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Determination of the Quantity of Water Absorbed by the Plant When Irrigating by Infiltration in Arid Regions (Case of Ouargla in Algeria)

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Abstract : Several physical, human and economic factors come into play in the choice of an irrigation system for developing arid and semi-arid regions. Since it is impossible to define or weight quantitatively all the relevant factors in each case, the choice of the system is often based on subjective preferences rather than explicit analysis. Over the past decade, irrational irrigation in the Ouargla region has evolved to a certain extent based largely on water wastage and which may pose risks to the environment both off-site and at the site. In the whole region, the environment is damaged by excess water because the water tables that tend to be high form swamps that pollute nature on the surface. The purpose of our work is a comparison between sprinkler irrigation and drip irrigation using bottles. By irrigating with the aid of the bottle and giving a volume of 4 liters with a flow rate of one (1) liter per hour, the watering dose received varies between 6 and 7 mm without infiltration losses. And for the case of sprinkler irrigation, the dose received may not exceed 2.5mm. E in some cases, we have a quantity of water lost by infiltration. This shows that irrigation using the bottle is much more efficient than sprinkling. Because, on the one hand, a large amount of water is absorbed by the plant and on the other hand, there is no loss by infiltration. The results obtained are very significant because, on the one hand, we reuse local products, and on the other hand, as the bottles are buried, we avoid water losses by evaporation, especially in dry periods and salinization.

Keywords : resources, water, arid, evaporation, infiltration
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