

Hydroponics

Orchid  
Culture

# PERLITE PLANT GUIDE

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## GROWING ORCHIDS IN PERLITE

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This Plant Guide summarizes 5 years of outstanding success in growing orchids at Charles Island Gardens 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 over water and that there is always excellent aeration. Table 1 compares the excellent properties of perlite with those of other commonly used growing media.



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

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

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

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

## 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 (25 cm) saucerless basket, the basket is filled to 2 inches (5 cm) 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 as well as 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 (20 cm) deep beds are constructed of wood, lined with 6 mil. black polyethylene with an overflow outlet at 1-1/2 inches (4 cms) 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 5 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	Fe	0.37 ppm
P	18 ppm	Cu	0.0035
K	76 ppm	Mo	ppm
Ca	42 ppm	Zn	0.05 ppm
Mg	14 ppm	Mn	0.11 ppm
SO <sub>4</sub>	18 ppm	B	0.33 ppm
			0.10 ppm

These levels may be achieved by using, by weight, one part Ca(NO<sub>3</sub>)<sub>2</sub> to 2 parts 7-11-27 (Plant Prod\*) or 2 parts 5-11-26 (Peterst), diluted according to your proportioner to yield an E.C. of 600 µmhos. 7-9-5 (Dyna-Gro††) at an E.C. 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.

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