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SATILU AGF – Production organic food and green energy

August 2023

v 0.9

Get involved and support local organic food and green energy production!

Create green jobs for others and yourself.

Participate in profitable food and green energy production!

Bypass the natural disasters we are witnessing!

Be a part of the future now and here!

addryn.com/satilu/agf

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Content

What is SATILU?

SATILU is the most modern and cost-effective form of food and energy production in an "off-grid"[1] way. SATILU is a food production method that combines the cultivation of fish and crustaceans with plants, without the use of soil, fertilizers, pesticides, and chemicals. The method goes far back to Aztec times, known as "chinampas" or "floating gardens," when corn, beans and pumpkins were grown.

In addition to food and energy production, SATILU is equipped with a system for storing surplus energy produced and a system for telemetry video surveillance.

Where can SATILU be placed?

SATILU can be literally in any place where there is an interest in independent production of organic food and energy. One of the characteristics of the SATILU system is the ability to scale. SATILU can produce "off-grid" environmentally friendly food and energy in small areas, of several tens of m^2 (7m x 7m) but can produce organic food and energy on a much larger area.

[1] "off-grid" food and energy production is completely organic production independent of environmental weather conditions, artificial fertilizers and pesticides and connection to the public energy grid.

How much is the investment for SATILU?

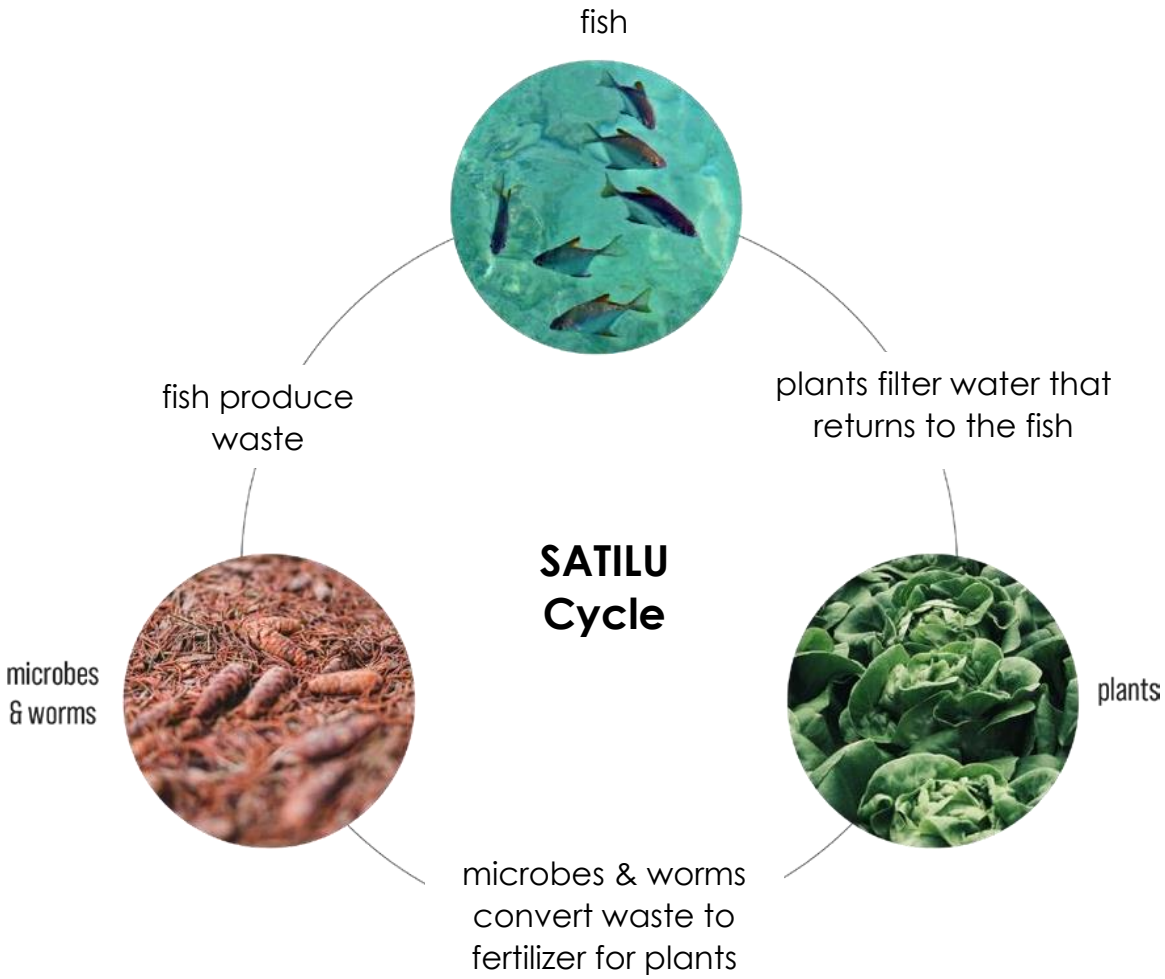
SATILU is built in phases. The first phase of each SATILU project is:

- Find space to set up and
- Setting up an SATILU mini model.

