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CRANBERRY VINE

November 1997

WEED CONTROL

Extension of Stinger Section 18. The EPA granted my request for an extension of this Section 18 in Oregon and Washington. As a consequence, growers can now use this herbicide from November 1 to December 31. An application for a Section 18 for 1998 has been submitted, but, until it is issued, Stinger cannot be used after the end of the year.

The big question is whether or not you should consider using Stinger. I saw a lot of good weed control this summer with Stinger when it was used properly. Many growers have completely eradicated clover and lotus in their beds. Aster is still a problem weed since it tends to come up too late to be treated with Stinger prior to bud break. Wiping with 2% Stinger during the summer really worked well and there was a lot less vine damage compared to wiping with Roundup. Also, I have heard of some phytotoxicity complaints with this herbicide from growers. Consequently, some growers have decided not to use it again. As I have stated several times, Stinger needs to be used very carefully around bud break and the rates are much lower than any other herbicide you have used on cranberries in the past. For spot treatment, growers or their applicators are still prone to spray to runoff, use 1 to 3 tablespoons of product per gallon of water, and add a surfactant. These are not the right rates and it explains why they get damage. If the right rates are used at the right time with the correct spray volume and with no surfactant there is no damage. **For spot treatment during the postharvest application period use 1 teaspoon per gallon of water and spray to just wet (60 to 100 gpa) and don't add a surfactant.** For clover you can use one-half this rate and get control. For purple aster and lotus, use the 1 teaspoon/gallon rate and retreat in a month if you can't see any visible effects on the weeds. Aster may need to be retreated. Do not exceed ⅔ pint of product per acre per year. If your applicators are prone to spray to runoff, then reduce the rate to ¼ to ½ teaspoon per gallon. Stinger can be used effectively on all plants in the sunflower family (false dandelion, thistle, etc.), legume family (clover, vetch, lotus) and the buckwheat family (smartweed, dock, sourgrass). One weed that is common in the winter and moderately susceptible to Stinger is sourgrass (sourdock or sheep sorrel or sour weed). Re-treatment is usually needed for complete control. Attached are the Cranberry Label and the Waiver of Liability sheet you must sign and turn in if you are using Stinger.

Other Fall Weed Control Options. Fall weed control is important for a few weed species. Blackberries are especially prone to Roundup this time of year. Cut stump application or wiping are the only two legal ways of applying Roundup. Some grass species may be controlled with Poast if they are still actively growing and have nice green leaves. Arrowgrass can be weakened by 2,4-D granular application (20# product/Ac). This will have to be reapplied in the spring for best results. Fall Casoron is still used by a few growers. I don't recommend it because it limits what you can put out in the spring. Remember that the maximum that can be used in any one application season (fall+spring) is 100 #/Ac. Fifty pounds now means that the maximum you can use in the spring is 50#. This is not enough to control many of our aggressive weeds. If you are going to use a fall Casoron, leave a check strip so you can compare it to the spring application. On new beds, winter weeds may or may not be a problem. Small amounts of 2,4-D granular will help get rid of some of the broad leaves like false dandelion without much vine damage.

INSECT CONTROL

Fireworm Damage. This year many growers experienced significant damage from fireworm, particularly in the Grayland area. By my estimates, if you look at the combination of this year's and next year's crops, there was more than one-half million dollars in damage. Why? First, because of their stewardship ethic and concern about surface water, many growers where very conservative in their spray

program. Second, the first hatch was both early and spread out. If you missed your timing or only put out one spray, the adult populations became significant in June. (Note: Trap count numbers were really not any higher than previous years, but were high enough so that if growers didn't get the sprays on correctly for the second hatch there likely was damage.) Lack of control on the second hatch seemed to be the biggest problem. The warm weather made the second hatch much earlier, in the middle of bloom. Growers who used BT's or Pyrenone were not thrilled by the lack of efficacy. Those who waited until after the bees were removed to put out a traditional insecticide were too late and already had significant fireworm damage. So what is a grower to do?

