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Vine Lines

Fresno County

August 2012

Stephen J. Vasquez,
Viticulture Farm Advisor

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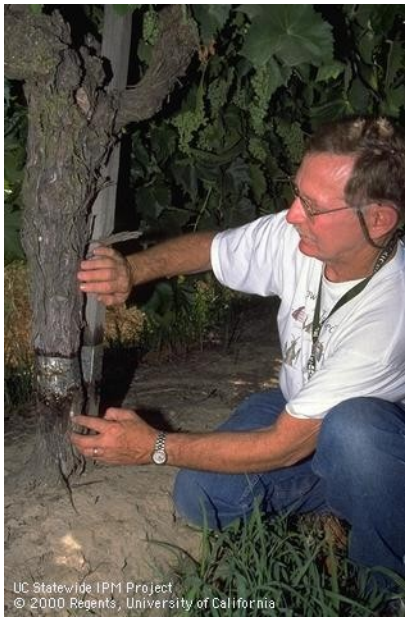

A highly regarded member of UC Cooperative Extension's regional integrated pest management team at the UC Kearney Agricultural Research and Extension Center in Parlier retired June 30, 2012.

Walter Bentley, UC Cooperative Extension advisor, transferred to Kearney in 1994 after 17 years as a UC Cooperative Extension advisor in Kern County, specializing in entomology. The integrated pest management team – with advisors representing the core pest management disciplines of entomology,

(Continued on page 3)

A New Tool for Studying Sharpshooter Feeding

When an insect pierces the surface of a plant to feed, much of the action takes place in the plant's interior. A device called the Electrical Penetration Graph (EPG) is a critical tool for peering into the process.

Now a new type of EPG developed by U. S. Department of Agriculture (USDA) entomologists is giving scientists the clearest view yet of the wars waged between piercing-sucking insects and the plants they attack.

The EPG was developed by Elaine Backus at the Agricultural Research Service (ARS) San Joaquin Valley Agricultural Sciences Center, in Parlier, California, and her late partner William Bennett from the University of Missouri.

To use an EPG, researchers connect the insect and plant to an electronic monitor that reads electrical charges produced by changes in voltage that occur as

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New Tool

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the insect feeds. At least eight different systems have been developed, and researchers who study aphids and other piercing-sucking insects have used them over the years to publish nearly 400 peer-reviewed papers. But the new EPG is much more versatile than any of its predecessors, and is being used by researchers around the country in ways expected to broaden understanding of how plant-feeding insects cause so much damage.

Backus and Bennett described their AC-DC monitor in a 2009 issue of the *Journal of Insect Physiology,* using it in a series of studies published in the *Annals of the Entomological Society of America.* These studies focused on the critical role that saliva plays when the glassy-winged sharpshooter injects the Pierce's disease bacterium, *Xylella fastidiosa,* into grapes. Backus believes that the saliva loosens bacteria living in the gut and stylets and carries them into the plant when the mixture is "spit up" during feeding. That inoculation process begins the spread of the disease throughout the plant. Backus could not have gained these insights without the AC-DC monitor.

Traditionally, monitors have been designed to work with either AC or DC current. Because of the physics that govern electricity and the flow of electrical current, researchers have been likely to get best results using AC monitors when studying larger insects and DC monitors when studying smaller insects.

Ideally, a monitor should be capable of studying a variety of insect sizes. As the name implies, the team's AC-DC Monitor incorporates design features from both AC and DC monitors, making it more versatile. Researchers can adjust the settings to the sizes of any insect they are studying. Entomologists will be able to view the feeding process in detail for more insects than ever before. They also will be better able to compare the feeding habits of pathogen-bearing insects with those that are pathogen-free.

