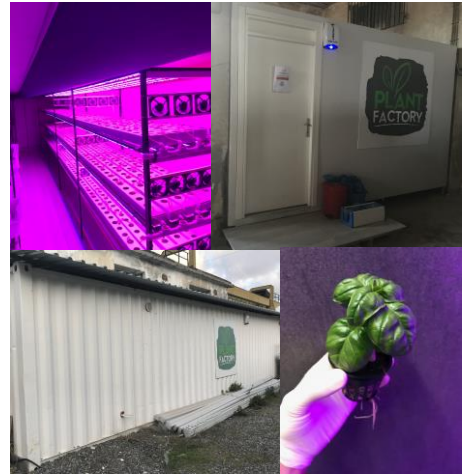




## Company and Technology Presentation

# Company Development Process



2017

First R&D center



2018

Culinary Arts  
Academy Product  
Tasting Center



2019

PF001 R&D & P&D  
Center



2022

PF – Gebze Technical  
University R&D  
Center



2023

PF002 İstinyePark  
İstanbul European  
Side Commercial  
Facility



2024

PF003 Asia Park  
Anatolian Side  
Commercial Facility  
(Project Phase)



# Global Sustainability and Food Crisis



## POPULATION GROWTH

To accommodate increasing population growth, we need to increase our total food production by 69% by 2035.



## WATER SCARCITY

Global water demand is expected to increase by 55% by 2050.



## DECREASING LANDS

We have lost 1/3 of arable land in the past 40 years due to the erosion caused by toxic metals in the soil..



## PPESTICIDE USE

Pesticide residues remaining on food pose a serious threat to human health..



## SUPPLY CHAIN

Food losses worth trillions of dollars occur in the world due to long distances and shipments that are not made under appropriate conditions.



According to traditional agriculture 315x more efficient production



95% less water consumption in production



Possibility of production in idle areas within the city, independent of soil and horizontal area












Zero pesticide use in production



Fresh, healthy and lossless shipment with production for the city

# Sustainability and Efficiency

Method 	TRADITIONAL AGRICULTURE	GLASS GREENHOUSE	PLANT FACTORY
Harvest Cycle (Annual)	1-3 Harvest	5-7 Harvest	19 Harvest
Production Efficiency (Time – Land)	1x	6x	315x
Square Meter Efficiency	15 - 20 pc/sqm	25 – 30 pc/sqm	220 – 275 pc/sqm
Pesticide Use			✗
Water Consumption	30 lt / pc	18 lt / pc	1,5 lt / pc
Product Quality	Changable	Low Changable	No Change
Personnel Need			
Transport			
Post-Harvest Waste	%55	%40	%5

\* Lettuce was chosen as the sample product.

# Plant Factory Vision



We move forward with a dynamic vision to develop new product categories, increase existing production capacity and enter new markets.



We grow pesticide-free plants and vegetables with the highest mineral content by using limited resources in the most efficient way.



With our R&D-focused and fully controlled technology, we strive to better understand plant growth, optimize our farms, increase our quality and reduce our costs day by day.



We attach great importance to data science and data privacy, and we shape our entire infrastructure and growth plans accordingly.



We bring agriculture to the city, reduce the carbon footprint and provide employment to the new generation of farmers.



# Plant Factory Products

Plant Factory green leafy vegetables offer unique properties to their consumers.



- ✓ Taste and high quality
- ✓ Long shelf life
- ✓ New standards in food safety
- ✓ Sustainability
- ✓ Year-round production
- ✓ High nutritional value
- ✓ Zero pesticide use

Our packages, which are specially designed to keep the shelf life long, are also suitable for reuse. It is possible to preserve other vegetables after using the product in the package.

# Plant Factory Technology – Overview

With the strategy of bringing together multiple disciplines within its internal structure, which it has followed since its establishment, Plant Factory has been able to compete with the countries that are the main source of technology in a sector that is still developing in the world.

