



Garrett Wade

Technical Memo T67

Re: 45T01.15 45T01.16

To: Customers of the Professional Italian Grafting Tools
From: Garrett Wade Customer Service

Thank you for your purchase of the Professional Italian Grafting Tools. Grafting is used to provide more fruit varieties, a longer growing season and more effective pollination by providing a means of propagating plants that do not come true from seed or do not root easily from cuttings. It is used to adapt plants to unfavorable soil or climatic conditions, to repair damaged trees, to control and prevent pests, to modify the growth of plants like with dwarf fruit trees, and even to change the entire top of a fruit bearing tree to another variety (a common practice in orchards, known as *topworking*. The image below is of a bark graft performed on a pecan seedling which has been topworked). Grafting is a versatile, fascinating technique that is often referred to as “assisting” nature. If you’re like us – enthusiastic gardeners with very little hands-on experience in the ancient arts of grafting fruit trees and ornamental plants – you will be intrigued to learn more and try your own hand at grafting.

We have included Larry Southwick’s booklet, *Grafting Fruit Trees*, a great introduction to the practice of grafting, full of instructional illustrations and the basic when, what and how of successful grafting;. We also include instructions on how to change blades, as well as information on types of grafts, the species best suited for each type and seasonal information on the time of year to expect the best results.

CONDITIONS FOR SUCCESSFUL GRAFTING

Compatibility

Compatibility is the set of conditions that give rise to a durable graft or union joining living parts of similar but distinct plants. These parts are known as the scion and the root, or rootstock. The **rootstock** is the main plant onto which the graft will be made, usually chosen for its strong roots. The **scion** is the shoot (or shoots) that will be grafted onto the main plant, usually chosen for its flowers, fruit or foliage, as well as for pollination of the rootstock. **Budding** is performed in late summer using a single bud for the scion.

The two most important conditions for compatibility are that the stock and the scion be very similar plants, and that the right parts of the stock and scion can be lined up at the graft. Apple shoots cannot be grafted onto a pear, for example, because even though they are similar, they are not similar enough to be compatible for grafting.



The graft needs to be aligned properly so that it does not interrupt the essential transfer of fluid and nutrients at any time. The scion and stock also need to be aligned so that they can form a structural union as they heal together. The Pro Italian Grafting Tools use the same cutting blade for both stock and scion, so that there is a good match between the two surfaces.

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Protection

The new graft must be protected from harmful infections and from drying out. This is achieved by covering the finished graft with grafting wax and/or tape.

Time of Year

The main season for grafting is between January and September, but in warmer regions it is also possible in October. Most grafts are made in late winter or late summer when temperatures are not extreme and the plant is not very active. The graft may have difficulty healing when temperatures are under about 64 and over about 90 degrees Fahrenheit. In hot, sunny weather it helps to protect the graft from the sun by wrapping it with white paper. Grafts made in fall just before the winter rest period will have to wait until the next spring for conditions to be right for the graft to be successful.

Direction

The direction of growth should be consistent across the graft: the scion or bud should remain the right way round.

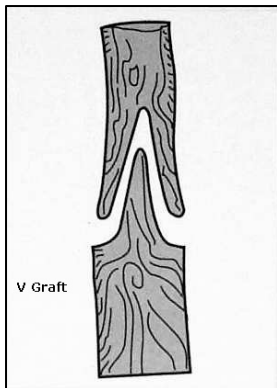
Choice of Stock and Scion or Bud

Apart from compatibility with the scion, the stock should be chosen for the local climate and terrain, and for its strong root system. The scion should be chosen from a healthy parent plant.

