

## 晋南半干旱地区果树渗灌补水效应研究

### Effects of subsurface drip irrigation on apple trees in semiarid region of Southern Shanxi

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作者	单位
牛西午	山西省农业科学院
李永山	山西省农业科学院棉花研究所
冯永平	山西省农业科学院棉花研究所

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中文摘要:

为了提高旱地果园水分利用效率,研究了渗灌和渗水管道埋深对旱地土壤含水率和苹果树生长发育的影响。在需水关键期渗水 $300\text{ m}^3/\text{hm}^2$ ,垂直下渗深度为130 cm,水平渗幅可达160 cm,其中20~80 cm土层含水率比对照高6.0~7.3个百分点。渗水管道埋深不同,水分在土壤中的分配模式不同,在30~40 cm较合适。渗灌能明显促进果树生长发育,提高苹果产量和果品品质,而且比漫灌省水。渗灌比未渗对照增产45.7%~99.1%,漫灌比对照增产26.6%~101.6%。渗灌效应优于漫灌。

英文摘要:

The experiments were conducted from 1996 to 1998 to study the effects of subsurface drip irrigation (SDI) and lateral depth on soil water content, growth and yield of apple in a dryland region of Southern Shanxi Province. The results showed that water infiltration depth reached 130 cm and width reached 160 cm, which improved water content in deeper soil layers, apple yield increased by 45.7%~99.1%, and flood irrigation increased by 26.6%~101.6%. Compared with control respectively. SDI can promote growth of apple trees and improve the quality of apples, as well as save a lot of water in comparison with flood irrigation. Water distribution patterns were different with different lateral depths, the optimum depth of lateral was 30 cm to 40 cm under soil surface.

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服务热线: 010-65929451 传真: 010-65929451 邮编: 100026 Email: tcsae@tcsae.org

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