

**AQUAPONIC CORNER****Aquaponics business in Europe: some legal obstacles and solutions****Agnes Joly<sup>1\*</sup>, Ranka Junge<sup>2</sup>, Tamas Bardocz<sup>3</sup>**<sup>1</sup> AQUAPRIMEUR SARL, Blainville-sur-Orne, France; <sup>2</sup> Institute for Natural Resource Sciences, Zurich University of Applied Sciences, Waedenswil, Switzerland; <sup>3</sup> AquaBioTech Limited, Mosta, Malta\*E-mail address of the corresponding author: [aj@aquaprimeur.fr](mailto:aj@aquaprimeur.fr)**Introduction**

Aquaponics is a rapidly emerging agricultural practice, which combines recirculating aquaculture systems (the RAS technology) with the soil-less (hydroponic) cultivation of vegetables. The advantages in terms of productivity and efficient use of resources are huge. Aquaponics contributes to the solutions of some of the crucial problems our planet is facing: availability and use of potable and irrigation water, pollution of surface waters through animal farming, and management of fertilizer resources. It has been described as one of the “Ten technologies which could change our lives”<sup>1</sup>.

Aquaponics can be used in various ways and environments: commercial scale food production, educational and social activities, desert areas, polluted lands, backyard production, urban agriculture, etc.

In Europe, there is a booming interest from amateurs to professionals. While few commercial farms already entered production phase, several more are currently being either built or planned in France, Belgium, Spain, Netherlands etc.

However, aquaponics has so far no clear legal status and no regulation in Europe. According to the EU Commission “The practice of aquaponics combines the farming of fish (aquaculture) and the cultivation of plants. Support for aquaponics is available for each of its component activities”<sup>2</sup>. As we write, commercial companies have indeed based their business on the existing legislation ruling fish farming in RAS, and hydroponics cultivation separately. In addition to combining two existing agricultural activities, aquaponics often develops in cities and urban areas, close to the market. This adds another source of conflicts to the present legislation of many cities.

The lack of dedicated and harmonized legislation for aquaponics in general, and urban aquaponics in specific, makes it difficult for entrepreneurs to formulate a business plan and address banks and investors. A clear legislation would help all entrepreneurs to move on, and facilitate the realization of increasing number of projects.

For the purpose of this paper, a dedicated working group of the COST<sup>3</sup> action FA1305 “Aquaponics Hub” gathered information from fellow members on perceived impact of current legislation on entrepreneurial possibilities in developing commercial<sup>4</sup> aquaponics in their own country. This paper summarizes their inputs and highlights the detected obstacles and the solutions developed to address the legislative issues. A second, more comprehensive, paper will be published later. Three main issues were outlined by our specialists: administration, environment, and safety.

**Administration**

Administrative contradictions occur because of the novelty of the activity, and lack of examples while the unclear EU level regulation makes the situation even more difficult.

Because of the EU regulation of aquaculture activities in some EU member states (for example France, Hungary) and in Switzerland, recirculating aquaculture systems are considered to be business activity and are often regulated by governmental bodies responsible for fisheries and aquaculture. On the other side, hydroponic is considered to be an agricultural activity regulated by agriculture bodies. As aquaponics combines these two activities, licence registrations, permits, and authorisations for sales have to be obtained from different administrations thus making all preliminary tasks complicated and time consuming.

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1 by Lieve van Woensel and Geoff Archer, Scientific Foresight Unit, European Parliament Research Services, January 2015, page15

2 Answer given by Ms Damanaki on behalf of the Commission (25 June 2014) in Written questions by Members of the European Parliament and their answers given by a European Union institution (2014/C 413/01)

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3 FA1305: The EU Aquaponics Hub is a four year COST (Cooperation in Science and Technology) networking Action that unites a heterogeneous group of scientists, researchers and SMEs from across the EU to better understand the state of knowledge in aquaponics and to facilitate innovation and education in this field.

4 Domestic systems and systems aimed at desert areas are addressed by other working groups in the COST action.

In other countries (Belgium for example), aquaculture and greenhouse cultivation are both considered as agricultural activities, making first point easier. However this means that commercial aquaponics would most likely be possible in agricultural zones, whereas in reality aquaponics is mostly planned in urban areas.

In France, most aquaponics projects so far are small and do not meet the criteria requested<sup>5</sup> to obtain the farmer status. This status gives access to social security system, pension system, unemployment rights, gives a clear fiscal status and facilitates the employment of workers. Not having the farmer's status makes it difficult for the owners of small projects.

