EFFECT OF ROOT MEDIUM, CELL SIZE, IBA AND CROWN DIAMETER OF RUNNER PLANT ON TRANSPLANT QUALITY AND FRUIT PRODUCTIVITY OF STRAWBERRY UNDER PROTECTED CULTIVATION

By

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B.Sc. Agric. Cooperative, High Institute for Agric.Co-operation, 2002

M. Sc. Agric. Sc. (Vegetable Crops), Ain Shams University, 2009

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ABSTRACT

Reda Elsayed Ahmed. Effect of Root Medium, Cell Size, IBA and Crown Diameter of Runner plant on Transplant Quality and Fruit Productivity of Strawberry under Protected Cultivation. Unpublished Ph.D. Thesis, Department of Horticulture, Faculty of Agriculture, Ain Shams University, 2015.

Three experiments were carried out to develop a system for producing of good quality strawberry plug transplants in Egypt in addition to its subsequent effect on productivity and quality of Festival strawberry cultivar. The first and second experiments were carried out at a private nursery at Ismailia Governorate during the two successive seasons of 2010 and 2011 .In the first experiment, three treatments were applied where, mother plants were planted in boxes at two spacing (10 and 20 cm) between the mother plants in shade net green house on the first of May in addition to open field nursery as a control. In the second experiment three transplants crown diameter viz., from 0.3-0.5 cm (small) from 0.6- 0.8 cm (medium) and from 0.9-1.2 cm (large)**,** three cell sizes (150 ml, 50 ml and 25,5 ml), four root media, i.e., (1:1 Peat : Perlite, 1:1 Peat : Vermcoluit, 1:1:1 Peat : Perlite : Vermcoluit and 1:1:1:1 Peat : Perlite : Vermcoluit : sand) and indol butirc acid (IBA) at three concentrations (0 , 250 and 500 ppm) were tested on transplants taken from the first experiment. Nursery planting dates were 15th and 17th of September in the two tested seasons, respectively. A randomized block design with four replicates was adopted. In the third experiment, plug transplants were taken from second experiment and then planted for fruit production to study the effect of such treatments on earliness of flowering, yield and quality. This experiment was conducted at El-Kanater El-Khiria Horticulture Research Station, Qaluobia Governorate. Planting dates were October 6th and 8th in the first and second seasons, respectively. The soil was clay. A complete randomized block design with four replicates was adopted. Each replicate consisted of two beds with 120 cm width, and 50 cm height; at plant distances of 25 cm between plants and 30 cm between each two rows. Total plant number was 50 plants\bed. The drip irrigation was taken place and after one month beds were mulched with 40 micron of double face (black-silver) mulch and the plants were covered with 80 micron clear plastic tunnels (70 cm height) in the beginning of

November.

The results indicate that there were planting mother plants at 10 or 20 cm gave about 1043 & 1004 and 461 & 442 daughter plants per square meter but traditional production method of strawberry transplants were gave 46 & 44 daughter transplant per square meter. Plug transplants decreased the number of days to flowering. The highest numbers of leaves and root number, root length and crown diameter were detected to large transplant size in the two tested seasons. Large and medium crown diameter transplants recorded the highest early and total yield in the two tested seasons. Transplant produced from root medium substrate consist of peat moss and perlite showed the highest early and total yield. The IBA showed no significant effects on characteristics of transplant and fruit production.

Key Words: Strawberry, *Fragaria x ananassa* Duch, soilless transplant plug production, crown diameter, cell size, substrate, yield

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