2008 Annual Report to WERA-20. South Carolina. S.W.Scott

Research on the bloom delay associated with the peach germplasm Ta Tao 5 and characterization of the virus and virus-like agents associated with this phenomenon has continued. Ta Tao 5 is infected with Peach latent mosaic viroid (PLMVd), Apple chlorotic leaf spot virus (ACLSV), and Asian prunus virus (APV). The complete nucleotide sequences of the isolate of PLMVd and ACLSV (GenBank Accession EU223295) have been determined. APV has been partially purified and approx 50% of the sequence of the virus has been determined.

Ta Tao 5 that had been heat-treated at NRSP-5, Prosser, WA has been shown to contain only APV according to repeated PCR tests. In 2008 trees of heat-treated T a Tao 5 exhibited no delay in bloom compared to other peach cultivars commonly grown in South Carolina. Trees of Ta Tao 5 bloomed at least 10 days after the heat-treated material.

A trial involving trees of the peach cultivar Springprince inoculated with different sources of ACLSV, PLMVd, and APV (heat-treated Ta Tao 5) and compared with trees that had been inoculated by transferring the mixture contained in Ta Tao 5 has been established. In 2008, only those treatments which contained PLMVd displayed bloom delay.

The APV infecting Ta Tao 5 appears to be a mixture of at least APV-1 and APV-3 (Marais *et al*., 2006. Virus Research 120: 176-183) and further research is needed to confirm this. A second trial involving the cultivar Juneprince and refined treatment mixtures based on the preliminary data from the trial with Springprince has been established and will be monitored for the next 5 -7 years.

Publications

Marini,D.B., Gibson,P.G. and Scott,S.W. 2008 The complete nucleotide sequence of an isolate of apple chlorotic leaf spot virus from peach (Prunus persica (L.) Batch). Archives of Virology 153: 1003-1005.

Gibson , P.G. Reighard, G.L. Scott, S.W. , and Marini, D. 2008 . Phenotypical Variation in Peach Trees Inoculated with Defined Mixtures of Viruses and Peach Latent Mosaic Viroid. Acta Horticulturae,781:541-546.