Effect of Irrigation Interval on Growth Characteristics, Plant Water Stress Tolerance and Water Use Efficiency for Chile  


Abstract:

Container experiments were carried out to study the effect of irrigation interval on root development, yield and water use efficiency for chile pepper. Each container has a size of 31 x 15 x 60 cm with one transparent side for the visual view of the root development. Sandy clay loam soil was packed in each container to a 50 cm height. One seedling of chile pepper (Takano tsu me) was transplanted in the middle of each container on the 15th of February, 2005. Three irrigation intervals, (1, 3 and 5 day) with four replications were investigated. The soil water content in each container was kept at field capacity by compensating the loss in weight by adding water. The results indicated that increasing the water supply caused increases in the root biomass. The 1-day irrigation interval produced the highest root biomass while the 5-day resulted in the least root biomass. The 3-day irrigation interval showed remarkable roots development in the bottom of the containers, resulting in 12 % water saving compared to other treatments. The increasing in the irrigation interval induced an increase in the xylem water potential but it caused a reduction in leaf growth. Generally, the proper irrigation interval increases the plant water stress tolerance by developing the root in lower layers where high soil moisture content is present.

Published In:

Pepper. Proceeding of the Thirteenth International Water Technology Conference, Hurghada, Egypt, NULL