

2016

Updates: Frost, MRLs, Zones - Water Regs

Carolyn J. DeMoranville

UMass Amherst, Cranberry Station, carolynd@umass.edu

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Updates:
Frost
MRLs
Zones – water regs

Carolyn DeMoranville, UMass
Cranberry Station

Frost

- Mild winter
 - December record warm; Jan-Mar 5°F above average
 - Expected early break in dormancy
- Cool start to spring
 - Late March cool
 - April cool
- Eco-dormancy
 - Plants stay dormant until it gets warm

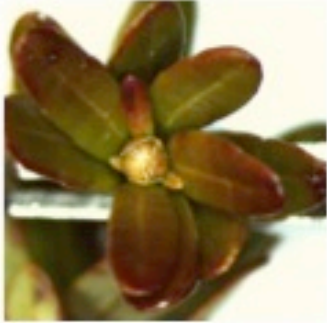
Frost tolerance team

- CCCGA
 - Anne Cote and Patti Silvia
- AD Makepeace
 - Glenn Reid (Chair of CCCGA Frost Committee)
- Cranberry Station
 - Carolyn DeMoranville and Erika Saalau Rojas

Frost Tolerance Protocol

- Examine buds of EB, H, BL, ST
- Start at Rosebrook Bog in Wareham
 - State Bog is a warm location
 - Limited amount of BL at State Bog
- State Bog buds also examined
- Part of frost warning message
- Tolerances with photos posted
 - Station website (Frost tolerance quick link)
 - Twitter (@esaalau)

Friday April 22 – Magnified photos



EB bud swell, 22°F, State Bog
4/22 Note - loose bud scales,
round appearance so that base of
leaves is hidden.



H bud swell stage, 22°F, State Bog
4/22 Appears not quite as
advanced as Rosebrook below)



BL early bud swell stage, 25°F,
State Bog 4/22



ST bud swell, 25°F, State Bog
4/22



EB bud swell, 22°F, Rosebrook
4/22



H bud swell stage, 22°F, Rosebrook
4/22



BL bud swell stage, 25°F,
Rosebrook 4/22



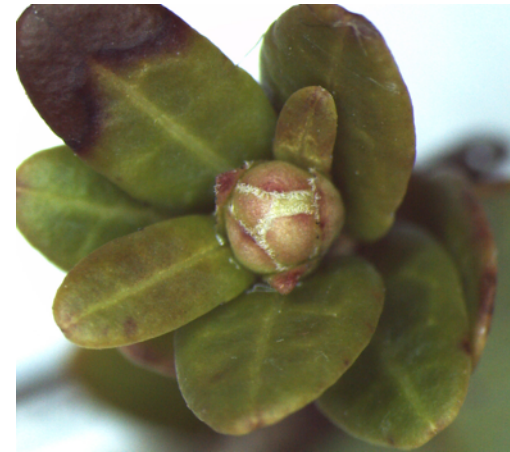
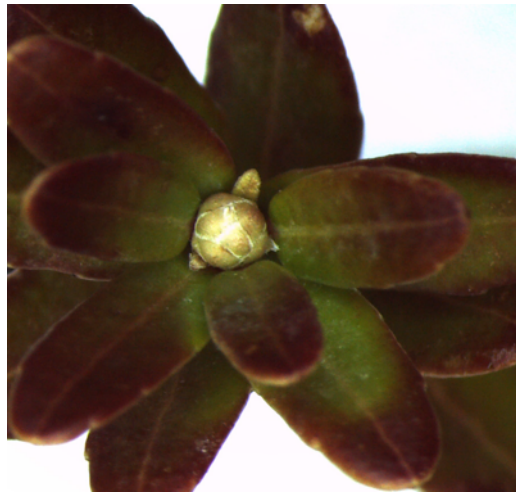
ST bud swell, 25°F, Rosebrook
4/22



Expanded to cover leaf bases,
Increase in size from 'white bud'



More of leaf base covered,
rounder, scales parting



On bog photos (Erika)

04/13/16

04/19/16

04/22/16

Howes



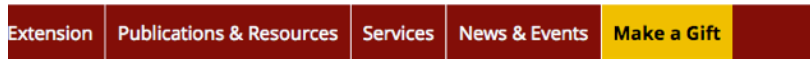
Stevens



Ben Lear



<http://ag.umass.edu/cranberry>



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Quick Links

[Extension Meeting Presentations](#)

