

集雨补灌对玉米生长及产量的影响

Effects of the supplemental irrigation of harvested rainwater on the growth and yield of maize

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中文摘要:

该文针对黄土高原半干旱区农业气候资源的特点以及该区降雨年内分布不均、水分供需不平衡的基本特点,以集雨技术及工程设施为基础,通过有限补充灌溉方式,研究了玉米在不同生长时期的补灌水量和覆膜坐水技术带来的增产效果,并分析了集雨补灌对玉米生长、水分利用效率及产量的影响。试验研究表明:在地表水和地下水严重缺乏的旱作区结合不同的微灌方式(该文试验采用滴灌),在玉米需水关键期进行集雨补充灌溉,增产效果明显,水分利用效率显著增加,表现出需水关键期有限水分供给的高效性。该研究为集雨补灌旱作区节水农业的发展提供理论依据。

英文摘要:

Aimed at the characteristic of agricultural climate resource, distribution of rainfall and imbalance of water supply and water requirement in semi-arid areas of the Loess Plateau, based on the technology of harvested rainwater and project establishment, through the limit supplemental irrigation, the effect of maize yield increase which are generated by maize supplemental irrigation amount in different periods and technology of film plastic cover with soil was studied. Impacts of the supplemental irrigation of harvested rain water on the growth, water use efficiency and yield of maize were analyzed. Results show that combined with the different micro-irrigation model(drip irrigation in this paper), the supplemental irrigation of harvested rainwater in key period of maize is very remarkable for increasing the yield and water use efficiency of maize in arid areas where surface water and groundwater are heavy scarce. Results also show that the limited water supply in key period of water lack is high efficient. The research provides theory foundation for development of water-saving agriculture of supplemental irrigation of harvested rainwater in arid areas.

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