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CRANBERRY VINE

WSU Long Beach Research and Extension Unit
2907 Pioneer Road • Long Beach, WA 98631 • 360-642-2031 • pattenk@wsu.edu

January 2011

Meetings

Washington Cranberry Winter Workshop: Saint Lawrence Catholic Church, Raymond, Thursday, February 17, 2011 1:00 to 4:00 pm. Pesticide credits will be given. Aside from me, speakers will include Dr. Joe DeVerna from Ocean Spray, Inc., Kevin Talbot and folks from the NRCS & WSDA. Please note the change in the day. I had to move from Saturday to Thursday in order to accommodate our out-of-state speaker.

Oregon Cranberry Winter Workshop: The 2011 Oregon Cranberry School will be held on Saturday, February 19, 2011, at the Sprague Theater in Bandon, Oregon. This year's school will include presentations from Joseph DeVerna of Ocean Spray, MA; John Hart of Oregon State University; Kevin Talbot of Ocean Spray OR and WA and Beth Pietrzak of Curry County Soil and Water Conservation District, as well as Betsey Miller, Kim Phillips and Linda White of Oregon State University.

Topics will be varied in nature, from information on maximum residue limits, fertilization practices, native pollinators and control methods for black vine weevil, fireworm and cranberry girdler. The cost will be $5 for OCGA members and $75 for non-members. For more information about the event, contact Linda White at (541) 572- 5263 X285.

British Columbia Cranberry Congress: Monday, February 7th, 2011. Call the BC Cranberry Marketing Commission at 604-307-1046 for details

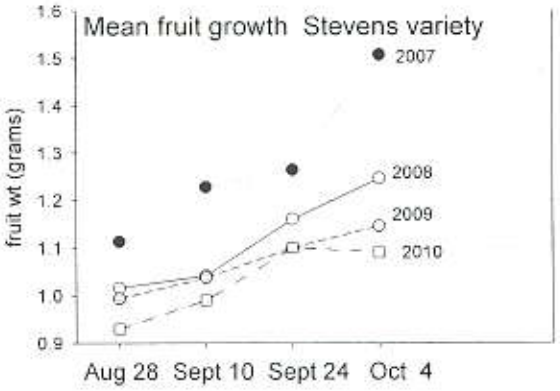
Northwest AG Show: January 25 to 27, 2011, Portland Expo Building. If you've never been, it is a great AG show. If you need pesticide credits, there is a Wednesday morning session on sprayer technology that might be pertinent in Room D202. For more information, see http://www.nwagshow.com/seminars.php

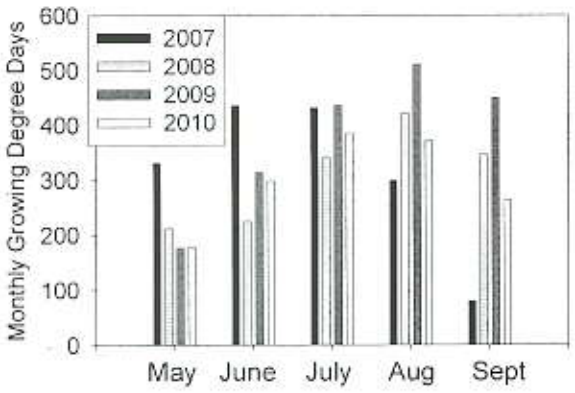
Grayland Spring Workshop for pesticide credit: North Cove Grange Hall, 7:00 to 9:00 p.m, April 6, 2011.

