

Eastern Region Nursery & Greenhouse Program

November 2020 Eastern NC Nursery News

-Special Red-headed flea beetle demonstration edition-



2020 Nursery Demonstration 1

If you would prefer to see nursery plants with healthy undamaged new growth like the ones in the top half of the image above, instead of plants with leaves that look like Swiss cheese because of red-headed flea beetle (RHFB) damage, this article and the next are for you.

Nursery Demonstration 1 Materials and Methods:

-Approximately 1250 *Itea virginica* 'Little Henry' liners were potted into 3 gallon containers at Pender Nursery on March 9, 2020 using their standard potting procedures.

-296 plants in the center of the plant block were top-dressed with 7 teaspoons of Marathon 1G insecticide (highest rate) which contains the active ingredient imidacloprid on March 19, 2020. The insecticide was supplied by OHP. This was at 303 GDD (based on 50 degrees F), prior to RHFB egg hatch. (Image below)



-All plants received foliar insecticide treatments applied by Pender Nursery with an air blast sprayer in what I am referring to as their standard pest management program.

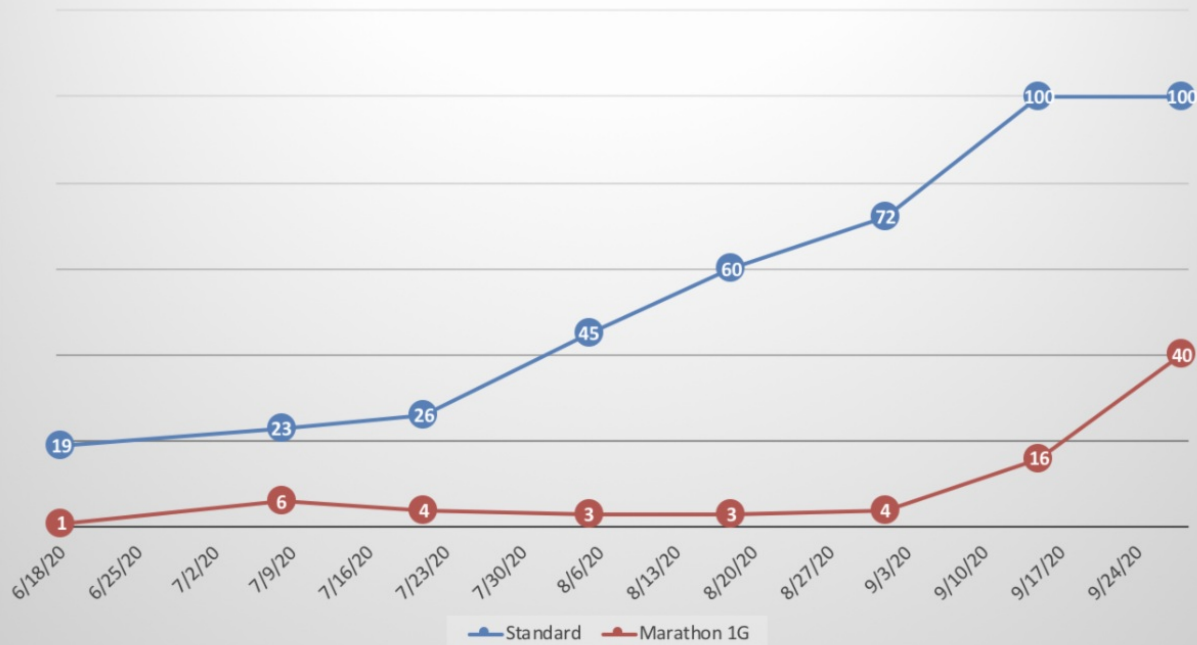
-The standard insecticide treatments used by Pender Nursery that would target red-headed flea beetles are listed below:

- 4/25/2020 -Sevin SL at 32 fl. oz/100 gallons
- 5/13/2020 -Conserve SC at 6 fl. oz and 4% Azadirachtin at 6 fl. oz/100 gallons
- 5/31/2020 -Sevin SL at 32 fl. oz/100 gallons
- 6/21/2020 -XXpire at 2 oz/100 gallons
- 7/17/2020 -4% Azadirachtin at 6 fl. oz/100 gallons
- 8/8/2020 -Conserve SC at 6 fl. oz/100 gallons
- 8/14/2020 -Sevin SL at 32 fl. oz/100 gallons
- 8/21/2020 -XXpire at 2 oz/100 gallons
- 9/13/2020 -Acephate 90% at 4.5 oz/100 gallons
- 9/22/2020 - XXpire at 1.5 oz/100 gallons