In a sector that is just forming, it has formed its own core staff and started to create its corporate R&D culture. For new members of our organization, the method has managed to shorten the training and productivity process thanks to the recorded archive.

The basic reality of the agricultural sector is a good understanding of plant cultivation, the precision-efficiency balance of the equipment used, and a continuous R&D requirement. With the increase in the information obtained, a high entry "know how" barrier is created for new companies entering the sector. In order to improve current production data, R&D investment has a large share in our financial plan.

It has the necessary infrastructure for the continuity of this, and with the new R&D investment we have planned, we aim to be able to produce multiple plants at the same time and thus make product diversity and optimization shorter.

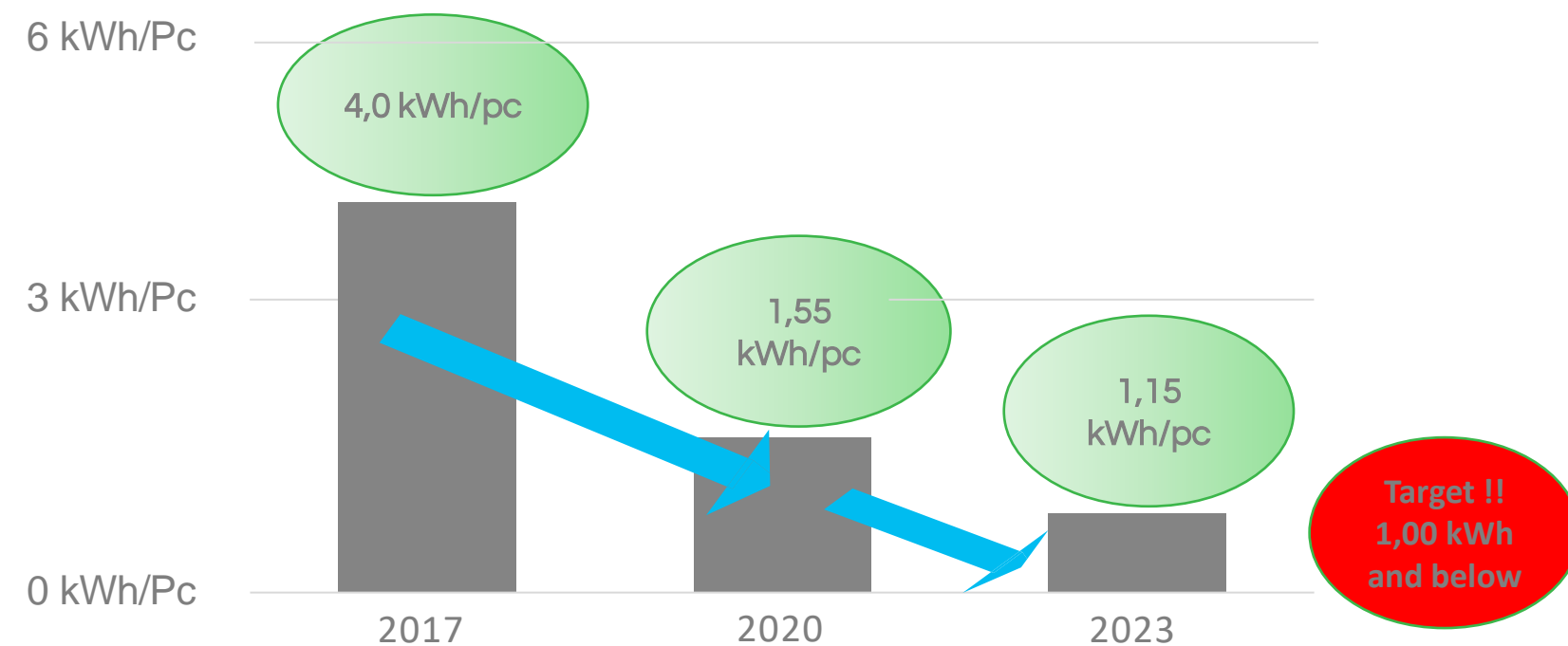


# Plant Factory Technology – Efficiency and Optimization

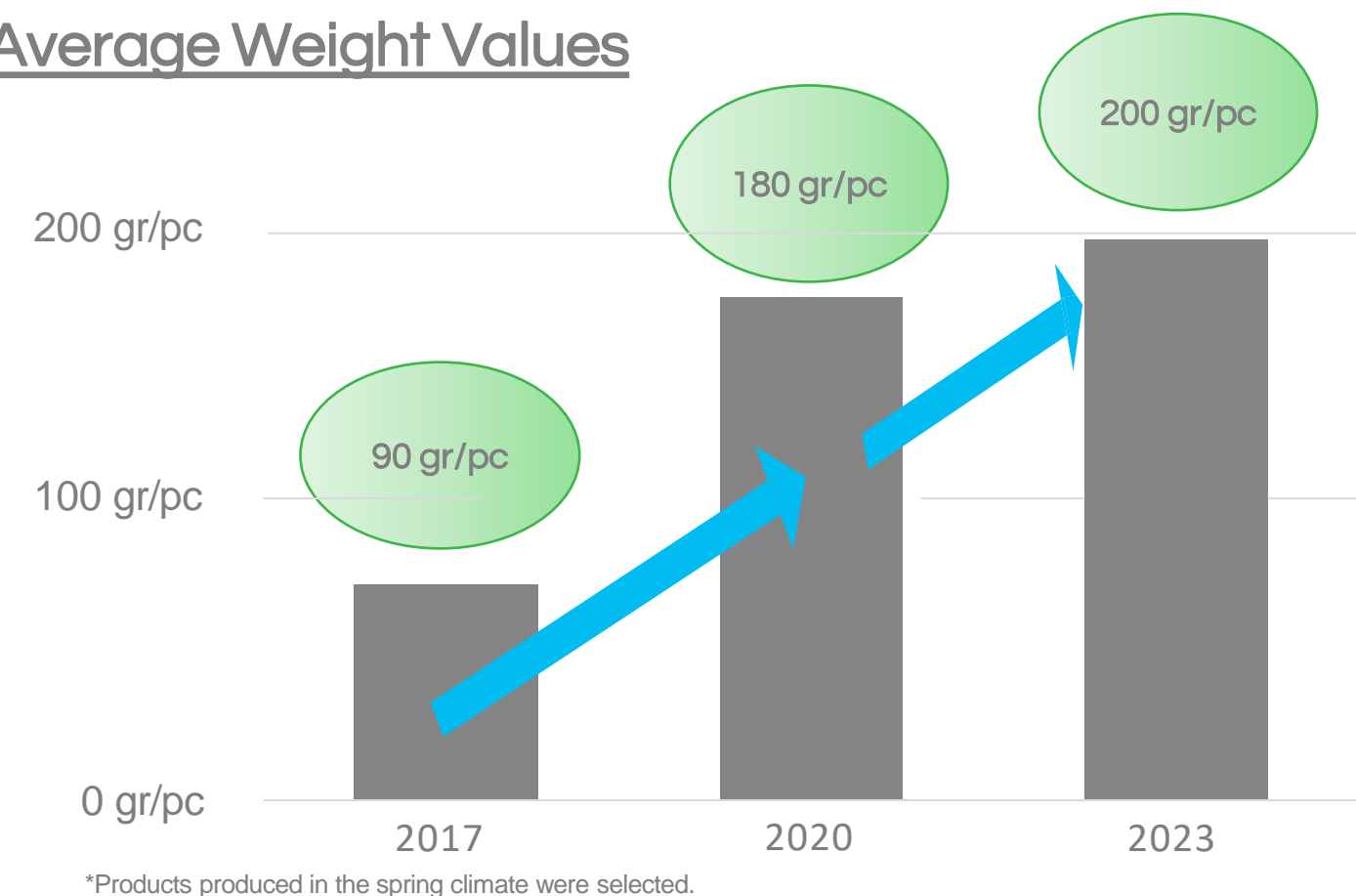
Plant Factory,

- Developing indoor, soilless, vertical growing systems,
- Designing its own air conditioning, fertilization, irrigation, cultivation, purification and automation systems together with its solution partners,
- Conducting the operation and feasibility setup of the designed systems on his own,
- Developing regular recipes through the systems established for the products it grows,
- It is an agricultural technology company that makes different genotype trials and breeding comparisons of products to be produced regularly with the recipes it has developed.

## Energy Consumption Values



## Average Weight Values



The main reason why we can make such optimizations is the opportunity to develop the system in-house with our multi-disciplinary group, instead of third-party solutions in the design of system parts.



# Plant Factory Technology – Research and Development Processes

- Physiological factors that affect plant growth and examining biological factors,
- With different genotype experiments in seeds correct breeding selection and feasibility processes,
- Fertilizer that we dissolve in-house recipe preparation and liquid fertilizer production optimization,
- From physiology and nutritional processes system parallel to the information we receive design and consumption optimization,
- The established system is compatible with market realities; modular, capable of providing parallel output proportional operation and supply on demand