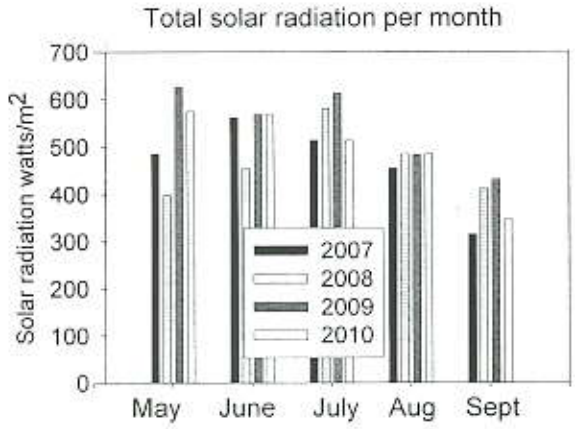
2010 Crop

This year's cranberry crop was a disappointment to most growers. There were several reasons for this. 1) Large, more advanced fruit buds were damaged by the sudden February cold snap down to single digit minimal temperatures and an early frost event in March into the low teens prior to growers having frost protection systems activated 2) Low temperature and light during the summer growing season. June, July and August were well below average. 2010 was similar to the 2008 growing season with significantly less light and heat than 2009 (see below graph for comparative weather during 2007 to 2010). 3) Fruit size was smaller than normal. Growth rate at the end of the season was similar, but size is

largely determined by temperature in June and July. See comparison in size for 2007 and other years on the graph below. 4) Cranberries are prone to on/off years and, with 2009 being a good production year, beds were prone to be lower producing in 2010. Growers with a good crop in 2010 were those with a low crop in 2009.







PESTICIDE NEWS FOR 2011

Label information specific to PNW cranberries: Any and all 2011 pesticide label information for cranberries in Oregon and Washington can be found on WSU's PICOL website. To find out what is legal to use, go to http://picol.cahe.wsu.edu/LabelTolerance.html.

Curio herbicide: Washington will maintain its SLN label for 2011, but the product is not labeled in Oregon. It can only be used if you are in possession of the Cranberry SLN label and use it according to those specifications and if you have a waiver of liability (call me if you have not signed the waiver yet). The cranberry SLN label is not available without signing the waiver. You only need to sign the wavier once. Grower feedback from the short use season in 2010 was very favorable. Best treatment time for buttercup is March.

Callisto chemigation: The long-desired chemigation label for Callisto has finally been approved. I'll be handing them out later when they come through official WSDA channels. It is a very restrictive label. Please read it before considering a chemigation application. Growers' experiences with chemigating Callisto have been very favorable.

Pesticides with potential restrictions due to residue issues: Assail, Sevin, Orthene, Lorsban, Intrepid and Confirm all have some issues regarding fresh fruit, EU tolerance requirements or the export market. Please check with your handler to note those restrictions.

Delegate: I am a strong advocate for Delegate for an OP replacement. It works great through chemigation. The label indicates there could be concerns regarding toxicity to bees and applications should be made at night when pollinators are not working. In 2010, Dr. Anne Averill, entomologist from UMass, observed no bee kills on bogs where Delegate was used for cranberry fruitworm despite the reports that

Delegate is toxic to bees. She did, however, see mortality after sprays of Lorsban and Diazinon. She also saw some bee mortality at a site where Belay was applied.

Pest Management

Cranberry Pest Management Guide EB0845: This annually updated guide is now only available on-line and can be downloaded for free as a PDF file. The 16-page 2011 version is already out and can be found at http://cru.cahe.wsu.edu/CEPublications/eb0845e/eb0845e.pdf

2011 PNW Insect, Weed and Disease Control Handbooks: If you've never looked at these PNW pest control handbooks, they contain a great deal of detailed information on each specific pest affecting cranberries. They can be purchased separately or downloaded as PDF files. They are annually updated handbooks. See http://www.ipmnet.org/IPM_Handbooks.htm.

Research sites needed for 2011: We are looking for four types of sites this year. Two are for conducting weevil and/or girdler research. If you had real problems with these pests in 2010 let me know. We need to perfect our timing for using Avaunt for weevil control and see if Belay provides protection against girdler. We also are looking for several small farms with fireworm problems willing to consider switching completely to a Delegate/ Intrepid program. We will provide chemical free. Finally, we are also looking for any beds with high fruit rot problems to continue to test mid-bloom Indar/Abound treatments.

