

The background image shows the interior of a high-tech greenhouse. On the right, a large white vertical hydroponic tower is visible, with several blue horizontal bands. To the left, a dense wall of vibrant green leafy plants, likely lettuce, is growing. The greenhouse structure, including metal beams and glass panels, is visible in the background.

# Innovative high-tech greenhouse

For sustainable cultivation

EcoY

# Sustainable. Smart. Sun-powered.

## The EcoY



The expanding global population, compounded by climate change and its increasingly extreme weather conditions, consistently presents new challenges for food production.

The **EcoY** represents a whole new world of vertical farming – an extraordinary cultivation method changing how food is grown. We designed the innovative, turnkey **EcoY**, Controlled Environment Farming (CEF) solution in collaboration with our partner and sub-contractor Clean Air Nurseries Agri Global (CAN-Agri). The product focuses on the sustainable cultivation and breeding of leafy greens by lowering production costs while utilizing cutting-edge manufacturing techniques and intelligent production control.

### KEY SUCCESS FACTORS FOR VERTICAL FARMING



- Modular construction and expansion
- Proven and tested technology
- Reliable and backed equipment
- Consistent production year-round
- Low energy consumption for cost efficiency
- Low input cost = profitability
- Climate mastery for challenging environments
- Quality is paramount – maintain the highest standards
- Utilizing data analysis for predictive results
- Negligible ESG (Environment Social & Governance) risk for sound business practices

# Dürr & CAN-Agri

A strong partnership for an innovative concept



Sustainable products and approaches are integral to Dürr's corporate strategy. Given Dürr's expertise in plant engineering, particularly in the demanding field of ventilation and air conditioning technology for automotive paint shops, contributing to the **EcoY** concept was a natural fit.



CAN-Agri brings extensive agricultural expertise and cultivation technologies to the partnership as well. The company operates its vertical farm in Pretoria, South Africa, where it uses its cutting-edge grow tubes. CAN-Agri's farm doubles as a research and development center, where it collects empirical data for the continued development of processes and technologies.



Together, Dürr and CAN-Agri have forged a pioneering solution for the next generation of vertical farming. The **EcoY** is a solution that not only leverages existing potential, such as sunlight but also conserves resources across the board through efficient plant manufacturing and patented technologies with a high degree of digitalization. In addition to assuring high-quality yields per square meter, the **EcoY** reduces operational costs, particularly energy expenditures, addressing a common shortcoming of conventional vertical CEF solutions.

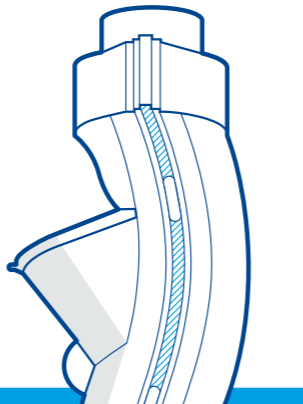




# EcoY innovations

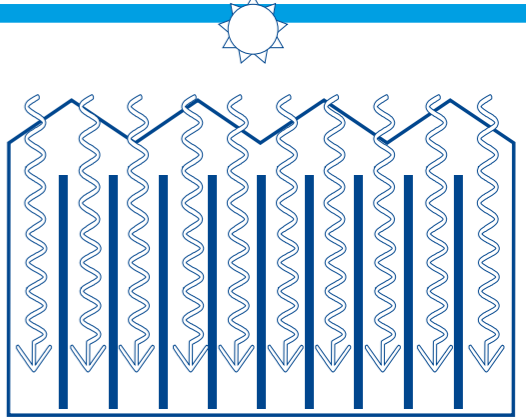
**1** Patented system with 80 plants in a single **grow tube.**

↓



**2** The high-tech greenhouse reduces input costs and increases profitability thanks to **sunlight.**

→



**3** Designed as a **semi-closed greenhouse** with a climate chamber to condition the air.

**5** **Energy screens** help achieve maximum energy savings in the greenhouse during night-time hours.

**4** Nutrient water temperature control promotes a **microclimate** that influences the growing environment.

**6** **Horizontal climate screens** provide the perfect balance of solar radiation and shade.

# EcoY's grow tubes



The heart of the **EcoY** lies in CAN-Agri's pioneering grow tubes, where leafy greens flourish in a vertical setup. The plants sit firmly in crop tanks, in a vertically stable position, and benefit from one major resource during the growing process: solar radiation. The plants receive sunlight from top to bottom. **EcoY's** sustainable vertical farming system cultivates leafy greens using only natural light from the sun, eliminating the

