



Direct Feed Vertical Hydroponic (DFVH) System

The New Generation of Farming

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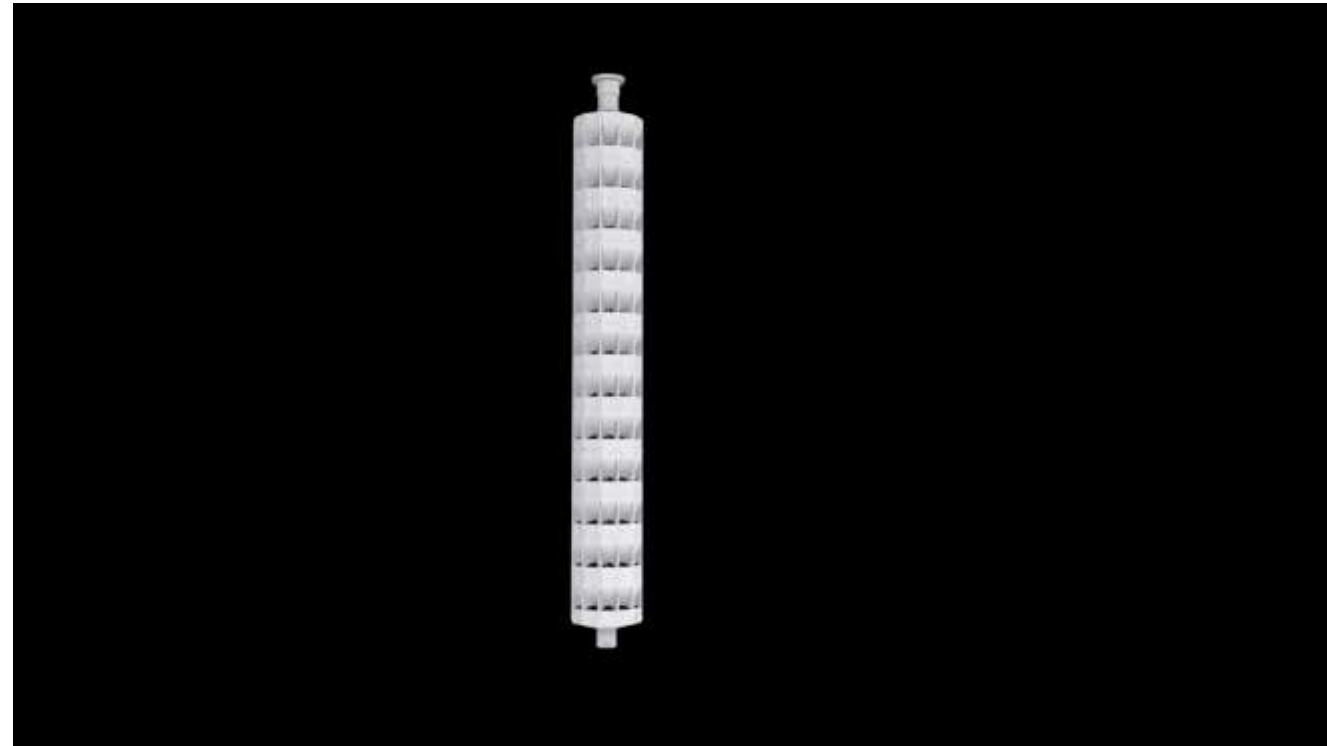
www.evergreenfarm.eu

DIRECT FEED VERTICAL HYDROPONIC (DFVH)



DFVH - The Future of Hydroponics

- Highest number of plants per m² and m³
- No excess humidity
- No excess heat
- Rotational system:
 - Even lighting
 - Even CO₂ distribution
 - Even air flow distribution
 - Pollination
 - Robotic access
- Easy replacement of crops (modular system)
- Easy to assemble and relocate



DIRECT FEED VERTICAL HYDROPONIC (DFVH)