The Types of Grafts Possible with the Professional Italian Grafting Tools

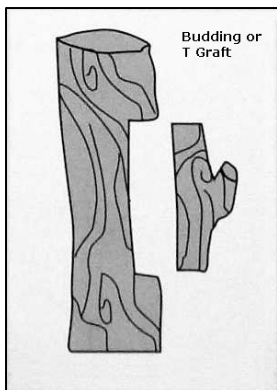
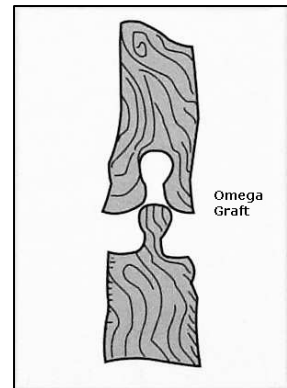
There are two main categories: one category includes V and omega grafting in which the scion is a cutting with more than one bud on it, and the other is a variation of grafting called T-grafting or budding in which a single bud is inserted into the stock. Budding is generally considered to be the more difficult technique, though the Pro Italian Grafting Tool makes it simpler than the traditional method. In all cases the tool permits accurate, matching cuts to be easily made in both stock and scion or bud because the same blade is used for both stock and scion.

Scion Grafting



Usually done in late winter or very early spring before the start of the year's growth, scion grafting is more common than bud grafting. The scion consists of about 4 to 5 inches of shoot that has two to three buds. The Pro Italian Grafting Tool performs both V grafts and interlocking Omega grafts.

Shoots for use as scions should be cut before the buds start their springtime swelling. They can be cut in winter and kept in a fridge, tightly wrapped in a plastic bag. V grafts are better for grafts made in late winter and early spring. Omega grafts are better for grafts made in late fall (the beginning of the plant's rest season), helping the graft survive the winter. Roses and vines are most suitable for grafting with the omega cutter.



Budding

This is a type of grafting in which a single bud is inserted into the side of the stock. Because only one bud is used this can be a very economical method for large scale production, or when there is limited material available. It is usually carried out in the spring or late summer when the stock is out of dormancy, with both dormant and developing buds, depending on the species. When dormant buds are recommended they should be cut during the dormant season and kept in a fridge, tightly wrapped in plastic, until used.

The **Bud** is the portion (or scion) found at the base of each leaf stock. The Pro Italian Grafting Tool T- Blade neatly trims a single bud as well as cuts an identical shaped notch in the stock.

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General Tips and Methods of Work

Grafting and budding can be thought of as performing surgery on your plants and trees. It is essential that you maintain hygienic conditions while working with plants you are grafting. Sterilize the blades of the Pro Grafting Tools with alcohol or bleach prior to using. Dry and clean the blades after each use. Wipe the blades with oil for storage between seasons. Never perform grafts with a rusty blade – replace it.

We recommend that you replace the blades for the Pro Grafting Tools each season. We stock a full compliment of blades.

Scions should be cleaned up by removing leaves and branches.

The finished graft should be protected from infection and drying out by covering with wax and/or tape. All exposed cut surfaces should be sealed.

“Suckers” growing from the stock below the graft should be removed so that the growth of the stock does not overcome the growth of the scion.

Where multiple cultivars are grafted onto one stock (as depicted in the image below) the most vigorous cultivars should be pruned so that they do not overwhelm the less vigorous cultivars.

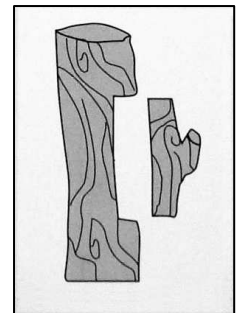
Grafting is very commonly used with roses. These are the common rootstocks for roses:

- **Rosa multiflora** (Multiflora or Rambling Rose) roots easily, and is vigorous. It is resistant to a wide range of climatic conditions and is suitable for small bushes;
- **Rosa canina** (Dog Rose) may be slow growing and have difficult rooting but it tends to produce extremely long-lived individuals;
- **Rosa rugosa** (Japanese Rose) can be used for small and large rose bushes

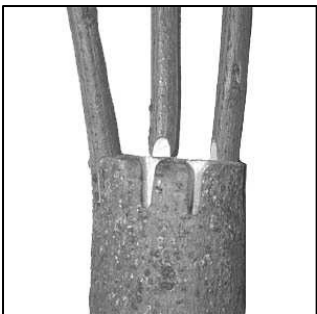
Budding with the Pro Italian Grafting Tool T-Blade

Budding provides a particularly challenging and very satisfying option to the gardener. Roses, apples, peaches and sweet gum (*Liquidambar*) are among the plants commonly budded, usually in late spring or summer. The Pro Grafting Tool T-Blade provides us the chance to explore this rewarding part of grafting.