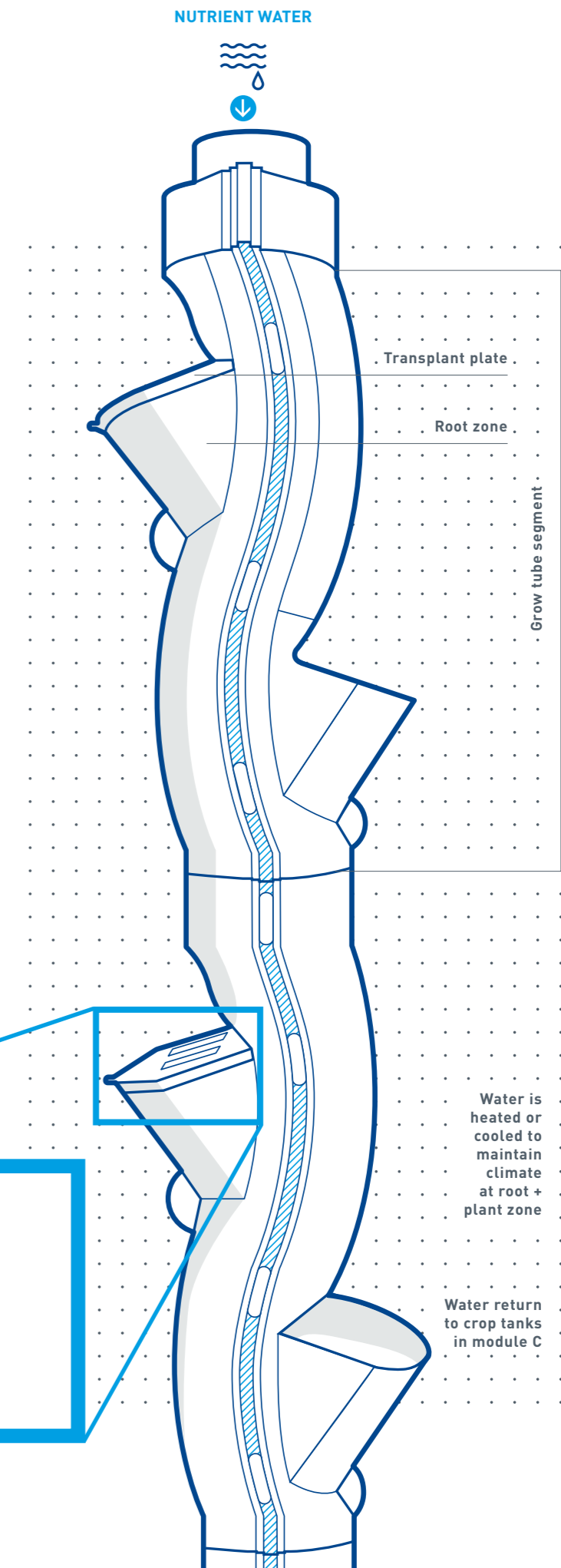
need for energy-intensive LED lighting commonly used in conventional vertical farms. With CAN-Agri's leading grow tubes and uniquely designed crop tanks, plants thrive in a controlled environment that maximizes the benefits of solar radiation for robust growth and higher yields.

# Grow tubes

Nutrient-rich water circulates from crop tanks to the top of the grow tubes. Gravity assists the water down the stacks, flowing from root zone to root zone, and it collects in a return pipe at the base of the stack where it flows back to the crop tanks. Compared to conventional farming practices, CAN-Agri's closed-loop system uses less water, minimizes water loss, and ensures balanced plant nutrients. This sustainable approach to CEF eliminates wasteful practices like runoff and leaching, making it an environmentally friendly choice for growers.

