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CRANBERRY VINE

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Pesticide orders for 2011

Washington growers submit their bulk pesticides orders just after harvest. This is always asynchronous with new changes in pesticide spray charts for the following year. I thought I would try to put out a short cranberry vine to more timely notify growers of new developments and thoughts about chemistries to have on hand.

Insecticides for fireworm: The old standbys, Lorsban, Diazinon and Orthene, are still labeled and very cost-effective. They are all more than adequate for fireworm control. Their use near surface water or pollinators is a concern. Although WSDA will not implement its restricted use labels for Lorsban and Diazinon in the Grayland area for another year, growers should consider adjusting to the use of alternative insecticides.

The only two alternative chemistries that provide reliable efficacy with chemigation are Delegate and Intrepid. This year we had numerous chemigation trials of these two chemistries. Both the 3.25 and 6.5 oz. rates of Delegate and the 16 oz. rate of Intrepid were comparable, with only subtle differences between them in efficacy. Overall, Delegate at the higher rate provided the most consistent efficacy, but it is the most costly.

Consider using the high rate of Delegate if large larvae are present and your irrigation system has poor uniformity. Consider using Intrepid if you are making an application before the bees have been pulled.

Insecticides for Weevil: Avaunt has provided the most consistent control of weevils to date of any of the chemistries we have. Our data from 2010, however, suggest that we only get 5 days of activity in the field. If I had a serious weevil problem, I would plan on having enough Avaunt for three applications.

Insecticides for Tipworm: None of our currently registered insecticides is ideal for tipworm. Multiple well-timed applications of Diazinon will provide temporary suppression.

Insecticide for Girdler: None, but growers in Wisconsin report some success with Belay. Consider ordering nematodes as the best option.

Fungicides for fruit rot: For beds with serious fruit rot, I recommend using a supplemental Indar and Abound combination mid-bloom. Our data for 2010 is pending, but past results have been inconclusive. Unless you have a really bad fruit rot problem, your normal fungicide program will suffice.

Fungicides for leaf diseases: Twig blight can be controlled with chlorothalonil products, or Indar, Abound, Dithane or Manzate. You'll need three applications spaced across the month of July if you have a bad infestation. Otherwise two applications are adequate. Not all chlorothalonil-based fungicides are equal. Some have a sticker with them; others don't. The Bravo Weather Stik has shown some of the best disease control in studies back east. Red leaf spot is controlled by any of these fungicides, but management with Kocide is the most cost-effective. Multiple applications will be required if you have a serious infestation in a new planting that you are trying to protect from a secondary infestation with black spot.

Independent growers struggling to maintain profitability amidst lower crop prices are likely going to face an issue that came up during the previous price decline. What is the least expensive way to control an outbreak of twig blight? Make your first and third applications using a cheaper off-brand chlorothalonil fungicide, with a middle treatment of Dithane or Manzate.

Post –emergent herbicides: Curio, Callisto and Select (clethodim) are all must-have post-emergent herbicides. Curio applied in early spring for buttercup is superlative. Some growers are reporting suppression on numerous other weed species.

There is really only one grass herbicide that you need. It should have clethodim as the active ingredient. Choices include: AgriSolutions Section, Agri Star Clethodim 2E, Agri Star Trigger, Arrow 2EC, Cleo 26.4, CropSmart Clethodim, Intensity Post-Emergence Grass Herbicide, Select 2EC, Select Max, Shadow Herbicide and Volunteer. Make sure you consider concentration in your selection as some are 12.6% and others 26.4% active ingredient.

Stinger is good for winter treatment of clovers, lotus and sourgrass. By the time you get your spring order, however, it is usually too late to treat.

Pre-emergent herbicides: Casoron is always important to have around. Before ordering Devrinol or Evital, check with other growers, as I've been told there is product out there that growers would like to trade off. Riverdale 2,4-D granular is labeled in Washington but not Oregon. It can be used to suppress marsh arrowgrass applied post-harvest. Some growers still mix it with Casoron, but after 10 years of studies I've never seen much advantage to the mix over Casoron alone.

Wiping herbicides: Oregon has a Weedar 64 label; Washington does not! There are 136 glyphosate-type herbicides labeled in Washington for cranberries. Don't let price be your only criteria for selecting a glyphosate herbicide. They range in concentration from 3% to 53% active ingredient. Some come with a surfactant; some don't.

