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Aquaculture 2018- Aquaponics in Europe pointing the way to a more sustainable development- Raul Bernardino- Polytechnic Institute of Leiria, Portugal Aquaponics Iberia, Portugal

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Aquaponics is the process of growing plants and fish in the same water circuit, taking advantage of aquaculture and hydroponics techniques. Nutrients, generated by fish farming, fertilize water and are absorbed by plants, which in turn grow and clean the water returning to the fish tanks. As a recent productive discipline, Aquaponics is the process of growing plants and fish in the same water circuit, taking advantage of aquaculture and hydroponics techniques. Nutrients, generated by fish farming, fertilize water and are absorbed by plants, which in turn grow and clean the water returning to the fish tanks. As a recent productive discipline, Aquaponics has seen its ups and downs, successes and failures on a commercial and entrepreneurial scale. More recently, USA has been demonstrating aquaponics economic feasibility, with large and medium-sized projects generating profitability and banks taking the first steps in financing such projects. In the last 3 years, as a result of the push of the COST Action FA1305 - EU Aquaponics Hub, Europe has jumped from follower to leader in scientific research in this field, becoming the continent that has devoted more studies and scientific publications to aquaponics. While scientific institutes and universities make Europe a world leader, Europe is still making very shy progress in aquaponics at a commercial level. The reasons for this difficulty and little expression are several but very striking and determinant for this slow development. Of note is the impossibility of certifying aquaponic production as organic in Europe & also an unreasonable preconception regarding the Blue Economy, facing it as the economy of the sea and ignoring the potential of freshwater aqua culture, which ends up contributing to more environmentally unsustainable aquaculture. It is also worth noting the widespread lack of experience and technical skills in the design, installation and operation of aquaponics systems, with some very large investments but lacking the technical and economic feasibility. Finally, most of the European governments are still very much focused in conventional aquaculture and agriculture, not considering the advantages of this more sustainable concept, reflecting the lack of legislative harmonization and of European policies in this respect, with excessive legislative and licensing constraints.

Modern aquaponics emerged simultaneously with recirculating aqua culture technologies in 1970. Many backyard systems and farms producing both vegetables and fish have emerged in the last decade in Australia and the US. At the same time, the first commercial farms started operation too in this filed. First wave of research on economic aspects of aquaponics started in the United State of Ameria. It focused on the development and evaluation of specific, mostly research institutes-led case studies with a very optimistic outlook for the future.

Aquaponic systems of different sizes, designs, and purposes have been constructed in most European countries full-scale farms. However, only very few of them reach a production area of more than 100 square meters. With increased development and research in the field in recent years, the trend has been toward larger and more technically evolved systems, although the largest ones are still very small compared to conventional aquaculture and horticulture farms.

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