-About every two weeks beginning on June 18 and continuing through September 28, a group of standard treated plants and a group of plants with the addition of Marathon 1G were observed for RHFB damage. Plants with and without damage were counted and % plants with red-headed flea beetle damage was calculated based on the count.

Nursery Demonstration 1 Data:

% plants with RHFB damage, Standard vs +Marathon 1G



Nursery Demonstration 1 Results and Discussion:

The chart above shows the percentage of plants with RHFB damage under standard treatment and percentage of plants with RHFB damage with Marathon 1G in addition to the standard treatment program Pender Nursery used. The addition of Marathon 1G at the high rate resulted in fewer plants with RHFB damage. Keep in mind that approximately 950 plants that did not receive the Marathon 1G additional treatment surrounded those with the Marathon 1G additional treatment. This resulted in overwhelming pressure which caused an increase in damage in plants with the addition of Marathon 1G by late September. As you will see in the image below, the plants without the addition of Marathon 1G had extreme levels of damage. Plants with the addition of Marathon 1G had low levels of damage.



The other demonstration presented next takes this treatment idea to the next level with use of low, medium, and high rates of Marathon 1G, separate treatment blocks and no additional insecticide applications. You will see that, as you would imagine, treatment of entire blocks is much more effective.

2020 Nursery Demonstration 2

Nursery Demonstration 2 Materials and Methods:

-522 *Itea virginica* were potted into 3 gallon containers at Green Biz Nursery on February 12-13, 2020 using their standard potting procedures. These plants consisted of 4 different cultivars as indicated below:

- 102 Scarlet Beauty (liners)
- 72 Little Henry (1 gallon)
- 138 Henry's Garnet (1 gallon)
- 210 Merlot (liners)



-Plants were divided into 6 equal blocks as follows (individual block shown in image above):

- 17 Scarlet Beauty
- 12 Little Henry
- 23 Henry's Garnet
- 35 Merlot



-6 blocks were arranged at random (as shown in image above or to left) with 3 blocks left untreated (East Untreated (East UT), Central Untreated (Central UT), West Untreated (West UT)) and other blocks received a topdress application of either a Low (4 tsp), Medium (5.5 tsp), or High (7 tsp) rate of Marathon 1G (active ingredient imidacloprid) applied with a Green Elf applicator in a split application (half on each side of the container as shown in the image below). Treatments were applied on February 28, 2020 (260.5 GDD based of 50 degrees F) prior to RHFB egg hatch. The insecticide was supplied by OHP. No additional insecticides were applied during the study.

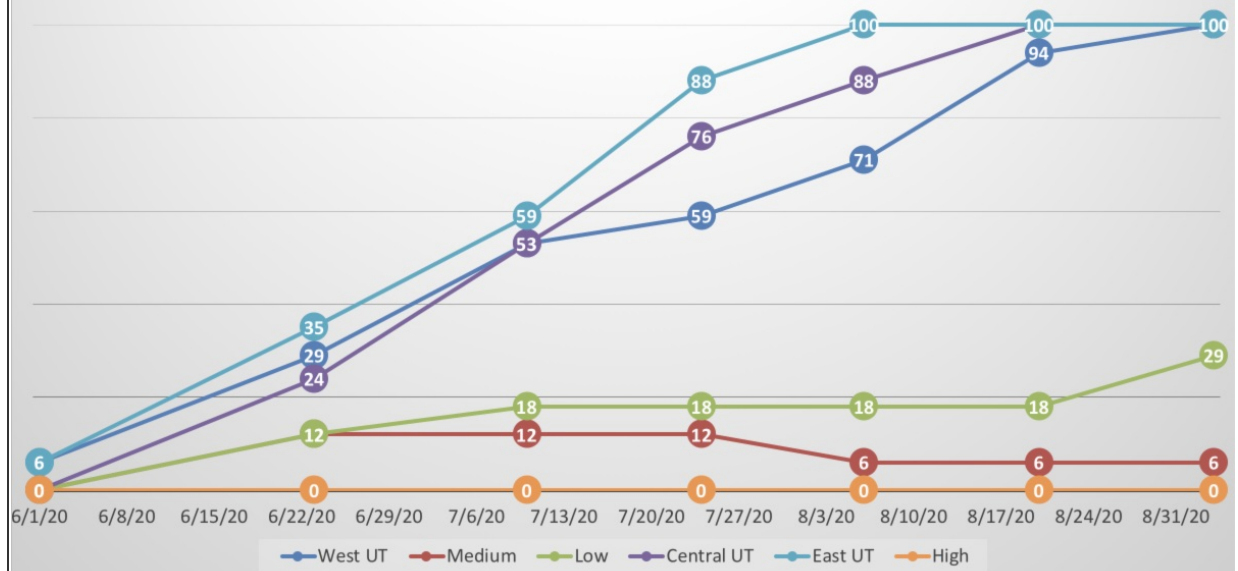
-About every two weeks beginning on June 1 and continuing through September 3, all plants were observed for RHFB damage. Plants with and without damage were counted and % plants with red-headed flea beetle damage was calculated based on the count.



