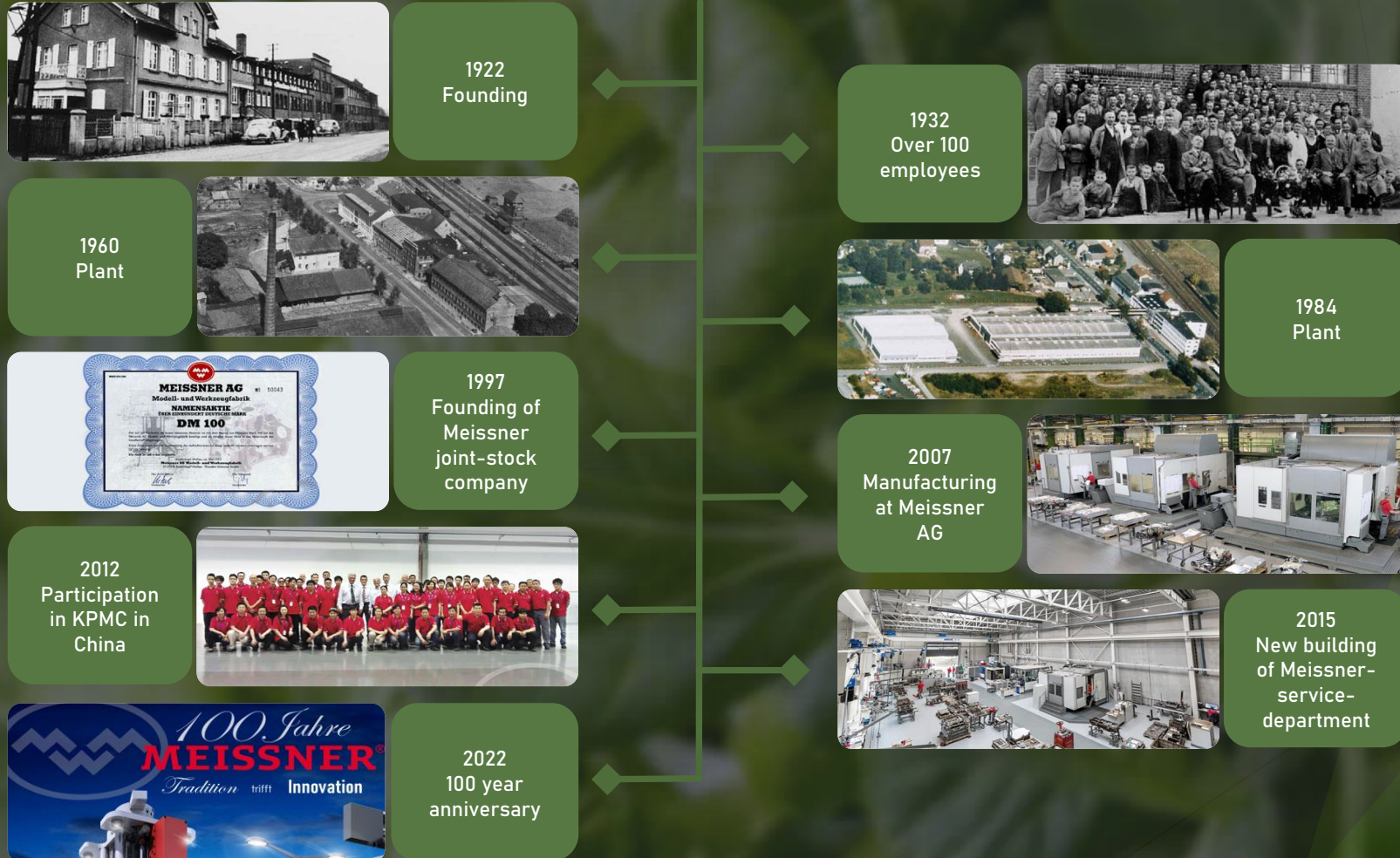






Vertical Farming with Meissner – Orbiplant ®

2023





Vertical Farming with Meissner – Orbiplant ®

2023



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Vertical Farming with Meissner- Orbiplant ®



