

INFLUENCE OF TRAINING SYSTEM AND GROWING MEDIA ON GROWTH AND YIELD OF CUCUMBER CULTIVARS

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ABSTRACT

Two successive experiments were carried out from 24 October 1992 to 6 March 1993 and from 13 February 1993 to 23 June 1993, to study the effect of the training system and growing media on the growth of different cucumber cultivars. The experiments were carried out in a controlled greenhouse at 23° and 19° day and night temperatures in the Agricultural Research and Experiment Station, College of Agriculture, King Saud University. The study consisted of the four cultivars, Cordito, Sahara, Figaro Improved and Arabio, the three training systems, modified umbrella (T1), umbrella (T2) and single stem (T3) and the two growing media (NFT and sandy soil). The results showed that the tested cultivars had almost similar vegetative growth characters, but Sahara cv. Proved to be superior to the other cultivars in total yield expressed as fruit number and weight per plant. No significant differences were observed in total yield among the other cultivars. Training the plants on a single stem (T3) resulted in a higher plant height, leaf area, shoot fresh and dry weights and yield, compared to umbrella training system (T2), but the difference in yield did not reach the significant level in the first experiment. Cucumber plants grown in sandy soil had a higher plant height, leaf number, leaf area, shoot fresh and dry weights in the second experiment, but the total yield was higher for the plants grown in NFT in both experiments.

INTRODUCTION

Cucumber is one of the main greenhouse crops widely grown in Saudi Arabia. The total production was 500 thousand tons in 1987 and is expected to reach about 600 thousand tons by 1996. In 1991, 46% of the vegetable produced in the greenhouse was cucumber (Ministry of Agriculture and Water, 1992). Numerous factors influence the growth and fruit yield of cucumber. Improving cultural practices and optimizing the environmental factors will increase the quantity and quality of fruit yield.

Cucumber plants grow vertically in the greenhouses by means of a support system. Higher plant population achieved by decreasing within-row spacing and vertical training contributed to higher yield and quality of cucumber plants (Hanna and Adams, 1993). The increased yield is attributed to an increase in fruit set and development, to a marketable size and to a reduction in fruit rot. Different training systems can be used to support the plants, such as umbrella,