Relative cost per acre: Based on the Long Beach Grower Association bid sheets, here is a breakdown of approximate cost per acre using standard application rates. Use these values as a guide for figuring out the real costs of different types of pest management. For example, skimping on a fireworm spray may save you $15/ac, but cost you $1000 in crop loss for two years and require several supplemental sprays in subsequent years to suppress populations. Another example is determining the cost differential between conventional fireworm control using OPs ($7 to $18/ac) and that using bio-rational insecticides (only $30 to $60/ac).

Treatment costs per acre

Fungicides	**$/ac**
Bravo 720 Weather Stik	29
Echo 720	24
Dithane f45	13
Manzate 200 DF	18
Abound	24
Indar	25
Kocide	5

Insecticides	**$/ac**
Diazinon	18
Lorsban	11
Acephate	7
Intrepid	21
Delegate 6.5 oz/ac	20
Delegate 3 oz/ac	40
Avaunt	30

Herbicides	**$/ac**
Casoron	108
Devrinol	162
Evital	162
24dg	57
Volunteer	3
Stinger	19
Callisto	28
Curio	15

Fertilizer Order for 2011

Using the same bid sheet as above, a similar comparison of common grower fertilizers can be made for cost of units of N, P, K or Mg. Recall that the rule of thumb for fertilizer use in cranberries is about 20 to 60 lbs of N/year, 45 lbs of P/year and 60 to 120 lbs/ac of K/year. This is about a 1:1:2 ratio.

The rate of N is very dependent on the crop/varieties and soil type; P and K are much less dependent. Apply N over 3 to 4 applications between roughneck and late bud set with a majority applied at bloom to fruit set. Apply P between bloom and bud set in 2 to 3 applications; apply K over 4 applications.

Fertilizer preference is also based on the application method. Belly-grinding a low–grade N fertilizer, like 6-24-24, many times over your beds is labor intensive and results in traffic damage. Some fertilizers like urea and 21-0-0 are soluble enough to fertigate.

Product	$/lb	$/lb N	$/ lb K_2O	$/ lb P_2O_5	$ lb MgO
Urea	0.22	0.48			
21-0-0	0.11	0.52			
0-45-0	0.28		0.62		
KMag	0.20			1.82	1.82
12-12- 12	0.20	1.63	1.63		
14-14-14 IDBU	0.32	2.29	2.29		
14-14-14 K_2SO_4	0.22	1.61	1.61		
0-23-25 K_2SO_4	0.30		1.29		
10-23-23 K_2SO_4	0.26	2.61	1.13		
6-24-24 K_2SO_4	0.28	4.73	1.18		
0-11-23	0.25				

Pest Management

Post-harvest weed control. A couple of weed species are susceptible to herbicides if treated immediately after harvest. Marsh arrowgrass can be suppressed with two treatments (6 weeks apart) with granular 2,4-D at 20 lbs/ac. Sour dock and lotus can be suppressed with Stinger applied twice (4 to 6 weeks apart) after harvest. On any of these weeds, much of a delay in treatment timing diminishes efficacy considerably. Buttercup can be controlled with Curio in the fall, but I prefer spring applications.

Moss Control: Obtaining control of moss which is infesting cranberry beds is an ongoing problem, especially for new plantings. Growers burn it down, but it always comes back. I suspect the big problem has to do with time of sporulation. Mosses can produce spores all winter and spring. A single spring treatment is therefore inadequate for permanent control. I suggest trying moss control after harvest and continuing the process until early March.

Fumigants for new plantings: In past years, numerous growers have used Basamid to kill off perennial roots and seeds of noxious weeds prior to replanting a bed. New WSDA rules require that anyone using a fumigant/ must have a fumigant endorsement on their pesticide license. To be endorsed, you'll need to take a fumigant test.

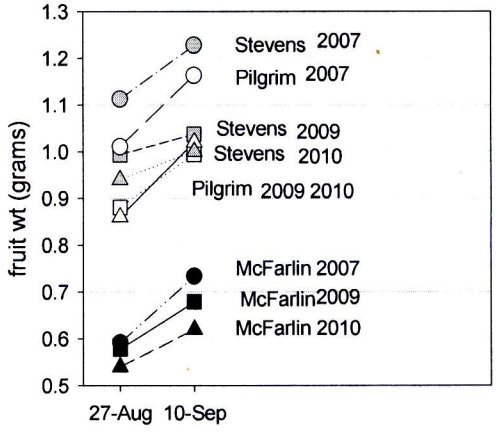
New insect pest found on cranberries: This is a bumper year for finding new insects☹. I found my first bed with a severe strawberry root weevil problem. They are about 1/3 the size of blackvine weevils and do similar damage. We got good control of adults with Avaunt. We also started finding spotted fireworm moths in several of the Sparganothis pheromone traps. This fireworm species does damage to uprights and fruit similar to what blackheaded fireworms do, but the second generation comes out in August.

