IMPACT OF GARDEN SYMPHYLAN FEEDING INJURY ON PHYSIOLOGICAL PROCESSES IN SNAP BEANS

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Results of studies on the physiological impact of garden symphylan (Scutigerella immaculata) feeding injury on roots of snap beans (Phaseolus vulgaris) are as follows: 1) a significant decrease in leaf water potential ($P < 0.01$) as symphylan density increased (0, 5, 10, 20 symphylans per treatment) indicating that symphylan injury on snap bean roots caused severe water stress; 2) water stressed plants had significantly greater amounts of soluble leaf carbohydrates ($P < 0.01$) suggesting that higher concentrations of sugars in the leaves of stressed plants were used to maintain turgor under water stressed conditions; and 3) symphylan injured plants had a significantly lower ($P < 0.01$) rate of photosynthesis (measured by CO_2^{14} assimilation) than uninjured plants. Reduced yield and total biomass were closely correlated with stress. These data are being used to develop an economic injury level for symphylans in snap beans which will allow growers to make better pest management decisions for this root feeding arthropod.