The required number of SATILU mini models is either replicated.

➢ **The investment for installing SATILU mini models, with their own means is 621.189 EUR.**

How does SATILU work?



The main advantages of SATILU growing food

1. LESS PHYSICAL SPACE

   It takes much less physical space compared to growing food in the soil.

   The ability to grow indoors that is easier to control and protect against natural disasters.

2. 90% LESS WATER

   In the SATILU system, up to 90% less water is consumed compared to conventional farming, and the problem with water is increasingly common, and irrigation systems in open areas are expensive.

3. FASTER GROWTH

   Food in SATILU systems grows much faster compared to race in classical conditions.

4. ORGANIC FOOD

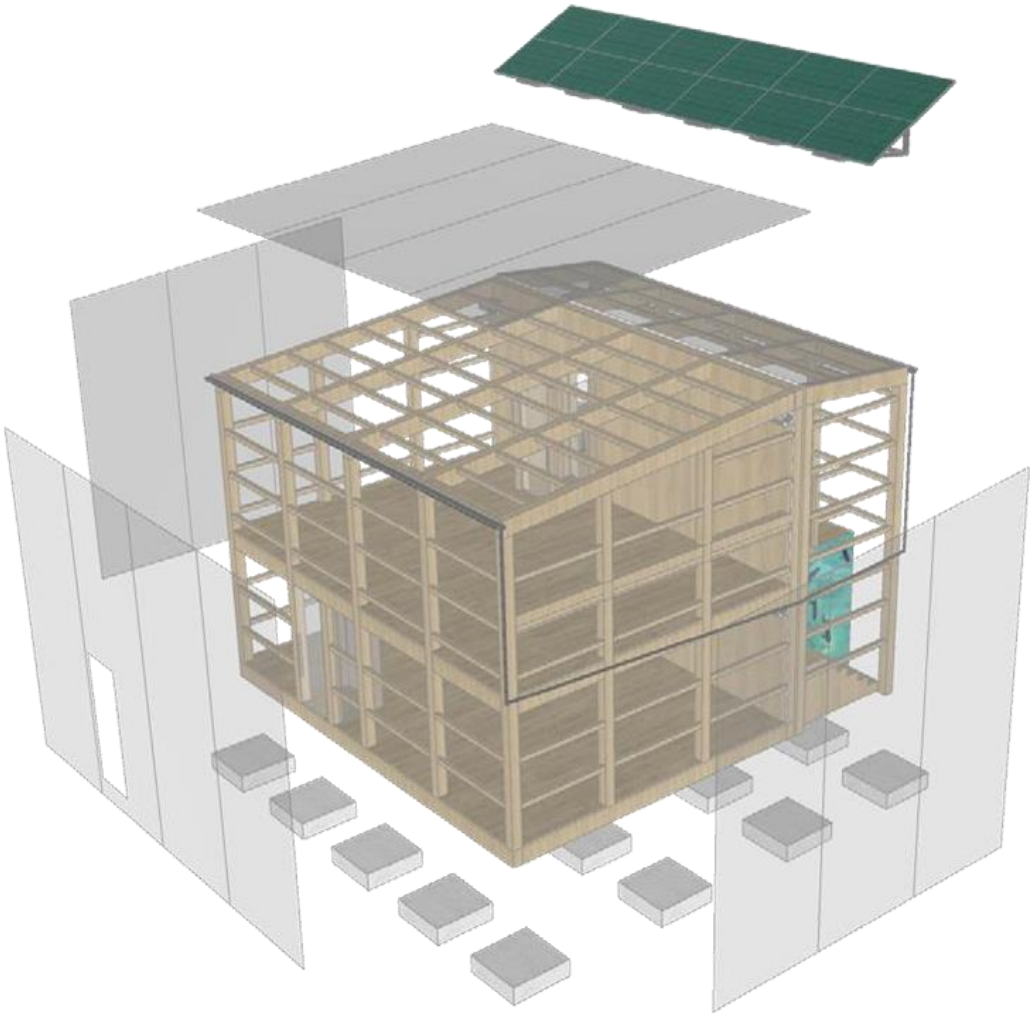
   Food is free of chemicals and pesticides, or fish dies.

