Case Study
The OGCSA Guidelines 2nd Edition
And Online IPM Tool

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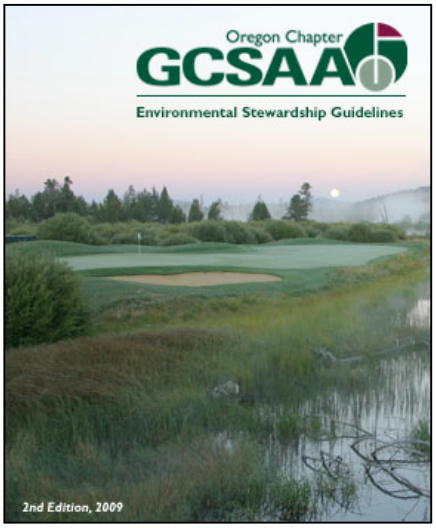
Because of mounting pressure from individual environmental groups, pesticide use policies made by local councils, and more concerted pressure from state and federal agencies, the Oregon Golf Course Superintendents Association formed an environmental committee which included Dr. Michael Hindahl from Links Analytical. Dr. Hindahl was instrumental in initiating an environmental document that would assist superintendents and park managers in managing their properties in an environmentally friendly manner. The document became known as the OGCSA Environmental Stewardship Guidelines.

Guidelines Development



The *Guidelines* were reviewed by Oregon and Washington State agencies, Oregon State University and Washington State University, industry representatives and superintendents. It became a well-respected document that received national notoriety as the recipient of the 2004 President's Environmental Stewardship Award from the Golf Course Superintendent's Association of America. Sadly, Dr. Hindahl passed away in 2005 shortly before the document was to be put through a second revision. Holding true to Dr. Hindahl's legacy, the OGCSA went forward with Western Washington Golf Course Superintendents Association and the Northwest Turfgrass Association and began the revision process in 2006.

EnviroLogic Resources Inc. which obtained Links Analytical from Dr. Hindahl's wife Peggy and were retained to go forward with the revision and to make the document an even more comprehensive and user friendly tool. As we went forward it was imperative that the *Guidelines* were seen by as many people as possible and that there were no stones left unturned. In order to do that we asked a wide variety of people who could offer us feedback from their perspective and expertise to review the document. These included the following:

• Demie Moore	Aquatrols
• Joellen Lampman	Audubon International
• Greg Lyman	GCSAA
• Clark Throssell	GCSAA
• Mark Johnson	GCSAA
• Scott Kuhn	Kuhn Associates, Engineers
• Steve Riley	Oregon Department of Agriculture
• Ranei Normura/Ann Levine	Oregon Department of Environmental Quality
• Susan Barnes	Oregon Department of Fish and Wildlife
• Rob Golembiewski	Oregon State University
• Steve Thun	Pacific Agricultural Laboratory

- Dan Kent — Salmon Safe
- David Burger — Stewardship Partners
- Dana Lonn — Toro Irrigation
- Ron Cummings — Washington Department of Ecology
- Ann Wick — Washington Department of Agriculture
- Eric Miltner — Washington State University

A special thank you to all of them for their time and effort in enabling the *2nd Edition Guidelines* to become what they are today.

An integral part of the *2nd Edition Guidelines* is the IPM Program. As defined by the Washington State, Interagency Integrated Pest Management Coordinating Committee, Integrated pest management is "a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet pest management objectives". Quoting directly from my IPM Program, "An essential component of the IPM Plan is the coordination of the ongoing use of cultural methods with the selective use of pesticides as a means of minimizing pesticide application." This was the definition in which the IPM Plan was generated within the *2nd Edition Guidelines*.

