

# Cranberry

## Crop Management Newsletter

  
Cooperative Extension



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University of Wisconsin-Extension

Volume XXIII Issue 7

September 10, 2010

### It's A Jungle Out There!

Rebecca Harbut, UW-Extension Fruit Crops Specialist

I do not have to tell any of you that there is a lot of vegetative growth happening on the vines this year! So what is causing all this growth? This summer can best be characterized by two words...warm and wet! Both of these weather conditions have contributed to the excessive vegetative growth we are seeing by providing additional N available to the plants.

Nitrogen composes 78% of our atmosphere which amounts to about 1,640 lbs of N floating on top of every square foot of the earth's surface. There is also a great deal of N stored in the soil in forms that are not readily available to plants. The conversion of atmospheric and terrestrial N to usable forms for plants requires a great deal of energy. Lightning bolts can provide sufficient energy to convert atmospheric N to ammonium (NH<sub>4</sub>) and nitrate (NO<sub>3</sub>) which is deposited through rainfall. Energy can also be provided by photosynthetic energy of nitrogen fixing plants, such as peas and beans. Chemical energy in soil microorganisms provide the energy needed to break down organic matter in the soil.

In cranberry production we have three primary sources of N: fertilizer, soil organic matter and rainfall. The amount of N contributed by the two natural sources, organic matter and rainfall, have been the two key players this year.

**Nitrogen from rainfall.** N deposited by rainfall is deposited as ammonium (NH<sub>4</sub>) and nitrate (NO<sub>3</sub>), with NO<sub>3</sub> being the primary form. The amount of N deposition from the atmosphere varies across the state, but most cranberry pro-

ducing regions receive about 3-6 lbs N /Acre annually (Source: National Atmospheric Deposition Program, <http://nadp.sws.uiuc.edu>). Due to the high rainfall this year we are probably on the high end of the average. However, the amount that is available to the cranberry plant is likely lower as most of the N is deposited as NO<sub>3</sub>, which is not the cranberries preferred form of N and is very mobile in the soil so it readily leaches during heavy rainfall. The contribution of N from rainfall will be slightly higher in peat beds as the soil is able to hold more of the N that enters the soil profile during a rain event.

**Nitrogen from Organic Matter.** The rate of N release from organic matter is influenced by temperature and moisture, both of which were above average this year! Beds that are high in organic matter will see much higher rates of available N compared to sand beds (See Table 1 on p. 3). The high temperatures and rainfall has increased the rate of organic matter decomposition and released N at a much higher rate than most years. This source of additional N is likely the major contributing factor the vegetative growth we are seeing.

So what to do? There is nothing that can be done to reduce the amount of N that is made available to the plant through these natural sources. Nitrogen is the nutrient that has the most significant effect on vine growth, and in order to reduce vine growth, you need to reduce N...a difficult task indeed!

Continued at *It's A Jungle Out There!* p. 3

## Common Purslane in New Cranberry Plantings

Jed Colquhoun, UW-Extension Fruit Crops  
Weed Specialist

We received several reports of common purslane (*Portulaca oleracea*) as the summer progressed, particularly from growers with new plantings on relatively high pH soils with a previous history of agriculture. Common purslane is a non-native plant that is now very common in most open areas, such as new fruit plantings, vegetable production, open lots and even cracks in the sidewalk. The plant was used as a leafy vegetable, prepared similar to spinach, by early Europeans.

Common purslane is an annual weed with very succulent stems and leaves. As a matter of fact, plant water content exceeds 90%. The stems are reddish-purple and grow close to the ground. Shiny, egg-shaped leaves are slightly alternate on the stem. Small yellow flowers open in sunlight. Common purslane can produce thousands of small black seeds per plant in ideal conditions. Multiple generations are possible in warm summers, and the seed has been reported to survive 40 years when buried in soil. Seed germinates in moist soil during the warmest periods of the summer.

Unfortunately, the herbicides registered in cranberry do not control common purslane. This weed grows too close to the ground to be effectively or safely weed-wiped. On the positive side, common purslane biology and ecology do not favor long-term survival as cranberry beds become established. The weed is not shade-tolerant and is a relatively poor competitor with other plants. Additionally, it is sensitive to chilling and cool weather, so hopefully by the time you read this it is on the ropes. If you hand-pull common purslane in new plantings, be sure to remove it from the bed as it will tolerate drying (remember, it is 90% water) and will re-root on the soil surface.

