



EcoPonics
(2013-2016)

ECOFOOD from AQUAPONICS

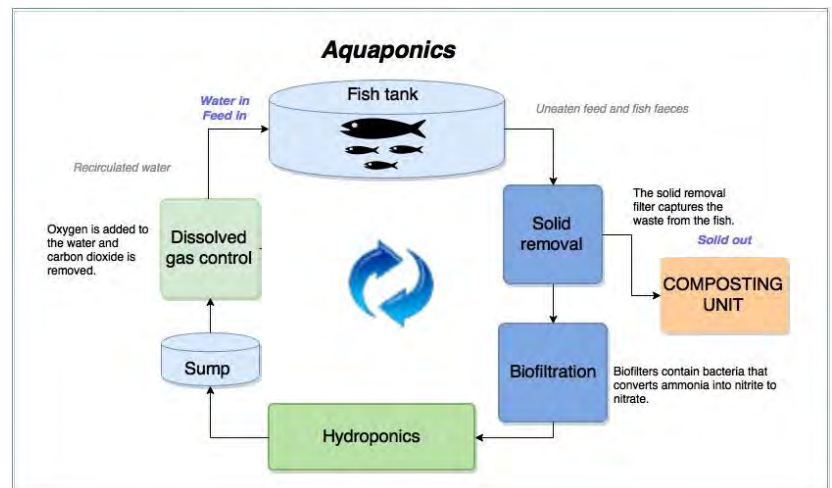
Layman's report



Aquaponics is a resource efficient and environmentally friendly food production system optimizing use of resources

Aquaponics is a sustainable food production system combining recirculating aquaculture and hydroponics. Aquaponic systems recirculate and fully use all the water and nutrients through symbiotic processes preventing discharge of eutrophic or organic wastes.

The fish is fed with fish feed for growth. The waste water from the fish is filtered through the plants using the nutrients for own growth and cleaning the water before it is returned to the fish. A healthy biofilter is necessary converting toxic ammonia and nitrite to nitrate.



EcoPonics provides commercial aquaponics - an environmentally friendly food production method that will be marketed for replication in Europe

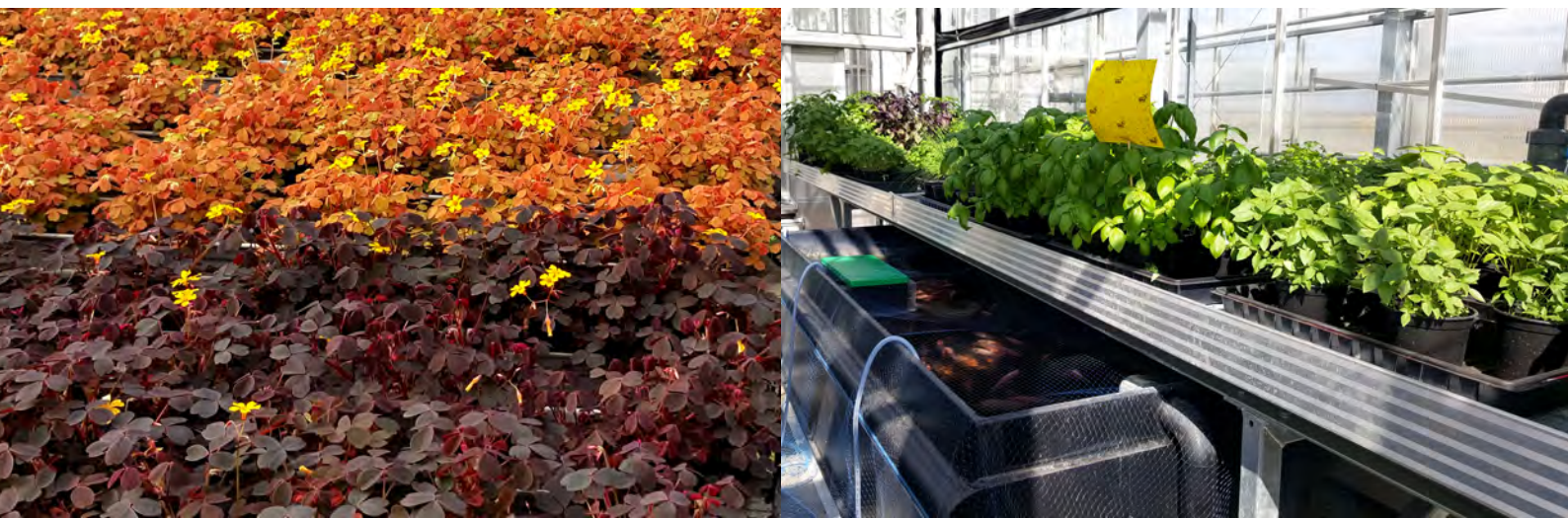
Increasing energy costs and dwindling natural resources such as phosphorus and water are forcing the world to take action and change present-day food production systems. Aquaponics has received increasing interest during the last few years as a sustainable food production technology and many hobbyists and researchers have designed and constructed small aquaponic systems. EcoPonics is providing solutions for commercial aquaponics and constructing the first large scale aquaponic systems in Europe.



