

Adapting fluted pumpkin for greenhouse cultivation: How much water do the plants need?

Prof. Isaac Aiyelaagbe and Ajoke Oyeniya

Department of Horticulture, Federal University of Agriculture, PMB 2240 Abeokuta, Nigeria

Abstract

Fluted pumpkin (*Telfairia occidentalis* Hook F.) is a traditional leaf vegetable in high demand in urban centres in Nigeria. This necessitates intensification for all-the-year-round production. The possibility of adapting it to greenhouse cultivation has hitherto not been explored. Thus, in a tropical greenhouse at the Federal University of Agriculture Abeokuta, Nigeria (7° 15'N, 3° 25'E), a study was conducted twice to determine its irrigation needs under protected cultivation. Three-week old seedlings of fluted pumpkin potted in sandy soil received 0.25, 0.50, 0.75 and 1.0 litre water/plant/week for 12 weeks. In the first trial, the effects of irrigating with 1.0 litre water/plant/week did not differ significantly from those of 0.75 litres water/plant/week with regards to vine length and number of leaves, but it elicited significantly higher foliar N and Mg content and total dry matter accumulation than 0.75 litres water/plant/week. In the repeat trial, the effects of irrigating with 1.0 or 0.75 litres water/plant/week on vine length and number of leaves was as in the first trial, however, their effects on root length, dry matter accumulation and foliar phosphorus and calcium content did not differ significantly. In both trials, irrigation with 0.25 litre water/plant/week produced significantly shorter vines, fewer leaves, shorter roots, less dry matter and foliar P than those irrigated with 1.0 litre water/plant/week. Since the effects of 0.75 litre water/plant/week were often at par often with those of 1.0 litre water/plant/week, irrigation rate of 0.75litre water/plant/week is recommended for greenhouse cultivation of fluted pumpkin in southwest Nigeria.