Washington State University • Long Beach
Cooperative Extension
2907 Pioneer Road
Long Beach WA 98631

CRANBERRY VINE

June 2003

Cranberry Field Day at PCCRF – July 31, 2003

PCCRF annual meeting. Thursday, July 31, 7:30 a.m.

Field Day. Thursday, July 31, 9:00 a.m. to 2:30 p.m. Salmon barbecue and vendor exhibits. Speakers will be Kim Patten, Pete Bristow and Dick Carkner, WSU; Jere Downing, The Cranberry Institute; Kevin Talbot, Ocean Spray, and others. Pesticide credits will be provided.

Agenda Topics

- Control of fireworm, weevil, fruit rot, cottonball, and annual and perennial weeds with newly and soon-to-be registered insecticides, fungicides and herbicides.
- Do BMPs work? –new monitoring data from Grayland
- Fall fruitworm – Lotisma – what have we learned since last year?
- How to make vinegar really work as a selective herbicide
- IPM monitoring data for 2003
- Cost effectiveness of different pest management tactics
- The latest health research and pesticide registration issues on cranberries

Newsletter Addendum:
The label for Intrepid was received during assembly of this newsletter and is attached.

Cranberry Varieties: Dr. Bristow and I have finished the variety trials study that has been conducted at PCCRF since 1993. The data are summarized in the attached table. Several things stand out as interesting and useful, such as the change in overall performance over time. Some varieties have really gone down hill over time. These varieties may be problematic on sand unless there is a regular sanding program to maintain vigor. We believe the overall decline in performance is a long-term response to herbicides, but that is only speculative.

There are several consistently good performers (#35, Pilgrim, Grygleski #1, and Wilcox). Some varieties have excellent keeping quality but not always great fruit size (Franklin and Wilcox). We have been concerned that some of these varieties were not what they were supposed to be. This was recently confirmed for #35, whose DNA was not what it was labeled. We have converted this variety trial into a sanding/variety interaction study. To date the data are proving to be very interesting.

We have just planted another trial using advanced selections from the University of Rutgers Breeding Project, plus some older selections from Wisconsin. Our goal is to evaluate not only for production and adaptation to the PNW, but to find varieties more adapted to dry harvesting for the fresh fruit market.

Web site of interest: Those of you looking for marketing alternatives should go to the WSDA new website on the subject: http://agr.wa.gov/Marketing/SmallFarm/default.htm. It has some very useful information.

Pest Management:

New registrations: The glacial speed of pesticide registration may seem like a Faustian plot to hamper successful farming. This year we are at last having some success. Within the past several months we have received a label for Stinger, a herbicide; Abound, a fungicide, and Intrepid, an insecticide. Here is a brief overview of the specific advantages and uses of these pesticides.

Stinger: This product has been previously used under a Section 18. A Waiver of Liability is still required to use it. It is a great product for lotus and clover control. There are two windows of application: dormant season and a brief time period after fruit set. Damage to new tender shoots will occur with a poorly timed application. Care should also be exercised to avoid an over-application when spot spraying with a backpack sprayer. The supplemental label is attached.

Abound: This fungicide provides control of cottonball, fruit rots, and twig blight. Before using Abound, be sure to obtain and read the supplemental label which contains the directions for using this new product on cranberry. The label on the container will not list cranberry, but it does have other important information on how to use Abound. More detailed information is attached.

Intrepid: Registration has just occurred within the past few days. We expect to receive the label from the manufacturer shortly. Until that time, you cannot use the product. Pricing is expected to be similar to Confirm.

This insecticide has a similar mode of action to Confirm but is more effective. Intrepid is parasitoid and bee-safe and can be used to reduce fireworm larvae populations prior to the removal of bees. Applications must be made when larvae are small for the product to work. It can also be used as a stand-alone bio-rational insecticide to replace traditional insecticides. If this is your goal, increased monitoring and multiple applications may be necessary to achieve control.

