

## **ITRC 2022 PROGRAMME**

	SUNDAY 10 JULY	
10:00-14:00	Pre-Conference ITS Board meeting	Hotel Scandic Falkoner
13:30-18:00	Registration	Marmor Hall
5:00-18:00	Industry Seminar	Auditorium: A2-81.01
5:00	Introduction and Keynote presentation by Syngenta: Tomorrow's Turf Today	Katie Dodson and Glenn Kirby
5:20	DLF Seeds and Science research: Meeting the future with sustainable turf solutions	Christian Sig Jensen
5:35	Capillary Hydroponics: Grow better Turfgrass with Hydroponics	Martin Sternberg
5:45	Husqvarna: Autonomous turf care solutions	Pär Forsman
6:00	Nufarm	Aaron Hathaway
6:10	Discussion	
6:25	COFFEE BREAK	I
6:45	BAYER: We are Honoured to Be in the Turf Industry	Jose Milan
7:00	TourTurf: A New Approach to Poa annua Management The Tare Company Systematical State of the Company Systemat	Tim Baldwin
.7:10 .7:25	The Toro Company: Sustainability Through Technology  PBI-Gordon a leader in delivering green solutions for the turf & ornamental market	Josh Friell
.7:25 .7:35	Discussion and summing up	Jeffrey W. Marvin
17.55	Discussion and summing up	
9:00-21:00	Welcome Reception	Copenhagen Plant Science Center
	MONDAY 11 JULY	
7:00	Registations desk opens. Poster set up.	Marmor Hall
	Opening ceremony	
8:30	Moderator: Bruno Hedlund	Auditorium: A2-81.01
8:30	Welcome and opening of the 14th International Turfgrass Research Conference	Maria Strandberg, ITS President
		Leah A. Brilman, Professor Turfgrass
9:00	Keynote 1: The turfgrass challenge: Documenting the value of a crop that doesn't feed the world	Breeder, DLF Pickseed NA, USA
		Simon Gibson, Senior Sportsturf and
20.20	Keynote 2: The Leicester city Journey to a data-driven approach' and 'Developing and securing the next generation of	Grounds Manager, Leicester City
09:30 .0:00	sports turf students' COFFEE & EXHIBITION	Football Club, UK
10.00	COFFEE & EXHIBITION	
	Opening session continues	
	Moderator: Bruno Hedlund	
.0:30	Presentation of selected voluntary papers related to the UN goals for sustainable development (Agenda 2030)	Auditorium: A2-81.01
L0:30	Seeking Green Grass: Strong Sustainability for Golf and Turfgrass	Robbie Fitzpatrick
	Estimated energy use and greenhouse gas emissions associated with golf course turfgrass maintenance in the Northern	
.0:50	USA	Michael Bekken
1:10	Reduced phosphorus fertilization on golf courses: A comparison of three fertilizer recommendations for putting greens	Anne F. Borchert
1:30	Numerical Simulation of Water and Nitrogen Transport in Three Turf Species	Kelly Kopp
2:00	LUNCH & EXHIBITION	Marmor Hall
	Plenary session: Historic development of turfgrass research and future opportunities	
13:30	Moderator: Trygve S. Aamlid	Auditorium: A2-81.01
13:30	Dr. James B Beard: "The Father of Modern Turfgrass Science".	Gwen Stahnke
.3:45	The history of the research, education, and practice of "cold-region turfgrass" in Japan	Yoichi Ohara
4:00	Golf Course 2030: implementing UN Sustainable Development Goals to identify industry and research for greater resiliency in golf course playability.	John Kemp
4:15	Quality standards for the golf course beyond the greens	Stewart Brown
.4.13	Analysis of turfgrass research papers 2008-19: Implications and future opportunities for the International Turfgrass	Stewart Brown
4:30	Society	Don Loch
4:45	COFFEE & EXHIBITION	Marmor Hall
	Interdisciplinary session: Environmental impacts: Turfgrass water, carbon and nutrient balances	
5:15	Moderator: Micah Woods	Auditorium: A2-81.01
.5:15	Setting the agenda: Invited keynote from industry	Fritz Lord, Compo Expert GmbH
	Economic and sustainability benefits of the United States Golf Association's investment in water, fertilizer, and	
.5:30	pesticide management research	Cole Thompson
.5:45	Nitrogen rate, irrigation and rainfall impacts on groundwater nitrate levels in sandy coastal golf courses	Doug Soldat
	Foliar biostimulant applications combined with low-mineral nitrogen fertilization equal the quality of high-input	
6:00	mineral fertilization programs on tall fescue turf	Diego G. de Barreda
6:15	One minute 'Welcome to my poster' presentations	
	Water use and resilience in the leisture sector	Tony Hanson
	Effective rainfall estimates for St. Augustinegrass lawns under varying irrigation programs	Charles Fountanier
	Nitrogen forms in runoff export from St. Augustinegrass	Charles Fountanier
	Effect of topdressing of compost, compost tea, and various fertilizers on soil and lawn characteristics	Nicholas Bero
	Cool-season lawn performance as influenced by 'Microclover' inclusion and supplemental nitrogen	Michael Fidanza
	Risks for surface runoff and leaching of fungicides after application in late fall to control winter-active diseases on sand-	
	based putting greens	Trygve S.Aamlid
	Variable impacts on growth of deficit irrigation on Cynodon dactylon (L.) Pers. × Cynodon transvaalensis Burtt Davy and	
	Poa pratensis L	Kelly Kopp
	Exploring fine fescues as an option for low-input golf greens in the north-central USA  A field scale facility to evaluate the effect of soil organic matter content of sod-established St. Augustinegrass lawns on	Dominic Petrella
	nitrate-nitrogen leaching	Michael Fidanza

