

A blue pen with a silver tip is positioned diagonally across the frame, resting on a document. The document features a bar chart with several blue bars of varying heights. In the upper right corner, there is a faint illustration of a plant with leaves. The overall image has a light blue and white color scheme with a subtle grid pattern.

# IMPACT INVESTMENT FOR ARUBA

CLIMATE CHANGE CHALLENGE  
VERTICAL FARM IN ARUBA

# EXECUTIVE SUMMARY.

OUR PROPOSED VERTICAL FARMING PROJECT AIMS TO  
REVOLUTIONIZE THE AGRICULTURAL INDUSTRY IN THE  
CARIBBEAN,

WITH ARUBA BEING THE FIRST TO TAKE THE LEAD,

BY UTILIZING ADVANCED TECHNOLOGY AND SUSTAINABLE  
PRACTICES.

# PROJECT COST

WE PRESENT TO YOU A PROJECT IN VERTICAL FARMING ON ARUBA  
WITH THE AIM OF CREATING A POSITIVE ENVIRONMENTAL FOOTPRINT

WE REQUIRE A LAND PARCEL BETWEEN 51,000 M<sup>2</sup> AND 160,000 M<sup>2</sup> IN  
SIZE ON ARUBA TO MAXIMIZE THE IMPACT OF OUR INVESTMENT

INITIALLY, THE GROUND SURFACE DEDICATED TO VERTICAL FARMING  
WILL BE 10,000 M<sup>2</sup> (EQUIVALENT TO 40,000 M<sup>2</sup> OF GROWTH AREA),  
WITH THE POSSIBILITY OF EXPANDING IT TO 30,000 M<sup>2</sup> (EQUIVALENT TO  
120,000 M<sup>2</sup> OF GROWTH AREA)

# MARKET ANALYSIS



OUR VERTICAL FARMING PROJECT ADDRESSES SEVERAL KEY MARKET TRENDS AND DEMANDS AND CAN CONTRIBUTE TO ARUBA'S ISLAND ECONOMY BY:

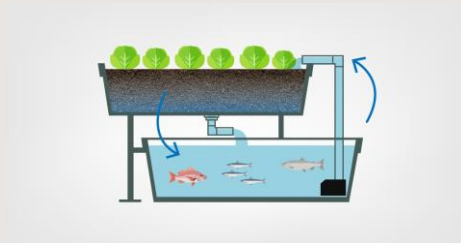
- MAXIMIZING FOOD SECURITY THROUGH THE YEAR-ROUND CULTIVATION OF FRESH PRODUCE THAT RETAINS 100 % NUTRIENT CONTENT.
- GROWING CONSUMER PREFERENCE FOR LOCALLY SOURCED, ORGANIC, SUSTAINABLE PRODUCED CROPS AND REDUCE WASTE
- REDUCING DEPENDENCE ON IMPORTED FOOD DURING PANDEMICS, CLIMATE CHANGE OR DISASTERS.
- IMPLEMENTING MEASURES TO DECREASE THE EMISSION OF CO2 BY 70 %
- THE NEED TO REDUCE WATER CONSUMPTION IN TRADITIONAL FARMING METHODS.( -/- 90%)
- CREATING EMPLOYMENT OPPORTUNITIES IN HORTICULTURE TECHNOLOGY AND MANAGEMENT.
- GENERATING INCOME THROUGH POTENTIAL EXPORT OF SURPLUS AGRICULTURE PRODUCE.
- INTEGRATING VERTICAL FARMING INTO TOURISM, ATTRACTING VISITORS AND BOOSTING REVENUE.

# PROJECT TIMELINE

THE PROJECT TIMELINE IS AS FOLLOWS:

- **JULY 2024:** ACQUIRING 160,000 M2 OF LAND OF WHICH 30,000 M2 IS RESERVED FOR VERTICAL FARMING
- **AUGUST 2024:** INITIATE LAND PREPARATION, INCLUDING LAND, INFRASTRUCTURE SETUP, ACQUIRE PERMITS AND RESOURCE PLANNING.
- **OCTOBER 2024:** START SELECTING FARMERS AND TRAINING LOCALLY AND ABROAD
- **NOVEMBER 2024:** COMMENCE BUILDING CONSTRUCTION AND VERTICAL FARMING SYSTEM INSTALLATION
- **MAY 2025 :** PROJECT COMPLETION, START OF CROP CULTIVATION, AND SALES

# VERTICAL FARM FACTS & FUTURE 2023 VS 2028



CAGR = Compound Annual Growth Rate

## THE GLOBAL VERTICAL FARM MARKET:

- 2023 5.0 USD BILLION
- 2028 15.3 USD BILLION
- CAGR 24.7 %
  - Due to increase of investments
- HYDROPONICS CAGR 7.2 %
- AQUAPONICS CAGR 9.5 %
- AEROPONICS CAGR 11.3 %
- BY GROWTH MECHANISM (USD MILLION)
  - 5,064 → 15,255
- BY REGION (USD MILLION)
  - NORTH AMERICA 909 → 2,472
  - EUROPE 813 → 2,051
  - RoW 462 → 1,442
- BY CROP TYPE (MILLION METRIC TONS)
  - LETTUCE 0.54 → 2.01
  - TOMATOES 0.23 → 1.08
  - STRAWBERRIES 0.08 → 0.36
  - HERBS 0.13 → 0.58

