



# Modern Cool Season Sport Turf Management

Copenhagen 13-14th July 2021

The corona pandemic brings some uncertainty and we take precautions for changes in the program, but here is a short presentation of the lecturers and their topics as confirmed August 2020.

Lecturer	Presentation title
 <p><b>Stacy A. Bonos</b> is a Professor of Turfgrass Breeding in the Department of Plant Biology at Rutgers University. Her research focuses on the development of improved, pest resistant, and stress tolerant, turfgrasses including native grasses. She has dedicated much of her research to improving bentgrasses for golf courses. She has developed or co-developed over 240 cool season turfgrass cultivars and has been recognized for her research through several awards including Golf Magazine's '40 under 40', Early Career Excellence in Plant Breeding – Plant Breeding Coordinating Committee; Young Crop Scientist Award – Crop Science Society of America (CSSA) and Fellow of CSSA.</p>	<p><b>Low Input Turfgrass Species for Sports Turf: What are their quality attributes and challenges?</b></p> <p>There is a need to identify turfgrass species and mixtures for golf course fairways and sports turf applications that can be managed sustainably by reducing fertility, mowing, irrigation and pesticides. Which species provide the best quality under low input? What other factors need to be considered for choosing the optimum turfgrass species for input sports turf? Can some mixtures between species provide better quality than monostands of single species?</p>
 <p><b>Bryan G. Hopkins, Ph.D.</b> is a Certified Professional Soil Scientist (CPSS) and a Professor at Brigham Young University where he teaches and does research in environmental soil and water sciences related to turfgrass and other crops. He does turfgrass consulting with professional, collegiate, and other sports/golf organizations internationally.</p>	<p><b>Zero waste of water and nutrient. How efficient can we become?</b></p> <ul style="list-style-type: none"> <li>*Can we simultaneously grow superior grass surfaces while minimizing impacts to the environment and conserving natural resources?</li> <li>*How close can we get to “zero negative impact”?</li> <li>*What can grass managers do to be responsible and, thus, reduce the likelihood of being mandated to not grow grass?</li> <li>*Why should I care about the environment and natural resources?</li> </ul>



**Ross Braun, Ph.D.** is a lead research scholar at Purdue University. Dr. Braun has worked at three golf courses in the United States and has a research background in turfgrass science focusing on fine fescues, zoysiagrass, buffalograss and other low-input turfgrass systems, greenhouse gas emissions, and drought and traffic stress.

**Monitoring traffic during drought stress**  
How important is it to monitor traffic during drought stress? What are the impacts traffic during stress on turf canopies as well as soil and roots in the upper soil profile? In addition, are there differences among turf species and mowing heights in response to traffic during drought stress?



**Dr. Dale Bremer, Ph.D.,** Professor of Turfgrass Science, Kansas State University  
Dale Bremer conducts research in water conservation, drought stress management, greenhouse gas emissions from turfgrass, and in the use of new technologies such as drones, remote sensing, and soil moisture sensors to improve turfgrass management practices. He advises and teaches graduate and undergraduate students in turfgrass science.

**Strategies to keep turf alive when severe drought and water scarcity**  
With a focus on water conservation and drought stress, these questions will be considered:  
How can turfgrass managers balance water conservation with maintenance and survival of turfgrass during severe droughts and restrictions on turfgrass irrigation?  
Can new technologies such as drones, remote sensing, and soil moisture sensors be practically incorporated to enhance effectiveness, efficiency, and environmental stewardship of turfgrass management?



**Didier Combes** works in INRAE in France, which drives research on genetic improvement of seeded grasslands adapted to climate change. To this end, an ecophysiology approach is applied, consisting in analyzing and modeling the functioning of the grassland in response to environmental factors (e.g. light, temperature and water).

