

International Turfgrass

The Newsletter of the International Turfgrass Society

September 2014 Edition

Spring 2014 Annual Meeting of the Japanese Society of Turfgrass Science

by Hideaki Tonogi

Head, International Relations Committee, Japanese Society of Turfgrass Science

The Japanese Society of Turfgrass Science held the spring 2014 annual meeting at Fukushima University from May 30th to June 1st. It was the first time to have an annual meeting in Fukushima prefecture since the Great East Japan Earthquake that occurred in 2011. Along with the oral presentations there were pre-conference tours and symposiums.

In terms of pre-conference tours on the 30th, we could visit either the quake-stricken areas or Grandee Nasu Shirakawa golf course which has since recovered from the quake damage. On the second day of the meeting, group meeting and symposiums were held. Attendees were divided into two groups at the group meeting; one was the golf course division and the other was the turfed school yards, park, and ground cover plants joint division. The golf course division mainly talked about how to reduce maintenance budgets to run golf courses.

Four panelists presented their cases followed by an open discussion. There were several ways to reduce maintenance budgets. However, a substantial portion of golf course maintenance budgets have already been reduced to the utmost limit. In the upcoming fall symposium, we might discuss the cost effectiveness in order to maintain golf course with high qualities.

The topic of the joint symposium by three divisions of parks, schools and ground cover plants was "Proposals for dreamful landscape, parks and turfed school yards as part of reconstruction strategy after earthquake disaster".

The contents were as follows:

- "Consideration about the turf management under bid system" by Katsumi Iizuka.
- "Re-vegetation project on coastal disaster prevention forest damaged by Tsunami and

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I hope everyone has had a good season since the last newsletter was released. In this edition, some of the new members of the board are introduced in an effort to continue to introduce the leadership of the Society. Again, if there are additional items regarding the society you would like to see included in the newsletter in the future, don't hesitate to contact me with your suggestions.

Also, if you have any newsworthy stories or information for readers of International Turfgrass, I hope you will consider submitting an article for the next newsletter in January 2015.

I hope you enjoy the very good articles in this edition.

Sincerely,
Nathan R. Walker

In this Edition

- Spring 2014 Annual meeting of the Japanese Society of Turfgrass Science
- International Seminar at Gjøvik, Norway, 11-12 Nov. 2014: Turfgrass winter survival
- Workshop on multifunctional golf facilities A Chinese and Nordic Collaboration
- News from the Scandinavian Turfgrass and Environment Research Foundation STERF's R&D program on Integrated Pest Management
- Introducing some of the new ITS Board Members
- Membership Application
- Order form for past proceedings and journals
- ITS Board and Members

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Earthquake in Fukushima” by Tadatsugu Sato.

- “Continuous project for turfed school yard’s construction after earthquake by Japan Football Association” by Atsushi Nemoto.

Contents of the first part of the symposium were:

- “About Radioactivity and Fukushima’s Now” by Dr. Kawazu.
- “Radioactive Turf: Preservation and Method of Control” by Dr. Mizuniwa.
- “Why Children had Mental Stress about Radioactive Contamination?” by Dr. Tsutsui.

On the third day, contents of the second part of the symposium were:

- “Iidate Village: Recovering from the Great East Japan Earthquake” by Mr. Sugano, the mayor of Iidate village.
- “Turf Use and Decontamination at Municipal Park” by Mr. Mogi.
- “Turf Makes Children Energetic and Brings Out their Potential” by Mr. Hashiguchi NPO, director.
- “A Golf course Recovered from the Great East

Japan Earthquake” by Mr. Hayashi, Grandee Nasu Shirakawa Golf course superintendent.

There were a total of 33 oral presentations. The fall 2014 Annual Meeting of Japanese Society of Turfgrass Science will be held at Sendai University in Miyagi prefecture from Oct 3rd to Oct 5th.



