



EUROPEAN TURFGRASS SOCIETY

NEWSLETTER 03/2020

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IN THIS 03/2020 NUMBER:

- ETS elections for Board renewal	page 1
- 7 th ETS Conference 2020 publications	5
- Resistance management	7
- iTurf News	10
- New Herbatech recommendations	12
- Barenbrug and Simplot agreement	15
- Sustainability and DLF	16
- First recycler for towing vehicles	18
- News from NIBIO Landvik, Norway	20
- Info on ETS	21



ETS elections for Board renewal

Call for elections!



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EUROPEAN TURFGRASS SOCIETY

ETS elections for Board renewal: call for elections!



As announced before, after 4 years (2016-2020) the **ETS Board** is now required to renew, with elections, a new board. The tenure lasts four years and the existing members can be re-elected, however several are now stepping down leaving some positions vacant.

The ETS board consists of 5 to 9 members elected among eligible **ETS members**, including the President. The internal ETS Regulation has dedicated 1 position of the board to an US Academic, to assure a connection with American research. Thus there will be 1 place available for the US candidate and 8 for the European.

Elections will be held online following 2 links (1 for EU and 1 for US candidates) that will be provided to ETS members by email.

The European candidates are:

Claudia de Bertoldi (Turf Europe srl, IT)

I received my BA in 2003, after an internship at North Carolina State University (USA) and I have completed my M.Sc (*Progettazione e Pianificazione delle Aree Verdi e del Paesaggio*) at University of Pisa (Italy) in 2006. My PhD (*Allelopathic interferences of plants*) was from S. Anna School of Advanced Studies in 2007-2010. Since 2013 I am employed by Turf Europe (Livorno – IT). I am actively engaged in landscaping and realization of gardens and turfgrasses for ornamental and sport use. Management of high-quality sport fields also through precision agriculture. Participation in R&D projects financed at European level. More than 20 publications, posters and presentations on conferences and meetings on turfgrass.



Wolfgang Praemassing (University of Osnabrueck, DE)

Study of Agricultural Biology (University Diploma) at University of Hohenheim, 1991
Doctoral Dissertation (PhD) Promotion with Prof. Dr. H. Franken, University of Bonn, subject: Soil physical Effects of Aeration on Turfgrass Soils, 2008.

Occupation and activities: Professor for Sustainable Turfgrass Management at University of Applied Sciences Osnabrueck, Agronomist and lecturer in Greenkeeper Education and Training for golf and sport sites at DEULA Rheinland GmbH, Education Center, Kempen. Member of editorial staff of "European Journal of Turfgrass Science". Member of Turf expert committee of German Soccer League (DFL).

Member of working group "Water" at German Golf Federation. Member of examination boards of Chamber of Agriculture Nordrhein-Westfalen Golf Course Greenkeeper and Head-Greenkeeper, Greekeeper/Groundsmen Sport Sites, Competence of Pesticide application.



Carlos Guerrero (University of Algarve, PT)

Carlos Guerrero is graduated in Horticulture Engineering at the University of Algarve (Portugal). Has a M.Sc. in Soil Fertility and Plant Nutrition at the Agronomy Superior Institute, of the Technical University of Lisbon (Portugal) and a PhD in Environmental Agronomy at the University of Algarve (Portugal). Assistant Professor at the University of Algarve(Faculty of Sciences and Technology), is actually the Diretor of the Degree Program in Agronomy and was the Director of the Master Program in Management and Maintenance of Golf Courses between 2008-2010.

Teaches Soil Science in Landscape Architecture and Soil Science and Agriculture Machinery in the Agronomy. Is also specialized in groundwater and soil nitrate pollution and has experience on organic and compost uses in agriculture and turfgrass. Actually is working on remote sensing for turfgrass maintenance purposes with unmanned aerial vehicles and multispectral sensors.



Karin Juul Hesselsøe (NIBIO Landvik, NO)

M.Sc in Agriculture 1996, Copenhagen University. From 2006-2019 employed at the Greenkeepers College Sandmoseeskolen in Denmark as teacher in greenkeeping and landscape gardening. From June 2019 employed at NIBIO, Landvik. Experience with writing/translation of popular articles and fact sheets on golf course management. In 2018 project leader on an IPM-project on Danish golf courses financed by the Danish Environmental Protection Agency.



Marcela Munoz (Syngenta, UK)

My name is Marcela Munoz, I'm a leading turfgrass specialist qualified as an Agronomist Engineer from The Pontifical Catholic University of Chile and have a Master of Science Degree from The Ohio State University in Turfgrass Management. Since 2015 I'm based in Cambridge, UK, working as Syngenta's Technical Services Manager for the EAME region.

I'm an amateur football player that joined this industry moved by my passion for sports, agronomy and science. I had been in the turf industry for more than 15 years and worked at different positions and countries around the world. Some of my latest exciting experiences include working for the STRI as a turf agronomy consultant for the FIFA 2014 Brazil World Cup and providing technical support at the Ryder Cup at Le Golf National in Paris. I'm also an active member of many turf associations around the world and volunteer since 2011 in the International Committee of the Sports Turf Managers Association of America (STMA) In my current role I work closely with associations such as ITS, FEGGA, GMA, BIGGA, STERF, R&A and other local associations and Federations around the region. I also work very closely with the Syngenta Turf Research facility at Stein in Switzerland and the International Research Centre at Jealott's Hills in the UK, as well as independent researchers, agronomists, greenkeepers and sports turf managers across Europe, Africa and the Middle East. My role also includes supporting the marketing team and commissioning pioneering research to maintain Syngenta at the leading edge of turf science, as well as delivering the results back to the industry in the form of practical solutions to help create consistently better playing surfaces.



Stefano Macolino (University of Padova, IT)

Stefano Macolino is an Associate Professor at the Department of Agronomy, Food, Natural resources, Animals, and Environment of the University of Padova.

He graduated in Forestry Science in 1996, Faculty of Agriculture at Padova University.

He has carried out research on forage management and turfgrass at the Department of Environmental Agronomy and Crop Production as a Postgraduate Researcher. In 2003, he achieved the Ph.D. in Environmental Agronomy.