Read the full story here: http://www.ars.usda.gov/is/AR/archive/may12/insect0512.htm?pf=1

A young adult glassy-winged sharpshooter wired up while it's feeding on a plant is being recorded by an

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Vineyard Pest ID Cards

Keep your vineyard healthy by staying on top of pest activity with this easy to carry pack of 50 sturdy, pocket-size laminated cards. The durable field cards are the perfect quick reference to identifying and monitoring vineyard diseases and pests.

The cards cover 27 common insects and mites, 8 diseases, 6 beneficial insects, nematodes, common vineyard weeds, and a variety of other disorders. Each pest is identified by a description and excellent close-up color photographs—244 photos in all. On the reverse of each card is a short description of the various life stages and monitoring tips.

Also included are descriptions of natural enemies as well as a handy inch and metric measurement scale. A sturdy rivet keeps the set together so individual cards don't stray.

The 50 information-rich cards will help growers, vineyard managers, and their teams identify and manage most common vineyard problems.

They include everything from mealybugs and phylloxera to glassy-winged sharpshooter and Eutypa dieback, all of which impact California's raisin, table and wine grape industries.

The Spanish-language version of these cards will be available soon. Visit your local University of California Cooperative Extension office to purchase both sets today.

See page seven for purchasing details: Vineyard Pest Identification and Monitoring Cards, UC ANR Publication Number—3532.

Bentley

(Continued from page 1)

nematology, weed science and plant pathology – was formed in response to concerns about the effect of pesticides on food safety, the environment and farmworker safety.

Bentley collaborated with IPM and commodity-specific UC Cooperative Extension advisors and specialists and farmers to develop IPM approaches and alternative control strategies that have reduced the use of the highest risk insecticides (carbamates and organophosphates) in California by 80 percent to 90 percent in almonds, grapes and tree fruit since 1995.

Bentley's career success is demonstrated by the numerous awards he has received in the past year. A group of world IPM leaders presented Bentley with its Lifetime Achievement Award March 27 at the 7th International IPM Symposium in Memphis, Tenn. He also received a Lifetime Achievement Award from the California Association of Applied IPM Ecologists in February. In October 2011, Bentley received the UC Agriculture and Natural Resources Distinguished Service Award for Outstanding Extension.

Bentley grew up in San Joaquin County on his family's cherry, walnut and peach farm in Linden. He began laboring in the orchards as a young boy, but the hard work didn't deter him from pursuing a career in agriculture.

"Growing up on a farm is probably the best life a youngster can have," Bentley said. "But I can't say that it was easy for my parents. It was a struggle for them to raise a family and depend solely on income from the farm."

Bentley earned a bachelor's degree in horticulture and biology in 1969 at Fresno State University, and then spent two years in the U.S. Army working on tracing mosquito movement in the 4th Army area of Texas and Oklahoma and later in Utah. He earned a master's degree in entomology in 1974 at Colorado State University. Bentley worked in biological pest control for the Colorado Department of Agriculture before returning to his native California for the UC Cooperative Extension position in Bakersfield.

"I had heard many rumors about how tough Bakersfield was in terms of weather and environment. Within two weeks of starting the job, there was a huge dust and wind storm in the area and the first summer we had 30 days in a row with the temperature 100 degrees or higher," Bentley said. "But I came to enjoy Bakersfield."

As the UC Cooperative Extension farm advisor for Kern County, Bentley worked with his colleagues to develop an IPM program for almonds, addressing primarily problems with spider mites, navel orange worms and ants. Also working with colleagues, he developed an IPM program for potatoes, emphasizing careful monitoring for potato tuber moth and postponing pesticide treatment until the pest reached a level at which economic damage occurs.

Perhaps his greatest accomplishment, however, was the relationship he cultivated with growers and pest control advisers in Kern County. In particular, Bentley worked closely with pioneer Bakersfield apple grower Lewis Sherrill to combat the problem of codling moth in apples. Sherrill started his own farm at age 76 and continued farming until he was nearly 100 years old.