Moderator: Wolfgang Prämassing   Auditorium: A.2-70.03		Thematic session: Turfgrass rootzones, irrigation water quality and soil surfactants	
Seederfor of a coll unfortant on putting grows unknown unknown and very and set conditions	15:15		Auditorium: A2-70.03
An investigation and the principles mode of activation of surfactance and two a novel formulation can improve turignass.  15.15.0 quality by investing dynamics by Wave Conservation on Defficient parts by Wave Conservation			
15.00 quality by increasing devinance of Agrossis spoil and greens.  The heldown of the control of Welling Agrossis on Deville Company of the Control of Memory and Control of Control of Memory and Control of C			7.0
Identification of Worting Agents for Water Conservation on Definite Integrated hybrid altermudagens sorways   Macros Schalasen	15:30		Tim Baldwin
Adam Thoms   Development of port for in character field infinitely surprise; support in control part for character plant of part of the			Marco Schiavon
Physical proporties of growth term frontzone park fusions or growth stabilities   Decisions with presents			
Decasion with preventers Thereate sestor: Turfgrage sphytology Moderator (Mohreb Disches Infects of decasted cuthon cloude or drought tolerance and post-discipit recovery involving ristorine growth in Infects of decasted cuthon cloude or drought tolerance and post-discipit recovery involving ristorine growth in Infects of decasted cuthon cloude or drought stress on hormudegrass turf Infects of combined shade and drought stress on hormudegrass turf Infects of combined shade and drought stress on hormudegrass turf Infects of providing and the stress of the stress of part Thomas Infects of part of part of part of the stress of the stress of part Thomas Infects of part of part of part of the stress of part Thomas Infects of part of part of part of part of part Thomas Infects of part of part of part of part of part Thomas Infects of part o		Physical properties of sports turf rootzone justify using organic stabilizers	Deving Li
The matrix ession. Traffyras physiology  These of elevated orban dioxide on drought steller anne and post-drought recovery involving thirome growth in  Steller of elevated orban dioxide on drought steller anne and post-drought recovery involving thirome growth in  Shippe Inland  The orban orban dioxide and drought steller anne and post-drought recovery involving thirome growth in  Shippe Inland  The orban orban orban dioxide and drought steller anne and post-drought recovery involving thirome growth in  Shippe Inland  The orban			1 -7 0
Australiams. A2-70-06  Infects of elected carbon double on double to place are and post-drought recovery involving ristone growth in  Kentucky blurge ass  Frest of combined shade and drought stress on bermudagnass turf  Combined based and drought stress on bermudagnass turf  The use of rapid light causes to pretet photosynthetic changes in furfyranse seponed to low-light conditions.  The support of the place transport of the place t			
Effects of elevated carbon disolate on drought tolerance and past-drought recovery involving riscure growth in 15-10 femotory by budgings.  Iffect of combined shade and drought stees on bermutagrass turf  Charles Fontunier  Charles Fontunier	15:15		Auditorium: A2-70.04
15.15   Semisorly billurgins   Direct Name	13.13		/tudiconaminal role
Effect of combined shade and drought stress on bermudgrass surf  The use of rapid light curves to predict photosynthetic changes in furfigrasse exposed to low-light conditions. David general processes of the control	15:15		Bingru Huang
The use of rapid light curves to predict photosynthetic changes in turfgrasses exposed to low-light conditions.  David Jespersen Adam Thoms Ada			
Adminimons  Antionstant engine responses of Kentschy bluegrass to simulated athletic traffic stress  Adminimons  Antion Stress  Description of the minute Welcome to my poster presentations  The use of artificial sighting on sports turif  Fine use of astallacid sighting on sports tu			
Adminimons  Antionstant engine responses of Kentschy bluegrass to simulated athletic traffic stress  Adminimons  Antion Stress  Description of the minute Welcome to my poster presentations  The use of artificial sighting on sports turif  Fine use of astallacid sighting on sports tu	15:45	The use of rapid light curves to predict photosynthetic changes in turfgrasses exposed to low-light conditions.	David Jespersen
Plant growth regulator affects on winter hardness of annual bluegrass patting green furf   Dohn inquality			· · · · · · · · · · · · · · · · · · ·
Deministate Vestionne to imposter presentations   Effects of polethylines peloto in root and should be production in asystagrascies   Emerica School			
