

Propagation of Weeping Yaupon Holly

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INTRODUCTION

Weeping yaupon, *Ilex vomitoria* f. *pendula*, is a plant in much demand by our customers. It is used by landscapers as a dramatic focal point because of its unique growth habit. It is not currently available in large quantities because of difficulty in rooting. Hence, rooted liner plants are in high demand by other nurseries wanting to produce this species.

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When to Take Cuttings. The best propagation wood should be taken from well nourished plants using current season's growth that has hardened off. The best times are late spring or early summer after the new growth has hardened and turned gray, and before the daily temperatures have gotten extremely hot; also early fall from late September to early October. In our hot, southern U.S. Gulf Coast climate, I prefer the early fall sticking time. The fall days are warm but moderate and night temperatures range from 16 to 18C (60 to 65F). Of course, this time frame can be adjusted to your own climatic situation. Take your cuttings early in the morning while the day is still cool and the plants are turgid.

Cutting Techniques and Preparation. As soon as a substantial number of propagules have been harvested, they are moved to a shaded area and kept moist to avoid any stress. As previously mentioned, the cutting base should have changed from green to a light gray color prior to harvest. Branched leafy cuttings 15 cm (6 in.) long are taken and the top third of the growth is removed. A branched cutting helps maintain a higher humidity around each plant when stuck close to each other. Maintaining humidity keeps your cuttings from getting too dry and dropping their leaves. Try to retain a branch no further than 2 cm (0.75 inches) from the base to prevent the cutting from being stuck too deeply. Any branch closer to the base should be removed. This creates what we call a "strip wound" and promotes better callus formation.

Auxin Treatment. Each prepared cutting is quick-dipped in alcohol based IBA at 1870 mg liter⁻¹ for 3 sec. Throughout the years we have tried formulations ranging from 15,000 mg liter⁻¹ K-IBA to 10,000 mg liter⁻¹ IBA, to no chemical treatment. None of these treatments were better than 1870 mg liter⁻¹ IBA, which is the auxin concentration used with all of our yaupon cultivars.

One important cautionary note: do not use any formulation containing NAA, which has proven toxic to our yaupon cultivars. Leaves will abscise, stems will burn, and most of the cuttings will die! Many rooting formulations contain NAA, so be cautious when using these products on yaupon. Talc preparations may not be as much of a problem but I would not feel safe using any containing NAA with yaupon.

Lining Out the Cuttings. At Flowerwood Liners, we stick or "line out" our unrooted cuttings one per pot in either Lerio SR225 or SR325 pots, which are placed

in trays holding 64 or 36 pots, respectively. The liner pots are filled with propagation mix utilizing a flat filling machine. The filled trays are set down in beds in a gutter connected house manufactured by Caves International of Hammond, Louisiana. Each irrigation/mist zone holds 570 filled trays. Our rooting medium doubles as a growing mix, so it must be able to drain well yet hold enough moisture to produce plants. The propagation/liner medium consists of propagation grade pine bark, Canadian peat moss, and horticultural perlite (3 : 2 : 2, by volume).

We add two preplant nutrient and pesticide formulations to the propagation/liner media:

Formulation One — used during early spring and warmer months:

- 4.5 kg m⁻³ (7.5 lb yd⁻³) — Nutricote 18N-6P-8K
- 1.8 kg m⁻³ (3 lb yd⁻³) — magnesium sulfate
- 3.0 kg m⁻³ (5 lb yd⁻³) — dolomitic limestone
- 1.5 kg m⁻³ (2.5 lb yd⁻³) — Talstar for ant control

Formulation Two — used during fall and winter for quicker release during cooler temperatures in the greenhouse:

- 4.8 kg m⁻³ (8 lb yd⁻³) — Osmocote 16N-8P-12K plus minors
- 3.0 kg m⁻³ (5 lb yd⁻³) — dolomitic limestone
- 1.5 kg m⁻³ (2.5 lb yd⁻³) — Talstar for ant control

I prefer to direct stick the cuttings into 6-cm (2.25 inch) pots (this is the SR225 pot). A higher humidity can be maintained around each cutting without constant overmisting. The small slick leaves will not hold water for any length of time and most of your mist ends up in the rooting medium. Rooting cuttings in larger pots is more difficult. Flowerwood Nursery's field operation prefers a 10-cm (4 in.) pot, but the cuttings don't root well with that much air movement around them. Multiple cuttings could be used except most growers do not want a multistem weeping yaupon.

