微咸水连续灌溉对冬小麦产量和土壤理化性质的影响 Effect of Saline Water Continuous Irrigation on Winter Wheat Yield and Soil Physicochemical Property

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关键词： 微咸水 冬小麦 土壤含盐量 电导率 产量

摘 要： 为了合理开发和利用黄淮海平原浅层地下微咸水，2003~2005年在中科院河北南皮生态实验站连续以3 g/L的微咸水对冬小麦进行田间灌溉试验，分析了微咸水灌溉对土壤含盐量、土壤溶液盐分含量、电导率以及冬小麦产量的长期影响，为建立华北地区冬小麦微咸水灌溉的合理灌溉制度和微咸水的合理利用提供理论依据。结果表明，连续利用3 g/L的微咸水灌溉，会造成土壤表层盐分的累积，尤其在降水量偏少的年度会使作物受到盐分胁迫。微咸水灌溉比旱作增产，灌溉三次比灌溉两次产量高，降水量偏少的年份应尽量避免连续用微咸水进行灌溉。 For the sake of rational exploitation and utilization of shallow layer underground saline water in Huang Huai Hai Plain, through the serial saline water farm irrigation experiment during the years of 2003~ 2005 at Nanpi Ecological Experimental Station of Chinese Academy of Science in Hebei Province, irrigating winter wheat with saline water of 3 g/L, the long term effect of soil salinity, soil solution content, electric conductivity as well as winter wheat yield irrigated with saline water were analyzed. The objective of above works is to establish a rational saline water irrigation program of winter wheat in North China and to supply a theoretical basis for utilization of saline water. The results showed that the salt was cumulated on upper soil layer when the saline water of 3 g/L mineralization degree was utilized continuously, and plant would be subjected to salt stress, especially, in the rainfall deflection crop year. Yield will increase when irrigated with saline water comparing with that of dry farming and the yield is higher with three times irrigations than that of twice. The repeated saline water irrigations should be avoid if the precipitation is small.

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