"Apple farmers in Kern County were relying on information from Washington state, where a large part of the U.S. apple industry is located," Bentley said. "But in Washington, codling moth only produces two generations in the summer. In Kern County, we had four. Lou and I analyzed codling moth flight dynamics, integration of materials and we began experimenting with mating disruption."

At Kearney, Bentley continued his work on apples and almonds, plus he began to work extensively in grapes. Mealybug management in grapes, he said, became the most important and impactful part of his job. Bentley also played a role in developing a management plan to control katydid damage in peaches and helped farmers use mating disruption against oriental fruit moth in peaches.

"In my generation as an

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Bentley

(Continued from page 3)

entomologist, a major breakthrough was the development and use of pheromones for ag pest monitoring and management," Bentley said. "We found ways to use pests' own biology against them."

During his 36-year career, Bentley authored 65 chapters or sections in pest management manuals and 75 peer-reviewed articles. In addition, he wrote more than 250 articles for trade journals and newspapers.

"Mr. Bentley's career represents the best UCCE's faculty has to offer, " said his IPM colleague, Pete Goodell, UC Cooperative Extension advisor based at Kearney. "Unselfish service, loyalty to his peers and clientele, intellectual honesty, dedication to the mission of UCCE and a genuine love for his work."

Bentley credits the success of his program to the UC Cooperative Extension research and education continuum, which is designed to foster communication and collaboration from campus laboratories to farm fields and back again.

"I think this is one of the best educational programs in the world," Bentley said. "We take information from UC campuses to the farms. And those of us who work with farmers bring first-hand experiences back to the campus and work with scientists to develop solutions."

Bentley's personal interest in insects, which got him into his line of work, will carry through into his retirement. One of his goals, he said, is building a teaching collection of insects, spiders, mites and other arthropods at Kearney. He has already acquired some of the equipment needed to house the collection, and plans to maintain some samples on pinned displays and others in live colonies. The collection will be a learning tool for farmers, pest control advisers, students and interns.

"Knowing what's out there is an important part of understanding entomological science," Bentley said.

Insects are also a part of his favorite pastime, fly fishing. Bentley said retirement will give him more time to spend on local rivers catching (and releasing) trout with his hand-tied flies. Bentley speaks passionately about the joy of fly fishing.

"There's a pulse that runs through you," Bentley said. "It feels like you're a child on Christmas every time the fish hits the fly. It's such a thrill."

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Canker Disease Survey

Several fungal groups cause grapevine trunk diseases that include: **Eutypa dieback, Bot canker, black dead arm, black measles,** and **Petri disease**. The list of fungi causing grapevine canker diseases is certainly not exhaustive as additional species are continually being associated with wood cankers and branch dieback worldwide.

Infections by grapevine fungal pathogens occur through pruning wounds. Wounds remain susceptible for several weeks becoming infected multiple times in season. Plugging of the xylem and phloem elements and decay of the wood follows infection, impairing movement of water and nutrients. Disease foliar and fruit symptoms vary from year to year, becoming more obvious as vines decline.

Economic Impact

Grapevine trunk diseases are a significant problem in California's table grape vineyards, causing poor yields and fruit quality. It is difficult to measure the economic impact of trunk diseases on table grape production. However, losses in wine grape vineyards were estimated at $260 million per annum. No data are available for table grape production. Therefore, we are asking table grape growers to fill out a short online survey that will help prioritize table grape canker disease research. Access survey here.

‘GR 7’ re-named ‘Geneva Red’

Bruce Reisch

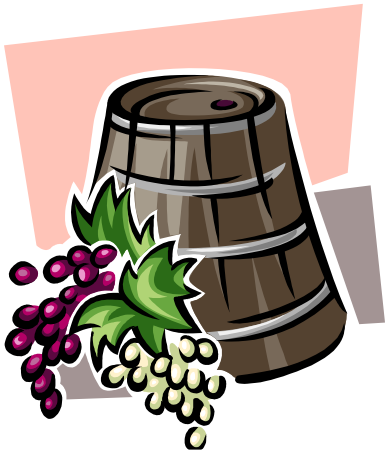
In 2003, the Cornell University Grapevine Breeding Program released a red wine grape known as ‘GR 7’. The name stood for “Geneva Red” as it was one of a series of red wine grapes (GR 1 to GR 8) from the Geneva Experiment Station to be extensively tested during the 1960s and 1970s. Since it was targeted primarily for blending wine production at the time of its release, it was simply given the official name ‘GR 7’, as it had been known since its initial release.