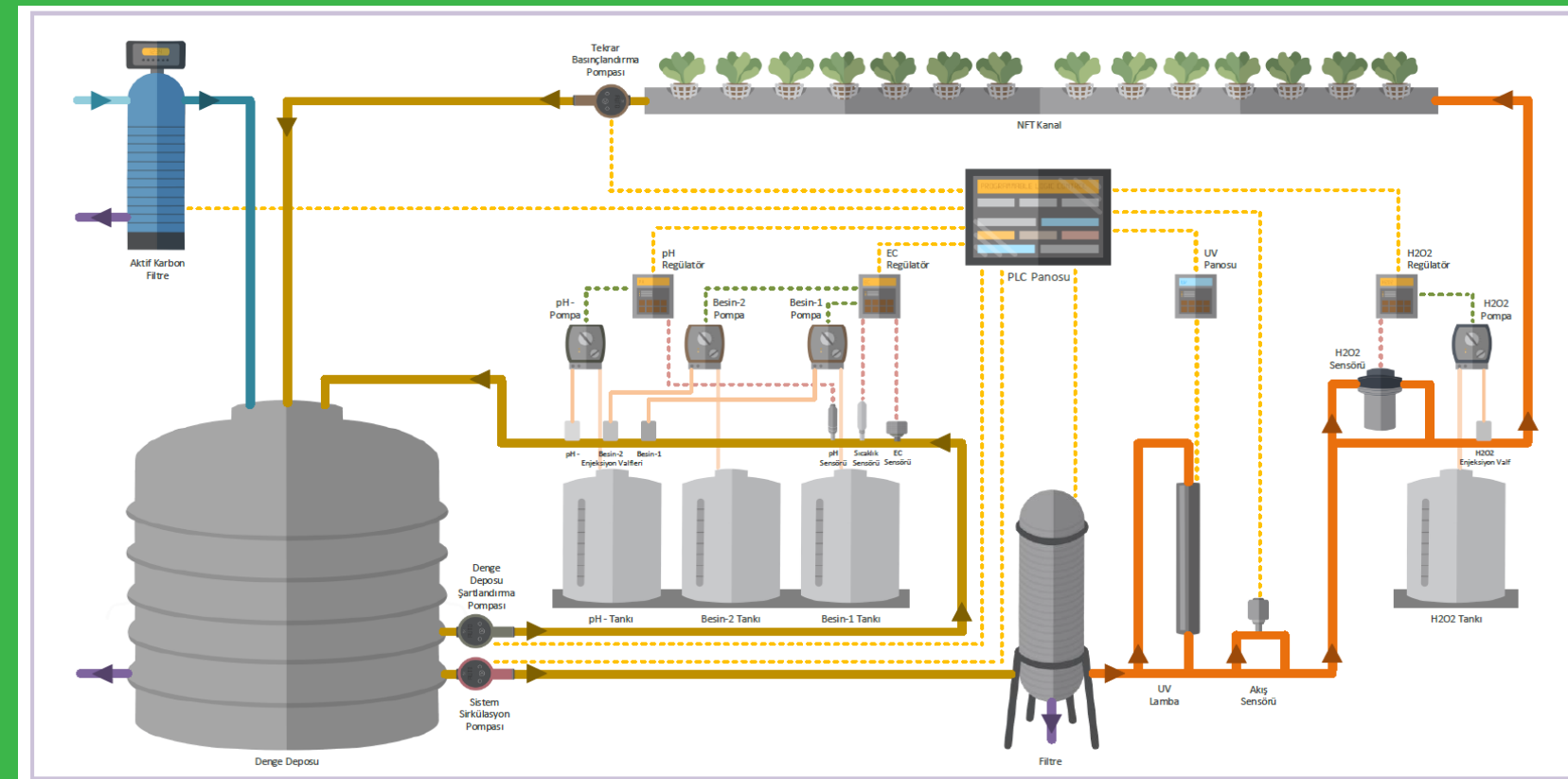


**With the time it spends in these processes and the experience it gains, Plant Factory can compete with the consumption values determined by Japan and the Netherlands, which are the technology leaders of the sector**

