



# The Future of Vertical Farming

February 2021



# We Are the World Leader in Fully-Controlled Agriculture



## **A farming company**

We are farmers, having grown over 800 different varieties of fruits and vegetables. Our fully-controlled growing technology provides a sustainable answer to the problems facing traditional agriculture

## **A technology company**

We constantly improve our mechanical, operating, environmental, and biological systems

## **A data science company**

Our sensor network provides data, allowing us to understand and continuously improve our already exceptional ability to grow plants

## **A strategic partner**

We solve problems for the broader agriculture community

# A Closer Look at Our Farms

[Click here for video](#) or search: "AeroFarms x Dell: A harvest full of insights"



# AeroFarms Track Record and Benefits of CEA\*

## Vertical Farming

- Aeroponic growing indoors
- No pesticides, herbicides, and insecticides
- Less water used than field farming
- More than twice as many crop turns as field farming (for leafy greens)
- Contribute to 12 UN SDGs, including SDG 2 Zero Hunger

*Ability to apply certain growing conditions (e.g. temperature, humidity, light intensity and spectrum, fertilizer) to affect how plants grow*

## R&D

- Grown >800 varieties in our system, including
  - Root crops to micro maturity
  - Herbs such as basil and mint
  - Tall, bushy plants to ~ two feet high
- Tested >150 growing media
- Building state-of-the-art R&D facility in Abu Dhabi

*Proven track record in R&D; increased understanding of plant biology and growing conditions are applied to future R&D projects*

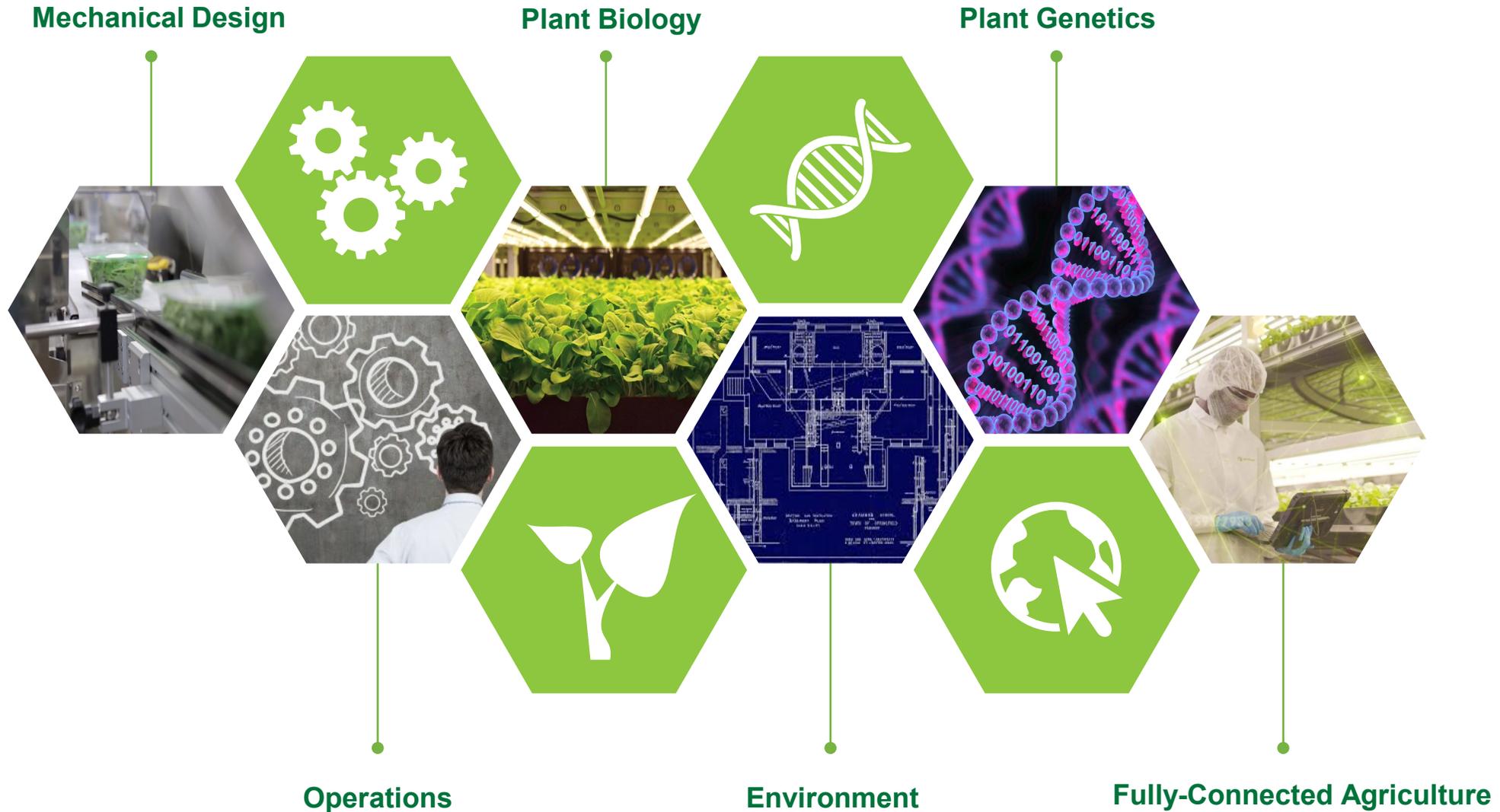
## Farms

- Nine farms built to date; 10<sup>th</sup> farm announced
- USDA certified leafy greens commercial farm supplies foodservice and retail with flavorful and nutritious products
- Fully climate-controlled farms can be located anywhere around the world

