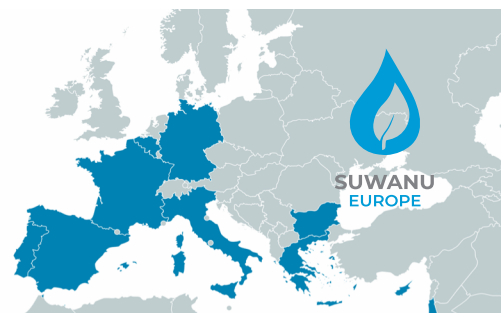
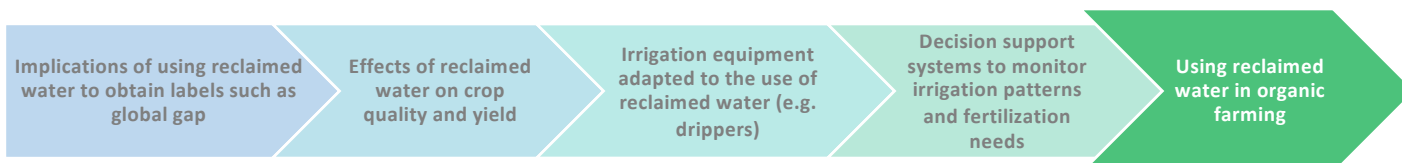




Info-package 1

Farmers/Irrigators

Fact Sheet 1.5 – Using reclaimed water in organic farming: facts and figures



SUWANU EUROPE is a H2020 project aiming to promote the effective exchange of knowledge, experience and skills among practitioners and relevant actors on the use of reclaimed water in agriculture. This factsheet is part of a total of 5 factsheets in Info-package 1 aimed at farmers and irrigators, that describes the key aspects connected to the use of reclaimed water in organic farming.

1. Introduction:

Organic farming pursues a better and more sustainable agriculture by adhering to a set of principles that aim to operate as naturally as possible and minimise environmental impacts. In Europe, a large share of organic farmland belongs to countries prone to water scarcity (e.g. Spain, Italy). In 2018, the total organic area in the EU-27 was 13.43 million hectares, corresponding to about 7.5% of total agricultural area [1], and is still expected to grow. According to the 2017 Water Exploitation Index [2]. In several EU countries water resources are stressed to such a point that requires actions to ensure adequate supplies [3]. In this context, to respond to the challenges posed by a changing climate and to foster the principles of circular economy, reclaimed water represents a strategic resource for the sustainable development of organic agriculture.

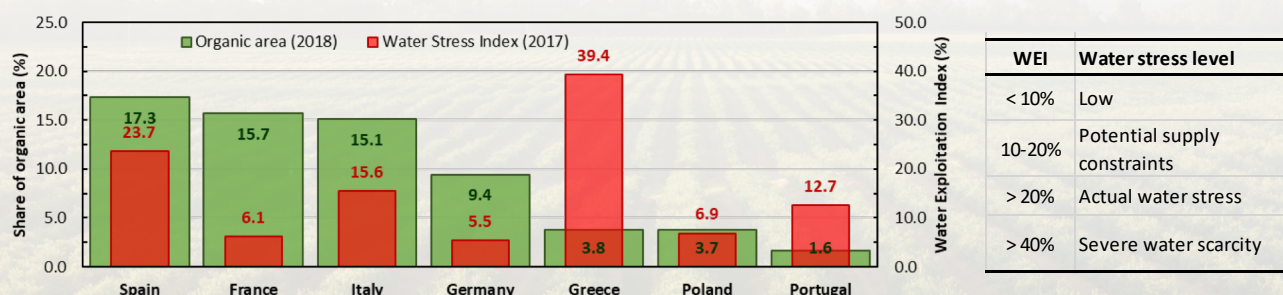


Figure 1a: Relation between share of organic area and WEI (left); 1b WEI and water stress level (right).