Nursery Demonstration 2 Data:

- **Scarlet Beauty data and damage comparison below.**

% Scarlet Beauty with RHFB damage

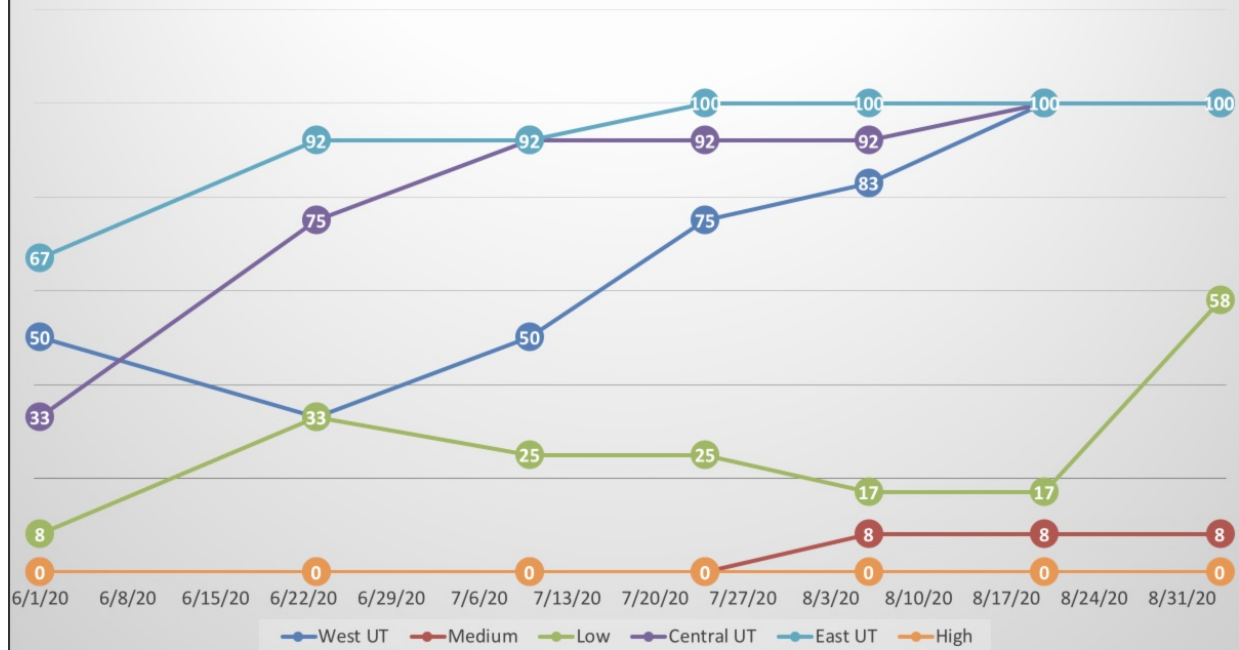


Scarlet Beauty, 8/20/2020

Nursery Demonstration 2 Data:

- Little Henry data and damage comparison below.

