



SUCCEED WITH AEROPONICS FARMING

Commercial Viability for Aeroponics Farms in Large Greenhouses
Go in-Depth Look at the Key Components of Your Aeroponics Project

INTRODUCTION

This guide 'Success with 4D/Capex Farming' aims to provide insights into the key factors to consider when installing a high-tech growing system for leafy greens.

We will cover the main aspects of a project, including CAPEX (Capital Expenditure), OPEX (Operational Expenditure), and yield topics in detail.

These are all critical steps to keep in mind when you start a project and will be an integral part of the discussions with you in order to shape a successful venture.





CAPEX:

SETTING UP AND BUILDING YOUR AEROPONICS FARM

When investing in a high-tech growing system, capital expenditure (CAPEX) is a crucial factor to consider.

The CAPEX for a system can be implemented in newly built greenhouses or in existing ones.

For aeroponic farms, the CAPEX depends mostly on the size of the project, but other factors come into play: the level of automation is a great example.

NEW GREENHOUSE

For newly built greenhouses, you need to consider the cost of land/acquisition, the connection to infrastructure (such as water, electricity, energy), and the civil engineering costs to prepare the land.

A new greenhouse has the advantage of perfectly matching your needs as it will be designed around your idea. It is likely to take longer in permitting and the construction of the greenhouse will take a non-compressible time. The cost of greenhouses will also depend on the choice between a glass or a plastic greenhouse.

The factors impacting this decision are your budget, the geographical area as the material impacts insulation and light transmission, maintenance and cost/structure.



CloudRama works with leading solution providers who can help shape your new greenhouse project.

GREENHOUSE RETROFIT

If you already own a greenhouse, retrofitting it can be quicker and it doesn't require a new construction permit and there are fewer suppliers working on your project.

Still, this likely to require some work on the soil engineering side or some upgrades such as LED lighting. Our system can be adapted to every existing greenhouse but is optimized for greenhouses with bay widths of 8'6" to 12'6".

EQUIPMENT

Even in the case of a new greenhouse, the cost of equipment for climate control, heating/cooling, cooling, and lighting should also be taken into account.

At CleanGreens, we have several partners and can help you identify the right suppliers for your needs.



The CleanGreens system is developed for **large scale** production. The minimum cultivation area should be 3,000m² in order for you to have a profitable project.



The Greenhouse System from CleanGreens is **very modular** and can be designed to your needs, increasing higher project development costs but ensuring an **optimized layout** of your growing system.

OPEX:

MONTH-TO-MONTH COSTS OF RUNNING YOUR AEROPONICS FARM

The CAPEX investment is the first big decision to make, but every choice you make will impact the OPEX.

Remember, these costs will occur every month of every year and heavily impact the profitability of your project.

Three main OPEX include the following:

ENERGY COSTS

Depending on your location, you will need 2 to 3 kWh per day per plant, so you will want to find the cheapest energy source possible. Look for opportunities to transfer your own greenhouse heat to a heat-generating plant. It's often easier to heat a floor than a plant than market costs.

This is the ideal solution from an environmental point of view.

LABOR

Your costs include a head grower with plant knowledge or experience in controlled environment agriculture (CEA) and operators with experience in greenhouse operations.

Your choice of product mix and the level of automation in the growing system will impact the number of workers needed in the greenhouse.

CONSUMABLES

Such as nutrients, water, seeds and substrates are also important factors to consider:

Nutrients: Aeroponics uses 80% fewer nutrients than hydroponics, significantly decreasing your monthly costs.

Water: Water consumption from irrigation is around 10 liters per kilogram of lettuce produced.

Seeds and Substrates: As aeroponic equipment scales from proof of concept, you'll harvest the same plant several times which means a decline in the cost of the seeds and substrates from 2 to 10 times compared to hydroponics. If you grow lettuce, aeroponic allow you to grow larger heads of lettuce up to 50g. This means that you will need less seeds and substrates to achieve the same weight output as other systems which typically don't grow heads over 50g.



TRAINING, SUPPORT AND MAINTENANCE

Your clients need high consistency in quantity and also in quality.

As a grower you will have to ramp-up quickly in the proficiency of your growing system in order to satisfy them. Those indoor growers in large scale greenhouses in still a rather novel technology. Having the right training and support from your equipment provider is paramount in instances. Our Agri experts are on your system in our fully greenhouse cover several years and are available to support you on request.

Your team will be trained in maintenance and provided with a safety kit comprised of the key elements of the accessories system for quick fixing. After commissioning, Greenhouse will remain by your side to help you make the most of the system.



SOFTWARE

Most greenhouse growers use a Crop Management System in order to plan their production, organize their inventory and manage the schedule of their systems. There are several systems available on the market.

We developed our own software solution available in 3 versions made for the needs of an accessory greenhouse which will be your perfect partner for growing your crops.



As accessory systems have higher yields per square meter than competing technologies, it results in lower OPEX per kilogram and a lower carbon footprint per kilogram produced.



Our teams will go through different scenarios with you in order to find the **optimum solution** for your needs.



PAYBACK:

CREATING A COMMERCIALY VIABLE AEROPONIC FARM BUSINESS

Evaluating the profitability of your aeroponic farm starts with timing of your business plan.

The viability is measured by considering both CAPEX (a price investment without the operational costs) and OPEX (the product MSU, which determines yield and required resources).



Aeroponics generally delivers **higher yields** as the growth cycle from seed to harvest is **faster**, enabling **more cycles** per year. More importantly, each plant's **weight is greater**, as they flourish in an **optimal environment**.

GET YOUR **PRODUCT MIX** RIGHT

An effective mix can be defined by studying market demand, the required volumes, and price points.

The ultimate goal is to grow crops with the highest possible selling prices and highest demand.

With aeroponic systems, you can facilitate rapid growth cycles, produce multiple crops, and achieve a higher weight per growing ft. compared to traditional setups available in the real world.



Choosing aeroponic means choosing the technology with the highest yield; you will thus harvest a lot of produce. Consequently, it becomes essential to establish robust sales channels, be it retail, distributors, or HORECA partners.

Given the high volumes produced, your off-takers must be capable of handling substantial quantities.

By specializing your product mix with market needs, you can tap into the full potential of your aeroponic operation.

Our sales team is ready to guide you through the business plan, exploring different scenarios such as fluctuations in selling price or energy costs.

SWISS DESIGN  SWISS MADE

SUCCESS TOGETHER

CleanGrows offers comprehensive support to ensure the long-term success of your operation. From setting up the system, providing training to your agronomy team, to assisting in ramping up operations, we're with you every step of the way.



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