[IPM Message](#)

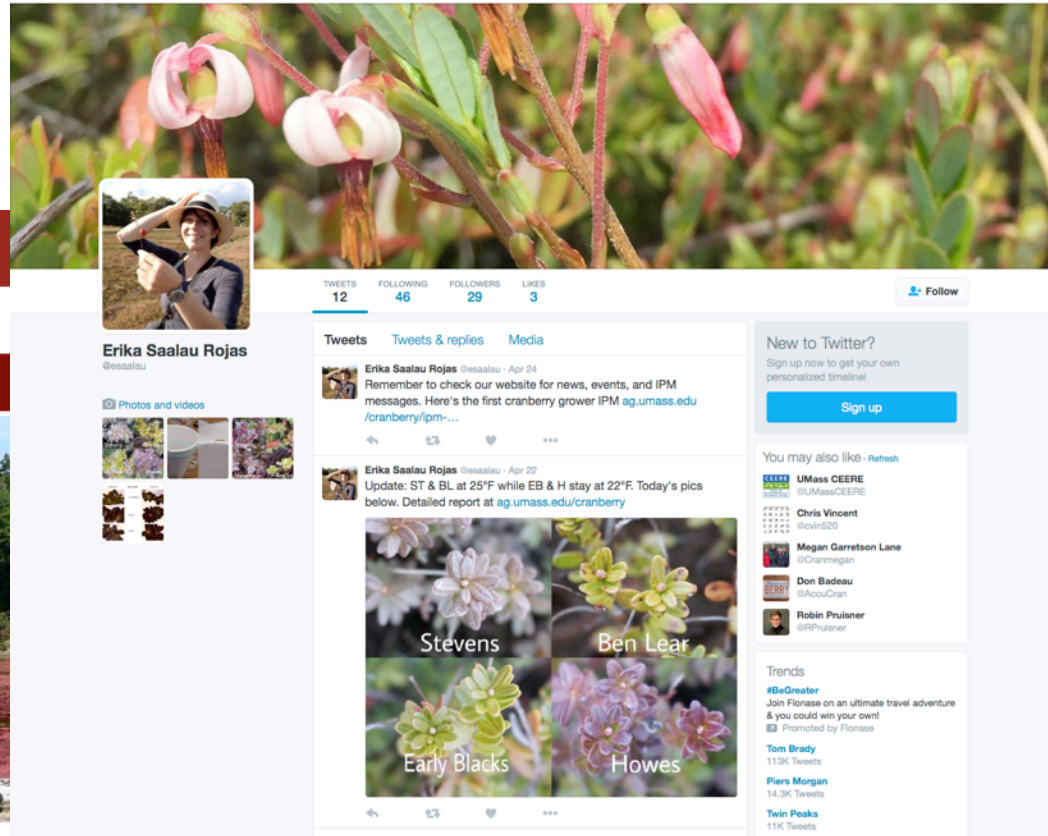
[Frost Tolerance Reports](#)

[Nutrient Management for Cranberries](#)

Search Our Sites



UMass Cranberry Station



<https://twitter.com/esaalau>

MRLs

- Maximum Residue Levels – Similar to ‘Tolerance’
- Important to international sales
- Driver of handler restrictions on pesticide use
- CMC and CI work on these issues

- What you need to know
 - Handler restrictions – materials and dates

Example – Ocean Spray

Export Process Fruit - Pesticide Restrictions

Compound	Trade Name	Restriction
Quinclorac	Quinstar	No use allowed
Carbaryl	Sevin	No use allowed after 8/1
Chlorpyrifos	Lorsban	No use allowed after early scattered bloom or 6/22, whichever occurs first.
Acephate	Orthene	No use allowed after early scattered bloom or 6/22, whichever occurs first.
Simazine	Princep	No use allowed
Fluoxastrobin	Evito	No use allowed after 7/25
Novaluron	Rimon	No use allowed
Spiromesifen	Oberon	30 day preharvest interval.
Phosmet	Imidan	40 day preharvest interval
Chlorothalonil	Bravo	No use allowed after 7/25
Chlothianidin	Belay	No use allowed after 8/1.
Dinotefuran	Venom	30 day preharvest interval.
Spirotetramat	Movento	50 day preharvest interval

