Cooperative Extension
Long Beach Research & Extension Unit
Long Beach WA 98613

CRANBERRY VINE

February 1995

THE STATION/PCCRF

Station Update. A new pump and pump house decorates the station. This should bring up to standard our present feeble irrigation system. Another section of old McFarlins are scheduled to bite the dust and be replaced with Stevens. The museum expansion is almost complete. We still are awaiting news of our non-profit status for the PCCRF. There are several large foundation donors just waiting for our 501(3)(C) so they can give us funds for the museum and educational projects.

Cranberry Personnel. Several "entomology leaves" are about to be shed. Dr. Carl Shanks of WSU is retiring this summer after a distinguished career of research on control of weevil and other small fruit insects. His contributions have been beyond measure to our industry and working with him has been one of the highlights of my tenure in cranberries. He will be replaced by Dr. Lynell Tanigoshi, an entomologist from WSU - Pullman. Lynell has pioneered work in IPM on many crops. Andy Broaddus (Ocean Spray) will be leaving Washington to move to Bandon. His new position responsibilities with Ocean Spray will include work in Oregon, Washington, and British Columbia. He will be deeply missed also.

MEETINGS

Cranberry Field Day. This year, Field Day will be held on Tuesday, August 1.

Long Beach Bog Tours. The following bog tours have been scheduled: March 17 - Weyl bog (Eric Olsen, beekeeper will be present); April 14 - Crowley bog; May 19 - McPhail bog; and June 16 - to be announced. All begin at 9:00 a.m.

Cranberry Herbicide/Weed Control Short Course. March 14, 7:00-9:00 p.m. at the WSU Research Station in Long Beach; and March 15, 7:00-9:00 p.m. in Grayland at the N. Willapa Grange. Topics covered will include herbicide mode of action behavior in the environment and weed control. Pesticide credits will be given.

Frost Protection & Irrigation. Tom Ley, WSU - Irrigation Extension Engineer. April 17, 7:00 in Grayland at N. Willapa Grange; and April 18, 8:30 a.m., in Long Beach at Ocean Spray Receiving Station.

PESTICIDES

"Carbofuran must go." Six environmental groups sent a letter to EPA Administrator Carol Browner and USDA Secretary Bruce Babbitt asking them to cancel all uses of all formulations of carbofuran (Furadan) within 60 days. The letter warned of a citizens' suit under the Endangered Species Act if no action is taken. (From Agrichemical and Environmental News, No. 106, 12/94).

Pesticide Pick-Up and Storage. When you pick up your pesticides for the 1995 season, you should: 1) make sure that cranberry is on the label, 2) make sure chemigation is on the label for <u>all</u> products being applied through the irrigation system, and 3) when the pesticide arrives, mark the date on the container. Just because a product such as diazinon is registered for cranberry does not mean that every manufacturer has put cranberry and/or chemigation on their label. Don't rely on the supplier to catch everything. They don't. An issue like this seems trivial but it isn't. The label is your legal protection. Most pesticide-related lawsuits are won or lost based solely on the above. Dating the container will help to rotate your stock. Use up last year's first.

WEATHER

Thus far, an unseasonably warm winter has accelerated plant and weed development. We may need to rethink our normal timing of herbicides (see comments under **Weed Control**). Hopefully, the recent Arctic freeze should slow down timings. With regard to hardiness, based on our data, fruit buds should be tolerant into single digit temperatures, unless they are very advanced. Unfortunately, the preceding warm weather could confound things. We are currently running hardiness samples taken on 2-10-95. Call me after 2-24-95 if you are curious about the results.