2014 Japanese Society of Turfgrass Science Annual meeting



2014 JSTS award (Left: President Dr. Ogasawara, Right: Dr. Kobayashi)



2014 JSTS award (Left: President Dr. Ogasawara, Right: Dr. Kimura of Toyo Green Co., Ltd.)



International Seminar at Gjøvik, Norway, 11-12 Nov. 2014: Turfgrass winter survival

by Trygve S. Aamlid, Bioforsk Researcher and STERF program coordinator

STERF and Bioforsk Turfgrass Research Group invite everyone dealing with turfgrass winter issues to an International Seminar at Gjøvik, Norway, 11-12 Nov. 2014.

The seminar will summarize results from the STERF project 'Turfgrass Winter Survival in a Changing Climate (2011-2014) present 'state of the art' concerning cold acclimation and winter stress management of turf, and discuss the need for further research and international collaboration in this area.

Program:

Tuesday 11 November

- 09.05 Bus departs from Oslo International Airport Gardermoen to Gjøvik (90 min drive)
- 11.00 STERF's Program on Winter Stress Management. Maria Strandberg, STERF, and Tatsiana Espevig, Bioforsk
- 11.20 Physiology of cold acclimation and deacclimation of cool-season grasses. Michelle DaCosta, University of Massachusetts
- 12.30 Lunch
- 13:30 Acclimation, deacclimation and reacclimation capacities in various turfgrass species used on golf greens. Mats Höglind and Tatsiana Espevig, Bioforsk
- 14:15 Scandinavian testing of turfgrass species and varieties for winter hardiness. Trygve S. Aamlid, Bioforsk
- 15:00 Coffee break
- 15:30 Carbohydrate changes in turfgrasses during winter. Tatsiana Espevig, Bioforsk.
- 16:00 Questions and discussion
- 19:00 Dinner at hotel

Registration form can be downloaded at http://sterf.golf.se/dynamaster/file_archive/140619/a5de73216e23b1b64fca6d25153eacc6/Registration%20form.docx



Wednesday 12 November

- 08:00 Poor drainage and winter hardiness of grasses used on lawns/fairways. Agnar Kvalbein and Tatsiana Espevig, Bioforsk
- 08:30 Ice encasement of grasses: Preventative measures and injury repair. Bjarni Gudleifsson, Agricultural University of Iceland
- 09:15 Coffee break
- 09:45 Result from large scale demonstration trials with protective covers on golf greens. GC managers Juha Karsikko (Finland), Håkan Blusi (Sweden) and Stefan Schön (Norway)
- 10.30 Winter covering strategies for golf courses. Jim Ross, Olds College, Canada
- 11:15 Ice encasement and protective covers on golf greens. Wendy M. Waalen, Bioforsk.
- 11:45 Questions and final discussion
- 12:30 Lunch
- 13:15 Visit to ongoing turfgrass trials at Bioforsk Apelsvoll (if not under snow !)
- 14:30 Departure for Oslo International Airport Gardermoen, arrival 16:00.

Seminar fee: € 150. Hotel accommodation in single room including dinner: € 170.

Registration deadline: 15 October.

For more information contact Agnar Kvalbein at agnar.kvalbein@bioforsk.no, tel. +4740402089.

Workshop on multifunctional golf facilities

A Chinese and Nordic Collaboration

by Liebao Han and Ke Teng, Beijing Forestry University, China,
and Maria Strandberg and Bruno Hedlund STERF, Sweden

Multifunctional golf courses are currently an underutilised resource. If golf courses were to be used to supply a number of functions, this would provide a range of important services that are in demand by society. In addition to offering a high quality arena for golf, golf facilities could also contribute e.g. to improving biological diversity, conserving natural and cultural environments and providing recreation areas that are open to the public.

The aim of workshop was to learn by interacting with each other and to discuss how relevant on-going research project at Beijing Forestry University could be used to further develop the concept of multifunctionality in general. It was also important to discuss how to create conditions for development and implementation of multifunctional golf courses in Beijing with the aim to help the golf sector to establish credibility as an environmentally-friendly sport and improve public opinion and political support.

The workshop, arranged by the Golf Education and Research Center of Beijing Forestry University and STERF (Scandinavian Turfgrass and Environment Research Foundation), was held at Beijing Forestry University on August 11-12, 2014. Experts from STERF, Beijing Forestry University, Research Center for Eco-Environmental Sciences of Chinese Academy of Sciences and New Nature Golf Course Design Corporation participated with scientific presentations within the topic of



Photo 2: Interesting field trips was arranged to the experimental facilities of Turfgrass Research Institute of Beijing Forestry University.

multifunctional golf facilities. More than fifty representatives from colleges and universities, golf courses, related companies and others participated in the workshop and the discussion.