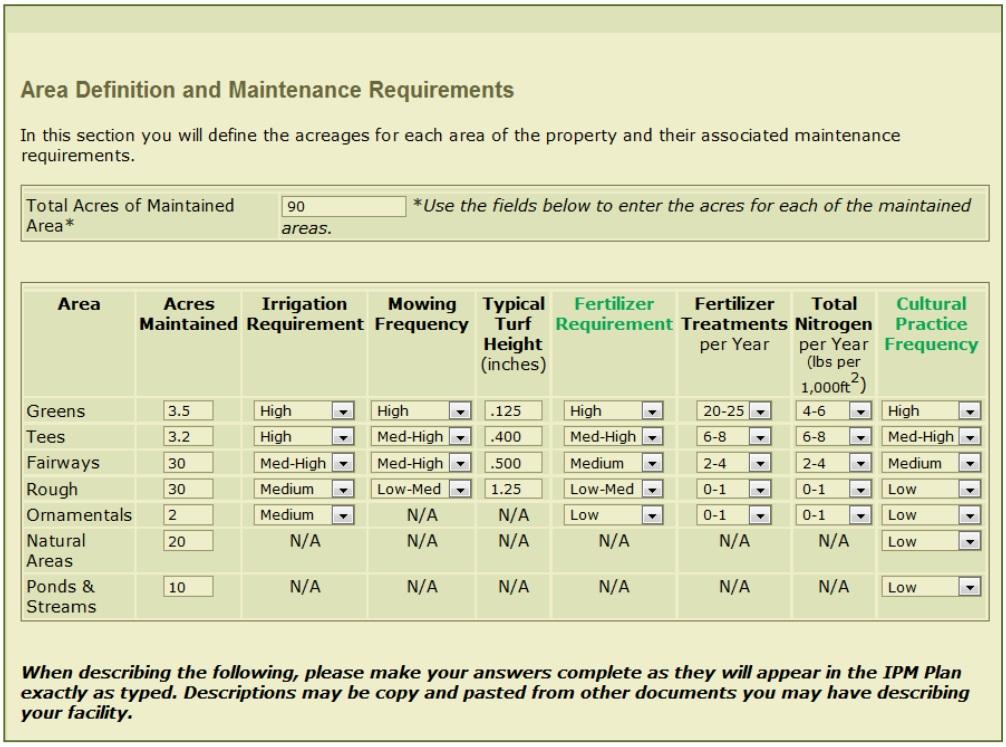
The broad objective of the IPM Plan is to maximize the use of natural methods to control pests through optimized, disciplined, and documented golf course management practices. To meet this objective, the IPM Plan defines turfgrass, non-turfgrass, natural and aquatic management areas; pests of concern within these areas, methods to monitor pest populations, pest action threshold levels that when exceeded require action, and the actions to be taken once threshold levels have been reached.

The Online IPM Tool

The OGCSA had a strong desire to make the *2nd Edition Guidelines* available to *everyone at no expense* and wanted to create a template that could be easily customized to an individual property. EnviroLogic Resources Inc. did just that, and more. In collaboration with the OGCSA, WWGCSA and the NTA, they developed GreenGolfUSA and managed to create a set of online tools that are credible and would complement the *Guidelines* and would enable an individual to create their own customized IPM program and Best Management Practices. Knowing that the IPM Program in the *Guidelines* was reviewed by all of the previously listed individuals, I am confident the document produced can stand on its own. By simply utilizing the drop-down menus and plugging in personalized data, a PDF document is generated and emailed to the creator within minutes of completion. All at *no charge!*

The elements of the final IPM Program that are generated include:

- Practices for preventing pest problems.
- Scouting and monitoring for the presence of pests and pest damage.
- Establishing the density of the pest population, which may be set as low as zero, that can be tolerated or correlated with a damage level sufficient to warrant treatment of the problem based on health, public safety, economic, or aesthetic thresholds. This density is the action threshold for a specific pest.
- Treating pest problems to reduce populations below those levels established by action thresholds using strategies that may include biological, cultural, mechanical and chemical control methods and that consider human health, ecological impact, feasibility and cost effectiveness.
- Evaluating the effects and efficacy of pest treatments.



