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New Insecticides Expected to be Available in Summer 2000: Old Standbys Likely Will be Lost

Daniel A. Potter

The turf manager's palette of insecticides is rapidly changing as the EPA's targeting of organophosphates (OPs) and carbamates continues under the 1996 Food Quality Protection Act (FQPA). **Chlorpyrifos (Dursban®), long a mainstay for surface-feeding insect control, may soon be lost. Bendiocarb (Turcam) also has been challenged and will not be defended; thus, it is on its way out.** They likely will go the way of isazophos (Triumph®), isofenphos (Oftanol®), fonofos (Crusade®), diazinon, and other OPs that have been canceled or severely restricted in recent years.

Where do we stand insofar as suitable substitutes? **Pyrethroids such as bifenthrin (Talstar®), cyfluthrin (Tempo®), deltamethrin (DeltaGard®), and lambda-cyhalothrin (Scimitar®) are filling the void for cutworms, sod webworms, armyworms, chinch bugs, and other surface feeders, providing fast, reliable control at low use**

rates. Sprayable formulations of Spinosad (Conserve®) and halofenozide (MACH2®) are other options for caterpillars. Mole cricket control still relies heavily on OPs and carbamates; loss of such products as acephate (Orthene®), carbaryl (Sevin®), and chlorpyrifos would presently cause some real problems for southern turf managers.

For white grubs, imidacloprid (Merit®) and halofenozide continue to provide excellent preventive control. We'll be in real trouble, though, if we lose trichlorfon (Dylox®), the OP that currently is our most effective fast-acting curative control. Without it, professional turf managers may have few options for grub control once the damage appears and skunks start to dig. Research on biologicals, especially new strains of insect-pathogenic nematodes, is promising, but cost and availability may remain limiting.

Now, some good news.... Registrations are anticipated for two powerful new insecticides in 2000. These products offer another viable option for grub control, and a versatile granular product for controlling nuisance ants on golf courses.

Thiamethoxam. This summer, Novartis expects to introduce Meridian™ (thiamethoxam), a new turf and landscape insecticide that provides broad-spectrum preventive and curative control of all major white grub species at very low rates of active ingredient. Meridian is in a new chemical class called neonicotinoids that represents a mode-of-action different from that of all other insecticides discovered in recent decades. It is not a cholinesterase inhibitor like OPs and carbamates. It has a favorable ecological toxicology profile, with low toxicity to humans, wildlife, and earthworms. Meridian has been granted an expedited review by the EPA as a replacement for OPs, and is under concurrent review in California. Two formulations (25 WG and 0.33 G) will be available.

University tests across the United States indicate that Meridian provides excellent preventive grub control, comparable to Merit and MACH2, with a similar broad application window. **Ongoing work suggests that thiamethoxam also provides good curative control of**

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New Insecticides Expected...

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small to mid-sized grubs. Further testing is needed to determine its performance as a fast-acting curative for large grubs. Registration of Meridian™ is anticipated for late summer of 2000.

Fipronil Granular®. Golf superintendents who contend with mound-building nuisance ants on putting greens and tees can look forward to relief from a new granular formulation of fipronil. Familiar to southern turf managers as the active ingredient in Chipco Choice®, fipronil has been used for several years for mole cricket control on golf courses and commercial grounds. Unlike the label for Chipco Choice, which requires that the product be applied by slit-placement application equipment, **the new fipronil granular ant formulation will allow standard broadcast applications.** Fipronil is a member of a new insecticide class called phenyl pyrazoles. It has a favorable environmental profile, with a unique mode-of-action

that poses relatively low hazard to humans, pets, wildlife, and earthworms.

Used as a broadcast treatment, granular fipronil is very effective for ant control. It works both through contact and ingestion. Worker ants foraging in treated soil pick up the residues on their bodies; then, through grooming and food transfer, other members of the subterranean colony are exposed to the insecticide. Despite its very low use rates, **fipronil is quite persistent in soil.** University tests indicate that one application in the spring will suppress ants on putting greens throughout the growing season, and possibly for 12 months or more. Aventis CropScience, which recently formed from a merger of Rhône-Poulenc and AgrEvo, has applied for accelerated registration of fipronil for general purpose ant control. Use sites will include lawns and golf courses. Approval and registration of granular fipronil are expected by late summer of 2000. 🌱

Summarizing Turf Rolling

James B Beard

From the 1700s up to the 1920s turf rolling was one of the two major cultural practices used on turfgrasses, the other being mowing. However, the development of an understanding as to the significance of turf rolling in increasing soil compaction and the resultant root system loss and declining turfgrass health subsequently resulted in turf rolling falling into disfavor among turf managers. Recently, the widespread use of high-sand root zones of the proper particle size distribution that have a minimum compaction tendency has allowed increased use of turf rolling on putting greens, bowling greens, tennis courts, and sports fields.

Spring Turf Rolling Practices. Turf rolling is an important spring cultural practice on most kinds of turf regardless of the soil texture. It is usually practiced in early spring, prior to the first mowing, and especially in colder climatic regions where frost heaving occurs. **Turf rolling functions in pushing the turf, including the critical grass crowns, back into proper contact with the soil, which minimizes the chance of desiccation.** Frost heaving can be so severe with turf grown on muck soils of golf courses that it can be lifted in frost domes as high as 3 feet (0.9 m). Obviously, such turfs are very prone to desiccation unless rolled back into the proper position to maximize the positive soil moisture relationships. In ad-

dition, **turf rolling smooths the turf-soil surface, thereby minimizing the potential for scalping during the first few mowings in the spring.**

Rolling of Closely Mowed Turfs. Turf rolling can be used as a positive advantage on putting greens under certain circumstances. Irregularities can arise on greens as a result of ball marks, foot depressions during wet soil conditions, improper hole changing techniques, insect and small animal activity, vandalism, and certain cultural activities, such as turf cultivation. Thus, **turf rolling can be used as a finishing technique to ensure maximum surface smoothness and trueness of ball roll,** as well as to increase the speed of ball roll. Both effects are especially important during a major tournament or championship. Use of a water ballast roller allows filling with a quantity of water to no more weight than is needed in order to minimize the potential for compaction. **On properly constructed high-sand root zones, rolling may be accomplished with minimum concern for soil compaction problems.**

Typically, **turf rolling can cause an increase in ball roll distance of 10%, even on greens with an inherent ball roll distance of 9 to 10 feet (2.7–3 m).** Furthermore, the use of a mechanically powered turf roller unit with four individual rollers can increase the ball roll distance up to 20%. **The effect of turf rolling on ball roll distance may persist for 2 to 3 days. Generally, turf roll-**

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