% Little Henry with RHFB damage

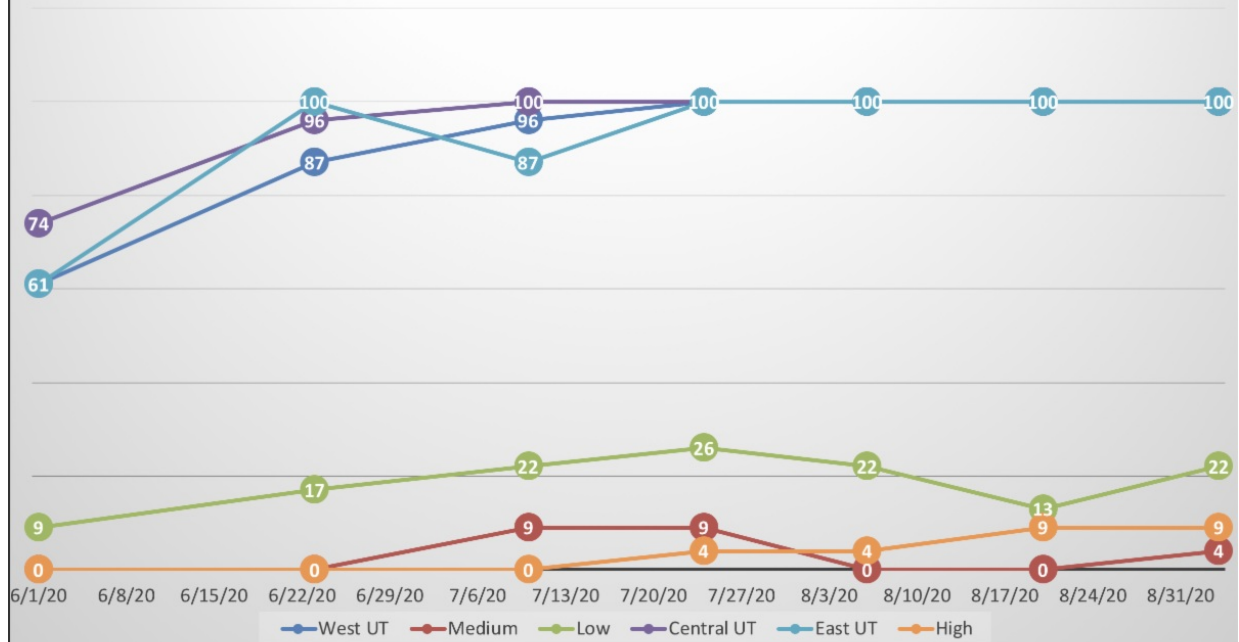


Little Henry, 8/20/2020

Nursery Demonstration 2 Data:

- Henry's Garnet data and damage comparison below.