Other products: Although it is too early to mention the product name, we are optimistic about obtaining a 24 C for a new insecticide for weevil control in Fall 2003 and a Section 18 for a broad-spectrum herbicide in Spring 2004.

Snails in your pond? There have been several reports from farmers with copious quantities of small snails in their ponds plugging up their sprinklers. These could be one of several species – most likely the New Zealand Mud Snail. These snails are parthenogenic (all females), live bearing, and have high reproductive rates. Major spread is by fish or birds. Densities in infested waters in the western USA have been known to exceed 30,000/ft^2. Control or management is limited to drying down the water source. No chemicals are registered for their control at this time. A good screen system on your sprinklers may help.

Twig blight: Where twig blight infestations has been problematic, use three fungicide applications 14 days apart, starting around July 10th to 12th. Chlorothalonil, mancozeb and azoxystrobin (Abound) are all effective when used at the highest rate on the label. Fungicides applied this summer will reduce the incidence of blighted uprights next spring. Hand-spray areas where your sprinklers provide poor coverage.

Fruit rot: If you have been plagued by high incidence of fruit rot in previous years, review your fungicide timing. Research continues to show that the early fungicide applications are the most critical for control of fruit rot and improved keeping quality.

Fruit rot. cont: Late applications have not been particularly effective in this regard. Also consider reducing the amount of nitrogen fertilizer you are using. Excessive nitrogen greatly enhances fruit rot.

Fall Fruit Worm (Lotisma): We are still stumbling in the dark on making recommendations for control of Lotisma. Based on last year's research, there are multiple generations occurring through the summer. Several mid-summer sprays (2 to 3 weeks apart) may be necessary. The best way to assure exact timing, however, has not been determined. Late sprays (September) were not particular effective. It is probably not necessary to use high rates of insecticide to control Lotisma.

Cranberry Girdler: Outbreak of girdler in Grayland appears to be on the rise. Unfortunately we have no real cost-effective control of this insect other than the traditional applications of Diazinon G-14 (two applications 2 weeks apart starting 10 days after peak flight). Be sure, however, that the damaged areas and beds that you are treating are in fact caused by girdler and not Black Vine Weevil. These differences can be subtle but critical. If you see a lot of fresh leaf notching it could be that the bulk of the problem is related to weevil, not girdler, and Diazinon application would do little to help the problem.

Options for buying pesticides: Don't buy pesticides from telemarketers. These products are often not what they claim and may have no label on cranberries in the PNW. There are on-line options for some of the more common products if you buy in quantity. These can often be a good buy, but I haven't heard of it working for anyone local so far. It is probably best to stick with the grower association bids in the winter.

Misc. A grower pointed out a useful tool that he discovered, called a 'Japanese Short-bladed Root Cutter'. This small hand-held blade is great for quick removal of tussocks and other well-rooted plants from your bed with minimal effort and vine damage. See Garrettwade.com for information (item 11P23.05)

WEATHER HISTORY

	Rainfall (Inches)					Growing Degree Days				
Month	2000	2001	2002	2003	20 year average	2000	2001	2002	2003	20 year average
January	10.7	6.3	13	12.6	11.2	5	38	40	114	45
February	7	3.7	4.8	4.5	8.6	40	10	21	31	48
March	7.9	5.7	8.2	14.3	8.8	25	46	34	101	76
April	4.2	6.7	5.7	7.1	6.4	151	79	109	126	125
May	5.2	3.4	2.3	2.2	3.9	237	194	177	231	241
June	5.1	3.5	2.3		3.0	342	274	350		320
July	0.5	1.2	0.4		1.5	426	382	464		416
August	1.4	3.4	0.5		1.6	437	429	443		430
September	2.4	1	1.8		2.3	375	328	377		358
October	5.1	6.5	1.9		6.7	238	178	206		205
November	4.4	15	5.6		12.4	42	97	137		91
December	6.6	13.2	14.1		11.4	21	26	47		31

