



# Pest e-alerts



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## Fall Armyworms Marching Across Oklahoma Turfgrass

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This year should be called the year of the caterpillar! So far, we've experienced many different caterpillar species like catalpa hornworm, redbud leaffolder, tent caterpillars, woolly bear caterpillars, and of course, an epic outbreak of fall webworm. And now we're seeing large numbers of another caterpillar pest on the march: fall armyworm. The Stillwater area is under attack as I've seen turf crawling with these hungry pests at the OSU Turfgrass Research and Extension Center and several city parks. Requests for reinforcements are starting to pour in from Oklahoma County and other counties as fall armyworms have been seen gathering in large numbers on sidewalks and driveways. What can be done to fend off these mindless invaders? Stay tuned as we discuss the life history and management of fall armyworm.



Figure 1. Fall armyworms crawling across a sidewalk flanked by bermudagrass lawn. Photo credit: Oklahoma County Extension Office.

Fall armyworms are surface-dwelling caterpillars. They prefer to eat grasses and often go unnoticed until they become large and their feeding damage becomes evident. Fall armyworms tend to prefer tall fescue, but they also feed on bermudagrass and other turfgrass species. Larvae develop through six instars prior to pupation. One generation of fall armyworm can develop in about 18-28 days, depending on temperature, and infestations may occur until the first "killing frost". In Oklahoma, there are 2 to 3 generations present from late July through late October. Fall armyworm cannot overwinter in Oklahoma, hence its arrival later in the growing season.



Figure 2. (Left) Head capsule of fall armyworm showing distinct “Y”- shaped marking in front of head. (Right) Late instar fall armyworm feeding on wheat. Photo credit: Todd Gilligan, CSU, Bugwood.org and Clemson University – USDA Cooperative Extension Slide Series, Bugwood.org, respectively.

Mature fall armyworms measure 1½ inches long when fully grown. Their body color can range from green to brown or black, and they have a distinct stripe along each side of the body. Their head capsule has a prominent, inverted, white "Y" at the front. A magnifying glass or hand lens may be needed to see this characteristic on smaller larvae. Small larvae do not consume the entire leaf tissue; they scrape off all green tissue, leaving a clear membrane that gives the leaf blade a "window pane" appearance. Large larvae can chew through the entire leaf. On golf courses, fall armyworms may migrate to greens and cause damage similar to black cutworm.



Figure 2. Feeding damage from fall armyworm.

Feeding activity by flocks of birds can serve as a sign that armyworms are present. Fall armyworms can be detected through close examination of the turf, or by using a soapy water flush. A soapy water flush involves mixing 1 tablespoon of lemon-scented dish soap per gallon of water and pouring the solution over several small areas of damaged turf. If present, larvae should be visible within 30 to 60 seconds as they become irritated by the soapy water and leave their hiding places in the thatch. If 3 to 4 larvae are found per square foot, treatment may be warranted in commercial turf or golf courses. For homeowners, carefully consider the need to control fall armyworms. Some cool-season turfgrass could recover from a fall armyworm infestation late in the year without treatment, and bermudagrass and zoysiagrass lawns may be only slightly

damaged and not warrant treatment. However, early indications this year suggest chemical treatment will be needed in many areas, especially for protecting cool-season turfgrass.

There are many insecticides that are registered for control of fall armyworms that can provide excellent control. I've provided several suggestions below for both commercial applications and homeowner use. Note that products containing microbial active ingredients (i.e., Bt and spinosad) should be applied when caterpillars are small for maximum effectiveness. If choosing between granular and liquid applications, keep in mind that granular products are a bit slower acting, and require watering for activation. As always, read the insecticide label for important information about using the product safely and effectively.

Active Ingredient	Class*	Trade Names	Use
<b>Acephate</b>	1B	Orthene Turf, Tree & Ornamental WSP	C
<b><i>Bacillus thuringiensis</i> var. <i>kurstaki</i> (Bt)</b>	11A	Safer Garden Dust	H
		Dipel Pro DF	C
		Javelin WG	C
<b>Bifenthrin</b>	3A	Ortho Bug-B-Gon Max Lawn & Garden Insect Killer	H
		Talstar†	C
		Onyx Pro†	C
<b>Carbaryl</b>	1A	Sevin SL Carbaryl Insecticide	C
<b>Chlorantraniliprole</b>	28	Acelepryn	C
		Acelepryn G	C
<b><i>Chromobacterium subtsugae</i> strain PRAA4-1</b>	M	Grandevo PTO	C
<b>Cyfluthrin</b>	3A	Tempo	C
		Bayer Advance Power Force Multi-Insect Killer Conc.	H
<b>Deltamethrin</b>	3A	Deltagard G	C
		Enforcer BugMax Insect Killer Conc.	H
<b>Indoxacarb</b>	22A	Provaunt	C
<b>Lambda Cyhalothrin</b>	3A	Demand CS	C
		Scimitar CS	C
<b>Permethrin</b>	3A	Astro†	C
		Perm-up 3.2 EC†	
<b>Spinosad</b>	5	Conserve SC Turf & Ornamental	C
<b>Trichlorfon</b>	1B	Dylox 420 SL Turf & Ornamental	C

\* Rotate among different pesticide classes to reduce risk of insecticide resistance developing in the target population (M = microbial)

† Restricted Use Pesticide

C = commercial, H = homeowner

## References

Brandenburg, R.L. and C.P. Freeman (eds.). 2012. Handbook of Turfgrass Insects, 2<sup>nd</sup> Edition. Entomological Society of America, APS Press.

Capinera, J.L. 1999. Featured Creatures: Fall Armyworm. Available online at: [http://entnemdept.ufl.edu/creatures/field/fall\\_armyworm.htm](http://entnemdept.ufl.edu/creatures/field/fall_armyworm.htm).

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### Co-Editors: Eric Rebek and Justin Talley; Oklahoma Cooperative Extension Service

The pesticide information presented in this publication was current with federal and state regulations at the time of printing. The user is responsible for determining that the intended use is consistent with the label of the product being used. Use pesticides safely. Read and follow label directions. The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

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