REPORTING ORBIT USE

I have not received many completed forms regarding Section 18 use of Orbit. It is extremely important to complete this form; ***the EPA will not grant a future Section 18 or regular registrations for Orbit unless we report usage***. If you used Orbit but do not have the form, call the WSCGA office at 715-423-2070. If you have the form, stop reading this newsletter, complete the form and send it to me now. Yes, even if you're reading this in the bathroom...Okay, thanks. Now go back to whatever it was you were doing.

Patty McManus, UW-Extension

The Founding Fathers in their wisdom decided that children were an unnatural strain on parents. So they provided jails called schools, equipped with tortures called an education. School is where you go between when your parents can't take you and industry can't take you.

John Updike

IRON TOXICITY

Many of you have sent tissue samples off for analysis recently and are now beginning to receive results back from labs. In some places, particularly where iron concentrations are high in irrigation water, iron levels in the reports are excessively high. Growers need to exercise great caution in interpreting these reports. Where iron is high in irrigation water the iron may actually be on the outside, not on the inside of the plants. Plants with healthy root systems will control the uptake of iron, usually limiting tissue levels to less than 200 ppm. You can check to see if the iron is on the inside or outside of your plants by scraping off any rust colored sediment on the outside of plants in one sample and send in "unscraped" plants in another. The difference in the two tests will tell you how much iron is internal and how much is external.

Don't immediately assume iron toxicity if tissue test reports are excessive. The iron may very well be on the outside of the vines.

Teryl R. Roper UW-Madison, Extension Horticulturist

ILLEGAL RESIDUE

Some of you may be interested in what happened in Connecticut two weeks ago *(in 1995).* A routine inspection of a blueberry farm by the Dept. of Ag. detected 0.3 ppm residue of Mesurol on blueberries. *[Mesurol was labeled as a bird repellent on blueberries until a couple of years ago.]* Word got out to the new ambitious Commissioner of Consumer Protection that illegal residues were detected on a blueberry farm. He then held a press conference denouncing the farmer and telling people to dump out their blueberries from that farm so their kids wouldn't be poisoned.

A few days later, 3 more blueberry farms were found to have Mesurol residues on the fruit. All 4 farms were closed down, fruit was recalled from supermarkets, and growers were forced to give rebates to customers. This has triggered the FDA to get involved throughout the New England states.

One farmer I spoke with told me their credibility was ruined with customers, and they did not think they could survive in farming anymore. All of this was the result of one application of a chemical with an expired label. Although just a few years ago Mesurol was used up to a tolerance of 10 ppm, customers assumed that Mesurol was "banned" because of health issues, not because of the cost of reregistration.

It's just not worth it to apply an unregistered product, regardless of how easy it is to rationalize. The wrong person in a powerful position can cause endless grief if it is found that something illegal has been used.

Dr. Marvin Pritts, Cornell University

Eds. note: This is a repeat of an article included in this same issue a year ago. It simply is not worth it to apply an illegal pesticide. If you have pesticides on your marsh that are no longer legal to apply please take them to an Ag. Clean Sweep or find some other legal way to be rid of them. ***DO NOT*** *apply them to the crop, even if there is a residue tolerance remaining for the product.*

BERRY COUNTS & WEIGHTS

Every grower likes to have a sneak preview of what the harvest has in store for us. Each August we drop a square foot guide in four separate areas of a bed to gather fruit for a forecast. Know that we operate on a calendar year and not a growing degree day basis. (I believe that we are at least two weeks slower than last year, thus our fruit is that much smaller.)

Following is a summary of 408 square foot samples for 102 beds throughout the Lady Bug region. Also find a comparison for 1995 and 1994.

Jayne Sojka, Lady Bug IPM

Cultivar	Berries/ sq. ft. (#)	Weight sq. ft. (g)	Mean wt. per berry (g)
1996			
Stevens	139	104	0.74
LeMunyon	145	113	0.78
Pilgrim	121	88	0.73
Ben Lear	193	136	0.71
Searles	173	94	0.54
McFarlin	160	76	0.47
Howes	176	80	0.45
Native	180	51	0.63
Crowley	124	51	0.41
1995			
Stevens	162	188	1.2
LeMunyon	256	290	1.13
Pilgrim	205	216	1.05
Ben Lear	172	180	1.05
Searles	141	125	0.89
McFarlin	167	140	0.84
Howes	142	106	0.75
Crowley	123	88	0.72
1994			
Stevens	182	191	1.05
LeMunyon	191	197	1.03
Pilgrim	192	216	1.13
Ben Lear	178	177	0.99
Searles	192	175	0.91
McFarlin	207	151	073
Crowley	147	98	0.67

I have often repented speaking, but never of holding my tongue.

