

咸淡水交替沟灌对土壤盐分及玉米产量的影响

Effect of alternating using saline and fresh water furrow irrigation on soil salinity and corn yield

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中文摘要:

以玉米为试验材料, 在内蒙古河套灌区进行大田试验, 研究在灌水定额相同、咸淡水交替沟灌模式下, 不同灌溉水质(淡水、低矿化度水、中矿化度水和高矿化度水)对沟顶和沟底土壤剖面盐分累积和玉米产量的影响。试验结果表明, 无论是沟顶还是沟底, 淡水灌溉下土壤剖面盐分收获前与沟灌前相比无明显差异, 其他灌溉水质都引起土壤剖面盐分的累积, 累积程度为高矿化度水>中矿化度水>低矿化度水。通过对生育期内不同时段沟顶土壤剖面盐分情况分析, 同一处理土壤表层(0~5cm)盐分明显高于根系密集层(0~40cm)和土壤1m层(0~100cm); 不同处理相同层次下, 各个时段土壤盐分累积情况为高矿化度水>中矿化度水>低矿化度水>淡水。与淡水相比, 其他处理(低矿化度水、中矿化度水和高矿化度水)作物分别减产7.3%、30.3%和50.2%。

英文摘要:

The field experiment that studied the effect of different water quality in alternating using saline and fresh water furrow irrigation on soil salinity in soil profile and corn yield was conducted in Hetao Region in Neimenggu Province, with corn as the material. The results showed that no matter on the summit of furrow or at the bottom of it, salt in soil profile had no significant difference under fresh water irrigation condition, but salt under other treatments was accumulated, the accumulation degree of which was High mineralization degree>Medium mineralization degree>Low mineralization degree>Fresh water. According to analyse salt in soil profile on the top of furrow in different times. Salt in the top-soil layer(0~5cm) is higher than that in the dense-root layer(0~40cm) and that in 1m layer(0~100cm) at the same treatment. The accumulation degree of salt is High>Medium>Low>Fresh water at the same layer in different treatments. The corn yield under other treatments (Low, Medium and High) reduces by 7.3%, 30.3% and 50.2% respectively.

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