



TURF

Arena[®] 50 WDG

**A SINGLE APPLICATION WORKS
PREVENTATIVELY AND CURATIVELY FOR
LONG-LASTING RESIDUAL CONTROL OF
WHITE GRUBS AND A BROAD SPECTRUM
OF OTHER PESTS**

TURF INSECT CONTROL CHALLENGE

Grubs always get in the way. And maintaining golf courses and sod farms free from grub damage has always been a challenge. Golf course superintendents and sod farmers need an effective option for controlling the damage done by the toughest turf insects like annual bluegrass weevil, white grubs and European crane fly.

NUFARM SOLUTION

Arena[®] insecticide is a valuable tool for broad-spectrum insect control in turf. Arena delivers superior, consistent, season-long control of a broad range of insect pests. With preventative and curative activity, Arena provides long residual grub control to save time, money and labour required with multiple application products.



Nufarm

Grow a better tomorrow.

ARENA 50 WDG

REGISTERED USES

- Turfgrass – including golf courses, sod farms, and municipal, industrial, and residential turf (where not prohibited by provincial laws)

INSECTS CONTROLLED*

	APPLICATION RATES	
	(g/100 m ²)	(g/1000 ft ²)
Annual bluegrass weevil	5.5-7.0	5.1-6.5
Bluegrass billbug	4.5	4.2
European crane fly (Leather jacket)	5.5	5.1
Hairy chinch bug	3.5-5.0	3.3-4.6
White grubs (Asiatic garden beetle, European chafer, Japanese beetle, Masked chafers, Oriental beetle)	2.5-5.0	2.3-4.6

* Duration of control depends on environmental factors, plant growth, dosage rate and degree of insect infestation.

BENEFITS

- **Superior, long-lasting residual** control of a broad spectrum of tough soil- and surface-feeding insects
- **Preventative and curative** grub control
- **Consistent results** for control of turfgrass insects

PLUS

- Season-long insect control with one application – saves time, money and labour
- Controls pyrethroid-resistant chinch bugs without increasing the level of pyrethroid resistance
- Superior grub control, including curative activity, helps keep foraging animals away
- No immediate post-application watering required

PERFORMANCE TIPS

- Rate is dependent on target species and stage of target pest
- No surfactant required
- When targeting multiple pests, make application to earliest egg lay or adult flight
- Correct water volumes are essential for control
- Use a calibrated spreader to uniformly broadcast over the treatment area
- Do not mow turf grass until after irrigation or rainfall has occurred

INSECTICIDES

ARENA

ACTIVE INGREDIENT

- > Group 4A
(clothianidin 50%)
water dispersible
granular

RAINFAST

- > As soon as spray dries

PACKAGING

- > 1.13 kg jug
- > One jug treats 2.26 ha at the 5.0 g/100 m² rate
- > 4 jugs in a case

NOTES

- > No surfactant required
- > One application per season

Crane Fly Larvae Control

Crane fly larvae cause significant damage to turf by feeding on the roots of grass plants. European crane fly overwinter as 3rd instar larva and will feed and cause damage in the spring, with peak damage occurring in May and early June from the 4th instar larva. Adults emerge and lay eggs in July to September.

Don't settle for insecticides that give up control early. Get the best and the longest-lasting residual crane fly larvae control with Arena insecticide. Arena works both curatively and preventatively for outstanding control of crane fly larvae and a broad spectrum of other pests.



