

In This Issue

- Irrigation Scheduling in a Drought Year Field Meeting
- Final Chilling Hours
- Predicting Peach Harvest
- Sizing Peach Fruit
- Website Resources
- Brown Marmorated Stink Bug Alert
- 37th Annual Nickels Field Day

Submitted by:

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Counties

Irrigation Scheduling in a Drought Year

Tuesday, May 6, 2014

12:15 - 3:00 p.m.

Rio Oso Groves

15 Pleasant Grove Road, Rio Oso, CA

(Look for UC signs, see attached map)

During this field meeting, we will discuss and demonstrate tools to help you optimize irrigations and conserve water where it will be limited this year. Although irrigating walnuts will be emphasized, we'll have information on irrigating almonds, prunes and peaches also.

Topics include: Local irrigation agency updates, plant based monitoring (pressure chambers/stem water potential/guidelines), soil based monitoring, weather based monitoring (using evapotranspiration or ET), regulated deficit irrigation (RDI) – which crops it works on, and research on irrigating young walnut trees.

Speakers:

Jack Gilbert, Grower and President, Dry Creek Mutual Water Company

Janine Hasey, UCCE Farm Advisor, Sutter, Yuba, and Colusa Counties

Ken Shackel, Pomology Professor, UC Davis

Allan Fulton, Water & Irrigation Resources Farm Advisor, Tehama County

Bruce Lampinen, UCCE Walnut and Almond Specialist, UC Davis

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Note: In case of rain, please call the office at 530-822-7515

FINAL CHILLING HOURS FOR YUBA CITY

2013-2014	1016
2012-2013	1150
2011-2012	1051
2010-2011	1014
2009-2010	854
2008-09	1116
2007-08	1108
2005-06	780
2004-05	994
2003-04	886

Chilling hours recorded for hours below 45° F model at our office on Garden Highway starting November 1 and ending on February 28 (February 29 in 2012)

Predicting Peach Harvest

Peach harvest timing can be predicted based on the heat units accumulated driven by temperature the first 30 days after bloom. Temperatures those first 30 days are critical and what happens after that typically has a much smaller effect on harvest date. Weather near harvest coupled with soil, tree nutrition, water status, etc. can also have some effect on harvest date. On the average, we accumulate about 6000 growing degree hours (GDH) during the first 30 days after bloom. This March and early April were slightly warmer than the average 6000 GDH so we can expect a slightly earlier to normal peach harvest in 2014.

The table below lists full bloom dates and growing degree hours (GDH) 30 days after bloom using the Sutter County Verona CIMIS weather station for 2013-14. The Colusa CIMIS station was used in 2012 since the Nicolaus CIMIS station was unavailable. Years 2004-2011 were calculated using the Nicolaus CIMIS station which was used historically. The table also includes the general harvest timing from 2004-2013 and the prediction for 2014.

Year	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
Full Bloom	Mar 11	Mar 13	Mar 8	Mar 14	Mar 12	Mar 16	Mar 10	Mar 9	Mar 14	Mar 3	Mar 9
GDH₃₀	6,510	7,397	4,621 (Colusa)	4,963	5,060	6,117	5,548	7,420	4,375	6,153	7,788
Harvest Timing	Normal to slightly early	Early	Later than normal	Later than normal	Later than normal	Slightly later than normal	Normal	Early	Very late	Normal	Very early

Sizing Peach Fruit

The rate of early fruit development is very dependent on the weather; the warmer the weather, the faster the fruit develop with a demand for carbohydrates 5 to 10 times higher than during a cooler spring. Anything limiting carbohydrate accumulation by the fruit can ultimately lead to smaller fruit. During cool springs like 2010, 2011, and 2012, fruit takes much longer to develop and there is more time to accumulate necessary carbohydrates for fruit development and to obtain larger size. Although the model predicted the potential for a better fruit sizing year, 2012 will be remembered as having small fruit size. According to UC Davis Pomologist Ted DeJong, other factors than just the temperatures 30 days after bloom affected 2012 fruit size. Although there is no definitive answer nor specific research based information, one explanation he gave for the small fruit size was the lack of rainfall from November 2011 through February 2012 failing to recharge the soil profile with water which may have affected pistil (fruit) development at or prior to bloom. We had similar rainfall patterns from November 2013 through early February 2014 so keep that in mind when scheduling fruit thinning this spring if you did not apply winter irrigation.

When thinning peaches, sizing peach fruit is generally more difficult when GDH 30 days after bloom are **above** 6,000 whereas it is generally a better fruit sizing year when springtime temperatures are

cooler and GDH₃₀ is **below** 6,000. The GDH₃₀ for 2014 is 6,510 so harvest timing may be close to normal or slightly on the early side. This year so far, extra early and early varieties have a good set. With the possibility of a slightly earlier harvest, the sooner growers can thin, the better the potential to size the fruit. Late varieties are on the light side so probably won't be as affected by this 2014 harvest timing prediction.

Website Resources

California Institute for Water Resources

http://ciwr.ucanr.edu/California_Drought_Expertise/Drought_information/

UC Drought Management

<http://ucmanagedrought.ucdavis.edu/>

UC Davis Fruit and Nut Center

Walnut and almond water use physiology and foliar sprays

<http://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=13408>

Calculating reference stem water potential (SWP) values for walnuts, almonds, prunes and grapes

http://informatics.plantsciences.ucdavis.edu/Brooke_Jacobs/index.php

Use station #235 – Verona for most Sutter and Yuba County tree crop growing areas.