Effects of pokephylene gived on roots and shoot production in systigasses  The use of antificial lighting on sports turf  If turnic acid based plant bioctimulants impact on root viability and drought tolerance of creeping bentgrass  Wendell Hutchens  Soo production characteristics: How strong is your bermulagrass?  Christia of a strong in the production of the carboy myrophology and evaporareapisation rates of three burfgrasses  Character of Characteristics: How strong is your bermulagrass?  Christia of strong in the carboy myrophology and evaporareapisation rates of three burfgrasses  Character of Characteristics: How strong is your bermulagrass?  Comparison of integer association of the carboy myrophology and evaporareapisation rates of three burfgrasses  Character of Characteristics: How strong is your bermulagrass?  Transport of the carboy myrophology and evaporareapisation rates of three burfgrasses  Character of Characteristics: How strong is your bermulagrass.  Michello Ductoria  Tuesday 12 JULY  Turfgrass practitioner seminar including "let your poil coursed dinner  Tuesday 12 JULY  Turfgrass practitioner seminar including "let your poil coursed dinner  See separate programme in the appl  Auditorium: A2-70.02  Auditorium: A2-70.02  Moderator: Uike Pillan  Setting the genda: Invited keynote from industry  Presence of politication friendly habitat to politicator communities in managed turfgrass systems  The golf course as no cutdoor classroom — a proof of concept groject  The golf course as no cutdoor classroom — a proof of concept project  The golf course as no cutdoor classroom — a proof of concept project  The golf course as no cutdoor classroom — a proof of concept project  Future of Uhan landscepts — A florida Prespective  Carbon Par: Estimating cutbon status of land used by leclandic golf courses, and measuring curbon storage of furfgrass of the projec			Joint inguagiato
The use of artificial lightings on sports surf   Elemen Achievad   Humis and beautiful part of the use of 5 winninestimates in spart of the use of 5 winninestimates and to reduce heat stress related dranges in tall fecure   David Jespensen   David Jespensen   Christics Segars	20.00		Kevin Kenworthy
Humic acid based plant biostimulants impact on root visibility and drought tolerance of creeping bentgross   Mendell Hutchers			· · · · · · · · · · · · · · · · · · ·
The use of 5-aminolevulenic acid to reduce heat triess related damages in tall fescue  Sod production characteristics low strong by our bermudagrass?  Charging of introgen assimilation components among Agrostis species and cultivars  Discussion with presenters  Discussion with presenters  TOP Poster Session with refeathments  Marmor Hall  Auditorium: A2-81.01  TUESDAY 12 JULY  Tuffgrass practitiones seminas including "tat your golf course" dinner  (See seperate programme in the app)  Interdisciplinary sessions. Tuffgrass ecosystem services and biodiversity  Moderator: Ulike Pitha  Setting the agenda invited keymote from industry  Setting the agenda invited keymote promise and invited keymote from industry  Setting the agenda invited keymote industry  Setti			
Sod production characteristics: Now strong is your bermudgrass?   Chrisis Segars			
Effect of acute shade on the canopy morphology and evopotranspiration rates of three turfgrasses Comparison of Introgen assimilation components among Agrostis species and cultivars Discussion with presenters  7.00 Poster Session with refeshments 19:00:20:00 TS Symposium in memory of Dr. James Beard TUESDAY 12 JULY  Turfgrass practitioner seminar including "Eat your golf course" dinner (see separate programme in the app) Interdisciplinary session: Turfgrass ecosystem services and biodiversity  8.20 Moderator: Uilse Pitha Auditorium: A2-70.02 Interdisciplinary session: Turfgrass ecosystem services and biodiversity  8.30 Setting the agenda: Invited keynote from industry Setting the agenda:		÷	<del> </del>
Comparison of Introgen assimilation components among Agrostis species and cultivars			<u> </u>
Discussion with presenters			
17:00   Poster Session with refeshments			INITCHERE DACOSTA
TUESDAY 12 JULY  Turfgrass practitioner seminar including 'Eat your golf course' dinner  See seperate programme in the app) Interdisciplinary session: Turfgrass ecosystem services and blodwersity  Moderator: Ulike Pitha Auditorium: A2-70.02  Setting the agenda: Invited keynote from industry  Setting the agenda: Invited keynote from industry  Response of pollinator-friendly habitation pollinator communities in managed turfgrass systems Persistence and flowering performance of early-season flowering bulbs in warm- and cool-season turfgrasses in a subtropical climate  South of the substitution of the program of the substitution of the program of the substitution of power visiting insect specimen sampling methology in turfgrass habitat Future of Urban Landscapes: A Florida Perspective Carbon Par: Estimating carbon status of land used by Vellandic golf courses and measuring carbon status of land used by Vellandic golf courses and measuring carbon status of land used by Vellandic golf courses and measuring carbon status of land used by Vellandic golf courses and measuring carbon status of land used by Vellandic golf courses and measuring carbon status of land used by Vellandic golf courses and measuring carbon status of land used by Vellandic golf courses and measuring carbon status of land used by Vellandic golf courses and measuring carbon status of land used by Vellandic golf courses and measuring carbon status of land used by Vellandic golf courses and measuring carbon status of land used by Vellandic golf courses and measuring carbon status of land used by Vellandic golf courses and measuring carbon status of lands and sub-dylandic golf courses and measuring carbon status of lands and sub-dylandic golf courses and measuring carbon status of lands and sub-dylandic golf courses and measuring carbon status of lands and sub-dylandic golf courses and measuring carbon status golf management was a course of sub-dylandic golf course for furgers of sub-dylandic golf course for furgers of sub-dylandic golf course for furg		Discussion with presenters	
