

LED lights can make plants more resilient

Wageningen PhD candidates Martina Lazzarin, Davy Meijer and Mara Meisenburg are playing with LED light. Their aim: to use this light to increase plants' resistance to insects.

The three PhD students are exploring variations in the light colour, for example ultraviolet, blue, red and far-red light. The plant is influenced by the amount of light at these different frequencies. Far-red light in particular has a significant effect. Plants use

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far-red light to grow faster than the surrounding plants with which they compete for light. But that growth is at the expense of

resilience. Red light is used by plants for photosynthesis, but it also protects them against diseases and pests. The researchers hope that by playing with the light frequencies, they can make greenhouse plants resilient.

First, however, they need to understand the precise effect of the light frequencies. Meisenburg is investigating which antibodies and hormones increase a plant's resistance to insects and what kind of lighting can boost the amounts of these substances. Lazzarin is studying the effect of far-red light on photosynthesis. Although this frequency reduces resistance to insects, it does have a positive impact on growth and resistance to light stress. And Meijer is examining the effect of LED lights on whitefly and spider mites in tomato cultivation. AS