Volume VIII, Number 3, June 5, 1994

Barren Berry Survey

In early April I sent a survey on barren berry to most Wisconsin cranberry marshes. I omitted marshes that I knew were less than 5 years old, as barren berry could not be positively diagnosed in those marshes yet. To date I have received 81 responses to about 150 surveys mailed, for a response rate of about 54%. Following are the results.

Do you have barren berry on your marsh?

- No 57
- Yes 24

What cultivars are affected?

- Searles 22
- McFarlin 3
- Howes 1?

Affected acres?

- Total ≈40 acres
- Mean ≈1.6 acres per affected marsh

County of affected marsh?

- Wood/Portage 5
- Juneau/Monroe/Jackson 11
- Burnett/Lincoln/Oneida/Vilas 8

Year affected bed planted?

- 60's 7
- 50's 11
- 40's 13
- 30's 3
- <30's 2

All responded that barren berry patches were found either in the middles of marshes and beds or were evenly distributed between edges and middles. All said the spots occurred in the same locations each year and that the spots were roughly the same size or increased slightly over time. Several growers had tried different fertility programs but found no effect. Others had mowed the vines, but when they grew back they were the same as before. Growth regulators had no effect. Some growers indicated they had renovated affected beds into newer varieties and that had solved the problem.

Barren berry vines have shorter internodes that other vines in a bed, they appear darker green, especially from a distance. They go dormant earlier and are easily spotted as beds go in and out of dormancy. The vines seem more aggressive and healthier looking.

When asked for an explanation for the problem several ideas were mentioned. One grower claimed a connection with Evital usage, yet another grower indicated they hadn't used Evital on their marsh in years. One grower thought it was related to the use of MorCran or stoddard solvent prior to 1974. Another grower thought it was a disease problem because it was spreading on their marsh. Three or four growers identified it as a genetic disorder that probably came into the marsh with vines at planting.

The hypothesis of barren berry vines being genetically different is my present working hypothesis. It would only take a few cuttings in a location that survived through planting to create a "barren berry" spot. If a bed with a spot was subsequently mowed and the vines planted in another bed the potential for creation of a larger barren berry site exists. Most growers indicated barren berry was found in Searles

vines. Since Searles was selected from the wild possible that a few non-bearing vines were intermixed. Dr. Vorsa at Rutgers University has shown that there are different genetic groups of Searles suggesting that the Searles name was applied to many collections from the wild. As the summer progresses we will be doing some "quick and dirty" tests to approach this and other hypotheses.

I thank all growers who took a few moments to respond to the survey. If you still have a survey on your desk or bulletin board, it is not too late to return it.

Teryl Roper, UW-Madison

FIELD NOTES

CENTRAL WISCONSIN:

In central Wisconsin blackheaded fireworm hatch is at 100%. We are sweeping mostly fourth and fifth instar larvae and are seeing a lot of upright webbing on those marshes who have yet to treat or may have missed areas when treating. Most growers sprayed for fireworm during the weeks of May 16 and May 23.

Sparganothis larvae are being swept throughout the central area with many of the larvae webbing terminals.

We are still finding many medium to large false armyworms and spanworms. Currently these two insects may be feeding on the new young growth and early hooks.

Cranberry tipworm adult flight has begun. We found our first adult on May 19. Eggs are currently being laid and our scouts are finding them in the uprights when they are doing their upright dissections. Scouts are also finding it is entirely
a few young (clear and white) larvae in the terminals. Several pupae were found during dissections during the early part of this week (May 31-June3).

TIPWORM SIDE NOTE:

I visited a grower who had used Diazinon AG500 for fireworm control and it also did an excellent job of killing young tipworm (clear and white) larvae. I collected about 150 uprights and 25/25 uprights which had larvae present the larvae were dead.

NORTHWEST:

In the northwest we are seeing many growers treating for fireworm and spanworms during the past 3-5 days. Most fireworm larvae are currently at 3-4 instar. Spanworms and false armyworm are small to medium sized. Plant growth is at approximately ¼"-¾" on bed edges and 1/8 to ¼" on bed interiors on most marshes. We found several hooks (Stevens) on one marsh in the Spooner area.

