

## Dwarf Yaupon, Weeping Yaupon, and Azalea Propagation at Flowerwood Nursery, Inc.

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### AZALEA PROPAGATION

We begin taking our cuttings in spring, after the first flush of new growth has hardened off to where a stem snaps when bent. This is usually in mid-May. We start with the more difficult cultivars. The earlier we can start with a good cutting the better. Our rooting percentage is best if we can get roots before extreme summer heat.

In addition to all native azaleas, some azalea cultivars I like to start with are: Snow, Christmas Cheer, Hinodegiri, Delaware Valley White, Hino Crimson, and Mother's Day.

We take spring cuttings of all hardy cultivars of Kurumes, Glendales, Girards, Satsuki and similar azaleas, and less hardy but slower-growing cultivars like Red Ruffles. We also take spring cuttings of indica-like cultivars such as Kate Arendall, Jennifer, and Amy that tend not to grow well with the indicas.

We take 3- to 4-in. cuttings from healthy plants with good nutrition levels. Avoid cuttings that are too fat or too thin, as the fatter ones tend not to root as fast and the thin ones are more susceptible to stem-rot disease. If they are not too tender to stand up, we leave the tops on the cuttings as this helps the cuttings root faster. If the tops are very tender, we remove them but still finish with a 3-in. cutting.

The cuttings are immersed in a captan fungicidal bath for about 10 min. These cuttings are then spread out on a table, tender tops removed, and bottom end leveled. Basal ends are dipped for 3 sec in 3000 ppm KIBA. I use 5000 ppm KIBA on more difficult cultivars or harder cuttings. These cutting are put in buckets until ready to be stuck. Any cuttings left unattended on the table are misted once every 20 min with Flora-Mist nozzles.

After the cuttings are prepared, they are taken to our rooting area to be stuck in our rooting mix which consists of the following: 3 bark : 2 peat : 3 perlite (by volume). We add the following to each cubic yard of mix: 1½ lb Micromax, 6 lb 18-6-12 Osmocote, 2½ lb dolomite, 2½ lb oyster shell lime, and 1 lb granular Dursban. This mix is used for all plants except blueberries. It is an excellent mix for direct rooting. It is loose enough that it does not hold too much water yet retains enough to grow liners. For azaleas we fill this into SR-325 pots from Lerio.

We root under intermittent mist, starting at 7:30 a.m. and stopping at 6:30 p.m. The cycle is adjusted during the day so that cuttings are misted when approximately 85% of the leaf surface is dry. At the onset we mist heavier to get the cuttings over the shock of being taken from the container plant. Usually we reduce the water-cycling time as soon as the tender tops do not droop. We use a Rain Bird MIC-8 controller clock for mist control. This clock gives great versatility for misting and watering. A sample of a misting cycle would be as follows:

7:00 a.m.	to	8:30 a.m.	10 sec every 30 min
8:30 a.m.	to	11:00 a.m.	10 sec every 15 min

11:00 a.m.	to	3:00 p.m.	10 sec every 10 min
3:00 p.m.	to	5:00 p.m.	10 sec every 15 min
5:00 p.m.	to	6:30 p.m.	10 sec every 20 min

We root in a large plastic-covered, gutter-connected house under 51% shade cloth, and with the side walls vented but shaded. At this time of year rooting under plastic can be tricky. The plastic tops give us better control over the weather. We can eliminate rain problems on the cuttings and modify the temperature. Early rooting under this type of structure is a must. Once the days get too warm, the covered greenhouses heat to a point that can stifle rooting. We gradually remove sections of poly from areas where cuttings have rooted to allow excess heat to vent out of the roof. I only remove this poly from more root-hardy cultivars and make sure more sensitive cultivars are well rooted before I take off the top.

After everything is rooted, we remove all the plastic and grow them on. By late summer I also remove the shade cloth to harden them up and acclimate them to outside conditions. In early September I move the entire crop outside to full sun in a holding area.

Our first trimming usually takes place in July on faster cultivars and in August on slower cultivars. We trim twice more in September, finishing by October 1.

We start to fertilize with 12-6-6 as roots appear and do this every three weeks until October 1. The liner will continue to grow until the end of October. By then cooler nights and lower fertility slow the growth and allow the plants to harden off for winter.

If we have an early freeze, our liners are covered with frost-protective cloth to stop cold damage. If we have an early frost, we watch the temperature. If frost starts to form, usually about 5:00 a.m. we wash it off. Usually one washing is enough, but it may need to be repeated until the temperature rises. This only works for frost, not for a freeze.

In December the liners are planted into larger containers for production. These are protected as needed until about February 15th when the extreme weather has usually passed. Indica azalea cuttings are taken in September. We use a similar method except that they are initially not covered. We cover our houses in late October, and we finish off the rooting under this top. Indicas are left inside all winter and only heated to prevent freezing. We set our thermostats on 40°F.

