

Grafting Viburnums: New Ideas and Techniques

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The grafting of viburnums is not new. Case Hoogendorn (1952) presented to the second meeting of the Plant Propagators Society a very comprehensive paper. From 1952 to the present, much of the need for grafting viburnums has been diminished by improved rooting of cuttings. However, rooted cuttings of the *Viburnum carlesii* type can still suffer horrendous losses during overwintering and in the transplant phase as a bareroot liner. Mortality rates as high as 60% to 70% for bareroot *V. carlesii* and *V. × burkwoodii* can be encountered. Much of this problem can be linked directly to a poor cutting root system. A comparison of the root systems of equal age with bareroot *V. × rhytidophylloides* 'Alleghany' and *V. × burkwoodii* will show the 'Alleghany' plant to have two or three times the amount of root mass. Transplant losses of 'Alleghany' are virtually nil while those of *V. × burkwoodii* can be substantial. For some viburnums, such as *V. carlesii* and *V. carlesii* 'Compactum', grafting can still have an important part in production. McMillan-Brouse's (1970) survey in England included grafting of other viburnums such as *V. × rhytidophylloides* 'Fullbrook', *V. bitchiuense*, *V. × burkwoodii* 'Chenault', *V. × carlecephalum*, *V. macrocephalum*, and *V. × burkwoodii* 'Park Farm'.

Some of the loss problems with rooted cuttings can be offset by grafting onto more acceptable rootstocks. Hoogendorn (1971) used *V. dentatum* and *V. lantana* seedlings as rootstocks for *V. carlesii* and *V. carlesii* 'Compactum'. The problem associated with seedlings is the strong tendency to throw suckers which tends to cause development and maintenance problems. I favor rooted cuttings of, *V. rhytidophyllum*, *V. × rhytidophylloides*, or *V. × rhytidophylloides* 'Alleghany' as understocks. Others that are acceptable are *V. × rhytidophylloides* 'Willowwood', *V. lantana*, and *V. × pragense* (Table 1). Rehder (1986) groups viburnums according to close similarities and I feel that following his classification system for closely related species will indicate others that are equally acceptable as rootstocks.

We begin preparing the rootstocks 6 months to a year in advance. Cuttings are selected from stock plants with the intent of having stems that are at least pencil thick and have a long internodal segment. The base of the cutting is severed from the stock plant just above a bud, so that the lower 1 to 2 in. of the cutting has no axillary buds. It is not enough to select a cutting with a bud on the basal end and to remove that bud with a knife as the remaining portions of the vascular bundles will sometimes give rise to an adventitious bud. An internodal segment will not do this. Once the top of this cutting is removed, the resultant understock is a stem segment without buds but with a very large root mass. This makes for an ideal non-suckering rootstock. McMillan-Brouse (1970) suggested in his paper that a normally rooted cutting would afford some protection from suckering but isolated cases can still occur. With the technique outlined here, that possibility is eliminated.

Once the rootstock is sufficiently rooted into an individual pot, grafting can commence. Usually the time to achieve an adequately rooted plant is 6 months to a year. There can be no getting around the fact that a thoroughly rooted understock

is of the utmost importance. Most successes or failures in grafting depends directly upon the condition of the understock.

Once the rootstocks are rooted they are overwintered underneath Bubble-Pac as outlined by Barnes (1990). Under Bubble-Pac the rootstock will continue to make new roots all winter long and therefore grafting can start as soon as the rootstocks are brought into the greenhouse in January. There is no need to wait for the understock to form new roots as they will have already done so.

Table 1. Effective combinations for grafting *Viburnum carlesii* and its hybrids.

Understock	Scions
<i>V. dentatum</i>	<i>V. × bodnantense</i> , <i>V. × burkwoodii</i> , <i>V. carlesii</i> , <i>V. × juddii</i>
<i>V. dilatum</i>	<i>V. carlesii</i> , <i>V. × burkwoodii</i>
<i>V. lantana</i>	<i>V. × carlcephalum</i> , <i>V. carlesii</i>
<i>V. opulus</i>	<i>V. carlesii</i>
<i>V. setigerum</i>	<i>V. carlesii</i> 'Compactum'
<i>V. × rhytidophylloides</i>	<i>V. carlesii</i> ,
<i>V. × rhytidophylloides</i> 'Alleghany'	<i>V. carlesii</i> 'Compactum',
<i>V. × rhytidophylloides</i> 'Willowwood'	<i>V. lobophyllum</i> ,
<i>V. × pragense</i>	<i>V. prunifolium</i> , <i>V. rufidulum</i>

Scion wood, with all flower heads removed, is normally collected on days that are above freezing and stored in poly bags with moist toweling in a refrigerator at around 40°F. They are removed as needed and allowed to warm to room temperature before grafting. They can be kept for up to 30 days. The type of graft used is a modified side graft which looks similar to a whip and tongue graft. The grafts are tied tightly with ¼-in. rubber strips and are placed directly on the gravel floor of the greenhouse. The grafts are not waxed. Once the grafts for the day are complete, they are covered with 50% white poly. They are held between 60°F and 70°F for about 30 days. After 10 days, they are watered from the bottom by placing full trays in shallow troughs with several inches of water, but not enough to touch the graft union, and they are allowed to take up water until the soil becomes evenly moist. The grafts are then removed and placed back under the poly tent. After 25 to 30 days the poly tent can be removed by gradually venting and reclosing periodically to slowly adjust grafts to a lesser humidity. This acclimation process should take place for about 5 days with the cover being left off completely after the 5th day. The

grafts can be watered sparingly as needed but care should be given so that they are not drenched regularly. Once the grafts begin growth, regular watering and light fertilization (100 ppm N) can begin. It is important to avoid overwatering initially to prevent the buildup of hydraulic pressure against the scion wood.

The plants should remain undisturbed until mid-May or early June when the tops of the understock are removed in stages. This is usually accomplished by removing a third at a time. After the final stage is cut off, the rubber strips can be removed by cutting with a sharp razor on the understock away from the scion. The rubber strips are replaced with a piece of ½-in. masking tape to prevent the graft from coming apart. These plants are then held for another 6 weeks to 2 months before further potting or planting out. Average take should be around 60% to 70%.

LITERATURE CITED

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