

# Growing Orchids in Perlite

by Dr. Wally Thomas and Barb Thomas, 1988.

*Outstanding success growing orchids using a hydroponic perlite reservoir technique.*

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This article summarizes five years of outstanding success in growing orchids at Charles Island Gardens (West Vancouver, Canada) using the perlite reservoir technique with intermediate-size perlite. This method, by which all major genera of orchids can be grown, allows for a constant supply of nutrient to the plant by taking advantage of the unique capillary action of perlite. An outstanding characteristic of this method of culture is that one cannot overwater and that there is always excellent aeration. *Table 1* compares the excellent properties of perlite with those of other commonly used growing media. Additionally, perlite is a naturally occurring material.

Horticultural perlite (about 1/8 inch, 3mm in diameter) is pretreated by pouring perlite into a tub of water and fertilizer solution. The perlite is pushed into



*Odontioda SEA NYMPH 'Island Rainbow', H.C.C. A.O.S., hydroponically grown in 100% perlite.*

**TABLE 1: COMPARATIVE PROPERTIES OF GROWING MEDIA COMMONLY USED WITH ORCHIDS**

	BARK	PEAT	ROCKWOOL	PERLITE
pH of Medium	Slightly Acid	Acid	Slightly Alkali	Neutral
Fertilizer Control	Good	Good	Good	Very Good
Leaching	Easy	Fair	Fair	Very Easy
Aeration	Good	Fair	Fair	Very Good
Disposal	Easy	Easy	Problem	Easy
Health Hazard	Care	Care	Care	Care
Sterility	No	No	Yes	Yes
Management	Fairly Easy	Fairly Easy	Fairly Easy	Very Easy
Simplicity	Fair	Fair	Fair	Very Simple
Weeding	Fairly Easy	Fairly Easy	Fairly Easy	Very Easy
Cost	Varies	Varies	Varies	Competitive
Ease of Potting	Good	Good	Good	Very Good
Repotting Time	1-2 Years	1-2 Years	1-2 Years	2 Years +
Nutrient	Minimum	Minimum	Nil	Nil
Overwatering	Yes	Yes	Yes	No
Rewetting	Fair	Fair	Poor	Easy
Cation Exchange	Yes	Yes	No	No
Buffering	Slight	Acid	No	No

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the water several times and the floating perlite is skimmed off. This wet perlite is a wonderfully easy material with which to pot. Such pretreated perlite shows no evidence of compaction after three years.

## Potting and Repotting

Ordinary pots may be converted for reservoir use by inserting a cup in the bottom. Specific reservoir pots and saucerless hanging baskets are excellent.

To plant a 10-inch (25cm) saucerless basket, the



(Photo: Mark van Manen, *Vancouver Sun*)

*ODONTOGLOSSUM* variety grown in perlite.

basket is filled to 2 inches (5cm) from the top with perlite. Thirty to forty seedlings are planted and the surface covered with pea gravel. To ease the transition, cling wrap material is wrapped around the hanging wires leaving an opening at the top. The plants are bottom-watered for the first six weeks, after which time the wrap is removed and the plants treated normally.

Mature plants are best repotted when new growth has just started. Plants are set a little deeper than with other media, and pea gravel is used to hold the plant firmly in place and to decrease evaporation. Repotting is only required when space for new growth is needed. There is no plant setback when repotting from perlite to perlite.

## Bed Growing

Eight inch (20cm) deep beds are constructed of wood, lined with 6 mil black polyethylene, with an overflow outlet at 1-1/2 inches (4cm) from the bottom to provide a reservoir. Overflow solution is collected for recycling.

## Watering/Fertilizer

Pots should be heavily watered before they dry. One cannot overwater with the perlite system. Charles Island Gardens has experienced no disease in five years and the system offers the potential for simple and inexpensive automation.

A complete hydroponic fertilizer suitable for most orchids is shown in *Table 2*.

**TABLE 2: CHEMICAL COMPOSITION OF FERTILIZER SOLUTION**

N	49 ppm	These levels may be achieved by using, by weight, one part Ca(NO <sub>3</sub> ) <sub>2</sub> to 2 parts 7-11-12 (Plant Prod®) or 2 parts 5-11-26 (Peters®), diluted according to your proportioner to yield an EC of 600 mmhos. 7-9-5 (Dyna-Gro®) at an EC of 600, although low in calcium and magnesium, provides satisfactory growth. For most orchids, the final diluted fertilizer solutions should have a pH of 5.8 to 6.4
P	18 ppm	
K	76 ppm	
Ca	42 ppm	
Mg	14 ppm	
SO <sub>4</sub>	18 ppm	
Fe	0.37 ppm	
Cu	0.0035 ppm	
Mo	0.05 ppm	
Zn	0.11 ppm	
Mn	0.33 ppm	
B	0.10 ppm	