



## **STUDY OF AGRICULTURAL EFFECT ON WATER QUALITY IN WEISHAN IRRIGATED AREA IN CHINA**

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Weishan irrigated area, is located in Liaocheng city in Shandong province, China. It is the biggest irrigation area in the lower basin of Yellow river, with irrigated area about 3100 km<sup>2</sup>. Besides industry pollution discharge, agricultural managements, e.g. irrigation and fertilization, also lead to some environmental problems for water body, especially for nutrient, such as nitrogen and phosphorus. In order to study the effects of agricultural planting on water environment in Weishan irrigated area, an investigation was carried out in 2007. Totally about 280 water samples from surface rivers and underground water wells were drawn respectively in March, April, July and November. The items including total nitrogen (TN), nitrate, ammonia nitrogen and total phosphorus (TP) were tested in laboratory, and water quality assessment was performed with single index method and Fuzzy Mathematics method. The results show that surface water quality was bad in Weishan irrigated area, with most to be grade V of surface water standard, or even worse. Only in March there was one sample remaining under grade IV, occupying 2.78 % of the total surface water samples. For underground water quality, because of the sampling depths were about 20~30m, it was better than surface water. However, there were still more than 37.5 % of the total samples found to be of or worse than grade III of water quality, and the temporal analysis indicated that in July and November, the percentage of samples worse than grade II was obviously increased, which appeared a close relationship with irrigation and fertilization.