Your Benefits at a Glance



OrbiPlant ® vs. Classic Hydroponik Systems (NFT)



Pilot Plant Orbiplant ®



Growth Behavior on OrbiPlant



Scalable Production



Current Activities





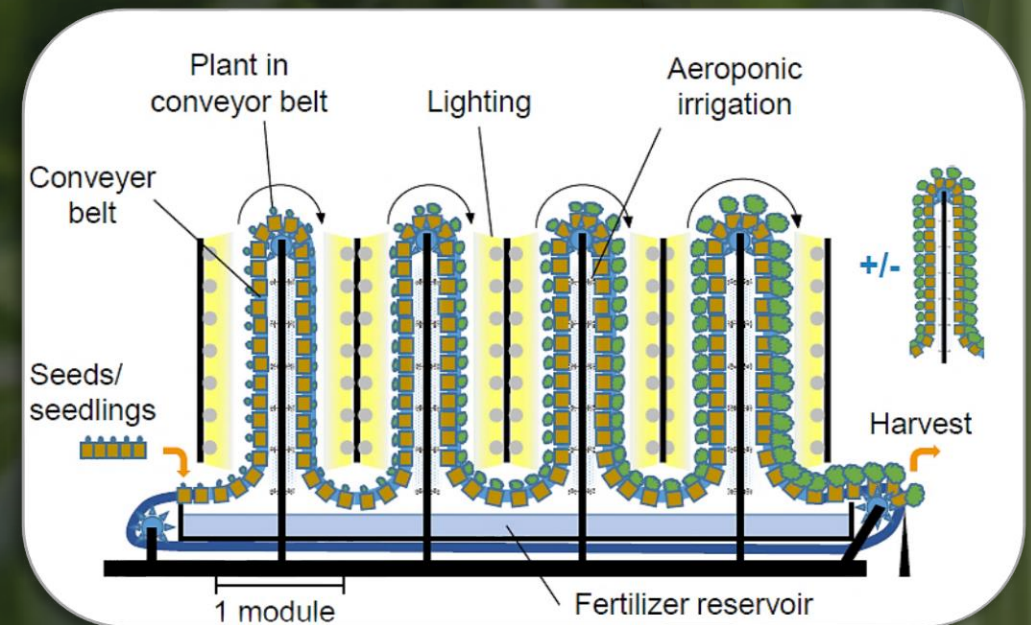
Vertical Farming with Meissner- Orbiplant[®]

2023

- ▶ Many years of successful cooperation with Fraunhofer
- ▶ Patented concept
- ▶ Efficient and cost-effective on a large scale
- ▶ Fresh, untreated, sustainable and resource-saving



Fraunhofer



Your Benefits at a Glance – The OrbiPlant® Novelties

2023



MODULAR AND EXPANDABLE

Adaptable to periphery and plant size



SCALABLE

Parallel production lines with communicating control unit



FULLY AUTOMATED

Control unit monitors entire process



CENTRAL PLANTING AND HARVESTING

The cultivation moves along the conveyor belt – plant and harvest area is always on the same place



Your Benefits at a Glance – The OrbiPlant® Novelties

2023



PERFORMANT

Higher biomass increase than comparable systems



SUSTAINABLE

The aeroponic system ensures only the number of resources required by the product is used



