

## Medium Volume and Node of Runner Produced Affect Growth and Development of Cutting-propagated Runner Plants of 'Maehyang' Strawberry

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intensity over  $300 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ . Large (31.28 mm), medium (28.52 mm), and small (24.16 mm) size tomatoes were harvested at light red maturity stage from Gangwon Province in the Korea Republic. Their qualities were measured at harvest time. Afterwards, the tomatoes were stored at  $5^{\circ}\text{C}$ . The storage system was box and packing with 20,000 cc OTR (oxygen transmission rate) film as a modified atmosphere packaging to measure the postharvest qualities. Large size tomatoes showed lower respiration and ethylene production compared to other sizes. The rate of fresh weight loss was the highest in small size tomatoes. Prolonged shelf life was observed in large size tomatoes. The fungal incidence rate was lower in large size tomatoes compared with medium or even small sizes. On the final storage day, the large size tomatoes showed the highest firmness. The titratable acidity and vitamin C were the highest in large size tomatoes. However, small size tomatoes showed the maximum soluble solids among the sizes. Bacterial and fungal count was the lowest in large size tomatoes. Based on the results above, large size tomatoes could be useful to export for a long distance. (This work was supported by Korea Institute of Planning and Evaluation for Technology in Food, Agriculture, Forestry (IPET) through Advanced Production Technology Development Program, funded by Ministry of Agriculture, Food and Rural Affairs (MAFRA) (116111-03).)

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Strawberry (*Fragaria × ananassa* Duch.) is one of the most-widely cultivated fruit vegetables in Korea. Recently, the most common way to produce daughter plants is using runners. The aim to this research was to study the growth and development of daughter plants derived from runners at primary, secondary, and tertiary nodes of 'Maehyang' strawberry as affected by the cell volume of propagation trays. Mother plants were planted in a planting trough with an automatic fertigation system on March 27, 2018 in a glasshouse. After 40 days, roots of runners grown out at different nodes of the mother plant runners were harvested and stuck into 21 (247 mL) or 27 (170 mL)-cell trays filled with a commercial medium. The culture environment had  $28^{\circ}\text{C}/23^{\circ}\text{C}$  day/night temperatures, 80% relative humidity, and a natural photoperiod of 14 h. Daughter plants produced at different nodes and grown in 27-cell trays had longer plant length, longest root, bigger diameters of crown and petiole, larger root fresh weight than those in 21-cell trays. Moreover, they were highly enhanced in plants produced

from the primary than the secondary or tertiary runners regardless of cell volume. In conclusion, plants produced from the primary runners had a stronger root system, and smaller cell volume trays were more suitable for the growth and development of daughter plants produced from runners. (This study was carried out with a support from the Korea Rural Development Administration (Project No. PJ01277302). Dandan Zhao, Jiangtao Hu, Chen Liu, and Hao Wei were supported by a scholarship from the BK21 Plus Program, Ministry of Education, Republic of Korea.)

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## 멜론 관비재배 시 영양생장기 관수량에 따른 생육과 품질 비교

### Growth and Quality according to Irrigation Amount during Vegetative Growth Stage in Melon Fertigation Cultivation

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네트멜론의 품질은 당도, 크기는 물론이고 네트의 발현정도(외관)에 의하여 결정된다. 고품질의 멜론 생산을 위해서는 개화기부터 네트발현이 완료될 때까지의 토양 수분관리가 매우 중요하다고 보고되고 있으며, 이 시기의 관수개시 시점과 관수량에 대한 많은 연구가 이루어졌다. 그러나 정식 후 꽃을 수정하기 전까지의 시기는 적정 엽면적 확보와 충실한 꽃은 생성을 위해 매우 중요한 생육단계임에 불구하고, 적정 관수량에 대한 연구는 매우 부족한 실정이다. 본 연구는 네트멜론 관비 재배시, 정식 후 수정기 전까지의 관수량이 멜론의 생육과 품질에 미치는 영향을 검토하였다. 2018년 7월 15일에 240구 암면셀에 종자를 파종하고 10일 후 암면블록( $10 \times 10\text{cm}$ )에 이식하여 15일간 육묘하여 8월 10일에 정식하고 9월 1일부터 수정을 시작하여 10월 31일 수확하였다. 시험품종은 국내품종 '케이쓰리', '달고나'와 베트남 품종 'one', 'TL3'을 사용하였다. 관비 조성은 아마자키 멜론 표준액을 이용하였고, 급액 EC 농도와 pH는 각각  $1.3\text{dS}\cdot\text{m}^{-1}$ , 6.0으로 설정하였다. 정식후 수정기 전까지의 관수량은 LOW(-20%), MEDIUM(Control), HIGH(+20%)의 3 수준으로 처리하였다. 처리기간 동안 LOW 처리는 1주당 약 2L/day, MEDIUM 2.5L/day, HIGH 3.0L/day로 하여, 생육단계와 일사량에 따라 하루 동안 2~6회로 관수하였다. 수정기 이후 관수량은 처리간 동일하게 공급하였다. 수정일은 품종간에는 5일 정도의 차이를 보였고, 관수량별로는 LOW 처리에서 1일 정도 늦었다. 엽장, 엽병장, 과측지 등 생육은 모든 품종에서 관수량이 많아질수록 더 크게 빨리 자라는 특성을 보였다. 국내품종은 관수량이 증가할수록 과중, 과폭, 과고, 과육 두께가 커지는 경향을 보였지만 베트남 품종은 유의한 차이를 보이지 않았다. 네트발현 지수 중 조밀도(달관조사, 1: 좋음 - 9: 나쁨)는 관수량 LOW 처리에서 3.5였으나 관수량 HIGH 처리에서는 3.9로 나타나 유의한 차이를 보였다. 과실 당도는 평균  $14.8^{\circ}\text{Brix}$ 였으며, 관수량 처리간 유의한 차이는 없었다. 이상의 결과로 보아, 정식후 수정기까지의 관수량 차이는 과측지 길이 등 생육 변화에서는 유의한 차이를 보였고,