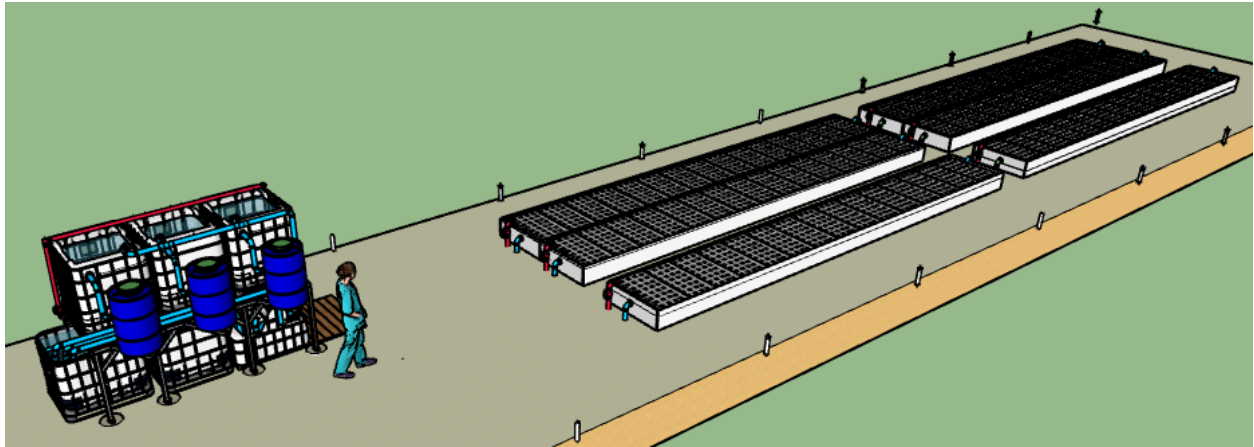




## SYSTEM DETAILS



### System Components

- 3 - 250 gal / 945 lt Fish Tanks
- 3 - Radial Filters
- 1 - Matala Filter
- 1 - Bio Tank
- 1 - Sump Tank
- 6 - Grow Beds
- 2 - Water Pumps
- 1 - Air Blower
- 1 - Heat Exchanger
- Water - 7,000 gal / 26,500 lt
- Grow Space - 805 sq ft / 74 sq m

### Fish

- 360 Fish (120 fish per tank)
- 540 lbs / 245 kg fish per 9 month cycle

### Approximate System Costs

- Build Materials: \$15,000 - \$25,000 USD \*depending on location, without add ons
- Monthly Operations: \$500 USD
- Work Hours: Approximately 20 hours per week

### Greenhouse

- Approximately \$6,000 - \$8,000 USD
- Add ons: gutters, evaporating cooling system, and propane heating unit

### OASYS System Build Time

- It takes 1-2 weeks to build.
- Not included: purchasing and building greenhouse, purchasing materials, running electricity and water to site, and leveling ground.

### Start-up Time

- It will take about 12 weeks for your first harvest.
- It takes 3-5 weeks to cycle system.
- On week 4 you can plant seeds for a 9 week grow cycle, which will yield approximately 612 heads per week.

### Requirements

- Funding for First Year's Operating Costs: \$6,000 USD before project begins.
- Financial Bottom Line: Projected monthly income must be a minimum of \$800 USD in order to be sustainable.
- Operations Team: 1 clear leader and at least 2 supportive team members. All team members must attend the full training.



## BUILD PARAMETERS

**SITE DETAILS** - In order to build an OASYS System you will need the following:

- **LAND**
  - You need enough space to fit the system. Use the system layout maps to see which layout makes the most sense for your situation.
- **LEVEL GROUND**
  - The system requires level ground to function correctly. You want to consider the amount of work it will take to make your site level.
- **FULL SUNLIGHT**
  - Your plants need sun to grow. You want to consider any large obstructions that might shade the system from the sun. Obstructions such as buildings, and trees. If you have obstructive trees where you want the system, you need to consider whether or not you are willing to trim or cut them down?
- **CLEAN WATER**
  - The system requires clean water. Because we are growing food, the water cannot be collected from a roof, pond or river without special water treatment. A well or city water are your best options. If using city water, you will need to test it for chlorine. Water with chlorine requires an additional IBC tank to allow the chlorine to dissipate before using in your system, otherwise the chlorine will kill the good bacteria in your system.
  - You want to think about what it will take to run a water line to your site. You will need water to fill the system, to get it up and running. Once the system is up and running the plants will uptake some of the water, which will need to be replenished on a weekly or by weekly basis. You will need water to clean your harvest tables, tools and to wash rafts. Water is a very important part of running and maintaining the system.
- **ELECTRICITY**
  - The system has 2 water pumps and 1 air pump that require about 25 kWh/day of electricity to run. 60 amp service is sufficient for these basic needs. Depending on your weather, you want to consider if there are other components that will need power, such as an evaporating cooling system, circulating fans, etc. When you are building the system you will also need power to run your tools.
  - If you live in an area that has frequent power outages, you will need a 4,000-6,000 watt generator.



