Effects of Steam Treatment of Soil on Production of Oriental Melon 
*(Cucumis melo)* in a Commercial Greenhouse

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Abstract


Soil decline due to continuous monoculture has become a major factors limiting production of oriental melon (*Cucumis melo*) in the greenhouse in Taiwan. A study was conducted in a commercial greenhouse in Chaiyi, Taiwan, to determine effects of steam treatment of soil on the growth, yield and quality of ‘Grill’ oriental melon. The soil in the greenhouse was used for production of ‘Grill’ oriental melon for two crops per year for more than three years. A self-propelled soil disinfector was used for steaming the soil up to a depth of 15 cm for four hours. Results showed that the temperature in the steamed soil at the depth of 10 cm reached 60°C for a period of 1.5 h., compared to the non-steaming treatment (control). Plants of oriental melon grew vigorously in the steam-treated soil with a significant increase in leaf size. Also, steaming of soil significantly (P< 0.0001) reduced incidence of wilting plants. The average weight, length, diameter and flesh thickness of fruits of oriental melon plants grown in steam-treated soil were higher than fruits from plants grown in untreated soil. The yield of oriental melon plants grown in steam-treated soil was increased by 38.1%, compared to the control. This study suggests that steam-treatment of soil is an effective method for resolving the problem of soil decline caused by continuous monoculture of oriental melon as a greenhouse crop.

Key words: Oriental melon, *Cucumis melo*, Soil steaming, Monoculture, Fruit yield.

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