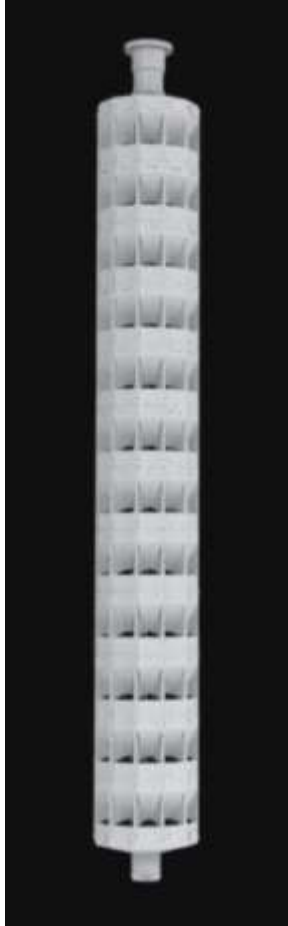
Stackable Units

- Greenhouses
- Garage
- Shipping containers
- Supermarkets
- Schools
- Restaurants
- Old unused buildings

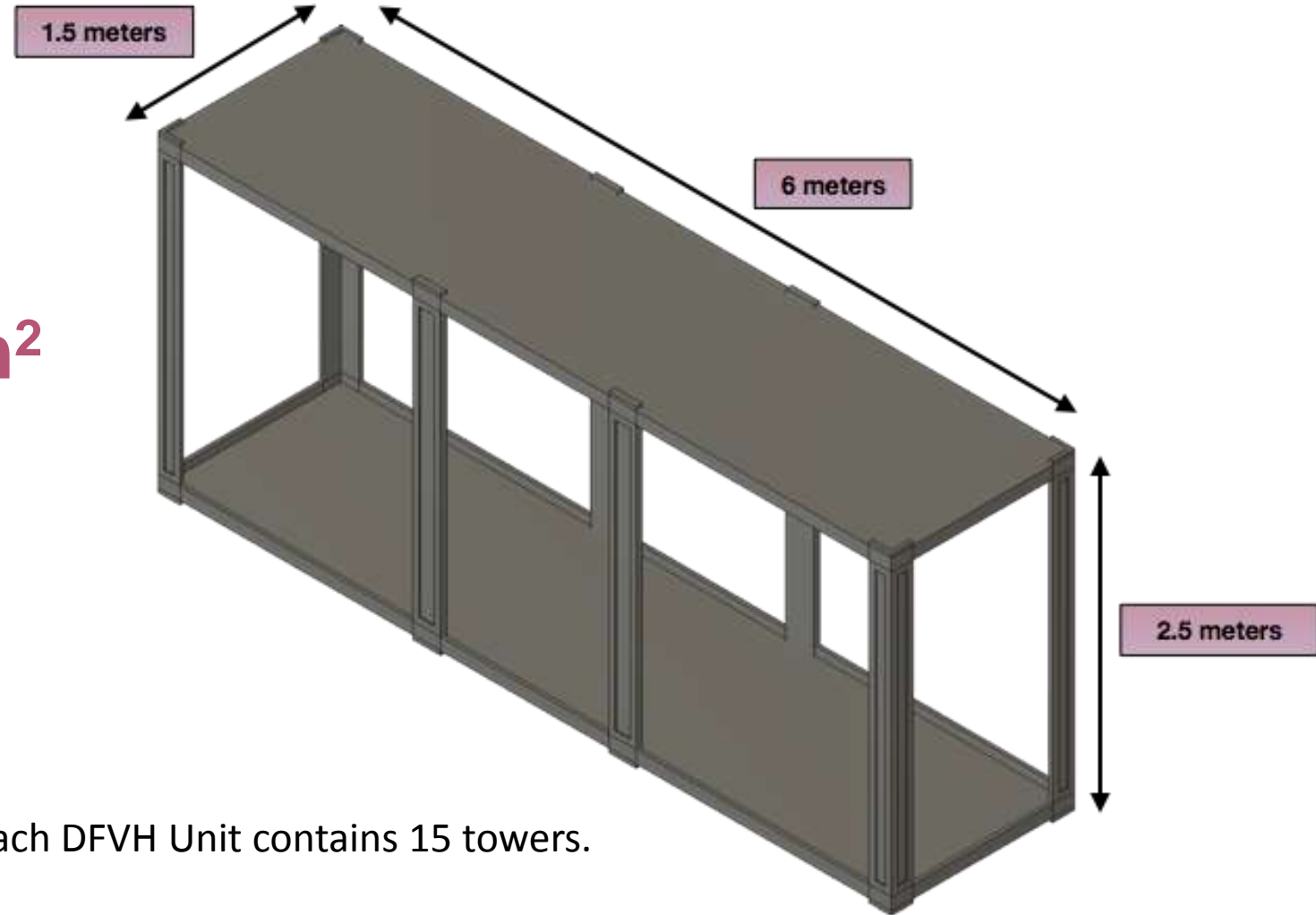
DIMENSIONS AND PRODUCTION



Each tower holds 144 plants.



