

4.8 MARK W. BREDEHOEFT¹, VIVIANA RIVERA², GARY SECOR²

¹North Dakota State University, Department of Plant Pathology, P.O. Box 6050, USA-58108-6050 Fargo

²Department of Plant Pathology, North Dakota State University, Fargo, ND, USA

ANALYSING A LATE SEASON ROOT ROT OF SUGAR BEET IN THE IMPERIAL VALLEY OF CALIFORNIA

Analyse d'une pourriture tardive des racines dans des betteraves sucrières à Imperial Valley en Californie / Analyse einer spät auftretenden Wurzelfäule bei Zuckerrüben im Imperial Valley in Kalifornien

ABSTRACT

The Imperial Valley in southern California is a unique sugarbeet production area due to its long growing season of nine months with temperatures exceeding 35°C late in the growing season. A severe root rot at the end of the growing season has been present for several years causing a reduction in yield and quality (2, personal experience). Symptoms include wilting and scorching of the leaf and discoloration and wet rot of the root (1). The exact cause of the disease complex in the Imperial Valley of California has not been officially identified. To assay for the presence of potential pathogens, sugarbeet roots were collected every two weeks from 11 grower fields, and every four weeks from a replicated small plot trial. The presence of pathogens was determined by culturing root samples in multiple culture media. Isolation from affected sugarbeet recovered several common sugar beet root pathogens, although the primary pathogens isolated were *Phytophthora* and *Pythium*. Rot symptoms of sugarbeet roots coincided with the increased frequency of *Phytophthora*. Based on this preliminary data, it appears that the primary cause of the Imperial Valley late season sugar beet rot is a *Phytophthora* species. Disease increased at the same time that the sugar beet temperature increases to above 32° C. Further work will be conducted to 1) Identify the *Phytophthora* species associated with the root rot 2) Complete Koch's postulates 3) Define conditions favoring infection 4) Develop a greenhouse assay to study disease development and 5) Evaluate fungicides and/or cultural practices for management of the disease/disease complex.