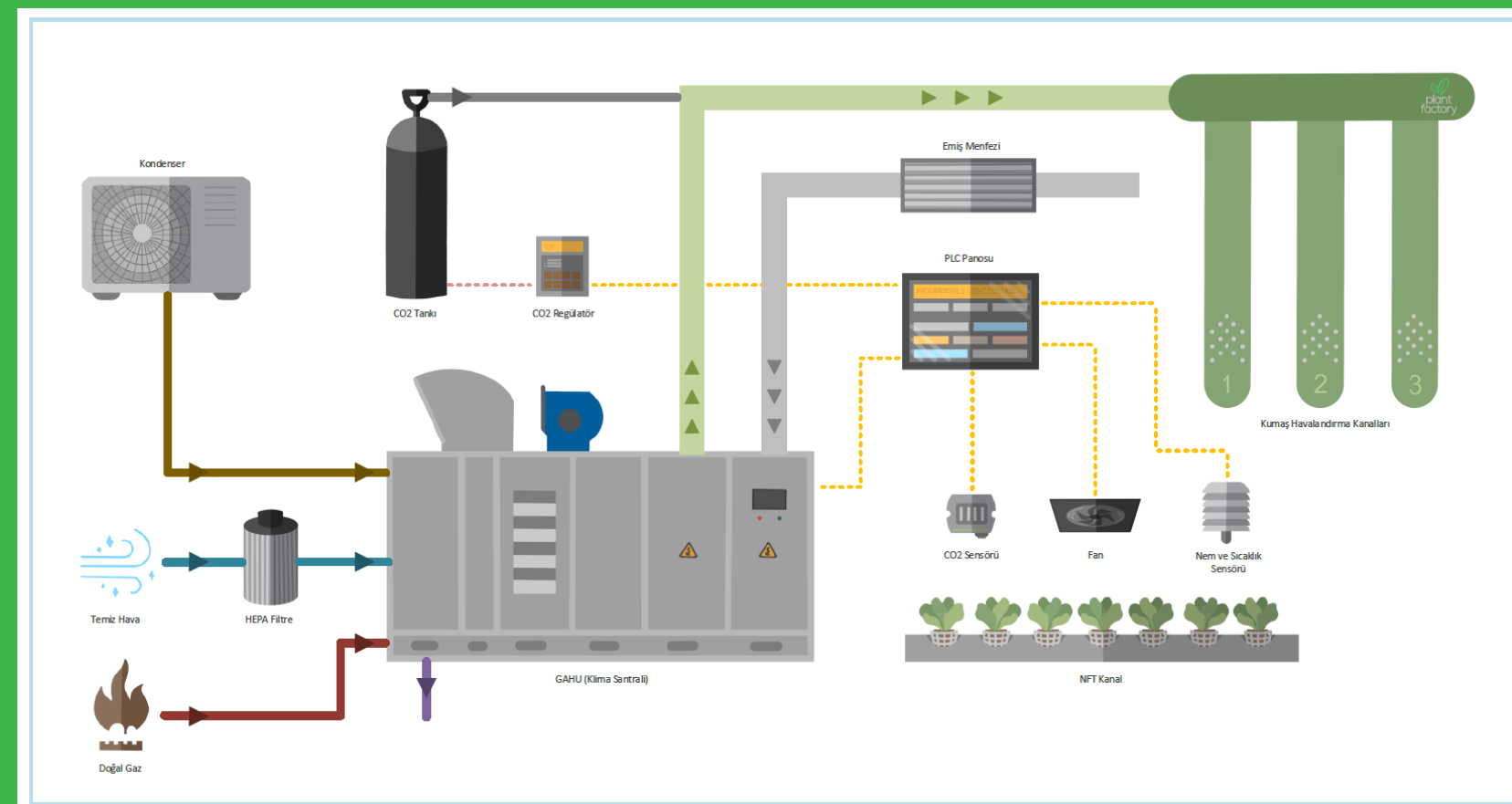


# Plant Factory Technology – Explanations with Diagrams

Our circulation system is an original solution designed within our company, which can be optimized according to the production method, suitable for proportional operation, has a deviation rate of 1%, is completely controlled via PLC, is integrated into the liquid fertilizers we produce.



Our ventilation system is our company's original solution, which can be optimized according to the production method, suitable for proportional operation, VPD controlled over the absolute humidity - temperature ratio, proportional CO2 integrated system, can control wind stress, and dehumidifies with the desiccant method, which has been implemented in indoor agriculture for one of the first time in the world.