   The food tastes much better.

5. FISH

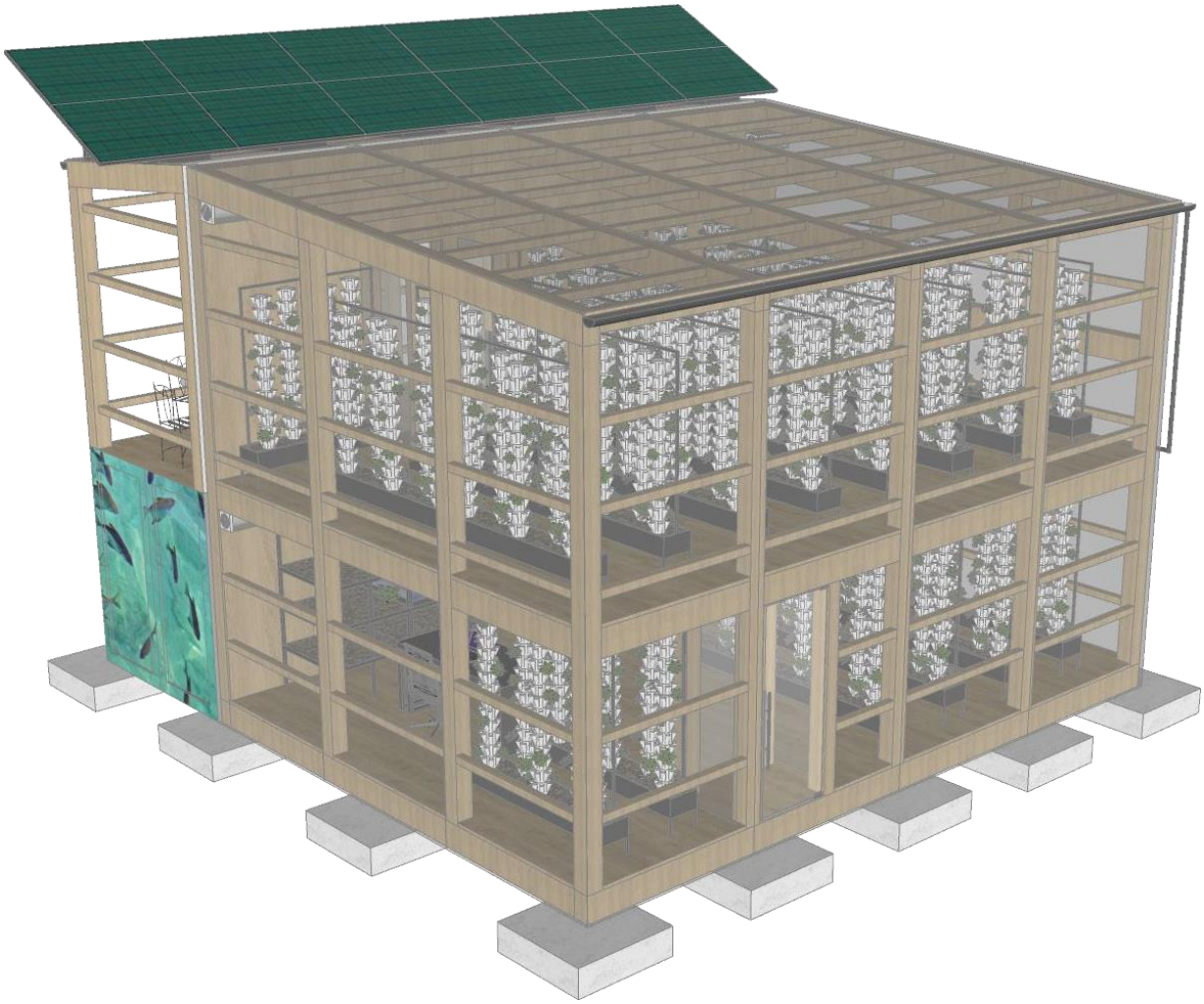
   In addition to several species of fish, crustaceans can also be bred.

