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## Case study

# Emirates Flight Catering Opens World's Largest Vertical Farm in Dubai

- Bustanica (Emirates Flight Catering) has unveiled its 330,000 sqft environmentally controlled farm facility, with an investment of US\$40 million
- Bustanica will annually save in excess of 250 million litres of water and produce over 1 million kgs of produce that are free of pesticides, herbicides and chemicals

**Dubai, UAE, 18 July 2022**


Bustanica has opened the doors to the world's largest hydroponic farm, backed by an investment of US\$40m. The facility is the first vertical farm for Emirates Crop One, the joint venture between Emirates Flight Catering (EKFC), one of the world's largest catering operations serving more than 100 airlines, and Crop One, an industry leader in technology-driven indoor vertical farming.

Located near Al Maktoum International Airport at Dubai World Central, the 330,000sqft facility is geared to produce more than 1,000,000 kilograms of high-quality leafy greens annually, while requiring 95% less water than conventional agriculture. At any point in time, the facility grows in excess of 1 m cultivars (plants), which will provide an output of 3,000 kgs per day.



Source of information, read more:

<https://www.emirates.com/media-centre/emirates-flight-catering-opens-worlds-largest-vertical-farm-in-dubai/>



Fact Sheet

Bustanica, meaning your garden or orchard in Arabic, is the world's largest vertical farm and a historic milestone for the UAE. The facility is the first for Emirates Crop One (ECO1), the joint venture between Emirates Flight Catering (EKFC), one of the world's largest catering operations serving more than 100 airlines, and Crop One, an industry leader in technology-driven indoor vertical farming.

Facility

- Bustanica is the commercial brand name for ECO1 – the joint venture between Emirates Flight Catering and Crop One.
- Investment: worth US\$40 million in the joint venture, facility and technology.
- Location: near Dubai World Central – Al Maktoum International Airport.
- Size: 330,000sqft, spanning three floors.
- Output: over 1,000,000kgs per year (about 2,414,061 lbs), or more than 3 metric tonnes per day.
- Over 1 million cultivars (plants) are grown at any given time.

Sustainability

- Hydroponic cultivation uses up to 95% less water (15 litres for 1kg) than traditional outdoor farming (317 litres for 1kg).
- 250m litres of water saved every year compared to traditional outdoor farming
- 1,000MW saved in the production of water
- Grown indoors in a controlled environment, leading to zero soil degradation
- Nutrient-rich water is recirculated continuously and precisely to each crop, eliminating nutrient leaching into the soil which is a concern with conventional agriculture

Produce

- Currently, the range includes kale, spinach, arugula and mixed greens
- Plans to grow fruits and vegetables in the future
- Vertical farming techniques and innovative technologies completely eliminate the use of pesticides, chemicals, herbicides, and fungicides
- The risk of fungal and foodborne diseases is almost entirely eliminated as humidity levels are managed, and limited human interaction with the crops removes the risk of contamination.
- Filtered and purified water is treated with a precisely calculated mix of plant-specific nutrients such as nitrogen, phosphorus and calcium and then delivered to the roots of the plants to encourage peak nutritional development.
- The harvested greens are beyond organic, ready to eat and don't need pre-washing – they can be eaten straight out of the box
- Precision farming means each plant gets the optimal mix of nutrients
- Controlled environment with closed loop systems ensures nutrients are not lost
- Locally produced, therefore quicker delivery from farm to fork in the UAE, and the produce retains its nutritional value, is crunchier and has better flavour and quality



**Contractor:**

Amana Contracting & Steel Buildings

**Growth concept:**

KE-GreenDuct System for room climate control

**Ducting:**

189 pcs. Ø500 x 24.100 mm - Inject Flex holes  
27 pcs. Ø500 x 22.700 mm - Inject Flex holes  
14 pcs. Ø300 x 14.250 mm - Inject Flex holes  
Totally 5367 metre GreenDuct

**Suspension method:**

Standard Safetrack suspension (single)

**Technical performance:**

Air flow total: 995.688 m<sup>3</sup>/h  
Approx. 186 m<sup>3</sup>/h/m  
ESP: 149 Pa

**ECO-1 textile duct  
Typical Growing Room**

Air velocities below duct;  
per KE Fibertec Quotation #24901-4

	Day Cycle	Night Cycle
Ambient Temp.	22 ± 1 °C	16,5 ± 1 °C
Supply Temp.	10,7 °C	15,8 °C
ΔT	11,3 K	0,7 K
Airflow	1.250 L/s	1.250 L/s
ESP (inlet)	149 Pa	149 Pa
V@2.750mm AFF	1,04 m/s	0,69 m/s
V@1.750mm AFF	0,76 m/s	0,47 m/s
V@750mm AFF	0,62 m/s	0,34 m/s

