



Is IPM recession-proof?

Integrated pest management is the best option for all economic climates, good or bad.



At the recent GCSAA Education Conference and Golf Industry Show in New Orleans, I probably heard more discussion on the meaning and value of IPM (integrated pest management) than I had in recent years. Although I am always a part of the discussion because I teach two seminars focusing on IPM, I don't know that the discussion has ever been quite as animated. Much of the focus was on how IPM works in a global recession. Is it the right approach to take, or are there better alternatives during times when dollars are hard to come by?

One statement I have made for years and still stick by today is that IPM is the best option for all times, good or bad. IPM is about making wise, well-informed decisions. When is that ever *not* a good thing? The integration of the latest and best information available is always the best option regardless of regulatory issues, environmental concerns, playability, golf course quality and even global recessions.

IPM for 2009 and beyond

Let's ask some questions about IPM to see if it still makes sense in 2009. First, what can IPM be and do? If the goal is to move toward a more organic approach, IPM is the methodology that can put you on that path. If the goal is to increase the quality of your course, then IPM is the approach to take. If the goal is to become more efficient and, possibly, to reduce costs, then IPM is the method to use. This list is not complete, but it covers most situations.

IPM focuses on knowledge. Whether it is used for the management of weeds, diseases or insects, knowledge remains a key aspect of IPM. Knowing when certain insects lay eggs in order to accurately time a control strategy is critical knowledge. Knowing which weeds will be bigger problems in

compacted areas and when they will be problems is important information. Understanding which environmental conditions will promote a specific disease is critical.

Reducing pesticide use

To move toward reduced pesticide use, you must have a thorough knowledge of the conditions and practices that either favor or discourage pest incidence. To focus more on biological or nonchemical control strategies, you need to have a high level of understanding of pest biology and ecology to implement many of the nontraditional control practices. This does not mean that users of synthetic pesticides can be virtually ignorant of pest biology — in fact, nothing could be further from the truth — but biological control or more organic approaches typically require the highest level of knowledge of the golf course ecosystem.

As a side note, biopesticides are gaining momentum in the pest control industry. Over the past few years, twice as many biological or biorational pesticides have been registered as have conventional synthetic products.



Like other white grubs, green June beetle larvae can cause extensive damage to turfgrass. Photo by B. Royals

Rick Brandenburg, Ph.D.



Moving to the next level

If your No. 1 goal is to move to a higher level of golf course quality, then you are often seeking the highest level of pest management that is economically and environmentally practical. Once again, you want to get the most out of every control strategy you apply. For example, in North Carolina, if a product such as Merit (imidacloprid) is used for mole cricket control (and white grub control at the same time) and it is applied right at mole cricket egg hatch, one can expect a high level of control in the 80%-90% range, which is very good for this pest. If the product is applied three weeks later, then the control will drop to 70%; if the product is applied another four weeks later when the damage is obvious, control will be only about 40%. Getting poor control of mole crickets is often caused by a limited knowledge of pest biology, poor monitoring of the life stages and incorrect timing of the application. More often than not, poor control is not the fault of the insecticide, but rather faulty timing of the application. Optimal turf quality is enhanced by maximum performance of the products used.

Controlling costs

Finally, let's look at cost. This is a big issue right now and has been for the past 18 months. Can IPM help reduce costs? Most certainly! In fact, it is the only way I know to reduce costs without increasing risk. Simply put, if you monitor and map pest problems, manage them in a timely manner using the lowest effective rate (this is often a function of timely application through a working knowledge of pest biology and a sound monitoring plan for each pest), you just can't get any better than that. Throw in a few cultural practices that help reduce the likelihood of pest outbreaks, and you have a

cost-efficient program.

Using generics

Recently a number of the most popular and effective pesticides that have been used for years are now off-patent, and the active ingredients in these pesticides are now available in generic form from several manufacturers. I am frequently asked whether generics can be used with confidence to help reduce costs. That is a reasonable question, but we don't always know the answer.

I give two pieces of advice concerning generics. First, have you seen any head-to-head comparisons of the brand name and generic versions of these products under a range of circumstances? A large number of generics are available for several active ingredients, and it is virtually impossible for independent evaluators and university scientists to test all of them. But side-by-side comparisons and independent data are the best and most obvious means to know whether a generic is a good product.

