

Effect of Low Temperature on the Aggressiveness of *Rhizoctonia solani* AG 2-2 Isolates on Sugar Beet (*Beta vulgaris*) Seedlings

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DOI: <https://doi.org/10.1094/PDIS-09-20-1990-RE>

ABSTRACT

Rhizoctonia solani anastomosis group (AG) 2-2 can cause seedling damping-off in sugar beets and substantial losses may occur in all regions where beets are grown. Sugar beets are planted early in the season when soil temperatures are low in order to maximize the length of the growing season and minimize the risk of damping-off. However, predictive models that indicate there is little to no risk of *Rhizoctonia* damping-off at temperatures <15°C may not be entirely reliable. We tested this possibility by inoculating sugar beet seedlings in a growth chamber at 11°C with 35 *R. solani* AG 2-2 isolates that were representative of the genetic diversity present in AG 2-2. Although disease progress and growth rate were greatly reduced at 11°C, considerable disease symptoms did develop in inoculated plants. Three weeks after inoculation, 16% of the plants were dead and 77% of the isolates tested had average disease severity scores that were significantly greater than those of the mock inoculated control. This confirms our concern about the possibility for low-temperature infection of sugar beets and indicates that waiting until the soil warms up to above 15°C to apply fungicide could leave the crop at risk. Aggressiveness does not appear to be related to subgroup or growth rate but rather depends on the response of the specific isolate to low temperature.

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Author: Minier and Hanson

Publication: Plant Disease

Publisher: APS Publications

Date: 2022-11-09

Link: <https://apsjournals.apsnet.org/doi/10.1094/PDIS-09-20-1990-RE>