2160 plants in 9m²
240 plants/m²



Each DFVH Unit contains 15 towers.

DFVH PRODUCTION



System's Area* [m ²]	# Plants in system	# Plants/m ²	# Harvests/year	Annual yield per m ² [kg/m ²]**
9	2,160	240	18	1080

Vertical Stacking

- A 15 x 15 x 10 meters plant factory (**225 m²**)
- 16 DFVH Units at floor level
- 4 levels of stacking
- 63 m² working area

64 units x 2160 plants

= 138,240 plants in 225 m²

Facility's Area [m ²]	# Plants in facility	# Plants/m ²	# Harvests/year	Annual yield per m ² [kg/m ²]**
225	138,240	614	18	2,764

* Facility space not included

** Weight per harvested crop is estimated from a combination of herbs, leafy greens, and heads of lettuce with an average weight of 250 g per plant and 18 harvests per year.

614 plants/m²

SYSTEMS' COMPARISON



Company	Annual Yield per Meter ² [Kg/m ²]	Energy per Day [kWh/day]	Energy per Kg [kWh/kg] <i>[(kWh/m² day)/(kg/m² day)]</i>	Water per Day [Lt/day]	Water per Kg [Lt/kg] <i>Lt/(m² day)/(kg/m² day)</i>
Evergreen Farm	1,080	36	3.62	14	1.41
Bright Agrotech	147	300	12.41	190	7.86
Aerofarms*	138				
Freight Farms	80	100	15.21	38	5.78
SunCore	53				
Affinor Grower Green House	50				
Amhydro Green House	25			486	26.32

*9mts horizontal stacking

REASONS FOR A HIGH VOLUMETRIC YIELD



Increased
growing area

Rotational
System

Wavelength-
specific
lighting

Nutrients
quality

Control
Environment

Even
distribution of
resources

Pollination

No pests

AUTOMATION



Robotic harvesting

Computerized full system control

Proprietary software monitors and controls over 30 actuators



ARTIFICIAL INTELLIGENCE



We collect all the data from factories' germination, growth, harvesting and logistics processes.

Artificial Intelligence platform uses that data to train machine learning algorithms to make the operation all the time better.



Demand forecast



- Market demand
- Market prices
- Geographical demand

Program optimization



- Capacity optimisation
- Program planning
- Resource optimisation

Growth optimization



- Yield optimisation
- Consumption optimisation

Harvesting and logistics optimization



- Quality assurance
- Packaging optimisation

GROWTH OPTIMIZATION



Factory automation updates based on optimized models

Optimized growth automation

Artificial intelligence based analytics

BigData storage

Low energy, mesh-sensor-network

Growth data collected from the factory units

Air:

- CO2
- Oxygen (O2)
- Ozone (O)
- Temperature
- Humidity

Cylinders:

- Inside temperature
- Inside humidity
- Rotation

Visual view of plants:

- Green area index
- Growth status
- Diseases

Water:

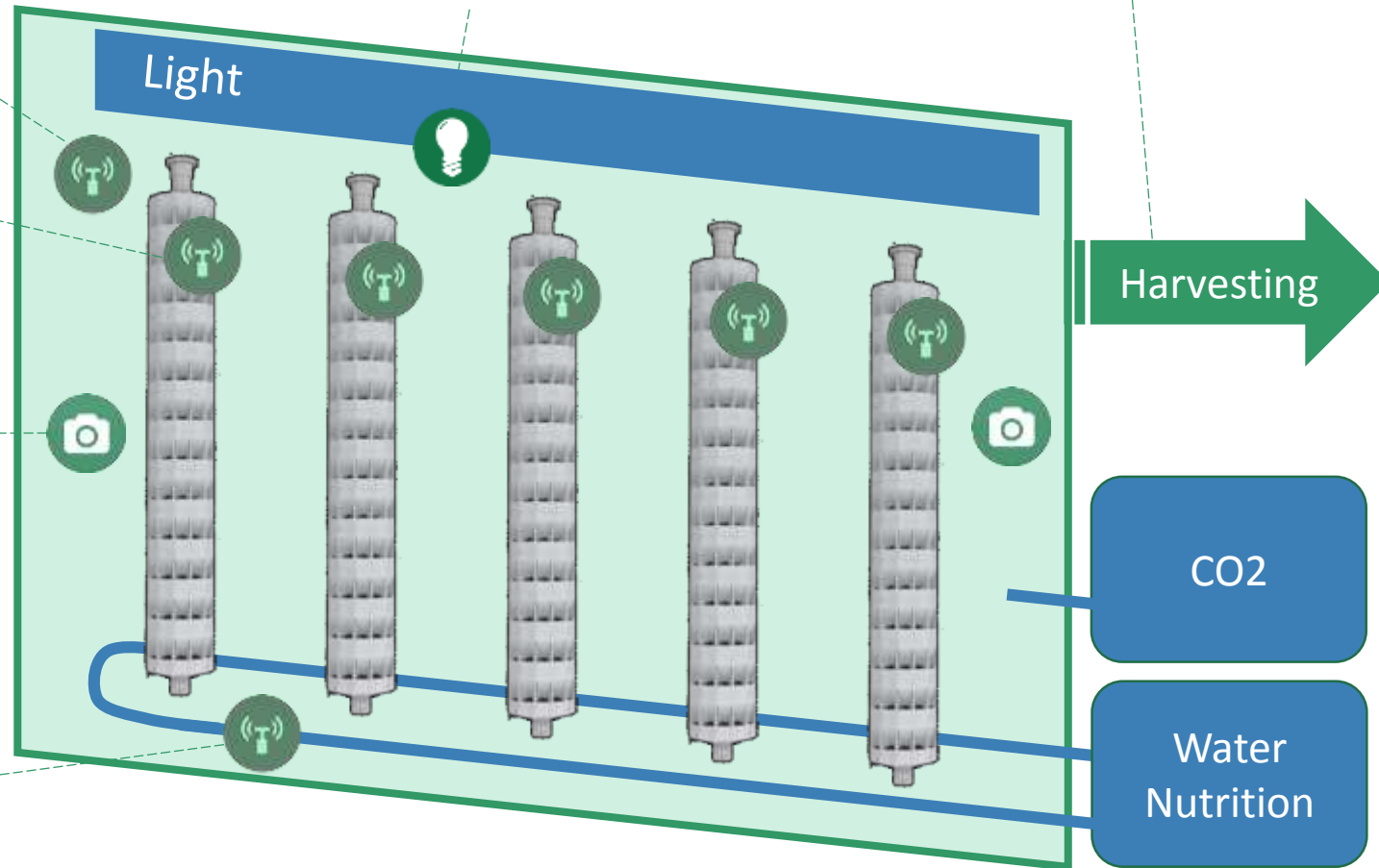
- Nutrition level
- Ph
- Water flow
- Water temperature
- Oxygen
- Consumption

Light:

- Light wave lengths
- Lumination
- Consumption

Harvesting:

- Yield mass
- Quality



VERTICAL FARMING – SUSTAINABLE OR NOT?



Non-Sustainable

Energy Intensive

Non-Renewable
Energy

Synthetic Nutrients

- Hydrocarbons
- (or Mining)

Sustainable

Energy Efficient

Renewable Energy

Organic Nutrients
and Substrate

EVERGREEN FARMING SUSTAINABLY



Ecosystem Restoration

- 100% organic fertilizer and substrate
- 100% electric grid independence through the use of cost-effective solar & wind technology
- Revolutionary patent pending lighting technology with no heat production

Highest Yields

- Increased number of plants and productivity per m²
- Over 400 times more productive than conventional farming
- Over 40 times more productive than traditional hydroponics

Community Contribution

- Nutritious, healthy and delicious food
- Affordable and accessible food
- Dignifying and meaningful jobs
- Education and growth

DIRECT FEED VERTICAL HYDROPONIC (DFVH) THE FUTURE OF FARMING



Highest Productivity

- Increased number of plants per m²
- No excess humidity
- No excess heat

Rotational system

- Even lighting
- Even CO₂ distribution
- Even air flow distribution
- Pollination
- Robotic access

Modular System

- Easy replacement of crops (modular system)
- Easy to assemble and relocate

Sustainability

- Ecosystems restoration
- Highest yields
- Community contribution

Automation

- Robotic harvesting
- Computerized full system control
- Proprietary software monitors and controls over 30 actuators

Stackable Units

- Garage
- Shipping containers
- Supermarkets
- Schools
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- Traditional greenhouses
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