# WHY ARUBA?

LOCAL FOOD PRODUCTION

CLIMATE RESILIENCE

TOURISM AND LOCAL PARTNERSHIPS

GIVING BACK TO THE COMMUNITY

ECONOMIC DIVERSIFICATION OPPORTUNITIES

INCREASED FOOD PRODUCTION AND  
SECURITY

EDUCATIONAL AND RESEARCH  
OPPORTUNITIES



# LOCAL FOOD PRODUCTION

ARUBA HEAVILY RELIES ON IMPORTED FOOD, LEADING TO HIGH COSTS AND POTENTIAL SUPPLY CHAIN DISRUPTIONS.

VERTICAL FARMING CAN HELP COUNTER THIS DEPENDENCY BY ENABLING LOCAL FOOD PRODUCTION OF FRESH FRUITS, VEGETABLES, MICRO GREENS, FISH AND HERBS.

BY BRINGING FOOD PRODUCTION CLOSER TO THE CONSUMERS, VERTICAL FARMING CAN SHORTEN SUPPLY CHAINS, PROMOTE SELF -SUFFICIENCY, REDUCE TRANSPORTATION -RELATED CARBON EMISSIONS, REDUCE WASTE AND EXCLUDE THE USE OF PESTICIDES





# CLIMATE RESILIENCE



REDUCED DEPENDENCY ON OUTDOOR CONDITIONS: VERTICAL FARMING ALLOWS CROPS TO BE GROWN INDOORS IN A CONTROLLED ENVIRONMENT YEAR-ROUND AND USING 90 % LESS WATER AND NO NEED FOR PESTICIDES



THIS ELIMINATES THE RELIANCE ON FAVORABLE WEATHER CONDITIONS, PROTECTING CROPS FROM EXTREME HEAT, COLD, DROUGHT, STORM OR HEAVY RAINFALL THAT CAN BE EXACERBATED BY CLIMATE CHANGE.

BASED ON THE MOST RECENT REPORT FROM KNMI ( THE DUTCH WEATHER FORECASTING COMPANY) ON THE 2023 CLIMATE SCENARIO FOR THE CARIBBEAN.

WE CAN EXPECT HIGHER TEMPERATURES, STRONGER WINDS AND REDUCED RAINFALL.  
THE WARMER CLIMATE IS LIKELY TO RESULT IN MORE INTENSE TROPICAL STORMS  
AND HURRICANES WITH STRONGER WINDS,

THIS COULD RESULT IN A POTENTIAL INCREASE IN CATEGORY 5 AND 6 HURRICANES

# TOURISM AND LOCAL PARTNERSHIPS

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ARUBA IS A POPULAR TOURIST DESTINATION KNOWN FOR ITS NATURAL BEACHES AND HIGH QUALITY.

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INVESTING IN A VERTICAL FARM CAN CREATE OPPORTUNITIES FOR PARTNERSHIPS WITH LOCAL BUSINESSES, HOTELS AND RESTAURANTS TO SHOWCASE SUSTAINABLE AND LOCALLY-GROWN PRODUCE.

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THIS CAN ATTRACT ECO-CONSCIOUS TOURISTS WHO VALUE SUSTAINABLE FOOD OPTIONS, LEADING TO INCREASED REVENUE AND BRAND RECOGNITION FOR THE INVESTOR

# GIVING BACK TO THE COMMUNITY

OUR VERTICAL FARM IS DESIGNED TO HAVE A SOCIAL IMPACT BY ALLOCATING 10 % OF OUR FRESH AND NUTRICIOUS PRODUCE FOR FREE, DISTRIBUTED TO THOSE IN NEED.

THIS PRACTICE HELP COMBAT FOOD INSECURITY, PROVIDING FRESH AND NUTRIENT RICH PRODUCE TO THE LOCAL COMMUNITY, PARTICULARLY THOSE WHO MAY STRUGGLE TO AFFORD IT.

SERVING THE COMMUNITY IS AN INTEGRAL ASPECT OF OUR MISSION AND OUR MORAL OBLIGATION , SO WE STRIVE TO MAKE A POSITIVE DIFFERENCE IN PEOPLE'S LIVES AND HEALTH.





# ECONOMIC DIVERSIFICATION OPPORTUNITIES

DEVELOPING A VERTICAL FARMING SECTOR ON ARUBA CAN CREATE ECONOMIC OPPORTUNITIES:

REVENUE GENERATION: EXPORTING SURPLUS AGRICULTURAL YIELD CAN CONTRIBUTE TO THE ISLAND'S ECONOMY, BY CREATING ADDITIONAL INCOME AND CREATING SUSTAINABLE JOBS IN THE AGRICULTURAL AND LOGISTICS SECTORS.

ADDITIONALLY, LOCALLY GROWN PRODUCE CAN BE MARKETED AS A HIGH-QUALITY, SUSTAINABLE, AND FRESH PRODUCT, POTENTIALLY OPENING UP NEW MARKETS AND CONTRIBUTING TO THE ISLAND'S ECONOMY.