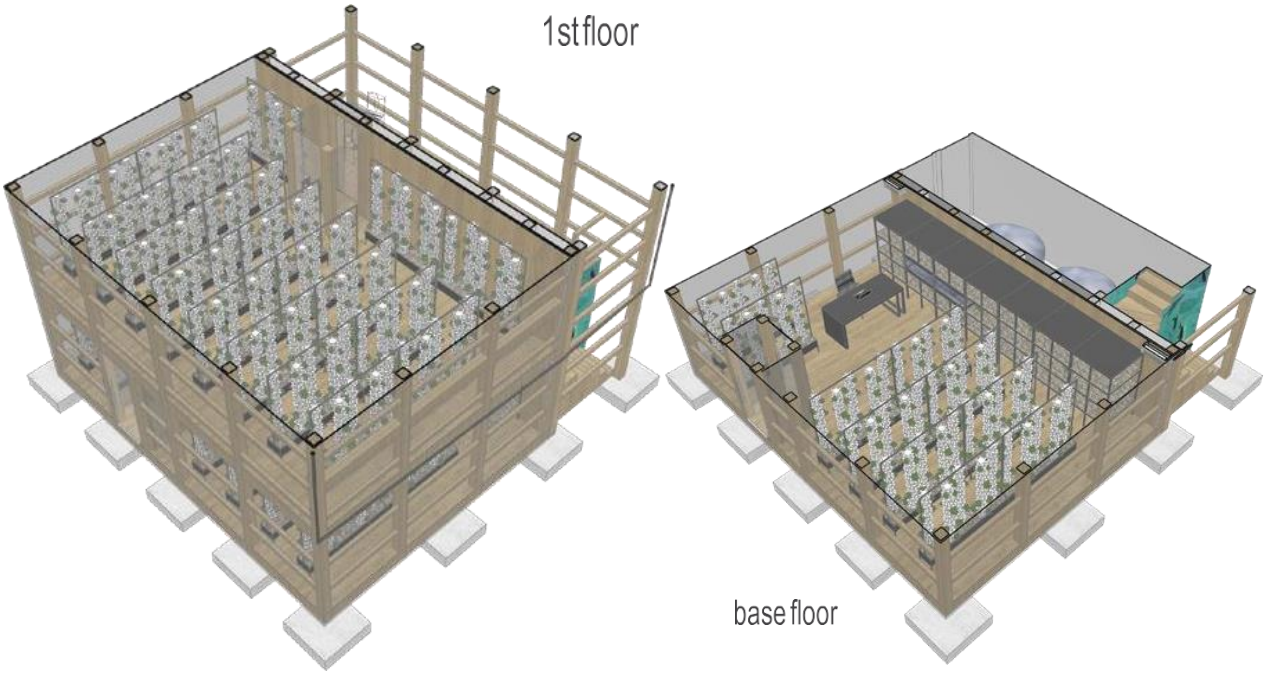
SATILU MINI innovative sustainable design



After payment of 10% of the total price, immediately after signing the contract, we produce a detailed feasibility study for the location and type of wells and fish to be grown/produced. SATILU MINI is delivered in 4 to 10 weeks. 80% is paid

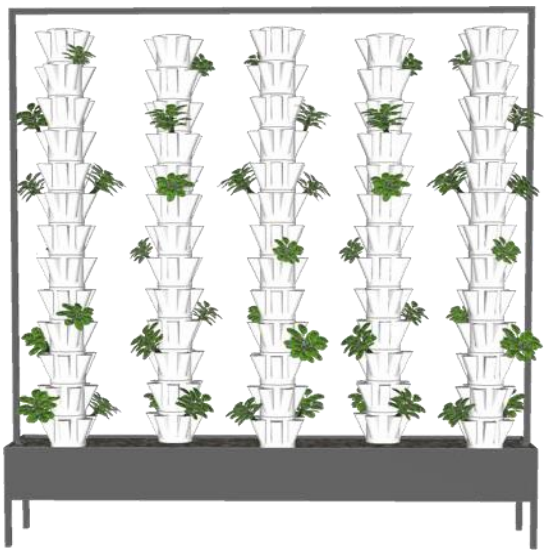
when the elements are ready for delivery, and 10% after installation on site and commissioning.