	Rainfall (Inches)					Growing Degree Days				
Month	1995	1994	1993	1992	20 yr av.	1995	1994	1993	1992	10 yr av.
January	14.9	8.1	8.7	14.4	10.8	108	76	22	69	40
February		12.1	1.4	6.0	9.3		26	63	118	55
March		6.4	8.1	1.7	9.5		137	94	145	72
April		5.6	10.3	9.9	5.6		164	147	189	116
May		3.4	5.9	0.9	3.8		276	360	296	216
June		2.9	3.3	1.4	2.8		340	386	388	323
July		0.7	1.8	0.4	1.9		440	458	486	421
August		1.4	0.7	1.3	1.7		503	478	477	440
September		1.8	0.3	2.6	4.1		439	359	314	363
October		8.5	2.9	5.2	6.5		171	249	194	217
November		17.0	5.0	11.0	11.4		25	23	69	99
December		17.6	14.0	8.3	12.6		15	35	4	41
TOTAL		85.5	62.5	63.1	80.5		2612	2674	2749	2402

WEED CONTROL

General Recommendations. Listed below in Table 1 are five herbicide treatment options that can be used effectively in several different conditions. These usually have worked quite well in most of my trials. Timings are general and may have to be changed, based on the variety, the weather, and the stage of weed and vine development. See additional comments under the **Silverleaf Section.**

Table 1. Treatments That May Control Silverleaf and Many Other Perennial Weeds

Herbicide	Rate (#/A)	Timing	Comments
1) Casoron	50 & 50	Early Mar and early to mid Apr	This standard rate worked adequately in many situations but won't work very well with heavy weed pressure, especially on peat soil.
2) Casoron + 2,4-D (5:1)	60 & 60	Early Mar & early to mid Apr	Usually better than Casoron alone, especially if weeds already up and some post-emergent activity is required. Avoid use on weak vines.
3) Casoron with or w/o 2,4-D, Devrinol	50 & 50	Early Mar & mid Apr	May improve control of silverleaf and lotus. (See comments above for 2,4-D use.)
	70	Mid Apr	

Herbicide	Rate (#/A)	Timing	Comments
4) Devrinol	75-100 & 50	Mid Feb-early Mar & mid-Apr	Good for areas with severe weeds (especially lotus); expect some yield suppression, especially on light soil; avoid use on weak vines. For buttercup use the heavy Devrinol rate in early Feb.
Casoron	50 & 50	Early Mar & mid-Apr	
5) Devrinol	50 & 50	Early Mar & mid-Apr	Good for high pH areas, especially if lotus is a problem. Doesn't work as well as #4, but is easier on vines. Avoid sulfur use in poorly drained areas of bog.
Casoron	50	Mid-Apr	
Sulfur	150-250#/ application	Monthly up to 1000#/yr	

Some General Principles for Casoron.

- Timing is important. Too early is wasted. Too late gives poor control of vigorous plants.
- Immediate incorporation is important.
- Split the application to maximize longevity and minimize phytotoxicity.
- Label max is 100# for spring application.
- Combine with 2,4-D and/or Devrinol to enhance control, especially if weeds are already up or if there is a mixed species of weeds.

Silverleaf. Based on numerous research plots, I feel fairly confident that with the right herbicide rate and timing, silverleaf should be quite easily controllable (assuming the weather cooperates). Under normal winter conditions, silverleaf in most bogs begins to grow in mid-February to early-March. The ideal time for the first Casoron application is when the shoot tip emerges and is ½ to 1" long. Unfortunately, not all silverleaf emerges at the same time. Some more vigorous plants on sandier, warmer soil may already be 6-12" tall by the time silverleaf emerges on cold, wet peat soils. Several bogs which I have just visited already have silverleaf at the 4-6" stage. Therefore, schedule each bog's Casoron applications based on the stage of silverleaf development, not the calendar. One reason bog edges have the most silverleaf is that the edges are usually warmer and, therefore, have the most advanced silverleaf. These plants then manage to escape the ideally-timed treatment. Consider treating edges separately. The edges also tend to have more buttercup and other perennial weeds. An early February spot application of Devrinol (80-150#/A) will help control these weeds and delay silverleaf development. A split Devrinol and Casoron application is another good option here (see #4 in Table 1).

There are two other likely weed scenarios. One will be that 10-20% of the silverleaf will come up scattered throughout the bog before the majority of the bog is ready for herbicides. The other is that you will miss the perfect timing and silverleaf will be well past the ideal stage of development for control. In this situation, I recommend using a 5:1 Casoron:2,4-D granular mixture. The added 2,4-D allows for some post-emergent activity and will help get the silverleaf already up, which Casoron, by itself, would likely only suppress, at best. In general, this rule of thumb also applies to subsequent Casoron applications. That is, with split applications of Casoron, the second application may be more effective when mixed with 2,4-D if control of silverleaf with the first application was poor but, as stated before, 2,4-D is a double-edged sword, especially when applied late, on weak vines, or during hot weather.