POTENTIAL REGIONAL HUB: ARUBA CAN ESTABLISH ITSELF AS A RELIABLE AND COMPETITIVE SUPPLIER OF FRESH PRODUCE TO NEIGHBORING ISLANDS OR EVEN SUPPLY TO CRUISESHIPS.





# INCREASED FOOD- PRODUCTION AND -SECURITY

VERTICAL FARMING USES VERTICAL SPACE EFFICIENCY, ALLOWING HIGHER CROP YIELDS IN SMALLER AREAS.

THIS CAN HELP MEET THE INCREASED DEMAND FOR FOOD DURING AND AFTER PANDEMICS, NATURAL DISASTERS OR OTHER CRISES WHEN TRADITIONAL FARMING MAY FACE DISRUPTIONS.

IT ENSURES A MORE SECURE AND STABLE FOOD SUPPLY WITH A HUGE REDUCTION ON WASTE.

# EDUCATIONAL, RESEARCH OPPORTUNITIES AND KNOWLEDGE CENTER

01

VERTICAL FARMING PRESENTS A UNIQUE EDUCATIONAL AND RESEARCH OPPORTUNITY FOR ARUBA.

02

BY EMBRACING THIS INNOVATIVE FARMING TECHNIQUE. THE ISLAND CAN FOSTER COLLABORATION BETWEEN ACADEMIC INSTITUTIONS, FARMERS AND TECHNOLOGY PROVIDERS, WORLDWIDE.

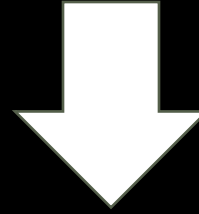
03

THIS COLLABORATION CAN LEAD TO KNOWLEDGE SHARING, SKILL DEVELOPMENT AND ADVANCEMENTS IN AGRICULTURAL PRACTICES.

04

THE RESEARCH CONDUCTED IN VERTICAL FARMING CAN ALSO INFLUENCE THE BROADER AGRICULTURAL SECTOR OF ARUBA AND CONTRIBUTE TO SUSTAINABLE FARMING PRACTICES.

# some applications



## Danish trolley

- Easy to install
- No climate control
- No automation
- Low tech



## Container

- 20 or 40 foot
- Turn-key solution
- Medium tech (irrigation, climate control, automation)



## Warehouse farm

- $< 1000\text{m}^2$
- Existing building
- Medium tech (irrigation, climate control, automation)



## Climate chamber

- $1000\text{m}^2$ - $5000\text{m}^2$
- Existing building
- Box in box
- High tech (irrigation, climate control, automation)



## Plant factory

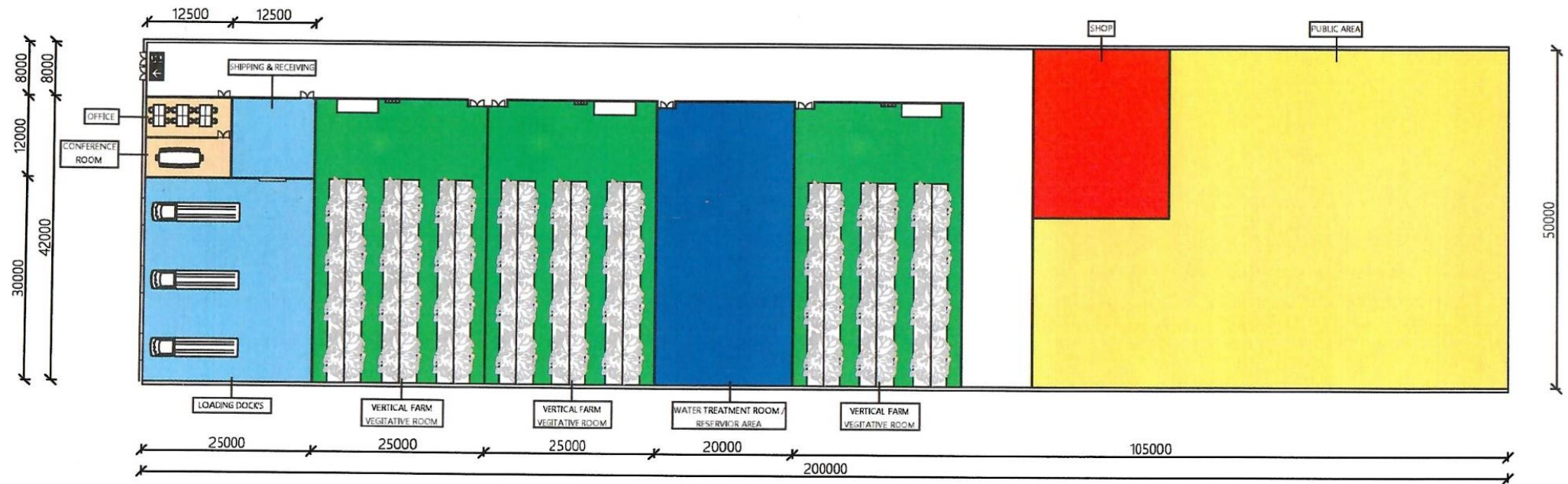
- Customized production line
- Fully automated
- High tech