- **PROPANE**
  - If you are in a colder climate, you will need a gas heater to keep the air temperature in the optimal range and a heat exchanger to heat the system water.
  - You can either run a gas line to the system or use a propane storage tank.
- **EASY ACCESS TO SITE**
  - As soon as you start cycling your system it will require daily attention. Fish will need to be fed 3 times a day. If getting to the site takes a considerable amount of effort to get to, it will make operations more difficult. You also want to think about what it will take to get the building materials to the site.
- **NOT IN A FLOOD AREA**
  - If you live in an area that gets a lot of rain you want to think about where the water naturally flows. If you build your system on a hill, you will need to manage water drainage.





## GREENHOUSE PARAMETERS

**GREENHOUSE PARAMETERS-** The system requires protection from low and high temperatures, rain, pests, and animals.

### BASIC PARAMETERS

- Plastic wrapped roof and walls
  - This helps protect the system from overhead debris, rain, pests and animals.
- Roll up sides with bug netting
  - Roll up sides give you the ability to vent the greenhouse while the bug netting gives you protection from insects, birds and other small animals
- 60% shade cloth
  - When your greenhouse temperature rises above 90°F / 32°C consistently during the day you will need to put shade cloth on top of the roof. This will decrease the inside temperature in the greenhouse.
- Gutters
  - Gutters are necessary for regions with heavy rain falls. Gutters will help direct the water from rolling on the roof into the greenhouse.

### For Colder Climates

- Propane heater for the air temperature
  - The Greenhouse air temperature should not drop below 55°F or 12°C. If the day time or night time temps are consistently below 55°F / 12°C you will need a heater.
- Propane heat exchanger for the water temperature
  - The acceptable water temperature range is around 68 - 72°F / 20 - 22°C. Cooler temperatures will lower your system water temps and you will need a heat exchanger to heat the water. \*\* This is not something that you will buy from a greenhouse company, but something to consider.

### For Hotter Climates

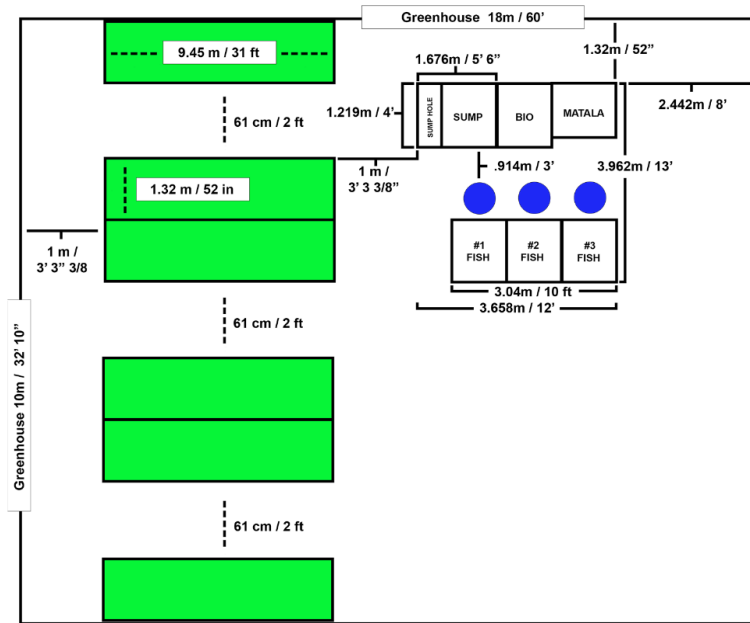
- Water Wall to introduce humidity and cool the air temperature
  - The Greenhouse Air temperature should not consistently exceed 92°F / 33°C. In hotter climates 60% shade cloth on the roof and a water wall in the greenhouse can help keep the air temperature within the desired range.



