Irrigation Method and Placement Effects on Root Growth and Production of Peanut and Sweet Corn. (S06scholberg174625-Poster)

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Abstract:

A doubling of the population in Florida by 2040 will greatly reduce future availability of irrigation water. Drip irrigation allows efficient water use, yet it may not be profitable for peanut and sweet corn due to high annual installation costs. Subsurface drip irrigation (SDI) can greatly reduce annual installation costs, yet SDI systems may not be adapted to Florida sandy soils due to limited capillary rise and water retention capacity. A shallow SDI system was designed for Florida soils by placing drip-tube at 9 or 13 inches deep. Irrigation was applied based on either soil water status (as determined by TDR probes) or based on crop ET. Sprinkler and surface drip plots were included as controls. With SDI, frequent application of small pulses of water during initial growth of sweet-corn resulted in similar corn yields compared to surface applied drip irrigation. Although SDI systems appeared to reduce soil surface water losses and weed growth, overall water use efficiency was not improved. This may be related to percolation of water below the rootzone. Further fine-tuning of the SDI system may be required to better match the application volume with the soil water storage capacity of the effective rootzone.

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