

Compost and nutrient dynamics under irrigation and shadowing for horticulture in northeast Brazil

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Organic Caribbean cherry cultivation under central pivot and sprinkler was investigated to determine the decomposition of compost applied under two types of shadowing (total and without) and the dynamics of nutrient release into soil. Litter boxes were made with a 4mm mesh base, and PVC sides and filled with the compost used at the farm. Boxes were recovered after 0, 2, 4, 6, 8, 10 and 12 months. Amounts of remaining compost and nutrients were measured and decomposition rates and half-life values were calculated. Soil under the litter boxes was analyzed before and after removing boxes, for nutrient contents (N, P, K, Ca, and Mg) and organic carbon. Compost was lost quickly over time. Losses were faster under central pivot than sprinkler irrigation. Total shadowing caused higher rates of decomposition than without shade. Half-life values varied from 0.12 to 1.02 years. Losses of nutrients were substantial, with P and K being lost at faster rates than mass loss. The nutrients lost from compost were mostly not present in the soil. Insects may have removed compost from the boxes.