He has been teaching actively, including three courses: Turfgrass and Revegetation, Forage Crops, and Botany of Cultivated Plants. Dr. Macolino is currently the president of the Committee for the improvement of teaching at the School of Agriculture and Veterinary Medicine of Padova University.

He conducts researches on the following:

1. Impact of cultural practices on cool and warm-season turfgrasses in transition zones.
2. Forage crop production and management.
3. Production and plant biodiversity of mountain grasslands.

He supervised Ph.D. students and postdoctoral fellows on the made mentioned topics.

Dr. Macolino is the author and co-author of nearly 50 scientific publications in peer-reviewed journals, and numerous publications in conference proceedings, and technical magazines. He is also the author of two books in Italian for undergraduate students.



Fritz Lord (COMPO Expert, DE)

Study of horticultural science at Rhein University Geisenheim, M.sc. in soil science/entomology. Study of Agricultural Science at Humboldt University Berlin; M.Sc.in crop science, plant diseases; Ph.D at Humboldt University Berlin in phytopathology, antagonistic rhizobacteria (PGPR), soil borne pathogens (Fusarium). Since 2008 working for one of Europe's leading fertilizer manufacturer COMPO Expert in Münster, Germany. Responsible for the segment turf and public green, vegetation-technical consultation, research and development, product management and education. Specialties/ experiences: soil-plant-microorganism interactions, bio stimulants, microbial fertilizer, turf nutrition and maintenance.

Various publications regarding turf fertilization and maintenance (e.g. European Journal of Turfgrass Science, New Landscape). Teaching turf seminars for greenkeepers and groundsman in Germany and abroad.

ETS member since 2008, board member of the International Turf Grass Society (ITS) since 2014.

Further memberships: German Turfgrass Society (DRG), Greenkeeper Association of Germany (GVD) , Austrian Greenkeeper Association (AGA), Förderkreis Landschafts- und Sportplatzbauliche Forschung (FLSF), Forschungsgesellschaft Landschaftsbau e.V. (FLL)



The US candidates are:

Clint Mattox (Oregon State University, USA)

Dr. Clint Mattox graduated from Purdue University with a turfgrass science degree in 2000 and has been working in the turfgrass industry since that time. From 2000 until 2012, Clint worked overseas, primarily in Europe, where he was an assistant superintendent in Berlin, head greenkeeper at Paris Disneyland, and finally grow-in and maintenance superintendent at the Arnold Palmer designed Vignoly golf course near Paris. While in Europe, Clint became interested in managing golf courses in the absence of traditional fungicides.



To pursue this interest, in 2013, Clint began graduate studies at Oregon State University focusing on managing turfgrass diseases in the absence of traditional fungicides. He finished a Master of Science degree in Horticulture in September 2015 and a Doctorate degree in March 2020 majoring in Horticulture with a minor in Botany and Plant Pathology. His current research focus includes managing the turfgrass disease *Microdochium* patch using alternatives to traditional fungicides, turfgrass carbon sequestration, annual bluegrass herbicide resistance, tall fescue winter fertility, and the use of wetting agents to suppress anthracnose on annual bluegrass putting greens. Clint has authored multiple scientific and trade journal articles, and frequently speaks at conferences on turfgrass research, including international speaking events in Europe. He is also active as an online instructor and is currently developing an online adult introduction to turfgrass management class.

Alec Kowalewski (Oregon State University, USA)

Ph.D., has over 17 years of research experience and multiple publications on various cool-season and warm-season turfgrass species obtained while employed at Michigan State University, Abraham Baldwin Agricultural College, the University of Georgia, and Oregon State University. Alec is an Associate Professor at Oregon State University and teaches several undergraduate classes in the Department of Horticulture. Alec also provides extension material for stakeholders in turfgrass and landscape management, and directs the turfgrass research program at Oregon State University.



Marco Schiavon (University of Florida, USA)

Ph.D., is an Assistant Professor in the Environmental Horticulture Department, University of Florida at the Fort Lauderdale Research and Education Center. His primary research interests include potable water conservation for irrigating turfgrass areas, salinity management, physiology of turfgrass in response to drought stress. He received a B.S. in Agronomical Sciences in 2005 and a M.S in Agronomy in 2008 both from University of Padua, Italy, and a Ph.D. in Agronomy in 2013 from New Mexico State University. In 2013, he moved to University of California Riverside where he worked as a Postdoctoral Scholar until December 2016, and subsequently as an Assistant Researcher until November 2019. He has published more than 30 refereed journal articles.



Best of luck to the candidates !



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Turf Solutions for the Future, the 7th European Turfgrass Society Research Conference:

Agronomy Journal Special Issue

The European Turfgrass Society's (ETS) 7th Research Conference was scheduled to be held in Amsterdam, the Netherlands, from 29 June to 1 July, 2020.

The theme of this year's conference, "Turf Solutions for the Future", was selected to highlight a movement towards the sustainable management of all green spaces.

However, the rapid spread of the novel coronavirus COVID-19 that led to a global pandemic has resulted in travel bans, quarantines and social distancing that have required the postponement or cancellation of large meetings and gatherings.

Consequently, the ETS board decided to cancel the 7th European Turfgrass Society Research Conference.

However, manuscripts of presentations were already submitted and under review, therefore the ETS board has decided to proceed with the publication of the abstracts and research reports.

All 15 papers that cover a variety of topics from authors representing various countries are now available online.

<https://access.onlinelibrary.wiley.com/toc/14350645/current>

Cover Image, Volume 112, Issue 5

First Published: 19 October 2020





Submitted 2 pages extended abstracts of the 7th ETS conference, June 2020 in Amsterdam



European Journal of Turfgrass Science

The ETS Board in coordination with the German Turfgrass Society (DRG) and the Köllen Druck + Verlag, have agreed to print the selected and "peer-reviewed 2-page-extended abstracts" of the planned ETS conference.

In three issues of the magazine "RASEN - European Journal of Turfgrass Science" there are technical articles on the following main topics:

Edition **02/20**: "Drought, Irrigation and Water consumption"

Edition **03/20**: "Disease and Pest Management + Biostimulants"

Edition **04/20**: "Maintenance and Nutrition + Impact for the Environment".