Second, what do you know about the manufacturers, and do you have confidence they will stand behind their products? Do you have any testimonials from your colleagues about product performance? Many times the only difference between the brand product and the generic is the formulation, but that can make a world of difference. My experience is that some generics are good, but there are some bad ones. My purpose here is to neither endorse nor condemn generics, but rather to give insight into how to decide whether to use them.

Coping with change

A few final comments on IPM. The philosophy of IPM stays the same whether you are at a municipal course in Indiana or at a resort course in Florida, whether you are in Canada or in the Caribbean. Using knowledge to make wise decisions for pest control is a core value.

One thing does change, however, and that is the ecology of the golf course. Over time, as the course changes or ages, management approaches and the products we use also change. Modest fluctuations in rainfall and climate can occur. As a result, pest problems may change. Examples in



Earthworms leave numerous small mounds of soil and disrupt the playing surface of greens. Photo by Bob Vavrek, USGA



Hunting billbugs are causing damage in seashore paspalum, bermudagrass and zoysiagrass. Photo by J.P. Doscocil



Billbug damage is commonly mistaken for disease, drought, heat stress or damage caused by other insects. Photo by J.P. Duskocil

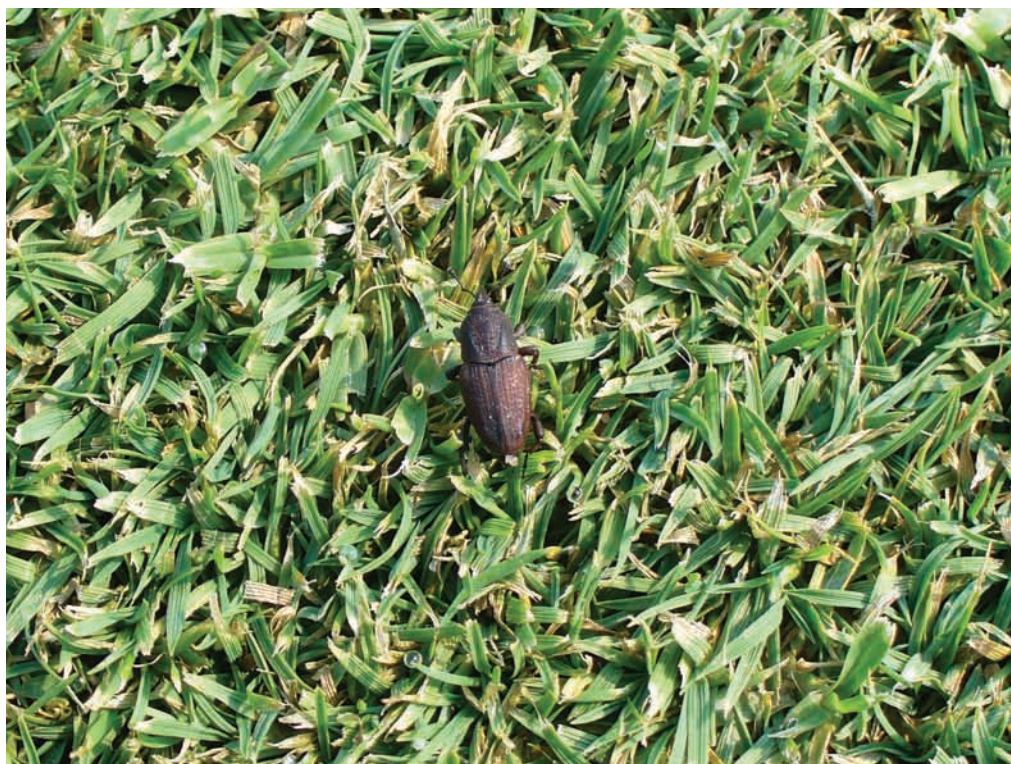
my field of expertise would include increasing problems with ants on putting greens, the ever-expanding range of fire ants, increasing problems with white grubs, billbugs and even earthworms. In some cases, our ability to effectively manage these “new” pests is limited by our lack of knowledge about their biology and ecology and, as stated above, knowledge is the key to IPM.

A current example of changing or emerg-

ing pest status is hunting billbugs, particularly in warm-season turfgrass. Hunting billbugs are causing damage in seashore paspalum, bermudagrass and zoysiagrass, not only from the southeastern U.S. up into the lower Midwest and all the way across to the desert Southwest, but also in Mexico, the Caribbean and Asia.

