

NITROGEN UPTAKE AND LEACHING DURING IRRIGATION WITH TREATED MUNICIPAL WASTEWATER IN CORN FIELDS

Vassilis Z. ANTONOPOULOS

School of Agriculture, Aristotle University of Thessaloniki, 54006 Thessaloniki, Greece

ABSTRACT

The dynamic of water and nitrogen in a soil cropped with corn under irrigation with treated wastewater were studied. The soil water and nitrogen simulations were evaluated using the one-dimensional WANISIM model. The applications were focused on the effects of irrigation with wastewater on water and nitrogen uptake by plants and nitrogen leaching. Different cases of amounts of treated wastewater from the treatment plant of Thessaloniki were examined. The applications were differed on schedule of irrigation with wastewater and the additional amounts of inorganic nitrogen to satisfy the plant demand. The water and nitrogen of wastewater could satisfy the demand of plants for transpiration and nutrition. Percolation of water and leaching of nitrates were noted when the irrigation schedule satisfied the potential transpiration and when the rainfall during the year exceeded the mean annual rain in the area.