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Title:

WATER USE EFFICIENCY AND BIOMASS YIELDS OF *ARUNDO DONAX* IN GREECE

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Summary:

Arundo donax L. is a native species to Mediterranean region. It is characterised by a high yielding potential as well as by efficient use of the natural resources. The objective of this study is to evaluate, in terms of yields performance and water use efficiency, the influence of irrigation on productivity of *Arundo donax* L.

To achieve the goals of this work, a field experiment was conducted from January 1997 to February 2001 in central Greece. Three irrigation rates were tested; I_0 = non-irrigated, I_1 = 50% of the Potential Evapotranspiration, and I_2 = 100% of the Potential Evapotranspiration.

Every year the highest yields were recorded for the highly irrigated treatment (I_2) reaching at 24.4, 29.9 and 24.2t dm/ha in the second, third and fourth growing period, respectively. The Total Dry Matter (TDM) in the I_0 treatment showed a slight increase from the second to third growing period (2.4t/ha) while in the fourth growing period a steep reduction of more than 7t/ha was recorded.

In the fourth growing period, TDM yields were reduced also in the irrigated plots but the reduction was lower (5.8 and 5.7t/ha for medium (I_1) and high (I_2) irrigation level). The estimated WUE ranged from 4 to 6.1, 2.6 to 4.3 and 2.1 to 2.8 kg dm/m³ water for I_0 , I_1 and I_2 treatment, respectively.