### THIS SYSTEM SERVES THREE MAIN FUNCTIONS

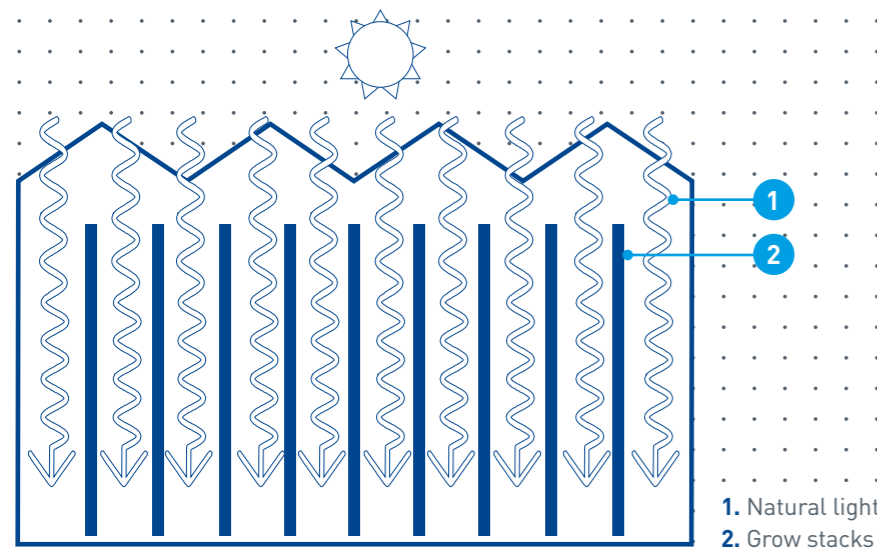
1. The **high-density planting system** allows for increased yield in limited space.
2. The **growing tubes** function as a radiator to help regulate greenhouse temperature.
3. The horizontal orientation of the grow tubes maximizes solar radiation, eliminating the need for supplementary LED lighting.



# Leveraging light & energy

Dürr's innovative vertical farming solution breaks the mold of conventional methods that rely solely on artificial lighting within enclosed structures. These methods often lead to inflated operating costs and require energy-intensive maintenance. The company revolutionizes the industry by harnessing sunlight and utilizing vertical layering to reduce input costs and

increase profitability. Unlike traditional horizontal setups, the vertical layers ensure optimal sunlight exposure for each plant, minimizing the need for costly artificial lighting. Plus, with the flexibility to supplement natural light with targeted artificial sources as needed, Dürr's hybrid approach offers unparalleled efficiency and versatility.

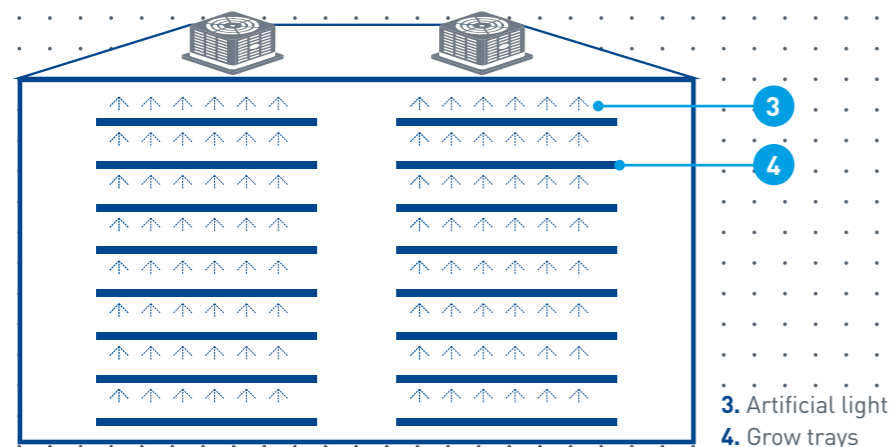


Greenhouse

## ADVANTAGES



A sustainable approach to harnessing natural resources  
Sunlight reaches all layers  
Minimal electric energy consumption



Building

## DISADVANTAGES



Dependency on artificial lighting due to the enclosed nature of the building  
Elevated energy consumption and associated costs