- The T-Blade cuts a vertical notch in the side of the parent (rootstock), and, using the same blade, cuts a single bud from the plant to be grafted onto the stock.
- Taking care not to damage the bud, insert it into the hollowed section in the stock.
- Using a single fixed blade for both cuts insures a good fit and the best chance that the cells of the bud and stock will unite for a healthy, successful graft. During this operation it is very important not to touch the bud with your fingers to avoid damaging it..
- Seal up the area with wax and tape, being careful not to cover or damage the bud. Practice good hygiene - always clean and sterilize your tools and knives before and after grafting.



Using the Large Pro Grafting Tool



The Large Grafting Tool is designed for stock larger than 1/2" as in the image to the left in which three pencil- sized scions (cultivars) are side grafted to a 1-1/2" diameter seedling pecan rootstock. The Large Pro Tool comes with two blades – a V-Blade and an Omega Blade - that will cut a side-notch in stock up to 1-3/4" in diameter. With the corresponding blade, use the Standard Pro Grafting Tool to cut a scion which will be an exact match. Carefully matched joining parts which align the critical cells of each plant are a key to successful grafting. The depth of the notch should match the diameter of the scion. If the stock is a little small (about 1") use a soft material to block it out in the tool (like a rag, or rolled up paper towels). Take care not to damage the stock. Make clean cuts - never tear away partially cut bark. A raker arm helps extract the blade from the cut notch. We have included instructions on changing blades.

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Refer to these seasonal and species reference charts when considering your grafting plans

Recommended Graft Types and Times

Trees, Fruits and Vines

Species	Type of Graft	Time of Year
Actinidia (Kiwi)	V	April-May
Apricot	V	February-March
Annona (Cherimoya etc)	V	February-March
Orange	V	Spring
Avocado	V	Spring
Chestnut	V	May-June
Cedar	V	Spring
Cherry (Sour and Sweet)	V or Omega	October-November
Quince	V	March-April
Fig	V	April-May
Persimmon	V	Spring
Lemon	V	Spring
Mandarin	V	Spring
Almond	V or Omega	End of Summer
Apple	V	February-March
Asian/Nashi Pear	V	End of Winter
Hazelnut	V or Omega	Winter
Walnut	V	February-March
Olive	V	May
Pear	V	February-April
Pistacchio	V	Spring
Peach	V	Spring
Vine	Omega or V	End of Winter

Flower and Ornamental Shrubs

Species	Type of Graft	Time of Year
Holly	V	End of Winter
Azalea	V or Omega	Fall
Hawthorn	V	Start of Spring
Camelia	V	Spring
Clematis	V	Spring
Dogwood	V or Omega	Winter
Gardenia	V	Spring
Jasmine	V	January-March
Wisteria	V	March-April
Lilac	V	End of Winter
Peony	V or Omega	Late Summer
Rhododendron	V or Omega	Late Fall
Rose	Omega or V	Spring
Viburnum	V or Omega	August-September

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Methods of Propagation for the Various Species