I hope that you enjoy a safe, productive and purslane-free harvest. ❖❖❖

## Observations from the Field

Sharing Some Success Stories  
Jayne Sojka, Lady Bug IPM, LLC

**PLANTS:** Our cranberry vines show excessive growth across most of Wisconsin. Growers are puzzled as to why we see such lush vines when their applications of fertilizer are at an all time low. I believe that we would be surprised to discover just how much "N" came to us in the storms of this summer. Our growing degree days are well above 200 for the 30 year average right now at the end of August which also keeps our plants growing. We see very little dormancy starting across our great State.

**INSECTS:** It has been a challenging season with cranberry pests.

Continued from *Observations From The Field Column 1.*

Flea beetles have been at an all time high in 2010! They started mid July and were still hatching out mid August. We have seen this pest on marshes that have never experienced its leaf mining in the past. Remember that the adults that you see now lay eggs and in the spring the young larvae actually chew/girdler on the tender roots of our cranberry. In the past we have not addressed the spring larvae as we have had success addressing the adult beetle. There may be some experimentation with controlling the larvae of this pest in 2011, so stay tuned to continued research.

BHFW were quite interesting this year! It is my belief that they hatched out very early this spring. I mean real early...like April! Remember that in 2010 growing degree days were around 325 by the 1<sup>st</sup> of May and in 2009 they were around 180! You see, some of my growers flooded up over that 16 degree cold snap around Mother's Day and they got fantastic control of most cranberry pests. - Yet, with that said, we saw some unusual BHFW activity – we did not sweep threshold levels in May when we officially started scouting. But when the 2<sup>nd</sup> generation came around we were surprised with the flight numbers. Once again this tells me that the BHFW were NOT present when we flooded. They had hatched earlier, fed and pupated before the rest of the pests. In the insect world, BHFW and Spanworm/Loopers are the earliest pests. In those flooded marshes we received fantastic control of the blueberry looper and ½ wing looper, plus the green spanworm and Sparganothis fruitworm but because we did not see much BHFW activity we did not note the control of that pest. With pheromone trapping we were on top of 2<sup>nd</sup> generation and the timing of our Intrepid or Confirm during bloom blessed us with no BHFW burn. Late July and early August we found 3<sup>rd</sup> generation BHFW activity in some HISTORY SPOTS. This is NOT typical of pesty BHFW. Typically we see BHFW eggs that are diapause/over-wintering. This year we saw hatching eggs and we swept threshold levels! In most cases an insecticide was necessary. Note that the growing degree days early August were around 1900 and in 2009 they were 1400 GDD....interesting!

I don't believe that Sparganothis fruitworm have a third generation in Wisconsin. Some years we see a prolonged hatch that may lead one to believe that there are more than two generations, but with the HEAT of 2010 I feel that the hatch was much more consistent. We had a typical flight pattern of sparganothis fruitworm lasting about 6 weeks. We were doing some spot checks on September 1<sup>st</sup> and we were kicking up sparg flight as we walked – once again I believe that this is a 2011 pest challenge not a third generation.

Our early September control checks with BELAY on girdler control have yielded some positive results. We are finding about 80% control so far. The beauty of the whole experience is that we do NOT see excessive feeding which means that the timing and control were great. We can time some products perfectly but if they don't work we see the damage right away. Interesting fact that I'd like to share is that one grower was plagued with not only girdler but flea beetle in the past years. He put Belay out there and watered it in within two hours and we waited patiently to see if the Girdler were going to be controlled. Meanwhile we continued scouting for flea beetle and fruitworm on a weekly basis. We noticed that Flea beetle were far and few between while the balance of the marsh was experiencing a heavy infestation. I contacted Jack Perry to share what we were seeing and he reminded me of the systemic nature of Belay. He shared that the root uptake systemic activity of Belay has more than likely controlled our foliage/berry pests. WOW, many cranberry pests with one application! This BELAY has proven itself once again.

