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(Issues before 1997)

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- [Author Instructions](#)
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[Home](#) > [Plant Disease](#) > [Table of Contents](#) > [Abstract](#)
[Previous Article](#) | [Next Article](#)

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Page 318

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Disease Notes

First Report of *Iris yellow spot virus* on Onion in Canada

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Iris yellow spot virus (IYSV; family *Bunyaviridae*, genus *Tospovirus*) is an economically important viral pathogen of onion vectored by onion thrips (*Thrips tabaci* Lindeman). Rapid spread of IYSV has occurred in the western United States and Georgia, with recent reports of IYSV from New York in the northeastern United States (1). In June and mid-July of 2007, symptomatic plants were found in Ontario, Canada in onions grown from sets in a home garden in Grey County (44°27'N, 80°53'W) and on a small commercial farm in Ottawa-Carleton County (45°14'N, 75°28'W), respectively. In the home garden, bleached, elongated lesions with tapered ends occurred on middle-aged leaves of 30% of 100 plants. By August 2007, 91% of these plants were symptomatic. In Ottawa-Carleton, two lesions with green centers and yellow borders occurred on a single leaf of a single plant in a field of 1,120 plants. Symptomatic leaf tissue tested positive for IYSV by IYSV-specific antiserum from Agdia Inc. (Elkhart, IN) in a double-antibody sandwich (DAS)-ELISA. These two isolated and remote finds of IYSV in Ontario prompted a survey in early August of 2007 of the Holland Marsh (44°5'N, 79°35'W), the largest onion-producing region in Ontario. Nine onion fields separated geographically across the Holland Marsh Region were scouted and one to three samples of symptomatic tissue per field were analyzed by DAS-ELISA. IYSV was confirmed in seven of nine (78%) fields surveyed and in 13 of 16 (81%) of the individual samples. A reverse transcription (RT)-PCR assay was used to verify the presence of IYSV in one new symptomatic tissue sample per field collected from three of the fields where IYSV was confirmed by ELISA. Primers specific to the small (S) RNA of IYSV (5'-TAA AAC AAA CAT TCA AAC AA-3' and 5'-CTC TTA AAC ACA TTT AAC AAG CAC-3') were used (2). The resulting 1.2-kb amplicon, which included the 772-bp nucleocapsid (N) gene was cloned and sequenced. Sequence analysis showed that the N gene of the Ontario isolate (GenBank Accession No. EU287943) shared 92 to 98% nucleotide sequence identity with known IYSV N gene sequences. The highest nucleotide sequence identity (98%) was with Genbank Accession Nos.

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DQ233475 and DQ233472. To our knowledge, this is the first report of IYSV infection of onion in Ontario and Canada. This finding confirms further spread of the virus within North America and the need for research to develop more effective management options to reduce the impact of IYSV on onion production. The finding of IYSV in remote and isolated locations where onions were grown from sets implies that the spread of IYSV via infected bulbs warrants further investigation as a potentially important route of distribution of the virus.

References: (1) D. H. Gent et al. *Plant Dis.* 88:446, 2004. (2) H. R. Pappu et al. *Arch. Virol.* 151:1015, 2006.

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