

Propagation and Production of *Arbutus menziesii*

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Arbutus menziesii is one of the most distinguishing features of the British Columbia (B.C.) inner south-coast landscape. These majestic trees characteristically grow on exposed rocky cliffs overlooking the sea, but will also thrive on well-drained wooded inland slopes. Their individual unique shapes amaze and attract even the most casual observer. Long limbs extending out over the water, often appear to defy the laws of gravity. Their branches, short, twisted, or crooked create very interesting, even exotic shapes. In striking contrast, they can also be very short and symmetrical, as if meticulously pruned. In B.C. they are typically associated with garry oak (*Quercus garryana*) and Douglas fir (*Pseudotsuga menziesii*).

One of the most interesting characteristics of the tree is its shedding, paper-like bark, revealing a smooth and satiny, olive to reddish-brown trunk.

The range of the tree extends north to approximately 50°N latitude (200 km north of Vancouver, B.C.) and as far south as Baja, California. In the northern part of the range it grows in a narrow corridor, usually within 10 km of the ocean. It occurs from sea level to 300 m and will grow to a height of 30 m.

In this region the tree flowers from April through May. It is an ericaceous plant and has typical bell-shaped flowers borne in dense terminal clusters... quite a show!

Berries develop over the summer. The number of berries each year appears to be quite variable. They ripen and can be collected from October through to December. They may be yellow, but preferably, a mid-red color appears to be optimal. Our berries are usually collected from 1 Nov. to 20 Nov. In this area one does not want to play Russian roulette with the weather. In late November, one can often get cold outflow winds bringing temperatures of -5 to -10C. The entire berry will freeze and soon after thawing will fall to the ground. Quickly after, the pulp of the berry rots and the seeds disappear. The berries can be collected very quickly; however, they are often high in the tree and one has to be creative in order to retrieve them. Having found a nice specimen, collecting the berries for my purposes takes about a hour.

The berries are fresh and plump at this stage and are ready for cleaning. Our current method is to remove the seeds from each berry by hand, using a sharp knife. One and one-half liters of berries, cleaned by hand in 12 h, yields enough seed for 3000 plants. The seed is then divided up into 100- to 150-ml batches, mixed with 500 ml of well drained, washed concrete sand and 5 ml of Benlate. The batches are bagged and then refrigerated at 2C. This takes place between approximately 25 Nov. and 15 Dec.

Keep an eye on the seeds, checking for germination or mold, approximately once a month. I have never had a problem with mold when stratifying this way. Obviously, one has to make sure the seeds are relatively clean of berry pulp before stratification.

The seeds will start to germinate anywhere from 15 February to 15 March. They should be sown before the root radical gets too long and at risk of mechanical damage.

As *Arbutus* spp. do not like having their roots disturbed, we sow directly into 3 inch × 3 inch × 3 inch pots with two germinating seeds per pot. We have sown into

2¼-inch pots, but the plants are so vigorous they outgrow the pot within 8 weeks and then either have to be shifted or their growth will be checked.

The mix we use is well drained with little fertilizer. It is coarse peat, pumice, and perlite (1 : 1 : 1, by volume) with micronutrients added at 1 lb per yard and a slow-release fertilizer. We use Nutricote 16-10-10 type 180 at a low rate of 5 lb yard⁻¹.

In our climate it seems that the earlier the seeds are sown the better. They will not tolerate the significant amounts of heat that may occur in our area in April. This past spring we sowed the majority of our crop on 19 March and it has done very well. The seeds that germinated later and were sown 31 March have not done nearly as well.

The germinating seeds in pots are then grown on in heated polyhouses, which have minimum temperatures of 0C and at least enough humidity control to eliminate free-standing water on the leaves. If you observe *A. menziesii* in the wild they do not thrive as understory plants, but are always reaching for the wind and light. They will develop leaf spots if free-standing water is left on their leaves for extended periods of time.

Within 5 months the crop will be ready for shifting to 1- and 2-gal containers. The same mix used in the 3-inch pots is used in the larger-sized containers. We heat our greenhouses in September and October to minimum temperatures of 13C. This way the plants will put on another flush of growth and will fill a 1-gal container by November of the same year. The 2-gal container-grown plants will be ready for sale after the first flush of growth the following spring. Thus far, the largest we have grown is 3-gal containers.

While all of this sounds wonderful and should always work perfectly, we all know there are pitfalls in any system. *Arbutus menziesii* has a habit of inexplicably wilting and dying. I have had plants analyzed and the lab indicated the presence of *Phytophthora*. We have attempted treatment with Ridomil, but not on a regular enough basis to know if it makes a difference.

More than likely there is a mycorrhizal association in nature that is missing in our nursery-grown plants. I have not done any work on this yet.

Another point of interest is that even minor root damage at the crown of the plant, when transplanting, can kill the plant. Therefore, especially with young plants, turning the container upside down and knocking the pot off the roots is preferable to pulling the plant out by the stem. Furthermore, do not bury the crown of the plant when shifting to larger-sized containers.

Arbutus is a west coast native plant which, if more readily available, would be utilized more. At times it can be difficult to establish in the landscape. It requires a very well drained, sunny to part shade location with a minimum amount of fertilizer and more neglect than attention. It appears to thrive in these conditions.

Arbutus is such a unique and beautiful tree, I think it deserves the effort and attention it will take to work out the problems associated with establishing it more readily in the urban landscape.