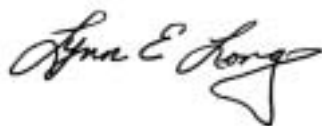


HORT UPDATE



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Irrigation and Replant Focus of IFP Seminar



Knowing when and how much to irrigate to produce the healthiest trees and the best quality fruit is a question that many growers have. Dr. Roberto Nuñez-Elisea has been seeking answers to these questions for the last couple of years. He will share his work with us at a special IFP Seminar scheduled at the **Civic Auditorium, Fireside Room**, 323 E. 4th St., in The Dalles on Friday, **October 24 at 9:00 AM**. Also speaking about his irrigation experience is private consultant Jac LeRaux who is working with several growers in The Dalles to determine irrigation requirements.

With old orchards being replaced by new, a grower panel will discuss replant issues. Included in the discussion will be such topics as tree removal methods, fumigation practices and replant expenses.

OSU and OSCC Co-sponsor Research Meeting

“A Review of Sweet Cherry Research: Present and Future” is the name of a program designed to provide local cherry scientists the opportunity to share their research efforts with growers and to receive feedback on those efforts. This program will give scientists more time to share pertinent information than they usually have at the annual Cherry Research Review. The meeting will be held Wednesday, October 22 at the Discovery Center in The Dalles. See the enclosed agenda for more details.



Cherry Research Review in Pasco

This years Cherry Research Review will be held November 6th and 7th at the Red Lion Inn in Pasco. The Red Lion is located at 2525 N. 20th Ave. Reservations can be made by calling 1-800-325-4000. The Cherry Research Review is an opportunity for growers and scientists to hear current reports on research that has been conducted on cherries throughout the Northwest. Reporting on their research will be Drs. Roberto Nuñez-Elisea, Anita Azarenko, Bob Spotts, Matt Whiting, Gary Grove and many others.

IFP Approved Chemical List Revised

The IFP committee met in early October to revise and approve the list of chemicals that are accepted in an IFP orchard. Additions include Intrepid, for use against obliquebanded leafroller, and Flint and Kaligreen to help control powdery mildew. The list is pre-punched so you can easily insert it into your IFP notebook.

OSU Extension Service Cooperates with the AmeriCorps SAFE Program to Provide WPS Training

SAFE – Serving America’s Farmworkers Everywhere– is a nationwide program that places AmeriCorps members in communities around the country to provide Pesticide Safety Education Training for agricultural workers. These members have agreed to dedicate one year in service to their local communities, teaching important health and safety issues and helping those in need.

In order to assist Oregon growers/producers in complying with the EPA Worker Protection Standard, OSU Extension is hosting two AmeriCorps SAFE Members serving the Willamette Valley and beyond.

We encourage all growers concerned with the safe use of pesticides in the workplace to take advantage of the free service. All training materials used are approved by

the EPA and will ensure that you are in full compliance with the Worker Protection Standard. Training provided by our members is also more effective than the traditional videos used to educate workers. They are interactive, can be conducted in either English or Spanish, and draw on workers’ own experiences and stories to encourage a safe and healthy workplace.

AmeriCorps members are also available to teach other important safety issues like Heat Stress Prevention and may also be able to provide training for pesticide handlers, as requested.

Please contact Jenny Ahlers or Molly Runyon at 503-539-4523 or 541-967-3871 to schedule a training session at a time and place convenient for you and your employees.

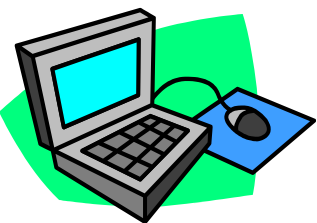
CORE Pesticide Training

A CORE pesticide training session will be offered at the Pine Grove Grange on Friday, November 21. For more information call the OSU Extension Service Office in Hood River at (541) 386-3343.

Not sure of your recertification status? You may check your accumulated recertification credits by contacting the ODA Pesticides Division at (503) 986-4635 or at the following website: <http://www.oda.state.or.us/pesticide/info.html>.



Future Newsletters Accessed Online



This newsletter, as well as back issues are now available online at <http://extension.oregonstate.edu/wasco/>.

Due to a significant reduction in county support for the Wasco County Extension office future newsletters will be available online. Please send me your e-mail address at lynn.long@oregonstate.edu to receive notification of my upcoming newsletters. Type “Newsletter” in the heading.



