

Further experiences with grafting in mid winter

Paolo Dobner

I do garden in a small plot some 1/3 acre (1,500sqm) on the hills of Stresa on Lake Maggiore, North Italy.

Here, I grow far too many plants, unable to resist the temptation to try new and better camellias, rhododendrons, dogwoods, and some magnolias, as well.

Just for fun, having studied whatever possible on budding and grafting, and ending with more questions than answers (for example, what does "a mature bud" really mean?). After concluding that the two key points in grafting are the correct temperature and humidity for the graft to take, I decided to try my hand.

I used the stocks I had (some poor *M. denudata* and *M. × soulangeana* seedlings growing in pots) I made some six side grafts in January two years ago. I tied them with a rubber tie and covered the graft region with polyethylene film with some humid peat inside to make a small envelope full of humidity. It should have worked but all the scions failed to sprout. In a desperate attempt to force the scions, I cut the stock just above the graft place but no improvement followed. The callus had healed the cut on the stock but did not fuse with the scion and produced no visible callus—a total disaster. In autumn, using the same technique, I tried again with three, supposedly more easily budded, stocks.

Then last year during a pleasant visit in spring, Vance Hooper gave me suggestions on how to treat my three budded plants (one *M. 'Daybreak'* bud succeeded and the other two died off.)

Vance showed me also how to graft using black tape and nothing else. He took some pruning refuse and showed side grafting with very small tongue both with and without the top of the stock removed. What impressed me was that having needed a few milliseconds to make the cuts, the cut surfaces on stock and scion were exactly the same within millimeters.

For me, cutting and maintaining flat surfaces is still the most difficult part in grafting. It is very easy to end with U-shaped surfaces and then when you put the two cuts one against the other one, you find yourself with contact points on the extremes and a hole in the middle. From this point of view, budding seems simpler because if you cut making the same mistake on stock and scion, the surfaces will

marry anyway.

When cutting grafts, the answer is not being in a hurry. Also restarting the cut may sometimes be necessary. Not forcing the blade in the wood is something easy to say, but not easy to do. The blade must slice through and not drag and split through.

So, in mid January 2007 I tried again grafting using only black tape and a "grafting tube" I had prepared in the meantime. This tube is a 1.5in (4cm) diameter plastic plumbing tube containing a heating cable controlled by a thermostat and with slots cut every 4in (10cm) to allow lying the grafted region in the slot leaving enough room to have the containers laying side by side. The result is that while the stock and scion remain dormant, the grafting region experiences a higher temperature and is active. The black tape helps collect and retain heat and maintain a more uniform temperature there (see Figure 1).

I made five magnolia grafts and as I did not have more stocks, I reused some of the old stocks that had re-sprouted. I decided to graft on the re-sprouted branch of smaller diameter; again let me stress I did it for fun to see what was going to happen. Only in one case I was able to use a good OP (open pollinated, male parent unknown) seedling of *M. 'Big Dude'* with the stock of the right diameter.



Figure 1. Grafting tube illustrating how graft union only goes into the tube. Note that plants are normally dormant at grafting time.

I also tried grafting scions from *Magnolia* 'Margaret Helen.' *M.* 'CB5,' *M.* 'Coral Lake,' and *M.* 'Elizabeth.' *Magnolia* 'Margaret Helen' was a long scion of new wood that had sprouted from low down. I cut it in two parts making two grafts. With *M.* 'Elizabeth' I wrongly broke the top of the scion. When trying to cut the stock in a flat way, I ended in breaking it too, so I made a side top graft, sealing the top of the scion to avoid loss of moisture from the scion, as I did on the middle *M.* 'Margaret Helen' scion.

In the four other grafts, the stock was not removed at grafting time and the tape was passed also between stock and scion to seal the grafting region and ended further up on the stock. The tape was tied to the breaking point with many turns overlapping and nothing else.

After six weeks in the grafting tube at 72°F (22°C) and no hardening off at all, the grafts were taken out of the tube and left to the normal weather vagaries. In this very variable weather time temperature can be around freezing with sometimes rain and wet snow quickly moving to raise temperatures and start spring.

