Cooperative Extension
Coastal Washington Research & Extension Unit
Long Beach, WA 98631

CRANBERRY VINE

November 1994

THE STATION/PCCRF

MEETINGS

Western Washington Horticultural Association. January 3-5, 1995, Sheraton, Tacoma. This annual berry and vegetable crop conference always has some interesting sessions on farming. Contact Lianna Collinge at 206-627-5897 for details.

Farwest Ag Show. January 24-28, 1995 in Portland. This show is a must if you are looking for farming toys.

Pre-License Pesticide Training & Recertification Pesticide Training. February 28-March 2, 1995, Olympia. These sessions offer great training for those wanting a license or needing to be recertified. An alternative and simpler way than taking this class is to purchase a pesticide study guide for $6.25 from WSU-Cooperative Extension. Read it and call Robbie at the South Bend Extension office (206-642-9331 or 206-875-9331) to schedule an exam.

Forest Stewardship Evaluation Events. Numerous tours, field trips and training programs (cottonwood farming to forest ecology) are planned for 1995. If you have trees or land to plant trees, there is bound to be something of interest to you. Call Steve Webster for a calendar of events (206-740-1214).

WSU - Ocean Spray Winter Workshop. These meetings are scheduled for January 25 in South Bend or Raymond. As always, this all-day program is a must for anyone wanting the latest research information on cranberries.

WEATHER

	Rainfall (Inches)					Growing Degree Days				
Month	1994	1993	1992	1991	20 yr av.	1994	1993	1992	1991	10 yr av.
January	8.1	8.7	14.4	8.1	10.8	76	22	69	36	40
February	12.1	1.4	6.0	10.1	9.3	26	63	118	110	55
March	6.4	8.1	1.7	6.6	9.5	137	94	145	92	72
April	5.6	10.3	9.9	9.0	5.6	164	147	189	122	116
May	3.4	5.9	0.9	3.1	3.8	276	360	296	198	216
June	2.9	3.3	1.4	1.8	2.8	340	386	388	285	323
July	0.7	1.8	0.4	0.6	1.9	440	458	486	423	421
August	1.4	0.7	1.3	5.3	1.7	503	478	477	437	440
September	1.8	0.3	2.6	0.2	4.1	439	359	314	465	363
October	8.5	2.9	5.2	2.4	6.5	171	249	194	214	217
November		5.0	11.0	10.2	11.4		23	69	102	99
December		14.0	8.3	7.7	12.6		35	4	55	41
TOTAL		62.5	63.1	65.1	80.5		2674	2749	2409	2402

Worker Protection Standard Training. WSU is offering a 4 hour course ($30) for training the trainers. The closest course is in Puyallup on November 22 (206-902-2020).

Cranberry BMP Development. These monthly meetings will continue for several more sessions. Call Miranda Wecker (206-875-6609) for times and dates of the Grayland and Long Beach sessions. This will have an important impact on securing your farming future. We always need more input.

WEATHER

With record breaking crops being achieved (197,000 barrels for Washington), we can call 1994 a good year for cranberry growers in the Pacific Northwest. What, in particular, was significant this year that we did not have or do in the past? Three key weather events appeared important. 1) There were few incidents of hard frost in the spring. 2) Pollination weather was generally mild or at least there were several windows of good weather during which pollination could be achieved. 3) Summer weather was slightly warmer than usual. In addition, the 1993 crop was down which helped allow for a good rebound in 1994. It is difficult to equate good yield with any one of these parameters; let's just hope 1995 will be the same.

DISEASE CONTROL

Dying Uprights on New Bogs? We are beginning to find some instances when vigorously growing new plantings suddenly begin to die with no apparent cause. In one of these bogs, Dr. Bristow has isolated the pathogen *Glomerella* or "bitter rot" from the cankers on the stem at ground level. This data is interesting in light of the research by WSU mycologist Lori Carris. She has isolated 45 fungal taxa from cranberry tissue taken in Grayland. These tissue exhibited no symptoms of disease, yet one-half of the fungi isolated are suspected pathogens. At some point in time something causes these normally present fungi to turn pathogenic. In any case, a good broad-spectrum fungicide such as Mancozeb or Bravo sprayed at the time of new growth may be helpful on new bogs experiencing this die-back.

WEED CONTROL

Ditch Weed Control. To clarify a confusing issue on the use of aquatic herbicides--if you have flowing surface water you need a short-term water quality modification permit (c/o Loree Randall, DOE, 206-407-6294), i.e., to apply Rodeo. No other aquatic herbicide is allowed. For water not flowing (ponds) you can use Rodeo without a permit but you still need an aquatic pesticide license. By the way, water is considered flowing if you use it for irrigation. Basically, it is a real pain to use any aquatic herbicide legally. We hope that this will change once the BMP's are implemented. (The DOE likely will accept BMP's as the short-term water quality modification permit, but this will be for Rodeo only.)