Examples of important issues presented and discussed

The introduction of STERF and the concept of multifunctional golf facilities presented by Maria Strandberg and Bruno Hedlund was appreciated by the audience and provided an innovative developmental roadmap for the Chinese golf industry.

Doctor Ziyun Dai presented an evaluation and simulation of the value of golf course ecosystem services based on his newly developed calculation models. The approach is a scientific and practical way to help golf facilities world-wide to evaluate ecosystem services.

Doctor Zhihui Chang presented methods for using recycled water on golf courses, which due to the strict Beijing urban water management regulations, is a necessary survival strategy for the golf facilities in Beijing.



Photo 1: More than fifty representatives from colleges and universities, golf courses, related companies and others participated in the workshop.

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The global challenges the golf and turfgrass sector has to face was discussed and we agreed that global challenges need globally coordinated solutions. Based on this, strategies for cooperation between Beijing Forestry University and STERF were thoroughly discussed during the workshop. We agreed that two important key objectives of collaboration are to coordinate design and execution of R&D activities around agreed core themes, and to coordinate effective dissemination of the resulting new knowledge



Photo 3: Field trip was also arranged to Shunfeng Golf Country Club

News from the Scandinavian Turfgrass and Environment Research Foundation

STERF's R&D program on Integrated Pest Management

By Trygve S. Aamlid

Bioforsk Researcher and STERF program coordinator

The Scandinavian Turfgrass and Environment Research Foundation (STERF) has organized its activities into four research areas, each with a R&D program:

1. Integrated pest management (IPM)
2. Turfgrass winter stress management
3. Sustainable water management
4. Multifunctional golf facilities

The four programs can be downloaded at <http://sterf.golf.se>. As coordinator for the first of these programs, I would like to give a brief update of STERF activities within IPM. My objective is to present some of the ongoing projects, but also to motivate colleagues to continued efforts towards more sustainable use of pesticides and to more international collaboration within the IPM sector.

The first of STERFs research programs

The IPM program was the first of STERFs R&D programs, published in 2010. The background was the EU council directive 2009/128/EU on sustainable pesticides use, which required all member states to set up a national action plan for implementation of IPM not only in agriculture and horticulture, but also for the green amenity sector. STERF took this challenge and developed a web-based IPM library consisting of a framework description plus 15 fact sheets covering various aspects of IPM management, such as species and variety selection, fertilization, thatch control

and information about specific pests and diseases. The factsheets have been downloaded by numerous turfgrass managers in the Nordic countries and are still available at <http://sterf.golf.se>.

SCANGREEN: Variety testing focusing on disease resistance and weed competition

In a wider sense, IPM can also be taken as an abbreviation for 'Intelligent Plant Management': It is all about growing strong turfgrass plants that are competitive against weeds and resistant to pests and diseases. A key factor is the selection of turfgrass species and varieties that minimize the need for pesticides. STERF has since 2003 funded variety testing on Nordic golf greens^{1,2}, from 2011 called the SCANGREEN program. Variety trials are carried out on USGA-spec. greens in different climatic zones of Denmark, Iceland and Norway and maintained as closely to actual golf course management as possible, except that they are never sprayed with pesticides. Regular assessments for disease and invasion of weeds and mosses is an important part of this program, and the trial at Landvik, Norway, has even been inoculated artificially with isolates of *Microdochium nivale*, which is economically most important turfgrass disease in Scandinavia. Results from these trials, including a ranking of varieties for resistance to *M. nivale* and other diseases, are updated every year in January at www.scanturf.org.

