

Strategies for Sport Turf Managers on Using Grub Controls

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Almost all sports field managers have now switched to one of the two new grub insecticides, Merit or MACH2. As far as grub controls are concerned, Merit (=imidacloprid) and MACH2 (=halofenozide) remain top performers (Table 1), both with over 90% control in university-based evaluations. However, many experienced managers may be using these new grub insecticides as if they were the old products such as Oftanol, Diazinon, Sevin or Dylox/Proxol. These traditional organophosphates and carbamates were most effective as "curative" treatments, i.e., when small to medium size grubs were present in the turf. This was necessary because the traditional products generally had residual activity periods of several days to several weeks and the new grubs of the season were usually present from the last two weeks in July through mid-August.

Research data and field experience is indicating the Merit



White grubs feeding on roots

photo courtesy Dr. David Shetlar

and MACH2 applications result in active residues sufficient to control early instar grubs for 60 to 90 days. Therefore, an application of Merit in mid- to late May would result in active residues present in the soil-thatch area (where grubs feed) into late July and August. Likewise, an application of MACH2 in early June would also be able to control the new "crop" of grubs that arrive by mid-August. When asked why they don't apply Merit or MACH2 earlier in the season, some sports field managers often respond with, "That's not the time I've traditionally applied grub controls," or "I can only get onto the fields in July or August." In fact, if you don't have many windows when your sports fields are not being used, this longer application window, late May through August, provides greater flexibility.

It has been my experience that most Ohio sports fields, whether professional or municipal, are also attacked by one or more of a variety of other insect pests - especially billbugs, cutworms or sod webworms - NOT JUST GRUBS! Therefore, one should ask, "Can Merit or MACH2 control these other pests AND white grubs?" And, the quick answer is a definite YES! However, there are some definite differences between Merit and MACH2 and the spectrum of other pests that each controls.



Typical grub damage symptoms on turf

photo courtesy Dr. David Shetlar

Both Merit and MACH2 are excellent at controlling billbug larvae. If Merit is used, use the higher label rate (e.g., 0.4 lb. active ingredient per acre) and make the application in the last two weeks of May. If

continued on page 9

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continued from page 3

MACH2 is used, make the application in the first two weeks of June.

Merit is very good at suppressing chinch bug populations (a rare occurrence in sports fields), IF it is applied in May. Once June rolls around, the chinch bug nymphs seem too big to be controlled. Again, I would recommend using the higher rate, so that you will guarantee enough residues will be present to control the white grubs that arrive in July and August. MACH2 has very little effect on chinch bugs and would not be a good choice if chinch bugs and white grubs were your major concerns.

MACH2 has excellent activity against turf-infesting caterpillars such as sod webworms. While Merit can control small caterpillars, MACH2 seems to take out both large and small stages. Therefore, if MACH2 was applied in late June, the new crop of sod webworms would be eliminated and there would still be sufficient residues present in the soil-thatch interface to control the new grub crop.

In short, what I'm talking about is what Dr. Harry Niemczyk and I have called "The Multiple Target Principle." In other words, "pests in turf do not occur one at a time at any one time," (HDN, 1999). By applying this principle, you should be able to use the new grub insecticides and get control of two to three troublesome turf insects. This can also eliminate the need of applying two to three separate insecticide applications, always an environmental plus.

To get more information on using this principle, you might want to get a copy of the recently published book, *Destructive Turf Insects*, second edition available from the *Lawn and Landscape Magazine*. The book can be ordered from their site: www.lawnandlandscape.com

You should note that it appears that Merit, MACH2 and Meridian (a new, yet to be registered product from Syngenta) also have the ability to control grubs in late August and early September. I caution you to not use these products at this time. First, sports fields have to go into the fall season with excellent root systems. If grubs are allowed to damage the roots, there may not be sufficient time for the turf to recover sufficiently to withstand the wear-and-tear of play. Second, while Merit, MACH2 and Meridian WILL kill the larger grubs at this time period, the grubs may not show outward signs of death for 20 to 30 days after the application. Therefore, if skunks or raccoons are digging, they will not cease. On the other hand, an application of Dylox should result in dead and dying grubs within three to five days after the application - thereby stopping animal digging.

Table 1.

Ranked Efficacy of Registered White Grub Insecticides - 1976-2001¹

Insecticide lb. ai./a.	rate	ave	# tests	range	% of tests
	% control			% control	below 70%
Imidacloprid (=Merit)	0.3	93.7	58	58-100	7
Halofenozide (=MACH2)	1.5	92.8	57	10-100	10
Trichlorfon (=Dylox, Proxol)	8.0	77.6	90	0-98	19
Carbaryl (=Sevin)	8.0	74.3	40	13-100	37

¹ Data from Insecticide and Acaricide Tests & Arthropod Management Tests, Entomological Society of America (using masked chafers and Japanese beetle evaluations 1977-2001 and label recommended application timing). Note, these data include tests up to 2000, not 2001 evaluations.

compiled by D.J. Shetlar, Sept., 2001.

Editors Note: Information also is available in the publication, "Destructive Turfgrass Insects; Biology, Diagnosis and Control," by Daniel A. Potter. - contact STMA Headquarters for purchase information.

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