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Determinants of Farmers’ Acceptance of Treated Wastewater in Irrigated Agriculture in the Northern Gaza Strip

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Abstract

The Gaza Strip suffers from a critical scarcity of water and competition for water resources is high between the different sectors of the Palestinian economy. Prognoses indicate that the use of water as a production mean in agriculture will have to rely on the increased exploitation of treated wastewater (TWW) in the future. The change from freshwater to TWW is not a mere technical challenge but implies changes in the current rights for exploiting freshwater resources. Knowledge about the determinants of farmers’ acceptance of TWW is a prerequisite for the support of an unobstructed transition from the current situation to the expected management of water resources in the future.

The analysis of determinants of farmers’ acceptance was based on data from a random sample of 94 farmers in the Biet Hanoun Area. The study area is located in the Northern Gaza Strip and will become a site with TWW irrigation according to the plans of the Palestinian Water Authority. A classification according to farm activities and family income yielded three classes of farming systems: mixed cropping farmers (A), low-income perennial crop farmers (B) and high-income perennial crop farmers (C). Acceptance of TWW was significantly lowest in class A, but showed no difference between farmers from the classes B and C, whereby the fear of diseases and pollution through TWW use was the most frequently stated concern. Further analyses by a logistic regression model revealed that this concern was the major determinant of farmers’ negative attitude towards the use of TWW and has an even larger impact than the ownership of own wells, which ranged on the second place. Major determinants for a positive attitude are the possession of hitherto non-irrigated areas and the structure of cropping activities. Literacy of farmers played an ambiguous role and may work in both directions. The overall highly significant results of the model support the hypothesis, that acceptance of TWW may originate from better access to information as well as from the lack of awareness of potential side effects.

Keywords: Farming system, logistic regression, wastewater