Fruit Bearing Trees

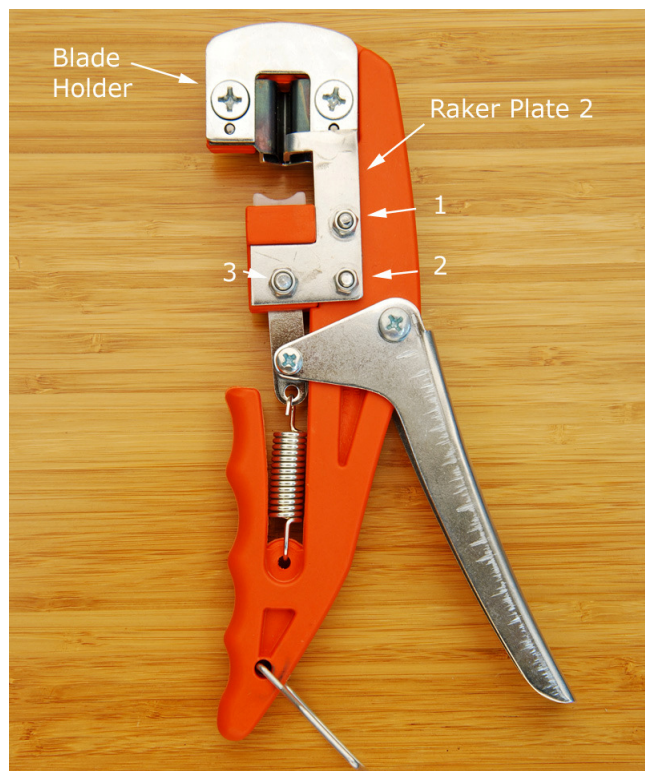
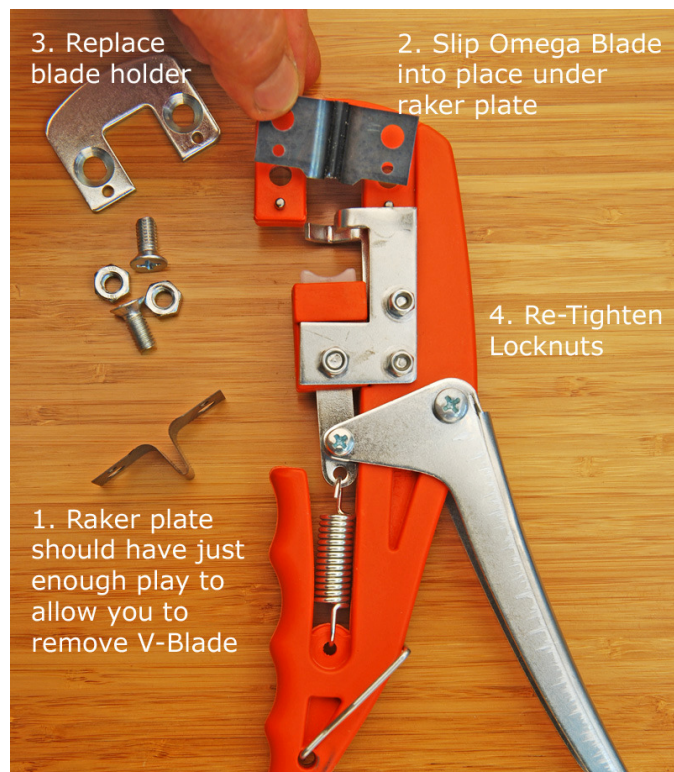
Species	Type of Bud	Time of Year
Kiwi	Dormant	Start of Fall
Citrus	Developing Dormant	Spring Fall
Apricot	Dormant Developing	July-August Spring
Annona (Cherimoya etc)	Developing	April
Orange	Developing	July-August
Avocado	Developing	Spring
Sweet Cherry	Dormant	Fall
Quince	Dormant	September
Fig	Developing	August-September
Almond	Dormant	Fall
Apple	Dormant	July-August
Pomegranate	Dormant	End of Summer
Loquat	Dormant Developing	July April
Walnut	Developing	August-September
Pear	Dormant	August-September
Peach	Dormant Developing	August-September June
Pistacchio	Developing	Summer
Plum	Dormant	September

Ornamental Trees

Species	Type of Bud	Time of Year
Maple	Developing	Mid summer
Catalpa	Developing Dormant	April-May Fall
Cercis	Developing	Mid summer
Ginkgo biloba	Dormant	Fall
Horse Chestnut	Dormant	End of summer
Flowering Apple	Dormant	Spring or (better) fall
Ornamental Pear	Dormant	Spring or fall
Prunus	Dormant	Spring or fall
Locust	Dormant	May
Sorb apple	Dormant	Fall
Lime	Developing	Late summer

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Changing Blades on the Standard Grafting Tool



The images to the left show both sides of the Standard Pro Italian Grafting Tool which uses a rounded V-Blade, and an Omega Blade for scion grafting, as well as a T-Blade for budding.

