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Cooperative Extension Service
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RHIZOCTONIA DAMPING-OFF DISEASE

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Description and Cause

Rhizoctonia damping-off is a fungus disease which can attack many species of plants. The fungus causes a seed rot, a pre-emergence damping-off and a post-emergence damping-off. The fungus generally attacks seedlings or young developing plants; however, under favorable conditions it may also attack and cause severe damage to mature, well-established plants (Fig. 1). The common names, soreshin, wire-stem, black root and stem canker, may also apply to this disease.

The disorder is caused by *Rhizoctonia solani,* a fungus which lives in the soil and can survive many years in the absence of a suitable host plant. This organism is found in most soils, and no natural soil source should be assumed free of this pathogen.

Symptoms

Trouble may appear as poor "seed germination;" i.e., the seeds have rotted in the soil. After seedlings emerge, growth may be poor, and seedlings wilt and topple over (Fig. 2). On close examination, the stem of affected plants will show brick-red to brown lesions or a definite constriction at and below the soil line (Fig. 3). Under moist conditions a web-like growth of brown fungus strands can often be seen around the affected plants and radiating into the surrounding soil (Fig. 4). When a seedling is pulled, the webbing tends to cause an excessive quantity of soil to adhere to the shriveled roots. Leaves that contact the soil are also readily invaded and assume a water-soaked appearance.

Environmental Conditions

Conditions favorable to Rhizoctonia damping-off disease are: overcrowding, overwatering, high fertilization levels, slow germination, high humidity, warm (70^{o} to 85^{o} F) temperature, deep planting.

Cultural Controls

Since the seedling stage is the most susceptible to damping-off, plant in light, well-drained, well-prepared soil or a pasteurized germination or growing medium. If possible, keep soil (growing medium) on the dry side. Avoid overcrowding, overwatering, deep planting and overfertilizing (especially excess nitrogen). Good air circulation and conditions which allow rapid seed germination are desirable.

Chemical Control

Rhizoctonia solani may be controlled with periodic waterings or drenches of pentachloronitrobenzene (PCNB), benomyl or thiophanate methyl (Banrot). Preplant seed treatment with captan and thiram also provides good control for some crops. Apply chemicals according to manufacturer's label directions.

Chemical names mentioned are for the reader's convenience. Mention of a product does not imply endorsement and no criticism is implied of products not mentioned. Persons using treatments described herein assume full responsibility for their use in accordance with current label directions of the manufacturer.

Fig. 1. Mature chrysanthemum with severe Rhizoctonia lesion on stem ("soreshin" symptom).

Fig. 2. Young seedling showing post-emergence damping-off ("wire-stem" symptom).

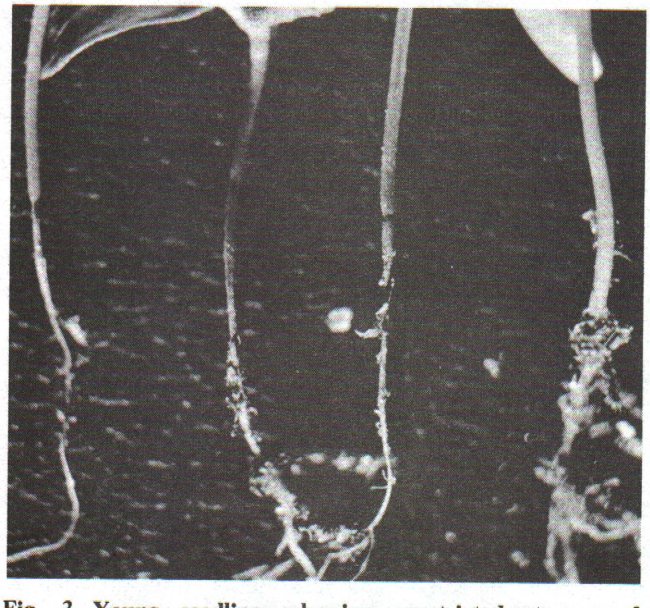

Fig. 3. Young seedlings showing constricted stems and shriveled roots caused by Rhizoctonia attack. Healthy plant on right.

Fig. 4. Young Fittonia plant showing coarse fungus strands which often develop under warm, humid growing conditions.

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