Back

First Report of *Iris yellow spot virus* in Commercial Leek (*Allium porrum*) in the United States. H. F. Schwartz and K. Otto, Department of Bioagricultural Sciences and Pest Management, Colorado State University, Fort Collins 80523-1177; and H. R. Pappu, Department of Plant Pathology, Washington State University, Pullman 99164-6430. Plant Dis. 91:113, 2007; published on-line as DOI: 10.1094/PD-91-0113B. Accepted for publication 12 October 2006.

Iris yellow spot virus (IYSV; family *Bunyaviridae*, genus *Tospovirus*) has a wide host range, with onion (*Allium cepa* L.) being one of the most economically important hosts. IYSV has been widely reported from this species throughout most onion-production regions of the United States and many areas of the world in recent years. A relative of onion, leek (*Allium porrum* L.), has been reported to be a host of IYSV in countries such as the Netherlands, Reunion Island, and Australia (1,4). A related tospovirus, *Tomato spotted wilt virus* (TSWV), was recently reported causing necrotic lesions and extended bleaching of leaf tips of leek in Georgia (2). In September of 2006, disease symptoms suspected to be caused by IYSV were observed on central and outer leaves of plants in a 2.6-ha section of commercial leeks being grown from seed (cvs. Tadorna and King Richard). The leek plants were adjacent to a 3.1-ha section of seeded onion (cv. Exacta) that had been harvested 2 weeks earlier. Twenty-five to thirty percent of unharvested onion plants next to the leek section also exhibited IYSV-type disease symptoms generally on the central leaves. Both *Allium* spp. were seeded 5 months earlier and grown under certified organic, pivot-irrigated conditions in Larimer County in northern Colorado. Disease symptoms on leek and onion leaves appeared as dry, white-to-straw-colored, spindle- or diamond-shaped lesions that ranged in size from 5 to 10 × 25 to 50 mm or larger depending on lesion age. Lesion centers, especially on leek, often had green centers with concentric rings of alternating green and straw-colored tissue. Green tissue near necrotic lesions of a single symptomatic leaf from 10 plants each of leek and onion was sampled and analyzed using a double-antibody sandwich (DAS)-ELISA (Agdia, Inc., Elkhart, IN). Five of ten leek and nine of ten onion samples were positive for IYSV. Using reverse transcription (RT)-PCR and primers specific to the small RNA of IYSV (5(prime)-TAA AAC AAA CAT TCA AAC AA-3(prime) and 5 (prime)-CTC TTA AAC ACA TTT AAC AAG CAC-3(prime)), the complete nucleocapsid (N) gene was amplified from symptomatic leek plants and then sequenced (3). Comparisons with IYSV N gene sequences available in the GenBank confirmed the identity of the virus as IYSV. Leek samples were negative for TSWV when tested by RT-PCR with TSWV-specific primers. In

addition, three specimens of the presumed thrips vector recovered from five IYSV-infected leek plants were identified as *Thrips tabaci* (L. A. Mahaffey and W. S. Cranshaw, *personal communication*). Earlier in the season, *T. tabaci* was observed in the nearby planting of onion that also exhibited IYSV in September. To our knowledge, this is the first report of natural infection of commercial leek with IYSV in the United States. The incidence of plants (25 to 30%) with foliar lesions on multiple leaves and stunting of 5% of infected plants in both leek cultivars suggests that IYSV could seriously reduce leek stem development and marketability.

References: (1) I. Cortes et al. Phytopathology 88:1276, 1998. (2) C. Nischwitz et al. Plant Dis. 90:525, 2006. (3) H. R. Pappu et al. Arch. Virol. 151:1015, 2006. (4) T. N. Smith et al. Plant Dis. 90:729, 2006.