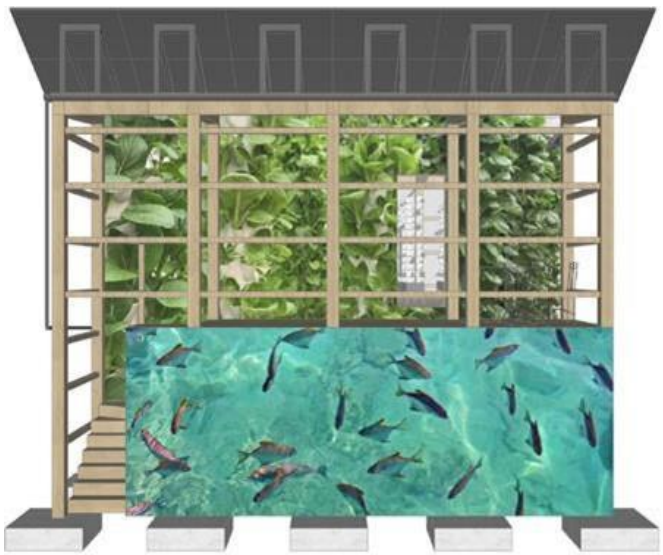




SATILU MINI It is an ideal solution for supplying schools, kindergartens, nursing homes, restaurants, hotels, spas, ... with fresh vegetables, fragrances, fruits, and fish.

SATILU MINI is a smart greenhouse on 2 floors. Designed to exploit "useless" urban space or urban centers, housing estates, shopping malls, ... for the organic production of high-quality, fresh vegetables and fish, without the use of pesticides and fertilizers.





It integrates the latest and most innovative food production technologies.

It is designed to create an economically viable business model that ensures efficient organic food production using renewable energy sources, green jobs and increased local economic activity. This model produces various vegetables, herbs, fruits and fish. The vertical cultivation system increases production relative to land, by more than 10 times per m2.

In addition to a number of environmental features, SATILU MINI boasts an innovative and sustainable design, making it ideal for building in frequent urban

locations, including rickety parking lots and empty or unused spaces between residential buildings.

In further development, the mini concept will be extended to use in areas such as humanitarian crises, refugee camps or disaster shelters.

Using alternative energy sources such as sun, wind or waste plastics, the unit is self-sufficient.

The use of water is ensured by collecting rainwater.

