

# The **BiöPod** Initiative

**Agriculture Training & Research  
Demonstration Greenhouse  
at the John Volken Academy**



# The BioPod is creating innovative agricultural solutions and training opportunities to strengthen the Lower Mainland's food system.

## ITS PURPOSE IS TO:

- 1 Establish a regional hub for agri-tech innovation and research
- 2 Provide valuable agriculture skills training and certification opportunities for students in addictions recovery
- 3 Promote and strengthen our local food system through awareness and engagement

## The Vision

In 2014, the City of Surrey's Economic Development Division approached the John Volken Academy (JVA) and the BC Agriculture Centre of Excellence with an idea to develop a local innovation project that would benefit environmental, social, and business interests for transitioning Surrey into an agri-innovation living lab.

From this inspiration grew the vision for a signature made-in-BC agri-innovation initiative: the BioPod.

In creating a hub guided by academic leaders from the agricultural sector, and by developing workers skilled in advanced agricultural technologies, the BioPod will further strengthen the Lower Mainland food system, while developing innovative solutions for agriculture excellence.

## Certified Agriculture Training for Students in Recovery

The greenhouse will also be used for training students from the John Volken Academy in the following activities:

- [1] Monitor and analyze control system readings;
- [2] Monitor and evaluate presence of pests and disease;
- [3] Monitor nutrient delivery and recycling system;
- [4] Measure and evaluate production; and
- [5] Compare against controls.

Students who complete training in the BioPod will be well-prepared with certification for careers in agriculture.

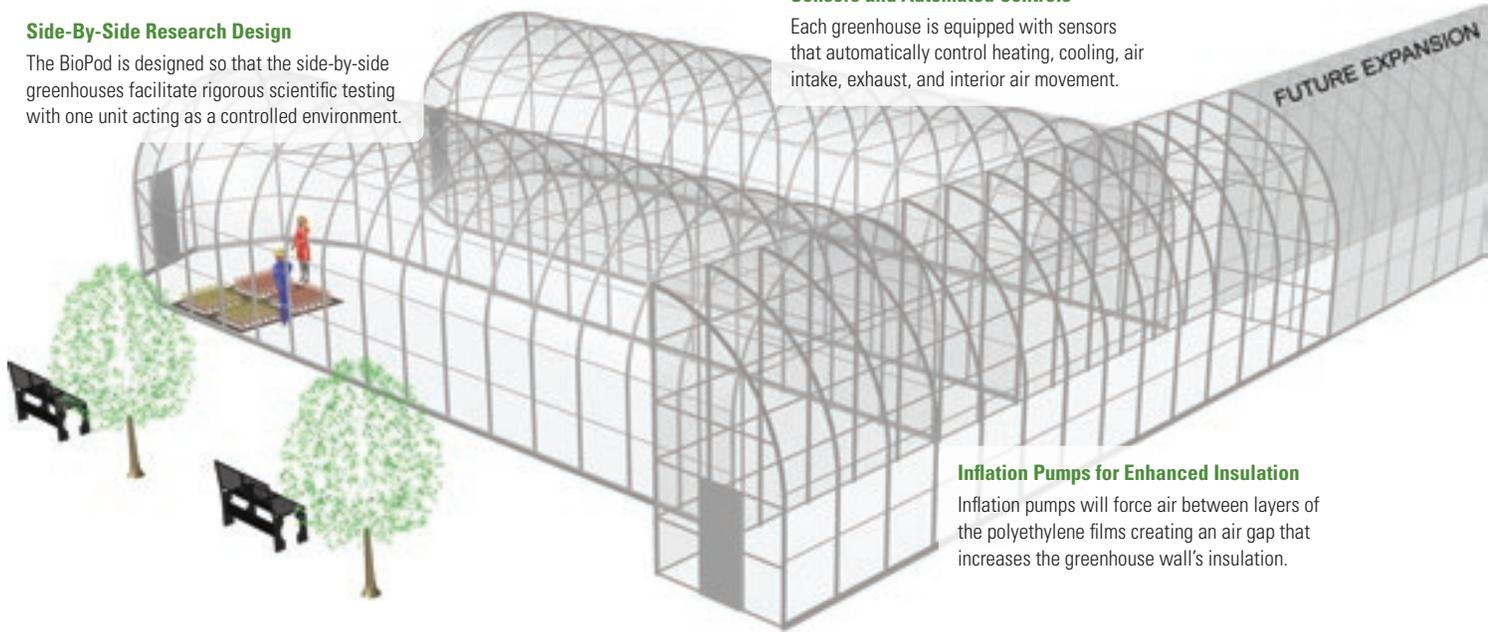
“ This is a win-win for the John Volken Academy: not only does this advance the education and careers of our students, but it also plays a role in addressing the future challenges of growing food, and keeping the planet healthy in a changing climate. ”

John Volken FOUNDER, THE JOHN VOLKEN ACADEMY

# The BioPod features state of the art design and technologies.

## Side-By-Side Research Design

The BioPod is designed so that the side-by-side greenhouses facilitate rigorous scientific testing with one unit acting as a controlled environment.