A Review of Sweet Cherry Research: Present and Future

Co-Sponsored by the:
Oregon Sweet Cherry Commission
&

Oregon State University-Mid-Columbia Agricultural Research & Extension Center

Columbia Gorge Discovery Center Auditorium, The Dalles, Oregon
October 22, 2003

8:30 Status of Oregon's Sweet Cherry Industry, MCAREC's Strategic Plan for the Industry, and Model for Tree Fruit Research Activities

9:00 Horticulture Research

11:30 Entomology Research

12:00 Lunch on your own in Café – Lunch Special is soup, salad & drink: \$6.00

12:45 Pathology Research

1:15 Post-Harvest Research

2:15 The National Tree Fruit Technology Roadmap

2:45 Applying New and Mature Technologies to the Tree Fruit Industry

3:15 Roundtable Discussion: Are Researchers in Oregon on Target to Solving Grower Problems and Creating Opportunities? – All Participants, Speakers and Moderators



Thienes Receives Diamond Pioneer Award

Former OSU Extension Agent Jack Thienes was awarded the Diamond Pioneer Award by Oregon State University in a ceremony in Corvallis on October 14. The College of Agricultural Sciences honored Jack for his lifetime contributions to agriculture, natural resources and the people of Oregon and Oregon State University.

After graduating from OSU Jack began working for the Extension Service in 1952 in Coos County where he worked with cranberry growers. In 1957 he transferred to Wasco County. Almost immediately he began working with leaders of the cherry industry to establish an irrigation system for The Dalles cherry production area. Jack served as secretary of the committee and published a regular irrigation newsletter describing the potential benefits of an irrigation district. This educational effort helped lead to an affirmative vote on the establishment of the district. By 1960 the irrigation district had been formed and water was being pumped to orchards that had previously been dryland.

With irrigation water flowing to the orchards, the industry began to change. This change started immediately but continued for the next 30 years. It was now possible to plant trees at more than twice the density. Yields tripled and fruit size and quality increased. No longer was it necessary to clean cultivate the orchard floor, so cover crops were planted, reducing erosion. Without the constant dust, spider mite populations plummeted. Defoliation of the orchards by mites in late summer was no longer an issue allowing the trees to store more carbohydrates for the winter, producing healthier trees and larger fruit. Throughout this period, Jack's educational effort continued to emphasize irrigation issues to help growers utilize their resources most effectively and to maximize fruit quality. Initially, growers installed hand lines, but by 1990 most growers had converted to a solid set irrigation system. In all, Jack designed irrigation systems for approximately 25% of the orchards in the district.

In the early 60's, shortly after the irrigation district was formed, Jack began to emphasize the need to prune trees annually in order to improve fruit quality and reduce tree height for easier and safer picking. Pruning demonstrations were held and tours were planned so growers could learn how to properly prune trees. In the early years chain saws were used to reduce the number of leaders in the trees from 20 to as few as 5 to increase light penetration in the trees. Eventually, tree height was also lowered in order to facilitate picking and reduce picker accidents. Within 20 years ladders went from 22 feet to 14

feet in height.

With irrigated orchards and modern pruning techniques, The Dalles cherry district began to grow high quality 'Bing' cherries for the fresh market. 'Bing' acreage shifted from an average of 25% of the total to closer to 45%. Fresh fruit size went from 12 and 13 row cherries in the 1950's when Jack started his tenure in Wasco County to 10 ½ row cherries by the time he retired in 1981, a huge increase in fruit size. This allowed fresh growers to substantially increase their profits over what could be made by growing 'Royal Ann' cherries for processing.



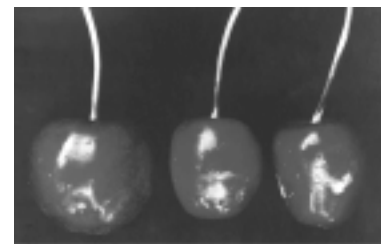
Throughout the 50's and 60's stone fruit yields and quality were being adversely affected by fluoride emissions from two local aluminum plants. By the 1970's OSU had hired a horticulturist, Dr. Tim Facticeau, at the Mid-Columbia Agricultural Research and Extension Center in Hood River. Jack began to work with Dr. Facticeau to determine the effect that fluoride had on the cherries in both yield reduction and damage. These effects were documented on peaches and apricots, but not cherries. Throughout the 70's several lawsuits were filed by growers to recover damages. In part, as a result of the work and testimony of Jack and Dr. Facticeau, all of the lawsuits were won and the aluminum companies eventually agreed to install pollution control devices. These devices helped to reduce the level of damage to the cherry crop.

In the early 1970's Jack worked with executives from The Dalles Cooperative Growers and Columbia Fruit Growers, the two main cherry processing plants in Wasco County, to merge into a single company known as The Dalles Cherry Growers. In 1981 Jack retired from OSU and began to work, on a part time basis as fieldman for The Dalles Cherry Growers. He then began to work with The Dalles Cherry Growers and executives from the Willamette Cherry Growers in Salem to become what is known today as Oregon Cherry Growers, the largest cherry production company in the state. Jack continued to be a fieldman for Oregon Cherry Growers and he worked hard to improve the fruit quality of member growers. By emphasizing pruning, he was able to raise the quality of the fruit to some of the highest in the Pacific Northwest. Jack retired from Oregon Cherry Growers in 1992.

