

The importance of air pruning

Water and nutrient uptake

Water and nutrient absorption at root level mainly takes place through the root hairs. Hair roots are being formed just behind the root cap and do not develop along the base stem of the root. By way of branching its roots, more root caps arise and the plant increases its hair root mass and with it the plant's access to available water and nutrients.

Air pruning effect

When root tips become exposed to relatively dry air, they dehydrate and get "burned". As a result, the plant will develop new and healthy branching roots. These developed secondary roots sprout up along the length of the primary roots and progress until the same series of events takes place again. This way air pruning triggers the development of new roots and leads to a more fibrous, highly branched out root system. A branched root structure will contain a much wider network of hair roots, allowing a plant to more efficiently uptake water and nutrients while increasing growth and overall plant health.

Root suffocation in pottery

The impenetrable shell of a standard plastic or terracotta pot shows probing roots circle around the sides and base in an ongoing attempt to expand its root structure. This leads to a large amount of roots being positioned up against the pot wall, with little to no hair root structure towards the centre of the pot. Root structure will be poorly developed, water and nutrient uptake is minimal and roots are prone to suffocation. The plant does not make effective use of the volume of the growing media.

Root development sleeved media

When a grow medium is encased or wrapped in a plastic sleeve, it doesn't make use of the air pruning effect. Elongating roots will enter into the humid



air between medium and sleeve. At these high humidity levels, the roots will not die en and will continue their growth. The result is long primary roots growing between medium and sleeve, without branching and without the development of a hair root mass inside the medium.

This way the volume of the medium is poorly used for the development of hair root mass and with it there is little uptake of water and nutrients.

Technical cultivation advice

Ask your crop advisor or contact your supplier.