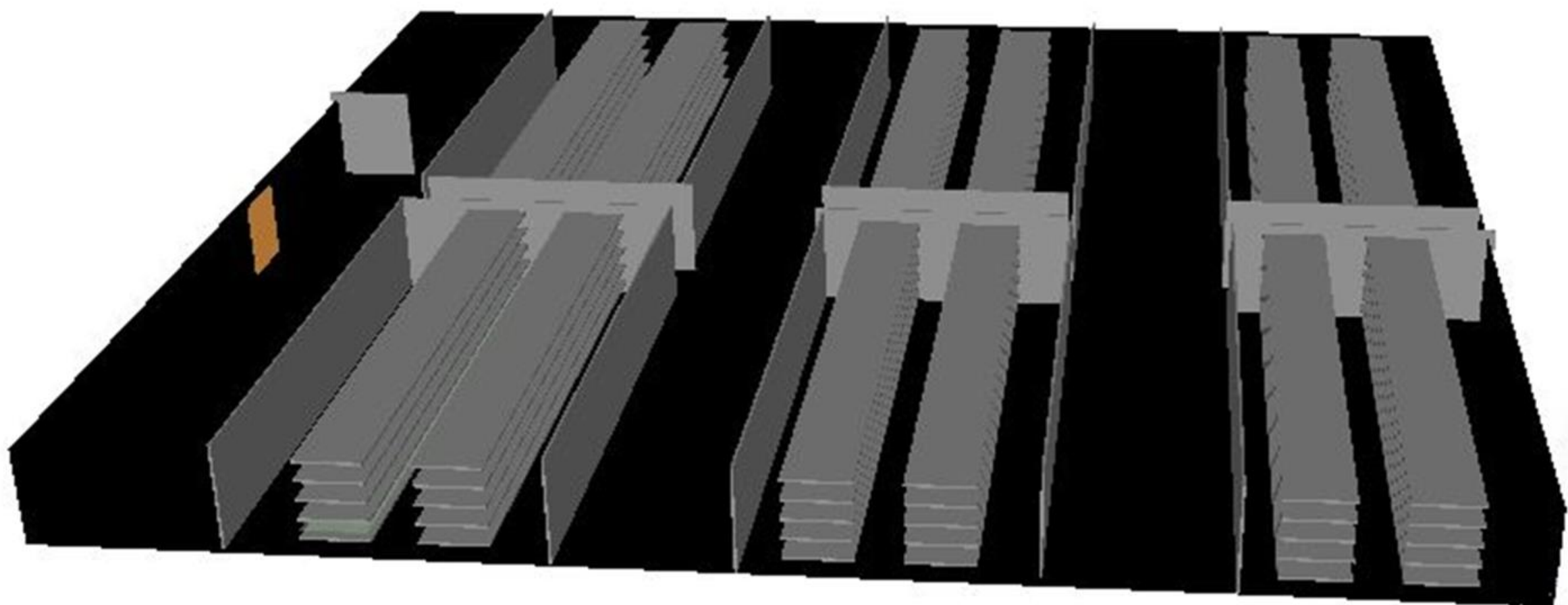




- SIZE : 50 M X 50 M HEIGHT 3,5 M
- 2 PARTS
- 10 RACKS EACH ROW
- 4 LAYERS PER RACK
- $2,4 \text{ M} \times 23 \text{ M} = 55,2 \text{ M}^2$  PER LAYER
- TOTAL 220,8 M<sup>2</sup> PER RACK
- TOTAL 20 RACKS
- 4.416 M<sup>2</sup> GROW GROUND







LETTUCE		SPINACH
LETTUCE		SPINACH
LETTUCE		SPINACH
STRAWBERRY		BASIL
STRAWBERRY		HERBS
STRAWBERRY		CILANTRO
MICRO GREENS		ASIAN GREENS
MICRO GREENS		TOMATOES
SALANOVA		TOMATOES
SALANOVA		CUCUMBER

