DETERMINATION OF CROP WATER USE FOR VEGETABLES IN SOUTHWESTERN NIGERIA USING LYSIMETER

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ABSTARCT

This study described the design and construction of low cost weighing lysimeter and also investigates the performance evaluation of the lysimeter by determining the crop water requirement of Jute mallow (*Corchorus olitorius*), Lagos spinach (*Celosia argentea*) and Leafy amaranth (*Amarathus cruentus*) vegetables production. This lysimeter was constructed by readily available materials like plastic container which serve as lysimeter tank and inner tyre tubes filled with water connected to a glass U- tube manometer for the weighing system. The daily displacement of water in the glass U- tube manometer due to change in weight of lysimeter as were translated to crop water use. The results showed that the average daily water use of the Lagos Spinach increased from 0.16 mm/day at the early crop growth stages to 5.23 mm/day at mid-season and declined to 1.08 mm/day at the late season of the crop. The leafy Amaranths shows that the average daily water use increase from 0.13mm/day at the early growth stage of the crop to 4.96 mm/day during the mid-season and declined to about 1.60 mm/day at the late season. While Jute mallow shows that average daily water use increased from 0.11mm/day at the early growth stage of the crop to 4.44 mm/day during the mid-season and declined to 1.67 mm/day at the late season. The potential crop water use estimated for all the vegetables showed that the weighing lysimeter is effective and results obtained can be used as a guide by farmers for selecting the amount and frequency of water to be used for the vegetables

Keyword: Cost, Season, Weighing Lysimeter, Crop water Use, Vegetables.