

## UC Cooperative Extension Has Moved!

Our new location is:

UC Center

550 E. Shaw Avenue, Suite 210

(Across from Fashion Fair Mall, just east of Men's Wearhouse)

## Remote-controlled Helicopter Tested for Vineyard Applications

Under the watchful eye of news media and area winegrape growers, a remote-controlled helicopter, fitted with a spray applicator system, was field tested in June 2013 over a vineyard in the heart of the famed Napa Valley by engineers at the University of California, Davis, and Yamaha Motor Corporation, USA.

For 20 years, the small motorcycle-sized helicopter, which carries the product name RMAX, has been used to apply agricultural sprays to rice fields in Japan and is now being tested for potential agricultural uses in the United States, in areas where aerial applications could prove to be safer and more efficient than tractor applications of herbicides and pesticides.

### In this Issue:

- Remote-controlled Helicopter Tested for use in Vineyard Applications
- New Pesticide Labels Developed to Protect Bees
- 7th International Table Grape Symposium
- Local Meetings and Events
- University of California Publications

UC Davis is now one of the few universities in the nation with a Federal Aviation Administration permit to apply sprays with remote-controlled aircraft. That permit applies only to specific agricultural areas, including the University of California Oakville Station. No flights are made in the vicinity of the Davis campus.

Flanked by some of the Napa Valley's most historic winegrape vineyards, the Oakville Experimental Vineyard at the UC Oakville Station provides the ideal site for the field tests, which began in November 2012.

"This site not only offers a working-vineyard situation, it also meets all of our federal requirements for flight zones for remote-controlled aircraft," said Ken Giles, a UC Davis agricultural engineering professor and lead researcher on the project.

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## New Pesticide Labels Developed to Protect Bees

In an ongoing effort to protect bees and other pollinators, the U.S. Environmental Protection Agency (EPA) has developed new pesticide labels that prohibit use of some neonicotinoid pesticide products where bees are present. “Multiple factors play a role in bee colony declines, including pesticides. The Environmental Protection Agency is taking action to protect bees from pesticide exposure and these label changes will further our efforts,” said Jim Jones, assistant administrator for the Office of Chemical Safety and Pollution Prevention, EPA.

The new labels will have a bee advisory box and icon with information on routes of exposure and spray drift precautions. The announcement affects products containing the neonicotinoids imidacloprid (used in grape production), dinotefuran, clothianidin and thiamethoxam. The EPA will work with pesticide manufacturers to change labels so that they will meet the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) safety standard. In May, the U.S. Department of Agriculture (USDA) and EPA released a comprehensive scientific report on honey bee health, showing scientific consensus that there are a complex set of stressors associated with honey bee declines, including loss of habitat, parasites and disease, genetics, poor nutrition and pesticide exposure. The agency continues to work with beekeepers, growers, pesticide applicators, pesticide and seed companies, and federal and state agencies to reduce pesticide drift dust and advance best management practices. The EPA recently released new enforcement guidance to federal, state and tribal enforcement officials to enhance investigations of beekill incidents.

More on the EPA’s label changes and pollinator protection efforts:

<http://www.epa.gov/opp00001/ecosystem/pollinator/index.html>

View the infographic on EPA’s new bee advisory box:

<http://www.epa.gov/pesticides/ecosystem/pollinator/bee-label-info-graphic.pdf>



## 7th International Table Grape Symposium

In June 2010, UC Cooperative Extension hosted the 6<sup>th</sup> International Table Grape Symposium; showcasing California's advanced production systems. Approximately 300 participants—including growers, industry representatives and researcher from around the world convened to discuss all aspects of table grape production. In 2013, the 7<sup>th</sup> International Table Grape Symposium will be held in Australia and will include vineyard tours preceding the symposium. This will be a great opportunity to see Australia's unique subtropical growing environments and production systems.

