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A Brief Look at Grafting *Franklinia* to ×*Gordolinia*

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Summary

Franklinia as a landscape tree can have difficultires in container production as well as the landscape partly due to root system succeptibility to soil borne pathogens. ×*Gordolinia* is a hybrid of *Franklinia* and *Gordonia* appears to be more adaptable to varying soil types and could serve as a useful rootstock for *Franklinia*. This paper presents initial grafting method and post-grafting growth in *Franklinia* on a. ×*Gordolinia* rootstock.

INTRODUCTION

Franklinia ×*Gordolinia grandiflora* is a hybrid of *Franklinia alatamaha* and *Gordonia lisianthus* as performed and released by Dr. Tom Ranney and Dr. Paul Frantz (2006) Genetically the two species are quite close to one another. In some respects, ×*Gordolinia grandiflora* is superior to *Franklinia* because of its capability of adapting to varying soil types, a trait that *Franklinia* fails to share. Also, some container growers tell me that *Franklinia* is troublesome in production and often prone to soil borne fungal problems and sometimes the plants will look good one day and then fail the next. One grower in particular has had spectacular results with ×*Gordolinia* in containers with a high pine bark and sand media, so much so that a rooted 6-in cutting at the 1st of March is almost 4 ft high by the end of summer, when growing side by side to *Franklinia* the ×*Gordolinia* will be 2-3 times the size of the *Franklinia*.

If not sited correctly with that assessment sometimes a mystery, *Franklinia*

cannot be grown in soils that ×*Gordolinia* will ordinarily thrive in, this opens the possibility that a *Franklinia* grafted to ×*Gordolinia* could function in soils that are not generally acceptable for *Franklinia*. It should be noted that while soil tolerance is true, ×*Gordolinia* is not as reliably cold hardy as *Franklinia*. This is due to ×*Gordolinia's* tendency to be non-photoperiodic and its close kinship to *Gordonia lisianthus*, generally recognized with limited hardiness.

Dr. Thomas Ranney in an email conversation to me found that grafting *Franklinia* to ×*Gordolinia* presents no special difficulties and the grafts proceed with vigor.

METHODS

Two-year-old ×*Gordolinia* growing in #2 pots with conventional bagged potting soil were selected as rootstocks. One was set aside as a control and *Franklinia* scions were selected in the fall of 2020, around late to early October from well-established plants at the Barnes Arboretum of Saint Joseph University (SJU), Philadelphia, Pennsylvania.

Franklinia scions were cut from a mature tree with good growth and flowering. Scions were 10-15 cm long with leaves removed. It was interesting that the pith in *Franklinia* stems is brown and not white. It is generally a good idea to avoid scions with significant pith in the center of the stem as pith can interfere with the grafting process. It was decided to proceed in spite of the presence of the pith. A traditional side graft (Figure 1) was performed with care being taken to minimize the surface area of the pith.

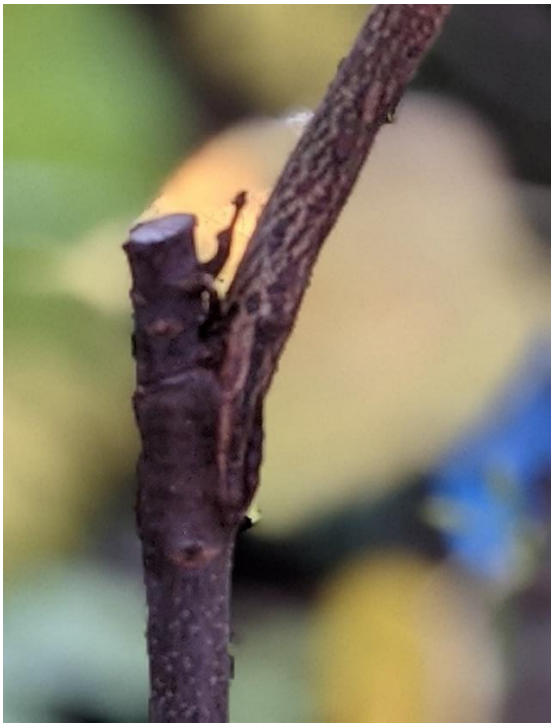

Figure 1. Completed active graft.

The base of the scion was wrapped with grafting rubber strips and then covered with an equal layer of parafilm grafting tape. After grafting the entire plant was enclosed in a white poly bag (Figure 2) and the bag was secured so that there was no air flow out of the bag in order to ensure a high humidity environment for the grafts. Leaves on the ×*Gordolinia* were kept and the plant was watered periodically to prevent dehydration. The completed grafted plant was kept in a shady portion of the greenhouse at the Barnes Arboretum greenhouse. Ambient temperatures were approximately 20-24ºC during the day and about 15-17ºC during the night. The grafted plant was left in the greenhouse for approximately 6 weeks and then removed to a cold greenhouse with the plastic bag intact for the rest of the winter.

Figure 2. Tent over completed graft.

Upon bud break in mid spring the grafted plant was moved outside and the plastic bag was removed. Care was taken to remove ×*Gordolinia* sprouts that would be in competition to the *Franklinia* shoots emerging. After the *Franklinia* shoots were allowed to grow for 6 weeks the grafting tape and the rubber bands were carefully removed and replaced with blue painter's tape to give additional support to the grafts. Both the grafted *Franklinia* plant and the comparison ×*Gordolinia* were keep in a standard nursery setting and fertilized while actively growing several times with liquid fertilizer at 250 ppm N. In late September grafts and control plant were compared.

RESULTS AND DISCUSSION

The control plant had numerous shoots with growth about 10-15 cm but no flowers. The grafted plant was kept clean of ×*Gordolinia* shoots and only the three *Franklinia* scions were allowed to grow (Figure 3). In late Sept the *Franklinia* showed vestiges of fall color and leaf senescence whereas the ×*Gordolinia* was growing actively and showed no such indicators of the approach of autumn. Photoperiodic vs no photoperiodic response? Presumably so but perhaps not a certainty as the effects of being grafted could play a part in such a response, at this point it is unclear which phenomenon is occurring.

Figure 3. *Franlinia alatamaha* grafts marked with blue tape on left, ×*Gordolinia grandiflora* on right.

The grafted plant had three shoots (Figure 3), one behaved as is typical of a central leader and the two grafts on either side put on some growth (15 cm) but not to the extent of the central graft which was close to (45 cm) which by all measures was surprising.

It seems that grafting of *Franklinia* to ×*Gordolinia* is successful as indicated by Dr. Thomas Ranney. Further work will be done to compare the growth rates of the ×*Gordolinia* and the grafted *Franklinia* on ×*Gordolinia* in typical soil conditions that is conducive to a host of other garden plants.

LITERATURE CITED

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