Author	Theme: Drought, Irrigation and Water consumption	No. / page
Kevin N., K.N. Morris and M.P. Kenna	Water use and drought resistance results from C3 grasses evaluated at ten sites in the united states	1 / 22
Corniglia, M., F. Guglielmi, C. Sudiro and A. Altissimo	LL002 Treatments delayed drought stress symptoms in turf – from pot to plot	2 / 24
Straw C. and J. Friell	Precision irrigation using sensor and mapping technologies	3 / 26
Giannakopoulos, V., J. Puertolas, A. Owen and I.C. Dodd	Applying surfactants decrease turf water use under high evaporative demands in glasshouse conditions	4 / 28
Mingyan Jiang, M., M.C. Fleetwood, S.H. Anderson and X. Xiong	Wetting agent effects on plant available water for hydrophobic USGA root zones	5 / 30
Ntoulas, N., C. Kalampogias and P.A. Nektarios	Alternate Irrigation with Seawater and Potable Water affects green coverage of two Paspalum Vaginatium varieties grown on shallow green roof systems	6 / 32
De Luca, V. and D. Gómez de Barreda	Effect of GLYCINEBETAINE on a non-irrigated Bermudagrass Turf	7 / 34
Reiter, M	Comparison of organic and conventional herbicides to control Bermudagrass	8 / 36

The detailed articles can be found on the homepage of the German Lawn Society (DRG) e.V. at www.rasengesellschaft.de/zeitschrift.html

and here:

https://www.golfmanager-greenkeeper.de/fileadmin/content/Importe_gk_ra/2020/ra0220_s19bis38ETS.pdf

Resistance management

By Karl Danneberger, Ph.D.

Professor

Department of Horticulture and Crop Science

The Ohio State University



Quality turf systems like those found on golf courses and sports fields are managed for a high degree of uniformity and density for aesthetic and functional purposes. Selecting the proper turfgrass species and cultivars combined with proper cultural practices are necessary to reduce the likelihood and severity of diseases. Where disease incidence is chronic and severe even under the best practices fungicides are needed to effectively control diseases. Inherent in the use of fungicides is understanding what fungal resistance is and how to manage it for the long term.

Fungal pathogens have evolved overtime in how they infect their host and also survive in nature. An integral part of the evolution of fungi are their sexual and asexual reproduction cycles. Sexual reproduction provides fungi the opportunity to mix genes from two individuals to get new and unique individuals. Another method for developing individuals with new gene combinations is anastomosis - asexual reproduction - which is the union of hypha resulting in an intermixing of contents. The most common form of reproduction for most turfgrass pathogens is asexual.

Dollar spot bent close



dollar spot lesion early stage



Dollar Spot



A fungal population with a natural sensitivity to a fungicide is known as a "wild type". In such a population genetic diversity occurs resulting in a small number of individuals with resistance to the fungicide even though that fungicide may never been applied.

The small number of fungicide resistant individuals begin to dominate the population in the presence of the fungicide as the wild types are selectively removed. The fungicide resistant types flourish and cause damage. The fungicide resistant population, which is not affected by the fungicide continues to grow becoming a greater proportion of the population. The result is a directional shift in the fungal population toward resistance. From a turf management perspective disease control is lost and the future use of the fungicide is compromised.

Mechanisms that the resistant fungal individuals may have to avoid the toxic effects of the fungicide include:

- 1) **Decreased permeability.** The resistant types do not absorb as much of the pesticide as the wild types.
- 2) **Metabolism.** The resistant type detoxifies the pesticide or reduces the release of the compound.
- 3) **Decreased affinity at the site of action.** Some fungicides are known to attack specific sites in a pathogen. A modification in the resistant fungus site of action can make the fungicide ineffective.
- 4) **Circumvention of the site of action.** Circumvention means that the pest has an alternative metabolic pathway for the one that is blocked by the fungicide.
- 5) **Compensation.** A resistant pathogen has the ability to increase the production of an inhibited substance. For example, if a fungicide inhibits a certain enzyme, the resistant pathogen has the ability to increase the production of that enzyme.

A component in the development of a resistant fungus population is the population's "fitness". Fitness is a general term used to describe how adapted the population is to grow and reproduce in the environment.

For example, benzimidazole resistant dollar spot populations are highly stable or fit. Benzimidazole resistant populations have been found to dominate the population supplanting the wild types long time after the absence of the fungicide.

Fusarium



Fusarium Patch



Fusarium on bentgrass



Conversely, resistance to iprodione (dicarboximides) have weaker fitness. In the absence of iprodione the wild type or sensitive population returns to a predominant component of the population while the resistant population declines. The shift back toward the wild type population is referred to as fitness penalty, the selection against resistance.

Three strategies exist for using fungicides, each with different potential for resistance. The first strategy is continuous use of a fungicide or ones with the same mode of actions. If the fungicide is site-specific, as most fungicides are continual use will result in strong directional pressure toward a resistant population. The more applications the quicker resistance will develop.

The second strategy is alternating fungicides of different modes of action. Alternating fungicides can delay the appearance of resistance. The lack of a single fungicide mode of action reduces the selection pressure and depending on the resistant populations fitness may allow for a recovery of the wild type population between subsequent applications. Alternating fungicides with similar modes of action has no advantage because once resistance occurs a fungicide it will also occur to the fungicide with a similar mode of action.

The third strategy is mixing, which is the combining fungicides from different mode of actions together. In delaying resistance, fungicides used in a mixture should each be an effective control of the targeted disease if used alone. Advantages to mixing include disease control is not left to one mode of action, and the chance of resistance are less compared to continuous or alternating strategies if total pathogen population levels are kept low.

Whether alternating or mixing fungicides, a key component is keeping the disease population low. In a small wild type population, it more difficult for a resistant population to establish and dominate. Integrated management practices like resistant species and cultivars and cultural practices targeted to reducing the disease severity help reduce populations. Fungicides applied at dosages effective for disease control and where possible preventatively are less likely to seat lower disease population levels help maintain low disease population levels.