The timing of the last Casoron or Casoron + Devrinol application is dependent on how fast your vines are advancing. You want to go late enough to get the maximum summer control and yet not hurt the vines. Usually this is mid-April. If silverleaf control is poor with the first application, the second needs to be shifted up earlier so that the weeds don't get too big by the time of the second application.

Sourgrass (red sorrel). I see a lot of sourgrass out in the new bogs, especially in the Grayland area. This acid-soil-loving plant is tough to control. Casoron, 2,4-D granular and glyphosate are the only herbicides that touch it once it has become established, none of which can be applied to young bogs without damage. My recommendations are to try light rates of Casoron or 2,4-D granular from mid-February to early March. If done early enough,

you can get away with light rates with little vine effect. Unfortunately, I am not sure how well these low rates will control it.

Cost Comparisons of Different Weed Control Programs. In general, I have been recommending split herbicide applications. Since most of us would rather do it only once, does it make economical sense? Table 2 lists results from 3 experiments where I have compared single vs. split applications. Each line represents data from a different experiment. Yield data is cumulative and gross returns include cost of chemical and application. A similar comparison has been made using 5 experiments in Table 3 for the use of Casoron with and without 2,4-D. What do these tables indicate? First, a split application, even if more herbicide is used, results in better weed control, higher yield and a considerable increase in grower returns (>$1,000/A). Second, adding 2,4-D to Casoron significantly increased silverleaf control in 2 out of 5 experiments and yield in 3 out of 5 experiments. That doesn't mean I always advocate using 2,4-D (see below under **Silverleaf**). These results are only for very weedy bogs. Bogs with vigorous vines on peat soil seem to benefit; other bogs could be damaged, especially by a late application of 2,4-D.

Table 2. Single vs. Split Casoron Applications

Casoron Rates (#/A)		% Silverleaf Control		Yield (bbl/A)		Comparative Return Gross/A
Single	Split	Single	Split	Single	Split	Split vs. Single
			1 year's data			
75	50+50	40	80	26	52	1255
			2 years' data			
50	50+50	23	88	147	184	1694
80	80+30	27	84	168	278	5397

Table 3. Casoron with and without 2,4-D (5:1)

Herbicide Rate (#/A)		Silverleaf Control		Yield (bbl/A)		Comparative Gross Return $/A
Without	With	Without	With	Without	With	With vs. Without
				1 year's data		
50+50	60+60	68	93	90	90	-35
50+50	60+60	76	70	62	77	714
80+50	96+60	77	90	64	197	306
				2 years' data		
80+30	92+38	84	86	278	324	2420
50+30	62+38	79	71	187	194	276

Lotus. This past year we had excellent control of lotus with several treatments. For a sticky herbicide approach, a split application of both Devrinol and Casoron really cleaned up some very weedy bogs of lotus and silverleaf. We used Devrinol 10G at 75#/A plus Casoron at 50#/A in early March followed by Casoron at 50#/A in mid-April and Devrinol at 50#/A in late April. This rate did suppress yield some. Better results may occur (especially this year) if applications are made