# SYSTEM LAYOUT OPTIONS

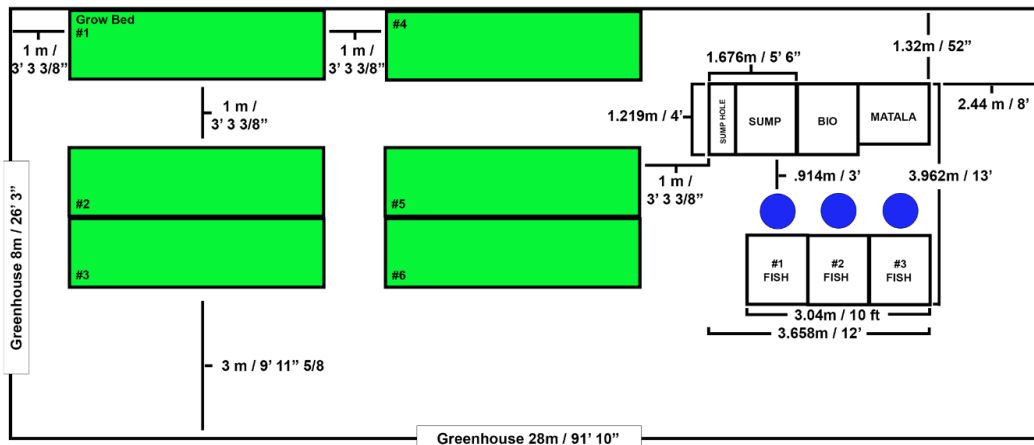
## OPTION 1: 6 ACROSS

Greenhouse dimensions  
10m x 18m / 32'10" x 60'



## OPTION 2: 3 X 3

Greenhouse dimensions  
8m x 28m / 26'3" x 91'10"



### DETERMINING THE RIGHT SYSTEM LAYOUT OPTION

- The biggest factors that will play a role in determining your layout options are: land size, land shape and greenhouse sizes available in your area.
- The 6x6 is the preferred layout due to the bigger open work space.





# SITE VISIT AND EVALUATION

## SITE DETAILS

Visit the site location and ensure it meets all the necessary build parameters:

**1. SPACE FOR THE SYSTEM** - Stake out the 4 corners of the overall dimensions of the system to see how it fits in your space.

**2. LEVEL GROUND**

How level is the area?

- 1. Flat
- 2. Slightly sloped or uneven
- 3. Significantly sloped or uneven

Do you need to rent or hire equipment to level the area?

- Yes
- No

**3. SUNLIGHT** - Do you have full sun throughout the day? Visit the potential site throughout the day to see how the sun interacts with possible obstructions.

Check below if you have full sun during the times listed.

- 8:00 am
- 10:00 am
- 12:00 pm
- 2:00 pm
- 4:00 pm
- 6:00 pm

What (if any) obstructions to the sun were observed throughout the day? If so, what steps are necessary to resolve the obstruction?

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**4. CLEAN WATER**

Do you have clean water available at the site?

- Yes
- No

If "Yes":

- Well
- City Water

If "City Water", did it test positive for chlorine?

- Yes
- No

How far is your water source from your proposed build site?

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If there is no clean water, what is your plan for getting clean water?

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**5. ELECTRICAL**

Do you have electricity available at the site?

- Yes
- No

How much does your electricity cost per kWh? \_\_\_\_\_

If there is no electricity, what is your plan?

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Do you have regular electrical outages?

- Yes and I understand this will require a generator.
- No



## 6. EASY SITE ACCESS

Can you easily drive to the site?

- Yes
- No

If you order materials, will a delivery truck be able to access the site?

- Yes
- No

If the site is not easily accessible, what steps are necessary to create easy access?

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## 7. PROPANE

Do you need propane?

- Yes
- No

If "Yes":

- I will run a line through the city.
- I will get a propane storage tank.

## 8. WATER DRAINAGE

Does the site you picked have any problems with excess standing water or drainage from higher ground?

- Yes
- No

If "Yes", what is your plan to manage the water drainage?