Microdochium on green collar



Microdochium Patch trial



Severe dollar spot



Fungicide Resistance Strategies

Effective turfgrass disease control and fungicide resistance strategies depend on an integrated management strategy. Below are the steps important in helping to develop a fungicide use and resistance program.

- 1) Identify the diseases of concern. Which of those diseases require a fungicide application(s) to control?
- 2) Identify which products are labelled for control of the disease(s) you have identified that will require fungicide(s) treatment.
- 3) From the products selected, outline a treatment program. From a resistant management perspective use mixtures or alternate fungicides with different mode of actions. Where appropriate mix or alternate with fungicides where risk of resistance is relatively low.
- 4) Practice good management practices both genetically and culturally, which helps reduce the number of fungicide applications needed. Additionally reducing the pathogen population makes it more difficult for the resistant population to dominate.
- 5) Where possible apply preventatively.

Different modes of action available in turf

Class	Example	Resistance risk	FRAC# - mode of action
Sterol Inhibitor (DMI)	Difenoconazole	Moderate	3 - C14- demethylation in sterol biosynthesis
Strobilurin (QoI)	Azoxystrobin	High	11 - Complex III of fungal respiration: ubiquinol oxidase
Phenylpyrrole	Fludioxonil	Low to moderate	12 - MAP protein kinase in osmotic signal transduction
Succinate dehydrogenase inhibitors (SDHI)	Benzovindiflupyr	Moderate to high	7 + 11

Fungicide Resistance Action Committee (FRAC)

Effective Disease Management

Good disease management is good for reducing resistance risk

- Integrated control programme – alternation or mixture with alternative MOA, good cultural practices
- Preventative treatment where possible – stop disease becoming established
- Use of a dose of the fungicide that gives effective disease control

Maintenance of low population sizes makes it more difficult for resistance to become established

Dear ETS friends,
at ICL we know that the quality of the turf grasses is one of the fundamental building blocks for producing high quality sports surfaces. For the last 10 years we have been focusing our efforts on developing a comprehensive and high quality turfgrass seed portfolio. In this special edition grass seeds newsletter, I've rounded up the latest exciting additions to our ProSelect range.

Enjoy the read,
Simon Taylor
ICL Product & Business Development Manager Grass Seeds

Exciting new varieties in ICL's ProSelect seeds range [Rio, Piranha, Riptide]

[RIO] "Rio exhibits excellent cold and frost tolerance as well as early spring green-up, making it a great choice for both warm seasons and transitional zones, and any seeding project. The combination of fine leaf texture, dense growth and dark green color provides turf managers great performance. Additionally, with strong tolerance to leafspot and dollarspot, the requirement for herbicide control is lower than many other leading varieties." [quote Simon]

Backing up NTEP data that Rio seeded Bermuda grass is rated number one for establishment aided by rapid germination, a recent project in Italy demonstrates incredible results only one month after seeding.

Bred by private breeders Mountain View Seeds, Rio is exclusively sold and distributed by ICL in Europe. [<https://youtu.be/6eAXuFNbIhQ>]

[Learn more]
https://icl-sf.com/global-en/products/turf_amenity/proselect-rio



Rio_Italy_July2020

[RIPTIDE]

More from less with Riptide

Riptide Creeping bent has gained a wide following throughout Europe and has been adopted by several UK courses for its adaptability to a wide range of growing conditions.

We are all looking for more from less these days. Riptide certainly provides the opportunity to create excellent greens surface with lower inputs of fertilisation and disease management. High tolerance to Microdochium patch and dollarspot reduces the frequency for fungicide applications.

[Learn more]
https://icl-sf.com/global-en/products/turf_amenity/proselect-riptide

Riptide was used to overseed the short game green at Trentham Golf Club (UK) in March 2020. Course Manager Ed Stant: "Over the past 3 months Riptide has filled in beautifully and is really starting to come into its own. During early morning dews you can see the creeping bent beginning to outcompete the poa-dominated cores and establishing well. Good advice, good product and competitively priced, I'd have no hesitation in recommending Riptide."



[PIRANHA]

New EU registration: Piranha

Piranha, a brand-new creeping bent grass distributed exclusively by ICL which recently gained EU registration. From the same stable as Riptide, Piranha offers an ideal solution to those greenkeepers who are challenged with extremes of localized weather conditions. Early spring green-up suits courses of higher altitudes and high tolerance to heat, making Piranha a truly pan-European variety capable of tolerating many turf stresses. Piranha also provides a darker green color as well as excellent Anthracnose, Dollarspot and Brown patch disease tolerance. [https://icl-sf.com/global-en/products/turf_amenity/proselect-piranha/]

Quality is everything

"I must take a proactive approach to the development of our seed range and we need to look years ahead to create quality varieties that will be able to satisfy future demands." Meet Simon Taylor, the man behind ICL's ProSelect grass seeds portfolio.

[Read more]

<https://icl-sf.com/global-en/article/behind-the-seeds>

Watch now: Anthracnose in Turf

With Anthracnose appearing to be on the increase in recent years, ICL Technical Manager Dr Andy Owen give an insight into the disease and best management advice in this 3-part series. [<https://icl-sf.com/global-en/article/anthracnose-in-turf-grass-disease-identification-and-best-practices>]



Tokyo Golf Club

Piranha used in renovations at Tokyo Golf Club. Piranha has been inter-seeded on over 200 courses in Japan.



ProSelect Rio link Learn more: https://icl-sf.com/global-en/products/turf_amenity/proselect-rio

ProSelect Rio link Watch the video: <https://youtu.be/6eAXuFNbIhQ>

ProSelect Piranha link Learn more: https://icl-sf.com/global-en/products/turf_amenity/proselect-piranha/

ProSelect Riptide link Learn more: https://icl-sf.com/global-en/products/turf_amenity/proselect-riptide

ProSelect Riptide link [Testimonial]:

Anthracnose series link Watch now: <https://icl-sf.com/global-en/article/anthracnose-in-turf-grass-disease-identification-and-best-practices>

ICL's Riptide, the n1 ranked creeping bentgrass, has made an impact at Trentham Golf Club, according to Course Manager, Ed Stant: <https://icl-sf.com/global-en/news/icl-s-riptide-makes-an-impact/>

New Herbatech recommendations for sod preparation and laying in professional football stadiums

By Marco Sassi, Herbatech

Hybrid and reinforced natural surfaces for professional football stadiums and training fields are probably the most innovative turf systems developed in recent years. Their extraordinary playing features oblige to put in place a series of techniques both in construction and maintenance that no other green area requires. Following its mission SCIENCE-SOLUTIONS-RESULTS focused on providing most up to date effective products, we have reviewed our program for producing and laying high performing quality sod for this intriguing sector.