earlier, but for control during the entire year, a mid-April application is important (Washington timing). Lighter rates of herbicides could be tried if the lotus clumps are spot treated with Devrinol or sulfur. The other treatment which also looked really good was when herbicide treatments (Devrinol at 60#/A in early March and 25#/A in late April, and Casoron at 50#/A in mid-April) were combined with multiple sulfur applications. The sulfur was applied in many light applications of 150#/A starting in the fall and continuing until mid-summer. The soil pH was reduced from 5.4 to 4.1. In retrospect, I think a slightly heavier herbicide rate and lighter sulfur rate also would have worked well. The important thing to stress is that, in order for sulfur to work on weeds and complement the effect of herbicides while at the same time not resulting in phytotoxicity to cranberries, several conditions need to be in place. First, the soil pH should be in the mid 5's. Second, the soil needs to be well drained. If areas within the bog hold water for more than a day or two after a major rainfall, then these areas probably will be hot spots for sulfur phytotoxicity. If they are really well drained, no problems should occur. Third, the soil pH needs to be reduced before the weeds get too vigorous and big. That is, reducing soil pH is a long-term goal and not an instantaneous event. Applying sulfur after the weeds are up (late spring to mid-summer) will not be as effective as applying it before the weeds become a problem. As for how much sulfur to use, that value varies depending on soil type and when it was applied. In general, most bogs in Washington are taking 750 to 1500#/A to bring down the soil pH from the mid 5's to the mid 4's. Do not put all this out at once; rather, split it over 4 to 8 applications. I would stick to the lower rate until you feel comfortable with the effects on the bog. Fourth, soil pH is not static but drifts back to its initial level over time. Therefore, some monitoring and reapplication may be necessary in subsequent years. Usually the follow-up application needs to be only a fraction of the initial rates, i.e., 200-300#/year. Fifth, because soil pH management is not a tried and true grower practice, I would try it out only on your worst area on an experimental basis. Finally, since lotus initially occurs in clumps, it is an ideal weed to consider for spot treatments of Devrinol and/or sulfur, starting in mid-February.

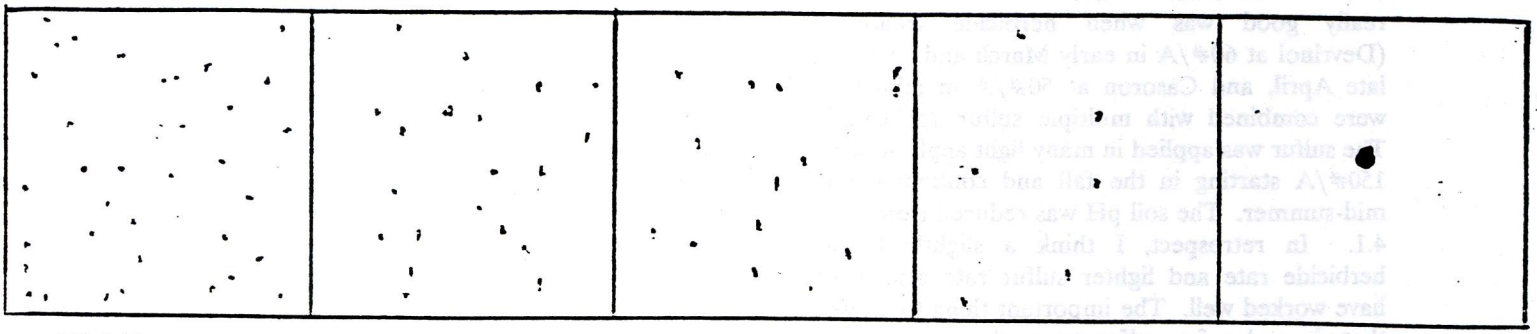
Arrowgrass. This pesky rush, although nowhere near the nemesis of silverleaf or lotus, is difficult to eradicate once well established. My only partial success for suppressing this weed once established has been with 2,4-D granular. We have tried multiple applications with and without other herbicides. To date, 2,4-D by itself is comparable to 2,4-D mixed with heavy rates of Devrinol or Evital. Two applications of 2,4-D seem as good as four. The problem with 2,4-D granular is that there is a 20# maximum per application. This maximum application legally must be two months apart. Therefore, using a November application and early to mid-April of 2,4-D is about the best you can do. This will suppress arrowgrass enough to keep it from spreading.

HERBICIDES

New Glyphosate Products. The following glyphosate products are currently registered on cranberry in Washington: Roundup, Roundup RT, Roundup WSD, Ruler, Mirage Jury, Ratler, and Silhouette. All but one are 4 EC products (4 lb ai/gallon). Some of them have a surfactant and some don't. Two products sound interesting. Silhouette may have potential for gorse control. It has a silicon surfactant which has been shown to be particularly effective with gorse. Many of the silicone surfactants improve the rain fastness of glyphosate. Under hot dry conditions, however, users have noted a lack of effectiveness because it causes the product to dry too fast and, hence, results in reduced glyphosate uptake. This should not be too important a factor for our area. Roundup WSD is a 94% ai dry formulation of Roundup. This may be handy for measuring off in backpack sprayers, etc. I don't know the price of any of these, but be sure to add a surfactant to those that need one. These products are registered only for wiping use on cranberry beds.