Fall Powdery Mildew Control

Shortly after harvest, powdery mildew colonies begin to transition to their overwintering stage. The overwintering spore bearing structures of the fungus, called cleistothecia, are formed at this time. For several years, Dr. Gary Grove, WSU pathologist in Prosser has researched the possibility of reducing the population of these overwintering cleistothecia with the idea of lowering the inoculum levels in the spring and potentially reducing infection levels. Grove has found that lime sulfur will kill cleistothecia when applied in the fall. However, Grove is not sure if this reduction of overwintering spores will translate into lower infection levels the following year.

If you had a severely infected block this last year, or a block that is a perennial mildew site you might want to



consider a lime sulfur application. Immediately prior to leaf fall apply lime sulfur at 10 gallons per acre. Use a lot of water for good foliar coverage. Since cleistothecia overwinter in bark crevices and trunk crotches, be sure that these areas are totally soaked. There may be some leaf burn, but this should not be a problem if you wait until just before the leaves drop.

Cherry Leafroll Virus Threatens Orchards



Last year, cherry leafroll virus (CLRV) was identified for the first time in orchards in the Yakima area. CLRV causes severe cherry production losses and tree mortality when present in trees that are also infected with prune dwarf virus (PDV) and Prunus necrotic ringspot virus (PNRSV). Since PDV and PNRSV are widely distributed in cherry orchards throughout the Pacific Northwest, continued spread of CLRV could cause severe production losses and tree mortality.

According to a CLRV identification card published by Washington State University, trees infected with CLRV and PNRSV develop small narrow leaves. Shoot die-back and lack of terminal growth results in reduced fruit-bearing wood. Symptoms often resemble bacterial canker. Initially, symptoms appear on one or two scaffolds before spreading through entire tree or adjacent trees.

Early in the spring look for trees with delayed bloom and leaf expansion. As in some other viruses, fruit on diseased trees exhibits delayed ripening and poor size. Branches with upright leaf growth occur on trees infected with CLRV and PDV. Look for coarse whitish veins with dark green areas along midrib on lower leaf

surface and enlarged, yellow-green veins on the topside.

Last year the Washington Tree Fruit Research Commission funded an identification and education project with the hope of eradicating or confining the disease. From that effort, nearly twice as many orchards were identified as infected as previously recognized. All but one site was within the original infection area of Yakima, Benton and Franklin counties. The only other site found infected was in the Wenatchee Valley. For the most part, infected trees have been removed and orchards will continue to be monitored next spring.

Although we have not done an extensive search for infected trees in the Mid-Columbia, Dr. Ken Eastwell, virologist at WSU, Prosser spent a day scouting orchards this past spring with Dr. Bob Spotts and myself. We visited several suspicious blocks in The Dalles, Mosier and the Hood River Valley. The good news is that none of the samples that we tested were positive for CLRV. This was very surprising to Dr. Eastwell since some of the trees from Mosier and Hood River had symptoms similar to those expressed by CLRV. Although we didn't find CLRV in the limited sampling that we did, we did find two strains of PNRSV, PDV and Western X present in sampled orchards.

It is important that you continue to scout your orchards this next spring for trees with the above mentioned symptoms. If you find trees with suspicious symptoms, I will be happy to take a sample for testing.

Plants Fight Back Against Virus Invaders

The following piece is a summation of an article entitled Cell Wars by Virginia Gewin, published in Oregon's Agricultural Progress magazine, Summer 2003. Reprinted by permission. Edited for brevity.

Viral invaders are a plant's phantom menace. Leaving characteristic fingerprints – mosaic mottling or ringspot stamps – viruses can inflict severe deformities on their plant victims.

Stationary plants are not as defenseless as they seem, although until recently scientists had little idea that the conflict between plant and virus was so complex. Groundbreaking research at OSU, by Dr. James Carrington and others, has revealed that plants fight back by muzzling the genetic code of the invading virus.

In the early 1990's, scientists seeking a deeper purple flower added extra copies of a pigment-producing gene to petunias in the laboratory. To everyone's surprise, many of the flowers that resulted were white. Contrary to everyone's expectations, neither the extra copies of the pigment-producing genes nor the original pigment gene were expressed.

