Oklahoma State University

2004 Report for the SERA-IEG14

1. Oklahoma Grape Management Course and other horticultural programs: Dean McCraw, Professor Emeritus (submitted by Sharon von Broembsen)

This is the fourth successive year the grape management course has been offered, with approximately 340 growers, potential growers and county educators participating over the four years. The course meets monthly throughout the year from February through October for 4-5 hours, with topics timed to the stage of wine grape production and utilization occurring in that month. Each session has a field component. Field days and other educational programs not associated with the course are also offered each year. During 2003 preliminary data was collected on cultivar and rootstock evaluation trials at three Oklahoma locations and these evaluations are continuing in 2004. This research is supported by the Kerr Foundation.

2. Insect pests of grapes: Phil Mulder, Professor / Extension Entomologist

The Situation - During the past three years (2002-2004) we have conducted extensive surveys to attempt to characterize the grape pest complex in Oklahoma. Concerning arthropod pests, we chose to assume that many of our problems would parallel those of our eastern neighbor (Arkansas). Primary grape insect problems in Arkansas include such pests as grape berry moth, grape root borer and various leafhopper species. In this regard, we began studies in 2002 to assess the seasonal arrival and phenology of the grape berry moth in Oklahoma and determine how well development and damage in grape vineyards in Oklahoma coincides with events predicted from data obtained in Arkansas. Likewise, we sampled for various species of leafhoppers to determine what potential vectors of Pierce's disease might exist in our state. Monitoring was also conducted for adult and pupal stages of the grape root borer. Studies were conducted in

three counties in northeast Oklahoma and in six counties located along the border of Texas.

Results – Data obtained from two years of monitoring grape berry moths using pheromone traps and scouting determined that models initiated either January 1 or based on a developmental temperature threshold of 50° F predicted observed phenological events (e.g.- moth generation flights, larval peaks, etc.) more accurately than those based on first capture or biofix. In addition, these former models predicted those events before their occurrence rather than after the predicted dates. A technique was developed for incubating grape berry moth in the laboratory to confirm larval presence in the field. Although low numbers of grape root borer were captured each year, no pupal skins were recovered during sampling. With the youth of grape production in our state this problem may take time to surface. Potato leafhoppers were the predominant species recovered in six sticky traps placed at two height locations across each vineyard. No glassy-winged sharpshooters were captured; however, blue-green and green sharpshooters were recovered from two sites. These latter species have also been implicated in Pierce's disease in other states.

3. Pierce's Disease Surveys: Sharon von Broembsen, Professor/ Extension Plant Pathologist

During July and August 2003, petiole samples were collected from symptomatic and healthy grapevines in the second leaf or greater from seventeen vineyards in ten Oklahoma counties bordering Texas and Arkansas. Samples were assayed for *Xylella fastidiosa,* the bacterial pathogen causing Pierce's Disease of grapevines, using polymerase chain reaction (PCR) amplification of DNA with gel elucidation of products**.** *X. fastidiosa* was not detected in any of the samples. During 2004 the survey was expanded and a real time PCR assay was used. The analysis of the results is still in progress. We continue to develop educational materials and to disseminate information to Oklahoma grape growers at meetings and by newsletter, especially regarding our current assessment of the risk of this disease based on both the disease and potential vector surveys.