle the knife in a rocking fashion to slowly split the wood. On large branches use a large knife or cleaver and make the cut by using a hammer on the backside of the knife.

To prepare the scion cut the bottom end into a wedge with a couple of nice clean cuts, with the outside slightly wider than the inside. (this keeps the rootstock wood from opening up too much) Cut the top end off leaving 2 to 3 buds.

Join the rootstock and scion by inserting the scion into the wedge and lining up the cambiums opposite each other so that they are touching. If you have done a good job there will be a tight perfect fit between the layers. The best way of learning to graft is to practice, practice, practice on old wood. Some people tilt the wood slightly; this guarantees the two cambiums will cross. But to get the most contact it is best if they can be lined up. Sometimes people also shave off the bark if the rootstock or limb is overgrown.

After joining, wrap the joined area tightly, using parafilm or tape - the tighter, the better, since the idea is to ensure good, tight contact between the two cambium layers, which will help with rapid healing. To help keep things from drying out, cover any exposed cuts with tape or parafilm. You can also use wax or a grafting sealer such as Dr. Falwell's or Heal and Seal, or even latex paint. People like parafilm, though, because it's less messy than liquid sealers. Also cover the cut at the top of the scion with parafilm or liquid sealer, to help prevent loss of moisture.

Whip and Tongue grafts are perhaps the favorite type, because they allow much greater cambium contact than cleft grafts, though they are a little harder to do. They become almost invisible over time; a year after healing, it's often hard to see the graft at all. They're best when the rootstock and scion are about the same in diameter.

Before cutting the wood, slide the scion along the rootstock until you find a spot where the pieces are about the same diameter; then snip off their ends with pruning shears. Make a slanting cut, 1 to 1 ½ inches long, same length on both pieces. Make an additional cut 1/3 of the way down, into the wood. This becomes a flap or notch to hold the wood together. To make the notch, it's best to start with the knife perpendicular to the surface. Then once it enters the wood, tilt it to make the cut.

To join the two pieces, align them together, and make sure the flaps are inserted into each other. Push them close enough to join, but not so much to create an air gap. Check to make sure there is good cambium contact. Wrap the joined area with tape or parafilm, starting at the base and upwards, overlapping the tape. If you use just tape consider coming back over with a budding rubber to make things tight.

Don't forget to think good thoughts about your work; soon it will have a life of it's own! And remember the best way to learn is practice practice practice. Every failure is an opportunity to learn.

For bench grafts, sometimes it is good to bring your plants indoors or to a slightly warmer area to encourage callousing (healing) of the graft. Keep them warm (50 to 70 degrees or so) for 2 weeks, then can go back outside. Some varieties such as persimmons and pecans like warmer temps- start with the easy ones first.

Growing: Hopefully, you are blessed, and your newly grafted buds soon swell with life, break forth and grow. Once they have grown a bit select one bud to become the trunk, and rub off all the others. Don't forget to rub off the buds and shoots on the rootstock. This can be hard, but it is the best. Little problems can grow into big problems. You want to train the shoot you have kept to grow vertically. Sometime it is good to attach the shoot to a pole, such as a bamboo stake, to keep it vertical and straight. Once the shoot has grown 18 to 24", you can allow the shoot to start branching.

Don't forget to loosen the ties on the stake after a few weeks- stems can swell and cause girdling, and you wouldn't want to do that to your tree after all the work you've put into it.

Collecting scions: The best buds are from shoots from last years growth, in the middle of the stem.

Rootstocks: Different rootstocks have different attributes. For example, among apple rootstocks, EMLA 111 is good in sandy and heavy soils, drought-tolerant, and slightly dwarfing, meaning a tree planted on it will grow to about 3/4 the height of a standard apple tree. Bud 9 produces a true dwarf tree, but it will always need support and, in California, regular summer watering.

Compatibility: Both for grafting onto rootstocks and for topworking, grafting new varieties onto existing trees, you need to know what will successfully graft to what.

Apples on Apples

Pears on Pears or quince- some may need an interstem of a mutually compatible type.

Apricots on Apricots, Peach, Plum- e.g. Lovell peach, Myrobalan plum, Mariana 26-24

Plums- do well on peach rootstock if soil well drained- if soil is heavy use plum

Peach- use a universal rootstock for stone fruits- e.g. Lovell, NemaGuard

Almonds- mixed reviews- some say almonds are good rootstock for all stone fruit, causing plant to come into bearing sooner

Citation is a formerly patented hybrid rootstock for stone fruit that is now off patent. It is better on not so heavy soil, some love it, some not so much.

For additional info see "Plant Propagation" by Hartman and Kester - great book on propagation

[Editor's note: another brief, informative note on rootstocks and compatibility can be found at <http://ceeldorado.ucdavis.edu/files/5833.htm.>]

Making your own rootstocks: If you want to grow a lot of trees and not find yourself shopping every year for rootstocks, try a technique called stooling, used by many nurseries and orchardists.

Grow a rootstock for a year in a 15-gallon pot. In the dormant season cut it back flush to the ground. The following spring shoots will come up around it. As the shoots grow, pile sawdust or light mulch around them and the main stem, 3 to 6 inches deep. Keep the sawdust well moistened throughout the growing season. Roots will grow from the lower parts of the shoots where they are buried in the sawdust. The following winter, after the plants go dormant, brush away the sawdust to expose the roots of the shoots. Cut these away where they join with the mother rootstock, and you have new rootstocks ready to go. Just remember to label the type of rootstock!