Since its release, members of the grape and wine industry have asked for a more marketable name to be applied to ‘GR 7’ because the name ‘GR 7’ causes confusion among consumers not accustomed to abbreviated names, and since even with blends, wineries often list the names of varieties used on the back of the label. In response to the requests we’ve received, we have therefore decided to simply re-name ‘GR 7’ officially as ’Geneva Red’. The United States Tax and Trade Bureau has approved the name ‘Geneva Red’ for use on wine labels.

Information on viticulture performance for ‘Geneva Red’ can be found here.

Growers or wineries that have questions about ‘Geneva Red’, should direct them to Bruce Reisch (viticultural aspects) bruce.reisch@cornell.edu, or to the Wine Analysis Lab (enological aspects) NYSWAL@cornell.edu. If you would like to acquire a license to propagate and sell this Cornell University variety, please contact Jessica Lyga JML73@cornell.edu at the Cornell University-Center for Technology Enterprise Commercialization.

Geneva Red aka GR 7



Grape Breeding Program

The Cornell University Grapevine Breeding and Genetics Program at Geneva specializes in the development of new wine and table grape varieties suitable for cold climates. Since 1980, it has released eleven new grape varieties—eight wine and three seedless table grapes. Additionally, new grape breeding techniques that improve wine quality, disease resistance and cold tolerance have been developed and used to complement a traditional breeding program. Additional information on the Cornell University grape breeding program can be found here.

Bruce Reisch is a professor and geneticist at Cornell University responsible for breeding grape varieties.

Strange Looking Plants Could Lead to Better Winegrape Vines

If you happen to walk past the office of Dr. Andy Walker in the Viticulture and Enology Building at UC Davis, you might notice some pretty strange-looking plants growing behind his desk and on his window sill.

"These are just a few of the hundreds of species of plants from around the world that belong to the *Vitacae* family of plants, which our vinifera vines are also a part of," said Dr. Walker. "Most of the ones in my office came from Africa and Madagascar."

For over a decade, Dr. Walker has been using traditional plant breeding methods to breed Peirce's disease resistant Winegrape vines and sees the value of using those same methods with some of the plants in his collection.

What these plants have to offer California's wine industry might be the answers to providing disease, drought, or pest resistance to winegrapes.

"At some point it might be possible to map the genes in these odd succulent species to identify which genes are responsible for their drought resistance," he said. "We might even be able to breed a specific gene into *Vitis vinifera* in the hopes of incorporating that trait into winegrapes."

While these plants may look nothing at all like recognizable winegrape vines, when examined closely they all have some traits that give away their relationship to winegrapes. "Most have flowers that look remarkably like the tiny flower clusters of winegrapes, and they produce berries that look like table or wine grapes," said Dr. Walker. "Others send out tendrils or have leaves that look much like those of *vinifera."*

While discovering what beneficial trait a given plant might offer is relatively easy, discovering the gene or genes that could pass along that trait is another story. "We have the high-tech tools we need to map out genes and then breed those genes into winegrapes, but achieving these goals can take a long time."

In test plots at UC Davis, Dr. Walker is growing a wide range of *vinifera's* cousins to study them on a larger scale. "Some of these plants could very well be the source of the genes we need to solve some of the Winegrape industry's current and future problems," said Dr. Walker. "The genes are just waiting to be discovered and used."