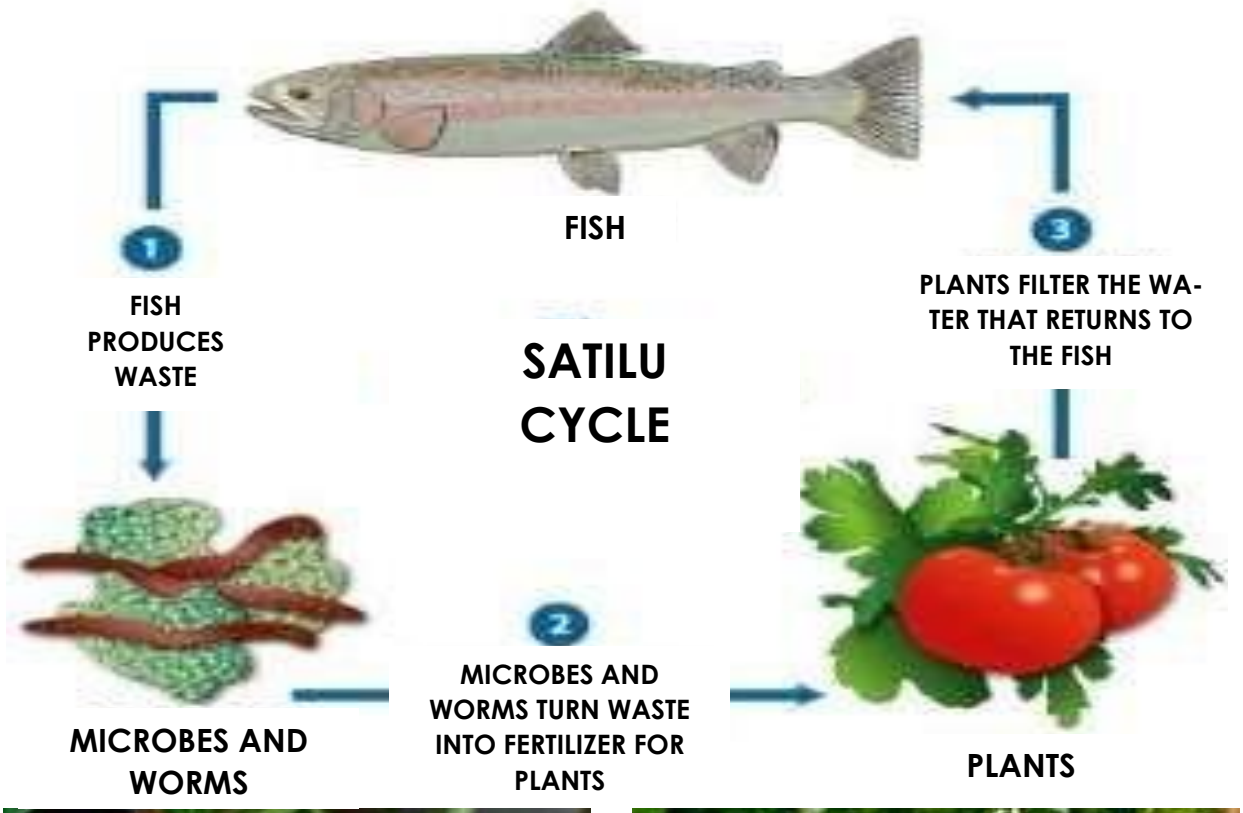
Production of vegetables on fish plant

Annually per 100 m2:

- 12 tons of vegetables,
- 3 tons of fish,
- No pesticides and fertilizers,
- 90% less water consumption.

Elements in short:

- Dedicated greenhouse area of 100 $m^{2,}$
- Facade and roofing made of UV polycarbonate or basalt glass.,
- Fish pool 15 m^3,
- 96 sets of towers with 78 growth sites per tower,
- Filtration and disinfection of water,
- Solar power plant,
- Rainwater collection system.



Constructive elements

- Floor plan 2 x 50 $m^{2.}$
- Construction
    - Heat treated wood (steel or polymer construction, optional), mobile system.
- Facade
    - Of 100% recyclable polycarbonate or basalt glass 6 mm,
    - Double-sided UV protection,
    - Sandwich panel on the north wall with insulation of 35 mm.
- Aquaponics equipment
    - 150 crown towers - 92 growth sites,
    - 5 Floors LED Indoor System,
    - 288 hole for growing on the floor,
    - 2 fish in 3 m^3 of pond.
- Electricity
    - Photovoltaic panels,
    - Wind – optional.
- Grijanje
    - IR Panels,
    - Recovery system,
    - Passive heating.
- Cooling
    - Shading,
    - Recovery,
    - Air conditioning system.
- Ventilation
    - Ventilation units for heat recovery.
    - Three low, medium, and high flow settings with ventilation speeds of 10/15/20 CFM or 9/18/22 CFM.
- Climate control and regulation system
    - „Smart greenhouse climate system“-

SATILU MINI annually, on two floors of 50 m2, produces 1.5 tons of two different types of fish and 20 tons of different leafy vegetables.

Fish that can be produced: Trout, Tilapia, Sturgeon, Salmon, etc.


Vegetables/Fruits that can be produced: Salad, chicory, strawberries, carrots, tomatoes, peppers, herbs, berries, herbs, etc.








SATILU FAMILY model

SATILU FAMILY model is intended for growing healthy, fresh vegetables, fruits, and fish in your own garden. No fertilizers and pesticides, no soil, no weeding, hoeing and irrigation. No pain in the lower back.




By installing a small polycarbonate greenhouse with a solid lattice structure, you ensure your family year-round production of healthy, fresh vegetables, fruits and fish.


- 420 crops per month,
- 50-75 kg of fish per year (depending on the species).

Investment for SATILU FAMILY

The price includes the first seeds for vegetables and younger fish of your choice.

The whole system is prepared for complete independence and year-round optimal breeding. It is equipped with solar panels, an automatic for heat optimization and battery storage of energy.

It can also be arranged to purchase surplus products and continuous maintenance of the system, if due to obligations you cannot take the time to do so, as well as supply with seeds and fish fry.

- **The investment for the construction of SATILU FAMILY models with polycarbonate greenhouse with solid lattice structure and pond is 34.240 EUR.**
- **The final price may be different, and it depends on the number of pieces to be purchased as well as the number and type of vegetables and fish produced/grown.**

Production of fish feed and fish processing

The best fish feed in SATILU farms are freeze-dried California earthworms, fly larvae and offal formed from cleaning produced fish and produced vegetable. This feed can also be used outside the SATILU system for feeding cattle, chickens, and pigs because it is 100% organic has exceptional nutritional value.

Lyophilization is a unique method of freezing food. This is the best way to dry foods in a frozen state, which results in the preservation of nutrients and maximum utilization in our body.

This technological process is based on a freezing drying process in which water is removed by sublimation of ice from a previously frozen product. It is this process that makes lyophilization so superior and perfect to other drying methods. It does not use excessive temperatures that otherwise destroy a large amount of nutrients.

Lyophilization can be used to dry food, biological materials (blood, plasma), some antibiotics and live microorganisms.

