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Combination of indicators for increasing irrigation sustainability. Definition of a Hydrosustainable Index.

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The scarcity of natural resources around the world has obligated to consider the concept of sustainability in all human activities. Agriculture is not an exception, it is the activity where sustainability is more important, mainly in irrigated orchards. Sustainable water uses are commonly associated with a low water footprint. Water footprint works conclude that the main differences are in the water management at the orchard level. The olive orchard is located at an arid, water scarce location where irrigation water needs are very high and therefore the water footprint. However, an efficient, sustainable water use could be performed in these situations. The aim of this work is the design of an index (Hydrosustainable index, HydroSOS) to estimate the olive grower's effort at orchard level for improving the sustainability of irrigated olive groves. HydroSOS marks a wide range of field activities link to irrigation management. All these are grouped into hydraulic and agronomic components. Each component has different levels and marks according to its relation to the increase in water sustainability. Irrigation scheduling components are the most valued in the index, though others such as water use efficiency, irrigation system, or soil management are also included. Four different levels are considered in relation to the final mark. HydroSOS is designed as a dynamic index to improve the objectivity in the evaluation of grower's effort in irrigation optimization. Two cases of study are presented in two superhigh density olive orchards. Although both orchards are very similar in applied water and climatic conditions, HydroSOS index separated in two very different classifications.