One bright window on the administrative point of view is the UK. UK is the only country having a written frame for running aquaponics<sup>6</sup>. The document defines the administrative procedures (authorizations / declaration, paper work) based on: size, purpose of the farm, and the destination of produce. This clear frame has facilitated the emergence of several educational projects and also some medium size commercial units like BioAqua Farm.

### **Environment**

Again here, contradictions occur as aquaponics combines two so far distinct activities with different effluents and therefore different environmental legislation. Furthermore, rural and urban environmental laws differ.

The situation is variable in different European countries as to the status of discharge waters from aquaculture (RAS systems are confronted to lack of specific legislation in some countries compared to open-waters aquaculture) and discharge waters from hydroponics. The possibility of discharge varies also for distribution on the fields, draining in surface water (rivers) or in the public sewage system. Aquaponics in rural or urban locations would face different situations.

In Switzerland, fish effluent is, in accordance with the regulation on fertilizers, "farm manure". From an environmental impact point of view there are primarily restrictions regarding open land use of "fish manure". However, when solid fish wastes are adequately processed, then the water, nourishing the vegetables roots, is not any longer fish waste<sup>7</sup>, but treated water. Residual water from hydroponic systems is nutrient solution and not wastewater and can (taking the nutrient balance into account) be distributed on the fields.

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5 Criteria based on a minimum surface, or minimum 1200 hours yearly work, or revenue larger than 800 times the minimum wage.

6 "Statutory guidance for Aquaponics business in UK" by CEFAS (Centre for Environment Fisheries and Aquaculture) not dated

7 Wastewater in the sense of the Swiss Water Protection Ordinance is contaminated with farm manure or faeces, and having a COD which is greater than about 10 g/L.

Said that, the full "true" aquaponic cycle is a closed system where the whole amount of the water used for fish production and most of the generated sludge are treated by the vegetables. From water protection point of view therefore, aquaponics is more favourable than separated RAS or hydroponic productions.

### **Product safety**

No specific rules apply for produces issued from aquaponic production. Therefore, one could assume that separate regulations apply for on one hand vegetable and on the other hand fish. However, food safety departments in some countries have doubts regarding the distribution of vegetables cultivated with roots in fish waste! That point leads to some projects being delayed.

In Belgium, for example, one project is experiencing difficulties in insuring the greenhouse if fish water is taken into the hydroponics greenhouse hindering the project to start.

In France, although field irrigation is possible with treated waste water, it is not clear whether fish effluent is considered to be treated waste water or not<sup>8</sup>. Also no clear specification exists yet for what is considered as a hydroponics irrigation water.

In some countries however, it has been clearly stated by the entrepreneurs and admitted by administration that if the edible part of vegetables is not being in direct contact with fish water, there is no concern from the food safety as long as microbiological quality requirements are met.

It is admitted in these countries, that from regulatory point of view, fish and vegetable from aquaponics are "conventional" and must follow all regulation in force to deliver safe and legal produce to the customers. Strict protocols for tending and harvesting are established and followed. These approaches have contributed to allow the first commercial urban units to operate in Germany and Switzerland<sup>9</sup>.

### **COST recommendation**

The EU is of positive opinion towards the benefits of aquaponics: "Commercial aquaponics schemes have the potential to contribute to business diversification and may provide additional sources of income to farmers, meeting new demands and opportunities"<sup>10</sup>. In some European countries, entrepreneurs and national or regional bodies have developed solutions to create aquaponics facilities despite the lack of dedicated legislation.

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8 Arrêté ministériel du 2 Août 2010

9 ECF in Berlin, 1800m<sup>2</sup>, Germany - Ecco Jäger in Bad Ragaz, 1200m<sup>2</sup>, Switzerland - Urban Farmers in Basel, 250m<sup>2</sup>, Switzerland

10 Answer given by Ms Damanaki on behalf of the Commission (25 June 2014) in Written questions by Members of the European Parliament and their answers given by a European Union institution (2014/C 413/01)

It is COST action FA1305's will to be proactive towards EU legislators, provide information, bring forwards a common position for policy and legislation requirements, and help writing the future regulations ruling the aquaponics commercial sector. In our opinion, aquaponics should be recognized as a solution for sustainable food production. It follows a biomimetic multidisciplinary system and the circular economy principles, and allows for large food productivity on non-agricultural land, and at the same time dramatically reduces inputs and waste.

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