

What are growing media's key physical characteristics?

- ✓ **Porosity**
- ✓ **Permeability**
- ✓ **Water Holding Capacity**

These attributes should be considered when qualifying the interaction of a Jiffy product to a hydroponic system.

What are growing media's key functions?

- Physically supports the roots and the plant
- Produces space for gas exchange between the roots and the atmosphere



• Serves as a reservoir or point of access for plant food and microorganisms important in nutrient cycles

• Provides water in a form accessible to the plant

What's so important about:

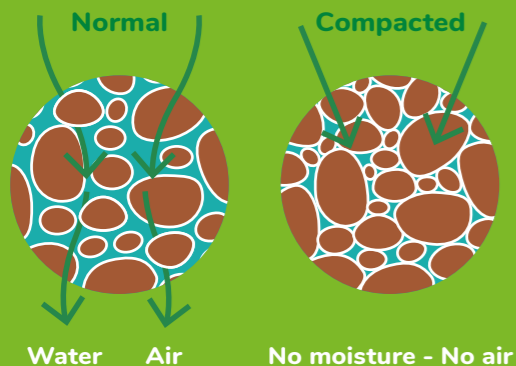
Porosity?

Roots need oxygen for respiration.

An ideal soilless substrate provides the ability for air exchange within the root zone. Without adequate porosity at the roots, plants will be deprived of the oxygen required for respiration. This can also increase susceptibility to root rot.

Did you know?
Pore space between the solid particles comprises most of a substrate's volume.

Pore space is the volume available for air or water in a substrate. **Pore space is expressed as porosity:** The percentage of pore space volume in a substrate (volume of pore space / total volume of media x 100).



Wide pores provide space for air exchange while narrow pores support the holding and retention of water.

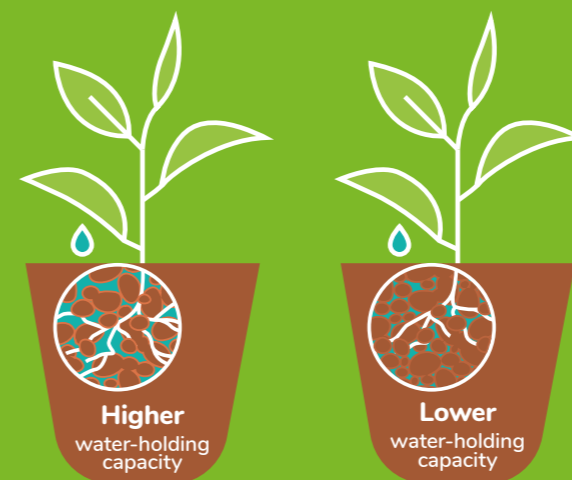
Large particles within the substrate will increase air porosity but affect water-holding capacity.

What about water-holding capacity?

A key function of substrates is to hold water in a form available for uptake by the plant.

Since water is held within the pores of the soil, water-holding capacity depends on the capillary action, the size of the pores, and the total pore space between soil particles.

Did you know?
Total water-holding capacity is the ability of substrate components to hold water (or fertigation solution) against the force of gravity.



Water-holding capacity is not only impacted by growing media. **The growing system and production strategy also play a role:**

As container height decreases, water filled pore space increases and air filled pore space decreases.

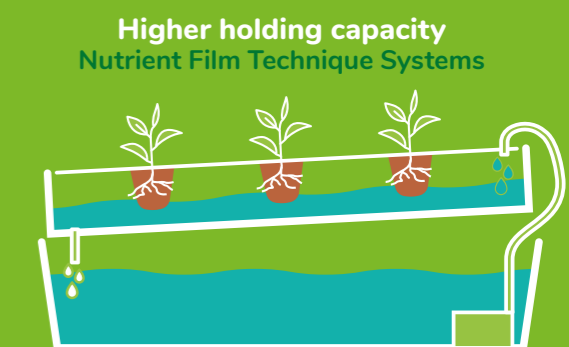
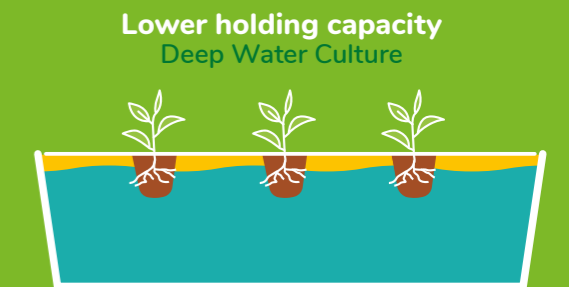
As container height increases, water-holding capacity decreases because gravity pulls the water down.

Be sure to understand how media components react to specific systems as this can impact performance!

Which water-holding capacity is best?

Some hydroponic systems are more compatible with a lower water-holding capacity. And others with a higher water-holding capacity.

- For example, **deep water culture systems** benefit from lower water-holding capacity mediums because the plants are constantly exposed to nutrient solution.
- Conversely, **nutrient film technique systems** benefit from higher water-holding capacity because it keeps nutrients solution easily accessible without constant exposure to water.

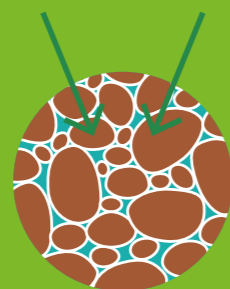


Permeability?

Permeability measures how easily water flows through a substrate.

Understanding permeability means to understand how the structure of the substrate will allow water to move through the pores to the roots.

A substrate's permeability depends on the size of the pore spaces and how well connected they are to one another.



High Permeability

If there is...
High Porosity and High Pore it will allow water to pass through easily.

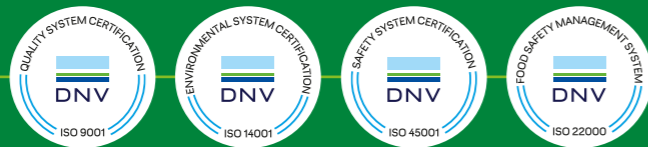
If there is...
Low Porosity or Low Connective In a tightly packed media, there will be less space for water to move.

Less Permeability

Jiffy Group is renowned for the outstanding quality of its growing media.

Growers know they can rely on us year in year out to supply them with a wide range of solutions that are clean, safe, sustainable, and innovative. Our Jiffy Pellets, Jiffy Growbags and other solutions help grow uniform, excellent crops worldwide, from trees to coffee, from border plants to CEA microgreens.

Our production plants have been ISO certified in a number of categories, including food safety, for many years. In addition, we offer RHP-certified substrates and a range of OMRI-listed organic solutions.



Our promise to our customers

While we do not produce food as such, we take our responsibility as a supplier to the industry very seriously. We promise that we will continue to monitor our products closely so that we provide our customers with the safest options.

We take multiple steps to ensure the quality of our products is second to none. These steps include:

- Continually working to minimize the risk of contamination throughout our supply chain, from harvesting raw materials to delivering the finished products to our customers
- Complying with our strict global end-to-end traceability system
- Repeatedly checking for a wide range of chemical, biological, and physical contaminants, e.g., vermin and pathogens

Lets work together!

A healthy and active soil life is a great strength of our products. Next to nourishing crops, these microbes can help prevent outbreaks of human pathogens, even if these are already present. In fact, most of our raw materials are inhospitable to human pathogens.

We understand innovation is still necessary and we want to continue to develop working towards common goals based on facts, teamwork and involvement.

Developing sustainable plant growing solutions together

Jiffy offers the sustainable solutions CEA growers are looking for

Welcome to Jiffy's media specification guide for hydroponics and indoor farming.

