

MAHMOOD, T*, and RUSH, C. M. Texas A&M University, Texas Agricultural Experiment Station, PO Drawer 10, Bushland, TX 79012. **Cross-protection between beet soil borne mosaic virus and beet necrotic yellow vein virus in sugar beet.** *Phytopathology* 88: XXX

ELISA, Western blotting, and reverse transcription-polymerase chain reaction (RT-PCR) were used to investigate the occurrence and degree of cross-protection produced in sugar beet in greenhouse by protecting plants with beet soil borne mosaic virus (BSBMV) and challenging with beet necrotic yellow vein virus (BNYVV). Sugar beet seedlings were inoculated mechanically by vortexing in the absence of the fungus vector *Polymyxa betae*. A high degree of cross-protection occurred between BSBMV and BNYVV. The persistence of cross-protection depends on the interval between inoculations with protecting and challenging virus; longer inoculation intervals enhanced the persistence of cross-protection. Cross-protection was most effective when inoculation interval was between 5 and 10 days, a period during which virus accumulated to a maximum level in plants singly infected with BSBMV or BNYVV. Results obtained by ELISA and Western blotting were consistent indicate that cross-protection affected viral capsid protein accumulation. RNA of both protected and challenging viruses was detected in doubly infected plants by using RT-PCR indicating that RNA of the challenge virus was present in the protected plants.