

Recording pest levels should be done on a form similar to the one in **Table 3**. This will allow the scout and superintendent to monitor pest trends and determine if these levels reach or exceed aesthetic thresholds. Accompanying these forms should be maps developed for each golf hole. Maps can easily be drawn via the computer using one of the popular “draw” or “paint” type programs (**Figure 1**). Maps enable the scout to pinpoint pest problem areas, allowing spot versus traditional blanket pesticide treatment. Over time, these maps can indicate where pest problems occur annually and possibly allow superintendents to correct management or ecological variables influencing it. For example, mole cricket egg-laying activity (tunneling) during April and May should be mapped and these areas treated in June as mole crickets tend to deposit eggs in the same areas each year. Control is not effective earlier in spring. Maps also provide area information for the superintendent and allow new crew members a visual aid in treating problem areas.

4. Use pesticides correctly and only when threshold limits are reached. One of the goals of IPM is intelligent and prudent pesticide use. Once these thresholds are reached, the pesticide used should be the safest one available, spot treatments should be practiced, if possible, and all safety precautions followed. Pests should also be treated during the most vulnerable stage of their life cycle.
5. Evaluate the results of the habitat modification and pesticidal treatments by periodically monitoring the site environment and pest populations. Keep written records of site pest management objectives, monitoring methods and data collected. Also record the actions taken and the results obtained by the pest management methods. This will provide additional information for club members who do not understand the program but would understand results. This also will aid in demonstrating that golf course superintendents are striving to reduce the chemical inputs in maintaining the course and strive to obtain an ecological balance between man and nature.

Conclusions

Pest management strategies for turf productions are in their infancy but are being developed and utilized. Strategies necessary for a successful IPM program have been outlined and should provide a starting point for golf course superintendents. It should be emphasized that IPM methods will take time to implement and will be needed to measure their degree of success. Open communication between all crew members, club officials, players, and the superintendent are necessary for programs to be understood and to succeed. Read and study information on pests associated with Florida golf courses, their life cycle, ecology surrounding their occurrence, and pest management strategies to successfully suppress their numbers below threshold levels. More importantly, follow those management guidelines which encourage competitive turf growth and discourage pest establishment.

IPM represents a case of redirecting resources invested in turf maintenance, in which professional knowledge and judgement is partially substituted for chemicals. It may or may not be cheaper in up-front costs, but does provide an excellent means of reducing unwelcome environmental and personnel risks without sacrificing turf health. IPM reduces pesticide use or softens the kinds of pesticides needed. It also reduces our potential liability for

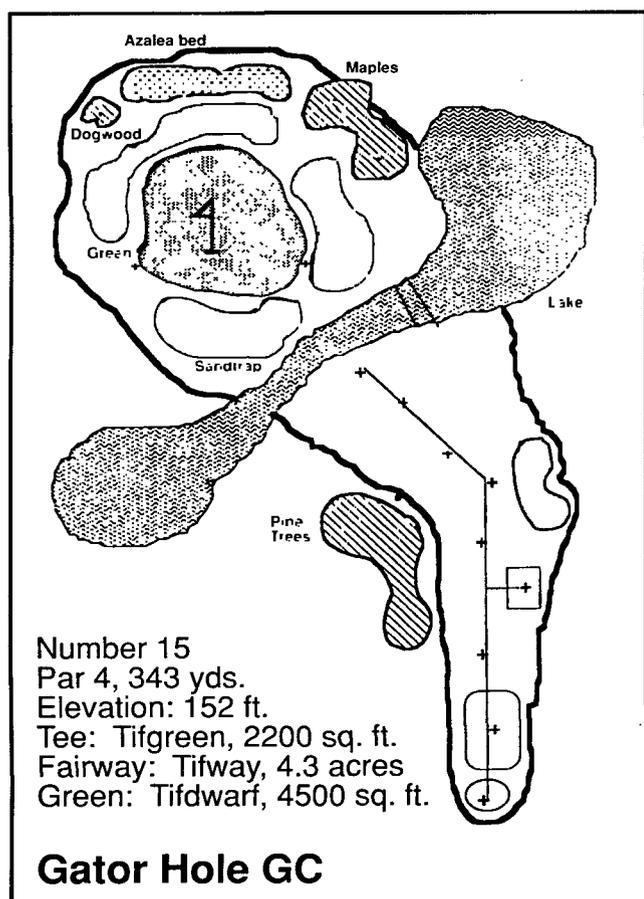


Figure 1. Computerized drawn map of a golf hole enabling a scout to identify and mark pest problem areas.