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# Sustainable Agriculture - Benefits of Indoor Vertical Farming

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Presidential Advisory Council on Combatting Antibiotic-Resistant Bacteria, June 2021

# Sustainable Agriculture – Benefits of Indoor Vertical Farming



## No Pesticide Use

Antibiotics, fungicides and herbicides are commonly sprayed on crops, creating potential for resistant bacteria and fungus in soil

## Human Health

Pesticide residues\* (including Dacthal, banned in Europe) are found on 70% of produce sold in the U.S. even after washing

## Food Safety

Field grown lettuces comprise 11% of all food contamination, indoor farming provides enhanced safety controls and traceability

## Food Security

Local food sourcing strengthens supply chain resilience during events that disrupt food supply such as the COVID-19 pandemic

## Pharmaceuticals

Innovations are enabling plants to be grown as bioreactors to produce proteins and inputs for vaccines and therapeutics

Indoor vertical farming utilizes up to **95% less water** and as little as **0.3% of land** required for field farming

Solutions are enabled by innovation in **mechanical design, biological science and data analytics and controls**

\* <https://www.theguardian.com/environment/2019/mar/20/pesticide-residues-produce-even-after-washing-us>

# Areas of Expertise Enabling Indoor Vertical Farming



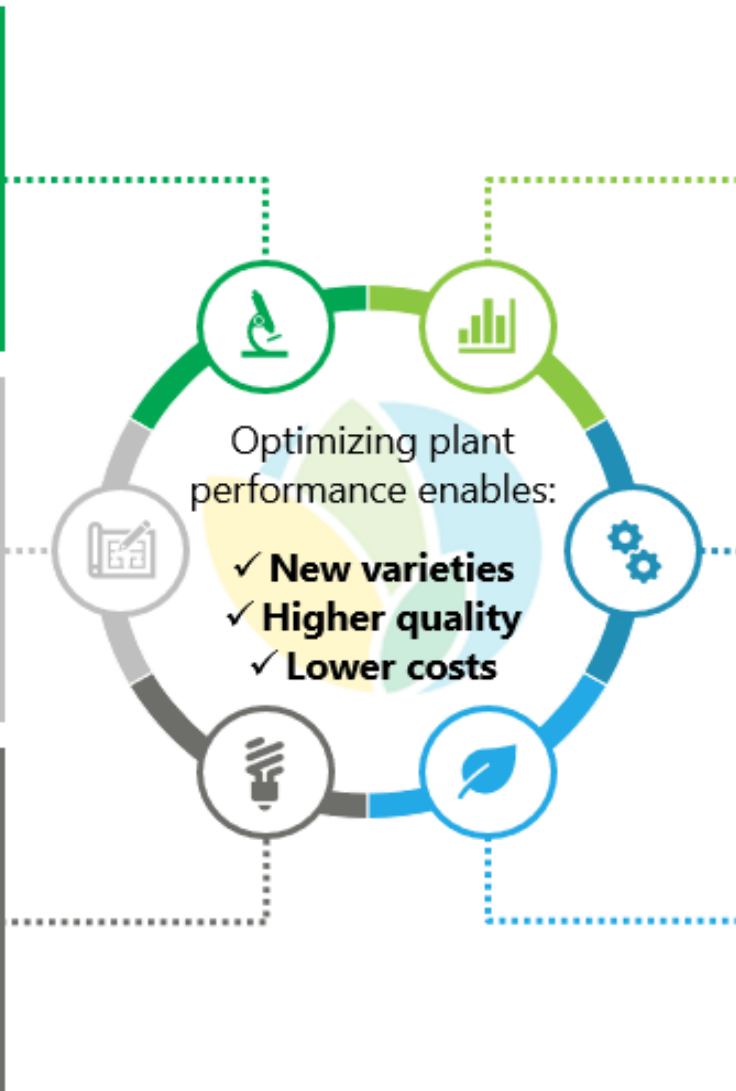
Deep understanding of **plant biology**



**Mechanical design of grow towers** and ancillary equipment



Tightly controlled **environment**



**Data science** enabling fully-connected agriculture



**Operations at scale**, with controlled standard operating procedures



Optimized **plant genetics**

