

Grafting Techniques

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INTRODUCTION

Propagators have been grafting for thousands of years.

When I first wanted to learn to graft I obtained Hartmann and Kester's book on plant propagation and studied the pictures. This book and Garner's Handbook of Grafting are invaluable texts on the theory and styles of grafting. However after reading these books I was still not able to correctly complete a successful graft. What I needed was a detailed description of how to physically graft. That is the carpentry of grafting, as well as the reasons why. I then sought out any local propagators who would show in detail how they grafted. There were few who were willing to divulge their methods. After much trial and effort I developed a method that allowed me to make an income from contract grafting. I believe that the practical techniques used in grafting should be documented as well as the theory.

GOALS

To make a wage through contracting your grafting ability, you need to achieve a high success rate and speed. You need a high success rate if you are to get future work. Your reputation depends on the last job. Success depends most importantly on the quality of the understocks and scion material. Grafting carpentry is but one step and at times the success or failure of grafts is beyond your control. This is where experience in plant culture is a great asset and is the difference between a person who can graft and a grafter.

Speed is needed to give the client value for money. Much of contract grafting is done on a piece rate basis and here speed is needed for the grafter to earn a worthwhile income. Some plants have only a short time when grafting is possible and being able to graft quickly will mean maximum takes. The aim of any beginning grafter is to find a method that will allow the seemingly opposite goals of speed and accuracy to coincide. For each grafter there seems to be an individual method. I do not claim to have the best method, only one that has been successful for me. I would advise young grafters to concentrate on accuracy first and allow their speed to build up with time. Aim at initially completing 200 grafts a day.

Most of my grafting has been done in nurseries on a bench and with container-grown stock. My preferred graft is a whip and tongue. This is a strong union and allows for good success as well as a quality graft.

Grafting is best when at least two people are involved. One person is needed to move and paint trees; the other does the grafting. It should be possible for one mover to keep stock up to three grafters. The advantage of this system is that the grafter is not required to have contact with the pot media. The working space can be organized for maximum efficiency and the risk of disease from contaminated pot media minimized.

GRAFTING

Equipment. The tools of trade for a grafter are few. It is unwise to skimp when purchasing grafting equipment as only a few percent increase in efficiency becomes a sizeable increase in income over a weeks effort.

Secateurs. Look for secateurs with the following features, replaceable blades, light weight, high quality steel, easily adjustable tension and easy to dismantle for cleaning. Price is a good indicator of quality.

Grafting Knives. These need to be of high quality, with thin strong blades and able to be honed to a fine edge. Light weight is also an advantage.

Grafting Tape. For soft plant material try parafilm. It is easy to tie, will break down in sunlight, and eliminates the need for grafting mastic. For harder wood use PVC tape. This will tie the scion tightly to the understock. I have found that the embossed tape is easier to grip especially in wet conditions.

THE CARPENTRY OF GRAFTING

Grafting is a repetitive task that requires a high degree of accuracy. To become skilled it is essential to eliminate all unnecessary movements. Arrangement of the work place is important. Take time to set up scion material, knives etc. so that they are within easy reach. A little extra time in setting up will bring a large increase in efficiency.

Holding the Knife. The way in which you hold your knife is critical for accurate cuts. The knife should be held with a relaxed grip. Clasp the knife tightly is difficult to maintain over many hours. Repetitive strain injuries will be eliminated if your hand is relaxed. I hold the knife with my thumb extended and index finger wrapped around the blade. The wrist is twisted so that the thumb is in line with your arm. Try to relax the fingers and only lightly grip the handle. It feels awkward at first but is not difficult with a little practice.

To gain success in grafting you will need to be able to make many cuts very accurately. To do this it is necessary to restrict and control your arm movements.

Cutting. There are two basic types of cuts used in grafting—the slice cut and the cross cut. Most grafts can be mastered using these cuts.

With the slice cut. Gently draw the blade along, allowing the knife to slice through the plant material. Depend on your blade's sharpness to do the work rather than physical effort on your behalf. Aim to have all the blade involved in the cut. This cut is made using your elbow and shoulder to pull the knife. Do not move either your fingers or your wrist. The length of the cut is determined by the angle of the blade. To make your cuts longer flatten the knife to be more parallel with the plant material. The cut should of course be the same length for both the scion and understock. A whip graft is the result of the scion and understock being sliced.

In the cross cut. Hold the knife in a similar fashion to that used for making a slice, but with the back of your hand facing you. Rotate your arm and therefore the knife using the thumb as a pivot. If the cut is not deep enough rotate the knife back. An important feature of the cross cut is to ensure that your hands are joined. If the knife slips or the wood splits it is difficult to cut yourself. A whip and tongue is created when the scion and understock are sliced and cross cut. Aim at doing this with four movements.

Tying Off. There are many ways to tie grafting tape. I usually start at the middle of the union. I then wrap down to below and then up to above the union. To tie off I return to the middle. A simple hitch is all that is necessary. It is important to be able to apply tension to the tape at all times during the grafting process. I have found that embossed tape is easier to use than is smooth tape, especially in wet weather.

Some Common Faults. We all fall into bad habits in grafting. Be aware and look to correcting these before they become serious.

Scooping. This is caused by a forward wrist movement and is usually associated with a tightening of the grip.

Tails. Usually caused by a movement in the non-cutting hand. This can also be a result of forcing the knife through rather than allowing it to slide. This is a difficult fault to correct.

Twisted cuts. These result from a rotation of your arm usually at the wrist.

Cuts not long enough. This is a result of not laying the knife flat enough. To overcome this make the knife blade and the plant material more in line.

SOME CONCLUDING TIPS

Buy at least two knives, preferably three or four. You will then not have to stop and clean a knife if one becomes contaminated or blunt. Plants showing a brown streak are usually diseased and should be discarded.

- Tie grafting tape around your neck and you will know where it is. Tape will easily pick up contamination if placed flat on a bench.
- Speed is more important than 100% accuracy. To increase speed develop a routine when grafting. Be careful not to develop useless movements.
- If possible, hold the grafting knife in your hand at all times. I hold mine in one little finger. A light grafting knife is necessary here.
- Take time to have everything at an easy height.
- And don't forget to hold your tongue—right!