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**PREPARATION OF INOCULUM OF *RHIZOCTONIA SOLANI* KÜHN
FOR AN ARTIFICIALLY INOCULATED FIELD TRIAL**

**Élaboration d'un inoculum *Rhizoctonia solani* Kühn pour un essai
d'inoculation artificielle au champ / Herstellung eines *Rhizoctonia solani*
Kühn-Inokulums für einen künstlich inokulierten Feldversuch**

ABSTRACT

Rhizoctonia crown root and rot, caused by *Rhizoctonia solani* Kühn, is a serious disease resulting in substantial economic losses in sugar beet production worldwide. A consistent, uniform disease pressure of the correct intensity is necessary to effectively screen sugar beet for resistance to Rhizoctonia crown root and rot in an artificially inoculated field trial. This study examined the substrate used to grow the *R. solani* inoculum, the method of substrate inoculation, and the pathogenicity of the different particle sizes within the inoculum. It was found that particles greater than 1.0 mm were the most consistently colonized and provided constant flow through the Gandy™ applicator, which is used to inoculate the field plots. The smaller particle sizes did not contain adequate amounts of the pathogen, contained substantial amounts of contaminating bacteria or fungi, and contributed to a varied rate of flow during distribution. We found hull-less barley the best performing substrate to inoculate with *Rhizoctonia solani*, and a liquid suspension of the pathogen in potato dextrose broth provided uniform colonization of the autoclaved barley during the incubation period. Mushroom spawn bags provided the ideal environment to reduce contamination and insure rapid colonization of the barley grain. The techniques described have increased the efficiency of inoculum production, decreased losses due to contamination, and guarantee a homogeneous inoculum in size and disease potential, which results in a uniform, consistent field infection.