# Team

Halil BEŞKARDEŞLER



Bahçeşehir Üniversitesi  
Ekonomi / Lisans  
Kadir Has Üniversitesi  
Finans / Yüksek Lisans

Ahmet GÜNEY



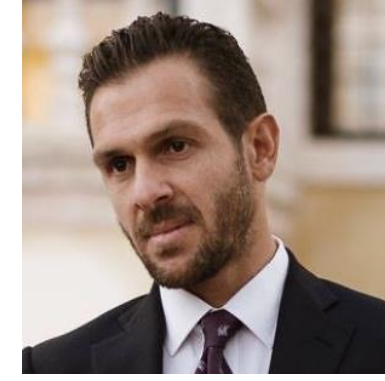
İstanbul Teknik Üniversitesi  
Uzay Mühendisliği / Lisans

Anıl SÖNMEZ



Yeditepe Üniversitesi  
Endüstriyel Tasarım / Lisans

Emre KAYNAR



Université de La Rochelle  
İnşaat Mühendisliği / Lisans  
Université de La Rochelle  
İnşaat Mühendisliği / Yüksek Lisans

Murat ÇİÇEKLİ



Ege Üniversitesi  
Ziraat Mühendisliği / Lisans  
Ege Üniversitesi  
Bilimsel Tarım Uzmanlığı / Yüksek Lisans

Ümit Barış KUTMAN



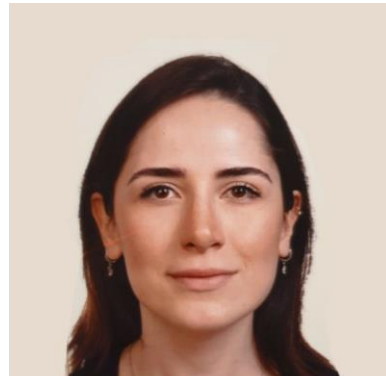
Sabancı Üniversitesi  
Moleküler Biyoloji, Genetik ve  
Biyomühendislik / Lisans, Doktora

