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Jason B. Oliver

Tennessee State University

Adam Blalock

Tennessee State University

Karla M. Adesso

Tennessee State University

Nadeer N. Youssef

Tennessee State University

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Baiting Nursery Blocks with a Herd® GT-77 Spreader



Baiting Nursery Blocks with a Herd® GT-77 Spreader

Jason B. Oliver (Research Associate Professor, Entomology)

Adam Blalock (Nursery Extension Specialist)

Karla M. Adesso (Research Assistant Professor, Entomology & Chemical Ecology)

Nadeer N. Youssef (Research Associate, Entomology)

(Tennessee State University, College of Agriculture, Human, & Natural Sciences)

Problems with Applying Fire Ant Baits in Nurseries:

- 1) The Federal Imported Fire Ant Quarantine (FIFAQ) requires that baits be uniformly applied to the entire nursery area being harvested, plus an additional 10 feet past the nursery block edge. Nursery tree rows restrict the path traveled by mechanized equipment. If tree row spacing does not match the swath width of the spreader, it can create situations where bait swaths overlap (leading to illegal over-baiting and higher costs) or where there are gaps between bait swaths (leading to under-baiting). Therefore, under-baiting is also an illegal violation of FIFAQ requirements. The Herd® GT-77 spreader has a typical swath width of 20 feet, which is compatible for open areas like pastures, but rarely matches the common tree row spacing used in typical nurseries.



- 2) The Herd® GT-77 manufacturer recommendations for applying fire ant baits require ground speeds of 4 to 11 mph depending on the bait product used and the blocking plate selected (Fig. 1). Several FIFAQ approved baits like Amdro® Pro Fire Ant Bait, Award® Fire Ant Bait, and Extinguish® Professional Fire Ant Bait are applied with #0 or #1 blocking plates, which require ground speeds of 7 to 11 mph. Extinguish® Plus and Distance® Fire Ant Bait also require ground speeds of 6 to 11 mph with #0 and #1 blocking plates, but also have lower speeds of 4 to 5 mph with the #2 blocking plate. Ground speeds of 4 mph or greater are appropriate for open areas like pastures, but are entirely too fast for production nurseries that have driving hazards like tree trunks and root ball holes. If driving speed is reduced for operator safety, then illegal over-baiting will occur with these plates and baits.



Fig. 1. Herd® spreader blocking plates: #2 (*left image*), #1 (*center image*), and #0 (*right image*). The center hole is where bait drops from the spreader. The four outer holes are used to position the blocking plate on the spreader. The #2 has the smallest diameter hole at 0.28 in (7 mm), followed by the #1 at 0.35 in (9 mm) and the #0 at 0.39 in (10 mm).

Solutions to Issues of Baiting in Nurseries:

Through efforts to accurately apply fire ant baits in nursery research trials, we have developed a technique that allows us to apply a 12 foot swath width at ground speeds under 3 mph. The 12 foot swath width will accommodate baiting in nurseries with common row spacing like 3-4 or 6-7 feet. The following steps describe our technique, which will likely require some adjustment and calibration checking with your own application equipment.

Step 1: Install a #813 Rheostat between the Herd® GT-77 spreader and the battery power source (see yellow arrow). The rheostat allows you to reduce the speed of the 12-volt motor, which slows the four-bladed plastic fan that slings the bait. By lowering the fan speed, you can reduce both the amount of bait released and the size of the swath width.

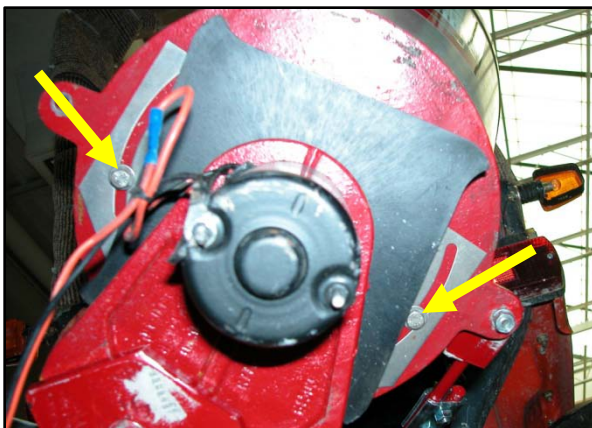
Tip: Mounting an on – off switch between the rheostat and battery power source will facilitate turning the spreader off and on during application.