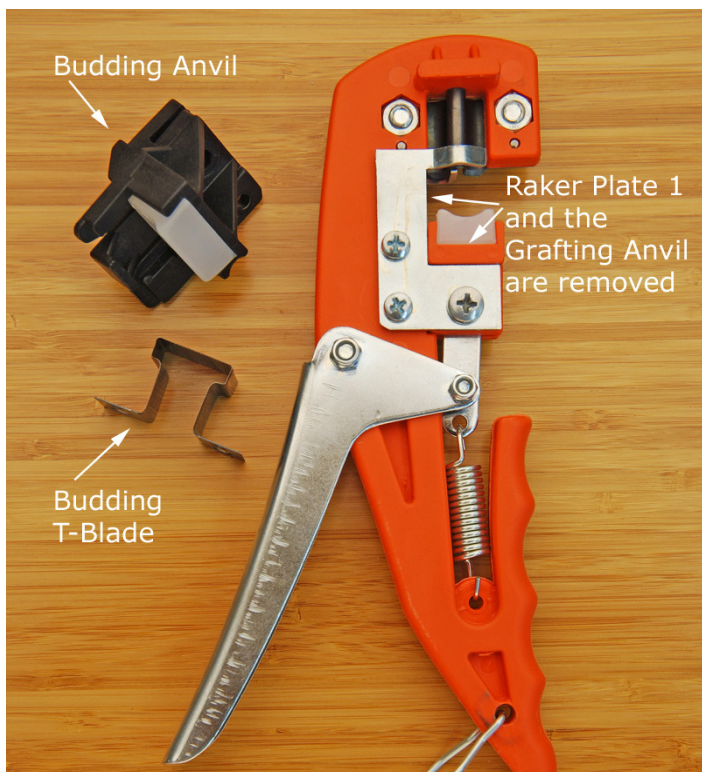
Each blade is held fixed in the tool. Squeezing the handle raises the moving carriage anvil into the blade. The V-Blade and the Omega Blade use the anvil that comes on the tool (shown here). The T-Blade uses the separate Budding Anvil. Instructions for changing to the T-Blade and Budding Anvil are on the next page.

Changing from the V-Blade to the Omega is a simple operation. Follow the steps in the image above to change between the V-Blade and the Omega.

Note: It is not necessary to remove Raker Plate 1 to change blades. Simply loosen the locknuts enough that you can slip the blade out.

