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**108. Status of methyl bromide alternatives for ornamental crop production in Florida and California.** Roskopf, E. N., Gerik, J. S., Kokalis-Burelle, N., Church, G. T., and McSorley, B. *Phytopathology* 97(7)Suppl:S101. 2007.

point-inoculated isolates. Specific quantification procedures have been used in order to measure, for each used isolate, the size of the viral progeny produced in infected tobacco and their respective competitiveness during mixed infection. Results show both the influence of necrosis property and the role of other sequence(s) of the complete PVY genome on fitness. These results improved the knowledge on the influence of necrotic ability in PVY evolutionary process.

#### **First report of *Phytophthora siskiyouensis* causing disease on Italian alder in Foster City, California**

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*Phytophthora* species cause cankers on the stems of many forest and landscape trees. In November of 2006, Italian alder trees, *Alnus cordata*, were reported to be dying with symptoms of bleeding cankers located at the base of the stem. The trees were located in a business development outside of a library in Foster City, California. Several of the trees had already been removed as hazardous. Successful isolations were made at the leading edge of the canker from the wood cambium interface onto PARP selective medium. A homothallic *Phytophthora* with primarily paragynous antheridia grew out in the media. The sporangia, produced easily on carrot agar plugs in soil water were ovoid to ellipsoid in shape. Oospores were mostly globose and aplerotic. The intergenic transcribed spacer region of rDNA of the oomycete matched with 100% identity to *Phytophthora siskiyouensis*, a pathogen associated with tan oak and also found in the soil and water in coastal Oregon. Pathogenicity experiments were conducted on Italian, red and white alder. This *Phytophthora* may be endemic to California. Foster City shares a marine-influenced climate with coastal Oregon.

#### **The use of various pre-harvest practices for the management of "Sour Rot" and "Non-Botrytis Slip Skin" of Red Globe table grapes**

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Field trials were set up in 2006 in 4 different Red Globe vineyards in California to assess effects of pre-harvest management practices (fungicidal, cultural and packing) on the severity and incidence of Non-Botrytis Slip Skin (NBSS), or melting decay. At harvest, the effects were also assessed on severity and incidence of sour rot, typically caused by *Acetobacter* spp. and various fungi (*Aspergillus*, *Rhizopus* and *Cladosporium* spp.). Harvested fruit was stored at 0°C for 5–9 weeks before rating for NBSS. Although sour rot levels varied among sites, fungicide applications of Switch, Pristine, and Scala all significantly reduced disease. Heavy early season leaf-pull also lowered sour rot disease in one of the two sites tested. After 5 weeks in cold storage, pre-harvest applications of Scala and Pristine significantly reduced NBSS incidence in all four sites, while heavy leaf pull reduced incidence and severity in one of two sites tested. Packing practices had the most significant effect on NBSS in all four sites. Clusters that were packed in boxes "clean" showed less NBSS than those that were trimmed and handled more extensively. NBSS levels were highest in the site with the most pre-harvest

#### **Status of methyl bromide alternatives for ornamental crop production in Florida and California**

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The phase-out of methyl bromide presents critical challenges to producers of cut-flowers and in-ground ornamentals. Work in California and Florida has included combinations of chemicals, various formulations, and application methods for registered compounds, including 1,3-dichloropropene (1,3-D), chloropicrin (pic), and metam sodium. California research has emphasized drip application while Florida research focused on broadcast or in-bed shank applications. Unregistered chemicals such as furfural, iodomethane, dimethyl disulfide, sodium azide, propylene oxide, and 2-bromoethanol, and soil solarization have also been tested. Limiting factors that make the identification of alternatives for these crops challenging include the need for control of previous crop rogues; ability to glue virtually impermeable films for broadcast fumigation; CA township caps; and proximity of occupied structures to ornamental production areas. The non-registered materials Midas™ (iodomethane:pic 50:50), Accolade™ (dimethyl disulfide:pic 79:21), and 2-bromoethanol have been efficacious against root-knot nematodes, weeds, and pathogens in Florida. Soil solarization has also proven effective for control of some weeds in Florida. Midas 50:50 and 33:67, and InLine® (1,3-D:pic, 60.8:33.3) have provided the best results in California.

#### **Inheritance and genetic mapping of resistance to *Pythium* damping-off caused by *Pythium aphanidermatum* in soybean cultivar Archer**

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Seedling diseases caused by *Pythium* spp. can significantly reduce soybean stands and yield. Recent research indicated that the cultivar Archer is more resistant to seedling diseases caused by *Pythium* spp. than Hutcheson. This resistance appeared to be associated with the *Rps 1k* gene for resistance to *Phytophthora sojae*. To determine the inheritance of *Pythium* resistance in Archer, Archer by Hutcheson crosses were made and F<sub>2,4</sub> lines generated. Parents and F<sub>2,4</sub> lines were screened with *P. aphanidermatum* using a hypocotyl inoculation technique. Five days after inoculation, plant survival was scored. There were 21 resistant, 48 intermediate and 17 susceptible lines. These results fit the (1:2:1) model for a single dominant gene in Archer. To identify the genomic location of the resistant gene, the F<sub>2,4</sub> plants were screened with SSR markers. Markers Satt 510 and Satt 114 from MLG F were polymorphic between the parents and resistant and susceptible bulks. The *Pythium* resistant gene is located 10.6 cM from Satt510 and 26.6 cM from Satt114 marker. The new resistant gene, tentatively named *Rpa1*, is not linked to *Rps1k*, located on the MLG N. The MLG F contains clusters of numerous resistant gene as well as pathogen resistance QTLs. The identification of SSR markers linked to this new resistant gene should be useful in selection for resistant genotypes in breeding programs.