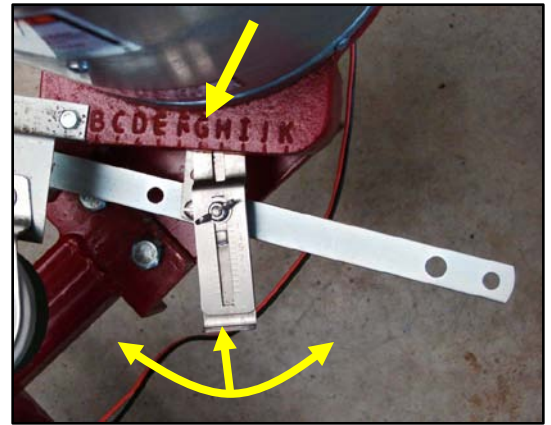
Step 2: Dial the rheostat knob to a setting of 8 (see yellow arrow).



Step 3: Loosen the pivot plate bolts on the bottom of the spreader hopper (see yellow arrows on left image) with a 7/16 inch wrench. Do not remove, just loosen.



Step 4: Slide the pivot plate handle to near the G setting (see yellow arrows). This will result in a swath pattern that is about 1 foot to the left of the spreader and 11 feet to the right. Then tighten the pivot plate bolts that were loosened in Step 3.



Step 5: Install a #2 blocking plate beneath the stainless steel agitator wire (see publication *ANR-ENT-03-2013 - Changing a Blocking Plate on a Herd® GT-77 Spreader*).



Step 6: Set the application vehicle speed to around 2.8 mph (i.e., 100 feet traveled in 24 seconds). For our Kubota tractor, this driving speed was achieved using an engine speed of 1800 RPM and a gear setting of 3rd high.



Step 7: Measure your bait swath and confirm that the width is about 12 feet with most of the spread going to the right of the application vehicle. If a significant volume of bait is going much more than 1 foot to the left of the spreader, then adjust the pivot plate handle again to a different letter setting by re-performing Steps 3 and 4.