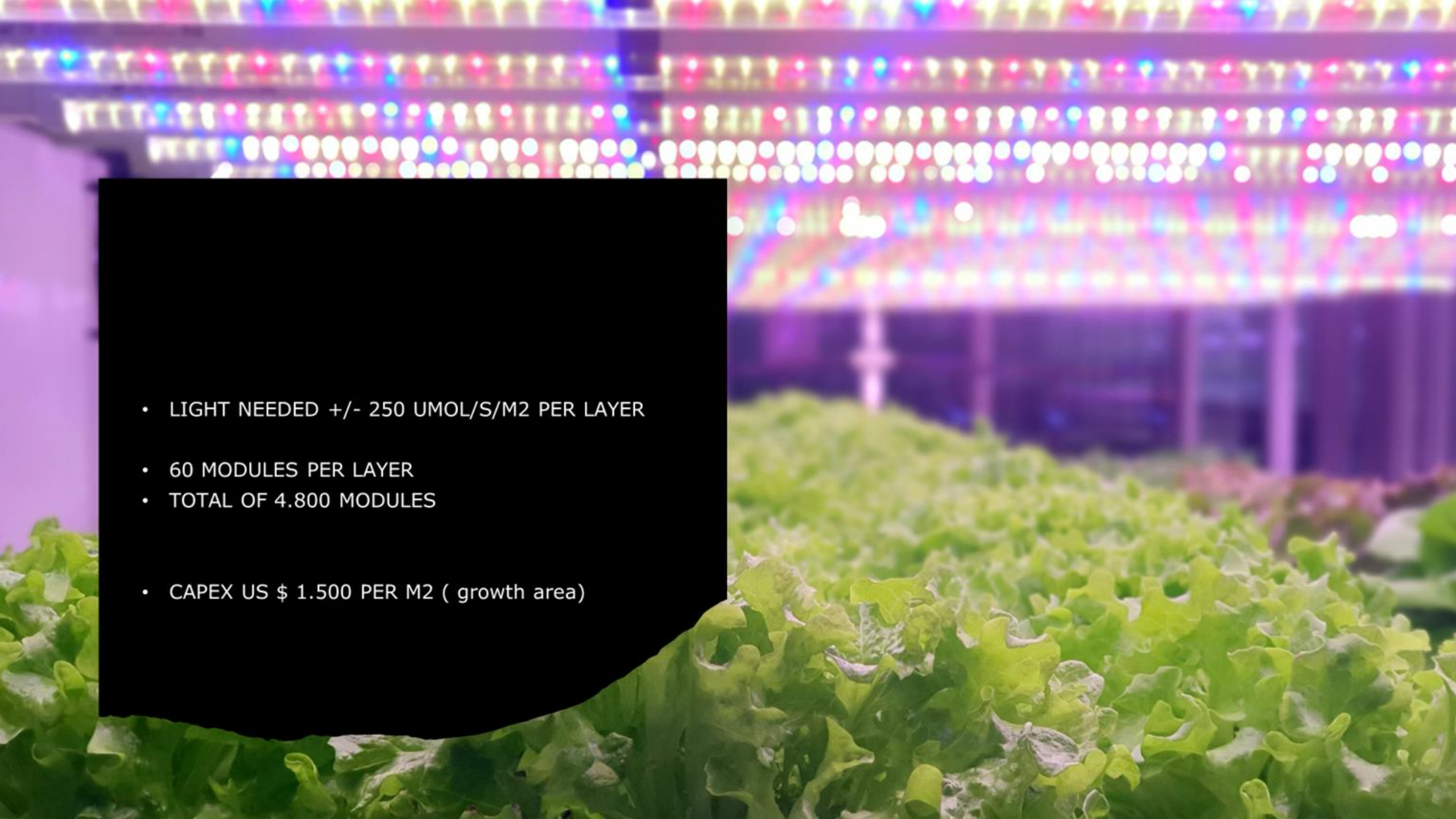


# Philips City Farming



**PHILIPS**



- 
- LIGHT NEEDED +/- 250 UMOL/S/M2 PER LAYER
  - 60 MODULES PER LAYER
  - TOTAL OF 4.800 MODULES
  - CAPEX US \$ 1.500 PER M2 ( growth area)





100 % SELF-SUFFICIENT, SUSTAINABLE, GREEN AND PROTECTED



90 %  
reduction  
in water  
use

## Global challenges



## City Farming solutions



Extremely efficient  
farming, high yield

Efficient use of  
space

>90% reduction in  
water use

No Pesticides,  
No Pollution

Grown Locally



“

By growing crops vertically, we are able to achieve a higher yield, with a smaller footprint, **with little impact on the environment.**”

**Robert Colangelo,**  
Founding Farmer/President, Green Sense Farms

## Benefits for Retail: improved shelf life

70 %

Reduction  
In CO2  
Emissions



### **Less food miles**

Since production can be done close to where the food is consumed, the produce on the shelf can be more fresh. Transportation from Spain to UK, or from Salinas (CA) to New York can take up to five days!

