UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION:
EL DORADO AND AMADOR COUNTIES

FOOTHILL FARM AND ORCHARD NEWS

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Greetings and Happy New Year! 2003 was a busy and challenging year for all of us: while U.C. Cooperative Extension has been hit with severe budget cuts we have continued to accomplish much needed research and outreach efforts in issues that are important to all of us working in agriculture and natural resources in California. I held 4 grower meetings and 3 field days in 2003-hopefully you had a chance to attend one of these meetings aimed at assisting our local agricultural production. Be sure to look for upcoming meeting notices, as I will be presenting the results from our local codling moth and olive fruit fly trials this spring. If there is a topic you would like to see discussed, please let me know. If you manage an orchard or vineyard, sign up now for our 5 week "Water Quality Short course" beginning February 18. This course is aimed at walking each participant through his or her own individual farm water quality plan that will be critical for the new year's Irrigated Land Discharge Waiver requirements. And finally, if you are concerned about the reorganization and continued program delivery of U.C. Cooperative Extension, sign up for the UCANR Future Directions "Listening Sessions" February 26 in Davis. We continue to need your support. I look forward to working with all of you in the coming year.

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INSIDE THIS ISSUE:

WATER QUALITY AND THE NEW CONDITIONAL WAIVERS FOR IRRIGATED LANDS

If you have irrigated agriculture and live in El Dorado county, you should have by now received information from the County Dept. of Agriculture that gives you the option to sign up as a member of the newly formed El Dorado County Agricultural Watershed Group (EDCAWG), a sub-group of the Sacramento Valley Watershed Coalition. The Coalition is being formed as a means to meet the new Conditional Waiver for Irrigated Lands, as adopted by the California Regional Water Quality Control Board (CRWQCB). If you have irrigated agriculture and choose not to join the watershed group, you may need to submit an individual discharge waiver to the CRWQCB in the coming year.

The federal Clean Water Act requires that the chemical, physical and biological integrity of our waters be maintained. The federal law leaves primary responsibility for its implementation with individual states. In California, the Porter-Cologne Act is the law that establishes that the State and Regional Water Quality Control Boards have the responsibility and power for implementing the Clean Water

Act, in order to protect our water quality for all of its beneficial uses (drinking water, fish and wildlife habitat, recreation, irrigation, etc.). In 1999, changes were made to the Porter-Cologne Act which stated that current waivers (those that everyone in irrigated agriculture have been discharging with up to now) would sunset in January 2003. Thus, after many meetings and public hearings were held by the RWQCB, the new "conditional waivers" were adopted in July of this year.

The term Conditional Waiver is misleading, what is "waived" are the fees and requirements for submitting individual notifications of discharge every time there is an event (such as a storm water event) when water runoff occurs. The right to pollute waters is not granted with these waivers, and never has been. So, the expectation for water quality has not changed. But, since over 40 water bodies are currently on the state's Clean Water Act 303d list, meaning they are "impaired" and not meeting water quality requirements, and since many of these bodies have been found to be impacted due to agricultural practices, the new requirements are being put in place to assess and hopefully improve water quality.

Watershed plans required for implementing these waivers are due in 2004 and will include information such as a history of water quality data for the watershed, crop and pesticide use information, Integrated Pest Management methods in use, and a monitoring and reporting plan.

Not just pesticides and not just irrigated lands are included in the scope of these waivers. The waiver requirements cover anything that adversely impacts water quality, including nutrients, sediment, selenium, salt, boron, etc., and also includes surface water runoff, storm water runoff, operational spills, discharge, etc. We refer to much of this type of runoff as "non-point source" pollution.

WHAT YOU CAN DO:

- Become educated on this issue and be aware of the waiver requirements. Information is available on the Regional Water Resource Control Board website at: http://www.swrcb.ca.gov/~rwqcb5/programs/irrigated_lands/index.html

- Steve Burton, Deputy Agricultural Commissioner, is the Sub-Watershed Coordinator for El Dorado County. Steve plans on holding grower-oriented meetings once the details on the conditional waivers are finalized. Watch for these meeting notices in the next months and plan to attend to become informed.

- Consider your own operation- be prepared to discuss your farm's water quality plan and its components: pesticide use, IPM, sediment and erosion prevention, etc.

- Sign-up for our five week Water Quality Short course, being offered Wednesday afternoons, beginning February 18-March 17. In the short course we will walk you through the steps necessary to develop your own, confidential, farm water quality management plan. This course will prepare you for what will be required in the coming year and will help to educate you on this issue. Contact Nancy Starr at 530-621-5528 for registration information.