First, I am reluctant to advocate an aggressive spray program with traditional insecticides. The surface water issues are still there and more monitoring is highly likely. This is easy for me to say, however, since it is not my farm that is being damaged. Second, the data that we (Steve Booth, Lionel Tanigoshi and I) got this year on fireworm control on Tuffy Miller's bed were excellent. The new generation BT products did work, but the correct timing for their use is absolutely critical. Unless you do it perfectly they won't work; the same is true with Pyrenone. The good news is that we hope to get a Section 18 for a new insecticide that is very safe for bees and the environment and still kills fireworm. I am working on its submission and we will know by next May if we get it. Third, the industry needs to rethink its IPM program for fireworm. We have traditionally relied on trap counts to tell us peak flight and ascertain appropriate spray timing. This was adequate for the traditional insecticides since they controlled all stages of developing larvae. The new insecticides, as well as the BT's and Pyrenone, require very specific timing, such as first instar stage. Trap count data do not provide that information. Instead, visual monitoring of individual uprights will be required. Stevens and McFarlin, sand and peat beds, are all likely to be different enough so that one timing will not fit all. To solve this dilemma, I am suggesting that we (scouts or growers) frequently monitor indicator beds and provide the spray timing data via the phone tree. If you have suggestions on how this might work or how we should pay for it, let me know. Regardless of what happens in 1997, the future does not look rosy for many of the traditional insecticides used on cranberries. The new Food Quality Protection Act strongly suggests that we will not be using all these tools for much longer and safer replacements are essential if we want to continue to farm.

In that vein, we have a serious problem that may seem trivial to you but is of dire importance to the long-term health of the industry. In order for us to do any more research on fireworm control, I need a good site with a high population of fireworm and where the grower won't spray. I know that no grower in his right mind would want to do this, but, if you have some vines you are going to take out next summer, let us get some data first and then remove them. If you have a small area with lots of damage in 1997 and don't mind some flags and a few small uncontrolled check plots, also let me know. The welfare of the industry is based on finding replacements for organophosphate insecticides within the next three years. We can't do it without the sites. You should also thank Tuffy Miller next time you see him for letting us use his site in 1997. He indirectly saved your farm!

BOG MANAGEMENT

Pruning. Some growers prune aggressively. I urge caution against over pruning. Research in Oregon and elsewhere has shown that light pruning on alternate years is usually best for production. Pruning is not a panacea for poor producing beds. If your production is not what you think it should be, especially for Stevens, try removing less wood when pruning. Or better still, run some experiments between beds to compare pruning rates.

Vine Overgrowth. Ever wonder why you can't control vine overgrowth on some soils in Grayland? Work by Joan Davenport on nitrogen release rates from different cranberry soils found that the samples I sent her from the Cottrell beds released 190 lbs of nitrogen in a year. This was far more than all the other soils and accounts for the overgrowth problem that has been so difficult to control on some beds. I am having success in reducing growth in my research plots with those same soils with growth retardants, but it is tough to stop vine growth when there is that much free nitrogen available.

New Plantings. To those of you putting in new plantings this winter and spring, remember there are four rules for success--drainage, drainage and drainage; the fourth is vine source: weed-free, fireworm-egg-free, production record history (300

bbl/Ac for several years would be nice), freshly pruned, and good vigor (thick-stemmed runners). As far as which variety to choose, the variety plot data at the PCCRF is really interesting. The table below is the yield for the last two years. Remember these were planted as plugs in 1994. Pilgrim data is outstanding; some of the others warrant close watching for the next few years.

	bbl/Ac	
Variety	1996	1997
Pilgrim	147	436
Ben Lear	82	337
Wilcox	35	284
Gryleski - 1	33	254
#35	59	247
Franklin	75	237
Gryleski - 3	32	209
Howe	14	206
Gryleski - 2	6	200
Cropper	25	188
Stevens	39	188
McFarlin - "True"	24	179
AJ	38	143
McFarlin - "McPhail"	15	136
Beckwith	2	79
Bergman	6	30

Winter Damage. What to do about winter protection when we get those cold arctic blasts? Hillary Sanders from Massachusetts has found that using the antitranspirant Vapor Guard reduced damage and increased yield the follow year. It is not something that we would find necessary most years, but could work in those rare years when it gets very cold. It might be an appropriate practice in our new growing areas in Whatcom County where they get cold, dry winds out of the Fraser Valley. Vapor Guard works by reducing desiccation.

DISEASE CONTROL

Trash Removal. If you had a high incidence of fruit rot this year, consider removing all the harvest trash off site. This is a good source of innoculum for diseases.

MISCELLANEOUS

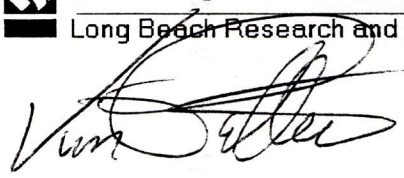
The 1997 Crop. Most growers report an off year. Blaming the rain in June could account for part of the problem. We recorded 10 straight days between May 27 and June 4 and 7 out of 12 days between June 17 and 28th with 0.2 inches of rain or more. Basically, there were only 13 rain-free days during peak pollination between May 25 and July 4. This compares with 17, 33, and 24 rain-free days in 1994, 1995 and 1996, respectively. There was also a preponderance of small undeveloped fruit. Many of these fruit lacked a full compliment of seeds, suggesting pollination could have been limiting. However, I don't believe it explains all our problems. Some growers, be it Stevens or McFarlin, had good to excellent crops and we all had the same rain. Differences in bumble bee populations; honey bee hive densities; peak bloom time; alternate year cropping effects; fireworm damage; poor bed drainage; excess herbicide applications; poor weed control; poor bud set in 1996 and/or vine overgrowth induced by excessive early nitrogen; and cloudiness may be factors to help explain the rest of the story.