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Report Ag Crimes

The Fresno Sheriff's Ag Task Force works in close partnership with Fresno County Farm Bureau and other ag organizations to help prevent and investigate agriculturally related crimes in Fresno County. Be sure to report any and all agriculturally related crimes, as well as suspicious activity, to the proper authorities. Any bit of information, no matter how seemingly small it might be, could be the key to bringing criminals to justice. To report crimes in progress or emergencies, please call 911. To report crimes that have already occurred, call 559-488-3111.

The Sheriff's Ag Task Force can be contacted regarding inquiries of on-going investigations, crime prevention/target hardening ideas, or any questions about related matters by contacting the office at 559-898-0667, or by email at:
agcrimes@fresnosheriff.org.

7th International Table Grape Symposium

Attention table grape growers and attendees of the 6th International Table Grape Symposium, I am pleased to announce that the 7th International Table Grape Symposium will be held in Australia early December 2013.

Persons interested in presenting a paper at the 7th International Table Grape Symposium should contact: David Oag

+61 427427517

david.oag@deedi.qld.gov.au

If you are interested in receiving more information as it becomes available please email me at: sjvasquez@ucanr.edu to be added to the list.

CALENDAR OF EVENTS

Local Meetings and Events

Save the Date!
San Joaquin Valley Vit Tech Group Meeting

Topic: Raisin industry production issues
November 14, 2012
Location to be determined.

U.C. Davis University Extension Meetings
(800) 752-0881

Rootstock Workshop: Identification and Use
August 13, 2012
9:00 a.m.— 2:30 p.m.
Plum, DANR Building, 1 Hopkins Rd.
Davis, CA
Section: 121VIT218

Winegrapes: Identification and Use
August 14-15, 2012
9:00 a.m.— 2:30 p.m.
Plum, DANR Building, 1 Hopkins Rd.
Davis, CA
Section: 121VIT219

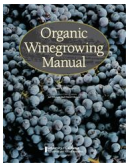
Introduction to Wine Analysis
August 25, 2012
9:00 a.m.— 6:00 p.m.
1127 North, Robert Mondavi Institute for Wine and Food, Old Davis Rd.
Davis, CA
Section: 121VIT225

Successful Home Winemaking
September 8, 2012
8:30 a.m.— 3:30 p.m.
Da Vinci Building, 163 Da Vinci Ct.
Davis, CA
Section: 121VIT212

Publications from the University of California

Vineyard Pest Identification and Monitoring Cards
ANR Publication 3532
Price - $25.00 + tax and shipping

Keep your vineyard healthy by staying on top of pest activity with this pack of 50 sturdy, pocket-size laminated cards. This is the perfect quick reference to identifying and monitoring vineyard diseases and pests. Twenty-seven common insects and mites, 8 diseases, 6 beneficial insects, and a variety of other disorders, weeds, and invertebrate pests are covered in 244 photos.
These 50 information-rich cards will help growers, vineyard managers, and their teams identify and manage most common problems.



Organic Winegrowing Manual
ANR Publication 3511
Price — $35.00 + tax and shipping

Interest in California organic wine grape production inspired this publication that provides a full-color guide with information on soil management, including soil considerations when selecting a vineyard site, developing organic soil and fertility programs and selecting cover crops. An extensive section covering weed, disease, insect, mite, and vertebrate pest management options for organic grape production is covered. The chapter on organic certification contains an overview of considerations for evaluating and selecting a certifier.

Order Form

Publication	Qty.	Price	Subtotal
Vineyard Pest Identification		$ 25.00	
Organic Winegrowing Manual		$ 35.00	

Shipping – USA Only	
Merchandise Total	Shipping Charge
$1—29.99	$6
$30—39.99	$8
$40—49.99	$9
$50—79.99	$10
$80—99.99	$12
$100+	$15

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RETURN SERVICE REQUESTED

Vine Lines

Produced by UC Cooperative Extension Farm Advisor Stephen J. Vasquez. Contact me for further article information, or to be added to the mailing list.

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