***PHYTOPHTHORA* TRIAL IN CHRISTMAS TREES SHOWS SPECIES CAN OFFER DISEASE RESISTANCE**

Phytophthora root rot is one of several soil-borne disease organisms that have been found infecting Christmas tree species in the Sierra foothills. *Phytophthora cinnamomi* Rands (hereafter referred to as *P.c.*) was first isolated from cinnamon trees in Sumatra in about 1922 and has since been reported from over 70 countries. It has a HUGE host range including peach, pear, walnut, avocado, ornamentals such

as rhododendron and camellia, eucalyptus, and conifers including pine, true firs and Doug Fir. It is considered one of the most virulent species of *Phytophthora*, which means it is very good at infecting and causing rapid death of its host. In El Dorado, we have found *P. cinnamomi* to be the species often infecting Christmas trees.

Trees with root rot turn yellow-red and die, often apparently suddenly. In Christmas tree species, we have observed "bleeding" or gummosis- heavy pitch bleeding from the trunk-in trees that were positively diagnosed as having *P.c.* Roots from these infected trees will be minimal-often brown and rotting with a lot of "sloughing" of the root cortex. This deterioration of the roots is what causes the trees to become suddenly wilted-turn yellow, often red-rust colored, lose needles- collapse and die. The trees are unable to get water.

In 2003 I conducted an on-farm pilot study in cooperation with Rapetti Farms and new Forest Pathologist Tom Smith to get a better understanding of what growers can do to try to effectively mange *Phytophthora* root rot on their Christmas tree farms. In our trial we planted 4 species of seedlings-White Fir, Noble Fir, Douglas Fir, and Nordmann Fir (all donated from growers or the Placerville Forest Service Nursery) and applied the following treatments:

1. Control-untreated.

2. Subdue Maxx™, Syngenta, (mefenoxam) at planting at a rate equivalent to10x the labeled 2-0 transplant rate: 0.5 pt. Subdue/gal. One gallon of solution was mixed and tree roots were soaked in the solution for 30 minutes prior to planting.

3. Subdue Maxx™ during the season using the labeled rate for 2-0 transplants of .05 pt. Subdue/gal. A volume of 2 pints solution per tree was hand-applied at the base of each tree on three dates: March 31, June 4 and July 18.

4. Fenamidone (a new fungicide from Bayer which isn't yet registered) during the season at a rate equivalent to 14 oz./100 gal. A volume of 2 pints of solution per tree was hand applied at the base of each tree on three dates: March 31, June 4 and July 18.

5. Raised beds. Prior to planting, a mound approximately six inches in height was created and the tree was planted into the middle of the mound.

Five replicates of the Doug Fir and White Fir, and three replicates of the Nordmann and Noble Fir were blocked and treatments were randomly applied in two sections of the field. Trees were inspected for visual symptoms of *P.c.* infection (browning of entire seedling) on June 3, June 11, July 15, and August 27. In order to confirm *P.c.* infection as the cause of seedling death, trees with visual symptoms were dug up, examined for signs of J rooting or other obvious damage, and taken to the State Dept. of Forestry lab in Davis for culturing by Tom Smith. Tissue from roots was plated on to specialized media (PAR[illegible]) for *Phyt[illegible]thora* fungi.