Weed Control. I'll spend more time on weed control in the next issue but for now there are a few things that are relevant. On young bogs with a lot of broadleaf biennial weeds (such as dandelion or false dandelion) a late fall, early winter application of 2,4-D G is a legal and effective treatment and has no negative effects on the vines. Some other winter annuals also can be controlled easily with this method.

Arrowgrass (actually it's a rush, not a grass) seems to be suppressed with multiple 2,4-D applications at 20# product/A. For this to work, you need to put out a fall application as soon as possible, followed by a second and third application in the spring. Buttercup control can be achieved with an early winter application of Devrinol (150#/A) in January followed by a good split application of Casoron (80# in early March and 50# in early April). These rates are quite significant and I advocate this only for areas of peat bogs (usually along the edges) where buttercup has taken over. The Casoron doesn't do much for buttercup but unless you use Casoron, silverleaf will take the place of the buttercup. With the above mix, I got 94% control of both weeds and 65#/A yield in areas of bogs which should have been bulldozed 10 years ago.

Blackberries are primed for control now. Off-bog sites can be sprayed with Roundup. For on-bog sites I advocate cut stump application of straight Roundup, or 50% Roundup, or Roundup mixed with lanolin (1:1). Cut all the vines coming out of the ground at about 4-6" above the ground and

paint on a generous amount of Roundup. If you get all the vines you will kill the plant whether it's trailing or an erect type. But the real trick is getting all the vines. This technique also works for other woody brush such as willows, but in many instances it may be easier to pull them.

This last year we had excellent results with lotus control using combinations of sulfur to lower pH and herbicides. Several growers who used that program also were pleased. If you are going to use this control program, the soil pH needs to be lowered gradually. Sulfur applications need to go on every month or every other month beginning after harvest. In general it takes 500 to 1000#/A of sulfur to lower the pH one unit (pH 5.5 to 4.5). I prefer to put it out in the growing season, but it takes too long to be effective and weed control benefits may be missed. Therefore, several small applications (100-200#/A) during the dormant season seem to work adequately. I haven't experienced any phytotoxicity using this method yet, unless I used high application rates (>300#/A/application) and the fields were covered with standing water for long periods of time during the winter and spring. To control lotus and silverleaf, combine the use of sulfur with split applications of Devrinol (60#/A in early March and 20-40#/A in mid-April) and a mid-March Casoron application (50#/A). There may be better herbicide timings, rates, and combinations than the above, but it looked good on our research plots. If you don't have silverleaf or other weeds, you may be able to get by with less Casoron. If you don't know what your soil pH is, send me a soil sample or send it to a lab for a full analysis. In general, if you have a lot of lotus, your soil pH is probably above 5.0. If you are thinking about trying this procedure, reread the precautions of using sulfur in previous Cranberry Vine Newsletters.

BOG MANAGEMENT

Sanding--What is its Value? In the words of William Blake--

"To see a world in a grain of sand,
And a heaven in a wild flower,
Hold infinity in the palm of your hand,
And eternity in an hour."

More recent evaluations in British Columbia, Oregon and Wisconsin have a different perspective. Leroy Kummer (Ocean Spray) in Wisconsin evaluated ½" to ¾" sand with and without pruning from 1991 to 1993. He found that yield declined after the year of sanding but increased over unsanded plots for the following two years. The highest overall yields were a combination of sanding and pruning. Bernadine Strik at Oregon State University evaluated sanding on young and old Stevens bogs. She found that heavy sand (1") reduced yields in the 8 year old bog in two of the three following years. The ½" sanding increased yield over the control in the 24 year old bog in the year following treatment, but after that there was no difference. After three years, the old bog had a greater upright density where sanded. She concluded that too much sand may not be beneficial, especially on sand bogs. Deborah Henderson also has done sanding studies recently on Stevens bogs at Coast Cranberries in British Columbia (peat bogs). She reported a positive effect on vegetative and reproductive growth and yield. The conclusions from these three very recent sanding studies is that it is not a panacea but in some situations will likely improve production. Local grower reports have been fairly favorable towards sanding. For old cranberry plantings in dire need of renovation or for weak areas with weevil, girdler, herbicide damage, or poor drainage, sand is a must. One test to tell how beneficial sanding will be is to determine the length of vines you can pull up before you start yanking up roots. In some bogs I have noticed vines trailing 4-5 ft. before there are any roots. This means all the uprights on that vine are functioning on only a few roots. If, on the other hand, vines are well rooted, chances are you will benefit less from sanding. Another test is the crackle method. If the vines are crispy and noisy when walking on them, they probably have experienced severe water stress due to insects feeding, herbicides, etc. These vines will likely respond well to sanding. Remember that, in general, if a little sand (½") is good, more (>1-2") is not necessarily better.