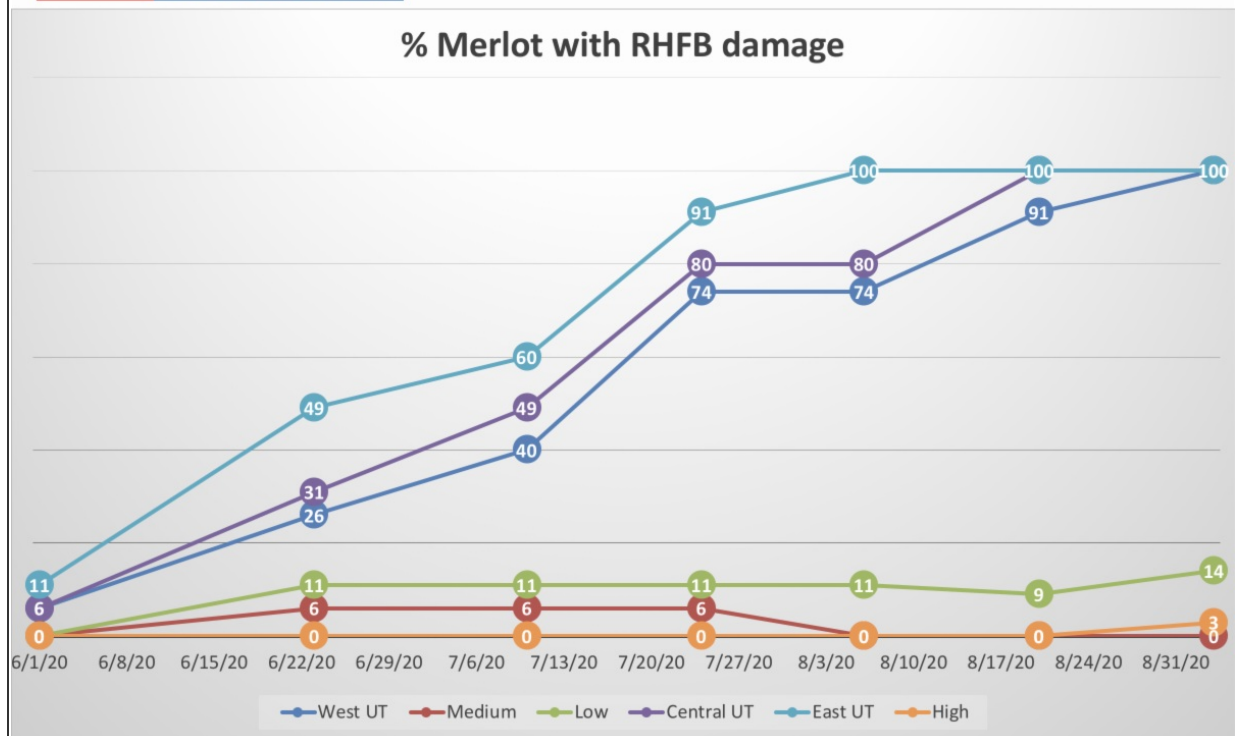
% Henry's Garnet with RHFB damage



Henry's Garnet, 8/20/2020

Nursery Demonstration 2 Data:

- Merlot data and damage comparison below.



Merlot, 8/20/2020

Nursery Demonstration 2 Results and Discussion:

- Damage to plants in untreated blocks increased to 100% in all cases before or by the final data collection on September 3.
- Marathon 1G treated plants at all rates had lower levels of damage than untreated plants.

- The low rate treated block had a greater percentage of plants with damage than medium and high treated blocks.
- Medium and high rates provided excellent protection and prevention of damage.
- Based on the positive results from both these demonstrations, two separate replicated research trials using granular imidacloprid products will be conducted in 2021 to attempt to confirm these demonstration results with data analyzed for statistical differences.

General Observations based on previous demonstrations and research:

- Based on prior research with imidacloprid applications prior to egg hatch, both granular and liquid formulations reduce or eliminate first generation larvae, resulting in fewer adults to damage foliage.
- Drench applied and granular formulations of imidacloprid also provide longer protection (compared to foliar application) due to root uptake and control RHFB flying in from neighboring blocks. RHFB do have to feed on foliage but control is fast and damage barely noticeable when population levels are low due to early treatments.
- Drench and granular imidacloprid applications are not as effective at protecting plants from early adult damage when applications are applied after adults are present.
- Applications of neonicotinoid insecticides are best made prior to egg hatch or prior to RHFB adult population establishment.
- Similar results can be achieved with other nursery labeled neonicotinoid insecticides.
- Other options for management are available if you are unable to use neonicotinoids. Imidacloprid was the focus of my demonstration work this year. Contact me if you would like more information on other product efficacy or make sure to attend my presentation discussed below as other products will be covered then.

For more information:

- I will be presenting this information and more as part of a Red-headed Flea Beetle Management presentation for **NCNLA's 2021 Green & Growin' Virtual Education**. My presentation is scheduled for January 13 at 1:15 pm. I hope to see you there.

2021 NC Virtual Nursery Conference

NC Virtual Nursery Conference

February 8-11, 2021

The traditional in-person 2021 Eastern NC Nursery Conference will be moved online as a series of Zoom sessions. Instead of overwhelming you with a day full of online sessions, mark your calendars for February 8, 9, 10, and 11. Each of these days, one session that will last one to one and a half hours will be presented at 10 am. Speakers are booked, 3 hours of pesticide credits in Categories D, I, L, N, O and X have been approved and registration information will be shared in early December.

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