INTRODUCTION

In sod installation of sports fields, profiting of the short intervals between championship games, it is very important to execute a precise, accurate and rapid seedbed preparation and sod laying. The greater is the combination of speed and precision, more square meters of turf can be laid in the shortest unit of time. This permits to take best advantage of the working time before playing activity resumes producing a top-quality pitch.

PRELIMINARY OPERATIONS

- A) Delimitation of the interested turfgrass sports area and collection of soil samples and delivery to a specialized soil lab for analysis. Determination of mayor physical and chemical parameters. Obtainment of a plan of correction and amendment, suggesting the eventual distribution of soil corrective chemicals or/and amendments
- B) Complete chemical elimination of weeds
- C) Heavy-duty fraise mower for surface with Koro machine (or similar) with removal of unwanted surface matter for a thickness of 4 cm
- D) Study and realization of the slopes; verification of drainage and irrigation system functioning



Sod cultivation in nursery - FLexGrass Horizon

PREPARATION OF THE SOIL SURFACE BEFORE SOD LAYING

- A) Distribution with a sand spreader for a thickness of about 1 cm of silica sand in accordance with USGA standards. Quantity necessary MC 80 (approximately 120 Tons)
- B) Rolling with a slight compression of 20% and re-verification of the slopes gradient with grading levelling
- C) Distribution of the soil bio-activator BIOGEL 12/40 at the dose of 8-10 kg/100 m². Quantity necessary approx. 800 Kg
- D) Eventual distribution of soil corrective granular chemicals and amendments at the dosages derived from the soil analysis certificate
- E) Granular fertilization with Zeotech P 10-14-10 at a dose of 80 gr/m². Required quantity about 640 kg
- F) Superficial soil working with a light tillage at a depth of 7-8 cm in order to incorporate the soil conditioners and bio-activators as uniformly as possible within the first layer of the top-soil
- G) Fine leveling and rolling
- H) Distribution with a regular fertilizer spreader of one the following two granular soil improvers:
 - 1. in case of shallow roots and weak growth: Zeochrome (zeolite soaked with nutrients, humates and root biostimulants)
 - 2. in case of undecomposed organic matter, very high C/N ratio and poor soil life: Zeobiome (zeolite soaked with a solution of worm compost extracts, michorrizaes, biological wetting agents and nutrients)

Recommended dosage for both products between 0,7-1,0 Kg/m². Quantity required approx. 7,0-10 Tons.

Note: Zeochrome and Zeobiome are made with Zeotech 300, an Italian oven dried chabasitic zeolite of Herbatech with a granular size of 0.7-2.0 mm.



Root growth of hybrid sod following Herbatech technical recommendations

SOD LAYING

- A) Sod specific for professional sports fields (cultivated in the nursery on a 90% silica sand substrate blended with 10% chabasitic zeolite) must be pre-conditioned in the nursery before being delivered. It must be treated in the field, one or two days before harvest with Rubisco Smart (thermal anti-stress biostimulant with root enhancers and pigments) at a dose of 7.5 lt/ha in 800 lt. of water. In the summer, tank mixing Rubisco Smart with a Qol strobirulin fungicide is also strongly advisable to prevent diseases.

Sod must be with a thickness varying between 3,0 to 4,0 cm. (big roll meters 1,20x8 or 1,20x10). The possible types of sod for professional sports fields are:

- 100% natural sod,
 - 100% natural sod, stitched on-site with fibers to obtain a vertical hybrid turf system (Grassmaster, SIS-grass, Vertix, etc.)
 - 100% natural sod, mixed with polyethylene and polypropylene fibers (Airfibre, etc.)
 - Lay&Play horizontal hybrid turf system sod (Mixto, Playmaster, Hero, Powergrass, Xtra Grass, Horizon, etc.), cultivated in the nursery on an artificial backing where the grass grows in between the synthetic turf blades. Growing substrate is silica sand blended with chabasitic zeolite while infill must contain silica sand enriched with Zeobiome
- B) Two crossed rolling after sod laying
- C) Abundant irrigation until the soil is completely wet (3-4 intervals of 15 minutes each are recommended)
- D) Application of the soil water super-hydrating agent ONE SHOT at the dosage of 10 liters/ha in 1000 liters of water. Water-in soil again
- E) Make sure that a program of repeated watering is carried out until full rooting is obtained



Sod laying - MIXTO SYSTEM

OPERATIONS AFTER 10 DAYS FROM SOD LAYING

- A) Treatment with Rubisco Smart at a dose of 7.5 lt/ha in 800 lt of water
- B) Fertilization with Zeotech Gold 14-0-8 + 2Fe at a dose of 40 kg/1000 m². Repeat after 20 days. Required quantity about 650 kg. Water in for at least 10 minutes after distribution

Barenbrug and Simplot enter into agreement for the sale of the Jacklin® Seed business



The Royal Barenbrug Group and the J.R. Simplot Company today announce that they have agreed on terms for the sale of the Jacklin® Seed business to Barenbrug USA. The transaction is expected to close in the next few weeks, subject to standard closing conditions. Both Simplot and Barenbrug are privately held, family owned companies with storied legacies in agriculture and expect a smooth transition that will benefit Jacklin® Seed employees and both companies.

The combination of Jacklin® Seed’s deep portfolio with Barenbrug’s vision, R&D, and industry leading market development will provide a strong value to turf growers and distributors across the world.

“We warmly welcome Jacklin® Seed’s employees, growers, and customers to our global Barenbrug family,” said John Thijssen, Member Board of Directors, Barenbrug Group. “Their high-quality and wide-ranging seed experience will further strengthen and grow our position as a leading global grass seed supplier. By combining our skills and expertise, we’ll supply a greater range of premium grasses to our customers and create value for all our stakeholders worldwide.”