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**Once you have visited and evaluated the site, confirm your System Layout and Greenhouse dimensions.**

### **System Layout and Greenhouse dimensions**

- 6 Across Layout (10m x 18m Greenhouse)
- 3x3 Layout (8m x 28m Greenhouse)







## OPERATIONS

### Understanding what it takes to run the Oasys Aquaponic System

Once you begin cycling up the system it **requires daily attention**. When you introduce fish they will need to be fed 3 times a day everyday for as long as the system is in operation. Each week depending on the type of crop you grow, you will be planting seeds, transplanting plants, harvesting and selling your produce.

It takes about **20 hours a week to operate the system** in terms of taking care of the fish and working with the plants. It takes an additional **20 hours a week to run the business side**, creating interest for your product, generating sales and delivering your product.

Due to the daily needs of the system **we require an operations team of at least 3**. There needs to be 1 clear leader and at least 2 supportive team members. **All team members must attend the full training.**

### Team Lead Requirements

- Must speak English
- Must be able to communicate and lead the Operations Team
- Must have administrative abilities to fill out operations forms and **Monthly Report Back** to the Oasys Team
- Must agree and be able to communicate through text and phone calls with the Oasys Team and give operational updates
- Must have problem solving skills
- Must be a self starter, someone who will take complete ownership of the system and business operations and is committed to make the system succeed

Name of Operations Team Leader: \_\_\_\_\_

Names of Supportive Team Members

1: \_\_\_\_\_

2: \_\_\_\_\_



## Operating Costs

There is a monthly cost associated with operating the Oasys System. The cost per month can be estimated more accurately by using the “Supplier Details” at the end of the Starter Packet. Monthly costs include but are not limited to, electricity, propane, planting media, seeds, fish, fish food, and packaging materials. The typical operating cost is approximately \$500 USD. The biggest cost associated with operations is often electricity.

### 1st Year’s Operating Costs

For the first 4-6 months of operating the system you will have operation expenses but you will not have any produce to sell. It takes about 3 weeks to cycle up your system. After that you can plant your first round of seeds and from there it will take around 9 weeks until you will have your first harvest. Once your product is good enough to sell you can begin to generate income. It will take time and effort until you can cover your monthly expenses and then be able to generate beyond that to pay the people working the system.

Due to this reality, **we require you to have \$6,000 USD for your first year's operating costs before you begin.** This will allow you the necessary time to start up your system and generate enough sales to then cover your costs. Depending on what you are planning to grow, you may be required to have 2 years of operating costs up front (\$12,000 USD), to allow enough time and resources to make adjustments along the way.

Do you have \$6,000 USD to set aside?

- Yes
- No

If “No” how do you plan to raise the required amount?

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OPERATIONS



## BUSINESS AND SALES

The Oasis System is designed to be a small commercial business to create sustainability for an individual, family or organization. The foundation of sustainability is when the business can cover its own operating expenses and fund the people operating it.

### The Bottom Line

The Bottom Line is the minimum monthly income necessary to create the foundation of sustainability. For OASYS the Bottom Line is \$800 USD/month. This is based on an average monthly operating expenses of \$500 USD/month, which provides \$300 USD month profit. Depending on your region, you must determine if \$300 USD/month is enough income and adjust accordingly.

On a 9 week cycle growing lettuce, you are going to have approximately 612 heads of lettuce that you can harvest each week. Due to the reality of growing a living product, changes in your environment can affect the growth and quality of your plants. Therefore, you must allow for a 15% buffer of what you expect to be able to sell. Planning to sell 85% of the weekly inventory is 520 heads of lettuce.

$\$800 \text{ USD/month} \div 4 \text{ weeks} = \$200 \text{ USD/week}$

$\$200 \text{ USD/week} \div 520 \text{ heads} = \$0.39 \text{ USD/per head}$

**With these calculations, we know that you must find a product that you can sell for at least \$0.39 USD/per head to meet your Bottom Line and to be sustainable.**

This leads you to your Market Research, to determine what products you could sell in your market.





## MARKET RESEARCH

As you think about building an OASYS system, you want to think about what you are going to grow and who you will sell it to. Your target customers will be small local grocery stores, markets, restaurants, hotels, and individuals. For the first year, you want to focus on growing **one hardy leafy green crop** that requires minimal processing during harvest.

In order to determine which crop is right for your area, you need to do some market research. You want to **visit a few grocery stores and/or markets** to see what leafy greens are being sold and how much they are being sold for. You are looking for something that is hardy, easy to grow, popular in your area, and sold at or above the Bottom Line. These observations will help guide your selection process for picking the best crop.