TUESDAY 12 JULY  Turfgrass practitioner seminar including "Eat your golf course" dinner (see seperate programme in the app) (see seperate programme in the see see see see see see see see see s	17:00	Poster Session with refeshments	Marmor Hall
TUESDAY 12 JULY  Turfgrass practitioner seminar including "Eat your golf course" dinner (see seperate programme in the app) (see seperate programme in the see see see see see see see see see s	10:00 20:00	ITS Symnosium in memory of Dr. James Board	Auditorium: A2 91 01
Turfgrass practitioner seminar including "Eat your golf course" dinner  (see seperate programme in the app)  Moderator: Ulike Pitha  Setting the agenda: Invited keynote from industry  Edwin Roald, Golf Course Architect  Board Jesses an outdoor classroom—a proof of concept project  The golf course as an outdoor classroom—a proof of concept project  Board Golf Golf Course Architect  Edwin Roald Golf Course Architect	19.00-20.00	Tro symposium in memory or or, James beard	Additorium. AZ-01.01
Interdiciplinary session: Turfgrass ecosystem services and biodiversity   Auditorium. A2-70.02		TUESDAY 12 JULY	
Interdiciplinary session: Turfgrass ecosystem services and biodiversity   Auditorium. A2-70.02		Turface and the control industrial Estate and the control discontrol	
Interdisciplinary session: Turigrass ecosystem services and biodiversity   Auditorium. A2.8.1.01	00.00		Aditani A2 70 02
Setting the agenda: Invited keynote from industry   Lealand	09:00		Auditorium: A2-70.02
setting the agenda: invited keynote from industry celand  8:45 Presence of pollinator-friendly habitat on pollinator communities in managed turfgrass systems  Persistence and flowering performance of early-season flowering bulbs in warm- and cool-season turfgrasses in a subtrapical climate of the property of the prop			
Setting the agendar invited keynote from industry   Setting the agendar invited keynote from industry   Setting the agendar invited keynote from industry	08:30	Moderator: Ulike Pitha	
Desente of pollinator-friendly habitat on pollinator communities in managed turigrass systems  Persistence and flowering performance of early-season flowering bubs in warm- and cool-season turigrasses in a David Jespersen Michael Dukes  Garbon Pari. Estimating carbon status of land used by Icelandic golf courses and measuring carbon storage of turigrass on golf fairways and mown roughs A cross-disciplinary forum promoting efficient bloidversity conservation in "new" grasslands in Sweden Discussion with presenters in panel  Thematic session: Technology integration in turigrass management Madrator: Josh Friel  An Improved User Interface to Identify Sustainable Turigrasses within National Turigrass Evaluation Program Data & for two papers)  Michael Dukes  An Improved User Interface to Identify Sustainable Turigrasses evaluation program  An Improved User Interface to Identify Sustainable Turigrasses evaluation program  NTEP-DB 1.0: A relational database for the national turigrass evaluation program  NTEP-DB 1.0: A relational database for the national turigrass evaluation program  Novel action thresholds of a logistic regression model to forecast doilar spot on bentgrasses  Jespersentalion  Jordan Booth  Jorda			
Persistence and flowering performance of early-season flowering bulbs in warm- and cool-season turfgrasses in a David Jespersen  09:15 The golf course as an outdoor classroom – a proof of concept project Maria Strandberg  09:30 One minute Welcome to my poster presentations  Evaluation of flower visiting insect specimen sampling methology in turfgrass habitat  Evaluation of flower visiting insect specimen sampling methology in turfgrass habitat  Evaluation of flower visiting insect specimen sampling methology in turfgrass habitat  Evaluation of flower visiting insect specimen sampling methology in turfgrass habitat  Evaluation of flower visiting insect specimen sampling methology in turfgrass habitat  Evaluation of flower visiting insect specimen sampling methology in turfgrass habitat  Evaluation of flower visiting insect specimen sampling methology in turfgrass habitat  Evaluation of flower visiting insect specimen sampling methology in turfgrass habitat  Evaluation of flower visiting insect specimen sampling methology in turfgrass habitat  Evaluation of specimen samples of flower grasslands in Sweden  Discussion with presenters in panel  Thematic session: Technology integration in turfgrass management  Moderator: Josh Friell  An Improved User interface to Identify Sustainable Turfgrass evaluation program  Of two papers)  Evaluation program Data &			
David Joseph	08:45		Terri Billeisen
Open		, ,	
