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USE OF AGRICULTURAL CENSUS DATA FOR THE ESTIMATION OF IRRIGATION WATER CONSUMPTION AT FARM LEVEL

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ABSTRACT Agriculture is the main driving force in the management of water use. In the EU as a whole, 24% of abstracted water is used in agriculture and, in some regions of southern Europe, agriculture water consumption rises to more than 80% of the total national abstraction. Overexploitations of water resources along with conflicts among different water uses, due to water scarcity problems, are becoming a pressing issue for environmental stewardship in various areas. Climate change is expected to intensify irrigation requirements and water scarcity in the Mediterranean region. Accurate estimation of irrigation demands (and other water uses as well) is therefore a key requirement for more precise water management and, an overview on European water use can contribute to develop suitable policies and management strategies. The paper analyses the methodology for the estimation of the irrigation water consumption at farm level by using information from the 2010 Italian Agriculture Census. The methodology will be applied after the Census to estimate the water consumption for the entire Italian farm sector answering the requirements of the regulation established by European Statistical Office (Eurostat). Three models have been developed and integrated to account the main aspects considered significant for irrigation water consumption at farm level: crop irrigation requirement, irrigation systems efficiency and farmer irrigation strategy. Each model requires specific information about farm, crops, meteorology and soil. These data often have low quality, low resolution and different standard and in addition their collection at national level is problematic since they are scattered among different institutions. The paper describes the strategy adopted to tackle the issues related to data collection, models integration and accuracy of the estimation as well as census data exploitation as a key source to feed the models.

Keywords: Irrigation, Census, Italy.