Hunting billbugs have been a sporadic problem in cool-season turfgrass areas for decades. However, our understanding of the biology and ecology of hunting billbugs does not seem to match up well with the information from the cool-season turfgrass areas. We are having a difficult time managing them because we do not have a good handle on their biology and ecology, primarily their life cycle. As a result, we apply insecticides that we know should be effective, and we get poor results. Until we clearly define the life cycle and the most susceptible stage for control, we will struggle to manage this pest. Hunting billbug is a relatively new pest in many areas, and we are rapidly trying to complete the research necessary to answer the current questions and allow us to develop effective management strategies.

New pests — insects, weeds or diseases — will always present a challenge to superintendents. New pests may demand new strategies, but the philosophy of IPM remains the same. IPM is



Hunting billbugs have been difficult to control in the southern U.S. because their life cycles are not completely understood. Photo by J.P. Duskocil



Recently, ants have become increasingly a nuisance on putting greens, and fire ants have also become more of a problem for golf courses as the insects have expanded their range. Photo by R. Brandenburg

sound and solid and only becomes more important as we transition through difficult economic times. As we all hope for economic recovery, IPM works and is the best option regardless of the economic situation.

Combination products

A number of new products have been very effective in insect management. Recent additions include Arena (clothianidin, Valent), Allectus (imidacloprid + bifenthrin, Bayer Crop Science), Aloft (clothianidin + bifenthrin, Arysta LifeScience), Advion (both mole cricket and fire ant baits, indoxacarb, DuPont Professional Products), Acelepryn (chlorantraniliprole, DuPont Professional Products), Provaunt (indoxacarb, DuPont Professional Products), Meridian (thiamethoxam, Syngenta) and new formulations and fertilizer carriers.

Academics often debate the role of combination products such as Allectus and Aloft in an IPM program. The value of a broader-spectrum combination product depends solely on the pest situation. If you are trying to manage white grubs, and sod webworm or armyworm is also present, then a combination product may be just the ticket to get both pests with one application. However, for a single pest, combination products may not be the most effective approach unless that combination product has been shown to be more effective against that pest.

Fertilizer + insecticide

The use of fertilizer carriers for insecticide application has the potential to be a good IPM practice that can save time and labor because both the fertilizer and the insecticide are applied at the same time. Fertilizers typically make good carriers for insecticides because very little moisture is

required to get the insecticide to “release” from the fertilizer particle. A combination product may also save an application trip across the golf course. Keep in mind one major rule when considering a fertilizer-insecticide combination. Does the timing of fertilizer application from an agronomic perspective coincide with the timing of the insecticide application from a biological perspective? In other words, is the best time to fertilize also the best time to apply the insecticide? If the two match up, then the combination is perfect. If they do not, then you will not obtain maximum benefit from one or the other, or possibly both.

Conclusions

Integrated pest management is a concept for all times. Since it was first promoted in agricultural crops in the 1970s, the philosophies behind it are just as solid and sound today as ever. As we continue to balance cost, environmental issues and golf course conditions, IPM should remain a stable guiding force in golf course management. In my 25 years of educating and implementing IPM on low-budget, barely-getting-by golf courses and high-end resorts and private clubs, I have seen IPM (and the knowledge necessary to practice IPM) improve golf course quality, save money and enhance the game of golf. If I were to be in this business another 25 years, I guarantee that IPM would still be the primary guiding force for pest management on golf courses.

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Rick Brandenburg (rick_brandenburg@ncsu.edu) is the co-director of the Center for Turfgrass Environmental Research and Education and a William Neal Reynolds Professor of Distinction at North Carolina State University in Raleigh. He was an instructor for the GCSAA Education Conference in New Orleans.



The research says

→ Knowledge of pest biology and ecology is the basis of integrated pest management and is necessary to reduce pesticide use and correctly time pesticide applications, both of which can also reduce costs.

→ Generic products, combination pesticides and fertilizers as pesticide carriers can all be incorporated into an IPM program.

→ New pests can appear as a result of climate fluctuations or aging golf courses, but the same IPM principles applied to the old pests can be used to control new ones.

→ IPM is the best option for all times because it is based on making wise, well-informed decisions.