Open   Doctor   Protect		·	<del> </del>
Evaluation of flower visiting insect specimen sampling methology in turfgrass habitat  Future of Urban Landscapes: A Florida Perspective  Carbon Par: Estimating carbon status of land used by Icelandic golf courses and measuring carbon storage of turfgrass on golf fairways and mown roughs  A cross-disciplinary forum promoting efficient biodiversity conservation in "new" grasslands in Sweden  Discussion with presenters in panel  Thematic session: Technology integration in turfgrass management  Moderator: Josh Friell  An improved User interface to Identify Sustainable Turfgrasses within National Turfgrass Evaluation Program Data & Fried Watkins (Combined presentat of the Panel Los et alterional database for the national turfgrasses evaluation program  08:30 NTP-DB-10.10: A relational database for the national turfgrasses evaluation program  08:45 Investigating targeted spring dead spot management via aerial mapping and precision-guided fungicide applications  109:00 Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses  109:15 Impact of stitched hybrid systems in hybrid benvinudgrass at helicit fields  109:15 Impact of Stitched hybrid systems in hybrid benvinudgrass sheltic fields  109:40 One minute 'Welcome to my poster' presentations  109:40 An evaluation of mat hybrid turfgrass systems under simulated traffic  109:40 One minute 'Welcome to my poster' presentations  109:40 An evaluation of mat hybrid turfgrass systems under simulated traffic  109:40 Any avoluation of mat hybrid turfgrass systems under simulated traffic  109:40 Any avoluation of mat hybrid turfgrass systems under simulated traffic  109:40 Any avoluation of mat hybrid turfgrass systems under simulated traffic and simulation of practices for the testing and maintenance of synthetic turf fields in the National Football League Andy McNitt  109:40 Any Accountable of the Anythographic Anythytic	09:15		Maria Strandberg
Future of Urban Landscapes: A Florida Perspective Carbon Par: Estimating carbon status of land used by Icelandic golf courses and measuring carbon storage of turfgrass on golf fairways and mown roughs A cross-disciplinary forum promoting efficient biodiversity conservation in "new" grasslands in Sweden Discussion with presenters in panel Thematic session: Technology integration in turfgrass management Moderator Josh Friell An Improved User Interface to Identify Sustainable Turfgrasses within National Turfgrass Evaluation Program Data & Eric Watkins (Combined presentation NTEP-DB 1.0: A relational database for the national turfgrass evaluation program of two papers)  NTEP-DB 1.0: A relational database for the national turfgrass evaluation program of two papers)  NTEP-DB 1.0: A relational database for the national turfgrass evaluation program of two papers)  Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses James Hempfling James Hempfling James Hempfling Depart of stitched hybrid systems in hybrid bermudagrass athletic fields Kyley Dickson Department of the development of practices for the testing and maintenance of synthetic turfficial fields in the National Football League (NFL) Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turff A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from Advinced the Activation of the Martin Sternberg  Noderators: Marcon development of prograss establishment & maintenance I  Moderators: Marcon Volterrani  Ander Fore February Chase Straw  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  February and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, Cultivar and Seeding Rate Effects on non-irrigated, Pesticide-Free Athletic Fiel	09:30	One minute 'Welcome to my poster' presentations	
Carbon Par: Estimating carbon status of land used by Icelandic golf courses and measuring carbon storage of turfgrass on golf fairways and mown roughs  A cross-disciplinary forum promoting efficient biodiversity conservation in "new" grasslands in Sweden  Discussion with presenters in panel  Thematic session: Turbinary forum promoting efficient biodiversity conservation in "new" grasslands in Sweden  Maria Strandberg  Maria Strandberg  Moderator: Josh Friell  An Improved User Interface to Identify Sustainable Turfgrasses within National Turfgrass Evaluation Program Data & Eric Watkins (Combined presental of two papers)  NTEP-DB 1.0: A relational database for the national turfgrass evaluation program  OR:30  NTEP-DB 1.0: A relational database for the national turfgrass evaluation program  OR:45  Investigating targeted spring dead spot management via aerial mapping and precision-guided fungicide applications  Jordan Booth  An evaluation of mathy prid turfgrass evaluation program  Of two papers)  Jordan Booth  An evaluation of mathy prid turfgrass tractice fields  Neley Dickson  OR:30  Use of plastic geocellular modules as a replacement gravel layer for natural turf rotzones  Ochristian Spring  OR:40  An evaluation of mat hybrid turfgrass systems under simulated traffic  An evaluation of mat hybrid turfgrass systems under simulated traffic  The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL)  Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary			
