

Thursday Morning, December 8, 1988

The Thursday morning session convened at 8:00 a.m. with Len Savella serving as Moderator.

PIECE ROOT GRAFTING OF OAKS: AN UPDATE

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In 1984 I reported on using root pieces of *Quercus robur* for grafting *Q. robur* 'Fastigiata'. The results were better, more uniform plants, absence of suckering, and an excellent root system. One of the key factors was a relatively high temperature, both for the precallusing of the root pieces and to heal the grafts. In the years following 1984 further trials were conducted using *Q. palustris* 'Sovereign' grafted on *Q. palustris* root-pieces and a selected *Q. rubra* grafted on *Q. rubra* roots. The results of these trials were encouraging.

In regard to *Q. palustris* 'Sovereign', Dirr (1) reports that the originator, Coles Nursery, abandoned the growing of this plant due to graft incompatibility. I can not speak on this phenomenon, but would suggest that successful graft unions could be perpetuated by using piece roots of the original plant or from successful unions.

Today I would like to speak to you about a trial that involves the grafting of *Q. robur* root pieces and *Q. macrocarpa*, burr oak scions.

Well-branched, 10 cm long and 5 to 10 mm thick, root pieces were cut from one-year-old seedlings of *Q. robur*. The seedlings had been stored for 10 weeks at a temperature of 0°C. The root pieces were bundled and heeled into peat in a grafting bench at a temperature of 12 to 15°C for 25 days. This procedure was different from the original in the following: 1) roots were stored for 10 weeks instead of 3 weeks; 2) roots were not potted immediately; and 3) temperatures were lower by 10°C. The vigorous callus and root formation that had occurred at 20 to 25°C was nearly absent.

As the season was getting late I decided to graft nevertheless. On March 7, 1988, 290 *Q. robur* 'Fastigiata' scions from two selections, and 10 *Q. macrocarpa* scions were grafted on root pieces of *Q. robur*.

The grafting procedure, as in other years, was a side graft into the top of the root. Scions were bound to the root with rubber grafting strips. The finished grafts, since there were no visible new roots, were pushed into 2¼ × 3 in. deep rosepots. The medium was a loose soilless peat mix. Pots and grafts were then placed into a

plastic covered grafting bench. Pot, union, and part of the scion were covered with moist peat.

Normal grafting after-care, such as venting and shading, was carried out on a daily basis. Watering was done when needed. Grafting case temperature varied between 15 and 18°C. On May 15, 1988 the grafts, after having been hardened off for two weeks, were removed from the grafting bench and planted out.

RESULTS

Of the 290 *Q. robur* 'Fastigiata' grafts, 152 had successfully knitted. Five of the 10 *Q. macrocarpa* were growing. Root action and callusing are much less pronounced than under the original high temperature regimen. The main reason for the majority of the failures was roots that had decayed.

CONCLUSION

Temperatures of 20 to 25°C, and preparation of roots with a short storage period (3 to 4 weeks) gives excellent results. Roots of various *Quercus* species can successfully be used for grafting scions of selected plants of the same species. More importantly, interspecific grafting can also be carried out. It should be pointed out, however, that both *Q. robur* and *Q. macrocarpa* belong to the white oak group.

LITERATURE CITED

1. Dirr, Michael A. 1983. *Manual of Woody Landscape Plants*. 3rd ed. Stipes Publishing Co., Champaign, IL.