Area Definition and Maintenance Requirements

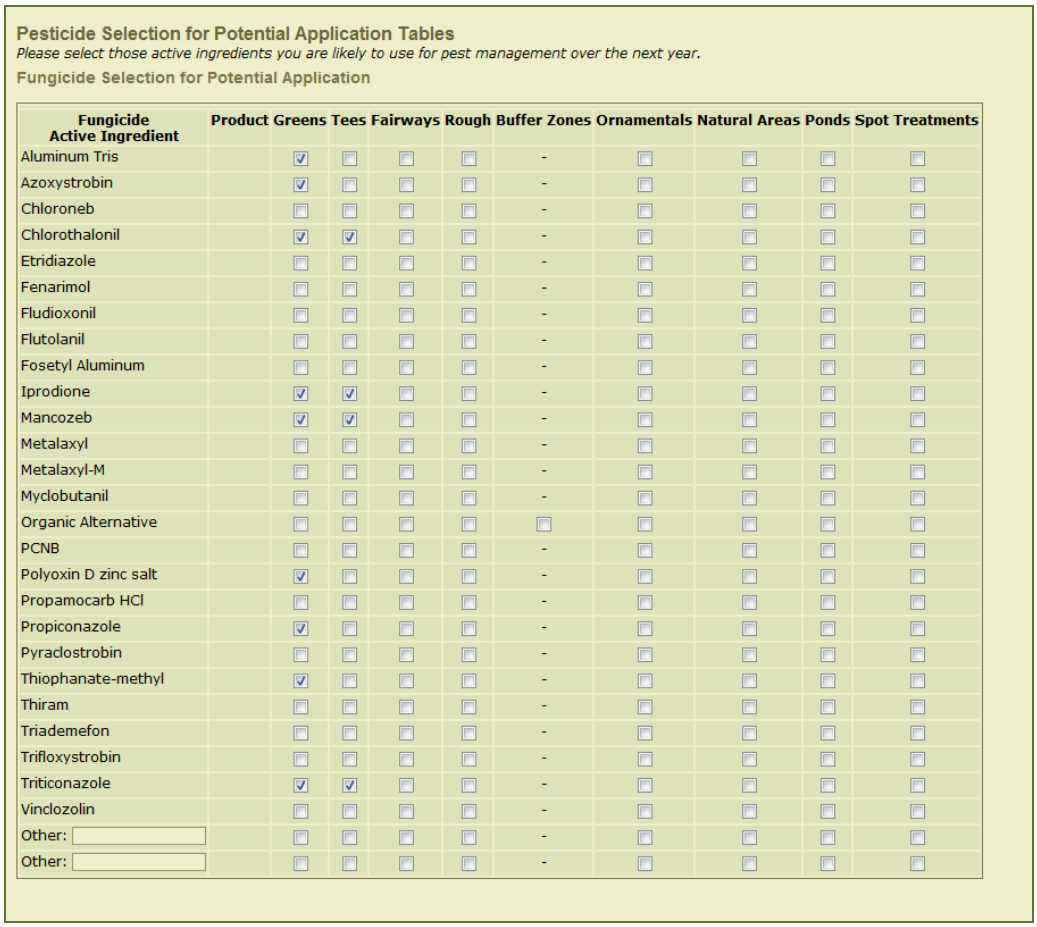
In this section you will define the acreages for each area of the property and their associated maintenance requirements.

Total Acres of Maintained Area* 90 **Use the fields below to enter the acres for each of the maintained areas.*

Area	Acres Maintained	Irrigation Requirement	Mowing Frequency	Typical Turf Height (inches)	Fertilizer Requirement	Fertilizer Treatments per Year	Total Nitrogen per Year (lbs per 1,000ft^2)	Cultural Practice Frequency
Greens	3.5	High	High	.125	High	20-25	4-6	High
Tees	3.2	High	Med-High	.400	Med-High	6-8	6-8	Med-High
Fairways	30	Med-High	Med-High	.500	Medium	2-4	2-4	Medium
Rough	30	Medium	Low-Med	1.25	Low-Med	0-1	0-1	Low
Ornamentals	2	Medium	N/A	N/A	Low	0-1	0-1	Low
Natural Areas	20	N/A	N/A	N/A	N/A	N/A	N/A	Low
Ponds & Streams	10	N/A	N/A	N/A	N/A	N/A	N/A	Low

When describing the following, please make your answers complete as they will appear in the IPM Plan exactly as typed. Descriptions may be copy and pasted from other documents you may have describing your facility.

At Stone Creek Golf Club we initially paid over $10,000 to have an environmental management plan developed which would be used to satisfy State and Federal Regulators throughout the construction and permitting process. Included within that plan was our first IPM Program. At that time 10 years ago our IPM Plan was about as detailed as you could ask for. I still remember the comments from a gentleman from the Oregon Department of Environmental Quality as he thumbed through the pages of our document while on a site visit. He was so impressed that he asked me to make a copy of the entire plan so he could use it to make a template for his own use. Today, 10 years later, I have now created a new IPM Plan that was once 20 pages that is now 40 pages in length, and is more comprehensive than I could ever imagine. It includes everything from turfgrass cultural practices, composting, pest population definition, action thresholds and pesticide specifications. The plan also consists of a complete facility description which includes the mechanical shop, equipment, fertilizer, and pesticide and petroleum fluid storage. Many of these things had been covered in the existing plan but not near the detail in which they are described now. The best part about this plan is that it can be changed or updated by simply logging back into the website and making the necessary adjustments and printing off a new plan that mirrors your revised practices. Again, this was all prepared at *no charge*.



