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*Commenatry*

# The Brief Note on the Plant Grafting

**Helene Buerstmayr Chevre***

Department of Agrobiotechnology, University of Natural Resources and Life Sciences, Veinna, Austria.

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## DESCRIPTION

Grafting, also known as graftage, is a horticultural procedure in which plant tissues are linked so that they can continue to grow together. The scion is the upper part of the combined plant, whereas the rootstock is the lower part. In order for this connection to work, the vascular tissues must grow together and such joining is called inosculation. The technique is most commonly used in the horticulture and agricultural trades for asexual propagation of commercially grown plants.

In most cases, one plant is chosen for its roots and this is referred to as the stock or rootstock. The other plant, known as the scion or cion, is selected for its stems, leaves, flowers, or fruits. The scion contains the desired genes, which the stock/scion plant will duplicate in future production.

A shoot of a desirable plant cultivar is grafted onto the stock of another variety in stem grafting, a typical grafting method. Bud grafting is a another common method of grafting a dormant side bud onto the stem of another stock plant, and after it has successfully inoculated, it is encouraged to grow by pruning off the stem of the stock plant just above the newly grafted bud. The vascular cambium tissues of the stock and scion plants must be placed in contact with each other for successful grafting. Both tissues must be kept alive until the graft "takes," which takes a few weeks on average. Only a circulatory link between the grafted tissues is required for successful grafting. The connection of phloem occurs after three days of initial grafting in Arabidopsis thaliana hypocotyls, although the connection of xylem can take up to seven days, according to research.

The strength of grafted joints is inferior to that of organically produced joints. Because only the newly produced tissues inosculate with their other, a physical weak point often remains at the graft. The stock plant's existing structural tissue (or wood) does not fuse.

Inosculation refers to the natural grafting of tree branches and, more often, roots of the same species. When the roots make physical contact with one other, the bark of the tree may be stripped away, exposing the vascular cambium and allowing the roots to graft together. Root grafts allow a group of trees to share water and mineral nutrients, which can benefit weaker trees, and they can also develop a larger root mass as an adaptation to promote fire resistance and regeneration, as the California black oak exemplifies. Furthermore, because of the enhanced mechanical stability offered by grafting, the group may be protected from wind damage. As a form of plant parasitism, albino redwoods use root grafting to parasitize normal redwoods.

The difficulty with root grafts is that they allow transmission of certain pathogens like Dutch elm disease to spread. Inosculation can also happen when two stems from the same tree, shrub or vine make contact with each other. Strawberry and potato plants are examples of this. Herbaceous plants rarely undergo natural grafting because their roots are short-lived and have little to no secondary growth in the vascular cambium.

*Corresponding author. Helene Buerstmayr Chevre, E-mail: chevremayr.h4@gmail.com.