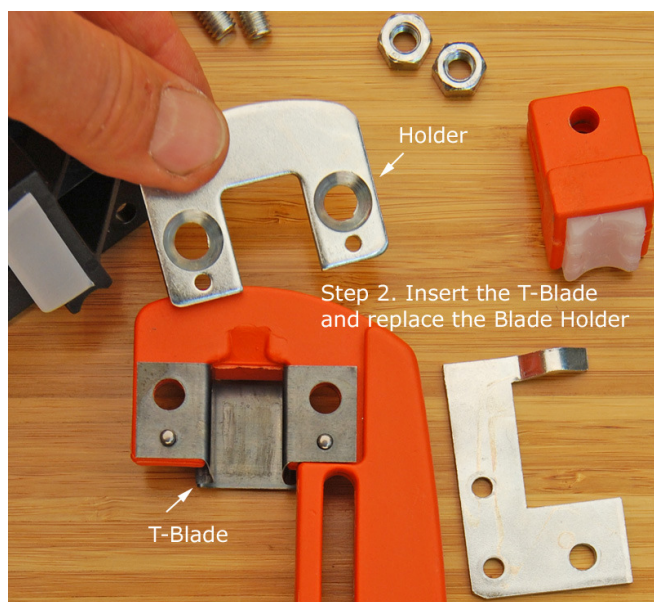
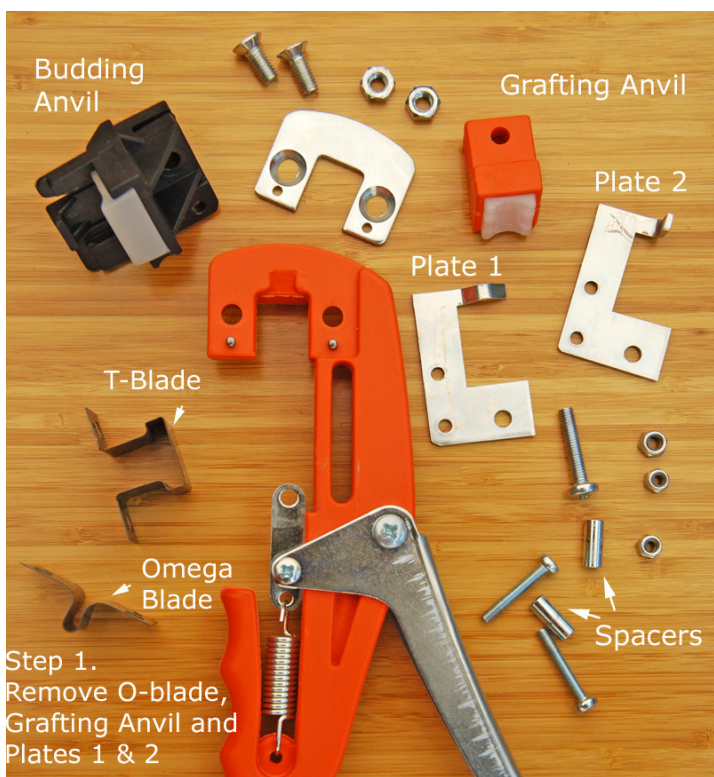
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Changing to the T-Blade and Budding Anvil

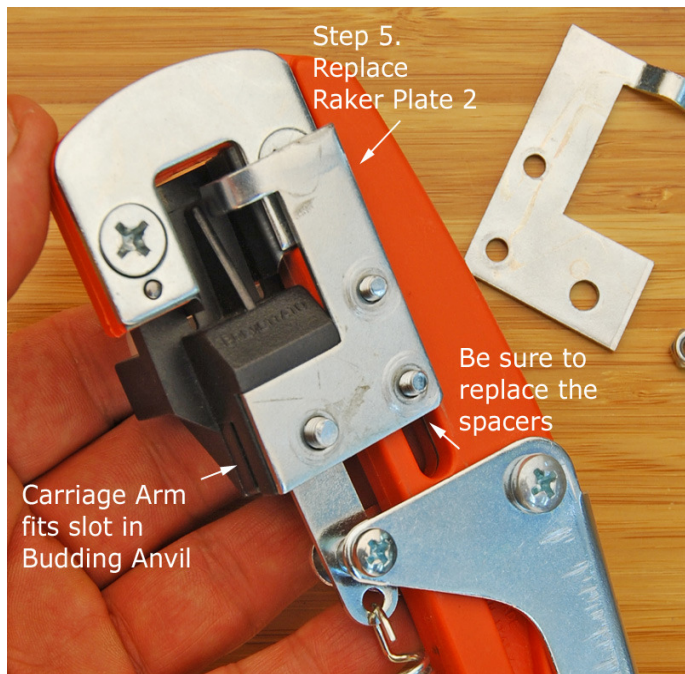
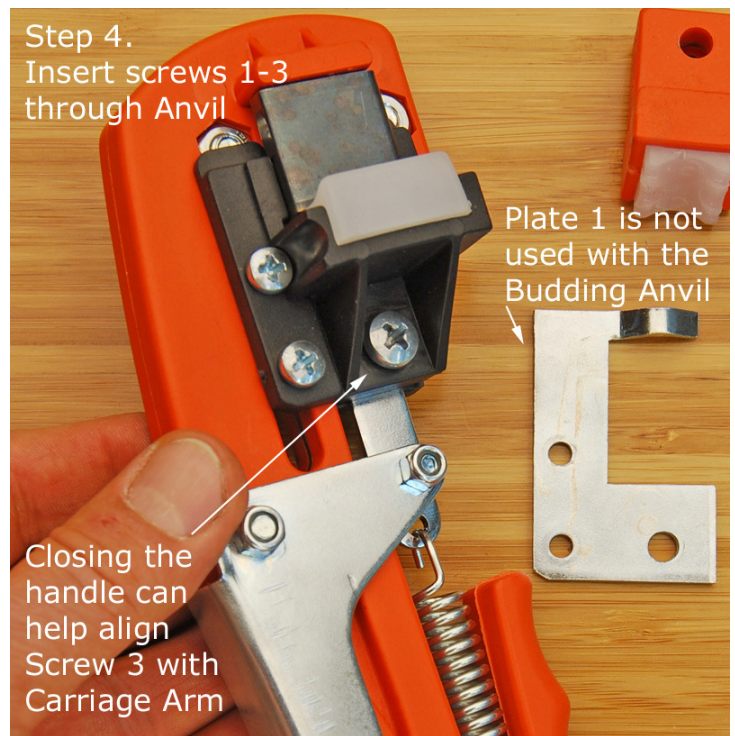