Disease control: Growers with a lot of leaf drop or leaf spotting on their beds in 2010 might have a problem with *Phyllosticta vaccinii* and/or *Colletotrichum acutatum*. These same two fungi also cause fruit rot. Consider trash floods, sanding, and increased fungicides for these beds to reduce the inoculum that can lead to more leaf spotting and rotted fruit in 2011. Some of the new varieties appear to be sensitive and may require extra foliar fungicides

Winter weed control: For sour dock, lotus and clover control try a winter Stinger application. It is reasonably effective and there is no risk to the crop if you use label rates and don't apply after February. Sour dock takes several repeat applications.

Cranberry Management

Pruning: I've noticed that many growers are over-zealous on their pruning practices. Research has shown alternate year light pruning to be most effective for maintaining high yield. Over-pruning reduces yield. If you don't believe me, consider leaving a swath or two unpruned or lightly pruned to prove me wrong. The exception to this is if you have a jungle of runners, in which case you are over fertilizing. If weather turns bitterly cold, pruning at that time may cause vine damage. Delay pruning until it warms up.

Frost protection in the spring: In 2010, I noticed numerous beds with partial or complete loss due to spring frost damage. With the tendency of growers to be over-protective, I always wonder how this is occurring. Here are a few thoughts. 1) On nights with low dew points, maybe the startup should be earlier. For example the lowest spring dew point during the past three springs was on 4/10/10 at 5:45 a.m. when it reached 26°F. Protection during these types of frost events is more critical/difficult than if the dew point would have been closer to 32°F. I would recommend growers to set up a Dew Point alert system using WSU's Agweather net. It can send messages to your cell phone for low temperatures or dew point alerts (see weather.wsu.edu). There are also commercial systems available to do this. 2) I still see many farms with only a single sensor to turn on the pumps during low temperature events. If they are lucky, the sensor is always in

the coldest spot of the beds. But frost events are not always systematic and do not follow the same bed by bed temperature pattern. If you have had any history of frost damage, you should consider using multiple sensor locations and also make sure that the sensors are unprotected and at the lowest location on the beds. 3) The lack of sprinkler uniformity can also be a big concern. I took data on one farm that had frost damage and found uniformity was adequate (~75%) on the beds with no damage, but lousy on beds with damage (~35%). You can't get good protection if some parts of the bed are getting 0.15 inches of water/hr and other only 0.05 inches per hour. When your sprinklers are running and there is a good ice layer on the beds, check for uniformity of the ice layer. If you see major patterns of different ice layers on beds with consistent frost damage it could be time to change your sprinkler system design.

New research is being conducted in Oregon and Massachusetts on more exact frost protection requirements for cranberries. It may be several years, however, before that data is available.

Weather: I recommend subscribing to the Weather Cafe by Rufus, geared toward small fruit growers. He currently has a Polar Express alert out for January 11 to 16, 2011. See my related comments on pruning. The url is http://www.ovs.com/weather_cafe.htm.

Cranberry Varieties: Table 1 shows 6 years of performance from the released selections of our 2003 test planting. Overall, Pilgrim, Willapa Red and Crimson Queen continue to look like the best of the available selections. 2010 wasn't an exciting year for fruit rot research but Willapa Red continues to look promising in that regard (Table 2). Based on these data, it is hard to argue against Pilgrim for total production. For Furford-picked fruit, however, some growers find Pilgrim to be problematic. Sources of vines for DNA-guaranteed material are also a problem. If you want to consider using rooted cuttings for planting Willapa Red this year, give me a call and I will get you some vines to get started with. I like what I am seeing with the new Rutgers' releases, but I am not totally convinced of their superiority compared to other existing varieties for WA. There are several growers with three-year-old beds where we will start to see grower data in 2011. I am still lukewarm on Grygleski #1. I've seen really good producing beds and some that are low producing. Vine purity is an unknown with Grygleski.

