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Farmers' attitude regarding the use of treated wastewater in agricultural irrigation, the case of Saudi Arabia

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ABSTRACT

Reuse of treated wastewater could provide a key solution to address sustainable water resources management in agriculture. However, the success of this practice depends on farmers' acceptance and involvement, which require careful assessment and evaluation. The purpose of this paper is to investigate the farmers' perception about the treated wastewater reuse from economic benefit, socially acceptable, environmentally dimension and health risks. A sample consist of 391 farmers in five regions in KSA were interviewed using structured questionnaire through a systematic random sampling method to explore how they perceive the quality of treated wastewater. The sample size and distribution were determined according to the number of agricultural holdings, cultivated area and source of irrigation water. Descriptive statistics including cross tabulation is used as useful tool for evaluating the significance of anomalies between regions. The percentage of farms using treated wastewater was in average 65% in the total sample, however about 72% of farmers in Al-Ahsa and Qatif are using treated wastewater. Water scarcity and the non-availability of alternative water resource was among the main reasons for accepting the use of treated wastewater. About 78% of farmer are satisfied of using treated wastewater for irrigation. The majority of farmers expressed their desire to use treated wastewater as a complementary source 43% and 39% as alternative source. The highest positive impact of the use of treated wastewater in irrigation from the farmers' perspective was the impact on productivity, reduction of the cost of fertilizers and saving the cost of water groundwater abstraction. The highest perception of negative impact was pest prevalence on the farm, fear from consumer acceptance, health related aspects, soil

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contamination and not suitable for personal use. Only 57% of farmers indicate that they are receiving extension service on the use of treated wastewater. In conclusion, public awareness, farmer's capacity building and agricultural extensions program must be taken to change negative perceptions of farmers. Farmers are more likely to accept the use of treated water when there is awareness of water scarcity, ensure water quality and economic benefits exceeds costs.

Keywords: Socioeconomic factors; Farmer's perceptions; Reuse of treated wastewater
