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## Water Resource Management with the management software MANUELA

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# Water Resource Management with the management software MANUELA

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The impact of climate change with increasing droughts will lead to an increase of water consumption in agriculture. Even in Germany, agricultural land is already irrigated intensively to secure harvests at a higher level. The demand for additional irrigation will lead to conflicts between agriculture, water management and nature conservation. This paper shows a new way for the evaluation of water use in agricultural farming. With the developed method stakeholder can assess the water consumption for irrigation in agriculture, which is transferable, regionally applicable and comparable. The water-module is available as a new plug-in in the management software MANUELA and was developed to be used by farmers and consultants. The method is applicable to different types of farms and regions, no matter whether groundwater or surface water is used for irrigation. Due to the good data availability and the easy-to-use water-module, comparable results can be achieved on field and farm level. The water-module for the evaluation of water consumption can make an important contribution to future consulting and farm management. The software MANUELA can improve decisions in environmental consulting and the evaluation of adaptation measures of farms to climate change. The water-module leads to meaningful results and provides approaches for optimizing measures on field and farm level. The algorithm for the assessment of water consumption is composed of two indicators: water use and acquired surplus from irrigation. The developed method allows the short-term evaluation of water for one year but also a long-term assessment for any set period of time.

**Keywords:** irrigation, sustainable agriculture, water consumption, climate change