# Enhancing greenhouse conditions with climate screens



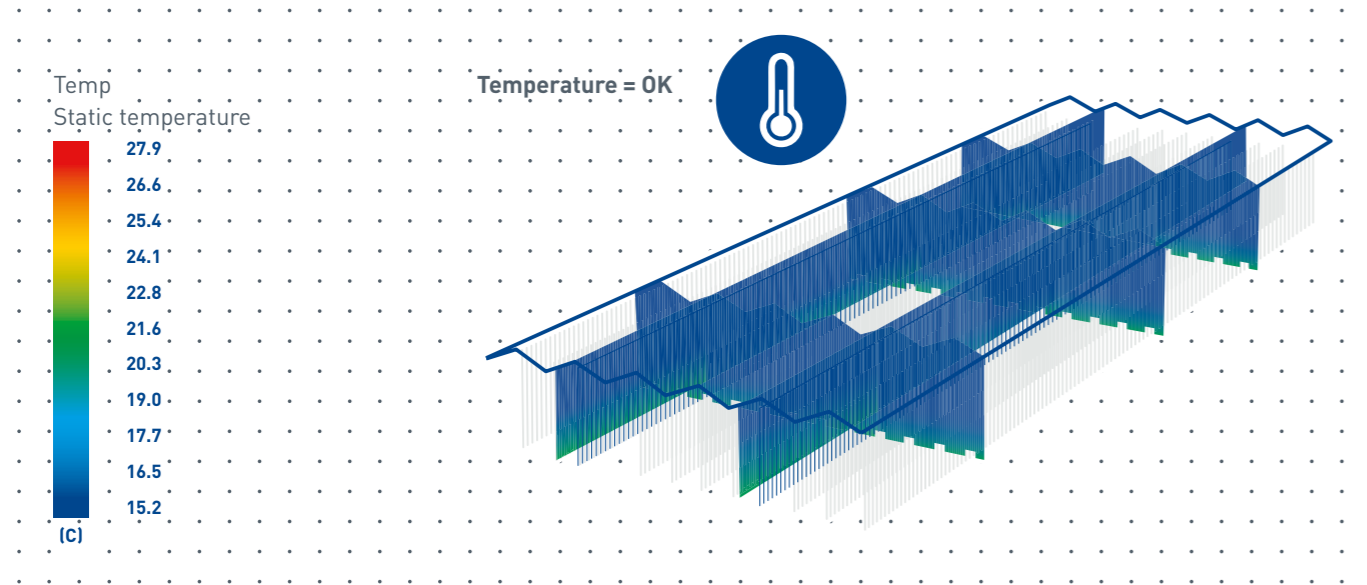
Sun shading and energy screens in the greenhouse help optimize the crops' growing conditions.

Positioned horizontally, sun shading screens effectively control the temperature by diffusing heat energy to maintain optimal conditions, even during hot days. These climate screens effectively lower leaf temperatures by mitigating solar radiation during peak intensity periods to ensure plants thrive in even the most challenging conditions.

As night falls, the energy screens continue to excel by significantly reducing radiated heat loss from the crops. This not only minimizes dew formation but also mitigates the risk of fungal diseases to safeguard yields and promote healthy, vibrant plants.

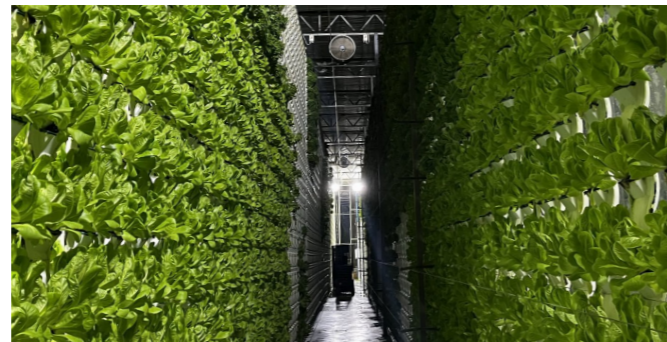
The screens and roof vents cooperate to create an optimal air-flow and a conducive greenhouse environment. The roof vents prevent insects and dirt from entering by generating a slight overpressure.

# Perfectly cool

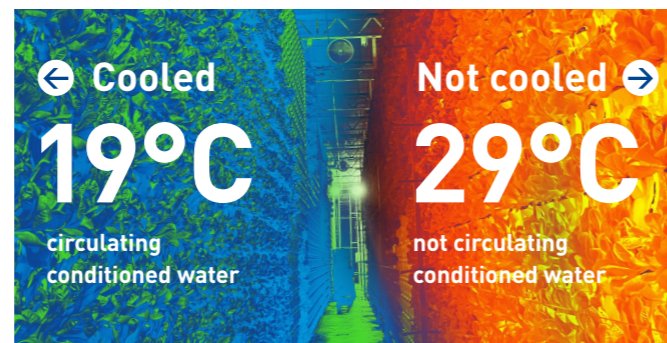


The patented grow tubes are not only a game changer in rethinking crop growing but also in greenhouse climate control. Strategically positioned throughout the greenhouse, these tubes act as giant radiators that effortlessly regulate temperatures. Circulating water within the stacks creates an optimal climate for the plants and guarantees cost efficiency.

While traditional approaches result in uneven climates throughout the greenhouse, our CAN-Agri grow tubes ensure uniform temperatures and humidity levels in every corner of the growasis – giving our customers the benefits of even temperatures, balanced humidity, and thriving plants.