Pesticide Selection for Potential Application Tables

Please select those active ingredients you are likely to use for pest management over the next year.

Fungicide Selection for Potential Application

Fungicide Active Ingredient	Product	Greens	Tees	Fairways	Rough	Buffer Zones	Ornamentals	Natural Areas	Ponds	Spot Treatments
Aluminum Tris		☑	☐	☐	☐	-	☐	☐	☐	☐
Azoxystrobin		☑	☐	☐	☐	-	☐	☐	☐	☐
Chloroneb		☐	☐	☐	☐	-	☐	☐	☐	☐
Chlorothalonil		☑	☑	☐	☐	-	☐	☐	☐	☐
Etridiazole		☐	☐	☐	☐	-	☐	☐	☐	☐
Fenarimol		☐	☐	☐	☐	-	☐	☐	☐	☐
Fludioxonil		☐	☐	☐	☐	-	☐	☐	☐	☐
Flutolanil		☐	☐	☐	☐	-	☐	☐	☐	☐
Fosetyl Aluminum		☐	☐	☐	☐	-	☐	☐	☐	☐
Iprodione		☑	☑	☐	☐	-	☐	☐	☐	☐
Mancozeb		☑	☑	☐	☐	-	☐	☐	☐	☐
Metalaxyl		☐	☐	☐	☐	-	☐	☐	☐	☐
Metalaxyl-M		☐	☐	☐	☐	-	☐	☐	☐	☐
Myclobutanil		☐	☐	☐	☐	-	☐	☐	☐	☐
Organic Alternative		☐	☐	☐	☐	☐	☐	☐	☐	☐
PCNB		☐	☐	☐	☐	-	☐	☐	☐	☐
Polyoxin D zinc salt		☑	☐	☐	☐	-	☐	☐	☐	☐
Propamocarb HCl		☐	☐	☐	☐	-	☐	☐	☐	☐
Propiconazole		☑	☐	☐	☐	-	☐	☐	☐	☐
Pyraclostrobin		☐	☐	☐	☐	-	☐	☐	☐	☐
Thiophanate-methyl		☑	☐	☐	☐	-	☐	☐	☐	☐
Thiram		☐	☐	☐	☐	-	☐	☐	☐	☐
Triademefon		☐	☐	☐	☐	-	☐	☐	☐	☐
Trifloxystrobin		☐	☐	☐	☐	-	☐	☐	☐	☐
Triticonazole		☑	☑	☐	☐	-	☐	☐	☐	☐
Vinclozolin		☐	☐	☐	☐	-	☐	☐	☐	☐
Other:		☐	☐	☐	☐	-	☐	☐	☐	☐
Other:		☐	☐	☐	☐	-	☐	☐	☐	☐

From the onset, by simply constructing an IPM Plan from this online tool you are automatically saving money. I am sure it would cost close to $3,000 to have a plan built to this detail. The plan can also save you money in the long run by simply helping you to reduce your inputs. When we look at our management practices based on an action threshold versus a calendar year, pesticide applications can be reduced significantly without sacrificing turf quality.

To date there has been over 100 golf course superintendents that have registered to use this product and they have ranged from the Northwest to the Southwest, from Minnesota to Florida and even in Europe. Eventually the plan will be adapted to include schools, parks and athletic facilities.

It is the Oregon Golf Course Superintendents Association and EnviroLogic Resources, Inc. prerogative to provide this as a free service. EnviroLogic Resources, Inc. is planning on recouping some of their significant investment through industry sponsorship. In this economic and environmental climate I cannot think of a better way to offer our industry a tool that will provide us with a document that will enable us to show the greater good that we as superintendents are managing our properties in a safe and environmentally friendly manner. The IPM Plan Tool and BMP Generator can be accessed by simply creating a login profile at www.greengolfusa.com and they do not need to be completed at one sitting. Your information is always saved under your profile and you can come back any time to finish it.

This tool has taken the guess work out of constructing an IPM Plan. For many superintendents, putting together their first IPM Plan has been a daunting task, a necessary task but somehow never manages to get started. This is truly the answer, and has taken all the guess work out of it.