The course of lyophilization takes place in three main stages:

- Freezing, at very low temperatures (-30 °C and below) and in a rapid way,

- Primary drying (dehydration) by sublimation of ice under vacuum and
- Secondary drying (drying) to a moisture content below 3 % with normal vacuum drying.

The size of the crystal plays the greatest role in the first stage of lyophilization and the success of the entire drying process depends on it.

Slow freezing leads to the formation of large ice crystals that can lead to cracking of the cell wall of the material, which impairs the quality of the final product - lyophilizate. The faster the freezing, the smaller the ice crystals, and their total active surface area is larger, leading to faster and more efficient lyophilization.

Proper freezing can reduce primary drying time by 30% which is the longest lyophilization step.

Proper freezing of the material, below its triple point, ensures the successful implementation of the sublimation process (the second stage).

At this stage, water that is in the form of ice is removed, this is the so-called free water.

Freezing drying takes place at reduced (vacuum) pressure and heat is added to the material to result in immediate sublimation of ice crystals. At no time does water appear in a liquid state.

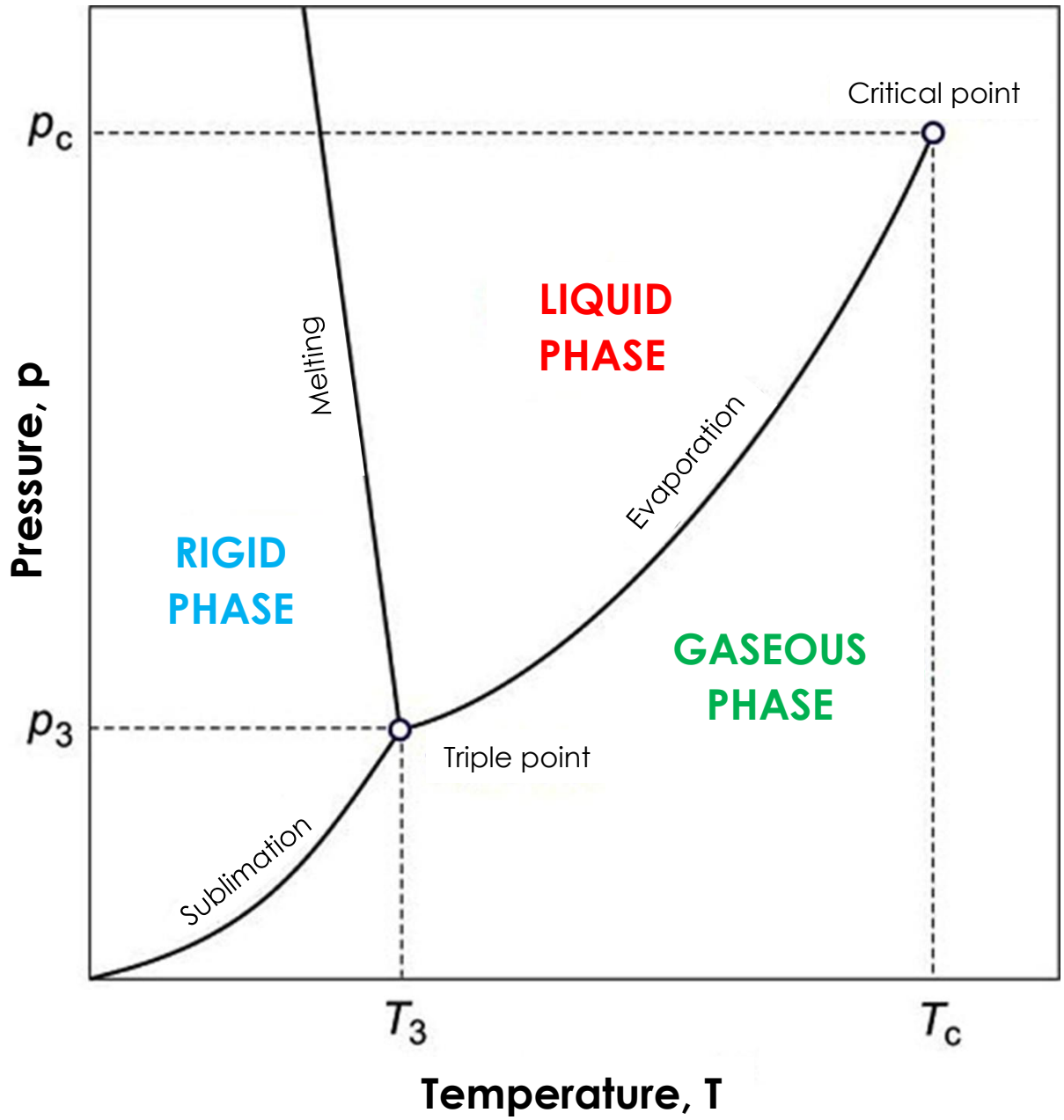
The product must remain frozen during the entire primary drying process. Great caution is required here because when bringing heat, such a low temperature of the material must be always maintained, which results in a balance of the amount of heat supplied and that required for sublimation.