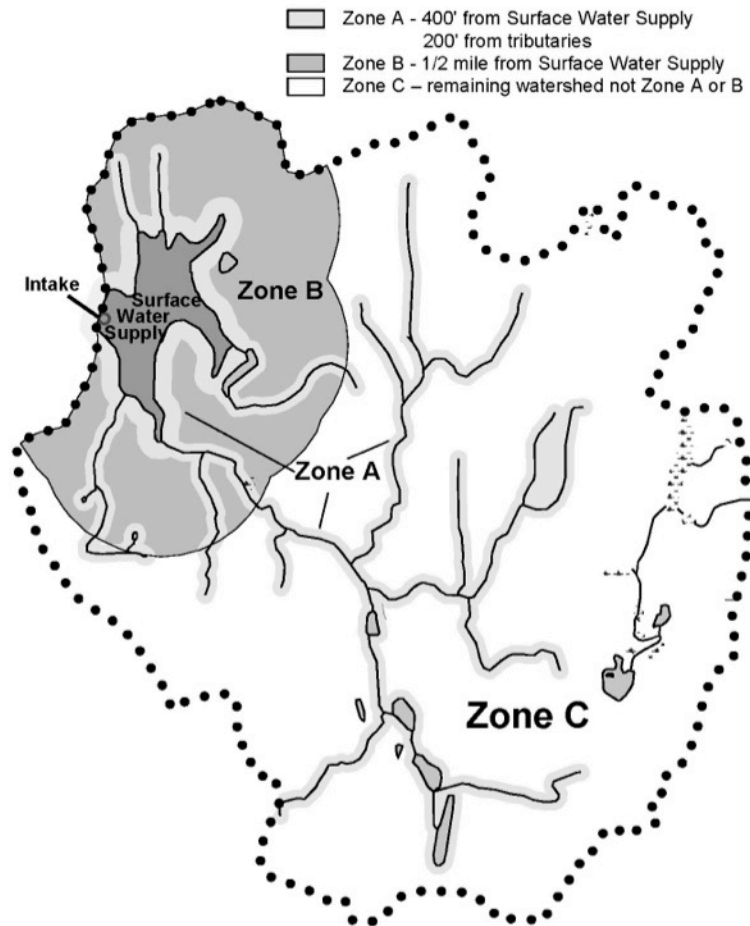
Protecting Drinking Water – Zones and Definitions

- Surface Water
 - Zone A
 - Zone B
 - Zone C

- Ground Water
 - Zone I
 - Zone II
 - Zone III

Surface Water for Drinking – Reservoirs, Rivers

Figure 1. **Surface Water Supply Protection Areas**



Surface Water - Zone A

- 400' from edge of reservoir
- 200' from edges of tributaries
- All activities should be limited, wildlife should be monitored.
- Examples – no building, no manure spreading or storage, no new roads, storage tanks, etc.
- Nutrient regs – setback is **100** feet from a public drinking **surface** water supply but exceptions are made for crops that need to be near water.

Surface Water - Zone B and Zone C

- Zone B – ½ mile from surface water body
- Zone C – Remainder of the watershed that includes the water body

Ground Water – Well Head Protection Areas

- The wellhead protection area is the surface and subsurface land area that a well draws water from.
- The wellhead protection recharge area can be smaller than, or as large as the aquifer in which it is located.
- DEP divides the wellhead protection recharge area into Zones I, II and III.

Ground Water - Zone I

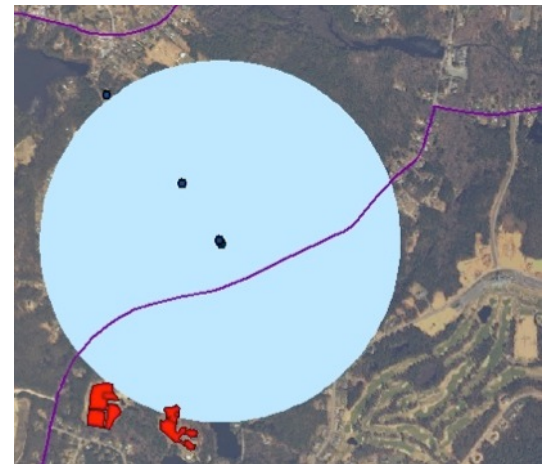
- The immediate land area around a **well**.
- It is defined as a 400' radius for wells $>100,000$ gpd and 100' to 400' radius for wells $<100,000$ gpd, depending upon the pumping rate.
- Only land uses and activities directly related to the water supply are allowed in the Zone I.
- Nutrient regs – No applications in Zone I
- Pesticide regs – No applications in Zone I