Drainage. Late fall and early winter is the perfect time to work on those wet spots. Drain tile, sanding, and improved ditches go a long way in improving production.

Pruning and Fertilizing. Although it is obvious, it bears restating: If you end up with too many prunings, you overfertilized during the summer. If you did not get enough prunings, push your vines a little harder next time. Each bog is different and the key to good production year after year is achieving a good balance of vine vigor with no overgrowth. If you haven't done so already, take the time this winter to write some notes about the need for more or less fertilizer on each section during 1995. Bear in mind that there is a tendency for vines to fruit less after a heavy year. Look at your bud set to get a feeling for your crop load and factor that into your fertilizer plans. Another issue on pruning is the time of pruning. Recent studies indicate that the actual time of pruning--late fall vs. winter--doesn't matter. However, research on pruning other woody plants (tree fruit) indicate that you should avoid any type of pruning prior to or during an extreme arctic cold front. I have no idea if this is relevant to cranberries, but it wouldn't hurt to avoid pruning if it is extremely cold.

Vole Control. Remember one breeding pair of overwintered voles can turn into a nightmare next spring when they multiply. They feed all fall and winter and since food sources are short during this time of year, it is important that growers be diligent. Keep your dikes well mowed, use bait (off bog), flood to drown any voles in the bog, use apple sections in runs to keep tabs on the control and populations (i.e., number of bites/day). Remember that wet bait will not be very effective. Bait stations that keep the bait dry and away from non-target species may be useful.

Bog Clean-up. Vines, leaves, and harvest trash left around from harvest are a source of disease inoculum. It is a good idea to remove that potential source of inoculum as soon as possible.

Ditch Lining Products. Ditch lining is a great practice, however, the use of CCA (chromated copper arsenate treated) wood has raised environmental concerns in some eyes. Recent studies evaluating movement of these compounds show no significant leaching into the soil or water. Epidemiological studies on carpenters exposed to arsenate treated sawdust indicate it is relatively innocuous. Plants growing next to treated wood do not take up any of the metals. Precautions must be taken, however, in disposing of scraps. Don't burn it as firewood--the smoke is quite toxic. It is best to recycle it or deposit it in a landfill or commercial incinerator. I have noticed that several timber products are being used. For the wood to last it must be "ground contact" material. This is determined by the amount of CCA per cubic foot (pcf) of treated lumber. .25 means ¼ pound of CCA pcf and is suitable for aboveground conditions, .40 pcf is suitable for ground contact and high moisture conditions, .60 should be used for wood foundations, pole barn poles, etc. Make sure the lumber has an AWPA stamp. A large database on this product is available from the American Wood Preservers Institute, 703-893-4005.

PESTICIDES

Pesticide Storage. Some formulation of pesticide (such as liquid lime sulfur or other liquid suspensions) cease to be effective if they freeze. If you don't have an insulated or heated pesticide storage shed and it looks like a nasty arctic blast is headed your way, you should do something to temporarily protect these pesticides from freezing. While you're there, do a yearly inventory of the pesticide shed, date all products, and remember to use the oldest first. By the way, if your warehouse stinks, the best way to prevent that smell is to reseal all opened sacks, place them in one or two large plastic double duty garbage sacks, and close off the sacks. (Label the outside of each plastic sack to help ID when you need them in the spring.) I have been told that this practice alone virtually eliminates smells.

Pesticides in Perspective. In the last issue of *Agrichemical & Environmental News*, Dr. Alan Schreiber used a recent journal article from *Science* (258:261-265) to examine the relative danger of pesticides in the human diet. When carcinogens are rated on a combination of their toxicity and average exposure in the diet, you can come up with a relative rating of risk. The higher the rating value, the greater the overall risk. A few examples: for mobile home air (14 hours/day), the relative risk = 1.4; coffee (3 cups/day = 0.1; orange juice (139 ml/day) = 0.03; apple juice (177 ml/day) = 0.002; Bravo (daily dietary average = 0.00000001. "The point is that the potential risk of cancer from pesticides is only an extremely small fraction of the source of overall carcinogens that we are exposed to

every day, i.e., the risk of naturally occurring carcinogens in a glass of orange juice is 30 million times greater than the total risk from dietary residue of Bravo."