**Mapping soccer stadiums for grass growth conditions.** Improving a turfgrass management is based on a better understand of the plant functioning in response of environmental factors. We will see through some examples how a monitoring system can help in following the proper functioning of management tools and then help in an optimal use of these tools in order to keep a high turfgrass quality.



**Etienne Abelard** is an apprentice engineer. In other words, he is both a 5th year student in the engineering cycle by apprenticeship at the ESA (Higher School of Agriculture) in ANGERS and at the same time assistant-breeder, for 3 years now, within the company DLF Recherche in France, alongside Christophe Galbrun.

**Light therapy. Update on lamps and their effects on different grass species.**  
The use of luminotherapy in major stadia around the world is becoming more and more common and is now considered a necessity in the production of high quality turf playing surfaces.  
We can then ask ourselves:  
What types of lamps to use? HPS or LED?  
Which species are most suitable under HPS lamps? Under LED lamps?



**Atle Revheim Hansen** is Golf Course Manager at Bærheim Golfpark in Norway. He has 38 years' experience as greenkeeper, Golf Course Manager, Designer and Constructor. Atle is

passionate about innovation in the Norwegian golf industry.

**Robotic mowers. Experiences from 5 years full scale testing.**

Atle was the first Golf Course Manager to implement robot mower technology on a full-scale golf course. But even more: He is virtually maintaining a lot of the golf course through his smartphone. Atle will talk about the process and share some experience.



**Erich Steiner** is a registered Landscape Architect BSLA and Golf Course Architect EIGCA and also holds a master's degree in sports turf from Cranfield University. Director of Steiner &

Partner Landschaftsarchitektur since 2004, he has over 30 years of experience in the fields of landscape architecture and turf grass consulting.

**Drone surveillance for early intervention may save water and chemicals**

The vitality of the turf grasses, visual aspect and consistent playability are the main priorities of the turf grass maintenance specialist. The maintenance to achieve this quality however, is very cost and labour intensive and there is increasing demand for more precision and automation. But what is the added value of aerial photography with multispectral and thermal cameras?



**Ingeborg Menzler-Hokkanen** is a University Researcher at the Department of Environmental and Biological Sciences, University of Eastern Finland. She holds a PhD in economics, and has worked over the past 20 years on EU-research

projects on integrated pest management, biological control, and pollinator management.

**Golf courses as refuge for endangered insect species: too small, too scattered, or a proper and useful tool for conservation?**

- \* What types of multifunctionality can golf courses provide to support ecosystem services?
- \* Are there usable plant species that are visually attractive, support the conservation of endangered species, and provide other ecosystem services at golf courses?
- \* Which endangered insect species could be targeted? Could golf course environments really make a difference for conservation?



Jan Rosenbusch, M.Eng. Trained Gardener, Qualified Sports Field Inspector, B.Eng. Landscape Development and M.Eng. Landscaping Management. Currently Doctoral Candidate in Horticultural Sciences at University of

Hanover and positions as Development Engineer at EUROGREEN – A BayWa Company and as Research Associate at University of Applied Sciences Osnabrück. Research activities relate to sustainable turfgrass management

**How to identify, record and evaluate the ecosystem services at my golf course?**

The ecosystem services that occur on golf courses offer the opportunity for a positive external image of golf courses and the entire sport. In this unit you will learn what ecosystem services are and how they can be identified, recorded and evaluated on the basis of an ecosystem service concept model for golf courses.



**Paige Boyle** is a Presidential Doctoral Research Fellow at Utah State University. She earned a B.S. in Environmental, Soil, and Water Sciences and M.S. in horticulture from the University of Arkansas. Her research background includes stream restoration design, in-vessel compost processing, earthworm management on golf course turf, and clover lawns.

**Earthworm castings**  
In turfgrass systems, earthworm casts can cause issues with turf growth and management. Earthworm control is difficult because earthworms are still not well understood, and no pesticides are labeled for earthworm management. Turf managers usually rely on cultural practices to mitigate casting, with limited or varied efficacy. This presentation will walk you through earthworm biology, ecology, and various management options.