At this stage, about 95% of the water in the material is removed, the rest is water that has not turned into ice by hypothesizing the preparation.

SUBLIMATION is the process of transferring water from a solid state (ice) directly to a gaseous state (water vapor), without a transitional liquid phase (water).

A triple point is considered to be that point at which a substance is located in all 3 states of matter at one time, while maintaining thermodynamic equilibrium. In it, the equilibrium curves of all phase changes where they are in equilibrium are intersected.

From the phase diagram it is evident that for the sublimation process to take place (primary drying), the pressure and temperature values should be less than the triple point. By creating low pressure i.e. vacuum we increase the pressure on the surface of the ice that needs to evaporate (from the material) relative to the pressure in the surrounding space.



The triple point is the state in which the substance is, at the same time, in all 3 states of matter – Kivilaks

The primary drying is followed by the final phase of lyophilization where the removal of capillary water, i.e. residual water that did not pass into ice during freezing.

This phase takes place under a high vacuum for a certain period of time with an increase in temperature to about 20 - 50 °C. Under such conditions, the connections between the material and water molecules "break" occur, resulting in additional drying of the material.

Most materials can be dried to 1-5% residual moisture.

Standard drying methods use high temperatures that affect the reduction of the activity of biologically active components. This results in a significant loss of quality of the final product.

Also, these methods do not have the possibility of complete dehydration, i.e. the possibility of completely removing water from the final product. Consequently, the shelf life of the product itself is shortened.

Advantages of lyophilization:

- **Optimal concentration of the active substance** and the best **preservation and integrity** of the phyto complex in the preparation.
- The **biochemical profile is almost equal to that of the original fresh plant**, but much more concentrated due to the water removed.
- **Complete preservation of the natural color** of the starting raw material, other sensory properties (smell and taste) are preserved. Lyophilized foods resemble fresh fruits in appearance because their shape and size have remained almost unchanged.
- **Thermolabile components are not damaged**, due to the mild heat treatment, so the dried product retains its full biological value.
- **The durability of the final product is prolonged**, as water and the final lyophilizate are completely removed.
- Minimal loss of nutrients such as vitamins, proteins, enzymes, antioxidants and flavonoids.
- **High porosity** of the final product, which **promotes easy and rapid rehydration**, because of which the dried product easily absorbs water. This is an essential item for all freeze-dried products.

Freeze Dried Tilapia Fillets

Product Description

One (1) bulk package of freeze-dried uncooked tilapia fillets packaged for long term storage.

- Vacuum sealed, packed in a moisture and oxygen-free environment.
- Easy-tear top bag that is re-sealable.
- Fast, free shipping.

AND

- 100% satisfaction guarantee with FREE return shipping and FULL refund if you are not 100% satisfied.

With this product you will be purchasing one bulk package of freshly freeze-dried raw tilapia filets with a net weight of 4.0 ounces, packaged for long term storage.

This bag contains 4 ounces of all natural freeze-dried tilapia fillets, which is the equivalent of 24 ounces or a pound and a half of fresh tilapia fillets if purchased at your local fresh seafood market once rehydrated and ready for use. Each ounce of tilapia will weigh approximately 6 ounces of fresh tilapia when rehydrated.

This package of tilapia is uncooked, so it is perfect to take on a hike or a camping trip without the hassle, mess and waste of having to lug a cooler around with a lot of ice. You get to decide how to prepare it, but also how to season it to your own taste! No additives or ingredients you can't pronounce! Try getting that out of a commercial freeze-dried meal!

These tilapia fillets are great over a campfire just add some water to rehydrate them and cook. Try steaming them in a small, covered pot. Pan fry them with some butter or oil and some of your favorite seasonings. Wrap them in tinfoil and poach them with lemon pepper in the coals. Or, cook them over an open flame - the possibilities are endless! Your meal doesn't have to rough it just because you are!

Simply rehydrate with water for a few minutes (instructions on the label) cook, season and serve! Also be sure to check out our freeze side dishes, vegetables and desserts for a complete meal!