Vegetables production - AIS

Liba

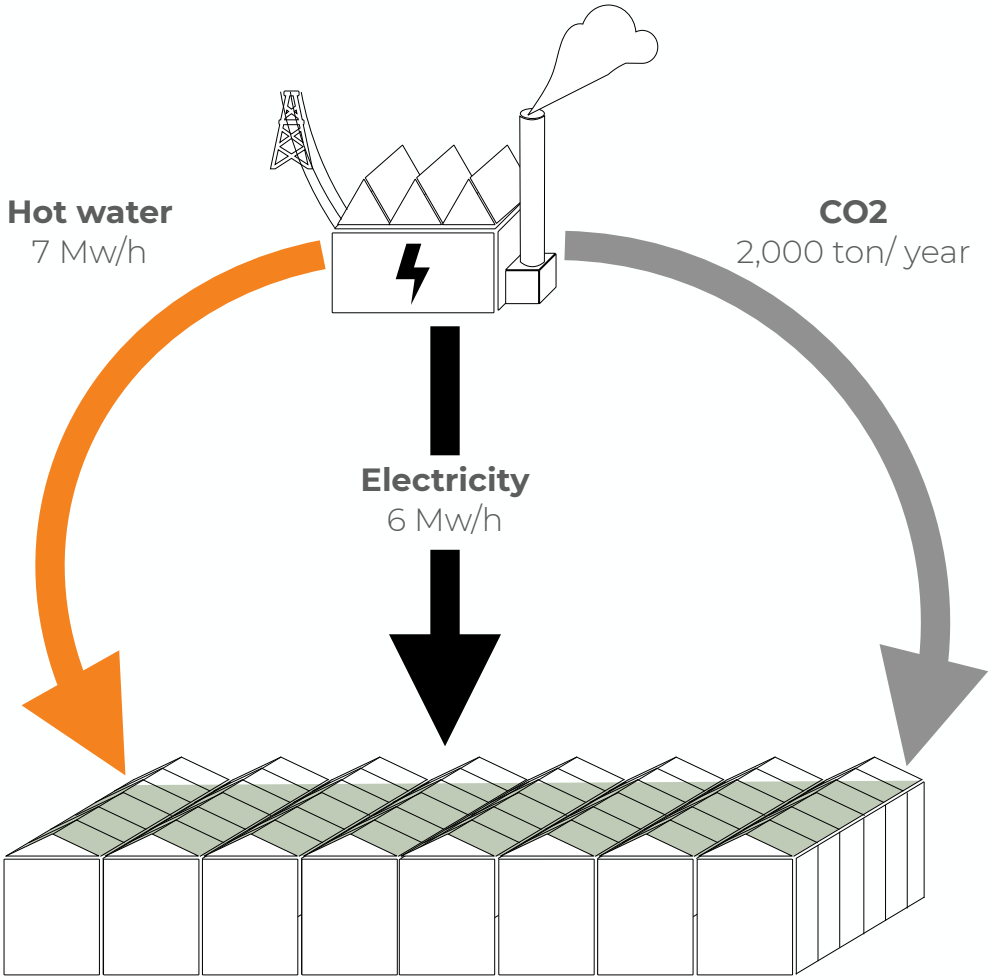
BUILD FOR BUSINESS

Agro Industrial Symbiosis

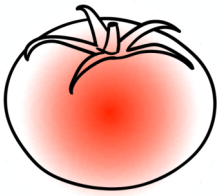
Vegetables production requires large amounts of energy, which is the dominant factor making greenhouses more emission intensive than open-field cultivation. Alternative heating systems, such as combined heat and power (CHP), biogas, and industrial waste heat, are continuously being researched for reducing the environmental impacts of greenhouses. This paper assesses utilizing industrial waste heat and CO2 enrichment in greenhouses as an example to propose "Agro-Industrial Symbiosis" (AIS), to refer to a symbiotic co-operation between agricultural and industrial partners.

The global warming potentials (GWPs) of greenhouse production using different heating systems are inadequately compared in the literature, which is the research gap addressed herein. Additionally, potential emission reductions of greenhouse production with industrial waste heat are yet to be assessed via lifecycle assessment (LCA). A comparative LCA of Finnish greenhouse tomato and cucumber production using various heating systems was conducted.
Naturally, replacing fossil fuels with bioenergy and renewables significantly decreases the GWP.
CHP systems result in decreased GWP only when using biogas as the energy source. Additionally, utilizing industrial waste heat and CO2 resulted in a low GWP. These results are applicable worldwide to guide political decision-making and clean energy production in the horticultural sector.

The concept



Tomatoes
300 ton/month



The production facility

One roof, Sqm 50,000

Intense facility to grow variety of crops from Tomatoes to Cucumbers all year long while keeping high yield and high quality during production from seed to packed salable product.

The production facility

Climate control

Semi-closed environment

working on a positive atmospheric pressure principle of between 10-20 psc, the semi-closed environment allowing much higher micro-climate uniformity and sanitation/ plant protection for all year long production.

Structure

Hybrid structure

due to the inherent need for optimal climate control and maximum pest control embedded in the agricultural operation we are offering an hybrid structure that introduce industrial and agri-technical systems under one roof for the creation of Semi Closed environment and maximum control.

Management system

Controlling every aspect in production

Climate, irrigation, yield and employees. The management system allowing maximum control and documentation to enable continuance learning and efficiency during production.

The production facility

Production efficiency is our goal

With a production capabilities of more than 3,000 ton cluster tomatoes a year, this production facility is the modern way to produce vegetables all year long. The continuance in production results better yield and better efficiency in production costs.
Hereafter the potential production from this project:

	Y1	Y2	Y3	Y4	Y5
Produced kg	1,002,000	2,478,000	2,832,000	3,186,000	3,186,000
Gross cost per kg	$0.57	$0.50	$0.44	$0.39	$0.39

About Liba

Liba develop, design and supply industrial agricultural systems for the horticulture sector.
We specialize in intensive crops (e.g leafy greens, medical cannabis, tomatoes etc.), bringing the latest technologies, extensive knowhow, and acclaimed efficiency to clients worldwide.
Working with leading agronomists and global agricultural equipment companies, Liba develop unique out-of-the-box production lines, from planning and design, engineering and manufacturing to maintaining and on-going support for the industrialized agricultural business.

Our goal is to be the market standard for agricultural production lines and push markets toward quality and efficiency during production.

Agriculture is distinguished by a wide range of cultivation systems such as open field, protected, soilless, greenhouse, organic, and indoor farming.

Among all these, industrial agriculture is one of the most intensive agricultural systems focused on producing under high efficiency and high quality conditions all year long.

Liba develop agricultural production lines enabling the control of environmental parameters such as temperature, light, higher efficiency of resource utilization, and high-tech systems such as hydroponic, automation.

Our developments provide opportunities for higher yields, earliness, stability of production, and better quality, thus industrializing the agricultural market.

Liba

BIG ENOUGH TO DELIVER
SMALL ENOUGH TO CARE

We will be pleased to share our knowhow with you, in support of your operations and future growth.

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