“We are pleased to partner with Barenbrug in this transaction,” said G. Rey Reinhardt, Simplot AgriBusiness division. “We believe that their ideals and goals as a generational, family-run organization align with ours and that the Jacklin® Seed employees will have a smooth transition into the Barenbrug organization.”

More information will follow after closing.

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About Royal Barenbrug Group

Headquartered in the Netherlands, and with a 115-year history, Barenbrug is a fourth-generation, family-owned company dedicated to the research, development and production of grass seeds & legumes for agricultural and recreational markets. With over 800 employees, in more than 20 countries on six continents in all major climate regions, our mission is to increase animal productivity to help feed the world and enhance the enjoyment of green spaces. Together, our operating companies deliver annual net sales above €265 million. More information can be found at www.barenbrug.com

About Simplot

The J.R. Simplot Company, a privately held agribusiness firm headquartered in Boise, Idaho, has an integrated portfolio that includes phosphate mining, fertilizer manufacturing, farming, ranching and cattle production, food processing, food brands, and other enterprises related to agriculture. Simplot’s major operations are located in the U.S., Canada, Mexico, Australia, South America and China, with products marketed in more than 60 countries worldwide. For more information, visit www.simplot.com.



Future proofing your business

One of the only clear things coming out of the troubled times we are living in, is our fellow citizens concern about how they can make healthy choices and how those may impact on the environment.

These concerns also challenges the turf grower or professional grounds manager to make an impact at their local level and contribute on a wider level to the UN Sustainable Development Goals. Not an easy job, but hopefully DLF's sustainable solutions can help.

Core to our business is to breed reliable and sustainable solutions for turf producers and turf managers world-wide. An important aspect to this is found down below in the ground in the roots. The roots have an high importance in making the turf usable quicker, making a better visual appearance, giving you healthier plants and also benefitting the environment.

We all know how important they are for many different reasons but how do they really develop, are there a differences between species, between varieties and can we breed enhanced root architecture into plants?

Together with Copenhagen University, DLF is testing the root architecture of varieties at the worlds most advanced root screening facility, RadiMax. It enables imaging of roots down to 3.0 m depth and at the same time the grasses can be exposed to increasing drought conditions through a soil moisture gradient, which can be induced in the system. In this way, we can screen the root architecture of our varieties and find out which ones can perform under drought conditions.



RadiMax has been developed to study the root architecture of several different plant groups. Whether they be for professional turf, forage crops, cereals , potatoes or sugar beets, root architecture has been an area that has always intrigued plant breeders, but a practical tool has always been tantalizingly out of reach.

Some work has been done in hydroponic tanks but not with a growing media and not without disturbing the plants to observe the roots. Now with the RadiMax tool real growth time answers are within reach and can help breeders to select for this important characteristic in future varieties.

The Radimax facility combines several tools in one: rain off shelter, controlled below ground irrigation, photographic root depth and density analysis. All useful to understand root development and to look at differences between species and varieties.

The importance of a quickly developing root structure is well known to turf growers allowing them a quicker production turn around so any varieties being RadiMax verified can offer growers shorter production time.

There are benefits to the end user as well, as an enhanced root architecture can improve drought tolerance.



How deep rooting can help fight drought

With changing climatic conditions, spring- and early summer drought occurs more and more frequently. In many cases it will severely impact turf performance and 2020 was no exception. Drought in Southern Europe is no surprise and the market uses some different species to mitigate the effects, but for the sixth year in a row, northern- and central parts of Europe were, to various degrees, hit by spring- and early summer drought. In all those six years drought had economic consequences for turf grass managers. Turf swards were hit by the consequences of poor visual appearance, more repairs, less playing hours and higher irrigation costs.

The phenomenon is not debatable anymore. We'd better get used to the likelihood that in particular spring drought will be the rule rather than the exception!

When drought hits in spring, vegetation dries out the soil from the top, and gradually the lack of moisture will expand deeper down. Plants are dependent on deep and efficient root architecture to take up soil moisture when this happens.

Drought tolerance has always been a key target for plant breeders in DLF, but plant breeding for improved root architecture is very complicated. It is neither easy to get a good look at what's going on below soil surface nor to do it in the high number of breeding lines required to make improvements. That was at least until now and the development of RadiMax.

Combining the data from RadiMax with what we already know from our other R&D activities, we can develop new breeding lines to further improve drought tolerance in our new varieties. With this knowledge we have been able to verify that the root mass of 4Turf (for turf) is superior to the standard perennial turf ryegrass.

But the benefits of enhanced root architecture don't just stop with drought resistance, it can reduce fertilizer inputs, increase wear tolerance, improve drainage and soil structure and increase carbon sequestration.

Currently, deep root mass and root architecture are not rewarded by any official value tests in the European evaluation system. But we believe that it is essential to pursue the enhanced rooting, to achieve drought tolerant varieties for the benefit of turf grass managers.

DLF are now able to give customers guidance, when they ask for the best rooting and most drought tolerant species and varieties

<https://www.dlf.com/professional-turf/roots>

Many greenkeepers no longer want to walk the famous "last mile" - they want to drive it. With the new trailed version of the Core Recycler, they can now "effortlessly" get the last out of their turf maintenance. Some even generate profits.

Greenkeepers are increasingly challenged by global warming: the pressure to maintain the greens is ever increasing, while costs are rising at the same time as revenues are falling in many places. This is drawing more attention to areas that turf maintenance professionals have not previously had "on their radar". For example, the core procession, the soil excavated after the obligatory aeration or deep ventilation procedure.

Until now, cores had to be collected and disposed of in a costly and time-consuming manner. The resulting channels are filled with new soil. This is actually foolish, considering how valuable the excavated soil, interspersed with useful organisms, is compared to sterile refilling.

Preserve valuable core substrate

This is why many professional golf courses use the Core Recycler: a hand-guided machine that collects extracted cores, separates the valuable soil substrate from the unwanted fibre residue, and immediately returns the remaining material to the turf sward. The machine from the German manufacturer Wiedenmann, which is rightly regarded as innovative, has been on the market since 2013. The Swabian technology is yet unrivalled.

