

不同滴灌方式对荒漠区‘赤霞珠’葡萄根系分布的影响

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Effects of different drip irrigation modes on root distribution of wine grape ‘Cabernet Sauvignon’ in desert area of Northwest China.

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摘要

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摘要

研究不同滴灌方式对葡萄根系分布的影响,是制定葡萄肥水管理和越冬防寒措施的依据.本研究以传统沟灌为对照,采用覆草滴灌、膜下滴灌、双管滴灌、单管滴灌等不同节水灌溉方式,研究了荒漠灌区不同灌溉方式下酿酒葡萄‘赤霞珠’的根系组成与分布特点.结果表明:在干旱荒漠区‘赤霞珠’葡萄根系的垂直分布范围在0~70 cm,水平分布范围在0~120 cm.采用双管滴灌的根系数量最大,单个剖面根系数量达138.3条,但根系的垂直分布范围较对照(沟灌)缩小了20 cm;覆草滴灌的根系数量较对照显著提高,根系水平分布范围较对照扩大了9.1%;膜下滴灌的根系数量和水平分布范围与对照差异不显著,但根系垂直分布范围较对照减少了20 cm;单管滴灌显著提高了根系数量,但根系垂直分布和水平分布范围与对照差异不显著.在该生态区酿造葡萄最理想的节水滴灌方式是覆草滴灌.

关键词: 荒漠区 赤霞珠 滴灌 地面覆盖 根系分布

Abstract:

To study the effects of different drip irrigation modes on the wine grape root distribution is the basis of formulating fertilization, irrigation, and overwintering management practices for wine grape. Taking the wine grape ‘Cabernet Sauvignon’ as test material, this paper studied the effects of different water saving irrigation modes (drip irrigation under straw mulching, drip irrigation under plastic mulching, double tube drip irrigation, and single tube drip irrigation) on the root distribution of wine grape in the desert area of Northwest China, with the conventional furrow irrigation as the control. The root system of the ‘Cabernet Sauvignon’ was distributed from 0 to 70 cm vertically, and from 0 to 120 cm horizontally. With double tube drip irrigation, the root amount was the largest (138.3 roots per unit profile), but the root vertical distribution scope was narrowed by 20 cm, as compared to the control. Drip irrigation with straw mulching increased the root amount significantly, and increased the root horizontal distribution scope by 9.1%, as compared to the control. No significant difference was observed in the root number and root horizontal distribution scope between the drip irrigation under plastic mulching and the control, but the root vertical distribution scope with the drip irrigation under plastic mulching decreased by 20 cm. Single tube drip irrigation increased the root number significantly, but had lesser effects on the root vertical or horizontal distribution, as compared to the conventional irrigation. It was suggested that the drip irrigation under straw mulching could be the best water-saving practice for the wine grape ‘Cabernet Sauvignon’ in the study area.

Key words: desert area grapevine ‘Cabernet Sauvignon’ drip irrigation soil mulching root distribution.

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