**RESULT ! :** a reduction of 70 % of greenhouse gas emissions compared to normal agriculture



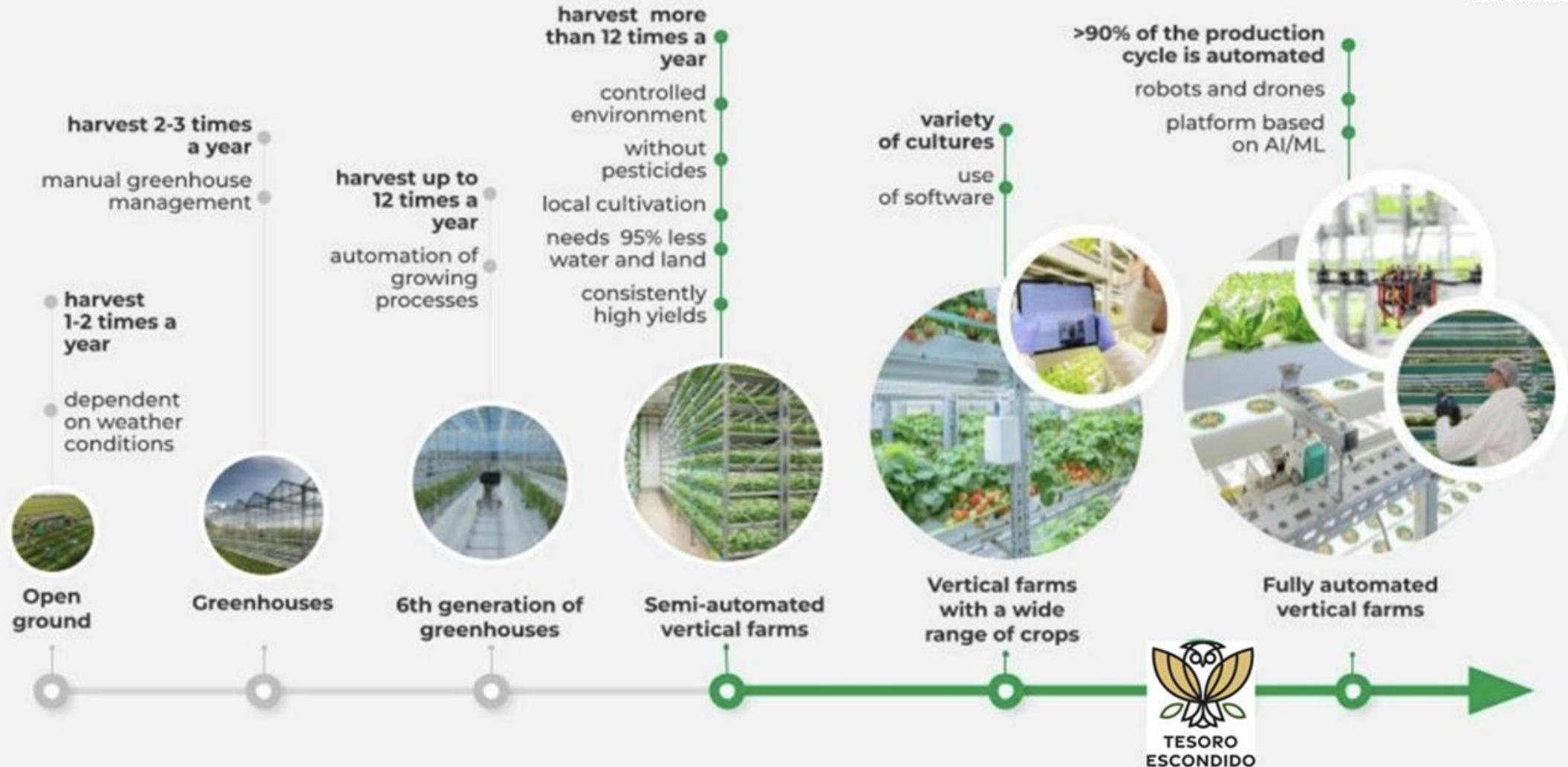
### **Less damage during processing**

Since there is no soil used, no pesticides used and grown in a closed environment, so no foreign bodies, the produce doesn't have to be washed. Usually the washing and drying process damages the fragile leaves, this makes the leaves turn pink or brown, which makes the produce look less attractive