Calibrations for Spot Treatments of Herbicides. There is a great need for spot treatment of both an herbicide and fertilizer. The major problem with spot treatment with a granular product, however, is accurate delivery rate. I have seen too many dead areas in bogs due to over-zealous spot treatment. When you are shaking out a little of this or that, how do you know you are even close to the desired rate? You can calibrate the shaker/applicator and guess at the area you are applying it over or use specialized shaking containers that help control delivery. However, it is still a guessing game. What

may help is a visual estimate of granular coverage density on the ground. The 5 squares below represent life-sized tracings of typical application rates of an herbicide (Casoron) at 100, 50, 25, and 12.5 lbs. of product/A and a typical fertilizer at 100#/A. Cut this out and paste it on your pesticide storage shed to use as a reference. Note the difference between 100#/A of Casoron and a fertilizer.



100#/A Casoron	50#/A Casoron	25#/A Casoron	12.5#/A Casoron	100#/A 6-24-24

Comments on Casoron Label. The label for the Pacific Northwest allows for 150# of Casoron/year if you apply it in the fall on very weedy bogs or 100#/A in two equal applications 3 to 6 weeks between treatments in the spring. I find that this label, as written, is poorly suited for Washington conditions. First, putting out 150# in one shot in the fall is not a prudent use of herbicides and won't provide adequate control of weeds next summer. In essence, a fall application means you can't make a spring application of Casoron. Second, two 50# applications in the spring won't make a dent in very weedy bogs on peat soil. Heavier rates are necessary. Third, the split application must be equal. In many instances it is better to use a heavier application first. Fourth, on sandy soil, three applications at 50:30:20 may be a better option, but this is not allowed. All this is to say that Casoron is a great herbicide, but we need to modify the label slightly to make it more useful for us. I am working on this.

DISEASE CONTROL

Fruit Rot and Upright Dieback. Recent research by Freeman & MacDonald in British Columbia on fruit rot indicated that the best control of rot at harvest was achieved by three sprays of a fixed copper fungicide: one at bud break, one 2 weeks later, and one at early bloom. This was better than three post-bloom applications of Bravo and equals six sprays of Bravo or a copper fungicide throughout the season. That is, the early window for control of field rot is very important. For control of storage rots, three Bravo sprays (early bloom, late bloom, and early berry) were the best. The lower rate of Bravo worked as well as the high rate. For fruit rot, our spray guide recommends 2-3 fungicide applications, and not to use the same material for all 3 sprays.

They also evaluated these treatments for control of "upright dieback" on Bergman (a variety more susceptible to dieback). They recommend three applications of a good copper fungicide (such as Kocide), one at bud break, one 2 weeks later, and one at early bloom; and Bravo applications at late bloom and early berry. Coverage during the early bloom period was the most important. Identification of the cause of upright dieback is somewhat elusive without using sophisticated techniques. Basically, if your uprights are dying and it is not girdler, weevil, mechanical damage, or voles, it may be some type of stem blight, but not necessarily the "upright dieback" caused by *Diaporthe*. Regardless of the fungus species causing the problem, multiple applications of a good copper fungicide as listed in our spray guide or as they have shown in British Columbia should help reduce dieback or stem blight. For more information call Dr. Pete Bristow (206-840-4529) or Lisa MacDonald, BC Ministry of Agriculture (604-576-5600).

Dr. Bristow's research results on fruit rot during storage this year were also very interesting. In general, he did not find much rot this last year nor did he find much effect of fungicide use. He will repeat the data, but thinks that much of the problem may be associated with bog management, weeds, and harvest and handling techniques. A second year of research will be done on this study.

Twig blight. Growers are alerted to protect newly planted bogs from twig blight (*Lophodermium*) if they are located near infected producing bogs. Spores may blow into the new bogs and infect the new growth. The death of one-year-old wood can markedly slow down bog establishment.