ARENA DELIVERS

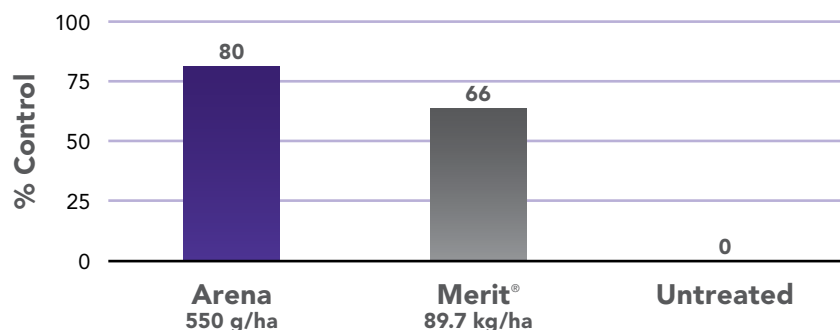
- Curative and preventative action for outstanding control of crane fly larvae
- Broad-spectrum control of other soil- and surface-feeding insects including white grubs, billbugs and pyrethroid-resistant chinch bugs

APPLICATION INFORMATION

TARGET INSECT	APPLICATION RATE	APPLICATION TIMING
Crane fly larvae	5.5 g/100 m ² (550 g/ha)	<i>Curative:</i> In Spring to mature larvae, prior to pupation <i>Preventative:</i> In Fall prior to egg hatch

EXCELLENT CURATIVE CONTROL OF CRANE FLY LARVAE

Maximum spring (curative) control was achieved in seven days with Arena – outperforming the standard for curative crane fly larvae control, helping to ensure healthy, better looking turf.



Products applied 5-30 and sampled 1, 3 and 7 days later.
Data is pooled result of all sample timings.

Data Source: Curative control of European Crane Fly Larvae on Golf Course Roughs, Spring, 2006 (G51) D. C. Peck. Arthropod Management Tests, 2007.

Annual Bluegrass Weevil Control

Annual bluegrass weevil (ABW) is a challenging pest that can cause significant damage to cool season turf. Adults move from overwintering sites into short cut, managed turf areas, feeding while they move. Eggs are laid inside an individual leaf sheath, larva hatch and begin to feed in the stem. As larva grow larger, they migrate downward and feed in the crown, maturing in late May or early June. In a program approach, Arena insecticide delivers outstanding control of ABW to improve turf quality. And when used as directed, Arena also controls white grubs, billbugs, crane flies and hairy chinch bugs.

Program recommendations are focused on adults and larva, and require specific insecticides to manage each stage.



APPLICATION INFORMATION

TREATMENT	APPLICATION RATE	APPLICATION TIMING
Larvicide	5.5-7.0 g/100 m ²	Apply Arena when insect populations reach damaging thresholds For optimal control, target 2nd to 3rd instar larvae The average timeframe for ABW is mid-May and mid-June
Adulticide	5.5-7.0 g/100 m ²	Early season applications to overwintered adults may provide suppression only

THE IMPORTANCE OF ROTATING CHEMISTRY CLASSES

Repeated use of the same class of insecticide to control a pest can cause resistance. Sound resistance management techniques should be practiced with insecticide use as to not build up resistance on your course.

A great way to maximize the power of insecticides and reduce the risk of resistance is to rotate different chemistry classes from year to year or on different portions of the course.

EXAMPLE INSECTICIDE ROTATION:

- Year 1 – Use Arena on front 9 holes and another insecticide on the back 9 holes
- Year 2 – Use other insecticide on front 9 holes and Arena on the back 9 holes

GET THE MOST FROM YOUR INSECTICIDE:

- Rotate insecticides with different modes of action
- Use tank mixtures with insecticides from different groups when permitted
- Use enough water volume to penetrate the thatch layer
- Properly maintain and calibrate equipment
- Use as part of an IPM program that includes scouting and record keeping

ARENA 50 WDG

INSECTICIDES

Early Instar Grubs Preventative Control

Arena insecticide provides the longest residual control of white grubs and maximum flexibility when applied anytime from June 1 to July 15 at the rate of 2.5-5.0 g/100 m². Arena doesn't need to be immediately watered in, saving you time and labour. And Arena consistently outperforms competitive insecticides, especially in early season applications.

