

World News

The Netherlands Can chrysanthemums be cultivated under LEDs?

What effects do different spectra have on a Chrysanthemum? What effects do LEDs have on climate? To answer these questions, in December 2011 Philips started a Chrysanthemum trial at Botany, the Netherlands with different LED and SON-T treatments. The trial was set up by Philips in order to obtain information for developing a new LED solution. The doors were opened to growers and breeders to allow them to shine their light on the trial as well.

Three different cultures were placed in three greenhouses: under LED lighting, conventional SON-T lighting and a combination of these two systems. In addition, several spectral differences were installed for the LED treatments with combinations of red, blue, white and far-red light. Three chrysanthemum cultivars, 'Anastasia' (Deliflor), 'Euro' (Dekker Chrysanten) and 'Grand Pink' (Fides), all provided by the breeders, were tested during the trial. For the different treatments both the light level and the lighting period were kept the same. The focus of this trial was on plant growth. Before a good light recipe can be developed, experience with cultivating under LEDs is necessary. One of the ingredients of the light recipe is the light system. So the LED system used at Botany in this trial is not regarded as a solution suitable for use in practice, but as a tool for mapping out plant reaction and growth. From this basis further work will be done on finding an efficient light

solution that contributes to the eventual light recipe.

About 25 growers and breeders visited the trial in Horst. After a presentation by Philips about basic light concepts and the trial set-up, the greenhouses were visited. The growers responded enthusiastically to the quality of the chrysanthemums from the LED greenhouse. The section containing 100% LEDs was somewhat delayed, but the crop was sturdier and darker. There may be various reasons for this, such as the spectrum and/or the lower plant temperature (though the LED greenhouse was heated 1 °C higher during lighting hours). In the subsequent discussion the horticulturalists gave a clear indication that they were interested in results and possible follow-up action. The growers were of the opinion that the hybrid solution, in which both SON-T and LEDs were used, would be ready for implementation first. This concept appears to have less far-reaching consequences in culture, but

may already offer advantages, such as lower energy consumption and quality improvement. The horticulturalists are also curious about the additional possibilities offered by total lighting with LEDs.

Danielle van Tuijl, who grew up among Chrysanthemums and is now a plant specialist at Philips, supervised the trial. "The focus of this trial was on plant growth under the different types of lighting and the result was a good crop in all cases, including under the LEDs. In any case it is very important for us that the horticulturalists and breeders are enthusiastic about the results, and they were. After all, ultimately that's what we're interested in."

The flowers were harvested during the week after the meeting. The results are currently being analyzed by Philips and DLV, with the effects of greenhouse temperature, spectrum, precise light sums, etc., being examined. The growers will be kept informed about the results and possible follow-up steps. III