How-To
Steer Tomatoes for maximum yield

To maximise tomato yield, growers need to know how to balance the vegetative - generative condition of their plants. The highest possible yield is harvested when the plants expend most of their energy into crop production (fruit).

Every extremity, be it atmospheric, or fluctuations in root zone moisture &/or nutrient formula reduces the potential yield. When plants compensate for the negative effects of extreme conditions they otherwise expend their limited energy.

Vegetative / Generative Balance (Leaf / Flower Balance)

EXAMPLE - Hot climates with no heating

When a hot climate can not be controlled, or even only partially, it limits ones ability to manage the plants' balance. Tomatoes will become more generative with excessive fluctuations in day and night time temperature and humidity.

Control can be managed through;
* De-leafing the foliage
* Irrigation e.g. root zone moisture + nutrient control.

By watering more often with a lower nutrient dose the root zone stays wetter without fluctuations.

Otherwise, drying out the root zone encourages generative fruit production in two ways;
1) Root zone evaporation increases salt concentration (EC).
2) Plant stress from extreme deviation from the optimum climate makes them expend their remaining energy on subsistence such as their own reproduction, growth of offsprings, which is indeed crop production.

Quality and quantity are usually related and if you are not careful a generative imbalance can lead to lower yield in order to 'look after' the next generation.

Healthy Root Hairs

Root hairs perform at their best as active participants in the uptake of water and nutrients when the water-air ratio in the growing medium is about 70-30%.

If the root zone environment changes by either drying out or suffocating through over-watering, the plant sends energy to the roots to move and seek better conditions.

This takes away energy from the flowers and fruit. Plant physiology suggests that if a plant is lacking in a sufficient amount of energy, it first directs its available energy into the roots, then into the fruit and only last of all into the foliage.

Consequently, if the movement of the roots requires constant energy, there is less energy available for developing crop, which leads to less available yield.

Irrigation Method

Different growing media possess different water storage and re-wetting abilities due to their density, absorbancy, material and size.

Specialists agree that a proper irrigation strategy can unlock a greater genetic potential and produce a higher yield.

The proper dose of irrigation nutrient is of great economic and environmental importance. Plants need a healthy and constantly renewable root system, as well as a sufficient amount of oxygen in the growing medium.

They also enjoy different water content of the growing medium according to the time of the day. The change of water content within the growing medium triggers vegetative or generative impulses in the plant.

To maintain plant balance accurate and reliable control enables sometimes extreme values, to steer the plant in the right direction of high yield.

When To Start Irrigating?

The timing of the first morning watering has a great effect on the plants as well as the difference in salt content compared to the last watering on the previous day.

It is widely accepted that in order to maintain the balance of the growth rate this value should be targeted between 6% and 12% in acclimatised greenhouses.

These values may differ in both directions depending on the geographical and climatic conditions, as well as on the momentary state of the plant.

Depending on whether the plants need vegetative or generative impulses, we can decide on the targeted value of this difference.

Vegetative (the green mass of the plant: stem, foliage) Means of management Generative (flowers, crop)

daytime / nighttime Climate control
daylight / nighttime
daylight / nighttime

low fluctuation in temperature DIF
low high
low fluctuation in humidity
low high
moderate de-leafing use of stem clips truss pruning
intensive de-leafing intensive stem twist no truss pruning
wet growing medium foliage management
irrigation, nutrient provision management
low EC

Frequently over-irrigated in the dried-out growing medium high EC

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