Xenocrates

CROP ESTIMATE

The Cranberry Marketing Committee has released their 1996 crop estimate.

	1996 estimate *(1000 bbl)*	1995 Actual *(1000 bbl)*
Massachusetts	1,950	1,594
Wisconsin	1,883	1,800
New Jersey	530	448
Oregon	255	166
Washington	182	173
Total U.S.	4,798	4,182
Foreign	600	574
Total	5,398	4,757

The Wisconsin crop is predicted to be larger in 1996 than in 1995. This increase in production, presumably, is the result of more harvested acres and not a greater yield per acre. If we assume harvested acreage in Wisconsin is 13,500 acres that give a per acre yield of about 140 barrels per acre, just slightly lower than our five average per acre yield of 146 barrels per acre.

The cool weather this year has delayed development of the crop. While berries are abundant, they tend to be small. Some warmer weather would help size the fruit. cool nights have caused the fruit to begin to color already. At least this should be a good coloring year.

Massachusetts growers are reported to have fared hurricane Edouard fairly well. There were no reports of heavy damaging salt spray that Hurricane Bob caused several years ago. The hurricane was strongest on the outer cape. The Massachusetts estimate should still be accurate.

Teryl R. Roper, UW-Madison, Extension Horticulturist

He who sleeps half a day has won half a life.

DORMANCY

Growers and researchers alike consider cranberry dormancy. We use the term "dormant" frequently. This article will define dormancy in its various manifestations and attempt to explain what regulates dormancy and will describe how plants can and cannot be managed for dormancy.

Plants grow at different rates during different seasons. When the weather is unfavorable they limit their growth or cease to grow completely. This adaptation allows plants to grow from season to season and to survive drought or cold weather. Annual plants survive hostile weather by producing seed just before the onset of unfavorable weather. Although living, seed have a low respiration rate and can survive heat, drought, or cold and then germinate and grow once the weather is again favorable.

Perennial plants (like cranberry) have to take a different approach. Perennial plants have dormant buds that can survive through inclement weather and grow during the next period of favorable weather.

Dormancy is usually divided into three sub categories and these divisions have been given different names by different authors. I'll not name them in this article.

The first phase of bud dormancy begins in late summer to early fall when growth stops and terminal buds form. The weather at this time is usually satisfactory for normal growth, but it is thought that a combination of environmental cues (daylength, temperatures, spectral quality of light) and internal cues (levels of different plant hormones) trigger the cessation of growth. The onset of this first stage of dormancy can be delayed with heavy applications of nitrogen fertilizer, pruning, or other invigorating practices. At this stage of dormancy, uprights that are collected and rooted will not produce normal growth and flowering. In cranberry, one sign of the onset of dormancy is the vines taking on the characteristic red coloration.

The second stage of dormancy occurs as the temperatures become colder in the late fall and through the winter. This dormancy is induced primarily through cold winter temperatures although some internal cues may also be functioning. The rate of respiration (oxygen use) plummets until the plants seem barely alive. Individual tissues are compartmentalized to prevent any ice formation (that is usually deadly to cells) from spreading from one tissue to another. During the second stage of dormancy plants are most hardy (least sensitive to frigid temperatures).

During the second stage of dormancy plants accumulate "chill hours". This is commonly expressed as the number of hours below 40°F required to have normal growth and flowering in uprights. Cranberries require about 650 hours of chilling before normal growth can resume in the spring. However, this chilling must be followed by warm temperatures and long days. Interestingly, gibberellic acid (a plant hormone) could substitute for chilling. This mechanism prevents cranberries from resuming growth in the fall or too early in the spring before temperatures are sufficiently warm. This also prevents cranberries from being grown in subtropical to tropical regions, even if the soil and water conditions were acceptable.

The third stage of dormancy occurs in the spring after an appropriate number of chill hours have been received. The third stage of dormancy is characterized by plant growth being limited solely by external factors i.e. air and soil temperatures. Once temperatures are warm enough plant growth will resume normally.

Since a cranberry bed is composed of a population of uprights not all uprights in the population would be at the exact same stage of dormancy as all others. This is especially true during the transition periods between the stages of dormancy. Further, an upright can be deeply or lightly dormant within each stage.

The practical aspect of this discussion is that uprights become dormant slowly over time

and that within a bed individual uprights are also becoming dormant at different rates. We know from research at the University of Wisconsin and the University of Massachusetts that cranberry buds and vines become more hardy as winter approaches. Before the winter flood is applied it is critical to watch the temperatures as the vines are probably not fully dormant and can be injured by low temperatures. We probably saw some late fall injury last fall as we had some cold snaps after harvest but before the winter flood was applied.