Fungicides. There are a few new names (not new active ingredients) to add to the list of registered fungicides for cranberry in Washington. The numerous fungicide products approved for use in Washington (as of November 1994) are listed in the column to the right by active ingredient.

BOG MANAGEMENT

1995 Insect, Disease, and Weed Control Program. Few changes have been made in the spray guide from 1994. It is currently being printed and until it is available, use last year's. If you want a new or old one, ask for EB0845.

Assessing Your Yield Potential. One of the most important jobs of a cranberry grower is to carefully observe plants throughout the year and try to remedy problems that arise in the field. Many observations can be made during the upcoming spring and during the harvest season which can help you evaluate your yield potential.

Yield potential is composed of several components. These yield components include the total number of uprights/sq ft, number of flowering uprights/sq ft, number of flowers/upright, fruit set, and fruit size. At this time of year, flower buds should be well developed and easily distinguished from vegetative buds. A weak flower bud set suggests plant stress and low vigor or over-cropping in the prior year. It also suggests that care should be used to avoid over-fertilizing a light crop.

Products

Active Ingredient	Product (manufacturer)*
Chlorothalonil	Bravo 720, Bravo 90DG, & Supanil (7) Bravo 90DG & Ensign Flowable (11) Terranil 66 & Terranil 90DF (12) ECO90DF & ECO720 Flowable (15) Agronil 500 (14)
Ferbam	Carbamate WDG (5, 16)
Fixed copper (basic copper sulfate)	Cuproxat (8)
Fixed copper (cooper hydroxide)	Kocide 101, Kocide 606, Kocide LF, Kocide DF (6) Champion wettable powder, Champ Formula 2 Flowable, Champ Formula II Dry Flowable (1)
Fixed copper (copper oxide)	Nordox (9)
Mancozeb	Manzate 200 (4) Penncozeb, Penncozeb DF (2), Mancozeb 4L & Mancozeb 80WB (11), Dithane M-45, Dithane DF, & Dithane F-45 (13)
Maneb	Maneb 45DF & Maneb plus zinc F4 (2) Manex (6) Clean Crop Flowable maneb with zinc (11)
Ziram	Ziram 400 (10) Ziram 76 WDG (11)

Manufacturers

1. Agtrol Chemical Products
2. ATOCHEM
3. Ciba-Geigy Corp.
4. Dupont
5. FMC Corp.
6. Griffin Corp.
7. ISK Biotech Corp.
8. Micro-flo Co.
9. Monterey Chemical Co.
10. OR-Cal
11. Platte Chemical Co.
12. Riverside/Tera Corp.
13. Rohm and Haas Co.
14. Setre Chemical Co.
15. Sostram Corp.
16. UCB Chemicals Corp.

The number of flowers that open per upright normally ranges from 4 to 8 depending on the variety and plant vigor. Our study of McFarlins indicate that this is one of the most important variables affecting yield. This is less true of other varieties. A healthy upright will produce more flowers and set better the following season. The bigger the bud, usually the more flowers it will have and the better the set. Bud size is proportional to the number of leaves subtending the bud and the number of fruit on that upright, i.e., an upright with few leaves with 2-4 fruit likely will not produce a fruiting bud. An upright with many leaves and a light crop load will likely produce a flower bud. Based on our studies, this return bloom variable changes a lot with different bogs, suggesting a strong management effect, e.g., herbicide use, irrigation, and fertility.

The number of flowers which set and produce ripe fruit per upright is probably the most important yield component for Washington. Many factors can influence this including freezes, poor pollen viability (common in some McFarlin strains), too few pollinating insects, and undesirable weather during bloom and fruit set. Growers should keep track of fruit set for certain bogs and varieties in their planting and monitor changes across years. Values above 30-50% are good and values above 50% are excellent. On the other hand, values below 20% indicate that there could be problems which need to be solved.

