

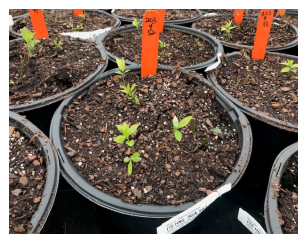
## EASTERN NURSERY & GREENHOUSE PROGRAM

# Eastern NC Nursery News

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## 2021 Red-Headed Flea Beetle Mallet 0.5G Research Trial at Johnson Nursery



Thanks to Carl Potter and David Johnson at Johnson Nursery in Willard, NC, I was able to conduct an in depth nursery research trial this year comparing three different rates of Mallet .5G insecticide which contains the active ingredient imidacloprid, a systemic neonicotinoid insecticide. Here is a summary of the project. The product was supplied by Greg Roman of Nufarm through Cam Coor of Triangle Chemical Company.

### Materials and Methods

On April 1, 2021 960 3 gallon *Itea virginica* 'Henry's Garnet' liners rooted in 6 cell packs were potted using 4 different treatments. 3 liners were potted into each 3 gallon container. Each treatment group consisted of 240 plants. Treatments included an untreated control using their standard potting mix, a low incorporated rate of Mallet 0.5G (3.4 lb/ cu yd), medium incorporated rate (5 lb/cu yd), and a high incorporated rate (6.6 lb/cu yd). Plants were moved to a production area and arranged in a randomized complete block design consisting of 4 replicated blocks of 60 plants per treatment. With 4 treatments and 4 replications, there were a total of 16 blocks. Plants were watered with overhead irrigation throughout the project and no foliar insecticides were applied at any time. Plants were spaced on July 9, 2021 and pruned on July 15, 2021. Plants were monitored for red-headed flea beetle (RHFB) damage every other week beginning in mid-May. Ratings of foliar injury and percent of plants with damage were recorded once damage became easily noticeable.



Plants above following potting in randomized complete block design.  
Plants below after spacing on July 9 and pruning on July 15, 2021.



## Results and Discussion

**Percent of plants\* damaged by RHFB with incorporation of Mallet 0.5G (potted on 4/1/2021)**

Treatment	8/6/21 (18 WAT)	8/19/21 (20 WAT)	9/2/21 (22 WAT)
Untreated Control	37.00 a	64.25 a	77.75 a
Low (3.4 lb/yd <sup>3</sup> )	16.25 b	27.00 b	39.75 b
Medium (5 lb/yd <sup>3</sup> )	4.50 b	9.25 b	17.75 c
High (6.6 lb/yd <sup>3</sup> )	3.75 b	7.50 b	15.25 c

Percent means with the same letter within columns are not statistically different.

Duncan's Multiple Range Test, .05 level. (\**Itea virginica* 'Henry's Garnet')

**RHFB Foliar\* Damage Rating\*\* with incorporation of Mallet 0.5G (potted on 4/1/2021)**

Treatment	8/6/21 (18 WAT)	8/19/21 (20 WAT)	9/2/21 (22 WAT)
Untreated Control	0.3708 a	0.6625 a	0.8665 a
Low (3.4 lb/yd <sup>3</sup> )	0.1625 b	0.2753 b	0.4000 b
Medium (5 lb/yd <sup>3</sup> )	0.0458 b	0.0918 b	0.1753 b
High (6.6 lb/yd <sup>3</sup> )	0.0375 b	0.0750 b	0.1503 b

Foliar damage rating means with the same letter within columns are not statistically different.

Duncan's Multiple Range Test, .05 level. (\**Itea virginica* 'Henry's Garnet')

\*\*Foliar Damage Rating: 0=0%, 1=1-10%, 2=11-20%, 3=21-30%, 4=31-40%, 5=41-50%, 6=51-60%, 7=61-70%, 8=71-80%, 9=81-90%, 10=91-100%.