According to Dr. Jonathan Smith of Northland Cranberries vine temperature under the ice stays pretty much constant at 28°F, regardless of the air temperature above the ice. Once cranberries are encased in ice it is unlikely for winter injury to occur. Not only are the vines protected, but they are at their hardiest stage and their rate of respiration (oxygen use) should be negligible. At 28°F vines should accumulate chill units quickly and be ready for the resumption of warmer weather in the spring.

In the spring once the winter flood is removed cranberry vines are kept dormant only by unfavorable temperatures. One the weather warms there should be no internal factors keeping the vines dormant. During this same period of time the vines lose their hardiness and once again frost protection becomes important. One sign of the loss of hardiness and dormancy is the loss of the red color and the vines once again take on a green cast.

Research to understand bud dormancy of perennial plants is difficult because so many factors are potentially involved. It is almost impossible to control for all of them. Research to understand the effect of unusual winter weather (very cold, very warm) is also difficult because it is impossible to predict months ahead what sort of winter will be coming and it is also difficult to provide some sort of stable control that will allow for making comparisons.

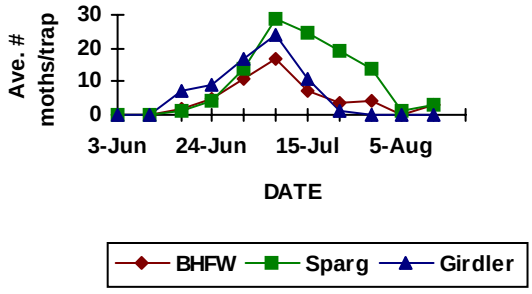
Teryl R. Roper, UW-Madison, Extension Horticulturist

1996 Pheromone trap counts

Cranmoor area includes:	Adams, Portage and Wood counties
Warrens area includes:	Jackson, Juneau and Monroe counties
Northeast area includes:	Forest, Lincoln, Oneida, Price, and Vilas counties
Northwest area includes:	Barron, Burnett, Douglas, Rusk, Sawyer, and Washburn counties

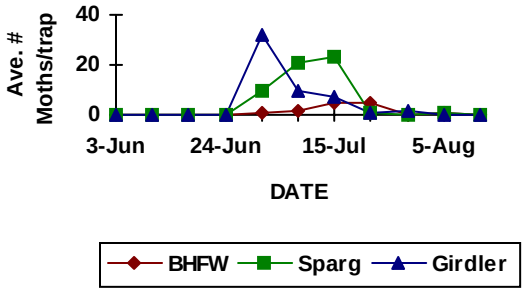
Please note that different regions may have different scales on the left axis. Doing this allows greater accuracy in determining actual values within a region. However, comparisons between regions are more difficult. Please use caution in making comparisons of these averages to trap counts on your marsh.

Northwest Area



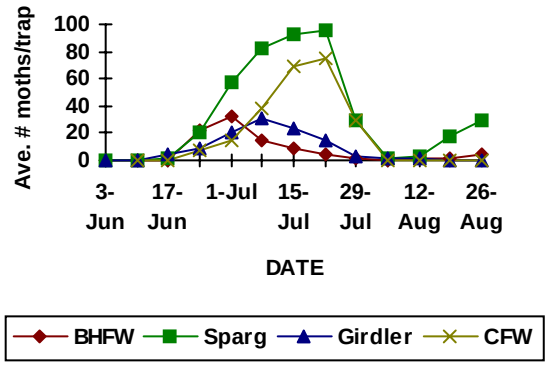
Means from 8 growers

Northeast Area



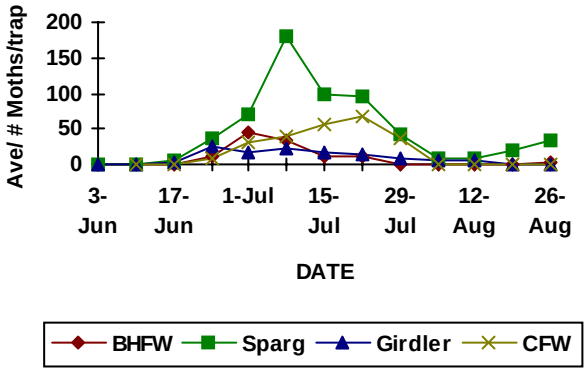
Means from 2 growers

Warrens Area



Means from 13 growers

Cranmoor Area



Means from 10 growers

Wisconsin Cranberry Crop Management
Newsletter
Department of Horticulture
1575 Linden Drive
Madison, WI 53706-1590

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