Cranberry Variety Evaluations - PCCRF Farm - 1997 to 2002[A]

		Yield (bbl/ac)							Fruit size (g)							Per cent fruit rot at harvest							Per cent fruit rot at storage						
Variety	**96**	**97**	**98**	**99**	**00**	**01**	**02**	**97-02**	**97**	**98**	**99**	**00**	**01**	**02**	**97-02**	**97**	**98**	**99**	**00**	**01**	**02**	**97-02**	**97**	**98**	**99**	**00**	**01**	**02**	**97-02**
#35	59	243	255	347	285	327	291	1748	1.4	1.1	1.0	1.0	0.8	1.0	1.1	11	12	7	4	4	8	8	23	13	6	6	3	15	11
AJ	38	140	225	188	137	169	121	980	1.2	1.0	0.8	0.9	0.8	1.0	1.0	8	17	19	8	7	13	12	15	12	18	7	7	18	13
Beckwith	2	78	114	188	127	122	135	765	1.7	0.7	1.1	1.2	0.8	1.0	1.1	15	27	18	7	2	12	14	29	30	16	9	3	18	18
Ben Lear	83	332	211	217	248	172	243	1423	1.0	1.2	0.8	1.0	0.7	0.9	0.9	12	11	7	3	4	1	6	33	14	5	10	4	20	14
Bergman	6	29	83	243	104	138	139	736	1.7	1.3	1.0	1.0	0.8	1.1	1.2	39	11	22	10	4	8	16	57	11	20	10	5	17	20
Cropper	25	185	80	97	70	44	96	571	1.0	0.8	0.8	0.8	0.7	1.0	0.9	13	39	15	11	5	6	15	22	24	7	12	5	10	13
Franklin	75	233	217	205	145	212	132	1143	1.0	0.8	0.8	0.8	0.7	0.9	0.8	25	23	10	4	3	3	11	18	15	7	4	3	7	9
Grygleski - 1	33	249	276	289	199	315	180	1508	1.5	1.3	1.1	1.3	1.1	1.2	1.3	7	13	18	5	5	8	9	17	15	18	10	5	24	15
Grygleski - 2	16	196	204	230	48	165	126	970	1.6	1.4	1.2	1.1	1.0	1.2	1.3	21	19	15	14	6	13	15	23	20	18	41	6	33	24
Gr ski - 3	33	205	242	231	44	155	148	1025	1.3	1.2	0.9	0.9	0.7	0.9	1.0	31	33	20	28	7	16	23	27	22	27	47	7	46	29
Howe	14	202	187	260	175	248	230	1302	1.1	0.9	0.9	0.9	0.7	0.9	0.9	9	45	5	3	2	7	12	16	13	2	9	2	13	9
McFarlin (True)	24	176	195	148	138	162	157	975	1.2	1.0	1.1	1.1	0.9	1.1	1.1	26	42	11	9	2	5	16	23	17	6	5	2	13	11
McFarlin (McPhail)	15	134	145	181	192	244	204	1101	1.2	1.0	0.9	0.9	0.8	0.9	1.0	15	11	9	4	3	4	8	17	9	6	4	3	9	8
Pilgrim	147	429	312	312	188	261	258	1760	1.6	1.3	1.3	1.4	1.1	1.3	1.3	12	12	17	5	2	9	10	18	11	9	10	2	13	11
Stevens	39	184	225	235	79	116	153	991	1.6	1.3	1.1	1.1	1.0	1.3	1.2	7	6	15	14	6	7	9	11	12	21	10	6	11	12
Wilcox	35	279	267	260	227	295	234	1562	1.1	1.0	0.9	0.9	0.8	1.0	1.0	6	3	4	4	3	4	4	13	13	3	8	10	13	10

[A] These are 20' x 20' plots, planted in 1994. There were 3 replications. Yields were taken for eight 8" diameter rings per plots (2.73 ft^2)