Nadide Ezgi ÖZBİLEK



Gebze Teknik Üniversitesi  
Moleküler Biyoloji ve Genetik / Lisans

Sena YAZGAN GÜLENÇ



İstanbul Üniversitesi  
Dış Ticaret / Ön Lisans  
Marmara Üniversitesi  
İktisat / Lisans

Emirhan BURUL



Münih Teknik Üniversitesi  
Moleküler Biyoteknoloji / Lisans

Ayşenur BAYRAK



Gebze Teknik Üniversitesi  
Moleküler Biyoloji ve Genetik / Lisans  
Bitki Biyoteknolojisi / Doktora

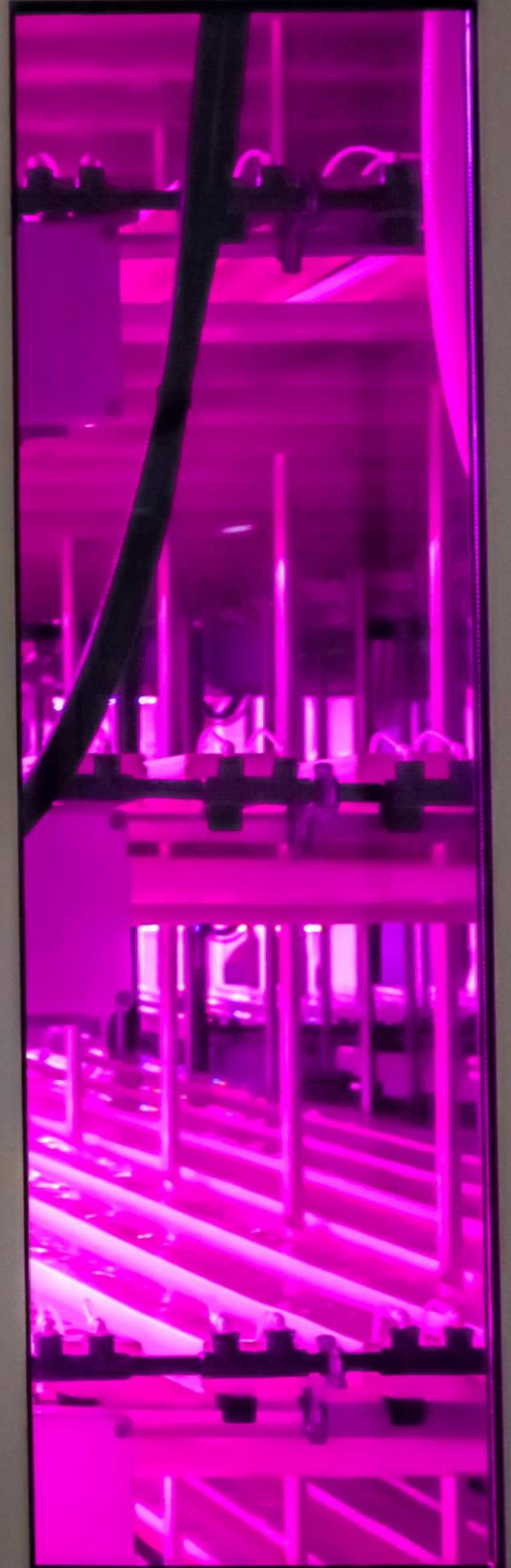
Emir Taha SELMAN



İstanbul Üniversitesi  
Moleküler Biyoloji ve Genetik / Lisans  
Gebze Teknik Üniversitesi  
Bitki Biyoteknolojisi / Yüksek Lisans



# ŞEHİRDEKİ ÇİFTLİĞİNİZ





# plant factory

[www.plantfactory.company](http://www.plantfactory.company)

[info@plantfactory.company](mailto:info@plantfactory.company)