Greenhouse with closed energy screens (by night)



Infrared image

# Optimizing climate with pre-treated air

The EcoY enables precise temperature and humidity level control by blending air from both inside and outside the greenhouse, ensuring optimal growing conditions year-round. Additionally, the climate chamber ingeniously harvests water from the humid air to promote sustainability while enhancing plant health.





# EcoY – but why?

## BECAUSE EcoY...

Reduces energy and water consumption while eliminating the need for chemicals and pesticides

Consistently delivers superior product quality

Features patented grow tubes by CAN-Agri that facilitate natural sunlight to the greatest extent possible

Boasts a small footprint thanks to optimized space utilization

With independence from location and climate, the EcoY has less distance to market

Guarantees a rolling production with daily harvests throughout the entire year, resulting in higher yields per square meter

Guarantees minimal waste

Delivers maximum output and improved return on investment through dense planting

Provides comprehensive operation monitoring and data collection

Eliminates the risk of human error due to automated system

## Service

### Fast, expert support from our global teams

Dürr's extensive global network guarantees always being close to customers' sites so that the local Dürr specialists can investigate service queries directly and provide fast, first-level support. Customers can take advantage of proximity and easy access to Dürr's expert teams to discuss specific issues. The company works continuously on a global scale to develop new customer relationships and improve existing ones even more. Simultaneously, Dürr drives digital transformation in the service field in partnership with its customers.

#### GLOBAL PRESENCE – LOCAL ACTION



Consultation across every stage of the value chain

Integration of new components into existing greenhouses

Spare parts, repairs, and parts-related advice

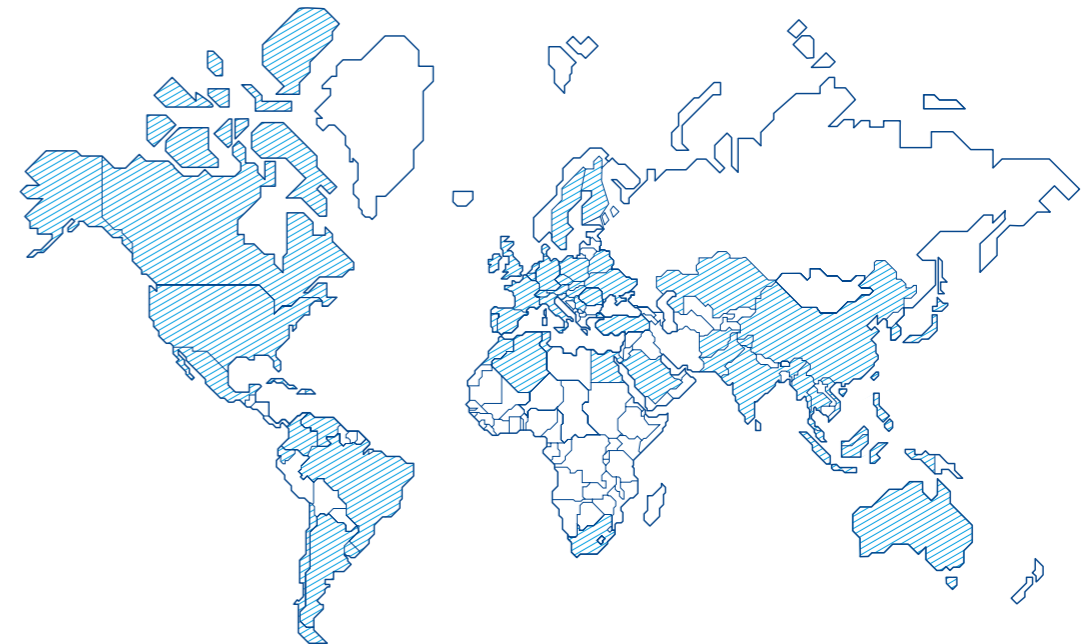
Product services (maintenance, upgrades, etc.)

Product optimization advice

Hotline and emergency support

Training courses and workshops

#### DIRECT ACCESS TO OUR LOCAL SERVICE TEAMS



#### DIGITAL SOLUTIONS

Digital training and learning solutions for our plants and systems supplement face-to-face training and development measures. By providing video tutorials on typical maintenance

and repair tasks and interactive e-learning courses, we give active support to plant and maintenance staff with self-guided learning that is available from any location.



# LEADING IN PRODUCTION EFFICIENCY



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