Supplemental Labeling

Dow AgroSciences

Dow AgroSciences LLC 9330 Zionsville Road Indianapolis, IN 46268-1054 USA

Stinger*

EPA Reg. No. 62719-73

For Control of Lotus, Aster and Clover Species Infesting Cranberry

(For Distribution and Use Only within the State of Washington)
24(c) Special Local Need Registration EPA SLN No. WA-030006

SPECIAL CONDITIONS AND WAIVER OF LIABILITY FOR USE OF STINGER ON CRANBERRY

Dow AgroSciences intends that this Section 24(c) labeling and product be distributed only by the Long Beach Cranberry Growers Association, and the Grayland Cranberry Growers Association only to end users and/or growers or their agents who agree in writing to the terms and conditions of use required by the Long Beach Cranberry Growers Association, and the Grayland Cranberry Growers Association including a waiver and release from all liability and indemnification by the user and/or grower of Dow AgroSciences, the Long Beach Cranberry Growers Association, the Grayland Cranberry Growers Association, and others for failure to perform and crop damage from the use of Stinger on cranberry. If, before use, such terms and conditions of use are found to be unacceptable, Dow AgroSciences requests that the product be returned to the seller as soon as possible, unopened.

This product, when used on cranberry, may lead to crop injury, loss, or damage. Dow AgroSciences recommends that the user and/or grower test this product in order to determine its suitability for such intended use. The Long Beach Cranberry Growers Association and the Grayland Cranberry Growers Association and Dow AgroSciences make this product available to the user and/or grower solely to the extent the benefit and utility, in the sole opinion of the user and/or grower, outweigh the extent of potential injury associated with the use of this product. The decision to use or not to use this herbicide must be made by each individual user and/or grower of Stinger on the basis of possible crop injury from Stinger, the severity of weed infestation, the cost of alternative weed controls, and other factors. Dow AgroSciences intends that because of the risk of failure to perform or crop damage that all such use is at the user's and/or grower's risk.

ATTENTION

- 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* herbicide before applying. Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA registered label.
- In addition 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

Refer to the product label for General Use Precautions, Mixing and Application instructions, and a complete list of weeds controlled or suppressed.

Stinger is a residual herbicide and applications must be made based on accurate rate per acre calibrations. Stinger applications may injure cranberry plants and may reduce yields depending on timing of application, use rates, and environmental conditions. Use should be limited to wiper or spot broadcast treatment in the late fall and dormant season after vine growth has stopped or when weeds have totally covered the crop canopy to avoid damage to growing shoots on new plantings.

Target Broadleaf Weeds, Application Rate, and Use Restrictions:

Target Broadleaf Weeds	Application Rate (pint/acre)	Use Restrictions
Asters Clover species Trefoil (*Lotus* sp.) Certain other susceptible broadleaf weeds growing in association with primary target weeds may also be controlled.	1/4 – 2/3 (4 - 10.67 fl.oz.)	• Do not exceed a total of 2/3 pint per acre per year.† • **Do not** use surfactants when applying Stinger to cranberries. • **Do not** spray once bud scales have separated and the growing point is visible. • **Do not** apply within 5 feet of any water moving off or through the cranberry field.

†**Note:** The total combined usage of Stinger from all types of applications must not exceed 2/3 pint/acre/year (0.25 lb ai/acre).

Broadcast Application Rates: Broadcast foliar spot application may be made at 1/4 to 2/3 pint/acre when cranberry plants are dormant or after terminal bud set. On new or nonbearing beds apply at 1/3 to 1/2 pint per acre. Use the lower rate for young succulent growth for sensitive weed species. Use lower rates when application timing is close to bud break. Use the higher rate range for less sensitive weeds species and under conditions where control is more difficult. Apply with a backpack sprayer or ground broadcast equipment in a total spray volume of 20 to 40 gallons of water per acre. The "timing window" for broadleaf weed control is based on the physiological state of the cranberry plant. This timing window begins when the cranberry vines enter dormancy in the fall and ends with budbreak in the spring (first emergence of bud expansion), when the crop becomes sensitive to application of Stinger. The time of budbreak is variety and weather dependent. An early or late spring can accelerate or delay budbreak, respectively. The ideal application window occurs when the weeds have emerged and have obtained sufficient canopy to allow treatment and when the cranberry plant is still dormant and tolerant to Stinger. Broadcast foliar applications that are made between budbreak and fruit set can cause plant injury.

