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地膜覆盖与秸秆深埋对河套灌区盐渍土水盐运动的影响

Effect of plastic film mulching and straw buried on soil water-salt dynamic in Hetao plain

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中文关键词: [秸秆](#),[土壤](#),[水分](#),[河套灌区](#),[盐渍土](#),[地膜覆盖](#),[水盐运移](#)

英文关键词:[straw](#) [soils](#) [moisture](#) [Hetao plain](#) [saline-alkali soil](#) [plastic film mulching](#) [soil water-salt dynamics](#)

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作者	单位
王 婧	中国农业科学院农业资源与农业区划研究所, 北京100081
逢焕成	中国农业科学院农业资源与农业区划研究所, 北京100081
任天志	中国农业科学院农业资源与农业区划研究所, 北京100081
李玉义	中国农业科学院农业资源与农业区划研究所, 北京100081
赵永敢	中国农业科学院农业资源与农业区划研究所, 北京100081

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中文摘要:

为探索不同耕作措施的控抑盐效果,采用大田试验方法,以耕翻(CKT)、地膜覆盖(CKP)、秸秆深埋(CKS)为对照,研究了地膜覆盖与秸秆深埋(P+S)措施对河套灌区盐碱葵花田土壤水盐时空动态变化的影响。结果表明:1)P+S措施可稳定蓄水保墒,尤其针对20~40 cm土层具有持续保墒效果,收获期P+S处理>20~40 cm土层含水率为20.69%,比CKP高5.62%,比CKS高38.03%,比CKT高39.80%;2)P+S措施可显著抑制积盐。播前到收获期,P+S处理积盐量为0.06 g/kg,分别比CKS、CKP和CKT处理低35.11%、133.78%和276.89%;3)P+S措施可建立"高水低盐"的土壤溶液系统,显著提升并延续灌溉淋洗在>20~60 cm土层形成的淡化效果,形成"苗期根域淡化层";4)P+S措施可降低土壤体积质量,增加土壤有机质和含水率,从而抑制矿化度较高的潜水蒸发,防止"盐随水来",提高产量。研究成果可为内蒙古河套灌区盐渍土实施地膜覆盖与秸秆深埋改良措施提供参考。

英文摘要:

In order to study the influence of different tillage adjustment measures on soil water and salinity distribution, field experiments were conducted under four tillage practices of plastic film mulching and straw buried (P+S), plastic film mulching(CKP), straw buried (CKS), and ploughing tillage(CKT) in Hetao Irrigation regions of Inner Mongolia. The results showed that the soil water content increased dramatically under the P+S, especially in the 20 to 40 cm depth. Compared to the treatments of CKP, CKS and CKT, the soil water content of 20 to 40 cm depth with P+S treatment increased by 20.69%, 5.62% and 38.03%, respectively, at the harvest stage. During the sunflower growth period, the P+S treatment cut down the soil salt content significantly. And its salinity accumulation was only 0.06 g per kilogram soil, less than those of the other treatments CKS, CKP and CKT by 35.11%, 133.78% and 276.89%, respectively. In addition, the salinity was fully eluted in the depth of 20 to 50 cm under the P+S treatment. Consequently, the P+S treatment established a favorable soil solution system to lower salt and increase moisture, which will be conducive to the root growth of sunflower in the seedling stage. Furthermore, the soil bulk density reduced while soil organic matter and moisture amount raised after the measures of P+S. For that, it suppressed the evaporation of grounder water which with higher degree of minimization prevented the salinity with water coming and assembling on the soil surface.

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