

Turf Wars

Organic turf management in the United Kingdom and North America

By Carol Matthews, Landscape Trades Magazine, June 2004

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As Canadian groundskeepers wage a verbal war about the pros and cons of organic turf management, the final has already been lost – or reconciled – in other parts of the world.

Countries such as Germany, Holland and Belgium have placed a total ban on many of the chemicals we use regularly on our turf, and the United Kingdom faces much the same results when the European Directive, “The Placing of Plant Products in the Marketplace” takes effect in 2008. Some members of the industry have been forced to make changes; others have taken the initiative and met the challenge with new products and practices.

Turf managers are first to ask: ‘Will it work?’ and ‘How much will it cost?’ As usual, there are no clear-cut easy answers. But there are examples to learn from, and organizations to work on answers.

As early as 1994, the Sports Turf Research Institute (STRI) in Great Britain stated: “If turf management is adhered to conscientiously, the need for pesticides should be virtually eliminated. To begin with, resistant and dense grass species should be chosen that are suitable for their growing environment and for the use to which they will be put. Soil conditions, in particular pH, fertility and drainage, need to be carefully checked and maintained or corrected where necessary. Chemical and physical maintenance programs need to be adhered to, with problems identified and resolved quickly.”

STRI is the independent market leader and a recognized world center for research in turfgrass and agronomy. It is also the UK’s national center for consultancy in Sports and Amenity Turf. STRI’s consultancy team advises at over 2,000 turf facilities, including golf, soccer, rugby, cricket, racing, bowling and tennis facilities.

STRI ecologist Bob Taylor has worked on this problem for 15 years, and says greenskeepers have since changed their practices dramatically. Where before, fertilizers and herbicides were applied regularly and abundantly, no fertilizers are applied in small amounts, and more often, herbicides are applied only when required – perhaps once every 3 or 4 years. Fungicides are used from one to four times during the winter, but only when disease is discovered. “Turf management has become more environmentally friendly, but we still use chemicals at this time,” he says.

Golf courses are heavy users of chemicals in North America, and it is interesting to compare them with those across the Atlantic. We must keep in mind that many UK courses have been in use for decades, sometimes centuries, and usually limit chemical use to the greens and tees, with fairways composed of natural turf, untreated except for

mowing. Taylor says a good number of the 2,800 golf courses in the UK already manage without chemicals, and an increasing number are moving towards organic (cultural) management. What have these course managers learned?

The addition of artificial chemical fertilizers, pesticides and herbicides in turf management leaves the soil sterile. Stop using them, and it will take two to three years before a healthy balance can be created, says Taylor. Anticipate a greater chance of disease in the interim. An integrated pest management (IPM) program, with the clear goal of total cultural management, is “the future” for the UK, he says. IPM is reactive turf management; the future requires proactive turf management.

Alistair Beggs, a regional agronomist with STRI, considers worm control and insect larvae control the two most immediate problems. Worm casting is a major issue throughout Europe, and the future of worm control will include the dilution of organic matter with sand-based top dressing, and acidifying the surface soil with sulfur-based materials to deter the worms. Insect larvae control lies in the development of biological techniques, such a parasitic nematodes.

The biology of the soil is an area where greenskeepers and even scientists have much to learn. In the words of David Winn, manager of Training and Education at the Institute of Groundsmanship (IOG) in the UK: “We need to lift the bonnet to look at the engine.” The IOG represents ground managers, groundsmen, ground maintenance managers, greenskeepers, and other involved in the management of sports fields, landscape and amenity facilities in the UK. It is Winn’s job to inform IOG members how the soil engine works.

The soil’s secret life is made up of millions of diverse and dynamic organisms. These include bacteria, fungi, Actinomycetes (an evolutionary transition between bacteria and fungi), algae, protozoa, nematodes, viruses and larger organisms such as earthworms, grubs and ants. Some are enemies of good turf, but many are beneficial, and our previous management practices have often upset the natural balance of the soil.

