

Calendar date predictions for target range as of 4/27/2023

Information compiled by Dr. Timothy J. Waller - Rutgers Cooperative Extension (2021)

Growth Stage	Gen.	GDD50 TARGET RANGE <i>-LOW-</i>	GDD50 TARGET RANGE <i>-HIGH-</i>	SOUTH		CENTRAL		NORTH		NOTES (high infestation locations)  <i>Systemic (S) - Contact (C) - Biologicals (B) - Herbicides (H)</i>	Material / Compound Considerations (Examples = no endorsements implied) [IRAC GROUP #]
				Upper Deerfield (NJ50)		Howell (NJ10)		High Point (NJ59)			
				LOW (DATE)	HIGH (DATE)	LOW (DATE)	HIGH (DATE)	LOW (DATE)	HIGH (DATE)		
Egg hatch - larvae	1	242	600	4/21	5/28	5/6	6/4	5/19	6/16	(S) Initiate systemic treatments 1-month prior to adult activity (S) Systemic granular or granular incorporation @ planting is effective (C) Contact materials may be used to knock-down larvae (B) Some bio-rational / logicals are effective on larvae  - Look for larval activity on the outside of root balls - Larvae may be active prior to this GDD50 timeframe	<b>SYSTEMIC DRENCHES</b> Cyantraniliprole [28] (Mainspring) Chlorantraniliprole [28] (Acelepryn) <b>Organophosphates [1B]</b> - Acephate (Orthene, Acephate 97UP) Neonicotinoids [4A]- Dinotefuran (Safari 20SC) ; Thiomethoxam (Flagship 25 WG) ; Imidacloprid (Imidacloprid 2F, Marathon 1%G, Marathon II)
Adults (feeding / laying eggs)	1	517	1028	5/22	6/17	5/30	6/25	6/11	7/9	(S/C/B) Start adult contact sprays - continue systemic treatments (H) Control weeds - adults will hide-in and feed-on them - Adult feeding damage will be apparent - Scout to determine best time for applications - Use of agitator compounds may drive adults from hiding	<b>GRANULAR APPLICATIONS and INCORPORATIONS</b> Neonicotinoids [4A] Imidacloprid (Marathon 1%G, Coretect tablets, Mallet 0.5G)  <i>(Initiate systemic treatments 1-month prior to adult activity)</i>
Egg hatch - larvae	2	1570	1860	7/8	7/19	7/17	7/28	8/3	8/18	(S) Continue systemic treatments (C/B) Contact materials to target larvae AND adults - Potential for considerable overlap of larvae - adult stages (H) Control weeds - adults will hide in and feed on them	<b>CONTACT</b> Bifenthrin [3A] (UP Star SC, Talstar Select) Clyfluthrin [3] (Decathalon 20WP) - Rotation partner Carbamates [1A] - Carbaryl (Sevin SL) Tolfenpyrad [21A] (Hachi-Hachi SC) Cyclaniliprole [28] (Sarisa) + Fonicamid [29] (Pradia)
Adults (feeding / laying eggs)	2	1878	2318	7/19	8/4	7/28	8/15	8/18	9/15	(C/B) Adult contact sprays (S) * If pest pressure is high * - continue systemic materials (H) Control weeds - adults will hide-in and feed-on them - Adult feeding damage will be apparent - Use of agitator compounds may drive adults from hiding	<b>BIOLOGICAL / BIORATIONAL</b> Azadirachtin (Aza-Direct, Azatin-O) Beneficial nematodes (Millennium) Entomopathogenic fungi (Ancora, BotaniGuard) Adult Agitator (Captiva Prime)
* A third generation of larvae and feeding adults is possible in the southern and central regions *				Estimated using USPEST.org, 3.5-month CFSv2 based seasonal climate forecast, simple average growing degree-days, min temp: 50F, max temp: 95F.							
				Insect development growing degree-day ranges based on trials by Dr. Kunkel - Extension Specialist - University of Delaware. Insecticide selection based on research by Danny Luaderdale - Area Specialized Agent - Nursery Crops - NC State.							

POTENTIAL OVERLAP OF GENERATIONS / STAGES

**SYSTEMIC DRENCHES**

Cyantraniliprole [28] (Mainspring)  
Chlorantraniliprole [28] (Acelepryn)  
Organophosphates [1B] - Acephate (Orthene, Acephate 97UP)  
Neonicotinoids [4A]- Dinotefuran (Safari 20SC) ; Thiomethoxam (Flagship 25 WG) ; Imidacloprid (Imidacloprid 2F, Marathon 1%G, Marathon II)

**GRANULAR APPLICATIONS and INCORPORATIONS Neonicotinoids [4A]**

Imidacloprid (Marathon 1%G, Coretect tablets, Mallet 0.5G)  
(Initiate systemic treatments 1-month prior to adult activity)

**CONTACT**

Bifenthrin [3A] (UP Star SC, Talstar Select) Clyfluthrin [3] (Decathalon 20WP) - Rotation partner Carbamates [1A] - Carbaryl (Sevin SL)  
Tolfenpyrad [21A] (Hachi-Hachi SC)  
Cyclaniliprole [28] (Sarisa) + Fonicamid [29] (Pradia)

**BIOLOGICAL / BIORATIONAL**

Azadirachtin (Aza-Direct, Azatin-O)  
Beneficial nematodes (Millennium) Entomopathogenic fungi (Ancora, BotaniGuard) Adult Agitator (Captiva Prime)