Ground Water - Zone II

- The land area that contributes water to a well. The well's water supply is replenished when precipitation or stormwater percolates through the soil and reaches the water table.
- A Zone II delineation is required by DEP for all wells yielding >100,000 gallons of water per day (gpd). **Updated yearly by the State.**
- Some activities are limited in Zone II including storage of fertilizers or pesticides without proper containment. Also limits use of pesticides that could leach into the well.

Interim Wellhead Protection Area

- Temporary protection prior to approved Zone II
- Protected recharge area around a well
- 1/2 mile radius
- Eventually becomes a Zone II



Ground Water - Zone III

- The land area beyond the Zone II from which surface and groundwater drain into the Zone II.
- Zone III boundaries are determined by identifying the topographic surface water drainage divides.
- In most cases there are not limitations in this zone. Communities may limit impervious surfaces, etc.

Ground Water - Zone II limitations on pesticides

- Next slides are courtesy of Brian Wick, CCCGA
- Zone II regulation as impacts cranberry

How is Zone II determined?

- Groundwater movement model
- Area surrounding a well that supplies water during the driest 180-days with no recharge from rain
- Bounded by groundwater divides and bedrock, till, etc.
- Various shapes
- Can change over time

Are You Subject to the Regulations?

Cranberry Growing Region:

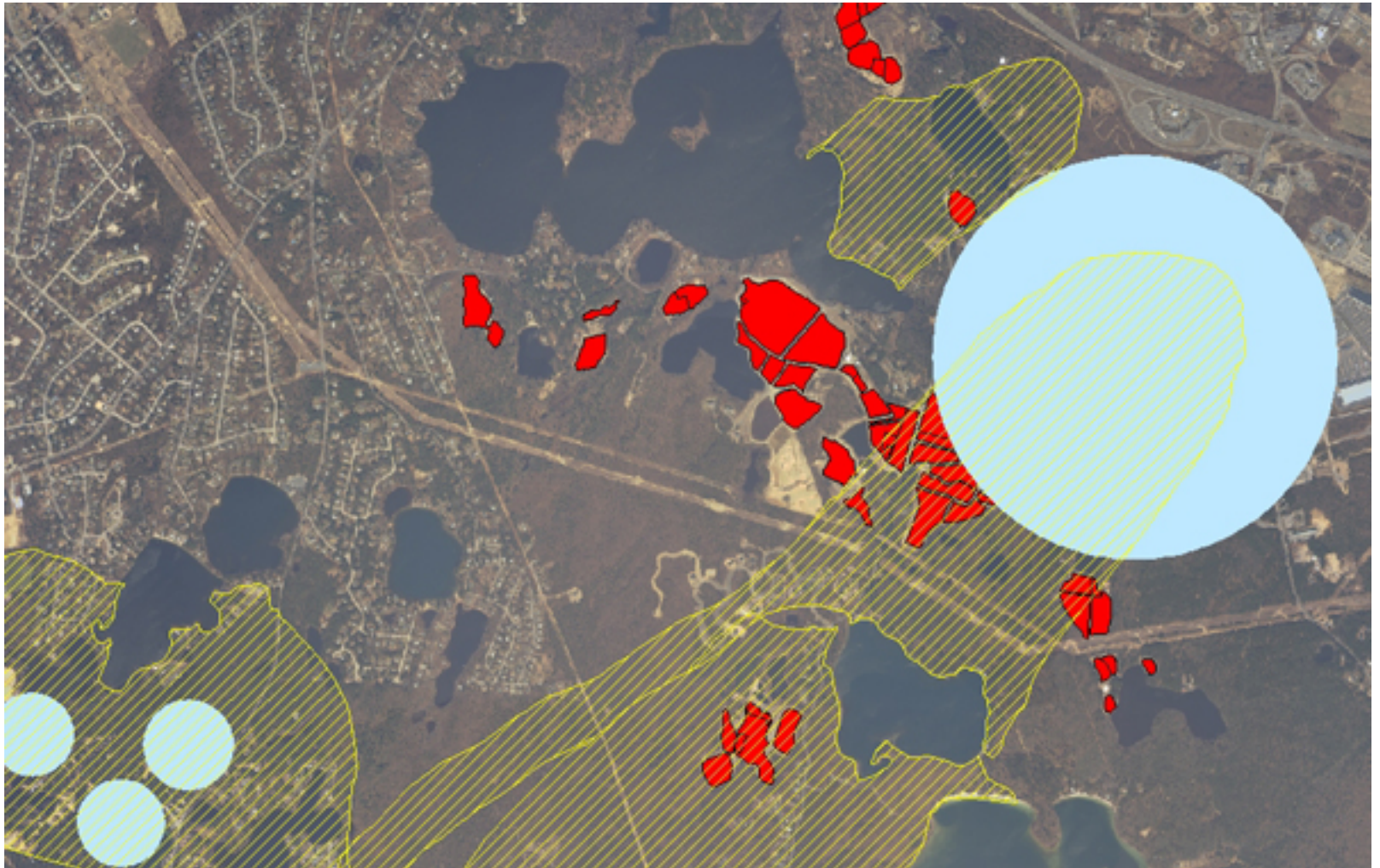
All cranberry towns contain Zone II areas within their boundaries.