REPRODUCIBLE

Consistent quality through targeted process control



PESTICIDE FREE

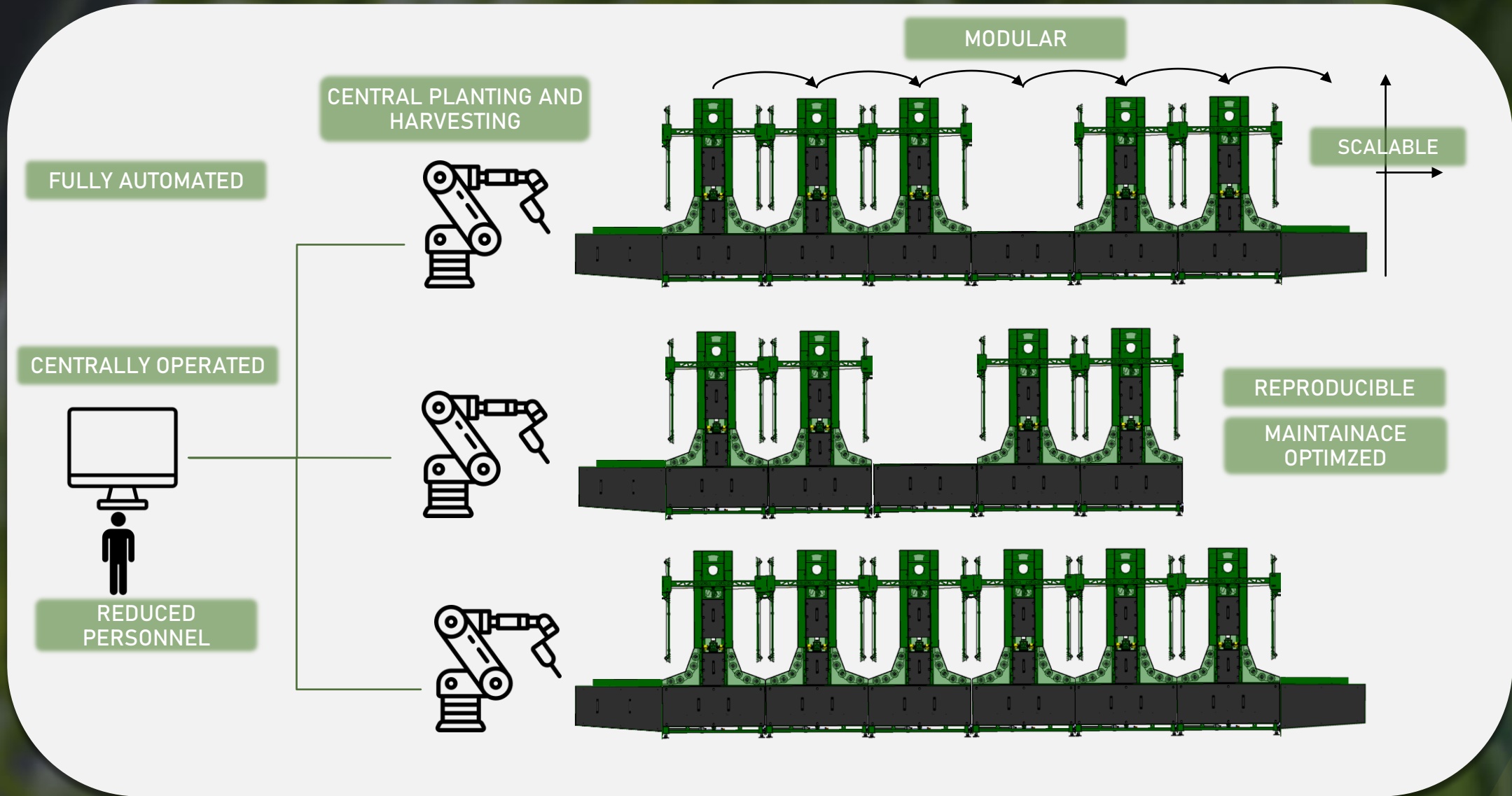
Controllable environmental influences





Your Benefits at a Glance – The OrbiPlant® Novelties

2023

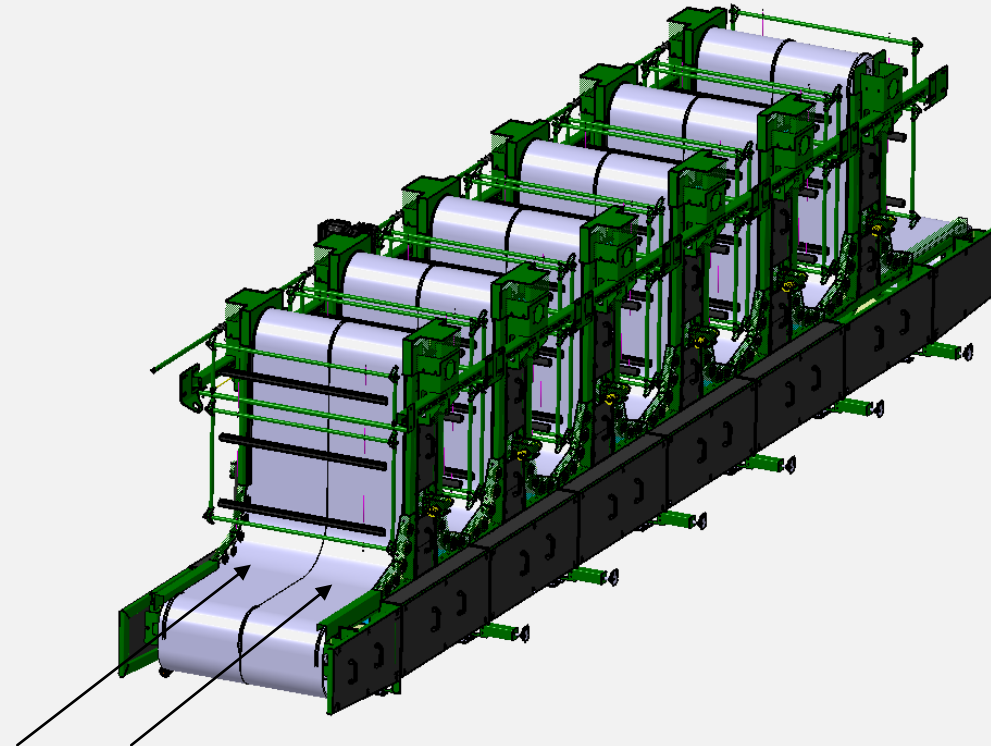
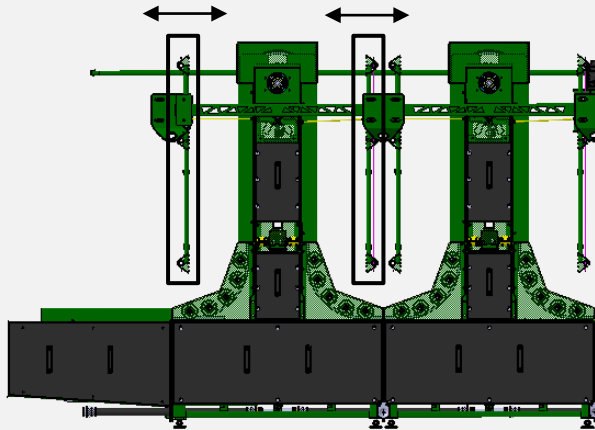