Once developed for golf courses, turf caretakers of ball playing fields and other green areas are increasingly devoting themselves to core recycling. However, few people like to work large areas by hand. Wiedenmann has therefore developed a new, drawbar trailed version.

Trailer operation increases productivity

The drawbar can be swung out to the right or left to prevent the driver from driving over cores that have already been cut out and pushing them back into the turf. The drive is carried out either by means of a PTO-shaft mounted pump or by a surface-mounted petrol engine as in the hand-operated version. The key data of the two versions are almost the same: 120 cm working width, 400 litres hopper capacity, and high dumping up to 150 cm. Also the price.

The benefit of core recycling is considered to be given. Wiedenmann speaks of a recycling rate of up to 80 percent for excavated soil, up to 40 percent savings in top dress material and a significant reduction in the use of pesticides.



Online tool calculates cost savings

In the UK, for many the home of absolute professional golf, the experts at the renowned STRI Institute in Bingley have undertaken an extensive survey. They were able to confirm the manufacturer's data to a large extent. The figures hold potential: users have already been able to demonstrate an amortisation period of three years and four-to-five-digit net returns in the following years.

The manufacturer has put an "Efficiency Calculator" online at the Wiedenmann.de website. Interested parties can use their own figures (anonymously) to check whether and to what extent a Core Recycler could be worthwhile for their own business.



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Feedback is always welcome - so we can improve!

Anne Friederike Borchert from Osnabrück University enjoyed a working summer holiday at NIBIO Landvik, Norway

By Karin Juul Hesselsøe, Tatsiana Espevig and Trygve S. Aamlid, NIBIO Turfgrass Research Group

In spite of the restrictions on travelling, we have had the pleasure to have Anne Friederike from Germany working with us at NIBIO Landvik this summer.

Anne Friederike Borchert (36) studies turfgrass management in the Master's degree programme «Applied Livestock and Crop Sciences» at the University of Applied Sciences in Osnabrück (Germany).

Since her graduation with a Diploma in Agriculture in 2008, she has been working at the University as a research assistant in plant nutrition and crop production. During this period she also went to West Norway to work on a dairy farm for one year. Here she fell in love with Norway and even learned to speak the local dialect from that part of the country fluently. Since then one of her dreams has been to return to Norway and maybe one day to take part in a research project on turfgrass management.

From July to October Anne has been working with the Turfgrass Research Group mowing greens and fairways and doing visual assessments and measurements in different project. In August. She also participated in a field day on the ROBO-GOLF project at Bærheim Golf near Stavanger.

It has been a privilege to have Anne Friederike at Landvik, and hopefully we will see her again next summer. In the meantime, she plans to do her Masters degree at the University of Osnabrück. The topic for her thesis will be sustainable phosphorus fertilisation on golf courses where she will use data from the SUSPHOS-project.

The project is testing different guidelines for P fertilisation on 5 different golf courses in Europe and China, with Dütetal Golf Course near Osnabrück as one of the participating courses.



Anne Friederike measuring root length
at the Susphos trial at Landvik, sep 20



Norwegian Institute of Bioeconomy Research

www.nibio.no/en



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Deadline for submission of material for 04/2020 edition: **December 05th**

The EUROPEAN TURFGRASS SOCIETY

The objectives of the **ETS** include the spread of innovative applications and encouragement of a holistic view of turf, particularly with respect to its influence on urban and environmental quality. This approach is significant as the founding members are representatives of a large industry that has global importance. We aim to:

- a)** Provide a forum for scientists, consultants, companies and practitioners to discuss technical issues related to the provision of turf surfaces.
- b)** Spread innovative applications for the benefit of the turfgrass industry, national and local government, and the European public. Encourage a systems-based approach to the study of turfgrass through multi-disciplinary groups working at different levels.
- c)** ETS considers turfgrass knowledge in the broadest sense, including its use in sport and leisure, its role in improving urban quality and its importance in the mitigation of environmental effects such as soil erosion.
- d)** Develop a strong ethos to promote sustainable, low input systems and solutions based on the conscious use of non-renewable resources.



Current ETS Board of Directors



Stewart Brown
Myerscough College (GBR)
ETS President

I have been working in the sports turf and amenity horticulture industry for over 30 years' and during this have managed many sports turf and landscape areas and facilities for several local authorities and government agencies.

Since entering education I have taught hundreds of students in a range of sports turf and management subjects. I am currently, Senior Lecturer in Sports turf Agronomy at Myerscough College, an associate college of the University of Central Lancashire. I am the Course Leader for the BSc Sports turf Science & Management and the MA Sustainable Golf Course Management ONLINE degrees.

I am a member of BIGGA, the GCSAA, and a Fellow of the IOG. I am also a Fellow of the Higher Education Academy. As an author I have published two books on sports turf subjects and numerous articles for professional and trade literature. My main areas of interest include golf course design and management, sustainability and resource management. I have Masters qualifications in both Horticulture and Parks & Green space Management. I am just completing a Professional Doctorate (DProf) with Anglia Ruskin University researching the efficacy of resource management and its impact on sustainability for golf greens.

Bernd Leinauer
New Mexico State University
(USA)
ETS Board Member



Dr. Bernd Leinauer is a Professor and Extension Turfgrass Specialist in the Extension Plant Sciences Department at New Mexico State University. He received his degrees (Master and Ph.D.) in Crop and Soil Science from Hohenheim University in Stuttgart, Germany. Before joining the faculty at New Mexico State University in 2000, he worked as a Research Associate in the Department of Crop and Soil Sciences at Michigan State University in East Lansing, MI. His extension and research program at New Mexico State University focuses on developing water management strategies for turf areas aimed at reducing the amount of (potable) water used for irrigation. These strategies include the screening for low water use, cold and salt tolerant turf species and cultivars, irrigation with recycled and/or high saline water, modification of turfgrass root zones, mitigation of water repellency in root zones, and subsurface irrigation. The program has led to a successful international research collaboration with University of Padova, Italy that includes projects in both turfgrass and forage. Dr. Leinauer has authored and co-authored a book, a book chapter, nearly 70 scientific peer reviewed research papers, and almost 200 reports and abstracts. He was part of a group of NMSU researchers that received the United States Department of Agriculture's Outstanding Integrated Program Water Resources Team Award. In 2012, Dr. Leinauer received the College's Distinguished Research Award and in 2013 he was awarded New Mexico State University's Distinguished Career Award.