*Opportunity to couple commercial growing and processing facilities in desirable locations (e.g. abundant water, affordable energy) and secure future supply of crops*

\*CEA – Controlled Environment Agriculture

# We Have Capabilities In Six Integrated Areas of Expertise



# How Vertical Farming Contributes



**Year-round  
Availability**



**Inconsistent  
Quality**



**Pesticide  
Residue**



**Land  
Degradation**



**Food  
Waste**



**Lack of  
Freshness**



**Feed a Growing  
Population**



**Severe  
Weather**



**Trade  
Regulations**



**Water  
Usage**

# Improving Standards of Performance



Grown with up to 95% Less Water



Zero Pesticides



Up to 390x More Productive



Superior Flavor and Quality



New Standard for Food Safety



# Enhancing Flavor in Food

## Challenge

Improve expression of phytochemicals, particularly those compounds with potential to improve human health, in leafy greens

## Actions taken

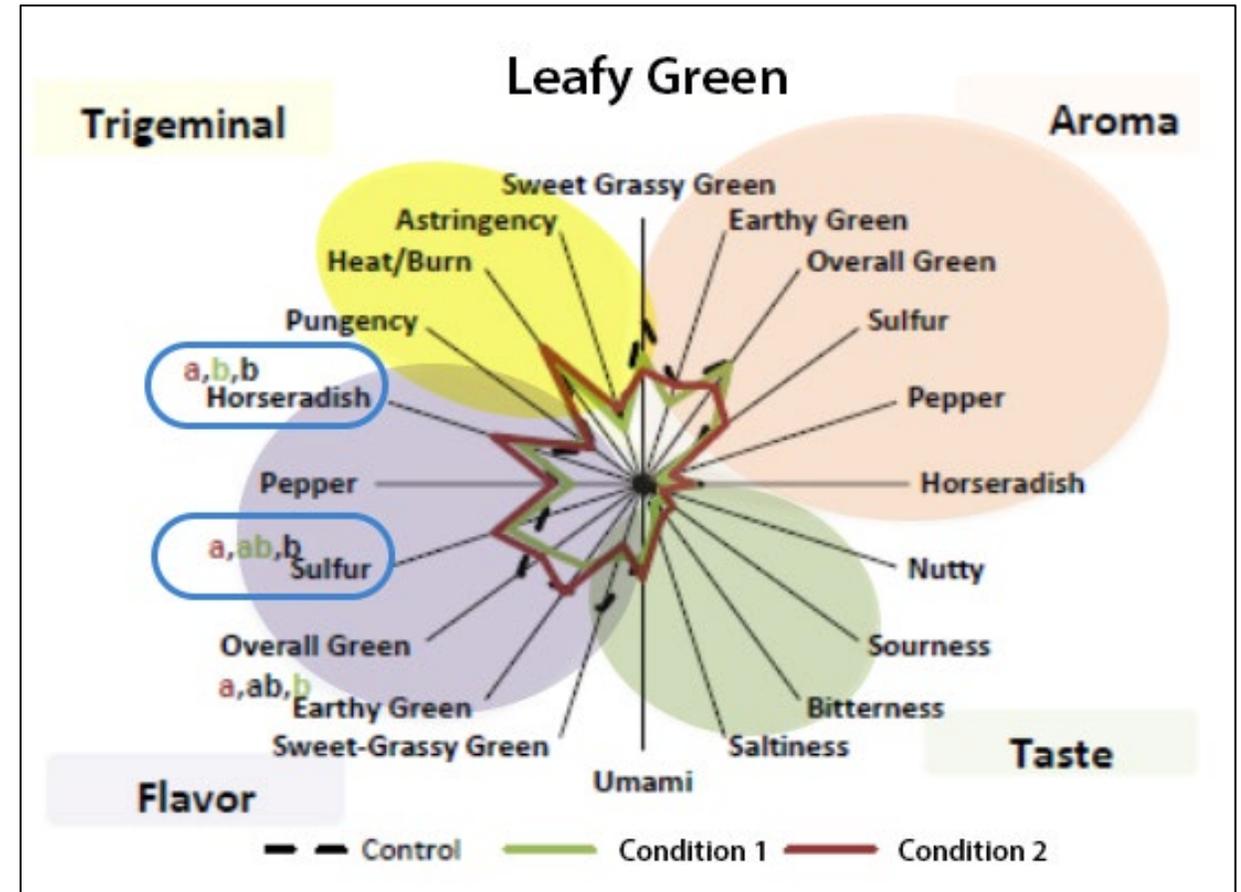
Established growing conditions (e.g. temperature, relative humidity, plant nutrients, lighting) for leafy greens species that diverge significantly from typical growing conditions

Directed Rutgers University laboratory analysis of impact of environmental conditions on:

- Phytochemical content
- Sensory evaluation

## Results

Identified growing conditions that create statistically significant changes in two flavors



Horseradish and sulfur flavors improved on a statistically significant basis

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# Industry Collaborating through PIP Consortium

Building new capabilities and creating opportunities with leading institutions

## Accessing knowledge and technologies

PIP brings together leading AgTech and seed development organizations from industry, government, and academia



## Focusing on key crops

Five PIP projects have at least \$15 MM in funding, sourced from FFAR (up to \$7.5 MM) and project-specific collaborators



lettuce



tomato



strawberry



cilantro



blueberry