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#### Address Correction

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Thank you!

Matthew Lippert  
Agriculture Agent  
Wood County Courthouse  
400 Market Street  
Wisconsin Rapids, WI 54494  
(715) 421-8440  
[mlippert@co.wood.wi.us](mailto:mlippert@co.wood.wi.us)  
Editor

# Cranberry Crop Management Journal

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## Cranberry Flea Beetle

Christelle Guédot and Katie Hietala-Henschell

UW – Madison Fruit Crop Entomology and Extension

Flea beetles are a diverse group of pestiferous insects that can cause damage to a variety of vegetable crops in Wisconsin<sup>1</sup>. The cranberry flea beetle also known as red-headed flea beetle is a common beetle that feeds on many different host species. It can be an occasional pest in the Midwest on different

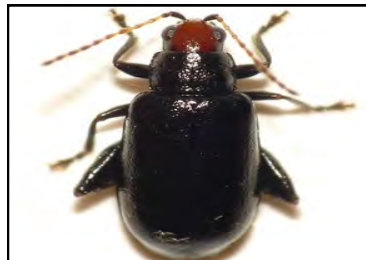


Figure 1. Adult redheaded flea beetle (<http://bugguide.net/node/view/528473>)

crops, including cranberries, blueberries, cabbage, beans, beets, corn, and alfalfa<sup>2</sup>.  
**Description and life cycle:** Redheaded flea beetles are small (~1/8") shiny black beetles with a reddish head<sup>3</sup> (Figure 1). They have powerful hind legs and jump when disturbed<sup>4</sup>. Adult beetles are present from July through September; adults can also be present until the first hard frost. Redheaded flea beetles overwinter in the egg stage in the soil<sup>5,6</sup>. Eggs will hatch in the spring<sup>5</sup>. Larvae feed on roots and root hairs from June to August. Pupae occur as early as late June to early August<sup>4</sup> and adults start emerging in July, laying eggs soon after emergence and continuing through August.

**Hosts:** This diverse beetle family causes damage on many different crops and individual species of flea beetles get their name from the host plant that they most regularly cause damage to. In Wisconsin, common species specific flea beetles include: crucifer, eggplant, horseradish, potato,

spinach, and striped (cabbage) flea beetle<sup>1</sup>. The redheaded flea beetle is an occasional pest on and near cranberry marshes. Up to 40 plants have been identified in Wisconsin as available hosts<sup>6</sup>. When adults feed on cranberry they have been shown to have a varietal preference; however, many weed species may be more preferred if present<sup>7</sup>. Common cranberry marsh weed species include: marsh St. Johnswort, Joe-Pye weed, smartweed, jewelweed, and hardhack<sup>6</sup>.  
**Damage:** This early season pest can cause damage to young plants<sup>1</sup>. The damage caused by this family is similar across species; adult beetles cause the most damage by chewing holes into leaves<sup>4</sup>, which creates brown or burnt looking foliage<sup>3</sup> (Figure 2). This damage can slow the growth of the plant, reduce vigor, and with excessive injury can kill the plant<sup>4</sup>. Redheaded flea beetle is frequently found but at low population levels.



Figure 2. Damage caused by redheaded flea beetle (<http://extension.entm.purdue.edu/pestcrop/2012/issue15/graphics/popups/>)

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Christelle Guédot and Katie Hietala-Henschell

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If more attractive alternative hosts are not available red-headed flea beetle will feed on cranberry foliage and berries<sup>6</sup>. Feeding can have negative effects on the following year's buds<sup>5</sup>. Larvae that emerge in the spring can feed on roots causing root damage; additionally, damage from red-headed flea beetle larvae can be seen from July to August and during this time can sometimes be mistaken as cranberry girdler damage<sup>3</sup>.