on galf fairways and mown roughs A cross-disciplinary forum promoting efficient biodiversity conservation in "new" grasslands in Sweden Discussion with presenters in panel Thematic session: Technology integration in turfgrass management An Improved User Interface to Identify Sustainable Turfgrasses within National Turfgrass Evaluation Program Data & Additorium: A2-70.04  An Improved User Interface to Identify Sustainable Turfgrasses within National Turfgrass Evaluation Program Data & Investigating targeted spring dead spot management via aerial mapping and precision-guided fungicide applications OR-30  NTEP-DB 1.0: A relational database for the national turfgrass evaluation program OR-30  NTEP-DB 1.0: A relational database for the national turfgrass evaluation program OR-30  Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses  Impact of stitched hybrid systems in hybrid bermudagrass athletic fields OR-30  Use of plastic geocellular modules as a replacement gravel layer for natural turf rootzones OR-35  An evaluation of mat hybrid turfgrass systems under simulated traffic The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL)  Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  Chase Straw  COFFEE BREAK EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Auditorium: A2-81.01  Auditorium: A2-81.01  Comparison of mechanical removal of perennial ryeg		Future of Urban Landscapes: A Florida Perspective	Michael Dukes
A cross-disciplinary forum promoting efficient biodiversity conservation in "new" grasslands in Sweden  Discussion with presenters in panel  Thematic session: Technology integration in turfgrass management  An Improved User Interface to Identify, Sustainable Turfgrasses within National Turfgrass Evaluation Program Data & Intercept to Identify, Sustainable Turfgrasses within National Turfgrass Evaluation Program Data & NTEP-DB 1.0: A relational database for the national turfgrass evaluation program  Investigating targeted spring dead spot management via aerial mapping and precision-guided fungicide applications of two papers)  Investigating targeted spring dead spot management via aerial mapping and precision-guided fungicide applications  Use of plastic geocellular modules as a replacement gravel layer for natural turf rootzones  Use of plastic geocellular modules as a replacement gravel layer for natural turf rootzones  One minute "Welcome to my poster" presentations  An evaluation of mat hybrid turfgrass systems under simulated traffic  The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (INFL)  Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on glor course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  COFFEE BRAK & EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Auditorium: A2-81.01  One minute "Welcome to my poster" presentations  Species, Cultivar and Seeding Rate Effects on non-irrigated, pesticide-free athletic fields playing surface quality  Arity Dickson  Effects of plant biostimulants on seedling root and s		Carbon Par: Estimating carbon status of land used by Icelandic golf courses and measuring carbon storage of turfgrass	
Discussion with presenters in panel Thematic session: Technology integration in turfgrass management Moderator: Josh Friell An Improved User Interface to Identify Sustainable Turfgrasses within National Turfgrass Evaluation Program Data & Eric Watkins (Combined presental of two papers)  Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses James Hempfling Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses James Hempfling Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses James Hempfling Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses James Hempfling Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses James Hempfling Novel patients Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses James Hempfling Novel patients Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses James Hempfling Novel patients Novel patients Novel patients Novel patients Novel patients Novel patients Novel of Stitched hybrid systems in hybrid bermudagrass athletic fields Novel of patients Novel patient		on golf fairways and mown roughs	Edwin Roald
Thematic session: Technology integration in turfgrass management Moderator: Josh Friell An Improved User Interface to Identify Sustainable Turfgrasses within National Turfgrass Evaluation Program Data & Eric Watkins (Combined presentat of two papers)  NTEP-DB 1.0: A relational database for the national turfgrass evaluation program of two papers)  Investigating targeted spring dead spot management via aerial mapping and precision-guided fungicide applications Jordan Booth Jordan Boo		A cross-disciplinary forum promoting efficient biodiversity conservation in "new" grasslands in Sweden	Maria Strandberg