On some plants, the effect of the tube was evident as some dormant buds on the stock in the graft region had started sprouting.

By the end of March the scions and the stocks were both sprouting and all five grafts seemed successful. The stocks were then reduced to be lower than the top sprouting bud on the scions. This is necessary to guarantee scion leadership (see Figure 2). It is my opinion that for the amateur doing things for his pleasure and does not care about more steps, it is better to remove the stock slowly so the stock roots suffer less as the quantity of leaves are reduced slowly.

In two weekly steps, the stock was reduced to come to the graft point and the grafting tape unwrapped. The grafts were beautiful with a wonderful junction. Vance then explained (via email) how to expose the new cambium to the new environment. There are no real problems, but avoid strong sunlight on the new unions (see Figure 3). Today all the magnolia grafts are doing very well.

As a final point I, think that terminal scions are much better than middle ones.

If you compare these two *M.* 'Margaret Helen' grafts, the middle scion sprouting with two branches will need to be cut again. Asking Vance to decide which of the branches to save, he suggested the lower one as it seems more vigorous, which is quite normal. The terminal scion is growing more easily in a straight way. Make the choice early to train the branch while it is still soft enough to straighten (see Figure 4).



Figure 2. Grafts sprouting in mid April and part of the stock already removed so to be lower than scion; note how much tape has been used.



Figure 3. Callus formation revealed when tape is removed after three months.



Figure 4. Comparison between tip scions and middle scions: the left graft will need to have one of the branches removed and the remaining branch tied to a cane so it will grow vertically..

Also in January, I made some 20 grafts, mainly dogwoods and *Styrax* with the same tape technique, with more than 80% success. The few failures were mainly due to very small scions on thick stocks. Using black tape is much simpler and more effective than any of the techniques I tried before.

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All photographs by the author..



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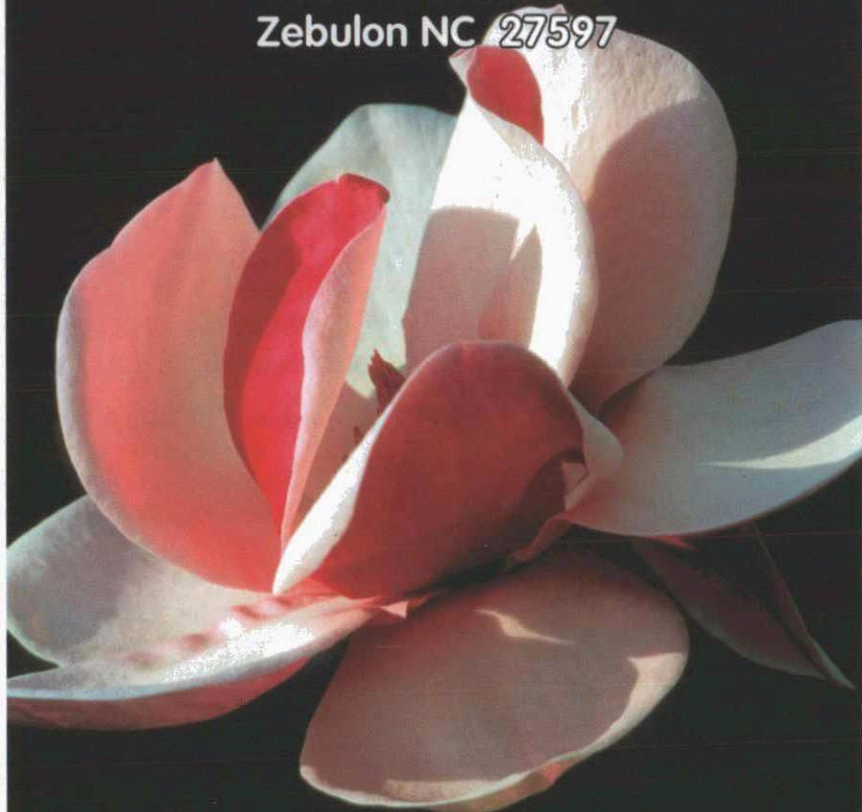
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