>> Whip and Tongue Grafting

Go

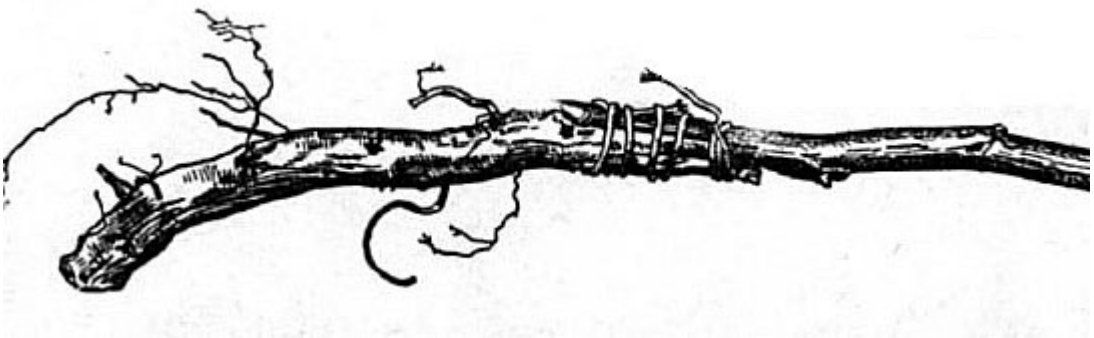
Application:

- Whip and tongue grafting is commonly used for *bench grafting* fruit trees. For example, it is the first of two grafts made in the production of double worked (interstem) apple trees. Scions of the dwarfing interstem genotype (often M9) are grafted to the vigorous MM111 rootstock during the winter, lined out in the spring, and then field budded with the fruiting variety in August or September of the same growing season.
- A whip and tongue graft is also used for *nurse root grafting*, described in the section on Reasons for Grafting and Budding, to bring about self rooting of a difficult to root species, such as lilac. A several node scion piece of the the shy rooting species, is bench grafted using Whip & tongue onto a stock, consisting of a piece of root. After callusing, in cool storage, the grafted plant is lined out in the field, where the rootstock serves as the temporary root system until the slow rooting scion has become self rooted.

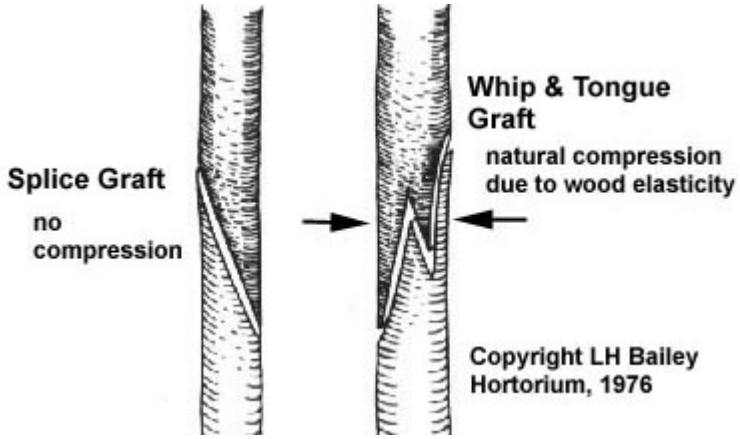
Advantages:

Compared to a splice graft, the whip and tongue is stronger, because the interlocking tongues are held under compression by the natural springiness (elasticity) of the wood of both stock and scion. This naturally generates the pressure needed for graft union formation, which is discussed in the section on Requirements for Successful Grafting and Budding. The additional length of the vascular cambium exposed along the cut surfaces of a whip & tongue graft (original diagonal cut plus tongue cut) is much greater than the length of cambium exposed by only the diagonal cut without the tongue, in the case of a splice graft. This results in greater cambial contact between stock and scion of a whip & tongue than of a splice graft.

Apple nurse root graft (by whip & tongue) from The Nursery Book, by LH Bailey, 1913



Natural pressure is generated by the interlocking tongues of the whip & tongue graft (right), compared to the splice graft, which is essentially the same graft without the interlocking "tongues".



How to Whip & Tongue Graft:

The first cut is a long sloping diagonal as much as one to two inches long

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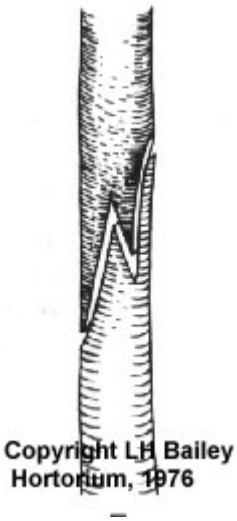
The second cut begins about 1/3 of the way down from the top of the first cut. It begins vertically, then gradually becomes nearly parallel to the first cut surface, to create the "tongue".

Identical (complementary)cuts are made in both stock and scion.

Preferably the scion should be the same diameter as the stock, but if it is smaller, it is important the the scion be placed over to one side of the stock, rather than centered, so that the vascular cambia like up.



Stock and scion should fit together without the overlap shown here, which indicates that the second (tongue) cut was to long.

Additional Information:

Source: VanPlant (a nursery in New Zealand)
Title: *Grafting*
URL: http://www.vanplant.co.nz/grafting.htm (Vans Plants home page: http://www.vanplant.co.nz)
Comments: This is a link from the General Information page of the VanPlant Web site. A detailed description, along with photos, of whip & tongue grafting of rose is presented as well as a novel variation on splice grafting.

Source: Hort 400 Plant Propagation Web site autotutorial
Title: *Commercial Apple Production Via Grafting*, by KW Mudge & BC Caldwell, 1995
URL: http://instruct1.cit.cornell.edu/courses/hort400/apple1.html
Comments: This series of annotated slides illustrates the use of whip & tongue grafting in the production of double worked apple trees at a nursery in Upstate New York. The clonal apple rootstock, MM 111, is whip & tongue bench grafted during the winter, to M9, and lined out in the spring, where a fruiting variety is field budded onto the M9 interstock in late summer.

Source: University of Minnesota Extension Service, College of Agricultural, Food, and Environmental Sciences
Title: GRAFTING AND BUDDING FRUIT TREES, by Leonard B. Hertz, Former Extension Horticulturist
URL: http://www.extension.umn.edu/distribution/horticulture/components/DG0532c.html
Comments:

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