**Asbjørn Nyholt**, Turfgrass agronomist, CEO, Nyholt ApS  
Master in soil science and plant nutrition, University of Copenhagen 1989  
Product manager, DLF, Seed & Science, 1996-2008

Established Nyholt ApS in 2008. The company employs two agronomists specialized in turfgrass maintenance and growth requirements.

**Practical Danish experiences maintaining football pitches without pesticides since 1998**  
Since the agreement was signed between the Danish Government and the National Association of Municipalities in 1998, no pesticides have been used for maintaining football pitches in the Municipality of Odense. The municipality has 200 football pitches (240 ha) and 110.000 registered users. Is it possible to maintain football pitches without pesticides? Will the weeds take over? What does the users think about playing quality?



**Paul Koch, PhD**, is an associate professor in the Department of Plant Pathology at the University of Wisconsin – Madison. Paul’s research focuses on developing precision disease management strategies for snow mold and dollar spot in turfgrass

and investigating the fate and impact of turfgrass pesticides in the environment.

**Alternative, non-chemical solutions for dollar spot control**  
**Dollar spot is one of the most common turfgrass diseases worldwide. Few fungicides are available for use on turfgrass in northern Europe and Scandinavia, and in this presentation we will briefly talk about the latest research on non-fungicide alternatives for dollar spot control such as iron sulfate, poacic acid, and increased nitrogen fertility.**



**Wendell Hutchens** is a PhD student at Virginia Tech University. His research is predominantly on the warm-season grass disease spring dead spot (*Ophiosphaerella* spp.), but he also studies non-fungicidal management techniques for cool-season

grass diseases such as dollar spot (*Clarireedia*

**Technology to fight dollar spot: a new way of disease management**  
Dollar spot (*Clarireedia* spp.) is difficult to manage without fungicides. Furthermore, resistance to most of the traditional dollar spot fungicides has now been documented. This has led researchers and turfgrass professionals to explore new ways of managing and preventing the disease. Who would have thought drones, thermal cameras, GPS-guided sprayers, and

<p>spp.) and brown patch (<i>Rhizoctonia</i> spp. and <i>Ceratobasidium cereale</i>).</p>	<p>wetting agents would be used for dollar spot management?</p>
<div data-bbox="188 264 453 582" data-label="Image"> </div> <p><b>Devon Carroll</b> is a doctoral student in Plant, Soil, and Environmental Sciences focused in turfgrass weed science at the University of Tennessee. She holds a Master’s degree in Agronomy specialized in turfgrass and Bachelor’s degree in Turfgrass Science both from the Pennsylvania State University.</p>	<p><b>Controlling Clover and Dandelions with Iron</b>  What is chelated iron and how does it affect weeds and turfgrass? Chelated iron may be used as an organic herbicide targeted toward broadleaved weeds such as dandelion and clover. Unlike many other organic or natural products, use of iron herbicides results in minimal injury to turfgrass. Iron is a promising weed control tool in areas with restricted pesticide use.</p>
<div data-bbox="204 763 443 1122" data-label="Image"> </div> <p><b>Jason Henderson</b> is an Associate Professor of Turfgrass and Soil Sciences in the Department of Plant Science and Landscape Architecture at the University of Connecticut. Dr. Henderson earned his Ph.D. degree from Michigan State University in Crop and Soil Science specializing in the physical properties of turfgrass soils.</p>	<p><b>Let the Robot Pick the Weed: Management Strategies when Pesticides are Not an Option</b></p> <p>Laws have removed conventional tools for managing pest populations in many areas of turfgrass management. Attendees will appreciate an unconventional perspective while realizing the themes of pesticide-free management; fundamentals are imperative, intensity of management will increase, and windows of opportunity will decrease. A new device for turfgrass management will be introduced for selective, mechanical weed control while mowing.</p>