Is your bog in a Zone II?

Zone II determinations can be made at:

- CCCGA Office
- UMass Cranberry Station
- USDA/NRCS Wareham Field Office
- MassDEP, MassGIS Web Site http://maps.massgis.state.ma.us/map_ol/oliver.php

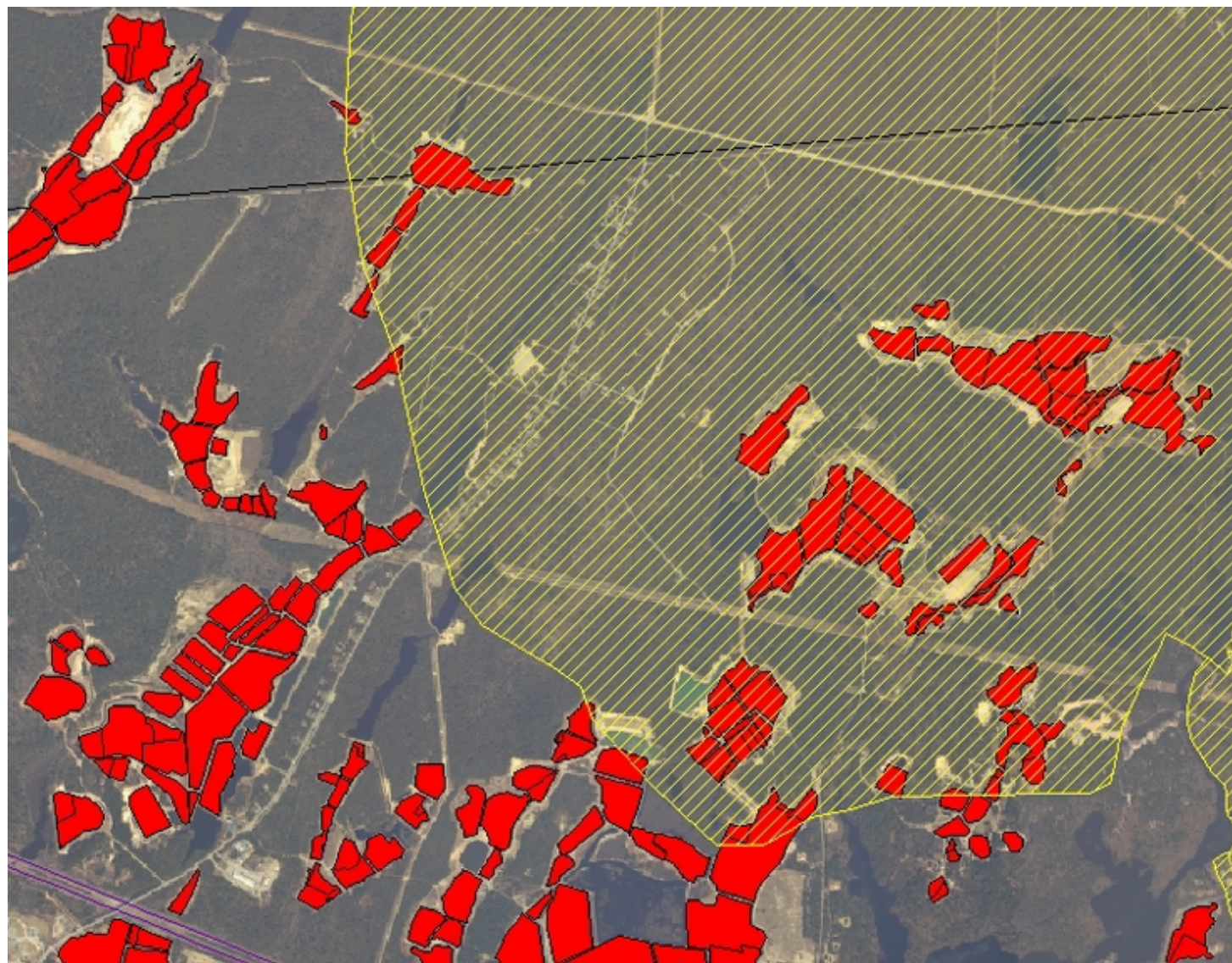
Bogs With IWPA & Zone II



Red = Bog

Yellow Hatch = Zone II

Blue Circle = IWPA



Red = Bog

Yellow Hatch = Zone II

CCCGA Web Site Maps



Cape Cod Cranberry
Growers' Association



[About Us](#) [Cranberries](#) [Grower Services](#) [News & Media](#) [Harvest Celebration](#) [Contact Us](#) [Resources](#) [Site Map](#)

[Growers ~ Alerts & Information](#)

Grower Alerts & Information

Select from the category listed below. Grant information can be found [here](#).

[Dam Safety](#)
updated Jan2009

[DOR \(Dept. of Revenue Ch. 61/Abatements/Farm Plates\)](#)
updated Jan2009

[GAP](#)
updated May2008

[Irrigation Automation Systems Report](#)
updated Jan2008

[Pesticide Use Reporting](#)
updated Mar2010

[RMV Inspections](#)
updated Jan2009

[Water Management Act](#)
updated Jan2010

[Zone II \(Groundwater Protection Areas\)](#)
updated Apr2009



2008 Pesticide Report Forms Due

(posted March 2010)

2009 Pesticide Use Report forms are due to the Massachusetts Department of Agriculture's Division of Crop Inspectional Services by **May 15, 2010**. Failure to submit this report will result in loss of eligibility for renewal of your pesticide license. Each certified or licensed pesticide applicator is accountable for the submission of their Pesticide Use Report.

[2009 Pesticide Use Report](#) (PDF: 216KB)

[Back to top](#)

CCCGA Web Site Reporting and Maps