Table 1. Yield from 2003 cultivar/advanced selection trials in Long Beach WA

Variety	Yield bbl/ac				
	2007	2008	2009	2010	Total (2005 to 2010)
Crimson Queen	347	242	293	208	1346
Mullica Queen	252	178	206	224	903
Willapa Red	383	229	376	232	1587
Pilgrim	327	345	334	319	1784
Stevens	209	138	246	168	810

Table 2. Percent field and six weeks storage rots of several cultivar/advanced cranberry selection trials in Long Beach WA

	% rot	
	2010	
Variety	field rot	storage rot
Crimson Queen	5.6	5.7
Mullica Queen	4.9	3.8
Willapa Red	2.7	2.2
Pilgrim	3.8	3.8
Stevens	1.6	3.2

One of the more interesting varietal observations we made in 2010 had to do with pollination. I put bee exclusion cages over sections of the variety trials before the bees arrived to observe the type of production we

get when pollination is very limited. The comparison was with uncaged, caged for 4 weeks and caged for 5 weeks. Data are presented in Table 3. There are several interesting findings. 1) Percentage of fruit set is remarkably high with only a short time of pollination, especially for Pilgrim. 2) Small fruit and "monkey face" are definitely a function of insufficient pollination. 3) Yield of Pilgrim with bee exclusion was amazingly high. I've always suspected that one of the reasons Pilgrim has high yield is that it is quite tolerant to pollination challenges. Owing to weather/climate issues, colony collapse of honey bees and the worldwide decline in bumble bee populations (see http://www.guardian.co.uk/environment/2011/jan/03/bumblebees-study-us-decline), it is more than likely that pollination will continue to be a concern to Washington growers. Having a cranberry variety more tolerant of pollination stressors could be vital to maintaining our sustainability.

Table 3. Effect of excluding honey bees on fruit set, misshapen fruit, yield and fruit size of Willapa Red, Pilgrim and Crimson Queen in Long Beach WA in 2010.

Treatment	% Set	% monkey face fruit	Yield (bbl/ac)	fruit size (g/fruit)
Willapa Red - open pollinated	64	9	435	1.06
Willapa Red -caged 4 weeks + 5 day open pollinated	35	32	116	0.57
Willapa red - caged 5 weeks no pollination	27	12	99	0.72
Pilgrim - open pollinated	61	1	597	1.39
Pilgrim - caged 4 weeks + 5 day open pollinated	53	20	316	0.9
Pilgrim - caged 5 weeks no pollination	47	26	206	0.74
Crimson Queen - open pollinated	66	12	389	1.22
Crimson Queen - caged 4 weeks + 5 day open pollinated	29	24	125	0.87
Crimson Queen - caged 5 weeks no pollination	20	18	51	0.67

WEATHER HISTORY – WSU Long Beach Research and Extension Unit

	Precipitation (inches per month)					Monthly Growing Degree Days (based 45°)				
Month	**2007**	**2008**	**2009**	**2010**	**20 year average**	**2007**	**2008**	**2009**	**2010**	**20 year average**
January	6.9	10.5	10.8	13.2	12.0	9	4	23	83	48
February	10.4	5.4	3.7	8.2	7.5	33	16	20	56	46
March	11.0	9.7	7.7	9.5	8.4	66	12	10	72	68
April	4.1	5.3	4.2	7.9	6.5	104	43	61	92	117
May	2.1	2.5	4.8	3.9	3.6	205	230	214	180	246
June	2.8	2.4	0.7	4.9	2.8	294	244	361	290	338
July	3.6	0.5	0.8	0.9	1.1	495	364	427	377	443
August	1.8	4.0	1.6	1.5	1.9	464	425	463	411	453
September	1.2	0.9	3.3	5.6	2.3	323	326	401	382	375
October	11.1	4.9	8.2	7.8	7.1	152	166	184	220	217
November	6.3	11.1	20.3	13.2	12.1	53	138	71	85	86
December	11.4	11.3	6.2	14.7	12.4	20	16	27	35	34
Totals	**74.5**	**68.5**	**71.0**	**91.4**	**77.7**	**2217**	**1984**	**2263**	**2283**	**2470**

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COOPERATIVE EXTENSION

Washington State University

Long Beach Research and Extension Unit

Dr. Kim Patten, Associate Horticulturist
Email: pattenk@ wsu.edu
Phone and fax; 360-642-2031
Mobile phone; 360-355-7864

WSU - Long Beach Research & Extension Unit
2907 Pioneer Road
Long Beach, WA 98631

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