What these researchers stumbled across was a powerful mechanism that plants use to combat foreign invaders. The plant perceived the added pigment gene as a foreign virus, and somehow silenced both the additional and original pigment genes. Scientists later found that gene silencing occurs naturally when viruses invade plants.



“Gene silencing is the basis of the plant's immune system against a virus,” said Carrington. “And, like immunization that we use in humans to protect against disease-causing viruses, we can use gene silencing to pre-program plants to resist viruses.” Carrington goes

on to say, “We can take almost any virus and produce plants that will be resistant to that virus.”

Many kinds of virus must form a double-stranded RNA sequence in order to replicate. The formation of double-stranded RNA seemed to signal the plant to launch its silencing immune response. The plant seems to know that “things that make double-stranded RNA are harmful,” says Carrington.

Viruses, however, are sometimes able to suppress a plant's silencing immune response with their own counter-defense. “Viruses evolve very fast, says Valerian Dolja, a plant virologist at OSU, and they've developed a counter-defensive mechanism to suppress the small interfering RNA defense.

(Note: Small interfering RNA guide the destruction of virus genomes).

Carrington's group also discovered the purpose for another group of genes called microRNA genes. MicroRNAs are the master controllers over certain parts of the genetic code. For example, certain microRNAs tell the plant how to make a proper flower. Other microRNAs control what the leaves should look like.

It turns out that when small interfering RNA takes aim at replicating viruses or when microRNA regulates flower or leaf development, they use a common set of cellular functions. So, when the virus suppresses a plant's silencing response, it also obstructs gene regulation controlled by microRNA, causing collateral damage to normal plant growth and development.

Carrington's work revealed that the bizarre plant deformities sometimes found among infected plants in the field were the result of misfiring of developmental genes that normally are controlled by microRNAs.

Many viral disease symptoms are therefore developmental defects inadvertently caused by the virus as it ducks the plant's defenses. Plants [then] suffer abnormalities such as stunted growth, deformed leaves, sterility and low fruit set.

Viral infection has caused severe developmental effects at right.



Wasco County Extension Office Makes Changes

The following is a quick update of happenings at the Oregon State University Wasco County Extension Office.

Due to budget reductions, we have had to reduce secretarial staff support. Secretaries will be able to assist you Monday through Thursday 8 AM to 5 PM. Extension Agents will continue to work five days a week. On Fridays, the office may or may not be open all day depending on agents' schedules. If you need agent support on Fridays, please make prior arrangements by calling 541-296-5494 to make sure the office will be open. We apologize for any inconvenience this may cause.

The Wasco County Extension staff has adopted a new office administrative structure, which divides up the office administrative duties among the four Extension Agents. The following is a review of each Extension agents program and administrative responsibilities:

*Fern Wilcox – Family Community Development Agent (FCD) for Wasco and Sherman Counties. Administrative duties include all personnel and office policy issues. All questions about office administration should be directed to Fern.

*Tonya Aitkin – 4-H Agent for Wasco County. Administrative duties include supervision of office secretarial support staff.

*Lynn Long - Stone Fruits Horticulture Agent for Wasco and Hood River Counties. Administrative duties include Extension agent evaluations.

*Brian Tuck - Dryland and Irrigated Field Crops Agent for Wasco County. Administrative duties include the Extension office budget.

The Wasco County Extension Office support staff includes:

*Kim McCullough – Extension Office Coordinator. Kim is responsible for fiscal management and secretarial support for Fern, Lynn and Brian.

*Jo Smith – 4-H Secretary. Jo provides program management support for the county 4-H program.

*Rosa Guevara-Ayala – OFNEP (Oregon Food and Nutrition Education Program) Program assistant to Fern Wilcox to providing Nutrition education programming to Hispanic audiences.

We truly appreciate the patience of Wasco County residents as we make adjustments in our office hours and administrative structure. Our focus is to provide the highest quality service possible. If you have any suggestions or comments please call us at 541-296-5494.

Fiscal 2003 Summary for Environmental Quality Incentive Program (EQIP)

After an initial total EQIP allocation of \$182,000, The Dalles NRCS Office finally obligated a total of \$524,380 for 17 EQIP contracts signed in Fiscal Year 2003. We had a total of 243 applications, which enabled us to use unobligated monies from other counties. Of that total, \$272,039 was for 10 contracts addressing irrigation water management improvements and pest management issues. We were somewhat surprised to receive \$144,500 earmarked for Ground and Surface Water Conservation. These funds can only be used for

water conserving practices, which meant that we were able to fund more irrigation improvements than originally anticipated. We should receive a certain amount of these funds again in FY 04, so if you have irrigation improvements planned, you can sign up until **November 28, 2003**. Please be aware that FY04 contracts will not be available until about April at the earliest, therefore it is best to plan your irrigation improvements a year ahead.