[BACK TO TOP](#)

Zone II Information

(updated April 2009)

The MA Department of Agricultural Resources must be notified of any applications of a product on the Groundwater Protection List **within 10 days of the end of each month**. This form should include all applications made during that month. You do not need to include chemicals that are not on Groundwater Protection List. You may use one form to report multiple applications that occurred in the same month.

Notification Form: [PDF Form](#) (15 KB) 

MDAR Web Site: [Electronic Notification Form](#)

Electronic Form

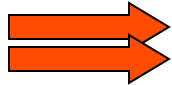
The CCCGA Zone II maps can be viewed by county and town. Links to the Groundwater Protection Regulations grower advisory and pesticide notification forms can be found here as well. [Learn more.....](#)

[Back to top](#)

If you don't have a PDF reader installed on your computer, you can download free software at the [Adobe web site](#).



Reporting forms



Link to maps

Are You Subject to the Regulations?

Step 1: Determine if your cranberry bog is in a Zone II area

Step 2: Check the cranberry pesticides on the groundwater protection list

EXCEPTIONS

Chloronil, Initiate

- Chlorothalonil – Bravo, Echo, Equus

NO EXCEPTIONS (SORT OF)

- Methoxyfenozide – Intrepid
- Thiamethoxam – Actara
- Dinotefuran – Scorpion

Cranberry compounds

CHLOROTHALONIL

**BRAVO, ECHO, EQUUS, INITIATE,
CHLORONIL, CHLOROTHALONIL**

You cannot use Chlorothalonil products in a Zone II area unless you can document that you have **tried alternatives** in the past, at this same location and they **failed**.