### **SYMPOSIUM**

When: November 24-26, 2013

Where: Mildura, Victoria, Australia

### **REGISTRATION NOW OPEN**

<http://wired.ivvy.com/event/BL55A7/>

### **PRE-SYMPOSIUM TOURS**

Tour 1. When: November 16-20, 2013

Where: Stanthorpe, Queensland, Australia (subtropical)

Tour 2. When: November 23, 2013

Where: Mildura, Victoria, Australia

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

David Oag

Telephone +61 7 4681 6147

Mobile +61 (0)427 427 517

[david.oag@daff.qld.gov.au](mailto:david.oag@daff.qld.gov.au)

More information can be found here:

<http://www.australiangrapes.com.au/news-and-events/events/7th-international-table-grape-symposium-2013>

More information on Mildura, Australia can be found here:

<http://www.visitmildura.com.au/>

To learn more about Australian viticulture, read this review titled "Grape Production in Australia", by David Oag: <http://www.fao.org/docrep/003/x6897e/x6897e04.htm>

## Helicopter

*(Continued from page 1)*

### Regulated by FAA

Giles noted that the FAA regulates use of all remote-controlled aircraft and requires, for example, that the aircraft not be operated within five miles of an airport, notice of a planned flight be reported to FAA 48 hours in advance and the aircraft's flight altitude not exceed 20 feet.

It took Giles and UC Davis development engineer Ryan Billing — both licensed commercial pilots — five months to obtain FAA clearance to operate the mini-helicopter in the Napa Valley. Experienced Yamaha flight instructors from Japan trained them on the fine points of operating the mini-helicopter.

The two UC Davis researchers are building a valuable database that will document how the RMAX might perform in agricultural operations in California and elsewhere in the United States.

“We have more than two decades of data on the performance of the RMAX in Japan, but we don't yet have that kind of information on its use in the United States,” said Steve Markofski, a Yamaha business planner and trained RMAX operator. He noted that in Japan more than 2,500 RMAX helicopters are being used to spray 40 percent of the fields planted to rice — that country's number one crop.

“What Ken and Ryan bring to the table is their spray application expertise and knowledge of the current application methods that are in use in the United States,” Markofski said. “As we collaborate with them on tests of spray deposition and efficiency, we're gaining insight into to how the RMAX performance compares to spray application methods that are being commercially used for this crop and this terrain.”

### About the helicopter

The sporty, red-and-white helicopter is flown using a radio signal from a hand-held controller that closely resembles controllers for miniature hobby aircraft. When the helicopter is in the air, the entire vineyard is considered an emergency-landing site. Should the helicopter lose the radio signal from the controller, the built-in safety system will cause it to immediately pause, hover and then slowly land.

Currently, only water is being sprayed on the vineyards as the researchers explore how well the aerial applicator would cover the vineyard. Water-sensitive test papers are spotted at specific sites throughout the vineyards. Water droplets from the helicopter spray system leave on the paper tiny blue dots that, when recorded and computer analyzed, provide valuable information about where the spray is landing.

The helicopter is equipped with one eight-liter tank on either side of the fuselage, giving it the capacity to carry 16 liters, or slightly more than four gallons, of water or liquid spray. The aircraft has a recommended maximum spraying speed of approximately 15 mph, as it methodically moves up and down the vineyard rows.

So far, the data indicate that the helicopter is providing thorough coverage across the vineyard and that the air currents stirred up by the helicopter rotors are caus-

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## Helicopter

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ing the spray to reach even the undersides of the grapevine leaf canopy. Furthermore, the researchers have been impressed by the stability of the helicopter, even in gusty winds. Eventually, the research team plans to conduct application tests with commonly used agricultural pesticides and herbicides. They will explore how well the helicopter compares to a tractor-drawn spray rig in terms of operator safety, cost and efficiency. They also are expanding the test flights to some almond orchards in California's Central Valley.

The results of the study — expected to be completed late this summer — will help determine where and how the mini-helicopter might play a role in U.S. agriculture. In Japan, where rice fields average about five acres and are often surrounded by residential or commercial development, the helicopter provides a safe, efficient method for applying agricultural sprays.

### **Potential benefits for region**

The Napa Valley's winegrape vineyards, with their relatively small plantings, adjacent development, and often hilly terrain, offer similar challenges and opportunities. The mini-helicopter can go where a standard-sized helicopter or fixed-wing aircraft could not go and, in some situations, with less risk to the operator than a tractor-drawn spray rig.

