Quality of growing media matters

FACTSHEET

UNFERTILISED GROWING MEDIA

Unfertilised growing media are substrates supplied to the grower without added fertilisers. For substrates based on peat raw materials, however, this is not recommended. During cultivation it can lead to a strong pH drop, an imbalance in the availability of trace elements, and reduced uptake of nutritional elements.

Unfertilised growing media

Normally, growing media based on peat raw materials are limed and fertilised during production. Base fertilisers are necessary to achieve an optimal balance of plant-available nutrients, which the grower then builds on with its own fertilisation strategy. The pH is achieved through the combination of liming and fertilisation. Sometimes the choice is made to only lime, without adding base fertiliser. For peat-based substrates this is not recommended.

Some substrates are intentionally supplied without base fertilisation, for example for crops grown on stone wool or perlite. These raw materials do not buffer nutrients and the pH doesn't need to be set. During cultivation, nutrition is fully controlled via the nutrient solution.

Unfertilised peat-based substrates?

A substrate based on peat raw materials that is only limed and has not received any base fertilisation prior to delivery has a pH that was established at a low EC. Once a grower starts fertilising and increases the EC in the substrate, the pH can drop sharply, by as much as 1 pH unit. The pH changes as the EC in the culture increases. The pH strongly influences the uptake of nutritional elements by plants. Both too high and too low pH can limit nutrient uptake. A very low pH can even cause damage due to an excess of manganese (Mn) and zinc (Zn).

In addition, the unfertilised substrate is not buffered, particularly with regard to trace elements. If this is not addressed promptly, an incorrect fertilisation strategy may result in deficiencies of trace elements. For this reason, the production of peat-based substrates makes use of specialised base fertilisers with an increased content of trace elements. This ensures their immediate availability.

Liming and fertilisation are therefore important to set the pH and the correct balance in nutrition. The correct lime dosage depends on the dosage of the used peat raw materials and the intended fertilisation level. It is advisable to fertilise in advance to the level at which cultivation will start, so that the pH

remains within the desired range at the start of the culture. The pH must match the desired EC at the start of cultivation. Then the pH remains at the set level as soon as the grower starts fertilising in the culture.

If a grower nevertheless chooses to start with a peat-based substrate that has only been limed, it is often advisable to start with a higher pH, allowing the pH to decrease to its normal level once full fertilisation is applied during cultivation. Additional attention to trace elements is therefore essential.

What are the requirements of the quality mark RHP?

The substrate producer coordinates the target pH and nutrient levels of the substrate to be supplied with the customer. These settings are not prescribed by the RHP quality mark. Instead, RHP verifies whether the agreed specifications are met. This verification is based on parameters such as EC, pH, nitrogen, phosphate, and potassium. For each parameter, RHP applies defined tolerance margins within which the measured values must fall after analysis.

Advice for the user

For substrates based on peat raw materials, the recommendation is to set the pH before delivery by applying the required lime and base fertilisation at the level intended for cultivation. In this way, the pH remains within the desired range and nutritional elements remain in balance at the start of the culture. It is also important that the grower continues to monitor pH and nutritional elements during the culture. To achieve this, the grower should regularly take samples from the culture and have them analysed for pH, EC and nutrients. It is recommended to carry out such analyses every two to four weeks, so that deviations can be identified and addressed in time.

- ✔ **Unfertilised substrate is a substrate without base fertilisers**
- ✔ **In cultivation on stone wool or perlite, nutrient supply is fully controlled via the nutrient solution**
- ✔ **Peat-based substrate requires both liming and base fertilisation to set the pH and ensure the immediate optimal availability of nutrients**
- ✔ **Peat-based substrate without base fertilisation may lead to problems**

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