

GERIK, JAMES S., GREGORY A. FISHER, AND DONNA J. NABBEN-SCHINDLER, Holly Sugar Corporation, P.O. Box 60, Tracy, California 95378. Population dynamics of *Polymyxa betae* and beet necrotic yellow vein virus in soil.

*Polymyxa betae*, the vector of beet necrotic yellow vein virus (BNYVV) has been reported to be able to survive for long periods of time. In California, the normal rotation cycle for sugarbeet production is much longer than in most areas. Rotation cycles of 7 years or more between sugarbeet crops are quite common. This longer rotation time should allow for a greater attrition rate of *Polymyxa betae* between sugarbeet crops compared to shorter rotations. Reports from the Netherlands indicate yield loss and disease severity increase with increasing initial inoculum levels. Recently, fields in California have been observed to have less yield loss due to rhizomania than several years earlier when a previous sugarbeet crop was grown. A study was undertaken to observe the rate of inoculum decrease after a sugarbeet crop. Following harvest in June 1995, soil samples were collected from two fields in the Imperial Valley of California that expressed symptoms of rhizomania during the 1994-1995 sugarbeet crop. The soil samples were air dried and ground. The soil samples were serially diluted using soil from the same fields that had been previously pasteurized. Seven 5-fold dilution series were made with each sample. Sugarbeet seed was planted into each of the diluted soils and the sugarbeets were cultivated for approximately 8 weeks. Roots removed from the soils were assayed for infection by *Polymyxa betae* and BNYVV. The inoculum levels of the initial soil samples for both *Polymyxa betae* and BNYVV were determined by the most probable number (MPN) technique. Samples were again collected from the same area of the fields at approximately 6 month intervals. During the interval between the first 2 sample dates the MPN of BNYVV dropped in both fields by 38% and 48%. The MPN of *Polymyxa betae* remained constant in one field but dropped by 60% in the second. Results from 2 more sample dates will be reported.