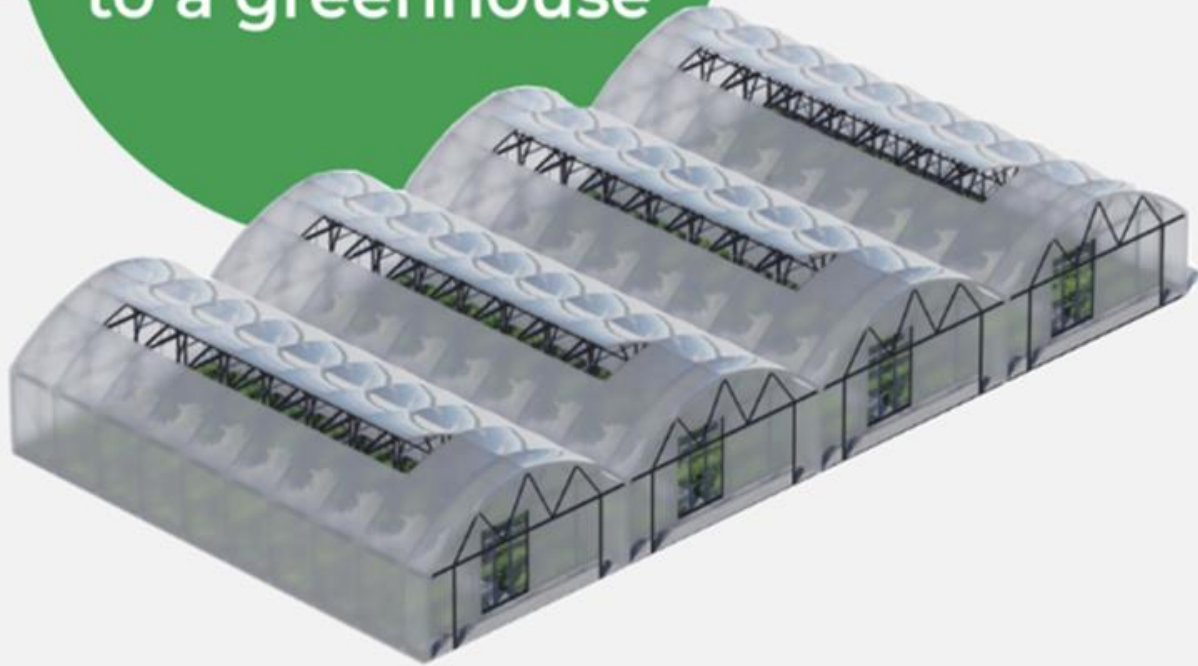
**PHILIPS**



# Evolution of vertical farming

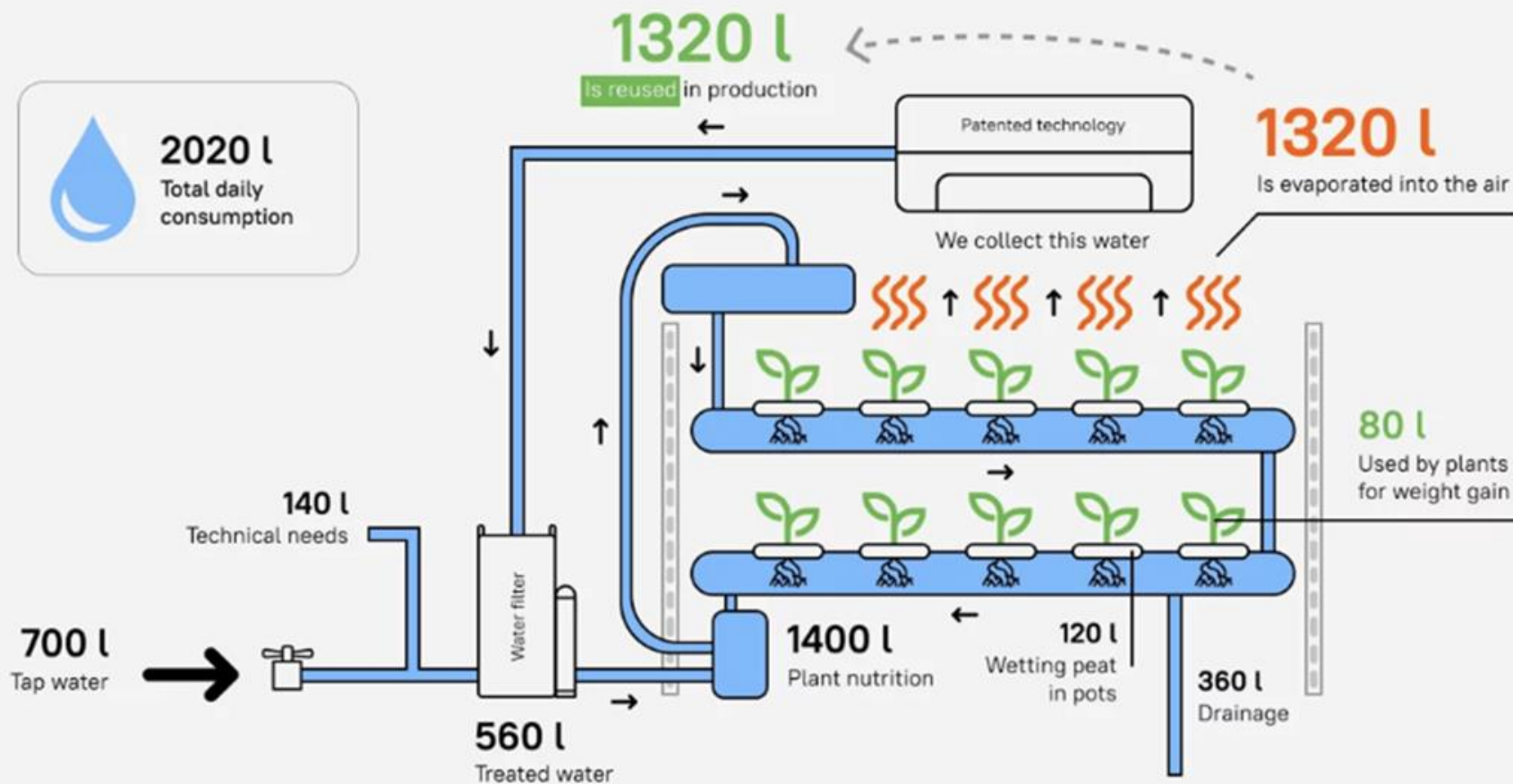


Vertical farm  
requires 95%  
less land  
compared  
to a greenhouse



# Water cycle

At a 1000 m<sup>2</sup> vertical farm







# OTHER CROPS THEN REGULAR FARMING

- LIKE STRAWBERRIES
- IN 2 MONTHS FROM SEED TO HARVEST
- YEAR-ROUND
- PERFECT SWEETNESS
- UNIQUE LIGHT RECIPE
- INCREASE OF 20 % SUGAR CONTENT ( BRIX VALUES)



A close-up photograph of a hand carefully placing a small green garnish onto a gourmet dish. The dish features a seared scallop, a slice of salmon, and various vegetables and sauces. The background is dark, making the food stand out.

# OTHER CROPS THEN REGULAR FARMING

A top-down view of a white plate containing a gourmet dish. It features two slices of seared salmon, a seared scallop, a green vegetable, and various garnishes including microgreens, cress, and small white and green dots of sauce.

