

been collected. The work that remains to be done in these established areas of knowledge is mostly fine tuning. What remains to be learned about the biology of the turfgrass ecosystem will come at a much dearer price and the profit motive does not do this kind of work particularly well at all—because it tends to stop at “good enough.” As Dr. Nelson implies in his editorial, what is good enough for a sales manager may not be good enough for the biology-oriented “pure” researcher. It is also not good enough for end users, struggling with all the complexities out in the field.

The turfgrass industry needs to gradually shift the emphasis away from product-oriented information towards the real world needs of turfgrass managers and other end users. Their need for biologically specific, rather than product specific, information should become the driving force of the industry. My goal in starting this newsletter is to contribute—however humbly—to this trend. Everyone would benefit from it:

- RESEARCHERS WOULD RECEIVE THE SUPPORT they need in order to spend more time and effort to independently answer biology-based information needs.
- MANUFACTURERS WOULD BE ABLE to take that information and, where appropriate, develop new products or techniques that put the information to work.
- REGULATORS WOULD BE ABLE TO USE the information to develop better, more appropriate rules and regulations.
- AND THE PUBLIC COULD CONCENTRATE on weightier matters that cry out for its attention—confident that the management of the huge amount of land devoted to turf is being handled effectively, efficiently, and in an environmentally sound fashion. Hysteria and misinformation would have much less impact than they unfortunately do have at the present moment.

There are a series of internally and externally generated “philosophical” questions, with which the turfgrass industry is now wrestling, such as are we devoting enough, or too much, of our limited resources to the management of these non-crop plants.

For the most part, these questions have been left unanswered due to a lack biologically specific information. If—or let’s be optimistic and say when—this information begins to flow, in a more consistent manner, many but not all of these questions will resolve themselves. Some questions will still remain for which there are no clear-cut answers. Then we, as members of an evolving society, as well as an evolving industry, will be better equipped to face the vagaries of nature and the uncertain opportunities of the future. ■

ASK THE EXPERT

HAVE A QUESTION on any aspect of turf management? Send it to: Ask the Expert, Turf Grass Trends, 2070 Naamans Rd., Suite 110, Wilmington DE 19810-2644 or fax it to (302) 475-8450. If we can't answer your question, we will put it to the best available expert on the subject.

ON THE HORIZON

Killer proteins identified

ENGLISH RESEARCHERS have recently shown that a new group of naturally occurring toxic plant proteins can be effective in controlling sucking insects. The toxic, plant-produced proteins may have potential as pesticides, or they might be introduced into bio-engineered plants.

Dry encapsulation benefits workers and plants

MONSANTO HAS INTRODUCED a third micro-encapsulated product, a dry herbicide in a microscopic polymer shell, for the agricultural market. By varying the size of these water-applied shells, this technology offers improved worker safety, possible reduced application stress effects, increased resistance to leaching, and time-release characteristics not found in existing traditional liquid-applied formulations. In the future, this technology may lead to advances in liquid and granularly applied pesticides for the turf industry.

Biological controls are tricky

BIOLOGICAL PEST CONTROL, using biological predators to control pest infestations, has been the subject of increasing interest, particularly in agriculture, but there are serious limiting factors to their use on turf becoming widespread:

- THE TIMING OF CURATIVE APPLICATIONS can be difficult, particularly if the bio-control agents need to be grown to order. By the time the controls are applied, major damage could be done, or the pest may no longer be present or vulnerable.
- PREVENTIVE APPLICATIONS WORK BETTER, but, given the limited life spans of some bio-control agents, timing may be a problem.
- QUALITY CONTROL IS A MAJOR PROBLEM. Both production methods and transportation conditions can have dramatic effects on the efficacy of the control.

Interest in biological controls will continue, as will research on overcoming the problems associated with them, but turf managers should not expect dramatic advances in the immediate future.

Are drift control agents coming to turf?

DRIFT CONTROL AGENTS are materials designed to help applicators control the drifting of pesticides to non-target locations. Added to sprays, small amounts of these chemicals have been shown to reduce drift deposits on off-target locations by 50% to 80%. They were also shown to increase the amount of pesticide reaching the targeted area by 33%. Their proper use may allow for reduced application rates. Drift control agents are not yet available to the turf industry, but 15 such agents are in use for agricultural applications. ■