

HANSON, LINDA E.*, AMY L. HILL, and LEE PANELLA, USDA-ARS, SBRU, 1701 Centre Avenue, Fort Collins, CO 80526. **Diversity in *Fusarium* from sugarbeet.**

Fusarium yellows of sugar beet can cause reductions in root yield in addition to reducing sucrose percentage and purity in the root. The primary causal agent is *Fusarium oxysporum* f. sp. *betae* (FOB), although *F. acuminatum* can cause *Fusarium* yellows symptoms. *Fusarium* species also can cause root rot or seedling symptoms in sugar beet. We investigated the variability in isolates of *Fusarium* isolated from sugar beet in respect to their pathogenicity and virulence on sugar beet in greenhouse tests. FOB isolates also were examined for genetic variability. Five-week-old beet plants (*Fusarium*-susceptible germplasm FC716) were inoculated by dipping roots in spore suspensions of the different isolates. In addition to isolates of *F. oxysporum*, isolates of *F. solani*, *F. acuminatum*, *F. avenaceum*, and *F. verticillioides* also were pathogenic in our greenhouse assay. Several additional species were isolated from sugar beet roots. Isolates of FOB were analyzed by RAPD analysis using nine primers. Based on RAPD patterns, FOB and non-pathogenic isolates clustered together. Some FOB strains from different geographic regions showed divergent patterns. By DNA sequence analysis, a small subset of these isolates also showed significant variability in the beta-tubulin gene. Thus FOB is a diverse group within *F. oxysporum*. When isolates were tested on different sugar beet germplasm and varieties, some isolates gave different reactions with different varieties. This may indicate the existence of races within FOB.