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One of the early conclusions from in the SCANGREEN trials was that red fescue (*Festuca rubra*) is more resistant to *M. nivale* and therefore requires less fungicides than bentgrasses (*Agrostis* sp.) and annual bluegrass (*Poa annua*). Red fescue also requires less water and fertilizer and may – as such – be a good alternative for more environment-friendly and low-input management of golf greens. Apart from the Danish group ‘Sons of golf’ there was little experience with pure red fescue greens in Scandinavia, hence, in 2011, STERF funded the project FESCUE GREEN with the objective of finding best management practices with regard to mowing height, mowing frequency, rolling frequency, irrigation, seasonal fertilizer distribution and the use of compost as organic amendment to the sand-based rootzone or topdress³. One of the most important questions asked in this project is how to achieve the best playing quality while at the same time avoiding annual bluegrass encroachment on fescue greens. Under its slogan ‘Ready to use research, STERF always requires that turfgrass managers and other practitioners are actively involved in all phases of the STERF projects, and, in collaboration with R&A, the project FESCUE GREEN therefore started with an international workshop in which more than 20 experienced greenkeepers from eight countries shared experiences. The resultant report, ‘Red fescue management: Guidelines based on greenkeepers’ experiences’ (Photo 1), can be downloaded from <http://sterf.golf.se>



Photo 1: Guidelines from STERF’ red fescue workshop.

A recurring topic in IPM is the potential for substitution of chemical fungicides with microbial products that are antagonistic to the turfgrass pathogen and/or with biostimulants that promote overall turf health or induces specific resistance to disease. One of STERF’s projects has - for the past three years – evaluated two microbiological products, one containing the fungus *Gliocladium catenulatum* and the other a bacterial product containing *Streptomyces* sp. Depending on temperature and concentration these products are able to inhibit mycelial growth of *M. nivale* *in vitro*, but so far, the lack of any consistent effect in field trials on golf courses in Sweden, Denmark and Norway has lowered our expectations that they will lead less use of fungicides in the future⁴.

A new STERF project starting this autumn (2014) is an evaluation of the ability of Civitas – a mineral oil product from Petro Canada - to induce resistance to *M. nivale* in creeping bentgrass. This is a joint project between STERF and the Canadian Turfgrass Research Foundation (CTRF) which has funded a similar project by our Canadian colleagues Drs. Tom Hsiang and Annick Bertrand. Parallel trials will be conducted in the Nordic countries and Canada, and Civitas will be tested both alone and in combination with phosphite and reduced fungicide rates.

New and more efficient and environment-friendly fungicides

While it may be long-term goal to totally eliminate the use of pesticides on golf courses and other recreational areas, many turfgrass managers will argue that this is not feasible as it will lead to severe losses in aesthetic and functional turf quality. In the short term, a more realistic approach may therefore be to select the most efficient pesticide depending on an accurate diagnosis of the weed, disease or insect problem, and/or to replace old pesticides with new chemistries that are less harmful to the environment while having the same effect at lower application rate. Many Scandinavian golf clubs have to report to the environmental authorities their pesticide consumption in terms of total amount of active ingredient per ha per year, and in Denmark there is even a correction factor to be multiplied with each product to document the

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total environmental impact. Several STERF projects have documented significant differences in the risk for leaching of various fungicides from sand-based golf greens (Photo 2) but also how this risk can be minimized by the use of organic amendments or soil surfactants^{5,6,7,8}.



Photo 2: Most of STERF's studies on pesticide and nutrient leaching have been carried out in the USGA-spec. green field lysimeter facility at Bioforsk Landvik, Norway. Photo: Trygve S. Aamlid.

Since 2010 STERF has been evaluating fungicides from Syngenta for the control of turfgrass diseases (Photo 3) and from 2013 this collaboration was formalized as Syngenta Lawn and Garden entered STERF's industrial partnership program. Together with documentation from other sources, this testing has resulted in fungicide formulations developed specifically for turf coming to the market in replacement for agricultural formulation of old substances such as thiophanatemetyl, bitertanol or iprodione. Iprodione, which for many years was scrutinized by the authorities due its high toxicity to aquatic organisms and because STERF projects showed it to be prone to leaching from sand-based golf greens^{5,8}, has now been withdrawn for the market in all of the five Nordic countries. In Sweden the use of iprodione against *M. nivale* shortly before snowfall in late autumn has mostly been replaced by fludioxonil (Medallion) which in our trials exerted the same amount of control but with less than 10 % use of active fungicide ingredient⁹.

