

Optimizing Fertilization for Plant Cultivation®

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INTRODUCTION

Optimising fertilization requires up-to-date information on the composition of the growing medium and water. With this information one can do a calculated fertilization schedule according to the fertilizer requirements of the specific crop.

The key aspects to consider are the pH and EC of the substrate and the water.

KEY ASPECTS

Optimal EC and pH values are shown in Figure 1.

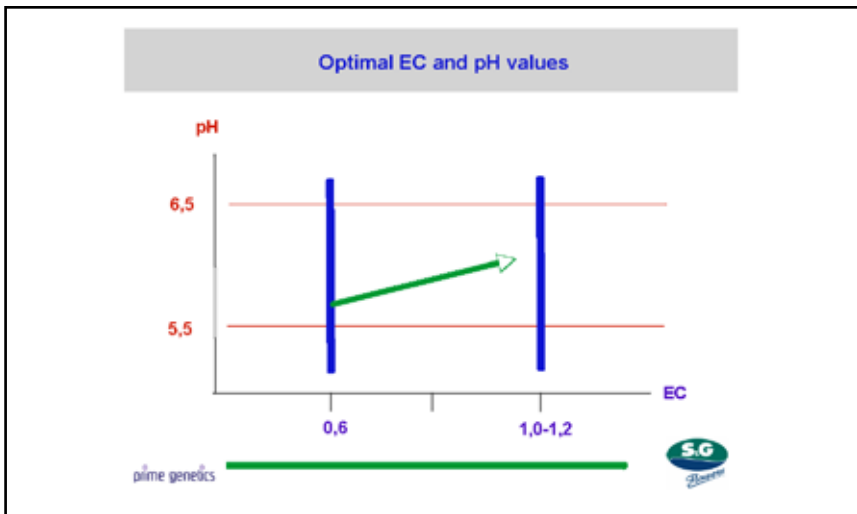


Figure 1. Optimal EC and pH values.

The pH (potential hydrogen) is the negative logarithm of the concentration H^+ , the acid value.

- The pH influences the solubility of nutritional elements and their availability to plants.
- A pH that is too low results in a poor uptake of phosphorous and calcium.
- A pH that is too high results in a poor uptake of the minor elements such as Mn, B, and Fe.
- High pH levels can be corrected by adding the right calculated amount of acid.

Electrical conductivity is the value of the total dissolved elements in the water or substrate, the salt value.

- The EC does not indicate the fertility of the substrate or water.
- The fertility can only be determined by analysing the chemical composition of the substrate and water.

Advantages of an A + B tank fertilization system.

- All elements are given in a balanced ratio.
- Flexibility to change quickly according to plant size.
- Relatively cheap.
- Water quality is taken into consideration.

Important: Keep calcium in high concentrations (A-Tank) always separate from sulphate and phosphate (B-Tank).

IMPORTANT FERTILIZATION ISSUES

- Never give plants water without nutrients.
- Use a balanced fertilization schedule that is based on the water quality.
- Monitor the pH and EC levels in the soil and water regularly to avoid surprises.
- When plants need more water (summer) lower the EC level per water application.
- When plants need less water (winter) raise the EC level per water application.
- For young plants start with an EC of 1.0 and as plant matures raise EC up to 2.5.
- Change EC levels, up or down, in small steps, 0.2 EC per time.