TIPWORM:

No Adult insect flight has been observed nor have any eggs been found.

Leroy Kummer, Ocean Spray Cranberries

LADY BUG REGIONAL NEWS

On May 30, in Monroe County we found our first blossom. It was on Ben Lear, and surrounded by numerous hooks. What a beautiful sight!

The Pittsville Looper (Half-winged looper) has been found in areas that we haven't seen it before. Perhaps now that we know more about its life style it is easier to identify and monitor. Keep in mind that the female is wingless, thus she lays her eggs in one area. When we sweep one of these critters, we now back track, literally comb that area. The female can lay up to 60 eggs, se where there is one, there is undoubtedly another. This looper can eat the new growth in a circular area seemingly overnight. The area looks as though it never grew at all. In 1993, we witnessed the critter still active up until peak bloom. Keep a close eye out for the half-winged looper.

We commend growers who are dealing with possible phytophthora root rot by cultural practices **first**. We are seeing deeper ditches, lowered culverts, excellent sanding programs, drain tile, and new dikes. It is one of the most disheartening things to witness--dying vines where health had once been--facing replanting or even scalping acres off and starting over. Keep in mind that you are not alone in this battle, there are others who face this same situation. If you have a success story, please share it with all of us. We would love to hear some GOOD NEWS of recovered vines. Feel free to call me anytime (715) 884-2734.

Jayne Sojka, Lady Bug IPM

REDUCING SOIL pH

One factor that frequently stands in the way of successful cranberry production is soil pH. Cranberries require an acid soil, preferably with a pH between 4.5 and 5.5. Many new upland sites have been limed for vegetable production so the soil pH is 6 or above. In these cases soil pH may be posing a significant limitation on plant growth.

Elemental sulfur is the most commonly used material to reduce soil pH. It must be oxidized by bacteria to cause a change in pH. Bacterial activity is temperature dependent and the change will occur faster in warm soils than cold soils. In any event the reaction occurs slowly. The reaction that increases soil acidity (reduces pH) is:

$$2S + 3O_2 + 2H_2O \rightarrow 4H^+ + 2SO_4^=$$

The following table shows how much finely ground elemental sulfur is required to increase soil acidity (lower pH).

Since the pH change occurs slowly there is no reason to overapply sulfur in an attempt to make the change happen faster. Growers should apply no more than 500 lbs/a of elemental sulfur at any one time. It is usually best to make only one application per year. If sulfur is applied before planting, incorporate it into the top 6 inches of soil. Topdressing sulfur is not as effective as incorporation. Finely ground sulfur will react more quickly than coarse materials. Soil test between each

application to make sure the pH is not lowered more than desired.

Aluminum sulfate

Aluminum sulfate will acidify the soil through the following reaction:

$Al_2(SO_4)_3$ + Clay H → Al clay + $CaSO^4$ + $2H_2SO_4$

The advantage to aluminum sulfate (or iron sulfate) is that the reactions occur much more quickly. The disadvantage is that it takes roughly 6 times more material to make the same pH change. Toxicity is a potential concern. At very low soil pH (<4.0-4.5) aluminum can exist in forms that are toxic to plants (Al3+, Al(OH)2+, Al(OH2+), but this happens independent of aluminum sulfate applications. Soils have a major aluminum component and these aluminum reactions occur whenever soil pH is lowered. While aluminum can be toxic to plants, the addition of aluminum sulfate does not, by itself, cause toxicity.

Growers should strongly consider adjusting soil pH well before cranberry vines are planted in new beds. After planting don't apply more than 500 lbs sulfur per acre per year.

Teryl Roper, UW-Madison

Much of the information in this article is from Extension Bulletin A3588 Management of Wisconsin Soils and from Sherry Combs, UW Plant and Soil Analysis Lab.

Desired pH change	Soil organic matter content (%)					
	0.5-2.0	2-4	4-6	6-8	8-10	>10
	Amount of sulfur needed, lb/a					
0.25	250	750	1200	1700	2300	2100
0.5	500	1500	2500	3500	4600	5500
1.0	1000	3000	5000	7000	9200	11000

Volume VIII, Number 3, June 5, 1994