2. Risks and benefits:

Organic production standards allow to use reclaimed water for crop irrigation as long as it meets water quality standards. One of the major concerns for organic farmers consists in:

- The potential presence of organic/inorganic pollutants, which, in case of accidental contamination (in particular of fruits and vegetables to be eaten raw), it may lead to a suspension or loss of the organic certification;
- Consumers reaction to the reuse of water in these productions.

However, risks can be effectively controlled through proper water treatment technologies and adequate technologies and management practices [4], and are also balanced by several benefits.

Benefits:

- Water savings
- Ameliorate soil conditions
- Fertilizer savings
- Economic benefits

Risks:

- Soil salinity increase
- Transport of pollutants
- Excess of nutrients
- Presence of pathogens

3. Regulations:

From a regulatory perspective, a widespread use of reclaimed water for agricultural irrigation purposes across member states has been limited by the lack of a common regulatory framework on environmental and health standards. Until now, each member state individually set water quality requirements, and allowed uses for reclaimed water. To fill this gap, in 2018 the European Commission adopted the “*Proposal for a Regulation of the European Parliament and of the Council on minimum requirements for water reuse*” [5]. This initiative falls under the 2015 circular economy action plan, which includes actions to “*facilitate water reuse, including a legislative proposal on minimum requirements for reused water*”, and is expected to promote the diffusion and the acceptance of reclaimed water among, farmers, stakeholders and citizens. A concrete issue is that organic farming certifications, in general set very high water quality standards. Often too high to be realistically fulfilled unless using groundwater resources. Due to that, it is necessary that certification bodies consider to include specific rules that don’t jeopardize farmers willing to use such an important resource.

Class	Quality requirements				
	<i>E. Coli</i> (cfu/100 ml)	BOD5 (mg/l)	TSS (mg/l)	Turbidity (NTU)	Other
A	≤ 10 or below detection limit	≤ 10	≤ 10	≤ 5	Legionella spp.: < 1000 cfu/l* Helminth: ≤ 1 egg/l **
B	≤ 100	≤ 25 (≤ 35)***	≤ 90 (≤ 70) ***	-	
C	≤ 1000			-	
D	≤ 10'000			-	

Table 1: Reclaimed water quality requirements for agricultural irrigation

4. Current situation and perspectives:

The EU water reuse sector is maturing both technologically and commercially, albeit at a slow rate. At present there are about 200 water reuse plants delivering 1.1 million m³/yr of reclaimed water, but there is potential to grow up to 6 million m³/yr [6]. At European level, 32% of recycled water is employed for agricultural irrigation, mainly in countries belonging to the Mediterranean area (Spain, Italy, France, Portugal, Greece).

Considering that at least 11% of the European population and 17% of its territory has been affected by water scarcity to date, the human pressure on natural water resources is expected to grow, and that a large share of EU organic area is in water-stressed regions It is strategic to increase the use of reclaimed water for irrigation. However, there are still aspects that need to be improved, such as regulations and a wider social acceptance have to be developed.

In addition, since lowering human impacts on natural resources is a key concept of both organic farming and the circular economy, it is desirable that organic farming sector adopt reclaimed water as a common and accepted water resource.

When properly managed, reclaimed water has proven to be a viable and useful resource to mitigate water scarcity, especially during summer periods, and also have potential benefits in improving soil health conditions and saving fertilizer by delivering to soils nutrients, micro-nutrients and organic matter [6] and should be encouraged and promoted for both organic and conventional farming.

Reference/further readings

[1] Eurostat (online data code: org_cropar); [2] Eurostat (Code: t2020_rd220); [3] Bixio et al. (2006). Wastewater reuse in Europe. Desalination. 187:89-101; [4] Chen et. al. (2013). Reclaimed water: A safe irrigation water source? Environmental Development 8:74-83; [5] COM(2018)337; [6] BIO by Deloitte (2015) Optimising water reuse in the EU – Final report prepared for the EU Commission (DG ENV), Part I.

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