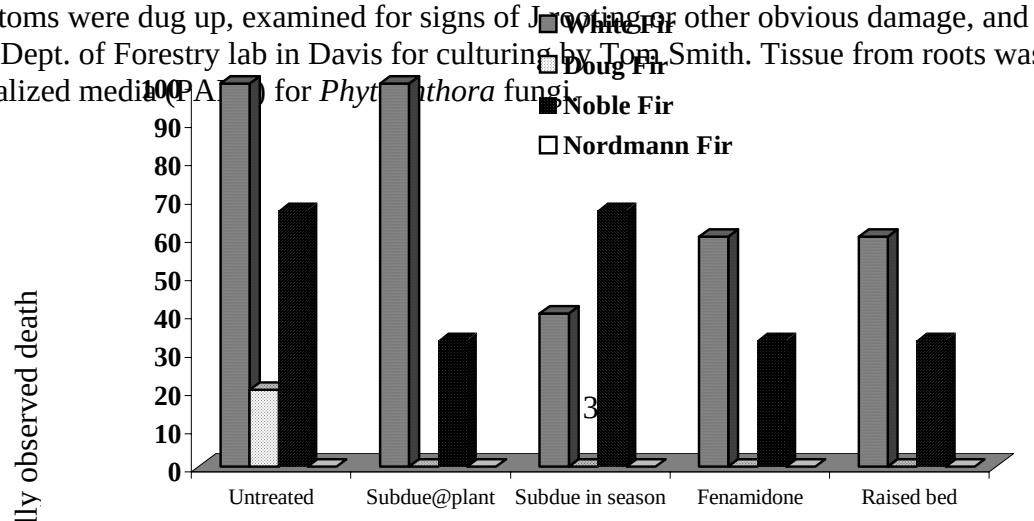

Figure 1. Percent of visually observed mortality by Christmas tree species and treatment.
Our results showed that the species planted made the biggest impact on disease development. All of the White Fir we planted that were untreated died and 67% of the Noble Fir that were untreated died. Many of the White and Noble Fir that received either fungicide treatment or were planted on mounds also died from *Phytophthora* infection (see Figure 1 above). Thus White and Noble Fir are highly susceptible to *Phytophthora cinnamomi* and will likely succumb to infection if it is present. The Nordmann Fir, and to a lesser extent the Doug Fir, appeared resistant to *Phytophthora* infection in this trial.

Researchers up in the Pacific Northwest and in North Carolina, where *Phytophthora* is also a severe disease in Christmas tree plantations, have found similar success with resistance of Nordmann Fir and also with Turkish Fir. Trials in the Pacific Northwest are being planned to test the relative disease resistance of Nordmann and Turkish Firs from different seed sources.

A new county publication "Understanding and Managing *Phytophthora* Root Rot in Doug and True Firs", is available from our office or for free as a download from our website at: http://ceeldorado.ucdavis.edu/ (click under "Orchard Crops"). This publication gives more information about the *Phytophthora* organism and advice for managing *Phytophthora* root rot in your Christmas tree plantation.

PLANNING FOR U.C. COOPERATIVE EXTENSION'S FUTURE: STAKEHOLDERS HAVE A CHANCE TO JOIN IN DURING STATEWIDE "LISTENING SESSIONS".

Although we now have a new Governor, our budget problems are far from over. U.C. Cooperative Extension took a substantial budget cut last year, resulting in the loss of Advisor positions that will not be refilled. Planning for changes to our organizational structure and for program delivery is taking place currently. Stakeholders and leaders among our clientele are invited to share in on this planning during scheduled "Listening Sessions" held around the state. The closest session to us will be held February 26 in Davis. Interested stakeholders can register for the afternoon session online at: **http://groups.ucanr.org/directions/**, or by contacting Ms. Lynne Buenz at 510-587-6415.

UC WEBSITES HAVE A NEW LOOK-CHECK THEM OUT!

UC IPM website: http://www.ipm.ucdavis.edu A new look makes this website more user friendly. Click under How to Manage Pests ….in agriculture, floriculture and turf to find current Pest Management Guidelines for many crops. Also Weather Data, Pesticide Safety and Pest Notes for backyard growers.

UC Fruit and Nut Information Center: http://fruitsandnuts.ucdavis.edu/ Click on "Fruits and Nuts" and search an entire database on the crop you are interested in. Each month has a "What's New" issue (like The Emerging Market for California Blueberries in December). Also links to the "Backyard Orchard" site, Farm Advisor newsletters, chilling unit accumulations, etc.

UC/USDA RELEASE VIGOR/SIZE CONTROLLING PEACH-PLUM HYBRID ROOTSTOCKS TO NURSERIES.

Foundation Plant Services at U.C. Davis has announced the availability of 2 new peach-plum hybrid rootstocks to nurseries for propagation. The new rootstocks-**P30-135 and K146-43**-were developed

jointly by breeders in the UC Davis Pomology Dept. and at USDA for peach and nectarine cultivars. I had the opportunity to see these rootstocks in trials down at the Kearney Ag. Center near Fresno last summer and there is some excitement that these rootstocks will reduce the need for severe pruning and will allow more open canopies than cultivars on standard rootstocks. In the Valley, P30-135 produces a tree about 90% the size of one growing on Nemaguard (depending on the pruning) and K146-43 produces a tree that is about 50-60% of the size of a tree growing on Nemaguard (depending again on pruning practices). Both of these rootstocks are rootknot nematode sensitive. The release means growers should see these rootstocks available to them via the contracted nurseries in the near future and if anyone is interested I would like to track how well these rootstocks will perform in our area.