If you pay attention, your turf will let you in on these soil secrets, says Winn. Weeds are like messages on post-it notes, stuck here and there to give you information. Masses of knotweed and goosegrass are indicators of soil compaction (research has shown there are actually higher levels of insect larvae on golf courses – it appears that soil compaction kills a symbiotic fungus, which usually grows among the grass roots and protects them from being eaten. When this protection is removed, the insect grubs thrive). Annual bluegrass and creeping bentgrass indicate poor drainage. Common plantain announces a high pH, and sheep sorrel suggests a low pH. Find and curing the cause of the symptoms is as effective in turf management as it is in medicine. The bottom line is that a healthy stand of turf is the best defense against pest invasion. It can also better withstand natural and artificial stresses. Soil preparation and amendments will translate into successful management.

This still leaves the problem of the “Augusta Effect,” where everyday golfers want every course to look as groomed as a PGA course, says Winn. To overcome this takes education and training on the part of the groundskeepers, the course users, and the general public – but it’s possible.

The Audubon Cooperative Sanctuary Program is designed to balance the environmental equation and educate the people. Numerous participating golf courses in Europe, the U.S. and Canada are living examples of environmental / organic / cultural management. The program provides assistance and promotes ecologically sound land management, along with the conservation of natural resources. Golf courses work towards certification in six categories: environmental planning, wildlife and habitat management, member and public involvement, integrated pest management, water conservation and water quality management. Case studies of participating courses show mixed results, from improved habitat in increased wildlife activity to reduced maintenance time and financial savings. And these aren’t second-rate businesses; such world-renowned courses as Loch Lomond in Scotland, PGA of Southern California, plus Banff Springs in Alberta and Highland Links in Cape Breton, Nova Scotia are certified through this program.

Team sports surfaces are more difficult. The demand is strong for exacting, high-use surfaces, and sports facilities are moving toward using new, strong synthetics, says Winn. There are 40,000 natural turf football surfaces in England alone. The initial cost of 300,000 pounds (\$750,000 CDN) for an urban football field is staggering, but is usually balanced with very little maintenance cost following the initial outlay. There can be problems with synthetics, however – the growth of algae and moss can cause slipping, which can result in devastating player injury. So, the impetus is to find environmental solutions to teams sport turf management as well.

But all of this takes time, and time is running short. Greenskeepers must ensure enough transition time in their schedules, and commit to organic alternatives. Without this, the results on public turf areas and sports fields in particular, are often unsatisfactory. Alternatively, a disciplined schedule of orderly pesticide reduction, combined with the phasing-in of organic methods, has had very encouraging results. The City of Waterloo, Ont. is a good example. It has developed its own Plant health Care Program (PHCP) that outlines “a set of cultural practices that, when used consistently, will promote healthy, vigorous turf growth, while having the smallest possible negative impact.” Waterloo, which applied pesticides to 73% of its green space during the 1970s, now treats less than 0.1% of its green space. In addition to environmental and health advantages, the city credits PHCP with reducing its maintenance cost per acre by 40% over the past six years.

Sources

For more information on creating environmentally friendly green spaces contact:

Sports Turf Research Institute (STRI)
St. Ives Estate, Bingley, West Yorkshire
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<http://www.stri.co.uk>

The Institute of Groundsmanship
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Audubon Cooperative Sanctuary Program

http://www.usga.org/green/environment/audubon_program.html

Case Studies: <http://www.audubonintl.org/resources/casestudies>

Managing Healthy Sports Fields: A Guide to Using Organic Materials for Low-Maintenance and Chemical-Free Playing Fields, by Paul D. Sachs, ISBN:0-471-47269-7, Hardcover 256 pages, January 2,004, US \$55.00

City of Waterloo Plant Health Care Program (PHCP), Service Center

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<http://www.city.waterloo.on.ca/pws/parks/operations/phcp.html>