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## Extension Entomologist Mahr Retires

Matt Lippert, Wood County Agriculture Agent

***“It has been a distinct honor and privilege to address the entomological needs of Wisconsin’s diverse fruit industries over these past 30+ years.”*** So reads the letter Dan Mahr shared with Extension Faculty announcing his retirement effective September 3. Dan has been a great resource to the Wisconsin cranberry industry. Dan contributions have been an anchor to this publication where we have discussed integrated pest management, the release of new crop protection products and alternatives when other products have been removed from the market. His contributions not only to the newsletter, but his good advice for planning workshops, summer field days and the Cranberry School will certainly be missed. While in his role as Extension Entomologist Dan had a great rapport with growers and consultants and a highly valued perspective based on his many years in the field.

In one of Dan’s more recent roles Dan introduced cranberry growers to utilizing the EPA website generating maps that allowed growers to utilize Intrepid® insecticide in areas where the product was previously not available because of concerns of habitat protection for Karner Blue Butterfly. During this project Dan clearly showed his balanced understanding of protecting natural resources, embracing sustainability and appreciating growers need to have access to crop protection products and the education necessary to use these tools.

Dan’s position will not be immediately filled. It is not clear at this time if the position will be redefined, when it will be refilled or if we will need to look elsewhere for assistance with fruit crop entomology support. ❖❖❖

*We wish Dan all of the best in his retirement and future endeavors.*

Continued from ***It’s A Jungle Out There!*** p. 1

**Late Season Potassium Application.** Some growers use a late application of K to slow the growth. I have looked through a lot of research and cannot find any evidence that this would slow the growth of the vines or improve winter hardiness. K is involved in sugar transport, enzyme regulation, stomatal opening and closing, water relations in the plant and drought and cold tolerance. I believe that it is this last function in cold tolerance that may be influencing the decision to make a late season application when vines are pushing a lot of growth. In regards to this, plants that are deficient in K are certainly less tolerant to both high and low temperatures. However, I have not found evidence that adding K beyond the sufficiency range increases the cold tolerance of cranberries.

As I have mentioned before, the best way to test if a practice is having the desired effect is to conduct an experiment on your own marsh. I would love to hear your opinions on this issue and welcome any comments! ([harbut@wisc.edu](mailto:harbut@wisc.edu), 608-262-6452) ❖❖❖

Soil temperature		55°F	60°F	65°F	70°F	75°F
Soil type	% organic matter	N lb/a/day				
Sand	0.5	0.2	0.2	0.2	0.2	0.3
Sanded peat	5.0	3.0	3.0	3.0	4.0	5.0
Peat	25.0	2.0	2.0	4.0	20.0	50.0
Muck	35.0	10.0	12.0	12.0	14.0	20.0

Table 1. Influence of soil temperature and soil organic matter on production of available N in cranberry beds (Source: Nitrogen for Bearing Cranberries)



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Cranberry Crop Management Newsletter  
Wood County UW-Extension  
400 Market Street, Courthouse  
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Wisconsin Rapids, WI 54495-8095

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## UW-Extension Cranberry Specialists

Jed Colquhoun  
UW-Extension Fruit Crops Weed Scientist  
1575 Linden Drive  
Madison, WI 53706  
(608) 890-0980  
jed.colquhoun@ces.uwex.edu

Rebecca Harbut  
UW-Extension Fruit Crops Specialist  
297 Horticulture; 1575 Linden Drive  
Madison, WI 53706  
(608) 262-6452  
rebecca.harbut@ces.uwex.edu

Patty McManus  
UW-Extension Fruit Crops Specialist  
319B Russell Labs; 1630 Linden Drive  
Madison, WI 53706  
(608) 265-2047  
patty.mcmanus@ces.uwex.edu

Matthew Lippert, Agricultural Agent  
Wood County Courthouse  
400 Market Street; P. O. Box 8095  
Wisconsin Rapids, WI 54495-8095  
(715) 421-8440  
matthew.lippert@ces.uwex.edu

Daniel Mahr  
UW-Extension Fruit Crops Entomologist  
444 Russell Labs; 1630 Linden Drive  
Madison, WI 53706  
(608) 262-3228  
daniel.mahr@ces.uwex.edu

Brent McCown  
UW-Madison Cranberry Plant Breeder  
393 Horticulture; 1575 Linden Drive  
Madison, WI 53706  
(608) 262-5201  
bhmcrown@wisc.edu