Water Rights Permits. The DOE is reopening the Water Rights Claims Registry through June 30,1998. If you or a previous owner of your property began using surface water before 1917 or groundwater before 1945 and have not previously filed a claim or don't hold a current water right permit, you must file a claim now or relinquish your right to use water. Call 1-800-468-0261 to request a packet of information.

New Plantings in Pacific County? Not any more! The County, Army Corps of Engineers, Department of Ecology, Washington State Fish & Wildlife, Department of Natural Resources, Environmental Protection Agency, and U.S. Fish & Wildlife have been breathing down our necks much too closely this year. The Critical Area Ordinance just adopted by the

County makes it impossible to continue to put in new beds unless you are willing to spend at least another $2000 per acre in permits, delineation, engineering-drainage plans, mitigation land-banking, etc. I am amazed at the types of land requiring this full permitting process. It is very serious to our local industry and I urge all growers to get involved in trying to solve this issue. In any case, whatever you do, talk to the County and Army Corps of Engineers first before you proceed with any expansion.

Furadan. FMC is canceling the Furadan 4F product. This product was never registered on cranberry and should never have been used. The Furadan G registration for cranberry will likely be canceled in the near future. Do not buy any of this product for the 1998 crop year. It is also likely that the tolerance for this product will be revoked before very long. Because of the environmental concerns about Furadan G and because Cryolite bait is doing an adequate job in controlling weevils, growers should strongly consider turning unused products in at the next WSDA Pesticide Clean Up event, rather than using it.



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WEATHER

	Rainfall (Inches)					Growing Degree Days				
Month	1997	1996	1995	1994	20 yr av.	1997	1996	1995	1994	10 yr av.
January	14.9	9.8	14.9	8.1	10.8	43	51	108	76	40
February	5.6	13.1	7.4	12.1	9.3	21	86	84	26	55
March	16.2	3.4	8.3	6.4	9.5	38	108	90	137	72
April	6.5	12.9	7.4	5.6	5.6	91	190	133	164	116
May	4.7	4.3	2.8	3.4	3.8	344	231	280	276	216
June	5.1	1.8	3.0	2.9	2.8	362	315	372	340	323
July	1.2	1.6	0.9	0.7	1.9	476	460	516	440	421
August	2.7	1.0	1.6	1.4	1.7	543	440	418	503	440
September	6.9	2.7	3.9	1.8	4.1	477	385	514	439	363
October	15.6	11.5	10.0	8.5	6.5	229	245	268	171	217
November		14.2	17.3	17.0	11.4		67	183	25	99
December		18.4	13.7	17.6	12.6		20	82	15	41
TOTAL		94.7	91.2	85.5	80.5		2598	3048	2612	2402

Product Bulletin

DowElanco

DowElanco 9330 Zionsville Road Indianapolis, IN 46268-1054
USA

Stinger*

EPA Reg. No. 62719-73

Section 18 Specific Exemption

For Distribution and Use Only in Grays Harbor, Pacific, and Whatcom Counties of the State of Washington

For Control of Lotus, Purple Aster and Clover Infesting Cranberry

IMPORTANT: SIGNED WAIVER OF LIABILITY REQUIRED FOR USE

- Section 18 Specific Exemption: This label is approved under EPA specific exemption pursuant to Section 18 of the Federal Insecticide Fungicide and Rodenticide Act as amended. This Specific Exemption Expires 07-31-97
- It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
- This labeling must be in the possession of the user at the time of application.
- Read the label affixed to the container for Stinger before applying. Carefully follow all precautionary statements and applicable use directions.
- In additions to restrictions and limitations imposed by this supplemental labeling, use of Stinger is subject to all use precautions and limitations imposed by the label affixed to the container for Stinger.

Directions for Use

Stinger* herbicide may be used as a broadcast foliar spray for post-emergence spot treatment or applied in a wiping application for control of lotus, purple aster, and clover infesting cranberry. Certain other susceptible broadleaf weeds growing in association with primary target weeds may also be controlled.

