



LIFE+ ReQpro LIFE11 ENV/IT/000156

A model to Reclaim and reuse wastewater for Quality crop production

## INTRODUCTION

ReQpro is a European project, whose main objective is to contribute to the protection of water resources, in the Water Framework Directive context, through the recovery and reuse of urban wastewater in agriculture. This represents part of the ReQPro project, and is carried out by the "Centro Ricerche Produzioni Animali - C.R.P.A. S.p.A." in collaboration with the University of Bologna, Department of Agricultural Sciences.

The goal is to understand the farmers' point of view regarding the recovery and use of irrigation water. The completion of the questionnaire will be supported by the interviewers and will last approximately 5-8 minutes.

The information collected will be treated in accordance with the provisions of the Privacy Act. Thank you for your kind cooperation. For further information, you can contact Dr. Elisa Guerra: tel (+39) 051.209.6658; e-mail: [elisa.guerra10@unibo.it](mailto:elisa.guerra10@unibo.it).

**N.B.** The completion of the questionnaire is reserved to farmers/agricultural entrepreneurs older than 18. We remind that the University will treat the data exclusively in an anonymous and aggregated way.

## A. INFORMATION ON THE FARM AND IRRIGATION

### 1. What is the name of your farm, the municipality and the province where it is located?

#### Can you indicate in which district of the Consortium your company is located?

Po river district;  Enza river district;  district from Secchia river;  I do not know.

### 2. What is your age?

- |                                    |   |
|------------------------------------|---|
| <input type="checkbox"/> [1] 18-24 | <input type="checkbox"/> [5] 55-64          |
| <input type="checkbox"/> [2] 25-34 | <input type="checkbox"/> [6] 65-74          |
| <input type="checkbox"/> [3] 35-44 | <input type="checkbox"/> [7] 75 and over    |
| <input type="checkbox"/> [4] 45-54 | <input type="checkbox"/> [8] do not respond |

### 3. What is your major level of education?

- |  |  |
|--|--|
| <input type="checkbox"/> [1] University;           | <input type="checkbox"/> [4] middle school;  |
| <input type="checkbox"/> [2] High School;          | <input type="checkbox"/> [5] primary school; |
| <input type="checkbox"/> [3] Professional diploma; | <input type="checkbox"/> [6] no diploma.     |

### 4. Which are the main crops grown in your farm? Please, specify the correspondent UAA (ha).

MAIN CROPS	UAA (ha) RAINFED	UAA (ha) IRRIGATED
<input type="checkbox"/> durum/common wheat		
<input type="checkbox"/> maize		
<input type="checkbox"/> permanent pasture		
<input type="checkbox"/> potatoes/onion		
<input type="checkbox"/> sugar beet		
<input type="checkbox"/> tomatoes/other horticrops		
<input type="checkbox"/> soy bean/pea/other legumes		
<input type="checkbox"/> alfa alfa/other fodder plants		
<input type="checkbox"/> pear/peach/cherry/other fruit trees		
<input type="checkbox"/> kiwifruit		
<input type="checkbox"/> grapevine		
<input type="checkbox"/> other:		

**5. Which kind of production system do you adopt in your farm?**

- [1] conventional farming;  [2] integrated control;  [3] organic/biodynamic farming.

**6. How do you uptake irrigation water?** (More answers are allowed)

- [1] water well ( \_\_\_\_\_ %)  [3] Consortium canal ( \_\_\_\_\_ %)  
 [2] farm dam ( \_\_\_\_\_ %)  [4] other: \_\_\_\_\_ ( \_\_\_\_\_ %)

**7. Did you ever had problems/concerns due to irrigation water availability?** (More answers are allowed)

- [1] NO  [5] YES, lower quality water due to algae blooming  
 [2] YES, supply times linked to shifts  [6] YES, other: \_\_\_\_\_  
 [3] YES, low availability due to climate (drought)  [7] DO NOT KNOW  
 [4] YES, problems in accessing water due to field location

**8. If yes, did these limits have any direct consequences on the crop allocation and mix and/or on the irrigation technology choice?**

- [1] NO, they did not affect crop/irrigation choices;  [4] YES, they affected both crop and irrigation technology choices.  
 [2] YES, they affected crop choices;  
 [3] YES, they affected the irrigation technology adoption;

**9. If availability problems related to irrigation water occurred, when did they happen?**

- |                                   |                                   |   |
|-----------------------------------|-----------------------------------|---|
| <input type="checkbox"/> [1] 2005 | <input type="checkbox"/> [5] 2009 | <input type="checkbox"/> [9] 2013         |
| <input type="checkbox"/> [2] 2006 | <input type="checkbox"/> [6] 2010 | <input type="checkbox"/> [10] 2014        |
| <input type="checkbox"/> [3] 2007 | <input type="checkbox"/> [7] 2011 | <input type="checkbox"/> [11] 2015        |
| <input type="checkbox"/> [4] 2008 | <input type="checkbox"/> [8] 2012 | <input type="checkbox"/> [12] do not know |