Berry weight depends on the variety and crop load but can be improved by optimizing soil moisture throughout the growing season. In general, plan on irrigating 1"/week. Berry size is also strongly affected by seed content. If the early berries for a particular cultivar have fewer than 10-15 well-developed seeds per berry and the later ones have fewer than 10 well-developed seed per fruit, then berry size and fruit set probably did not reach their maximum potential. Better pollination is the best way to increase seed number per fruit. Increase your bee number and hope for better weather. Bog vigor is also important. We found that late blooming flowers (July) set fruit and sized adequately if the grower had bees available to pollinate them and if he had a good fertilizer and irrigation program to size them, whereas late bloom on weak bogs did produce salable fruit.

By carefully studying each of these yield components at the time of year when they are determining factors, growers should be able to gain a better understanding of why yields vary from year to year and what, if anything, can be done to improve them.

Vole Control. If you have had historical problems with voles even though you use anticoagulant baits on the bank and the vole eats the bait, consider the following.

- The time of bait exposure is too short.
- Insufficient bait is made available, and none remains from one baiting to the next.
- Too few bait stations are used; some are too far apart. In some situations, stations may have to be within 5 to 50 feet of one another, especially for mice.
- The control program does not cover a large enough area, permitting rodents to move in from untreated adjacent areas.

If your failure to achieve control with anticoagulant baits is because they don't eat the bait, it may be for one or more of the following reasons:

- The bait used is a poor choice or is formulated improperly; other foods are more attractive to rodents.
- The baits or bait stations are not placed properly. Other foods are more convenient to the rodents.
- Other foods for rodents are abundant.
- The bait has become moldy, rancid, insect-infested, or contaminated with other materials that reduce acceptance. Discard old bait periodically and replace it with fresh. (From WSU Bulletin Misc 0096, Pest Management Study Manual for Pest Control Operators)

Remember that bait can be used only on adjacent dikes and not within the cranberry beds.

PUBLICATIONS

OSU Fertilizer Guide for Cranberry in South Coastal Oregon (FG75). This publication has been revised and nicely details the many aspects of fertilizing cranberry. Although rates are intended for southern Oregon, most of the other information is transferrable to Washington sites.

Winter Workshop Handouts. If you missed the workshop and would like to have the **1994 Cranberry Weed Control Results** or other information presented, please call 360-642-2031.

MISCELLANEOUS

Crop Insurance Coverage. Crop insurance coverage will compensate producers for crop losses in excess of 50 percent of their actual production history at 60 percent of the established market price for that crop. However, program benefits provided in recent years have changed somewhat and farmers may wish to rethink using this program. For more information, contact Bill Godwin, 509-353-2147.

Cost of Regulation. An amusing study recently completed by the Harvard School of Public Health compared the cost of adding one life-year to a person. Flammability standards for children's sleepwear, measles vaccination, and reduction in lead content of gasoline were valued at $1/life-year; whereas following the regulatory measures encouraged by the EPA would cost $7.6 million to add one year to a person's life. This may sound absurd and abstract but consider this. The State of Washington and other groups have spent approximately $1 million over the past 6 years to control spartina (a weed) in local estuaries. The total amount of spartina controlled by that money amounts to less than 1/1000 of an acre. Instead the money went for legal and regulatory issues.

Soil Laboratories. Those of you who normally send soil samples to the Oregon State University Soil Lab should note that it no longer does soil analysis. A list of other labs is available from my office. Oregon growers can order OSU Bulletin FG 74, *A List of Analytical Laboratories Serving Oregon*. According to John Hart, only one lab, Agri-Check, Inc. in Umatilla, can provide all the analytical tests that were part of the service by the OSU lab.

Cranberries, Mozart, and Boxer Shorts. The cranberry got a boost last year when a Harvard Medical School study suggested its acidic juice helps curb urinary tract infections. Based on that finding, the 1995 Farmer's Almanac put cranberries near the top of its "What's Good for You List," alongside a positive attitude and Mozart.

Cranberries aren't just in season in the food and beverage industry. Subaru of America's second best selling color for the 1994 Legacy was "cranberry pearl." Sherwin-Williams Co., the Cleveland-based paint company, says "cranberry bog" exterior latex is one of its rising colors. And retailer J. Crew is selling cranberry colored boxer shorts, with turkeys romping across them.

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.

COOPERATIVE EXTENSION
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