[Editor's note: One of our members posted the following link to a demonstration of stooling that shows, step by step, how it's done:

<http://www.youtube.com/watch?v=gn9nzWr9Q1w.>]

Pruning Demonstration at Sonoma State

by: Geoff Wells

On March 11, several chapter members, assisted by Frederique Lavoipierre and Rachael Spaeth, a Sonoma State student, gathered at an orchard on the SSU campus for an event that combined pruning the orchard's fruit trees and a demonstration of pruning techniques.

The orchard, located near the Environmental Technology Center in the northwest corner of the campus, has about 20 trees, donated by Dave Wilson Nursery and planted by CRFG members between five and eight years ago. The trees haven't gotten much attention in recent years, so they made a good subject for a demonstration.

Phil Pieri led the demonstration and gave a talk explaining the basics of pruning fruit trees. He started by saying there is no one right way to prune. Style is in the eye of the beholder, and how you prune a tree depends on your objectives. Different approaches work for backyard trees and commercial orchards. You will make different choices depending on what shape you want for your trees – central leader, open vase, espalier, etc. – and how tall you want them to be. Things to consider include the location of scaffolds, letting in light for even ripening, whether you want to be able to pick fruit without using a ladder, and whether you need clearance around the trunk to drive a mower or tractor. Phil goes with an intuitive approach to pruning; often you can look at a tree and see what needs to be done.

Winter and summer pruning accomplish different things. Pruning in the summer after fruiting is good for size control. Pruning in the winter, while the tree is dormant, encourages growth, but winter time, when the tree is bare of leaves, is the easiest time to prune for structural modifications. Avoid pruning more than 20 to 25 percent of a tree at any given time. Heavy winter pruning often causes a massive vegetative surge in the spring. That said, if anything needs to be pruned at any time go ahead and prune it. Phil often goes through his orchard 2 to 4 times through the dormant season, slowly pruning back. As with any rule, though, there is an exception. For stone fruit, it's best to prune trees at the end of winter, right at bud break. This minimizes the chance of bacterial canker, which is prevalent in wet winters, particularly in Sonoma county.

For summertime pruning to maintain height, one approach is to cut off anything higher than one's chosen height limit. Keeping the height of the tree down makes it easier to care for and easier to pick fruit from it.

There are two main types of pruning cuts: heading and thinning. Heading cuts are done on shoots by removing 2/3 of the growth. This will cause dormant buds below to break and grow. Make the cut ¼ to ½ inch above the bud. If you can, cut back to a bud facing the direction you want the new shoot to grow. For most situations this will be an outer facing bud. Thinning cuts are cuts down where an entire shoot or branch is cut off at the spot where it branches. This will thin out the tree without bringing a vegetative spurt of growth from dormant buds. When you prune, you should also remove any dead wood.

The two main types of tree form are central leader and open vase. To make an open vase shape, remove limbs growing inward to allow light down into the center. Without good light penetration, the quality of the fruit will suffer.

For all tree shapes, remove water sprouts or suckers that have extreme vertical growth. Remove crossing limbs that can rub or block light, choosing either a larger one if it is healthy with spurs or a younger one to encourage new growth. Remove long limbs that are below horizontal. These will fruit but the fruit is often low quality. You may, if you wish, remove all limbs below 18"

growing from the trunk. Remove water sprouts and suckers at the base of the tree sprouting from the roots.

For limbs growing out into an area where you don't want them, prune them back on the previous season's growth to about 3 buds. This "tells" the tree to slow down growing in that direction.

Sometimes you may want to remove older branches to get the tree to grow new wood. New wood will grow new fruiting spurs which can reinvigorate the tree and improve fruit quality.

Most fruit trees bear on second year wood. You can prune fruit spurs down; in commercial orchards they prune down to 2 to 3 buds to minimize the chance of ripening fruit breaking a limb.

Phil doesn't use anything to seal cuts.

Chapter Meeting and Election of Officers

Linda Robertson

RECRFG's annual chapter meeting, postponed from its original date in November, was held at the Environmental Technology Center at Sonoma State University, on January 22, 2011. We met to elect officers, create committees, and plan the scion exchange and other chapter events

The lack of chapter members willing to serve as officers has become a real problem. Phil Pieri, after serving three terms as chair and guiding the chapter through hosting the 2009 Festival of Fruit, was ready to step down. He had already served for longer than the chapter bylaws permit, as had Linda Robertson, the chapter secretary. Linda and Keith Borglum were willing to serve as chair if they could share the responsibilities with someone else. Since the bylaws don't include a vice chair position, they were jointly nominated and elected as co-chairs of the chapter. Mike Roa was elected to another term as treasurer. Jessica McCready was elected as secretary; and Tony Bryan was appointed as events coordinator, with Jessica assisting. Phil agreed to continue as our scion exchange coordinator and liaison with Sonoma State; David Ulmer agreed to continue as biomanager; and Linda agreed to stay on as newsletter editor when no one else volunteered to take it over.

The ETC building on the campus has a good-sized meeting room with a movie screen. Frederique Lavoipierre, from Sonoma State, was at the meeting. With her help, we will be able to hold some of our chapter meetings and events there. We agreed, on our side, to help maintain the campus orchard.

A few weeks later, Jessica McCready had to resign as secretary because of other responsibilities, and Geoff Wells took over as the chapter secretary.

If you have an interesting story or specialized knowledge to share with our group, please get in touch with either Linda Robertson or Michael Kurland at 707-766-7102 or email lrobertson09@gmail.com and help us in our never-ending search for enlightenment.