

Grafting of Marula trees

What is grafting?

Grafting is a technique that joins material from 2 trees, which will grow together as one tree. The part that will grow to become the roots is called the **root stock**. The part that will grow to become the stem and branches is called the **scion**.



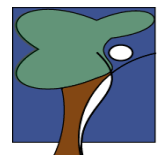
Why grafting?

Grafting is very useful because it can help you to grow a tree with qualities that you want. For example a marula tree that produces big juicy fruits from which you can make the best *omaongo*, or a marula tree that produces fruits with big kernels that contain a lot of oil. It is not 100% guaranteed that a grafted marula seedling will survive, but if it does it will bear fruits after 1 or 2 years.

This manual guides you through the different steps of grafting marula trees.

These are:

1. Production of the root stock
2. Selection of scions (*outayi*)
3. Grafting marula
4. Caring for the grafted seedling



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1. Production of root stock

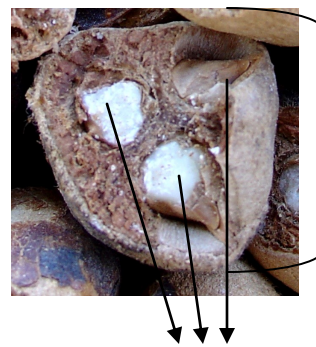
Before you can start grafting a marula tree, you need a marula seedling that is 2-3 years old. If you have a well-protected marula seedling of that age (it should have developed some wood), you can skip this step. If not, you will have to start from the beginning and plant a marula nut:

Preparing the seeds

Take seeds/nuts from a fully grown healthy tree!

You can use 2 techniques to make the planting from seed more successful:

1. Soak the nut in warm (not hot) water for 24 hours before planting.
2. Pop out the “eyes” (omesho) of the nut, exposing the seeds. But make sure that the seeds (kernels) inside are not damaged.



Marula nut (ongongo)

Seeds / kernels (omahuku)

NB the nut in the picture should not be planted because the seeds are cut!

Planting the seeds

- The best time to plant marula is August-September, so that the seedlings will be strong enough to survive the winter.
- Marula can be planted in the ground, but are better protected if planted in a pot or plastic planting bag.
- Fill the pot/bag with sandy soil (for easy drainage), mixed with cattle manure.
- Plant the nut 1-2 cm under the surface, with the “eyes” up.
- Wet the soil 3-4 times per week. Do NOT flood it with water.
- Place the pot/bag in the shade, protecting it from direct sunlight.
- Marula grows best in warm conditions with no frost.



The marula seedling should have developed some wood after 2-3 years and is now ready for grafting. The seedling will be used as the “root stock”, because it will grow to become the roots of the grafted tree.

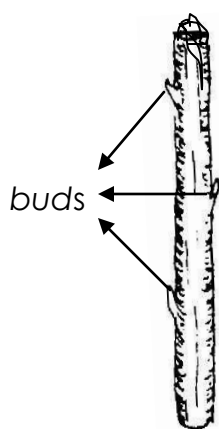
2. Selection of scions (outayi)

A scion is the end of a branch, the part where the leaves and fruits fell off. In grafting, the scion is the part where the stem and branches will grow from.

Choosing the mother tree The properties of the fruit of the grafted tree will be the same as the fruits from the tree where the scion was cut from (mother tree). That is why it is very important to cut the scion from a mother tree :

- with the type of fruits that you want to have (big fruits, juicy fruits, sweet fruits, and/or fruits with big oily kernels)
- that is healthy, with no pests and diseases
- that bears many fruits (high yield)

NB You have to ask permission from the owner of the mother tree to cut a scion!



Cutting the scions Cut the scion in the winter time, when the tree is dormant (June-

July). If the buds have begun to grow (*hapuka*), it is too late to use them for grafting. The scion should be:

1. 15-20 cm long
2. Straight (not bending too much)
3. As thick as the rootstock on which you will graft the scion.
4. Have at least 2-3 healthy buds

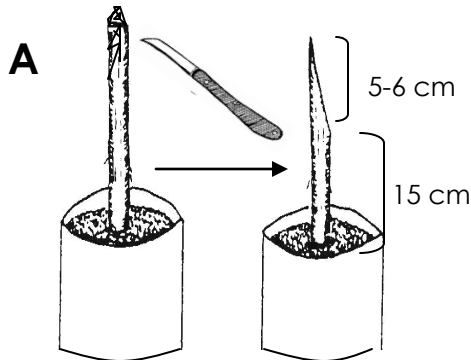
You can not keep the scion for too long, because it will dry out. Keep the scion in water or wrap it in wet newspapers (mix the water with some "Jik"), and do the grafting on the same day that you cut it off the mother tree.

3. Grafting marula

Grafting is the process of putting the rootstock and scion together. Apart from the **rootstock** and the **scion** you need:

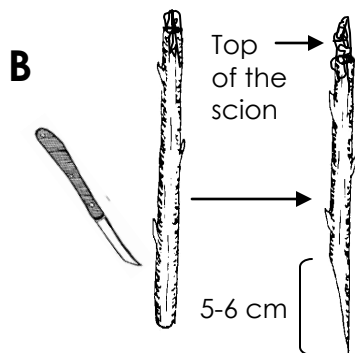
- a very **sharp knife** (pocket knife) - *to cut the rootstock and scion*
- Plant **sealing tape** (grafting tape) - *to hold the rootstock and the scion together*
- Plant **sealing gel (or wax)**- *to protect the graft from air, water and diseases*

There are different methods for grafting, but success is never guaranteed. It is better to try more than 1 seedling! For marula trees, this method works the best:

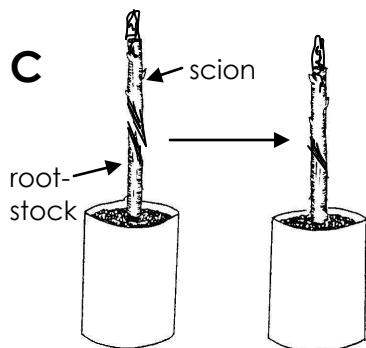


Take off all the leaves and branches that have started to grow on the rootstock. Then make a sharp, straight cut as shown on the picture. The cut should be 5-6 cm long. Keep +/-15 cm of the rootstock under the cut.

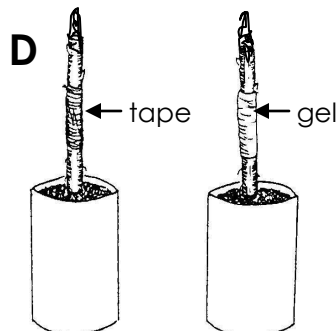
Be careful when using a sharp knife!! Bandage your thumb for protection



Make a cut with exactly the same length on the scion so that the 2 pieces (rootstock and scion) can fit together perfectly. Make sure that you cut the scion at the bottom end, where you cut it off the tree. In this way the top of the scion will become the top of the grafted seedling.



Put the root-stock and the scion together.



Use the grafting tape to tie the pieces together (starting in the middle), and cover the tape with the sealing gel or wax.

4. Caring for the grafted seedling

The grafted seedling should be kept in a pot in the shade, and watered every day. Any growth from the rootstock should be removed immediately, because this may kill the scion.

After 1 year the rootstock and scion should have grown together, and the grafted seedling can be planted. Remove the sealing gel and tape from the "wound" after planting the grafted seedling. Continue removing all growth from the rootstock.

➡ When the grafting is successful, your marula fruits of superior quality are ready to be harvested the next season or two!