I observed injury high enough to begin ratings on August 6, 2021 at 18 weeks after treatment (WAT). At 18 WAT and 20 WAT all rates of Mallet 0.5G were providing statistically similar levels of control with reduced percentage of plants with damage compared to the untreated control and significantly lower foliar damage ratings compared to the untreated control. At 22 WAT the medium and high rate of Mallet 0.5G resulted in fewer percent of plants damaged by RHFB compared to the low rate and untreated control. Fewer plants treated with the low rate had damage compared to the untreated control but 39.75% of plants were still damaged. At 22 WAT plants treated with all rates of Mallet 0.5G also had lower foliar damage ratings compared to the untreated control. The study concluded on September 2, 2021 since plants were pruned again on September 8, 2021.





At 22 WAT percent of plants damaged by RHFB was higher in blocks treated with the low rate compared to the medium and high rates.

## Conclusions and Recommendation

Although overall RHFB pressure was low in the study, differences between treated and untreated plants was obvious during the foliar damage rating period. By the end of the study there was a significantly higher percent of plants damaged by RHFB when treated with the low rate of Mallet 0.5G compared to the medium and high rates. All Mallet 0.5G treatments resulted in lower foliar damage ratings compared to the untreated control. This study showed Mallet 0.5G was effective when incorporated at potting and provided long term reduction of damage.

Based on the results of this study and other studies and demonstrations I have conducted, granular imidacloprid insecticide products are effective at reducing foliar damage from RHFB. You can expect to see some very low levels of damage even at medium and high rates since the RHFB has to feed on foliage to ingest the insecticide.

I theorize that the pressure was low in this study due to use of small six-pack rooted cutting liners that were free of RHFB injury and population when rooted in 2020. The RHFB population in the study area seemed to slowly move in from plants in surrounding container production areas and remained low since many of the

surrounding susceptible plants were moved to other finishing areas due to sales demand.

My recommendation is to use medium or high rates of Mallet 0.5G when incorporating it at potting to provide the highest and longest levels of RHFB foliar damage prevention.

## **Additional Information**

Based on my prior research, imidacloprid products are very effective at controlling RHFB larvae when applied prior to egg hatch. It is important if potting up larger liners, (for example quart or 1 gallons) that had a RHFB infestation the previous year, to make applications for larvae in order to mostly eliminate first generation adults in the crop and prevent early heavy injury to plants and subsequent population explosion. In eastern NC, treatments with imidacloprid targeting larvae are best made prior to 250 growing degree days based on 50 degrees Fahrenheit (GDD) and I try to shoot for 200 GDD. Liquid formulations of imidacloprid are effective also and seem to result in no foliar damage for at least 2 months (June and July) with one drench application at spring potting (April 15). Topdress applications of the other granular imidacloprid product labeled for nursery use (Marathon 1G) at medium and high rates have provided foliar damage prevention in studies and demonstrations lasting 3 months (June, July, August). In a demonstration done with drench (Imidacloprid 2F) and granular (Marathon 1G high rate) applications of imidacloprid, plants treated during their potting year (June 2019) had no larvae in their container substrate the following spring (April 2020) and had no foliar injury in June 2020. This was also true for imidacloprid (Imidacloprid 2F) liner drenches applied prior to potting and drenches of the same applied after potting.

I will be providing more information in the future about a replicated research trial using 3 topdress rates of Marathon 1G (imidacloprid) conducted this year at Pender Nursery. Since that project had much higher RHFB pressure and more data collection dates it will take longer to analyze and interpret. The raw data looks great. Stay tuned for those results.

## **USDA Pandemic Assistance for Growers Includes Floriculture and Nursery Crops**

October 12 is the deadline for the USDA CFAP2 (Coronavirus Food Assistance Program 2). Learn more about how this program can help if your operation has been affected by the coronavirus pandemic.

[CFAP2 Eligible and Ineligible Commodities](#)  
[CFAP2 Main Page](#)

Contact your local Farm Service Agency (FSA) office for more information or with questions.

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