

***Salvia verticillata*.** *Salvia verticillata* 'Purple Rain' has smokey purple spikes from late spring to hard frost. It will bloom even more heavily if the spent spikes are dead-headed regularly. Unlike the better known *S. nemorosa* types, 'Purple Rain' tends to be rather lax of habit, making it perfect for tumbling over the front of the border or softening the lines of harsher or more linear-foliaged plants. Its delicate, pastel shade blends well with almost any color and lends an aura of subtlety to the summer border. This cultivar propagates easily by tip or lateral cuttings during most times of the year but when the plant is blooming it should be dead-headed before cutting. 'Purple Rain' is virtually trouble free. It is tolerant of most garden conditions but need full sun to perform at maximum. It is safe in Zone 6-9 and usually all right in Zone 5.

Propagation of *Daphne ×burkwoodii* 'Carol Mackie'

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Daphne ×burkwoodii 'Carol Mackie' is a beautiful landscape plant with variegated foliage and fragrant light-pink flowers. It grows 3 to 4 ft high and 4 to 6 ft wide. This plant has proven to be quite winter hardy in Vermont, at least to -40F, and grows well in full sun or part shade. There are apparently two or more clones being sold as 'Carol Mackie' in the trade. My discussion will be on my experience with the clone that originated in Vermont in the late 1960s as a branch sport on *Daphne ×burkwoodii* 'Somerset'.

I began growing and propagating 'Carol Mackie' in 1982. The first summer that I took cuttings I got better than 90% rooting. These plants grew like weeds in the field for the next few years. It was easy to get excited about such a nice new plant growing so well. The *Daphne* gods must have been with me on that first crop! For the next few years rooting results were erratic and I experienced some difficulties growing the plant, especially in containers. We have since worked out some of the problems, but 'Carol Mackie' can still be frustrating to root and grow. I would like to share some of my observations, successes, and failures.

We take most of our cuttings between mid July and mid August. Our experience has been that cuttings taken earlier than this are generally too soft and rot at the base. I look for the new growth to harden a bit, but still be growing at the tip. The bark near the base of the cutting should be starting to turn a light brown color. The wood of *Daphne* is quite tough and stringy so it is important to have a very sharp pruner or knife to take the cuttings. The stock plants that we use are 3- to 6-year-old field plants with vigorous growth that have received good soil fertility. To prepare the cuttings we pinch out the growing tip and strip the leaves off of the bottom third of the cutting. Ideally we strip the lower leaves with one quick downward pull. This doesn't always work. Some batches of cuttings, usually the softer ones, need to have their leaves plucked off individually because the petiole does not separate cleanly from the stem and we end up stripping off too much bark. Our cuttings are about 4 in. long.

Sanitation is very important since *Daphne* cuttings are prone to fungus problems under mist. We disinfect flats, benches, and work areas with a 10% bleach solution. Isopropyl alcohol is used on pruners and hands. Our rooting medium is super course perlite and medium grade vermiculite (1 : 1, v/v). We try to use a flat that is at least

3 1/2 in. deep so that the base of the cutting is well off the bottom of the flat where the medium is wettest. We dip the cuttings in powdered rooting hormone with 3000 ppm IBA. We try to give the cuttings adequate space so that the leaves do not touch. We use a Mist-a-Matic system for intermittent mist. Our propagating house is a 14-ft-wide polyhouse with whitewash for light shading. We do not have heat in the house so night temperatures fluctuate. Daytime temperatures run around 90 to 100F on sunny days. The mist is set so that it comes on for a few sec about every 10 min during the heat of the day. The 'Carol Mackie' cuttings would probably root better with less mist, however, we need to set the mist to accommodate a wide range of deciduous shrub cuttings we are rooting at the same time. Excessive mist causes leaf drop and stem rotting. For this reason we pull the flats of cuttings from the mist early in the rooting stage at about 3 weeks. The flats stay in the same house and are hand misted as needed and gradually weaned from the mist as they root further. Transplanting begins 5 to 6 weeks after the stick date. The rooted cuttings are potted into either 3-in. peat pots or 2-3/8-in. x 5-in. tree bands. Deep square pots or peat pots are used because 'Carol Mackie' roots will grow to the bottom of a round plastic pot and circle around. This creates serious problems later in the production cycle. We use a well-drained medium of a commercial peat lite mix with coarse sand added. The transplants go directly outside under burlap or shade cloth for a few days to help acclimate the plants to the full sun. Liquid feeding, which began as soon as the cuttings started to root, continues until about mid September. Cuttings that are stuck later than mid August remain in the flats until the following spring. We overwinter our cuttings and transplants in either an insulated coldframe or in a root cellar. Winter survival rates have been variable over the years. I believe that *Daphne* 'Carol Mackie' would overwinter best in refrigerated cold storage or a greenhouse with minimum heat where the temperature could be kept fairly constant at about freezing. Since we have neither of these facilities, we try to come as close to those conditions as possible.

The following spring the transplants are potted into a true 1-gal container or lined out in the field. Container production is tricky. The soil mix needs to be very well drained, the pH slightly acid to neutral, and the soil needs to dry out between waterings. The field plants grow vigorously in well drained soil with the proper pH. They transplant well in spring, late summer, and fall.

One of the problems that we have experienced with *Daphne* 'Carol Mackie' is that an occasional branch will revert back to green leaves. These can simply be pruned out. More serious problems involve the structure of the plant. Weak branch crotches tend to split easily, especially under snow and ice loads. The main trunk can become weak and floppy, which is usually the result of a circling or one-sided root system. Stem dieback, caused by *Nectria* or *Fusarium*, usually enters through a wound or branch split. I have not seen any insect problems on 'Carol Mackie'.

Although 'Carol Mackie' can be frustrating and the results erratic, we have been able to get our rooting percentage up to around 80% the past two seasons. The important things to remember for successful rooting and growing of are: start with healthy vigorous stock plants, take the cuttings at the proper stage of growth (not too soft), use a well-drained medium, be careful with mist and water management, soil pH should be slightly acid to neutral, and give cuttings and container plants adequate winter protection. With these things in mind and a little luck, this plant can be propagated and grown successfully and profitably.