Follow these simple steps to change the to the T-Blade and the Budding Anvil..

Note: The Raker Plates serve to help extract the blade from the plant after cutting. Only Raker Plate 2 is used in bud grafting with the T-Blade. Two spacers are used. Take care not to misplace the spacers. Keep Raker Plate 1 and the Grafting Anvil in a safe place while not in use.

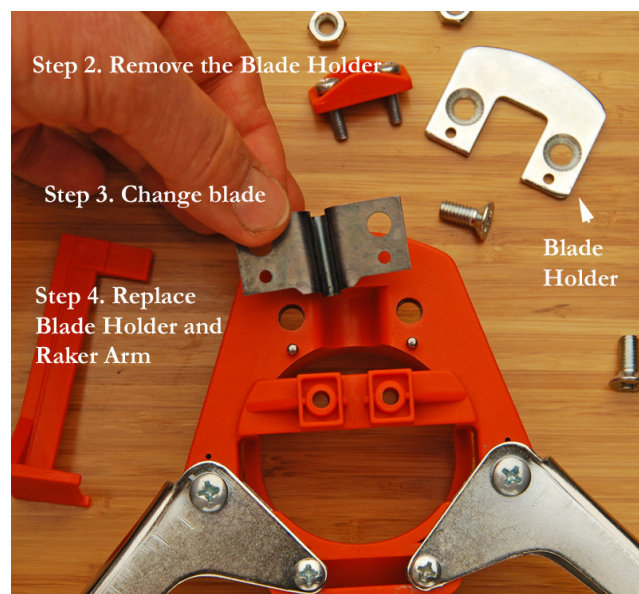


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Changing Blades on the Large Pro Italian Grafting Tool



Other recommended grafting materials we carry includes the Curved Grafting Knife (11C01.01), ½ lb. Grafting Wax (47A01.01) and the ¾" Grafting Tape (47A01.02).

Like any project with some technical and scientific content, grafting takes a bit of time to digest the elements and become proficient, but this can be a very rewarding activity for anyone in the garden or in the orchard. Plan carefully prior to starting any grafting project to give yourself the best chance at success. Read *Grafting Fruit Trees* and other sources as you prepare. Refer to the information included in the species and seasonal charts. Give us a call if you have any questions.

But most importantly, have fun and enjoy the using Professional Italian Grafting Tools.

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