

**Session I - Assessment of crop water footprints under present and future climatic conditions (C3015)**

**Convener: Christian Kersebaum**

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**Alejandro Blas :**

**Comparison of water footprints of Mediterranean and American diets**

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*Keywords: Water footprint, Diets, Food production sustainability*

Food production sustainability has gained huge importance in recent years, and food consumption trends and patterns are nowadays a key to improve overall sustainability. Therefore, one of the main challenges of this century will be the consumption of healthier and sustainable diets. The issue can only be addressed through a combination of improvements and integration of agricultural production and food consumption, while respecting the carrying capacity of natural ecosystems. This requires considering the entire products lifecycle, from their production to consumption, and that is why, in terms of water management, concepts as water footprint and virtual water provide the opportunity to link the use of water resources to food production and consumption patterns.

The present study analyses the consumption and water pollution linked to each product of a two weeks menu representative of Mediterranean and American (recommended by the USDA) diets. A study and quantification of the blue, green and grey water footprint, have been done for each product included in these diets. The objective is therefore to obtain preliminary results for comparing the two water footprints of the recommended diets and to identify the products that require more water to be produced. The results showed that the Mediterranean diet has lower water footprint than the recommended American one; 5620 litres less of water per person (401 l/person per day less), equivalent to the capacity of 22 conventional bathtubs. In terms of total fresh water consumption, measured as green and blue water footprint, the Mediterranean diet requires 4150 litres more water per person.

But due to the higher grey water footprint of the American diet (more polluting in terms of nitrogen applied in agriculture because of the assimilation by the environment mostly related to the legume production), requiring 9770 litres of water more per person than the Mediterranean diet, the total water footprint is higher in the American one. Results indicated also that Mediterranean summer menu, with season fruits and vegetables, is the one with less water footprint (35.6 m<sup>3</sup> / person / week). Also, the green water footprint is the main footprint of both diets, (75% for the Mediterranean and 69% in the case of the American). In terms of products, olive oil is the ingredient that contributes most to the total water footprint in the Mediterranean diet (nearly 21%), while in the American diet corresponds to beef meat (14%).