Misting. We mist with a Phytotronic 1626 D time clock plus a 24-h clock to daily turn the mist on and off. The mist lines have a Senniger Super Spray nozzle with a No. 12 orifice and a convex deflector pad. All cuttings are rooted initially under 47% to 51% shade.

On a newly stuck mist/irrigation zone of weeping yaupon, it is best to use a slightly heavier mist to overcome the shock of being cut, trimmed, and stuck in rooting beds. During the first week, start the mist cycle 1 to 1½ h after sunrise and turn it off for the day 1 h before sunset. The next week raise the start time to come on 2 h after sunrise or just after the morning condensation has dried off. Turn the mist off in the evening about 2 h before sunset to allow excess moisture to dry off the leaves before dark. A typical beginning misting schedule could be as follows:

- 7:30 AM to 9 AM — mist every 20 min;
- 9:00 AM to 10:30 AM — mist every 15 min;
- 10:30 AM to 12 Noon — mist every 10 min;
- 12:00 NOON to 2:00 PM — mist every 6 min;
- 2:00 PM to 3:00 PM — mist every 10 min;
- 3:00 PM to 5:00 PM — mist every 15 min;
- 5:00 PM to 6:00 PM — mist every 20 min.

The schedule uses an 8-sec mist and is written for Central Daylight Time.

As we reduce the mist, the start times are raised to 8:00 or 8:30 AM and the stop times are changed to 5:30 PM. A typical reduced mist schedule could be:

8:30 AM to 9:30 AM — mist every 30 min;

9:30 AM to 11:00 AM — mist every 15 min;

11:00 AM to 2:30 PM — mist every 10 min;

2:30 PM to 4:00 PM — mist every 15 min;

4:00 PM to 5:30 PM — mist every 30 min.

Reducing the amount of mist and preventative fungicidal sprays help reduce disease problems.

All yaupon taxa are generally stuck in the same greenhouse, but the more difficult cultivars are kept on separate misting control zones to be able to tailor a schedule for their needs.

Chemical Treatment. We spray weekly in the rooting beds with fungicides, alternating between Clearys 3336 and Chipco 26019. The spraying is usually done after the mist has been turned off and re-entry times are no problem. Since yaupon is very susceptible to spider mites, we spray with miticides as needed. Leaf miners are a problem we previously controlled with Meta-Systox R, however, it is a restricted-use pesticide and carries a “danger” label. We now utilize less dangerous pesticides.

RESULTS AND DISCUSSION

Rooting results of weeping yaupon are often sporadic. Long after dwarf yaupon has rooted, a small percentage of weeping yaupon cuttings will be unrooted, but callused. Cuttings stuck in October do not usually root until February or March. As the cuttings callus, the mist is dramatically reduced, with one 30-min cycle in the morning and late afternoon, and 20-min cycles during midday. As the days warm in the spring, we change the misting interval to overcome additional daytime heat. By April, maybe 50% of the callused cuttings will be rooted. If no more root by early May, the mist is permanently terminated and the liners are fertilized with 12N-6P-6K at 49 g m^{-2} ($1 \text{ lb } 100 \text{ ft}^{-2}$). Any remaining callused, unrooted cuttings are discarded, since we don't want to damage rooted liners with any further effort to get recalcitrant cuttings rooted.

A good rooting percentage is usually 60%, and frequently only 40%. These low percentages would not be acceptable with most species, but the demand for weeping yaupon increases its value and it is worthwhile to produce. After rooting, weeping yaupon grow easily and rapidly, and a salable liner is very easy to produce.