**Methods of control:** Trap crops can be effective as they can serve as more attractive hosts<sup>4</sup>. This approach provides the most benefit until plants are established. Once established plants are more vigorous and in general can outgrow flea beetle damage. Additional effective methods of control include physical barriers, such as row covers or thick mulch, or physical removal<sup>4</sup>, such as shaking the plants over a white cloth or using sweep net<sup>8,2</sup>.

**Table 1. Effectiveness of foliar-applied insecticides for cranberry flea beetle adult control**

Product	Rate/acre	Flea Beetle
Grandevo 30G	3 lb	--
Venerate 94L	8 qt	--
Venom 70SG	4 oz	+++
Closer 2.2SC	5.7 oz	+
Actara 25WDG	4 oz	+++
Assail 30SG	4 oz	+++
Belay 2.1SC	4 oz	+++
Lorsban 4E	1.5 pt	++
Diazinon 4EC	1 qt	+++
Imidan 70WP	1 lb	+++
Altacor 35WG	3 oz	+++
Orthene 97 or Sevin 4E	0.7 lb/ 2 pt	++
Confirm 2F	16 oz	--
Delegate 25WG	6 oz	++
Intrepid 2F	16 oz	--
Rimon 0.83EC	12 oz	+

Performance rating scale - "--" inadequate control, "+" - 70 – 79% control, "++" - 80 – 89% control, "+++" - 90%+ control

### Cranberry flea beetle

Order: Coleoptera (beetles and weevils)

Family: Chrysomelidae (leaf beetle family)

Scientific name: *Systema frontalis*

Although flea beetles rarely cause economic losses they are easily controlled with a number of registered foliar-applied insecticides, including broad spectrum insecticides such as organophosphates (e.g. Diazinon, Imidan, Lorsban), selective insecticides like IGRs (e.g., Rimon), neonicotinoids (e.g., Assail, Belay, Actara, Venom), and diamides (e.g., Altacor). Table 1 provides information on overall rating of insecticides from our trials on flea beetle. If warranted, sprays can be applied at 1/2" of new growth, in June, and after bloom.

In 2014, we investigated the use of watered-in soil incorporation of insecticides for the control of the soil stage (larvae) of flea beetles (Table 2).

**Table 2. Effectiveness of soil vs. foliar applications for flea beetle adult control.**

Treatment	% Control
Altacor 4.5 oz Pre Bloom – Soil	9
Altacor 4.5 oz Post Bloom – Soil	10
Altacor 4.5 oz – Foliar	94
Belay 12 oz Pre Bloom – Soil	7
Belay 12 oz Post Bloom – Soil	88
Belay 4 oz – Foliar	92
Assail 5.3 oz Pre Bloom – Soil	18
Assail 5.3 oz Post Bloom – Soil	68
Assail 5.3 oz – Foliar	89

## Cranberry Flea Beetle—continued from page 2

Neither pre-bloom soil applications of labeled rates of Altacor, Belay and Assail nor post-bloom soil applications of Altacor or Assail were adequately effective for the later-season flea beetle adult control. Although a post-bloom soil application of an accelerated, high rate (12 oz/a) of Belay did provide excellent control, this treatment is likely cost prohibitive and might encounter some MRLs restrictions. As previously observed, foliar applications of all three products effectively controlled flea beet adults in this trial.

It is important to minimize sprays during bloom but also directly before bloom to avoid residual contact with pollinators. Sprays after bloom should pay special attention to pre-harvest intervals, so as always, read and follow the label. Some insecticides face MRLs export limitations in cranberry so make sure to check with your handler before using them.

Happy growing season!

References are available upon request.

## OBSERVATIONS FROM THE FIELD

Jayne Sojka/Lady Bug IPM, LLC

As we travel from marsh to marsh we have noticed that some trees are already turning colors. We believe that this is a result of the stress that the trees undergo from standing water. The same is true for our cranberry plants. Casoron and wet feet gave our plants added stress and we are starting to see the Yellow Vine (YV) once again this season. It is tough to battle this syndrome, but our growers are aware that the root system has been hurt and the only solution is foliar feed.