Using degree-days: Video tours

<http://ipm.ucdavis.edu/WEATHER/ddvideos.html>

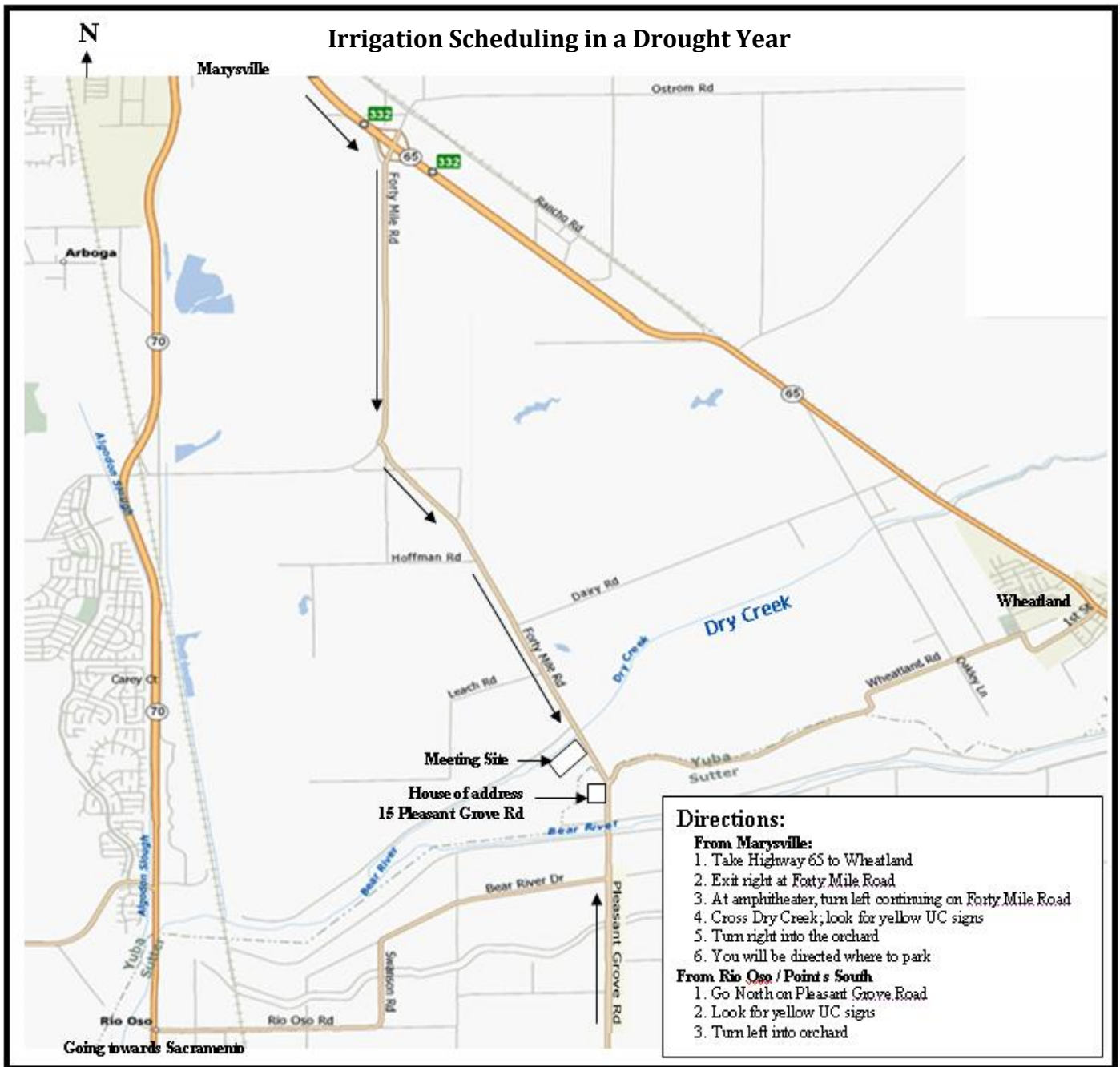
A good resource for newer growers and PCAs.

Brown Marmorated Stink Bug Alert

Chuck Ingels, UC Pomology Farm Advisor in Sacramento County, has taken the lead in monitoring for the brown marmorated stink bug (BMSB) where they have been found in the Sacramento Valley. The main foods for them at this time are fruit trees and almonds. Last year they were found in Sutter County on Garden Highway in a storage facility near Lincoln Road. On April 14, 2014, Chuck found BMSB adults on almond and peach trees in the nearby vicinity and further south on Garden Highway, and also down Highway 99, south of Bogue Road. He could not find any in walnuts in those areas. If you have peaches, prunes or almonds in these areas or nearby, please contact us for help in monitoring and avoiding BMSB damage in your orchard.

37th Annual Nickels Field Day

This year, Nickels Field Day will be held on May 14, 2014 from 8:30 a.m. to Noon at Nickels Soil Lab in Arbuckle.



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