Weed control on fairway

More than 50 % of the total pesticide consumption on Nordic golf courses (in Denmark almost 75 %) is herbicides used for the control of broadleaved weeds



Photo 3. From one of STERF's trials at Österåker GK, Stockholm, testing new fungicides against *M. nivale*. Photo: Magnus Ljungman.

on fairways. This is also what many greenkeepers fear the most, namely that a total ban in pesticide use will lead to an escalation in the populations of *Bellis perennis*, *Plantago major*, *Trifolium repens*, *Taraxacum* sp. and other perennial weeds on fairways. A review paper presented by Jensen et al. at the 4th ETS Conference in Germany this summer¹⁰ showed that STERF projects aiming for an overall reduction in weed occurrence by mechanical or thermal means have mostly been unsuccessful, as the weed species have different biology and react differently upon the different treatments. Many of these treatments are also very labor- and energy intensive, which may have a strong impact on the carbon footprint from many golf courses. Rather than harrowing, verticutting or flaming all fairways, mechanical and thermal treatments there have to be targeted and differentiated to the predominant weed species in each area. There is also a need for more in-depth research into the biology and persistency of various weed species at fairway mowing height and frequency¹⁰.

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The 12th International Turfgrass Research Journal and Proceedings are available as either a hard copy journal or as a CD. There are very few hard copies left at this time. Both versions are \$300 USD each plus \$15 in the US and \$60 for international shipping and handling. Contact [John Cisar](#) if you would like a copy in either format.

Introducing Some of the New International Turfgrass Society Board Members (term: 2014-2017)

Bruce Clarke
President



Bruce Clarke, Ph.D. is an Extension Specialist in Turfgrass Pathology and Chairman of the Department of Plant Biology and Pathology at Rutgers University in New Brunswick, NJ, USA. He is also the Director of the Rutgers Center for Turfgrass Science where he is responsible for fostering multidisciplinary research, undergraduate, graduate, and continuing professional education, and service programs in turfgrass science in support of the turfgrass industry.

Dr. Clarke earned his B.S. degree in forest management and his Ph.D. degree in plant pathology from Rutgers University. His research and extension programs focus on the etiology and control of diseases of cool-season turfgrasses and IPM strategies to reduce fungicide use. Research conducted on anthracnose disease by Dr. Clarke and his colleagues at Rutgers over the past decade has resulted in a set of best management practices that has significantly reduced fungicide usage while improving the quality and playability of putting greens. Dr. Clarke served on the board of Directors of the International Turfgrass Society (ITS) from 2001-2009 and is currently the ITS President. He has also been very active in the C-5 Division of the Crop Science Society of America, the Agronomy Society of America, the American Phytopathological Society, the European Turfgrass Society, and the Golf Course Superintendents' Association of America.

Michael Fidanza
Secretary



Mike Fidanza, Ph.D., is Professor of Plant and Soil Sciences at the Pennsylvania State University, and is located at the Berks Campus in Reading, Pennsylvania (USA). He is the new Secretary for the International Turfgrass Society, replacing Dr. Jim Murphy (Rutgers University; New Brunswick, NJ, USA). Mike was the Editor-in-chief for the *ITSRJ*, volume 12, and Associate Editor for the *ITSRJ* volumes 10 and 11.

Mike has a production agriculture background, growing up in Southeastern Pennsylvania on his father's mushroom farm. Mike received a B.S. in Agricultural Science and M. Agr. in Agronomy from the Pennsylvania State University, and a Ph.D. in Agronomy from the University of Maryland. He was a Research Biologist in industry prior to his appointment to Penn State in 2000. He teaches undergraduate courses in turfgrass science, soil science, botany, horticulture, and plant physiology. His research areas include turfgrass ecology, fairy ring biology in turf, plant and soil water relations, turfgrass weed management, and plant disease epidemiology. His twitter is @MikeFidanza, where he frequently posts turfgrass-related information, including #FriskyFairyRingFriday with photos and updates on fairy ring research in turf.

Mike is married to Anjanette, a high school Spanish teaching, and they have five children, ages 7 to 13, with two sets of twins.

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