Pesticide Regulations. I have just returned from a 2 day seminar on pesticide issues. My synopsis is as follows. Too many regulations from too many agencies with too many fingers in the pie. Most pesticide issues are overblown and out of proportion. One exception is farm worker protection. Hundreds of workers go to the hospital every year. Many of these regulations will be covered in the Worker Protection Standard code and new labels, etc. over the next six months. Training and videos are available. Videos in English and Spanish can be borrowed from Cooperative extension offices in South Bend (206-642-9331) and Long Beach (206-642-2031).

Pesticide Registration (Is there Progress?). Dow Elanco finally (it took 3 years) said they would support the registration of Stinger on cranberry. Now IR4 can release their data to the EPA and a tolerance level can be established. However, we are still looking for a third party registrant. Cryolite bait is also proceeding. The IR4 work (residue studies) we did (Alan Schreiber, Food & Environmental Quality Lab, WSU - Tri-Cities) will be sent off to the labs for analysis and hopefully, if Gowan doesn't drag its feet, a 24C will follow. Be sure you give Jere Downing a pat on the back for all his behind-the-scenes work on these products.

Pesticide Licensing Hotline. A 24 hour hotline for information on licenses and recertification is available at the WSDA, 206-902-2020.

MISCELLANEOUS

Change in Wetland Conversion Status. Effective now, the procedure for converting existing wetlands to cranberry beds has been modified slightly, depending upon who you are and what you are doing. The Soil Conservation Service is now the official delineator of agricultural wetlands, rather than the Army Corps of Engineers. However, cranberries are not an agricultural crop, unless you are a participant in a cost share program (ditch lining, etc.). Therefore, if you are expanding existing acreage, use NW Permit 34 through the Corps as before, unless you are currently cost sharing. If so, call the Soil Conservation Service Office in Montesano for clarification (Carl Boyd, 206-249-5900).

Michigan Cranberries? A big conference on growing cranberries in the Upper Peninsula of Michigan was held recently. They have 4 million acres of wetlands and are looking for new potentials for the area. Jere Downing and D. Farrimond presented information about the limited market opportunities. Information on regulatory, marketing and start-up costs gave most of the "wanna be" folks a good shock. Nevertheless, several blueberry growers are proceeding on a small scale. The economic development group that organized the conference is working toward a goal of an 1,000 acre industry in the area.

INSECT CONTROL

Cranberry Girdler: Winter Sanding and Pest Identification. Girdler larvae feed on cranberry runners from July to September. Larvae in the fall are much larger and are capable of doing considerably more damage than those which are newly hatched in July. If girdler larvae escaped your midsummer controls and damage is present, spot sanding stressed areas of the bog this winter is a good idea. Spot sanding girdler-stressed areas has various advantages: a sand layer ½" to ¾" deep will help stimulate damaged runners to sprout new roots thereby increasing vine vigor, sanding may help expose girdler larvae to natural predators like spiders, and a sand layer provides a much better medium for nematodes and/or Diazinon 14G to work in (vs. a duff layer).

One major problem I have seen some growers have in achieving good girdler control is treating for the wrong insect pest. Proper pest ID is the first step in any control program. Blackvine weevil can cause similar symptoms as girdler, and the two are often mistaken for one another. This is most often the case when the identification is made looking from a pickup truck rather than as a result of digging around and 'getting your nose' into the problem. I have seen at least a few cases where growers have unsuccessfully treated for the wrong insect pest for several years!

Here are some basic, key differences between girdler and weevil damage to aid in identification:

1) Location of bark notching: girdler larvae tend to feed on ABOVE-ground plant parts (runners), whereas weevil larvae feed on BELOW-ground plant parts (roots). 2) Frass, insect feces that looks like finely ground, light brown sawdust, is associated with girdler infestation, but not with weevil infestation. 3) Vine damage from girdler feeding tends to appear in the late summer and fall, whereas weevil damage tends to show up more in the spring (girdler larvae feed in July to September, but weevil larvae feed from late July, through the winter until late April). 4) Leaf notching, caused by adult weevils feeding at night, is always associated with weevil but never with girdler.

Keep in mind that both insect pests may be present and causing damage at the same time.

Girdler larvae tend to be difficult to locate unless the infestation is very large; however, weevil larvae can be quite easily found in the root zone from January through April. Also, good monitoring can help identify the cause of insect-stressed vines. Night sweeping in June and July will reveal adult weevils if present, and pheromone traps, placed in June and July, will reveal large populations of girdler adults if present.

CAVEAT: The information in this newsletter was selected with good intentions by the editor. To simplify the presentation of information, it is sometimes necessary to use trade names. No endorsement of product is intended nor criticism implied. Where pesticides are mentioned, be sure to follow the labels exactly. If you have comments or suggestions regarding the newsletter, please write to the editor.

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