Opinions from Other Superintendents

After I completed the IPM Plan myself I wanted to know how other superintendents that have recently finished it felt about the tool. I contacted a few that stand out on their own as environmental stewards and asked them to comment on their experience. You will find their stories very similar to the experience that I had. Here is what they had to say:

Steve Kealy, CGCS
Glendale Country Club
Bellevue, WA

"Yes, we had an IPM program in place prior to using the IPM Plan Tool. It took me about two hours to complete. The new program is far more detailed than the old one.
It exceeded my expectations by a long way. The tool is very useful and is easily set up to a comprehensive IPM program. Every golf course superintendent should use this tool to develop their own IPM document. It's important to be able to show others how we decide on the decisions we make concerning pesticide use. This is the only IPM Plan Tool that I have ever seen, and it's so easy to use. The fact that it is free should be enough by itself to make you take a look at it!"

Jim Myers
Class "A" Superintendent
The Plateau Club
Sammamish, WA

We had an IPM program in place at The Plateau Club prior to using the IPM Plan Tool. The IPM program we had in place did not cover all aspects we needed to cover in an IPM plan, thus we needed to upgrade our IPM program to cover strategies and management practices to assist the staff optimize turfgrass quality while caring for the environment. Two main areas that required attention were our pest monitoring and pest control. We added IPM scouting forms for staff to fill out when signs of pest problems were observed. Also, we are conducting in house research to lower rates of fungicide usage and the timing of applications made.

It only took a few hours to complete as I enlisted my team leaders on my staff to help input the information. We had a base line to work from and with the two assistants and spray technician we all collaborated as a team. We touched on all aspects that would be

defining our IPM program and would fit the property's needs. The Green Golf USA web site walks you through each step to develop a solid IPM Program.

The new IPM program developed with Green Golf USA was superior to our original IPM program. The new IPM program covered a wealth of information to help better manager our property. With objectives and structures in place, it outlines the program and is a valuable tool for training new staff members and interns to better understand the guidelines and following the most environmentally sound solutions to golf course pest problems.

The new IPM program exceeded my expectations. This tool will help us implement best practices to optimize our golf course management practices and help us grow as stewards of the environment. This program will also serve as a baseline for continuous improvement as we will continuously fine tune our program and revert back to Green Golf USA to update our IPM program as needed.

An IPM program is a valuable tool to help align staff and the clubs operations while being mindful the environment. It helps set guide lines to maximize turf quality and consider strategies that will help protect the environment today and well into the future

Justin C Ruiz, CGCS
Golf Course Superintendent
The Rim Golf Club
Payson, AZ

I would like to comment on the IPM tool from Green Golf USA. I did a quick run through and entered the information onto the template. It took me around an hour and a half to enter all the info. I was surprised at how easy the tool used drop down menus to select information. I created my own IPM program a few years ago and the amount of time I spent collecting information and writing the program took weeks. The best part of the program is that it takes into account all aspects of golf course maintenance. I focused on mainly pests when I did it on my own while the tool covered the details about the maintenance building, wash area, chemical storage and clubhouse.

The program was simple to follow and I enjoyed the fact that you could pick from a list of insects, diseases, weeds that were important for your course. I felt that this made the process very quick and easy to produce a report that was custom to our course. A program like this is perfect timing for the green revolution. It will make a great tool for superintendents that may be overwhelmed when thinking about creating a program for their course.

I could not believe that after I did minimal data entry the tool produced a professional 40 page report. The report included all the filler explaining IPM and the golf course areas, usually the busy work involved and used the critical data that I entered when needed. I was quickly contacted after completion of the report by Tom and he was very receptive to any comments and offered any additional information from our program could be incorporated for a small fee for the data entry. The cost of a consultant to create a

professional IPM program like I created on Green Golf USA could cost thousands and take valuable time, but I was able to create it for free and it took a minimal amount of time.

Thanks for the link and I look forward to working with the BMP generator next for our water conservation program. It is very relieving to see that something has finally been made to make IPM more attainable to the superintendent and invoke more responsible management practices.

Conclusions

Just as the Georgia superintendents enlisted their members to adopt water use BMP's and now have over 90% participation from their members this tool should enable our industry to do the same with a written IPM Program. Just imagine how it would look to have the majority of our industry adhering to a written IPM Program. As we see mounting legislation that is taking away our pest management tools we need to be proactive and demonstrate our environmental fortitude. I hope that this IPM Plan Tool and others similar will enable us to do just that. If we can start with our own communities and expand to our individual states we will begin to have a national impact on legislation that can affect the way we do business.