LIKE MICRO GREENS & CRESSSES

- YEAR-ROUND

- 5 STAR PRESENTATIONS



# OTHER CROPS THEN REGULAR FARMING

- LIKE OYSTER MUSHROOMS & OTHER EATABLE MUSHROOMS
  - YEAR-ROUND
  - PERFECT RECIPE





# OTHER FISH THEN REGULAR AQUAPONICS

- LIKE LOBSTER
  - YEAR-ROUND
  - FROM HATCH TO FULL GROWN



# OTHER PRODUCTS THEN REGULAR PRODUCE

- LIKE ROSES
  - YEAR-ROUND
  - TOP A1 QUALITY





# IN WHAT WAY DO WE CONTRIBUTE TO ARUBA ?

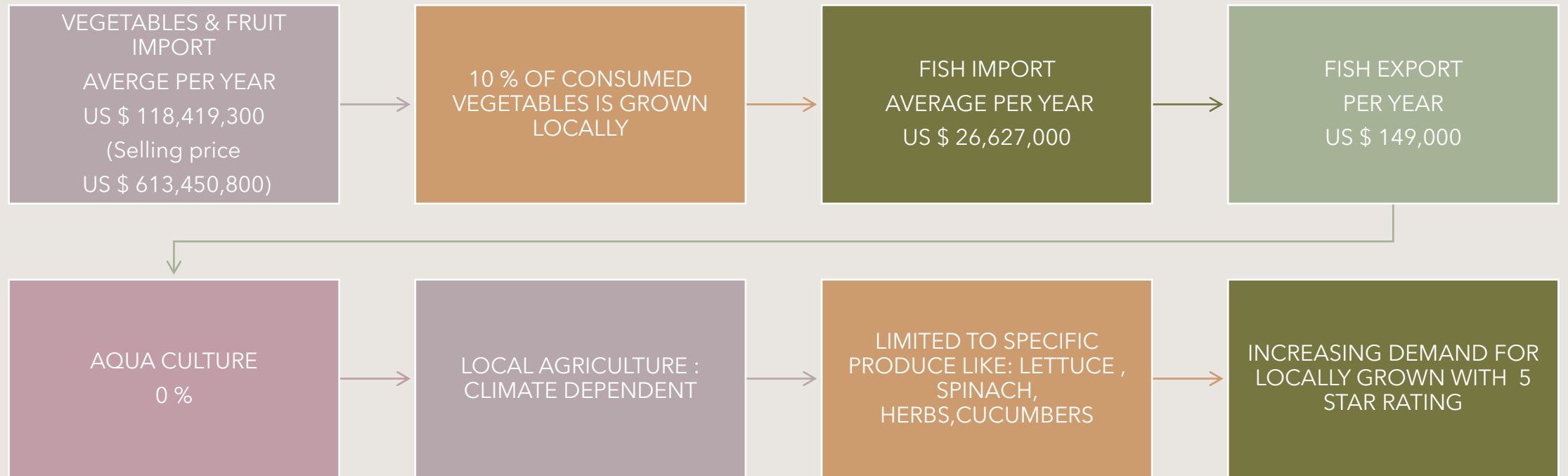
- STATE OF THE ART VERTICAL FARM OF 10.000 M2 - 30.000 M2, WITH NO START UP COST FOR FARMERS
- FOOD SECURITY YEAR-ROUND
- GIVING 10 % OF FRESH PRODUCE, FOR FREE TO THE COMMUNITY, FOR THOSE IN NEED
- EMPLOYMENT : PROJECTBASE AND FTE'S WITH VARIED EDUCATIONAL BACKGROUNDS
- KNOWLEDGE CENTER TAILORED TO DIVERSE EDUCATIONAL LEVELS
- ECONOMIC PILLAR
- FOOD-SELF SUFFICIENCY FOR RESILIENCE IN DISASTERS, PANDEMICS OR CLIMATE CHANGE
- NICHE TOURISM INCREASEMENT FOR M.I.C.E. GROUPS OR INDIVIDUALS
- THE CARIBBEAN'S INAUGURAL DESTINATION, DESIGNED TO DELIGHT FOOD CONNOISSEURS
- EXTRA TAXES INCOME
- AN ASSORTMENT OF LOCALLY GROWN PRODUCE, INCL. STRAWBERRIES, ROSES, OYSTER-MUSHROOMS, FISH, LOBSTER AND AN ARRAY OF OTHER DELIGHTS.



# WHAT ARE THE BENEFITS ARUBA PROVIDES ?

- FULL COMMITMENT TO PROJECT
- POSSIBILITY TO PARTICIPATE IN PROJECT
- LAND AVAILABLE FOR PROJECT
- BUILDING PERMITS FOR PROJECT
- TAX EXEMPTIONS
- DIRECTORS PERMIT OWNERS
- BUSINESS PERMIT

# ARUBA ACTUAL NUMBERS:



# IMPACT INVESTMENT NUMBERS

TOTAL VERTICAL FARM

PROJECT COST : US \$ 5,650,000

PRE INVESTED : US \$ 350,000