Fungus and Relative Humidity

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The environment in propagation units is ideal for fungi to grow—nice warm temperature and high relative humidity (RH). At the same time it is difficult to use fungicides in a propagation unit. Therefore, cuttings have to be free of fungal diseases by good care of the stockplants. Under normal conditions in a greenhouse, should there exist a high RH, climate computers are able to control it—this is not the case in a propagation unit.

Fungi grow small hyphae, 4-6 µm in diameter, that develop into mycelium. In order to grow, fungi have to absorb water so that nutrients can move into the hyphae. If transpiration is too high, the hyphae dry out and die. Therefore, from the fungi's point of view it is not the RH but transpiration and subsequent condensation which controls its growth.

It takes some time to get used to considering evaporation instead of RH as controlling the growth of fungi. Even in a greenhouse with 100% RH, evaporation\transpiration occurs because some areas are warmer and others are cooler. Therefore, water will move from the warm to cooler areas. At lower RH values, evaporation increases when air moves. Evaporation requires energy, and water will evaporate from the warmest areas and condense in the colder areas. This is why greenhouses are cooled during ventilation.

If a greenhouse is to be controlled by evaporation one must measure RH and air movement. This may prove difficult to do, but will ensure new and better use of the climate computers.

Photosynthesis in Cuttings During Rooting

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It is well known that a large variation exists among plant species in their ability to utilize light for growth. Most of these variations are caused by genetic differences where some plants (shade plants) are light saturated at very low levels of irradiance, while others are not light saturated at naturally existing light conditions. Because plants generally grow close together with many overlapping leaves, light saturation is seldom observed under normal growing conditions.

Cuttings are different. They often only have a few leaves, and not having a root system, are unable to absorb water. To compensate for the lack of roots, mist propagation and enclosed plastic are used to ensure a high relative humidity in the environment surrounding a cutting during rooting.

A high level of irradiance causes a high carbohydrate production.