

The causative relations of red root are not clear. Foster and Weber (6) could not attribute red root to any specific organism or condition, but believed it was caused often by injuries from fertilizer burns, through which secondary fungi, such as *Fusarium* sp., later enter. They also postulated that extremely acid soils might be responsible. Townsend and Felix (11) were unable to determine the etiology of brown root rot in the Everglades; whereas, Swank and Perry (7) associated *R. solani*, *Pythium* sp. and *Fusarium* sp. with red root in Sanford. It has been postulated (2) that ectoparasitic nematodes may play a role in this complex problem.

In summary, it appears that concepts regarding the etiology of certain celery diseases in south Florida have evolved through the years with only limited data as a basis.

Isolations and Greenhouse Pathogenicity Trials.—Samples of diseased seedlings of both the golden and the pascal varieties were collected periodically throughout the growing seasons of 1954-55 and 1955-56. Separate records were kept of isolations from roots and stems. Two procedures were followed—one where no surface sterilant was used, the other where the pieces were soaked in 20 percent Clorox for three minutes immediately before plating onto potato-dextrose or corn-meal agar.

R. solani was by far the dominant fungus isolated from diseased seedlings taken from the margin of the circular spots of dead plants. Isolates of this fungus were highly pathogenic on celery seedlings in the greenhouse. They caused early post-emergence damping-off on young seedlings. On older seedlings, petioles were attacked, producing the aerial damping-off effect described above (Fig. 3). In addition, a stem decay developed at the soil level.

Quite different results were obtained in the case of damped-off seedlings that occurred in an indefinite pattern, and from plants showing yellows and red root symptoms and a soft watery rot of the entire stem (Table 1). Of 619 roots of Golden Supreme and summer pascal varieties showing red root symptoms, *R. solani* was recovered from only two, whereas, 271 isolates of *Fusarium* sp. were recovered and 37 of *Pythium* sp. The last named was not once recovered from rootlets where a surface sterilant was used. The sensitivity of *Pythium* to surface sterilants has been noted before (4).

Fusarium sp. was also the dominant fungus isolated from the stems of plants showing leaf yellows. *Pythium* sp. was re-