



"It all starts with imagination. If you can't imagine the future, you will not be able to create it!"

INTERVIEW | DAAN ROOSEGAARDE AND ANJA DIELEMAN (WUR) BY MICHIEL DE BOER (MOESASJI)

Dreamscape GROW, an instigator of (light) innovation

"Light is communication, a language, communication at 300.000 km per second, what a power!" says Daan Roosegaarde. "For me this has an imaginative value, a poetic quality. We humans are very sensitive to light. So are plants. And since GROW, I have learned that you can even design light-recipes. You can 'cook' with light. That is a power we must use, if you ask me!"

THE PLACES THAT FEED US

Artist, designer and futurist Daan Roosegaarde has a clear fascination for light. With his latest projects GROW and Urban Sun he explores new ways of using light. And this has overwhelming outcomes. GROW has reached over 650 million viewers worldwide.

Roosegaarde: "When Rabobank CEO, Wiebe Draaijer, contacted me for their artist-in-residence program and asked me if I was interested in looking into our food and food production as a theme, I was immediately intrigued by the question. We started visiting the places that feed us. The huge spaces, empty lands in The Netherlands where crops grow. So beautiful. That's where the first ideas emerged. I foremost wanted to make an artwork that would display the beauty of these places."

MESMERIZING QUALITY

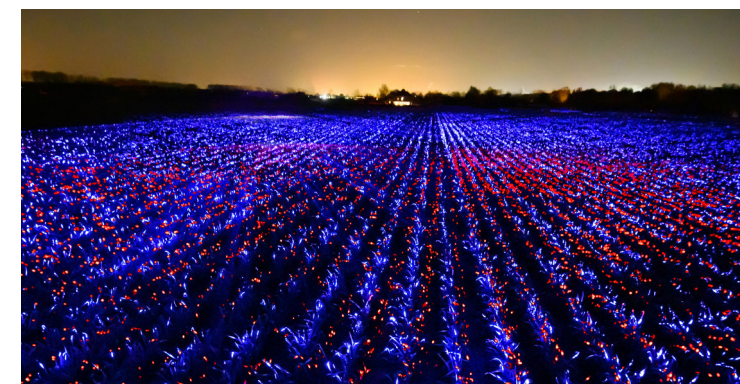
Roosegaarde and his team found an enthusiastic leek grower and turned his field of 20.000 square meters into a dreamscape of mesmerizing blue and red lights, slowly moving and shimmering over the tops of the crops. Roosegaarde: "We stood for days on those meadows to get the installation right. And the result was astonishing. Dennis (the farmer) couldn't stop looking at this dance of light on his fields. The installation distributes precision lighting, focused horizontally in a controlled area, over the leek plants, causing no light pollution. We used types of blue and red light for their specific beneficial qualities to crop growing. And we used ultraviolet light that triggers the plant defense mechanisms, reducing the need for pesticides."

NEW TERRITORY

"I discovered the world of light-recipes in discussions with scientist Anja Dieleman from the Wageningen University & Research. It is amazing how light is increasingly used to enhance growing and plant productivity. And we are only at the beginning of discovering this new world. I am not stating that our GROW installation is a practice that farmers can start using tomorrow. This is a work of art, a new perspective, an invitation to explore a new territory."

WORLD TOUR

GROW, carefully captured in a 3-minute movie (you can watch it at studioroosegaarde.net), got millions of views around. The agricultural world could appreciate the project as Roosegaarde received positive reactions from France to Peru and from Dubai to Australia. Roosegaarde:



"GROW will be traveling the world in the upcoming years. And it will feature various design-based light-recipes for different species of crops and therefore have different appearances. I am very curious what it will bring."

VIRUS CLEANER

GROW was also a steppingstone to Roosegaarde's latest project Urban Sun, a new dreamscape that is getting an equal amount of attention worldwide. Urban Sun is an artificial sun that cleans (public) spaces of the coronavirus by using a strong 222nm (far-UVC) light beam that is safe for the human skin and eyes. It acts as an additional layer of protection to current government rules and aims to inspire hope. When Roosegaarde stumbled upon this scientific discovery of David Brenner (2018) he immediately teamed up with scientists, virus experts and designers and designed the very first Urban Sun. Urban Sun's initial launch took place alongside Rotterdam's most iconic landmark, the Erasmus Bridge. The project debuts as a movie with the potential for worldwide future exhibits.

IMAGINE

Roosegaarde: "These two projects are the first in the series of DreamScapes. Imaginative artworks that act as dreams and turn into reality for a new and better future. I don't consider myself as a scientist or an engineer of the future, but as a designer and storyteller. Often people display innovation as a difficulty. I find that a misconception. We can innovate today, every day! And it all starts with imagination. If you can't imagine the future, you will not be able to create it!"



"What Roosegaarde does perfectly is portraying the beauty of agriculture."



ANJA DIELEMAN (WUR):

LED provoked a complete new field of research

Art and science

"What Roosegaarde does perfectly is portraying the beauty of agriculture. GROW refers to a major development in agriculture, of using light to enhance crop growth", Dieleman states.

Lighting for plants

"Over the last 40 years, we have been using the typical white-green light of high-pressure sodium lamps in greenhouses, originally developed for street lighting. However, these lamps are not very energy efficient," Anja Dieleman explains. "Therefore, over the last decade the interest in LED lighting has increased considerably. Another advantage is that LEDs can give any colour that is desired for an optimal crop growth. With that, a completely new field of research has emerged, in which we just start to discover the effects of light colours on plants".

Sustainable food production

"Crop growth depends on a lot of factors and light is just one of them. There is also temperature,

CO₂-level, substrate, irrigation, et cetera. In finding a perfect growth-recipe for a plant we have to take into account all those aspects. That allows us to produce a sustainable crop, with a minimal amount of water, energy and pesticides.

Inspiration

The Netherlands have always pioneered in getting the most out of every square meter. This places our country and agricultural community at the forefront of technological developments in enhancing plant productivity and product quality. I have had a number of discussions with Daan Roosegaarde on the developments and technologies in our industry, a general back-ground of the current and future use of lighting in horticulture. It is nice to have been a source of inspiration for such an impactful artwork."

*Anja Dieleman
Sr. Researcher Physiology
at Wageningen University &
Research*