Project overview

EcoPonics joins three innovation companies from Denmark, Iceland and Spain, respectively, collaborating with the University of Iceland with the aim to implement commercial and competitive aquaponics production systems in all three participating countries. Aquaponics is a combination of the words aquaculture and hydroponics, and the eco-innovative technology behind is similarly a combination of the two normally specialized production systems, producing fish and plants in one production loop, eliminating traditional use of fertilizers and minimizing use of water and energy.

The overall objective of EcoPonics is to expand a commercial viable aquaponics cluster within EU, generating substantial environmental impacts, new high skilled jobs and improving overall sustainable growth, economy and competitiveness of the European aqua- and horticulture food industry.



The specific objectives of EcoPonics are to:

- 1) Install and upscale commercial and competitive based aquaponics production systems in EU;
- 2) Exploit the economic and environmental symbiotic effects by combining modern fish and horticulture production into one making substantial environmental impacts from savings on heat, water, and CO₂ emissions and utilizing „economies of space“;
- 3) Improve ICT surveillance systems and hence the cost efficiency and productivity on labour and management;
- 4) Use renewable energy as well as raw materials from organic waste and other by-products pushing aquaponics in the forefront of sustainable aqua- and horticultural production.

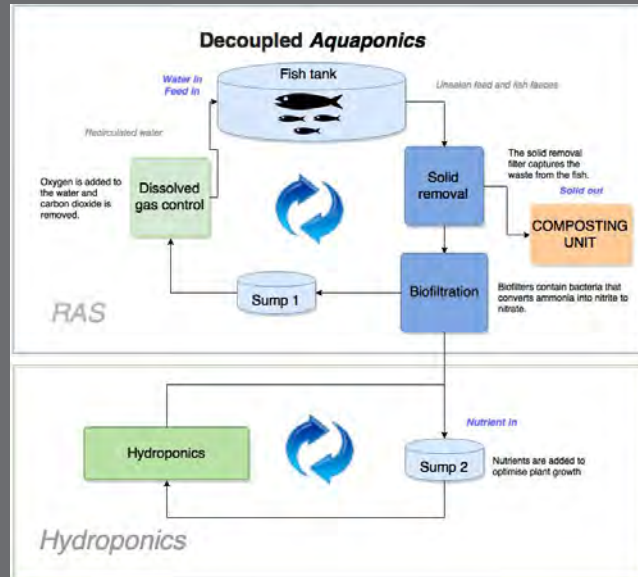
Results

EcoPonics has resulted in designing and constructing the first commercial size aquaponics farm in Europe, NER-BREEN in San Sebastian in the Basque country. The production capacity has been scaled up to an annual production of 70 tons of tilapia, and current production of 12 tons of tomatoes, 7 tons of strawberries and 60,000 units of salads, with further expansion possibilities.

Large scale pilot aquaponics show cases have been built by the SMEs IGFF in Denmark and Svinna in Iceland, focusing on urban food production and direct use of geothermal energy for food production, respectively. These are now expanding into commercial viable production units.



The innovative solution is based on a decoupled aquaponic design where optimum conditions can be maintained in both the fish farming and the horticulture production while maintaining full use of resources.



EcoPonics has brought commercial aquaponics to the European market providing a new environmentally and socio-economic sound solution to modern food production.

The commercial based industrial show cases have generated a smarter Eco-innovative Life cycle technology solutions driven by European SMEs generating new possibilities for direct use of renewable energy in the food industry and turning waste products into valuables.

The EcoPonics partners will work towards dissemination and replication of the aquaponics technique in Europe providing sustainable high value food products and new high skilled jobs. An Aquaponics vocational training programme has been developed led by the innovation centre Tknika focusing on system development also for brackish water aquaponics and further automatization.

The market

The market for sustainable healthy food products is expanding globally. People want to buy local products produced in an environmentally sound way.

This increases the interest for the aquaponics technology globally AND for the aquaponics products locally.

The EcoPonics partners will further work together on certification issues making it possible to obtain organic and/or sustainability certifications on aquaponics products.



The European added value

Aquaponics is developing in most European countries and globally as an interesting food production technology for the future. Commercial aquaponics offer an integrated modern food production in line with EU transition policies advocating for climate resilient and CO₂ neutral cities. EcoPonics has implemented valuable large scale show cases to the development – with full use of nutrients and based on renewable energy sources – branding European clean and sustainable high quality food production.

The implementation of commercial scale aquaponics based on modern hydroponics and recirculating aquaculture technology remove market barriers and has awakened the interest from the aquaculture and horticulture industries as well as the providers of equipment, engineering, design and marketing companies. The technique has also been observed by governmental institutes and the general public as a sustainable food production not least in countries with scarce resources.

Association of Commercial Aquaponics Companies (ACAC)

A cluster collaboration of aquaponics companies, Association of Commercial Aquaponics Companies (ACAC) has been formalized for exchange of knowledge and experience. ACAC's main aim is to provide a network of SMEs whose main focus is the commercialisation of aquaponics in Europe.

The group will collaborate and share best available practice information e.g. regarding regulations, licenses and related issues in each country, and promote standardisation and certification work in aquaponics.

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