



### Overview

White grubs are immature scarab beetles such as European chafer, masked chafer and Japanese beetle. Adults lay eggs in soil where they hatch into larvae. The larvae, which feed on grass and plant roots, have three instars, the final instar being considered the most damaging and usually present in the soil the longest period of time. Larvae pupate in the soil; the resulting adults are not considered turf pests, but can feed on ornamental leaves or disturb the soil. White grubs have one generation in much of the U.S., but can have multiple generations each year in sub tropical and tropical regions.

Since white grubs feed on grass roots, damage to turf can manifest itself as thinning, yellowing, and eventually death. When white grubs attack turf, it feels soft and spongy. Turf may also exhibit scattered, irregular, brown patches that increase in size over time, often mirroring the conditions seen during periods of drought. When white grubs feed on turf roots, the turf is less able to take up water and nutrients, leading to reduced drought tolerance. Most turf damage seen in the spring is a result of fall feeding. Secondary turf damage as a result of white grubs

being present is caused by moles, raccoons, armadillos, wild hogs, skunks and birds. These grub-feeding species dig up the turf and further damage it.

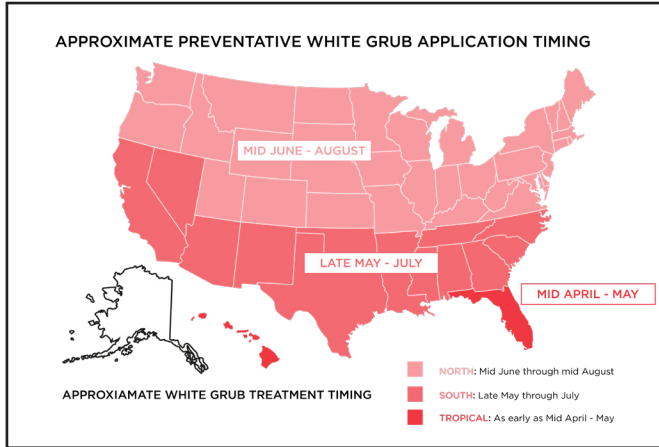
### Management

Prior to any treatment, the presence of white grubs should be confirmed. Turf that has severe white grub activity can be easily pulled back, like carpet. A one square foot area of turf should be checked in suspected areas of activity. Pull up the turf in these areas and check for grubs. The chart below describes suggested treatment thresholds for different grub species. Treatment may not be needed if fewer than the threshold numbers are found. Healthy turf may be able to withstand higher thresholds, while turf under drought or other stress may have lower thresholds.

White grub management depends on getting the treatment down to the soil where grubs are feeding. Watering with a 1/2 inch of water before, or preferably, after treatment can help get the insecticide down to where grubs are feeding. In dry conditions, more water may be needed.

The earlier instar stages are the most susceptible to treatment. For most white

grubs, this means treatment in mid to late summer or early fall is best. Treatment timing will vary from May in the south to late August in the north. Preventative treatments are recommended.

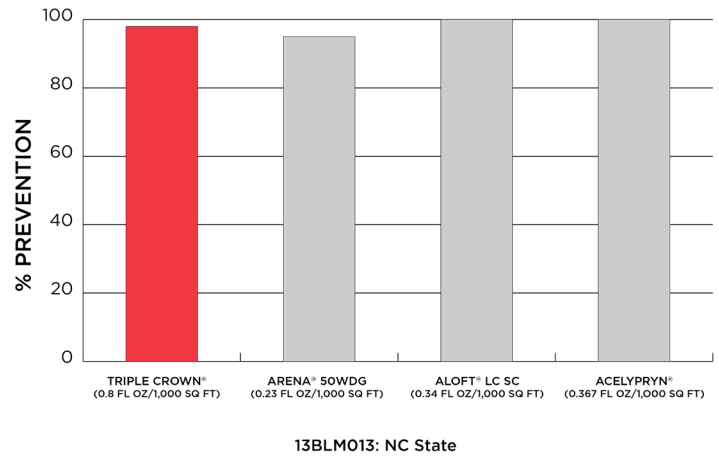


### Approximate Preventative White Grub Application Timing

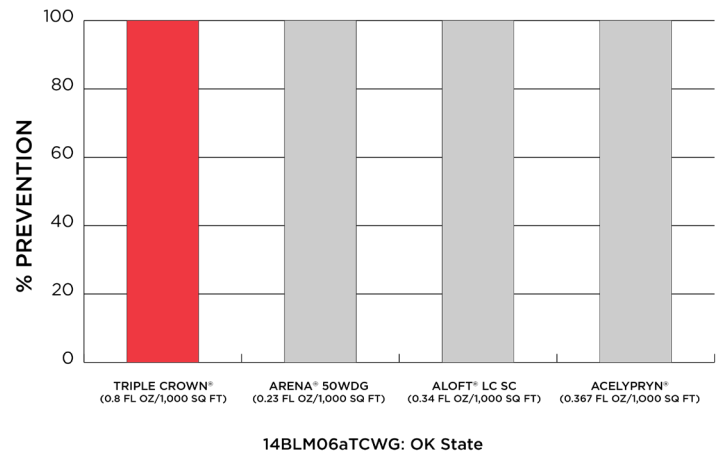
Triple Crown® has shown excellent preventative white grub control compared to the standards on the market today. Treatment in NC in June resulted in 98 days of control, and in OK in May resulted in 4 months of control. Triple Crown Insecticide should be applied at 35 oz. per acre. Using an appropriate volume of water (100+ gallons per acre) will help ensure penetration of the material down to the soil where grubs are active. Watering with 0.25 to 0.5 inches of water immediately after treatment is recommended. Using lower water volumes is likely to inhibit control.

WHITE GRUB TREATMENT THRESHOLDS	
SPECIES	# PER SQ FT
Masked Chafer	8 to 10
Japanese Beetle	8 to 10
May/June Beetle	3 to 5
Black Turfgrass Ataenius	30 to 50

### 2013 MASKED CHAFER PREVENTION FOR 98 DAYS



### 2014 JUNE BEETLE GRUB PREVENTION FOR 4 MONTHS



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