Indicas usually root rapidly with very few losses. We dip our cuttings in 3,000 ppm KIBA. They will root well without any hormone treatment, but rooting uniformity is better if we use a hormone dip.

After all the cuttings are rooted and the water has been cut off, I apply fertilizer once if it is earlier than Thanksgiving. After that date I will not apply any more until late February or early March after the liners bloom. During the period between December and March the 6 lb of 18-6-12 Osmocote in the soil mix provide enough fertility to keep the cuttings healthy. From March to April, we apply 12-6-6 every three weeks and have a plantable liner by April 15.

### **WEeping YAUPON AND DWARF YAUPON PROPAGATION**

At the Mobile location, I generally plan to put in all cultivars of yaupon in the early fall. This fits my schedule well. Although we can root them well in the summer, I prefer the fall because there is less stress on the cutting. Yaupon roots best for me

if I can maintain good humidity around the cutting because the leaves hold very little water without frequent, and sometimes too much, mist.

I try to start cutting by the last week in September and finish in about three weeks. We usually stick about 400,000 liner pots of dwarf yaupon and about 10,000 weeping yaupon each year.

Ideally, we like a cutting that is hardened-off current season's wood. The basal end should be gray. We like to take our cuttings from well-fed containerized plants. Rooting percentage is much better than for cuttings from field plants. Even well-nourished field plants usually don't root as well as cuttings from containers.

We never let our cuttings get stressed after they are taken. We take all of our cuttings in the cooler morning hours. We pick up the filled cutting buckets frequently and take them to our stripping shed for preparation. They are spread out on the table under mist until they are prepared for sticking.

The weeping and other native yaupon cultivars are cut before the dwarf yaupon. They take longer to root, so we try to put them in first. We take a branched cutting to get as much leaf surface as possible, usually about 4 inches long. We then strip wound the bottom by tearing off the lowest branch. This practice seems to work better than wounding with a knife. The cuttings are dipped in 1,870 ppm IBA for 3 sec and are placed in a 15-gal container until ready to be stuck. I believe other hormone treatments may work but this particular strength has worked well for us. One note of caution, never use NAA on yaupon. This hormone will burn the stem and cause the cutting to defoliate. We stick yaupon in the same rooting mix that we use for azaleas. The cutting are stuck  $\frac{1}{2}$  in. deep in a  $2\frac{1}{4}$ -in. rose pot.

One problem I have with weeping yaupon more than other cultivars is stem rot. This may be because this cultivar is slow to root. Often, slight callus formation is the only early response. To help counteract any stem rot, I broadcast Agri-Strep on the planting beds. I mix one tablespoon to a gallon of sand and broadcast 1 lb per 100 sq ft.

After sticking weeping and native yaupon cultivars, I stick dwarf yaupon, *Ilex vomitoria* 'Schillings'. We take a branched cutting about 3 in. long at the point where the summer wood has begun to turn gray. If possible, we leave a branch on the cutting about  $\frac{1}{4}$  in. above the base to keep the cutting from being stuck too deep. Dwarf yaupon responds better to rooting than the native types. I've had roots develop in as little as 2 weeks, but 4 weeks is more usual. Swelling and callus formation occur earlier. As the weather cools, rooting response slows; and we may not cut our mist off totally until February on the last cuttings. The clock we use for rooting yaupon is a Rain Bird MIC-8 controller. The first cuttings are stuck before our plastic has been put on the greenhouse, so we mist more heavily. Our first schedule may be as follows:

7:30	a.m.	to	9:00	a.m.	10 sec every 20 min
9:00	a.m.	to	10:30	a.m.	10 sec every 15 min
10:30	a.m.	to	12:00	p.m.	10 sec every 10 min
12:00	p.m.	to	2:00	p.m.	10 sec every 7 min
2:00	p.m.	to	3:00	p.m.	10 sec every 10 min

When the house is covered, we can lighten up in the morning and evening, but we still need to use frequent misting in the middle of the day as the temperature gets higher than we like.

All yaupon are relatively easy to keep free of disease. Red spider mites and leaf miners can cause great problems. Under greenhouse conditions mites are always a potential problem but can easily controlled with a regular spray program. We use Vendex, Mavrik, and Avid as miticides. To control leaf miners I use Metasystox-R. This will kill the miners, but it is a strong chemical. Be sure to treat the cuttings after work when the house is clear. The best control is to control the flying insects that cause the problem by laying the eggs. However, this pest is not often seen.

Yaupon will start to grow naturally inside in early March. At this time, I fertilize with 12-6-6 every three to four weeks. By May, I have a nice plantable liner.