**Claudia de Bertoldi**

Turf Europe Srl (ITA)
ETS Secretary and Treasurer

I received my BA in 2003, after an internship at North Carolina State University (USA) and I have completed my M.Sc (*Progettazione e Pianificazione delle Aree Verdi e del Paesaggio*) at University of Pisa (Italy) in 2006. My PhD (*Allelopathic interferences of plants*) was from S. Anna School of Advanced Studies/Université de Fribourg (CH) in 2007-2010. I have been working as consultant at Pacini Company (Pisa – IT) for turfgrass production made in Tunisia during 2010-2012. Since 2013 I am employed by Turf Europe (Livorno – IT). I am actively engaged in landscaping and realization of gardens and turfgrasses for ornamental and sport use. Management of high-quality sport fields also through precision agriculture. Consultant for turf seeding in difficult zones (dumps and caves). Botanical censuses and visual tree assessment. Participation in R&D projects financed at European level. More than 15 publications, posters and presentations on conferences and meetings on turfgrass.

**Tatsiana Espevig**

Norwegian Institute of Bioeconomy Research (NOR)
ETS Board Member

Born in 1976. Moved to Norway from Belarus in 2005. MSc from Byelorussian State Pedagogical Maxim Tank University, Minsk, Belarus in 1999. PhD from National Academy of Sciences of Belarus in 2004 (resistance to downy mildew in cucumber) and Norwegian University of Life Sciences in 2011 (winter hardiness and management of velvet bentgrass). Internship at Rutgers, The State University of New Jersey, New Brunswick, USA in 2009. Since 2006 employed by Norwegian Institute of Bioeconomy Research (NIBIO, former Bioforsk). Her research focuses on turfgrass pest management, winter stress and cultural practices. She also runs Disease diagnostic laboratory. Lecturer on several meetings and courses held by the national golf unions and greenkeeper associations in the Nordic countries. Supervisor for two MSc students. More than 100 reports, scientific and popular publications, posters and presentations on conferences and meetings on turf grass science.

**Alessandro De Luca**

Italian Golf Federation (ITA)
ETS Board Member

Degree in Agricultural Science at the University of Bologna (Italy).
 Diploma in Turfgrass Science at the Texas A & M University (USA).
 Head of the Green Section of the Italian Golf Federation, for which he also directs experimental activity and environmental projects.
 Teaching activity for Technical Centre of Italian Golf Federation, for CONI (Italian Olympic Committee) and for some Universities (Catania, Viterbo, Turin, Rome).

Consultant for private companies on planning, construction and maintenance of golf courses and sport fields. Author of books on turfgrass construction and management. Collaboration with several turf and golf magazines. related to the environment.

**Fritz Lord**

COMPO Expert (GER)
ETS Board Member

Study of horticultural science at Rhein University Geisenheim, M.sc. in soil science/entomology. Study of Agricultural Science at Humboldt University Berlin; M.Sc. in crop science, plant diseases; Ph.D at Humboldt University Berlin in phytopathology, antagonistic rhizobacteria (PGPR), soil borne pathogens (Fusarium). Since 2008 working for one of Europe`s leading fertilizer manufacturer COMPO Expert in Münster, Germany. Responsible for the segment turf and public green, vegetation-technical consultation, research and development, product management and education. Specialties/ experiences: soil-plant-microorganism interactions, bio stimulants, microbial fertilizer, turf nutrition and maintenance. Various publications regarding turf fertilization and maintenance (e.g. European Journal of Turfgrass Science, New Landscape). Teaching turf seminars for greenkeepers and groundsman in Germany and abroad. ETS member since 2008, board member of the International Turf Grass Society (ITS) since 2014. Further memberships: German Turfgrass Society (DRG), Greenkeeper Association of Germany (GVD) , Austrian Greenkeeper Association (AGA), Förderkreis Landschafts- und Sportplatzbauliche Forschung (FLSF), Forschungsgesellschaft Landschaftsbau e.V. (FLL).



Wolfgang Praemassing

DEULA (GER)
ETS Board Member

Study of Agricultural Biology (University Diploma) at University of Hohenheim, 1991 Doctoral Dissertation (PhD) Promotion with Prof.

Dr. H. Franken, University of Bonn, subject: Soil physical Effects of Aeration on Turfgrass Soils, 2008.

Occupation and activities:

Professor for Sustainable Turfgrass Management at University of Applied Sciences Osnabrueck, Agronomist and lecturer in Greenkeeper Education and Training for golf and sport sites at DEULA Rheinland GmbH, Education Center, Kempen. Member of editorial staff of "European Journal of Turfgrass Science". Member of Turf expert committee of German Soccer League (DFL). Member of working group "Water" at German Golf Federation. Member of examination boards of Chamber of Agriculture Nordrhein-Westfalen Golf Course Greenkeeper and Head-Greenkeeper, Greekeeper/Groundsmen Sport Sites, Competence of Pesticide application.



Carlos Guerrero

University of Algarve (POR)
ETS Board Member

Carlos Guerrero is graduated in Horticulture Engineering at the University of Algarve (Portugal). Has a M.Sc. in Soil Fertility and Plant Nutrition at

the Agronomy Superior Institute, of the Technical University of Lisbon (Portugal) and a PhD in Environmental Agronomy at the University of Algarve (Portugal). Assistant Professor at the University of Algarve(Faculty of Sciences and Technology), is actually the Director of the Degree Program in Agronomy and was the Director of the Master Program in Management and Maintenance of Golf Courses between 2008-2010.

Teaches Soil Science in Landscape Architecture and Soil Science and Agriculture Machinery in the Agronomy. Is also specialized in groundwater and soil nitrate pollution and has experience on organic and compost uses in agriculture and turfgrass.

Actually is working on remote sensing for turfgrass maintenance purposes with unmanned aerial vehicles and multispectral sensors.

