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IMPROVING KEY ROOT TRAITS IN SUGAR BEET: FUSARIUM TOLERANCE

Amélioration de caractéristiques centrales de la racine de la betterave sucrière : la tolérance au fusarium / Verbesserung zentraler Merkmale der Zuckerrübenwurzel: Fusarien-Toleranz

ABSTRACT

Root-rot caused by *Fusarium oxysporum* is an important and widespread soil-borne disease of sugar beet. In this study, we evaluated the resistance to Fusarium of a wide collection of sugar beet lines (CRA-CIN Rovigo's genetic pool) by artificial inoculation with two fungal isolates from Harbin (China) and Uman (Ukraine). After six weeks, plants were scored for disease symptoms, including leaf stunting, chlorosis and necrosis, on the basis of a phenotypic resistance scale from 1 to 5. We identified two lines, L02 and L18, showing low and high levels of disease symptoms, respectively. These results are in agreement with field observations at two different study sites in the Ukraine where L02 and L18 lines were classified as resistant and susceptible to root-rot respectively under heavy infection pressure. The two fungal isolates (Harbin and Uman) and the two inoculation doses (104 and 105 spores/ml) evaluated did not show significant differences in disease symptoms. The two lines (L02 and L18) here identified will be crossed to develop segregating populations for further genetic improvement studies at the molecular level (e.g. identification of SNP molecular markers associated with Fusarium resistance).