Moderator: Josh Friell An Improved User Interface to Identify Sustainable Turfgrasses within National Turfgrass Evaluation Program Data & Eric Watkins (Combined presentation 1930) Interp. 19 1.0: A relational database for the national turfgrasse valuation program  Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses  James Hempfling  1930 Juse of plastic geocellular modules as a replacement gravel layer for natural turf rootzones  One minute Welcome to my poster' presentations An evaluation of mat hybrid turfgrass systems under simulated traffic The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL) Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21 A new era for golf course maintenance - from conventional to robotic mowers Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways Conservation of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-Free Athletic Fields Playing Surface equality Jason Henderson Effects of plant bi		Discussion with presenters in panel	
An Improved User Interface to Identify Sustainable Turfgrasses within National Turfgrass Evaluation Program Data & NTEP-DB 1.0: A relational database for the national turfgrass evaluation program of two papers)  8.45 Investigating targeted spring dead spot management via aerial mapping and precision-guided fungicide applications Jordan Booth 19:00 Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses 1 James Hempfling 19:15 Impact of stitched hybrid systems in hybrid bermudagrass athletic fields 19:16 Klyley Dickson 19:15 Christian Spring 19:15 One minute Welcome to my poster' presentations An evaluation of mat hybrid turfgrass systems under simulated traffic 17:16 Adam Thoms 18:16 An evaluation of mat hybrid turfgrass systems under simulated traffic 18:16 Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf fields in the National Football League (NFL) Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf fields in the National Football League (NFL) A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces Martin Sternberg ROBGOCH: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21 Anewer a for golf course maintenance - from conventional to robotic mowers Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways Chase Straw 10:00 COFFEE BREAK & EXHIBITION Thematic session: Turfgrass establishment & maintenance I Moderators: Marco Volterrani Auditorium: A2-81.01 Jason Henderson Kyley Dickson Effects of mowing height and Cynodon spp. cultivar on traffic tolerance Effects of fomming height and Cynodon spp. cultivar on traffic tolerance Effects of flant biostimulants on seedling rote and shoot growth of three cool-season turfgrass species in a controlled environment Alejandra Acuna One minute Welcome to my poster' presentations Poa trivialis or Lolium perenne as nurse		Thematic session: Technology integration in turfgrass management	
08:30 NTEP-DB 1.0: A relational database for the national turfgrass evaluation program of two papers)  08:45 Investigating targeted spring dead spot management via aerial mapping and precision-guided fungicide applications 09:00 Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses  James Hempfling 09:15 Impact of stitched hybrid systems in hybrid bermudagrass sathlette fields  Kyley Dickson 09:30 Use of plastic geocellular modules as a replacement gravel layer for natural turf rootzones  Christian Spring 09:45 One minute Welcome to my poster' presentations  An evaluation of mat hybrid turfgrass systems under simulated traffic  The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL)  Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  Andy McNitt  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBGGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  Chase Straw  COFFEE BRAK & EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Auditorium: A2-81.01  10:30 Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Kyley Dickson  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, pesticide-free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season	08:30	Moderator: Josh Friell	Auditorium: A2-70.04
Investigating targeted spring dead spot management via aerial mapping and precision-guided fungicide applications  09:00 Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses  1 James Hempfling  09:15 Impact of stitched hybrid systems in hybrid bermudagrass athletic fields  09:30 Use of plastic geocellular modules as a replacement gravel layer for natural turf rootzones  One minute "Welcome to my poster" presentations  An evaluation of mat hybrid turfgrass systems under simulated traffic  An evaluation of mat hybrid turfgrass systems under simulated traffic  The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL)  Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf  Andy McNitt  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  10:00 COFFEE BREAK & EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Auditorium: A2-81.01  10:30 Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Kyley Dickson  Effects of plant biostimulants on seedling rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  Effects of flant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:30 One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates		An Improved User Interface to Identify Sustainable Turfgrasses within National Turfgrass Evaluation Program Data &	Eric Watkins (Combined presentation