Giles noted that some area winegrape growers have expressed interest in possibly using the helicopter not only to apply pesticides and herbicides but also to take aerial pictures of their vineyards to identify sites where the vines need special care or to better determine the optimal harvest time. Recently, remote-controlled aircraft have been receiving public scrutiny because of their growing use for military, intelligence and law-enforcement purposes, and Giles appreciates those concerns.

"As a citizen, I share those reservations and agree that we need to be very careful about how we use unmanned aircraft," he said. "But with the color, size and noise of a motorcycle, this helicopter that we're testing is anything but stealthy and would be a great disappointment to anyone hoping to use it for espionage or other covert purposes. "And, our work is being conducted with the anticipation that the aircraft would be flown by the landowner or by someone hired by the landowner," Giles said. "In other words, that person would want the aircraft to be flying over his or her land."

An online press kit, including still images and B-roll video of the helicopter on the ground and in flight over the vineyard, is available at:

<http://photos.ucdavis.edu/albums.php?albumId=236275>.

### **Media contacts:**

Ken Giles, UC Davis Biological and Ag Engineering, (530) 752-0687, [dkgiles@ucdavis.edu](mailto:dkgiles@ucdavis.edu)

Pat Bailey, UC Davis News Service, (530) 752-9843, [pibailey@ucdavis.edu](mailto:pibailey@ucdavis.edu)

## Publications from the University of California

### VINEYARD PEST IDENTIFICATION CARDS

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

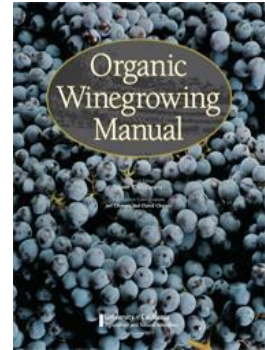


invertebrate pests are covered in 244 photos. These 50 information-rich cards will help growers, and

vineyard managers identify and manage most common problems.

### ORGANIC WINEGROWING MANUAL

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	Number	Qty.	Price	Subtotal
Vinyard Pest Identification	3532		\$ 25.00	
Organic Winegrowing Manual	3511		\$ 35.00	

Shipping - USA Only	
Merchandise Total	Shipping Charge
\$1 - 29.99	\$6.00
\$30 - 39.99	\$8.00
\$40 - 49.99	\$9.00
\$50 - 79.99	\$10.00
\$80 - 99.99	\$12.00
\$100 +	\$15.00

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## CALENDAR OF EVENTS

### *Local Meetings and Events*

#### **San Joaquin Valley Grape Symposium**

January 8, 2014  
7:00 a.m. — 1:00p.m.  
C.P.D.E.S. Hall  
172 West Jefferson Avenue  
Easton, CA

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

#### ***Winegrapes: Identification and Use***

August 20-21, 2013  
9:00 a.m. — 2:30 p.m.  
Plum, DANR Building  
1 Hopkins Road, Davis, CA  
Section: 131VIT219

#### ***Introduction to Wine Analysis***

September 7, 2013  
9:00 a.m. — 6:00 p.m.  
1127 North Robert Mondavi Institute for Wine and Food  
Old David Rd. Davis, CA  
Section: 131VIT221

#### ***Step-by-Step Winemaking***

September 21 & 22 8:00 a.m.— 4:00 p.m.  
Robert Mondavi Institute  
Wine and Food  
Winery, Old Davis Rd.  
Section: 131VIT213



for

### **7th International Table Grape Symposium**

#### **REGISTRATION NOW OPEN**

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

**SEE PAGE 3 FOR MORE INFORMATION**

### **Additional Web News**

University of California  
Agriculture and Natural Resources

**San Joaquin Valley Viticulture Blog**

*Making a Difference  
for California*

twitter

facebook®

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COOPERATIVE EXTENSION**  
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**RETURN SERVICE REQUESTED**

# *Vine Lines*

## *San Joaquin Valley Viticulture Issues*

Vine Lines is produced by UC Cooperative Extension. Contact the office to be added to the e-mail list.

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<http://cefresno.ucdavis.edu>

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*Our programs are open to all potential participants. Please contact the Fresno County UCCE office, (two weeks prior to the “scheduled” activity), at 559-241-7515, if you have any barriers to participation requiring any special accommodations.*

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