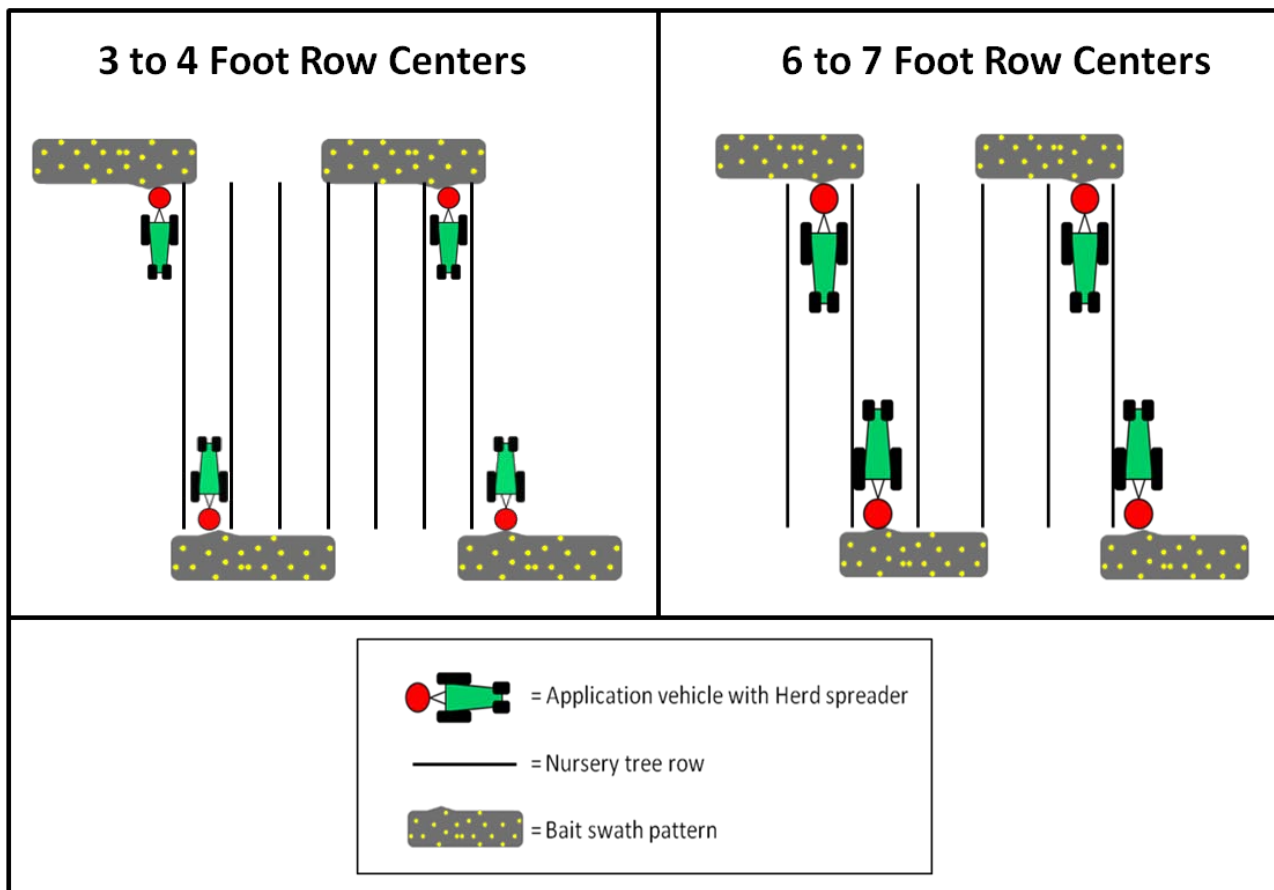
Step 7: Confirm that the spreader is releasing 1 to 1.5 pounds of product for the 12 foot swath width you measured in Step 6. (see publication ANR-ENT-01-2013 – *Calibrating a Fire Ant Bait Spreader*).



Our testing has only evaluated Extinguish® Plus using these tractor settings with the #2 plate. Distance® Fire Ant Bait can also be applied with a #2 plate. If you use other bait brands, you will have to determine if the #2 plate is consistently delivering the correct amount of bait. Even if you use Extinguish® Plus or Distance® Fire Ant Bait, you will need to confirm your particular spreader and vehicle are delivering the correct amount of bait for these settings.

Step 8: If your spreader is delivering the correct amount of bait for a 12 foot swath width, then use the driving plan depicted in Fig. 1 to uniformly treat a nursery at two common row spacings. There will be a slight overlap with 3 feet centers or gap with 7 feet centers, but the overlap is reasonably insignificant and the Herd®GT-77 spreader also throws some bait past 12 feet, which will cover any gap with the 7 feet row center. The settings described in this publication with our spreader delivered 1.3 pounds bait per acre, which is less than the maximum rate allowed of 1.5 pounds bait per acre. Therefore, any slight overlap in bait swaths is also accommodated by delivering bait at an approved rate that is slightly less than maximum rate. Nurseries with row centers spaced 10 feet apart can use a Herd®GT-77 spreader without the rheostat device, which will deliver a 20 foot swath width to two rows.

Fig. 1. Depiction of driving patterns to uniformly apply baits in nursery blocks planted at two common row spacings.



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For additional information, contact your local county Extension office at:

Tennessee State University
College of Agriculture, Human, and Natural Sciences
3500 John A. Merritt Blvd., Box 9635
Nashville, TN 37209-1561
<http://www.tnstate.edu/extension>

The University of Tennessee
Institute of Agriculture
2621 Morgan Circle, 101 Morgan Hall
Knoxville, TN 37996
<http://ag.tennessee.edu>

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