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Section 6: Water / carbon footprint and socio-economic consequences:

The Water Footprint of an Irrigated Olive Orchard Cultivated Under Semi-Arid Conditions

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A conscious use of water in agriculture is needed because of the limited character of such resource. On the other hand, under semi-arid conditions water availability represents the environmental limiting factor which can strongly affect crop productivity.

The water footprint is an indicator of water consumption that looks at both direct and indirect water use of a consumer or producer. Such indicator can be an useful tool to plan appropriate irrigation water management strategies within a territory.

Olive tree is the main fruit crop in Mediterranean Basin. Though it is cultivated mainly under rainfed conditions an increasing trend of the irrigated olive surface is occurring. This study provides an assessment of the water footprint of an irrigated olive orchard grown under semi-arid conditions. Particularly, the orchard management includes the recycling of urban wastewater and its distribution by drip irrigation and the use of soil management techniques (cover crops, recycle of pruning material) aimed to preserve soil quality and increase water storage capacity of the soil. A rainfed orchard with similar characteristics is taken as reference. The study reports 4-year average data. Crop parameters, meteorological data, reference and crop evapotranspiration, soil water content, irrigation volumes are recorded in the different experimental years. The water footprint of olives, expressed as m³/ton is evaluated taking into account its green, blue and grey components. Some remarks on the practical implications of the results are also reported.