ARENA DELIVERS

- Superior, consistent white grub control, including European and masked chafer
- Longest residual grub control
- Preventative and curative grub control
- Broad-spectrum control of other tough soil- and surface-feeding insects including annual bluegrass weevil, crane fly larvae, billbugs and pyrethroid-resistant chinch bugs

APPLICATION INFORMATION

INSECTS CONTROLLED	APPLICATION RATE	APPLICATION TIMING
White grubs – European chafer, Japanese beetle, Masked chafer, Asiatic garden beetle, Oriental beetle	2.5-5.0 g/100 m ²	Apply Spring through peak egg hatch, beginning as early as the first adults appear

SUPERIOR PREVENTATIVE GRUB CONTROL

Arena offers timing flexibility to fit your work schedule without giving up excellent preventative white grub control.

INSECTS CONTROLLED				SPRING PREVENTATIVE		SUMMER		FALL CURATIVE				
	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Japanese beetle	3rd instar					Pupa	Adult					
							Egg					
N. Masked chafer	3rd instar				Pupa	Adult		1st instar	2nd	3rd instar		
							Egg	1st instar	2nd instar	3rd instar		
European chafer	3rd instar				Pupa	Adult						
							Egg	1st & 2nd instar		3rd instar		
Asiatic garden beetle	3rd instar				Pupa	Adult						
							Egg	1st & 2nd instar		3rd instar		

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Curative Grub Control

Arena insecticide delivers superior curative control of white grubs when applied in August and September – even if skunks and raccoons are damaging your turf. And with its superior activity, Arena brings peace of mind. When other shorter residual insecticides require retreatment, Arena lasts – even though grubs can move below the treatment zone for weeks before coming back up to damage turf roots.

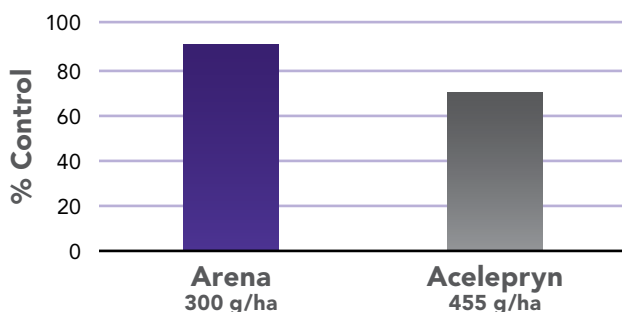


APPLICATION INFORMATION

INSECTS CONTROLLED	APPLICATION RATE	APPLICATION TIMING
White grubs – Asiatic garden beetle, European chafer, Japanese beetle, Oriental beetle, Masked chafer	2.5-5.0 g/100 m ²	After egg hatch or when turf damage is first observed Use upper end of rate range in post hatch applications Late season applications may provide suppression only

COMPARE THE PERFORMANCE

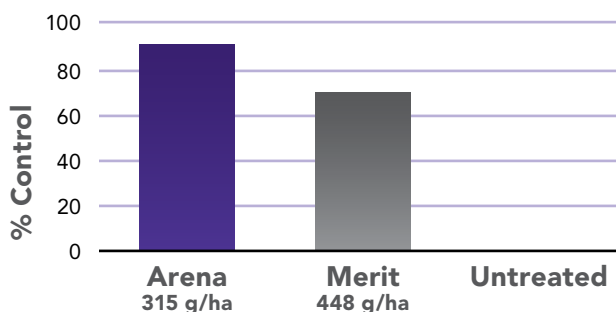
EUROPEAN CHAFER CONTROL –
comparing a curative application of
Arena vs. Acelepryn



Trial details: applied August 28, 2006 to bluegrass/fescue mix cut to 2.5" and cut as needed, 0.1" of rain 24 hours after application, grub counts taken on October 11, 2006.

Source: Arthropod Management Test, 2007, G25, Stanley R. Swier, University of New Hampshire

JAPANESE BEETLE/MASKED CHAFER CONTROL –
comparing a spring application of
Arena vs. Merit



Applications made between May 1 and May 31.

Data taken from "Comparison of Grub Insecticide Efficacy by Time of Application" D. Sheltar, July, 2008. Arena data taken from Arthropod Management Tests and non-published university-conducted studies.



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