Wipe Treatments: Apply a 2% solution of Stinger in water at a rate of 2.5 fl oz or 75 ml/gal. Wipe treatments may be applied as a spot application following cranberry budbreak to control late emerging weeds or weeds that escaped earlier control measures. The treatment may be applied using equipment such as a hockey stick type applicator. The treatment solution should be wiped onto weed foliage that extends well above the cranberry canopy. Contact of the treatment solution with cranberry foliage should be avoided since it will result in plant injury.

Hand-Held Sprayers: Refer to the Hand-Held Sprayers section in the main label for Stinger for spot application instructions.

Specific Use Restrictions:
- **Preharvest Interval:** Do not apply Stinger by any method within 60 days of harvest.
- **Do not** apply Stinger between budbreak and fruit-set.
- **Do not** spray to runoff.
- **Chemigation:** Do not apply Stinger through any type of irrigation system.
- **Do not** apply by aircraft.
- **Do not** apply within 6 to 8 hours of expected rainfall or irrigation.
- **Do not** compost vegetation treated by broadcast application if compost will be used on sensitive plants.

Accepted: 04/01/2003
Initial printing.

This label for Stinger expires and must not be distributed or used in accordance with this SLN registration after December 31, 2008.

Supplemental Labeling

Dow AgroSciences LLC 9330 Zionsville Road Indianapolis, IN 46268-1054 USA

Intrepid* 2F

EPA Reg. No. 62719-442

For Suppression of Lepidoptera Larvae Infesting Cranberry

ATTENTION

- 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 Intrepid* 2F insecticide before applying. Carefully follow all precautionary statements and applicable use directions.
- Use of Intrepid 2F according to this supplemental labeling is subject to all use precautions and limitations imposed by the label affixed to the container for Intrepid 2F.

Directions for Use

Refer to product label for General Use Precautions, Mixing and Application instructions.

Pests, Application Rates, Application Timing and Restrictions:

Pests	Application Rate (fl oz/acre)	Application Timing	Restrictions
blackheaded fireworm gypsy moth *sparganothis* fruitworm spotted fireworm	10 - 16 (0.16 – 0.25 lb ai/acre)	**Spring (overwintering) generation:** Make 1 to 2 applications during the flower bud development period depending on infestation level. **Summer generation:** Make the first application during the period of peak egg lay to early egg hatch. Reapply 10-18 days later. The higher rates in the recommended rate range and additional applications at 10-18 day intervals may be required for heavy infestations, sustained moth flight, situations in which it is difficult to achieve thorough coverage, and for quicker knockdown of larvae. For control of light to moderate infestations, begin applications before egg hatch of each generation and before the larvae penetrate the fruit. Once applied, the product provides 10-18 days of protection depending on application rate and how rapidly fruit is expanding.	• Do not apply more than 16 fl oz per acre per application or 64 fl oz of Intrepid 2F (1.0 lb ai) per acre per season. • **Pre-harvest Interval:** Do not harvest within 14 days of application.

Ground Application: Apply a minimum of 10 gallons per acre by conventional ground equipment to young crop or small plants. Apply a minimum of 20 gallons per acre to densely foliated or difficult to cover crops to ensure thorough coverage. Equipment and spray volume should be calibrated to assure uniform coverage of infested parts of the crop.

Aerial Application: Apply a minimum of 10 gallons per acre.

Spray Adjuvants: One pint of Latron CS-7* spreader/binder or similar spreader/binder per 100 gallons of spray mixture is recommended to maximize coverage and distribution of the spray material.