**10. If availability reduction of irrigation water occurred, for which crops did you have observed problem?**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> [1] durum/common wheat | <input type="checkbox"/> [5] sugar beet                | <input type="checkbox"/> [9] stonefruit    |
| <input type="checkbox"/> [2] maize              | <input type="checkbox"/> [6] tomatoes/other horticrops | <input type="checkbox"/> [10] kiwifruit    |
| <input type="checkbox"/> [3] permanent pasture  | <input type="checkbox"/> [7] soybean/ other legumes    | <input type="checkbox"/> [11] grapevines   |
| <input type="checkbox"/> [4] potatoes/onions    | <input type="checkbox"/> [8] alfa alfa                 | <input type="checkbox"/> [12] other: _____ |

**11. Did it ever happen to request water to the Consortium before the 12st of May or later than the 15th of September (irrigation season)?**

- [1] NO  
 [2] YES, for greenhouse crops (please, specify which crop: \_\_\_\_\_)  
 [3] YES, for frost-free system (please, specify which crop: \_\_\_\_\_)  
 [4] YES, horticultural crops transplanting (please, specify which crop: \_\_\_\_\_)  
 [5] YES, for fertirrigation (please, specify which crop: \_\_\_\_\_)  
 [6] YES, for other use (please, specify which crop and use \_\_\_\_\_)  
 [7] DO NOT KNOW

**12. Thinking about the next 10 years, are you going to continue your farming activity?**

- [1] NO;  [2] YES;  [3] DO NOT KNOW.

**13. Thinking about the next 10 years, do you foresee that problems related to limited water availability will:**

- [1] decrease their intensity/frequency;  [3] increase their intensity/frequency;  
 [2] remain the same;  [4] DO NOT KNOW.

**14. Thinking about next 10 years, are you going to change the crop choice?** (More answers are allowed)

- [1] NO;  
 [2] YES, based on customer needs/demands (sales contracts)  
 [3] YES, based on crops previously grown (rotation)  
 [4] YES, according to the soils characteristics/ soil nutrient status  
 [5] YES, according to water availability  
 [6] YES, according to temperature tolerance/advance in phonological phases due to climate  
 [7] YES, based on crop production costs (treatments, labor etc.)  
 [8] YES, according to direct payment

- [9] YES, other: \_\_\_\_\_  
 [10] DO NOT KNOW.

**15. How do you evaluate the irrigation water quality**

- [1] very bad       [2] poor       [3] sufficient       [4] good       [5] do not know

**B. MUNICIPAL WASTE: KNOWLEDGE OF ITS RECOVERY AND REUSE**

**16. Were you aware that, in Reggio Emilia, the wastewater passes through the Mancasale treatment plant; do you know how it works?**

- [1] NO, I was not aware of Mancasale treatment plan;  
 [2] YES, I was aware of Mancasale treatment plan;  
 [3] YES, I was aware of Mancasale treatment plan and how it works.

**17. According to your knowledge, what are the highest impacts of a wastewater treatment plant on the environment?**

- [1] noise       [7] quality of receiving water bodies  
 [2] smell       [8] other: \_\_\_\_\_  
 [3] aerosol       [9] no negative impacts  
 [4] water table       [10] DO NOT KNOW  
 [5] plants/fishes  
 [6] landscape

**18. Were you aware of the Mancasale recovery and reuse (REQPRO) project of Reggio Emilia waste water for irrigation purpose?**

- [1] YES;  [2] NO.

**19. Do you find any risk linked with treated water used for irrigation purpose?** More than one answer is possible:

- [1] NO;  
 [2] YES, sanitation risks linked with agri-food products;  
 [3] YES, environmental risks due to pollutants leaching from water to soil;  
 [4] YES, risks on consumers' perception of decreased quality of agri-food products;  
 [5] YES, other risks (please, specify: \_\_\_\_\_);  
 [6] DO NOT KNOW.

**20. Do you believe that irrigating farms can receive some advantage from the treatment plant presence?**

- [1] NO;  
 [2] YES, reduce or solve water scarcity problems;  
 [3] YES, irrigation period extension;  
 [4] YES, decrease the risk of surface water pollution;  
 [5] YES, minimize chemical fertilizer use;  
 [6] YES, other advantage (please, specify: \_\_\_\_\_);  
 [7] DO NOT KNOW.

**C. USEFULNESS OF THE INFORMATION**

**21. If your farm is, or would be, in the area irrigated by mixed water (from the Po river and from the treatment plant), do you feel to have enough information to use the water for irrigating during next season?**

- [1] NO;  [2] YES;  [3] DO NOT KNOW.

**22. Do you believe that the irrigation technique adopted in your farm needs some adjustment to use treated water for irrigation?**

\_\_\_\_\_

**23. Do you think that local farmers are favorable to treated wastewater use for irrigation purpose?**

- [1] NO;  [2] YES;  [3] DO NOT KNOW.

**23. In your opinion, which other information/action would better allow treated wastewater use for irrigation purpose?**

\_\_\_\_\_

**Other comments:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_