Your Benefits at a Glance – The OrbiPlant® Novelties

2023

STEPLESS ADJUSTABLE LIGHTING UNIT
ACCORDING TO PRODUCT REQUIREMENTS



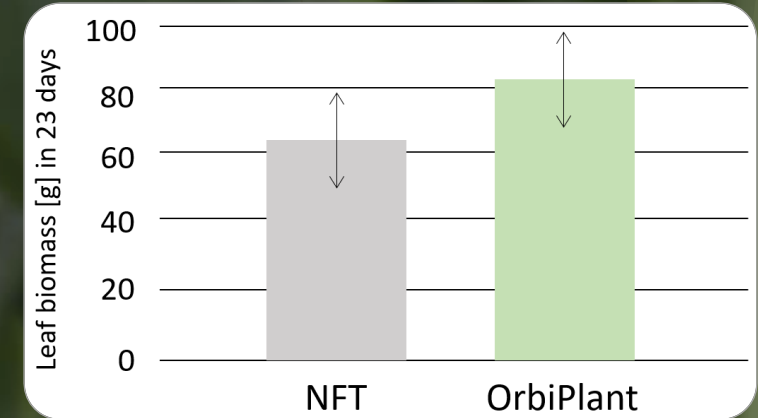
MULTI-CONVEYORBELT SOLUTIONS
POSSIBLE FOR MAXIMUM FLEXIBILITY



OrbiPlant[®] vs. Classic Hydroponik Systems (NFT)

