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Effect of treated municipal wastewater with subsurface drip irrigation on seed yield and its components in sunflower

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In order to evalulate the effects of using treated municipal wastewater on seed yield and its components in sunflower, this experiment was conducted in 2003, at a experimental farm in south treatment plant in Isfahan. The experimental arrangement was a randomized completely block design with five treatments and tree replications. Treatments were: Furrow irrigation with well water (FIN), surface drip irrigation with wastewater (SDI), subsurface drip irrigation with wastewater in 15cm depth (SDI15), subsurface drip irrigation with wastewater in 30cm depth (SDI30) and furrow irrigation with wastewater (FIW).Results show that, subsurface drip irrigation with wastewater in 30cm depth as compared to other treatments, had higher seed yield and showed significant difference. Also SDI15 and SDI30 treatments had higher 1000-seed weight and deaf percentage and showed significant difference. Thus, furrow irrigation with wastewater (FIW) had lower seed yield and 1000-seed weight as compared to other treatments. Also because of depending seed oil to genes, treatments had no significant differences in this character. In SDI30, plants absorb water and essential elements, better than other treatments because water source is near the root zone. In conclusion application of treated municipal wastewater caused better yield growth compared to well water .Also because of the better soil moisture and nutrient available at root zone, application of wastewater with subsurface drip irrigation system at 30 cm depth, showed the highest yield.

Keywords: Sunflower, municipal wastewater, subsurface drip irrigation

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