(delivery slip showing greater than 3% rot at delivery without using chlorothalonil OR have a diagnosed case of Upright Dieback and other alternatives will not work)

THIAMETHOXAM

ACTARA

This compound **CANNOT** be used in Zone II areas.

There are available alternatives.

(Avaunt in spring, Belay in summer)

Belay does not appear to be restricted until 8/1 by handlers, at which time you would already have sprayed for weevil.

METHOXYFENOZIDE

INTREPID

This compound **CANNOT** be used in Zone II areas.

There are available alternatives (Confirm, Delegate, Altacor).

Note: There are **SPECIAL** cases where use may be allowed for black-headed fireworm infestations during bloom – you **MUST** contact the Cranberry Station before proceeding.

Requirements for Producing Bogs

Step 1: Determine if your bog is in a Zone II area

Step 2: Check the cranberry pesticides on the groundwater protection list

Step 3: Requirements for existing producing bogs

- >50% foliar coverage
- No viable alternatives for the pesticide
- IPM plan from MDAR approved sources
 - 2016 UMass Cranberry Chart Book
 - UMASS Extension IPM fact sheets
- IPM program specific to GP regs
- Support letter from UMass Extension and/or relevant section from Chart Book
- Documentation that past alternatives failed

MDAR Notification!

If you use any of the compounds on the Groundwater Protection List in a Zone II area, you are required to...

- Notify MDAR within 10 days of the end of the month for each application


Groundwater Protection Notification Form

- Forms are available online at the CCCGA website, the UMass Cranberry Station website, and on the MDAR website.

Station website

The screenshot shows the website header with the UMassAmherst logo and a search bar. Below the header is a navigation menu with the following items: In this section: (with a home icon), About, Projects, Research & Extension, Publications & Resources, Services, News & Events, and Make a Gift. The main content area is titled "Groundwater Protection Regulations (Zone II)". It includes a paragraph explaining restrictions on pesticide use in zone II and lists three links: "Section in Chart Book about Zone II", "MDAR Notification Form" (with an arrow pointing to it), and "Groundwater Protection Notification Form" (from Cape Cod Cranberry Growers Association). A sidebar on the left lists "Services" such as Weather Summaries, Frost Tolerance Reports, and Groundwater Protection Regulations (Zone II). The footer contains social media icons for Facebook and Twitter, and text stating "Connect with the Center for Agriculture, Food and the Environment". At the bottom, there are logos for THE COLLEGE OF NATURAL SCIENCES and USDA, along with "Civil Rights and Non-Discrimination Information" and copyright information for 2016.

The Official Website of the Executive Office of Energy and Environmental Affairs



Energy and Environmental Affairs

Search... in Energy & Env SEARCH

Main Menu Go

EEA Home > Agencies > Department of Agricultural Resources > Groundwater Protection Program Notification Form

Groundwater Protection Program Notification Form

You must notify the Department of Agricultural Resources Pesticide Bureau when you apply a pesticide product which is listed on the groundwater protection list. Notifications must be made to the Department within ten days of the end of the calendar month of use. Please submit one form per site. Thank you for your assistance!

Fields marked with an * are required.

Name*

First Name Last Name

PESTICIDE LICENSE NUMBER*

DAYTIME PHONE*

(include area code)

E-MAIL ADDRESS*

Address*

City State ZIP Code

LOCATION AND DATE(S) OF PESTICIDE APPLICATION*

- #### Additional Resources
- [Department of Agricultural Resources](#)
 - [Division of Crop and Pest Services](#)
 - [Pesticide Program](#)
 - [Water Quality and Pesticides](#)
 - [Groundwater Regulations \(333 CMR 12:00\)](#)
 - [What is Water Well-Being?](#)
 - [Groundwater Protection List](#)
 - [Guide to Groundwater Protection Regulations](#)
 - [List of Massachusetts Towns with Zone II Areas](#)
 - [See All](#)

Any questions?