Note: This product is toxic to aquatic invertebrates. Refer to the Environmental Hazards section of theproduct label attached to the product container for required protective measures.

*Trademark of Dow AgroSciences LLC
D06-846-024
EPA-accepted 06/05/03
Initial printing.
F3B / Intrepid 2F / Sec 3 Supp IR-4 Cranberry FPL / 06-11-03
file: D06-846-024 Intrepid 2F IR4 Sec 3 Cranberry 11June03f.doc

Intrepid* 2F

EPA Reg. No. 62719-442
Final printed Section 3 supplemental labeling (in support of IR-4 program) for use of Intrepid 2F for suppression of lepidoptera larvae infesting cranberry based on EPA-accepted copy dated June 5, 2003.

*Trademark of Dow AgroSciences LLC

ABOUND® REGISTRATION INFORMATION

by Dr. Peter Bristow, Washington State University

ABOUND® Flowable fungicide has been approved (Section 3) for **use on cranberry to control cottonball, fruit rots, and twig blight.**

Before using Abound, be sure to obtain and read the Supplementary Label which contains the directions for using this new product on cranberry. The label on the container will not list cranberry, but it does have other important information on how to use Abound.

1. **Method of application:** Abound may be applied by ground, chemigation or air; DO NOT apply Abound through any type of ultra low volume spray system.
2. **Application rate:** Apply 6.2 – 15.4 fluid ounces (fl. oz.) of Abound per acre per application.
3. **Maximum number of applications:** The Supplemental label allows a maximum of six (6) applications per year (Do NOT apply more than 92 fl. oz. of Abound per acre per year). However, because of the risk of resistance, it is recommended that no more than two (2) applications be made.
4. **Resistance management:** DO NOT apply more than two (2) consecutive applications of Abound before using another registered fungicide (examples: chlorothalonil and mancozeb). Use Abound in an alternating or blocking program to help prevent the development of resistant strains of the fungus.
5. **Timing:**
   Cottonball – Apply at early bloom and again at late bloom. (Orbit is **NOT** cleared for use in 2003)
   Fruit rots – Begin at late bloom.
   Twig Blight – Apply first application when indicated by the Twig Blight Forecast.
6. **Spray volume:** The supplemental label makes no recommendation on the volume of water to use. The only restriction is: DO NOT apply Abound through any type of ultra low volume spray system.
7. **Worker protection standards**: see label
8. **Restricted entry interval** (REI): 4 hours
9. **Pre-harvest interval** (PHI): 3 (three) days.
10. **Protection of aquatic organisms:** Abound is toxic to freshwater and estuarine marine fish and aquatic invertebrates. Observe the following precautions when applying Abound in the vicinity of aquatic areas such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries.
    a) DO NOT apply Abound directly to (1) water, (2) areas where surface water collects, or (3) intertidal areas.
    b) DO NOT contaminate water when disposing of equipment wash water or rinsate.
    c) DO NOT apply when weather conditions favor drift to aquatic areas.

Additional information about using Abound fungicide:

Abound diffuses through the waxy cuticle to provide a uniform dose across the surface of leaves and berries. For this reason, Abound has good "rainfast" properties. A spreader-sticker can be used with Abound. The Abound Supplemental Label gives a range for the application rate (6.2-15.4 fl. oz. per acre). When weather conditions favor disease development, use the highest rate. The following conditions favor the activity of the fungus and development of the disease: i) rainy weather, ii) warm windless days, and iii) dense upright or runner growth.

Product Label: Growers **MUST** obtain a copy of the approved Supplemental label from Syngenta Crop Protection **prior** to using Abound. READ both the label on the container AND the Supplemental Label.

Record keeping: Keeping good records in essential. Instructions are provided on-line @ WSDA to help you maintain good records.*http://www.wa.gov/agr/pmd/etc/forms.htm#recordkeeping*