Different - Yet Much The Same

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A while back, I did an air layer on a Chinese Elm, Ulmus Parvifolia ‘Seiju’ and, just recently, I took some cuttings of a Salvia Microphila. As I thought about the air layer and the cuttings, I thought that although they are different in some respects, they are also very similar.

Consider the air layer. It is a simple way to take a section of a large trunk or branch of a tree to create another tree. The tree trunk or branch is girdled, rooting hormone (liquid, gel, or powder) is applied to the girdled area, sphagnum moss or other media is moistened, applied and sealed. Eventually, roots will develop from any adventitious buds at the girdling site. When long enough and strong enough, the trunk or branch is removed and potted to grow on its own.

With a cutting, the branch (soft or semi-hard) is removed from the tree by cutting below a node and leaving some greenery on the cutting to assist in the growth of a new plant. (There are several ways to prepare the cutting but it seems that cutting beneath a node is most common.) The cut end is most commonly dipped in a rooting hormone, planted in a sterile planting medium, watered, kept humid and protected from a glaring, hot sun. Eventually, roots will form and the plant can then be transferred to a regular potting medium.

Why the difference in technique? While the young cutting (with some green leaves) can siphon up water and nutrients for the plant, an air layer cannot do that, primarily because its size creates greater water and nutrient demands. The air layer depends on the plant to provide the water and nutrients. How does it do that?? When the plant material is girdled, the girdling cuts through the bark, phloem, cambium, and into the outer xylem. It is through the xylem that fluids and nutrients flow up into the plant for growth and maintenance. It is the phloem that carries nutrients (carbohydrates) back to the root system. When one girdles a plant, the plant is still able to get its fluid and nutrients through the xylem but the carbohydrates manufactured in the plant through photosynthesis cannot get passed the girdled area. Those carbohydrates and liquids provide the “fodder” for the development of adventitious buds at the girdling site, which eventually develop into roots.

So in both cases, we are attempting to develop roots by stimulating growth of adventitious buds, which develop into roots. In one case, we can separate the “cutting” from the plant to begin with, and in the other case (air layering), we must help sustain life in the “cutting-to-be” until it can grow separately. Same- yet different.

The goal of both procedures is to produce new plants with the same genetic make-up as the ”mother” plant. The difference in approach is dictated by the maturity of the plant portion to be propagated.