



Bridging the water demand gap with wastewater irrigation

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Water availability and using the available water in a well-considered manner is becoming increasingly more important for farmers. An increase in dry summers (Gobin, 2018) confirms that in the future irrigation will have to take place in a smart manner, particularly in the water demanding horticultural sector. In times of water scarcity, governments may issue a ban on water extraction from natural water bodies. This on-going research investigates to what extent the supply of alternative water sources, such as treated waste water from domestic use or food processing, can be used for irrigation. In addition to the availability, the quality of irrigation water determines its suitability for crop utilisation. Treated domestic waste water may contain pathogens rendering the irrigated crop unfit for fresh consumption, whereas treated waste water from food companies may contain high salt concentrations affecting soil and crop health. The water demand was investigated on wastewater irrigated field trials and on irrigated farmers' fields. Irrigation trials with various types of treated waste water elucidated the effects of these water sources on the crop yield, crop quality and the long-term impact on the soil quality. Soil moisture sensors were combined with a crop model, satellite images and meteorological information to monitor crop growth and performance of potato, spinach and cauliflower in on-farm conditions. The regional water demand for all irrigated crops was calculated with a water balance model based on actual evapotranspiration (Zamani et al., 2015) and linked to the supply of waste water sources in an online viewer, which makes it possible to promote water coalitions in regions where the water demand is high.

Acknowledgements

The research was funded by the Flemish Agency for Innovation and Entrepreneurship in Belgium under contract agreement HBC.2017.0817.

References

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