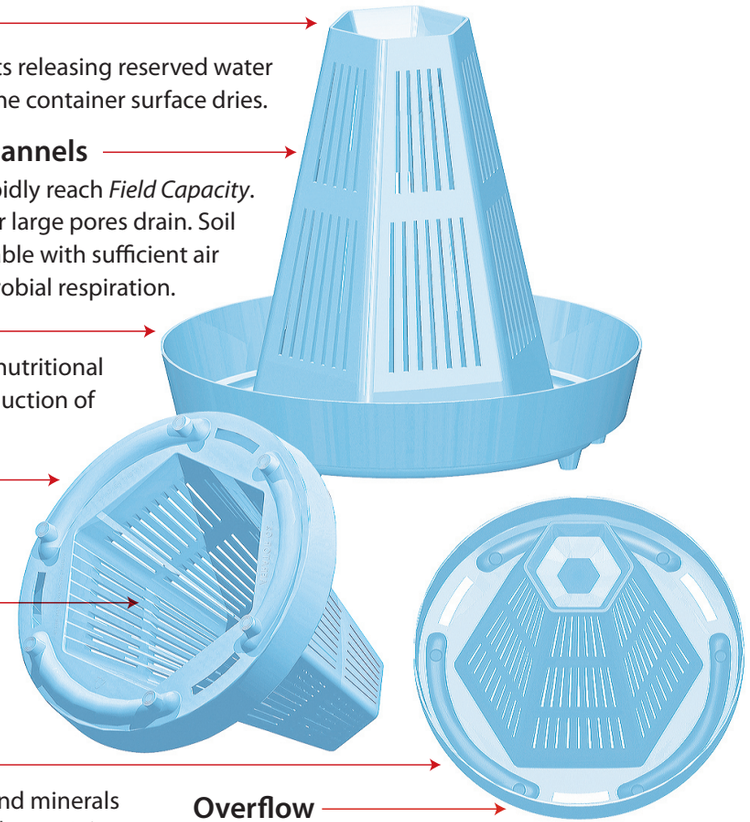
Engineering

Engineered to help build Hi-Brix Nutrient-Dense Produce



Upper Reservoir

Retains water for young seedling roots releasing reserved water by capillary action into soil pores as the container surface dries.

Primary Oxygen Exchange Channels

Assists water percolation in soil to rapidly reach *Field Capacity*. Field capacity is water remaining after large pores drain. Soil water at field capacity is readily available with sufficient air present in soil pores for root and microbial respiration.

Lower Reservoir

Holds water for mature plants as the nutritional demand of photosynthesis for reproduction of flowers and fruits increases.

Air Flow Risers

Risers permit unobstructed airflow into the main aeration chamber.

Main Aeration Chamber

It eliminates the anerobic bacteria prone Dead Zone and oxygenates beneficial microbes.

Nutrient Channels

Collects and saves mobile nutrients and minerals that otherwise leach and drain from the container.

Overflow

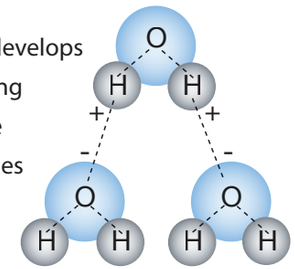
If the container is over-watered, excessive water flows out here and into the container's drain hole.

The Essential Role of Soil Microbes

Microbes are necessary to a plant's health and nutrient absorption. The Root-Warrior aerates the microbes in the container's soil biosphere to maximize plant growth without synthetic NPK chemical fertilizers. With sufficient oxygenation, microbes flourish and create a nutrient supply for the plant and form antibiotics to keep plants healthy from disease. The Root-Warrior provides the transfer mechanism of atmospheric gases that are generally lacking in the anoxic or *dead zone* center of plant containers.

How it Works

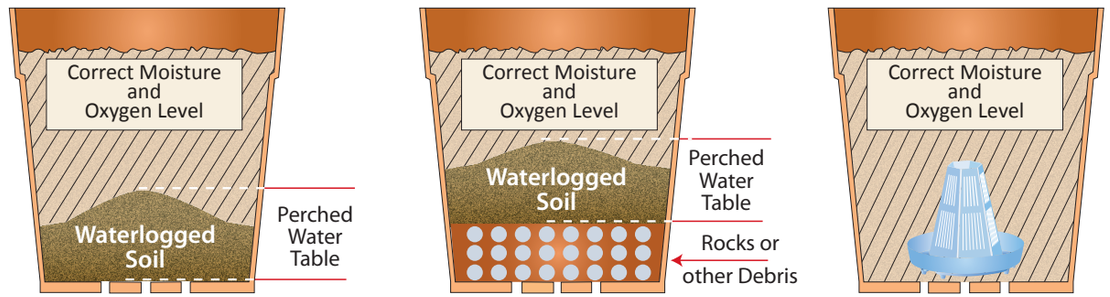
The Hi-Brix Root Warrior prevents Waterlogged Soils



- All containers restrict oxygen in their interior core forming an anoxic zone that develops anerobic bacteria that attack the root system. There are garden myths suggesting rocks, broken pottery, or other debris to improve drainage. However, due to the intermolecular forces of adhesion, cohesion, and surface tension, water moleclues will not readily flow from one material (soil) to another (rocks or other debris). Debris only raises the perched water table and the soil remains waterlogged.

The soil in a container is not only a medium in which terrestrial plants grow, it is also a living ecosystem made up of numerous *microorganisms*—living cells that cannot survive without oxygen. Oxygen is essential for generating energy rich components through biological processes. Anaerobic, waterlogged soil drastically reduces the roots ability to absorb adequate quantities of minerals and nutrients.

The Root Warrior technology works by introducing a cavity (an aeration chamber) inside the container where drainage is optimized and gas exhange between the soil and atmosphere can quickly take place. The aeration chamber completely eliminates the anoxic (dead) zone preventing bacteria formation.



Why Waterlogged Soils are so dangerous to Plant Health

- Plants lack a functioning digestive system, so they must rely on soil microbes to pre-digest minerals and nutrients. Waterlogged soil can drown nematodes, protozoa, mycorrhizae, and a host of other symbiotic microbes that the plant relies on. The Root Warrior maintains a perfect air and water balance to encourage the symbiotic relationship between microorganisms and root systems. As a result, the Root Warrior enables the plant to achieve higher nutrient and mineral density, technically stated as *% Brix values*.