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# 2009 International Annual Meetings

*Footprints in the Landscape: Sustainability through Plant and Soil Sciences*

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## Cross Pathogenicity of *Fusarium Oxysporum* f. Sp. *Betae* On Sugar Beet and Common Bean.

Monday, November 2, 2009

Convention Center, Exhibit Hall BC, Second Floor

**Austin Case**, Colorado State Univ., Agronomy Club, Fort Collins, CO, Kimberly Webb, Sugarbeet Research Unit, United States Dept. of Agriculture-Ag. Research Service, Fort Collins, CO and Mark Brick, Soil and Crop Sciences, Colorado State Univ., Fort Collins, CO

*Fusarium* wilt, also known as *Fusarium* yellows, is caused by the fungus *Fusarium oxysporum*. *Fusarium oxysporum* is a vascular pathogen with a broad host range including common bean (*Phaseolus vulgaris* L.) and sugar beet (*Beta vulgaris* L.) with formae speciales (f. sp.) defined by the ability to cause disease on a specific host. Hence, *Fusarium* wilt of common bean is caused by *F. oxysporum* f. sp. *phaseoli* and *Fusarium* yellows on sugar beet caused by *F. oxysporum* f. sp. *betae*. Both pathogens occur throughout the sugar beet and common bean production areas in the United States where sugar beet is often grown in rotation with common bean. Often isolates of *F. oxysporum* are tested for pathogenicity only on the host they were isolated from; therefore, it is not known whether isolates of f.sp. *betae* can be pathogenic on common bean, or f. sp. *phaseoli* pathogenic on sugar beet; which has implications regarding common bean and sugar beet crop rotations. Our objective is to determine if isolates of *F. oxysporum* f. sp. *betae* are cross-pathogenic to common bean. We inoculated common bean with 52 isolates of *F. oxysporum* f. sp. *betae* along with 4 isolates of *F. oxysporum* f. sp. *phaseoli*, (used as controls) to common bean (Viva) and sugar beet (FC716) in the greenhouse using a root dip assay and assessed disease severity based on a disease index scale (1-9 for common bean; 0-5 for sugarbeet). No *F. oxysporum* f. sp. *betae* isolates showed cross-pathogenicity to common bean, nor were the *F. oxysporum* f. sp. *phaseoli* controls cross pathogenic to sugar beet. These results suggest that common bean does not serve as a host for *F. oxysporum* f. sp. *betae*, and that crop rotation with bean and sugar beet can be a useful method of control.

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677 South Segoe Rd | Madison, WI 53711 | 608-273-8080 | Fax 608-273-2021