## Sensors and Automated Controls

Each greenhouse is equipped with sensors that automatically control heating, cooling, air intake, exhaust, and interior air movement.

## Inflation Pumps for Enhanced Insulation

Inflation pumps will force air between layers of the polyethylene films creating an air gap that increases the greenhouse wall's insulation.



## Optimal Lighting

Translucent and diffuser films will provide optimal lighting that enables plants to absorb more energy with the similar quality of sunlight, producing healthier, more vigorous plants, and higher yields.



## Vertical Growing Systems

The Affinor Vertical System integrates nutrient water cycling which conserves inputs and reduces waste. The system also allows more crops to be grown within a smaller footprint.



## Potential Atmospheric Dewatering

Atmospheric dewatering enables the extraction of water from the air to supply greenhouse irrigation needs, making the greenhouse independent of the water grid.



## Year-Round Growing Operations

The BioPod creates continuous growing conditions for year round production.



## Very High Ceilings

Innovative high ceilings (over 20 ft) will result in a larger volume of heated air that keeps more uniform temperatures and humidity, and also eases ventilation needs.



## Growing Local, Selling Local

Fruits and vegetables harvested close to the point of consumption bear a small carbon footprint and can affordably be sold to the PricePro store within walking distance.

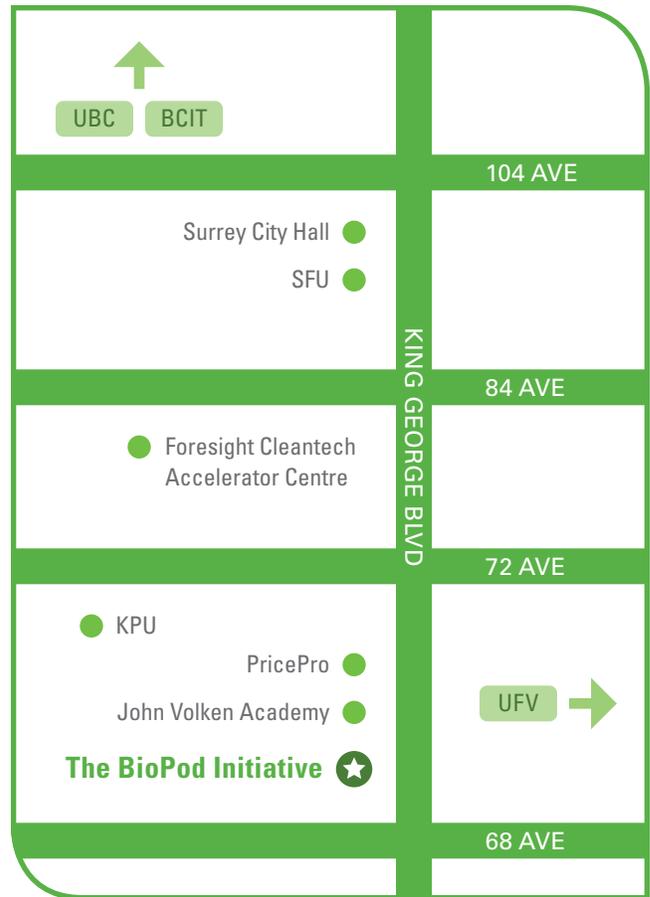
## Agri-Innovation Research

Research at the BioPod will be conducted by partners of the BC Agriculture Centre of Excellence and Research Partner Institutions in years two to five of the project.

Students of Simon Fraser University's School of Mechatronics will provide on-going maintenance and greenhouse automation support to the proposed BioPod structure.

Other potential research initiatives from our industry partners include:

- **Watergenics** – an atmospheric water capture system rendering potable water
- **Crop Sense** – creating robots for harvesting and scanning for crop health
- **AIS Systems** – developing robotic pickers for gathering crops
- **Argus Smart Greenhouse Controls** – automated greenhouse environmental control systems



### PROJECT LEADS



### PROJECT PARTNERS



**BW GLOBAL**  
GREENHOUSES & SHELTERS



FOR MORE INFORMATION  
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