We notice that we still have a lot of bloom on some properties. On July 24 we saw several marshes with nearly 20% of the bloom remaining. Stress is the culprit of this phenomenon. We believe that somewhere along the line these vines had been nipped with frost or suffered stress during the harvest season. The million dollar question is, "Will they make it?"

Flea beetle is already starting to show up. This past week we had two growers that had encountered economic threshold levels. Remember that with the HOT weather, hatch is expected to increase quickly. This is a pest that is easy to control, but at the same time one has to question how many applications you want to make to control just ONE pest. We find that they prefer weeds to our cranberry plants. Do NOT mow your dikes during this period of hatch! Instead, offer the pest some other tasty morsels so they leave our cranberry plants alone. In addition to the dikes, weeds within the bed offer them alternative feed sources and there is nothing wrong with having a few weeds left in the beds for them. Really watch your PHI's on whatever control option you chose.

Tipworm appears to be at an all time high this season. We have discovered a lot of plant injury and are starting to see more vegetative growth. Tipworm are choosy - they love the tender new growth of our tips. Remember there are at least four generations of this pest and what you see today is a combination of more than one generation. Most of the research on this pest indicates that systemic products like *Orthene* and *Lorsban* are the best long term control measures, but at this time of the year these are not options. Whatever you chose to do remember your PHI's, markets, export issues, and equally important timing, because we need to set a bud for the 2016 crop.

Have a great week.

## Cranberry Journal—Grower Update

David Bartling

Manitowish Cranberry Co., Inc.

### Manitowish Cranberry Update:

The nice weather has really helped our crop move along, and we have finished all applications of fertilizer other than one application of 0-0-50. After having trouble with our cranberry fruit worm pheromones, not allowing us to see the actual trap count numbers, we will be applying Altacor early next week, which will be a few more than 10 days after our Intrepid application.

I have noticed some berries with one small spot on them, but no fruit worm inside. No berry damage from the worm tells me our timing of the Intrepid application was near perfect, killing the fruit worm as they moved from the egg to worm stage. I have found no cottonball infected berries on our farm either.

We have applied Glyphosate, either with a walk-behind spreader or with a hockey stick, to areas where select weeds have risen, such as golden rod and rushes. We may do small spots as needed if more weeds come up.

The new plantings have vined in nicely over the past few weeks, especially with the natural rain we had last week. We applied the last application of 14-14-14 on both new beds this week, and will apply Select next week to knock down some grasses and clover that has recently grown.

David Bartling



### UW-Extension Cranberry Specialists

Jed Colquhoun  
UWEX Fruit Crops Weed Scientist  
1575 Linden Drive  
Madison, WI 53706  
(608) 890-0960  
jed.colquhoun@ces.uwex.edu

Amaya Atucha  
Extension Fruit Crop  
Specialist  
UW-Madison  
297 Horticulture Building  
1575 Linden Drive  
Madison, WI 53706  
(608) 262-6452  
atucha@wisc.edu

Patty McManus  
UWEX Fruit Crops Specialist &  
Plant Pathologist  
319B Russell Labs  
1630 Linden Drive  
Madison WI 53706  
(608) 265-2047  
pmcmanus@wisc.edu

Shawn Steffan  
Research Entomologist  
USDA-ARS  
UW Madison, Department of  
Entomology  
1630 Linden Drive  
Madison, WI 53706-1598  
(608) 262-1598  
steffan2@wisc.edu

Christelle Guédot  
Fruit Crops Entomologist/  
Pollination Ecologist  
Department of Entomology  
546 Russell Laboratories  
1630 Linden Drive  
Madison WI 53706  
(608) 262-0899  
guedot@wisc.edu

Juan E. Zalapa  
Research Geneticist  
299 Horticulture  
1575 Linden Drive  
USDA-ARS Vegetable Crops  
Research  
Madison, WI 53706  
(608) 890-3997  
jezalapa@wisc.edu

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