WERA-20 REPORT FOR 2008 --COLORADO

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Objectives for 2007/2008:

1. Cherry Rasp Leaf Virus (CRLV): Continue pot trials to examine CRLV susceptibility for Bing cherry on Citation/Z-interstem and on Mazzard rootstocks (via-addition of dagger nematodes collected from soils beneath sweet cherry trees with severe symptoms of CRLV.).
2. Identify the species of dagger and variability among populations in relation to rasp leaf virus transmission.
3. Study the rasp leaf virus transmission test in test plant (*Nicotiana benthamiana*) and cross inoculation from cherry to peach and apple.
4. Other: Watch for, identify, and confirm any unusual fruit virus problems that may occur in Colorado's fruit industry.

Results for 2007/2008:

1. Cherry Rasp Leaf Virus & Nematode vectors of fruit viruses: Pot-in-pot studies were established to examine comparative susceptibility of Bing cherry on Citation/Z-interstem rootstock and on Mazzard in spring of 2006. Potting soil was inoculated with viruliferous dagger nematodes (via rooted symptomatic root-suckers + surrounding soil added to pot soil of inoculated replicates). In 2007, pot soil was replaced by field soil with viruliferous dagger nematodes. No symptoms were evident on any of the inoculated trees as of spring 2008.
2. Dagger nematodes from different crops (peach, cherry, plum, apple and grapes) and locations were collected and identified. Due to large variability in morphological characters, molecular identification (in collaboration with Allen Szalanski, University of Arkansas) is underway.
3. Mechanical inoculation of cherry rasp leaf virus on *Nicotiana benthamiana*, using common buffer and carborundum powder, failed to induce any symptoms. Tissue inoculation (grafting of infected bark with cambium) from cherry to apple and peach was carried out in 2007 growing season to study cross inoculation. No symptoms have been observed to date on apple and peach.
4. Other: We are continuing to monitor an incidence of grape fanleaf virus detected in a block of Cabernet franc grapes in Mesa Co. in fall 2006. Infection appeared to be localized, not spreading in the vineyard despite the abundant presence of *Xiphinema* (dagger) nematodes. The block was removed during the winter of 2006, fumigated in late summer 2007, and replanted in 2008. Dagger nematode, but not *X. index* reported as vector, was observed in these block. In addition, nematode populations in the removed block soil and in soils of the adjacent Cabernet sauvignon grapes are being monitored and the adjacent block watched for any sign of spread. In 2008 growing season, virus-like symptoms in cherry (vein clearing with clear green islands) were observed in one of the growers' field in Dominguez Canyon; identification of the cause is underway.

Proposed Objectives for 2008/2009:

1. Continue Cherry Rasp Leaf Virus (CRLV) susceptibility studies for the Citation / Z-interstem combination rootstock. Work to verify identity of the dagger nematodes via molecular ID methods at Univ. of Arkansas. Continue monitoring on incidence of Grapevine Fanleaf in the above vineyard (& nematode populations therein).
2. Complete molecular characterization of dagger nematode. Continue virus transmission through different means. Evaluate Scions (Van and Bing) and rootstocks (Gisela 5 and Gisela 7) susceptibility to rasp leaf virus.
3 Other: Determine if the sweet cherry problem in Dominguez Canyon is virus-related. Watch for, identify, and confirm any unusual fruit virus problems that may occur in Colorado's fruit industry.

WERA-20 Related Publications during 2007/2008:

None