

Salts Deposited on the Lower Stem of Bell Pepper Contribute to a Basal Stem Disorder in Soilless, Greenhouse-grown Plants

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Abstract. A physiological disorder in greenhouse-grown pepper plants was observed in Florida, wherein the base of the main stem becomes swollen below the cotyledonary node level and crack-like wounds develop at the base of the stem's epidermis. The disorder may predispose the plant to a localized rot and result in a sudden plant wilt. The effects of soilless media type, transplant depth, and amount of nutrient solution applied per day were studied to evaluate the development of what was termed "Elephant's Foot" disorder, on a greenhouse-grown bell pepper crop in Gainesville, FL. The percentage of plants with epidermal wounds at the base of the stem was highest (83%) on plants transplanted at half of the cell height (3.8 cm), compared to plants transplanted to the cotyledonary node level (6%) and the second leaf node (0%). Salts were washed from the surface of basal stem epidermis and electrical conductivity measured in the washing solution was expressed per unit area of epidermal sample (ECA). The ECA in the solutions from plants transplanted at half of the cell height was higher than that from plants transplanted to the cotyledonary node level and to the second leaf node. There was a positive linear relationship ($r = 0.81$) between the percentage of plants with epidermal wounds and the ECA of the solution obtained from washing the epidermal tissues. Salts deposited on the epidermis beneath the cotyledonary node provoked a tissue injury that may predispose the plant to a *Fusarium* infection. Simple management practices, such as transplanting deep, using cultivars with lower susceptibility to salt damage, and gradually moving back the emitter from the base of the plant after transplanting (to reduce humid conditions near the base of the stem) would help reduce the appearance of this basal stem disorder in soilless-grown peppers.

Florida Agricultural Experiment Station journal series R-09104. This paper is currently under review in HortScience.

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