

# Onion

## Iris Yellow Spot

Howard F. Schwartz and David H. Gent

### Identification and Life Cycle

Iris yellow spot is caused by the tospovirus *Iris yellow spot virus* (IYSV), and has recently become widespread in the western U.S. IYSV can also infect leek, Chinese chive, iris, lisianthus, and several other ornamental hosts. IYSV is reportedly vectored only by onion thrips (*Thrips tabaci*). Tospoviruses are acquired by first larval instars, but only can be transmitted (within 10 minutes of feeding) to plants after circulation and replication in the vector. The thrips becomes viruliferous for its entire life, but the virus is not known to be passed to thrips progeny through eggs. Weed hosts are largely unknown, but approximately 2% of redroot pigweed plants tested were positive for IYSV in Colorado. Onion seed, bulbs, and roots are not known to carry the virus, but volunteer onions are often symptomatic in early spring in Colorado. The virus likely overwinters in perennial and winter annual weeds, over-wintering onion, and adult thrips.

### Plant Response and Damage

Iris yellow spot symptoms first appear as straw-colored, lenticular-shaped lesions on leaves. Lesions may have green centers or alternating rings of green and straw-colored tissue. Distinct spindle-shaped lesions are often found on scapes. Diseased plants may be scattered or widespread across a field, but the highest incidence of disease is often found on the field edges. Iris yellow spot is not known to have any direct affect on bulb quality, but bulbs from plants infected early in the season may not develop fully and store poorly. Total yield losses range from 1 to 10% or more in Colorado, but the disease can significantly reduce the percentage of colossal and jumbo grade bulbs in susceptible varieties.

### Management Approaches

#### Biological Control

No biological control strategies have been developed for Iris yellow spot.

## **Cultural Control**

Plant high quality transplants free from thrips and Iris yellow spot. Practice a three-year or longer rotation between onion crops. Eliminate volunteers, culls, and weeds in and around onion fields. No varieties are completely resistant to Iris yellow spot, but varieties less susceptible to Iris yellow spot and thrips feeding injury have been identified and should be planted. Overhead irrigation can provide some thrips and disease suppression. Plant as densely as possible; avoid thin, patchy stands. Avoid crop stress, such as deficient or excessive irrigation, compaction, saline or alkaline soils, or herbicide injury. In Colorado, transplanted onions generally escape severe infection, but also may be a source of contamination. If highly susceptible varieties must be grown they should be produced from healthy transplants.

## **Chemical Control**

Thrips control may provide some reduction in Iris yellow spot, but thrips control alone is not sufficient to economically control the disease. Thrips resistance to commonly applied insecticides is widespread in Colorado and other onion production regions of the High Plains.

A Section 18 label for Actigard (acibenzolar methyl) has been used on a limited basis in Colorado during recent years.

Categories: Onion, Disease, Iris Yellow Spot

Date: 04/01/2007