Application Timing:

Broadcast foliar spot application may be made only when cranberry plants are dormant. The "timing window" for broadleaf weed control is based on the physiological state of the cranberry plant from dormancy following cranberry harvest (early to mid-November) to spring budbreak [first emergence (1 to 2 mm) of terminal meristem]. This timing window begins when the cranberry vines go dormant in the fall) and ends with budbreak, when the crop becomes sensitive to application of Stinger. Susceptible weeds may still be in an acceptable condition for control from application made following cranberry dormancy in the fall. Application may also be made once new weeds have emerged (December to February). The ideal application window occurs when the weeds have emerged and have obtained sufficient canopy to allow treatment, but prior to budbreak, when the cranberry plant is still dormant and tolerant to Stinger. The time of budbreak is variety and weather dependent. For Stevens, budbreak will normally occur about April 15, and for McFarlin, about May 1. An early or late spring can accelerate or delay budbreak, respectively. Application after budbreak will cause plant injury.

Wipe treatments may be applied as a spot application following cranberry budbreak to control late emerging weeds or weeds which escaped earlier control measures. The treatment may be applied using

WAIVER OF LIABILITY CERTIFICATE

I, the undersigned, acknowledge and understand that DowElanco (1) does not assume any liability for the use of Stinger* herbicide for broadleaf weed control in cranberries, and (2) makes no representations regarding it weed control or crop safety when applied in cranberries.

I hereby release DowElanco and the seller from whom I purchased Stinger herbicide, their owners, officers, employees and agents, from any and all losses, damages, claims or causes of action, including reasonable attorney's fees and costs, relating to damage to or loss of any cranberry crop resulting from use of Stinger herbicide whether used by me or by a third party.

I understand that any application of Stinger herbicide in cranberries without a **prior** signed Waiver of Liability Certificate is an unlawful use of the product.

I warrant and represent that I have sole interest in the crop to be treated or am authorized to act on behalf of and bind all parties with an interest in such crop.

I have read this Waiver of Liability Certificate and have had the opportunity to have it reviewed by an attorney of my choosing.

Signature of Crop Owner: _____

Name of Crop Owner (Please Print): _____

Address of Crop Owner: _____

_____

_____

Seller send copy of signed Waiver of Liability Certificate to:

State Regulatory Affairs Manager
DowElanco
9330 Zionsville Road
Indianapolis, IN 46268-1054

*Trademark of DowElanco

equipment such as a hockey stick type applicator. The treatment solution should be wiped onto weed foliage which extends well above the cranberry canopy. Contact of the treatment solution with cranberry foliage should be avoided since it will result in plant injury.

Application Rates:

Apply Stinger at 1/4 to 2/3 pint/acre (0.094 to 0.25 lb a.i./acre) as a broadcast foliar spot treatment. Apply with a backpack sprayer or ground broadcast equipment in a total spray volume of 30 or more gallons/acre. Use the lower rate for young succulent growth for sensitive weed species. Use higher rates for less sensitive weed species, perennials and under conditions where control is more difficult. There is no limit on the number of applications per acre as spot treatments as long as the total maximum rate of application does not exceed 2/3 pint/acre (0.25 lb a.e./acre) per annual growing season.

For wipe treatments, apply a 2% solution of Stinger in water (2.5 fl oz or 75 ml/gallon). There is no limit on the number of applications per acre as long as the total combined usage of Stinger from all types of applications does not exceed 2/3 pint/acre (0.25 lb a.e./acre) per annual growing season.

Restrictions:

- Application may be made only by certified applicators or persons directly under their supervision.
- Do not apply by aircraft.
- **Chemigation:** Do not apply Stinger to cranberries through any type of chemigation system.
- **Preharvest Interval:** Do not apply a broadcast foliar treatment within 60 days of harvest or a wipe treatment within 60 days of harvest.
- Do not apply within 6 - 8 hours of expected rainfall or irrigation.
- Total usage of Stinger through broadcast foliar treatment and wipe treatment must not exceed 2/3 pint/acre (0.25 lb a.e./acre) per annual growing season.
- Do not apply to weeds tolerant to Stinger such as silverleaf, yellow loosestrife, false lily-of-the-valley, buttercup, tussock, sedges, grasses, and violets.
- Avoid spray drift by using coarse sprays with large droplets and low-pressure, and by applying when wind speed is less than 5 mph.
- To prevent misapplication, make spot applications only through a spray nozzle/calibrated boom.
- Do not apply directly to water, to areas where surface water is present, or within 5 feet of any water moving off or through the cranberry field.
- Do not apply where surface soils have rapid permeability (sand) and no subsurface impermeability (clay or peat), and where the water table of the underlying aquifer is shallow.
- Application must avoid any adjacent wetland plant species.
- Follow all Worker Protection Standard requirements on the label for Stinger.
- Carefully follow rotational crop restrictions and other use precautions and limitations on the product label for Stinger.

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122-25-032.doc
EPA-accepted 02-27-97
Replaces 122-25-024.

Labeling Action: Section 18 exemption for use of Stinger to control broadleaf weeds infesting cranberry.