We have no indication as to how big a problem these pests are or will be. On the bright side, we have yet to find any spotted wing fruit flies in any of our traps. This insect has been a serious pest on other soft-fruit industries in the west coast.

Miscellaneous:

Fruit Size for 2010: Our cool summer resulted in smaller than normal fruit. But how much smaller than normal and will the fruit continue to grow? We have been tracking fruit size every two weeks on numerous beds for the past four years. Based on data from August 27th and Sept 10th harvest dates, fruit size for all varieties is down ~ 15% from 2007 Compared to the 2009 growing season, McFarlin and Stevens are 8 and 5% smaller respectively, and Pilgrims are about the same.

See following figure.



Tracking fruit growth rates every two weeks for these past years shows that each of the varieties consistently gains about 30% in weight between from August 27th to October 3rd. There was never an instance when the growth data indicated that the fruit could compensate and catch up in size if we had a good stretch of weather.

The take- home message is to expect smaller than average fruit this harvest. If you plan on harvesting early (mid-September to late September) you lose about 5% of your crop/per week from what you would normally obtain from an October 3rd harvest. What is also interesting is the comparative rate of increase in fruit weight between August 27th and Sept 10th for the different years. Both McFarlin and Stevens have a notably slower rate of increase in 2010 than 2007 or 2009, while Pilgrim is 5% greater.

Vines for 2011 plantings: Use the same caution as before for using any vines from pruning - avoid if possible! Mowed vines from DNA-tested beds are preferred.

Umbrella bloom – winter or spring frost damage: This spring, numerous beds had a preponderance of umbrella bloom, weak bloom or no bloom. These occurred in random patches on scattered beds in Oregon and Washington. Most growers attribute this

to the single-digit cold snap last winter, but I have my doubts. I was unable to detect a pattern that would attribute this bloom damage to an area-wide winter kill. Winter damage is unlikely to be limited to a few sections of beds on a few growers' beds and leave the rest of the growers untouched.

Regardless of its origins, growers with significant damage would be prudent to makes notes where damage is most severe (little or no yield) and then review the frost protection systems. Are the sensors in or near the damaged areas or far away? Was there a pattern of yield associated with sprinkler coverage uniformity? Were sensors exposed to open sky at the very lowest and coldest locations of the farm or sheltered from open sky?

CD available from the 2010 Cranberry irrigation/chemigation workshop. A team led by Tom Hoffman, WSDA, and others from USDA-NCRS and WSU Extension compiled all the information from our summer workshop, plus an array of other useful information on irrigation and chemigation, and put it all on one CD entitled "Cranberry Production and Irrigation Management: Laws and Rules, Publications, Reference Materials, and Irrigation System Assessment." If you didn't get a copy at field day let me know if you want one.

Irrigation systems. We have had a chance to run several uniformity tests this summer on existing systems that growers thought were performing reasonably well. Many had uniformities of <60%. Chemigation with sprinkler systems with this low rate of uniformity is not conducive to viable pest management or production. Uniformity tests are quick and easy to run, and could be quickly performed this fall after harvest. Both Kevin Talbot, Ocean Spray, and WSU Long Beach have testing equipment if you want to borrow it, or you can make your own.

USDA Risk Management Insurance:
The closing date for the commodity insurance is November 20th. This covers at the 65% level for a very modest cost. There is also the Adjusted Gross Revenue-Lite insurance that uses a producer's 5-year historical farm revenue. Since it is revenue-based, independent growers with low crop prices expected for 2011 could really benefit by signing up. The deadline is March 15th.

WEATHER HISTORY

	Precipitation (*through 2009)						Growing Degree Days (*through 2009)				
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		2.0*		323	326	401		379*
October	11.1	4.9	8.2		7.2*		152	166	184		215*
November	6.3	11.1	20.3		12.2*		53	138	71		87*
December	11.4	11.3	6.2		12.1*		20	16	27		33*
Totals	**74.5**	**68.5**	**71.0**				**2017**	**1984**	**2263**		

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