2023

- ▶ The Orbitropal Effect leads to a higher leaf biomass
- ▶ Water consumption is about 0,1 % to conventional agriculture and 30% compared to first-gen vertical farms
- ▶ OrbiPlant is the most cost-effective vertical farming method per square meter of cultivated area
- ▶ Exact control of the nutrient requirements in the different phases of the growth process





Pilot Plant Orbiplant[®]

2023

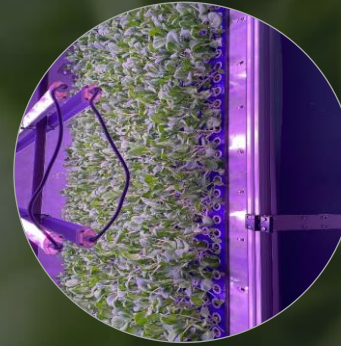
40 m² cultivation area
~2,75 m² Harvest/day with a 14-day cultivation time

Lightning via adjustable full-spectrum lamps

Adaptable to the crop type / plant size

Fully automated nutrient control and delivery

Suitable for testing customer-specific recipes





Growth Behavior on OrbiPlant

2023



Mustard
Fizzy Lizzy
41 days



Red Beet
41 days



Pak Choi
Arax
41 days



Carrots
58 days



Basil
Breitblatt
41 days



Baby leaves
23 days
2 cuts
3,6 kg/m²
leaf biomass

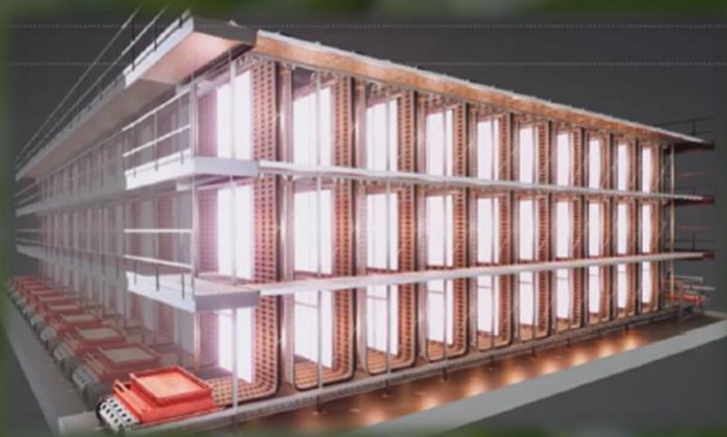


Scalable Production

2023

Pilot Plant

- ▶ 40m² cultivation area
- ▶ LED lighting with adjustable spectrum
- ▶ Modular design – freely adaptable



Industrial Plant

- ▶ Example: 2400m² acreage
- ▶ 8 parallel production lines
- ▶ 18.000 salads per day
- ▶ 6,5 Million salads per year



Current Activities

2023



Larger Plants

- ▶ Industrial cultivation under defined conditions
- ▶ Layout planning according to customer requirements
- ▶ Can also be adapted to existing buildings due to the modular design



Larger Plants

- ▶ **Industrial** cultivation under defined conditions

Cooperation with Universities, Research Institutions and industrial companies



**SANLIGHT
RESEARCH**

over 10 years experience in CEA

- ▶ research
- ▶ consulting
- ▶ innovation
- ▶ network

further cooperation partners:

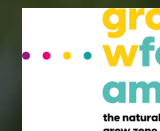


Fraunhofer



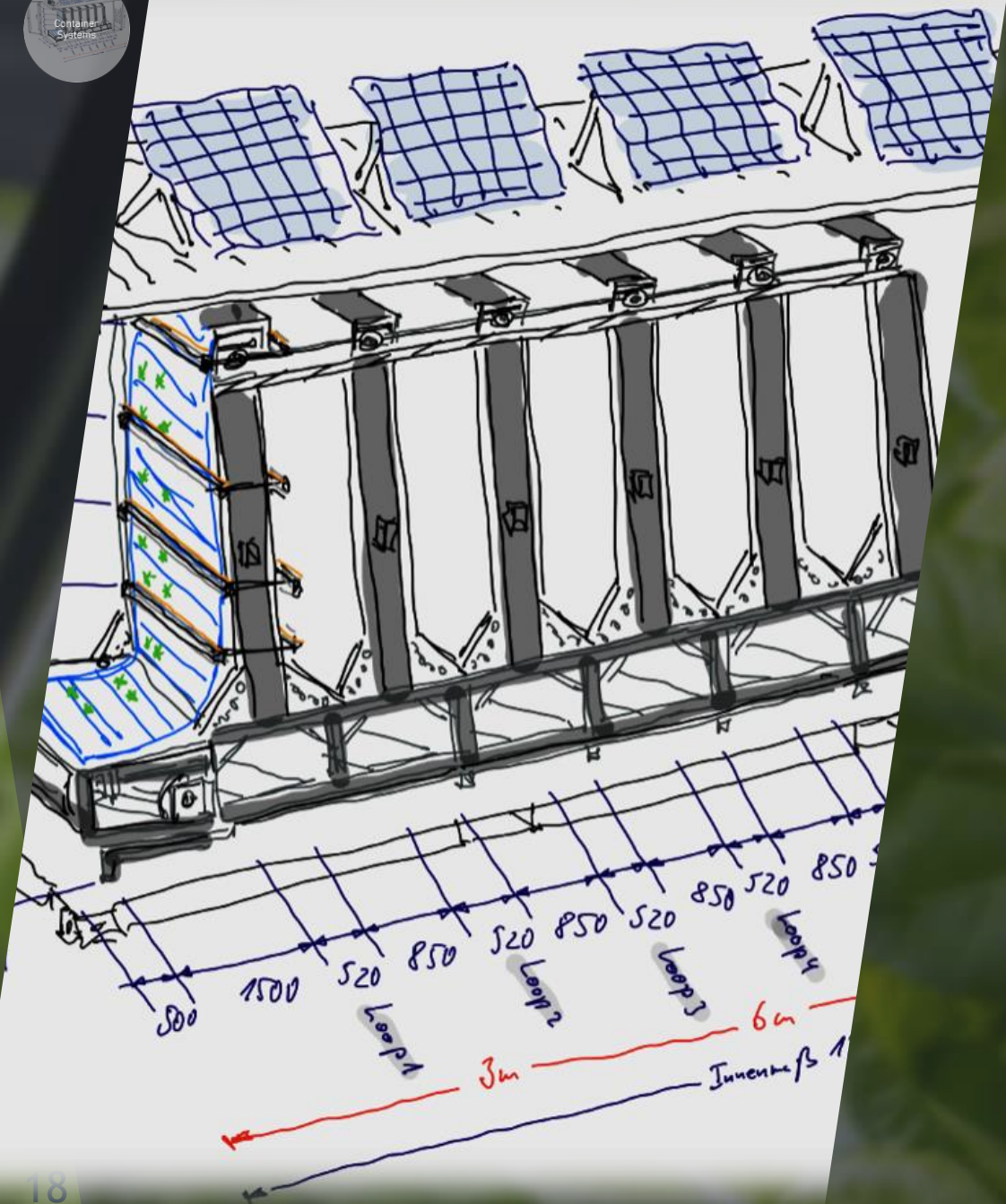
KATZ BIOTECH AG

www.katzbiotech.de



Container Systems

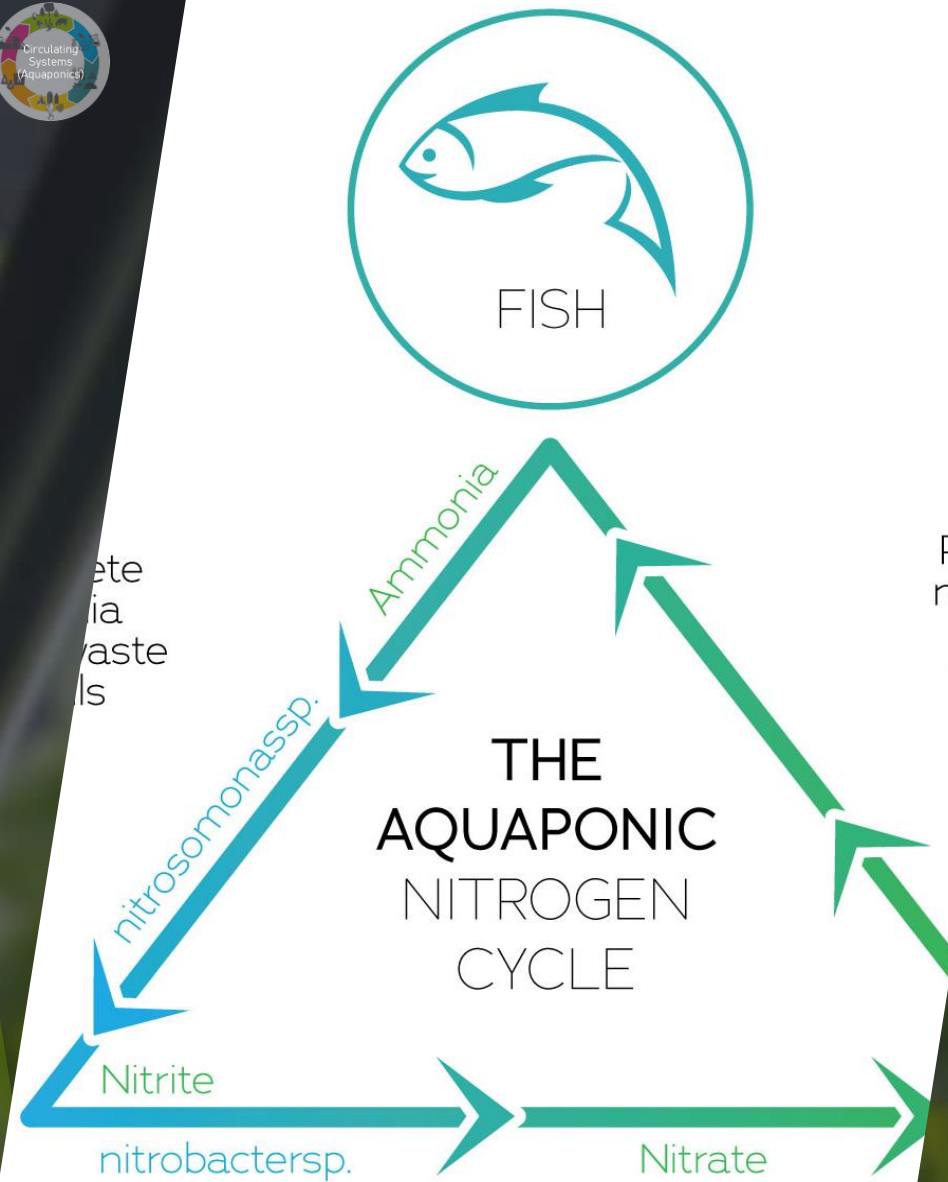
- ▶ Location-independent mobile systems



Automation of Upstream and Downstream Processes

- ▶ Transplanting and harvesting fully automated
- ▶ Consistent and reliable quality
- ▶ automation leads to low personnel costs

Circulating Systems (Aquaponics)



Bacteria convert waste to usable nutrients for plant growth

- Implementation in an aquaponic circuit
- Saving fertilizer
- Reduce waste-water pollution

Energy Efficiency

- ▶ Hybrid lighting
- ▶ Use of renewable energies
- ▶ Optimizing crop-specific recipes



Thank You!

<https://www.meissner.eu/>