

Progress Report (06/06/06): IYS Risk Index to Predict Virus and Thrips

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Funding (\$58,716) was authorized by the WRIPM Center on 2 February 2005 to Colorado State University researchers (Drs. H. F. Schwartz, W. S. Cranshaw and R. Khosla) to initiate field studies in 2005 and 2006 in Colorado in areas with a history of *Iris Yellow Spot Virus* (IYSV).

The overall goal is to develop multi-faceted management strategies that will reduce grower reliance upon high-risk pesticides, while at the same time improve productivity, profitability, sustainability and food safety for onions grown in diverse cropping system in the western U.S. and elsewhere. We will investigate cultural practice effects upon thrips and tospovirus management in the western U.S., and develop a Risk Index Model for future validation in the western U.S. The specific objectives of this study are to:

- I. Determine the relationship of Iris yellow spot to soil properties, plant stress, and management practices.
- II. Develop an Iris yellow spot Risk Index for validation by growers and crop consultants to identify and avoid high risk situations in different cropping systems.

2005 Results & Associations:

- Thrips were spatially dependent at one or more evaluations in 3 of the 5 fields
- IYSV was spatially dependent in 2 of the 5 fields
- Thrips populations and IYSV incidence were correlated in 2 of the 5 fields
- IYSV and thrips were affected weakly to strongly by soil nutrient levels in 4 of the 5 fields; primarily by phosphorus, and then by potassium, magnesium and organic matter content

This field work will be repeated in at least three commercial fields in 2006, and the data combined with the 2005 data and relations to develop an Iris Yellow Spot Risk Index for validation by onion growers and crop consultants in Colorado and other western onion-growing states where these pests continue to be priority threats to the crop.