What to look for during your research:

- Identify 2-3 leafy green ***individual varieties***.
- Identify 2-3 leafy green ***mixed varieties***.
  - How much are they being sold for?
  - How are they packaged?
  - How many heads in a bag?
  - Are they sold by weight or quantity?

When you are looking at prices at a store it is important to understand that a grocery store is a distributor, which means the price they are selling a product for is not the price they paid for it. A general standard is that the store has a 50% markup. If they are selling a product for \$2.00 USD they probably bought it from the supplier for \$1.00 USD. That is not necessarily a problem, but something to consider when you are looking at the numbers. If, however, you sold directly to the customer you could charge the full market value.



**RESEARCH:** Go to a store and evaluate 3 different **INDIVIDUAL VARIETIES**.

1. **Variety:** \_\_\_\_\_

Store or market name: \_\_\_\_\_

Product company: \_\_\_\_\_

How much is it being sold for? \_\_\_\_\_

How is it packaged? \_\_\_\_\_

Sold by weight or quantity? \_\_\_\_\_

2. **Variety:** \_\_\_\_\_

Store or market name: \_\_\_\_\_

Product company: \_\_\_\_\_

How much is it being sold for? \_\_\_\_\_

How is it packaged? \_\_\_\_\_

Sold by weight or quantity? \_\_\_\_\_

3. **Variety:** \_\_\_\_\_

Store or market name: \_\_\_\_\_

Product company: \_\_\_\_\_

How much is it being sold for? \_\_\_\_\_

How is it packaged? \_\_\_\_\_

Sold by weight or quantity? \_\_\_\_\_



**RESEARCH:** Go to a store and evaluate 3 different **MIXED VARIETIES**.

1. **Variety:** \_\_\_\_\_

Store or market name: \_\_\_\_\_

Product company: \_\_\_\_\_

How much is it being sold for? \_\_\_\_\_

How is it packaged? \_\_\_\_\_

Sold by weight or quantity? \_\_\_\_\_

2. **Variety:** \_\_\_\_\_

Store or market name: \_\_\_\_\_

Product company: \_\_\_\_\_

How much is it being sold for? \_\_\_\_\_

How is it packaged? \_\_\_\_\_

Sold by weight or quantity? \_\_\_\_\_

3. **Variety:** \_\_\_\_\_

Store or market name: \_\_\_\_\_

Product company: \_\_\_\_\_

How much is it being sold for? \_\_\_\_\_

How is it packaged? \_\_\_\_\_

Sold by weight or quantity? \_\_\_\_\_





# SUPPLIERS DETAILS AND MONTHLY EXPENSES

## CROP

- What leafy green are you proposing to start with? \_\_\_\_\_

## SEEDS AND PLANTING MEDIA SUPPLIERS

- Seed Supplier: \_\_\_\_\_
  - Monthly Cost: \_\_\_\_\_  
\*\*Approximately 3,000 seeds per month
- Planting Media Supplier: \_\_\_\_\_
  - Monthly Cost: \_\_\_\_\_  
\*\*Coconut Coir/Peat Moss for 3,000 2 in/50 mm net cups

## AMENDMENTS

- Supplier: \_\_\_\_\_  
\*\*Chelated Iron, Potassium Nitrate
  - Monthly Cost: \_\_\_\_\_

## TILAPIA AND FISH FOOD SUPPLIERS

- Supplier Name: \_\_\_\_\_
  - Start-up Tilapia Cost: \_\_\_\_\_  
\*\*Approximately 400 fish, ideal size 3-5 in / 76-127mm
  - Monthly Fish Food Cost: \_\_\_\_\_

## PACKAGING (Boxes, Bags, Clamshells, etc)

- Supplier Name: \_\_\_\_\_
  - Monthly Cost: \_\_\_\_\_



## SALES

- How much could you sell leafy greens for? \_\_\_\_\_
    - Who are your potential target customers? \_\_\_\_\_
- 

## ELECTRICITY

- According to your local electrical rates, how much would it cost to run approximately 24 kWh/day?
- 

## CALCULATE MONTHLY COSTS

- Adding all the above estimated costs (except initial fish purchase), approximately how much would your monthly expenses be?
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## CALCULATE PROJECTED INCOME

- With your proposed crop and price point, calculate your projected monthly profit based.
  - Price per head x 520 heads x 4 weeks = monthly income
  - Monthly income - monthly expenses = profit
- 







## CONTACT INFORMATION

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