09:00 Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses  James Hempfling 09:15 Impact of stitched hybrid systems in hybrid bermudagrass athletic fields  Use of plastic geocellular modules as a replacement gravel layer for natural turf rootzones  Ohe minute 'Welcome to my poster' presentations  An evaluation of mat hybrid turfgrass systems under simulated traffic  An evaluation of mat hybrid turfgrass systems under simulated traffic  The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL)  Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  Comparing foround-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  10:00  COFFEE BREAK & EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  10:30  Moderators: Marco Volterrani  Auditorium: A2-81.01  10:30  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  Jason Henderson  Kyley Dickson  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates	08:30	NTEP-DB 1.0: A relational database for the national turfgrass evaluation program	of two papers)
09:00 Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses  James Hempfling 09:15 Impact of stitched hybrid systems in hybrid bermudagrass athletic fields  Use of plastic geocellular modules as a replacement gravel layer for natural turf rootzones  Ohe minute 'Welcome to my poster' presentations  An evaluation of mat hybrid turfgrass systems under simulated traffic  An evaluation of mat hybrid turfgrass systems under simulated traffic  The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL)  Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  Comparing foround-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  10:00  COFFEE BREAK & EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  10:30  Moderators: Marco Volterrani  Auditorium: A2-81.01  10:30  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  Jason Henderson  Kyley Dickson  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates			
09:15 Impact of stitched hybrid systems in hybrid bermudagrass athletic fields 09:30 Use of plastic geocellular modules as a replacement gravel layer for natural turf rootzones Christian Spring 09:45 One minute 'Welcome to my poster' presentations An evaluation of mat hybrid turfgrass systems under simulated traffic Andam Thoms The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL) Andy McNitt Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21 A new era for golf course maintenance - from conventional to robotic mowers An ew era for golf course maintenance - from conventional to robotic mowers Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  COFFEE BREAK & EXHIBITION Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani Auditorium: A2-81.01  10:30 Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, Pesticide-Free athletic fields playing surface quality 11:00 Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in northern climates  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates	08:45	Investigating targeted spring dead spot management via aerial mapping and precision-guided fungicide applications	Jordan Booth
09:30 Use of plastic geocellular modules as a replacement gravel layer for natural turf rootzones Christian Spring 09:45 One minute 'Welcome to my poster' presentations An evaluation of mat hybrid turfgrass systems under simulated traffic The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL) Andy McNitt Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces Martin Sternberg ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21 A new era for golf course maintenance - from conventional to robotic mowers Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways Chase Straw  10:00 COFFEE BREAK & EXHIBITION Thematic session: Turfgrass establishment & maintenance I Moderators: Marco Volterrani Auditorium: A2-81.01  10:30 Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Kyley Dickson  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality 11:00 Effects of mowing height and Cynodon spp. cultivar on traffic tolerance Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  Alejandra Acuna  Alejandra Acuna  Melajandra Acuna  Karin J. Hesselsøe	09:00	Novel action thresholds of a logistic regression model to forecast dollar spot on bentgrasses	James Hempfling
09:30 Use of plastic geocellular modules as a replacement gravel layer for natural turf rootzones Christian Spring 09:45 One minute 'Welcome to my poster' presentations An evaluation of mat hybrid turfgrass systems under simulated traffic The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL) Andy McNitt Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces Martin Sternberg ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21 A new era for golf course maintenance - from conventional to robotic mowers Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways Chase Straw  10:00 COFFEE BREAK & EXHIBITION Thematic session: Turfgrass establishment & maintenance I Moderators: Marco Volterrani Auditorium: A2-81.01  10:30 Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Kyley Dickson  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality 11:00 Effects of mowing height and Cynodon spp. cultivar on traffic tolerance Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  10:30 One minute 'Welcome to my poster' presentations  Karin J. Hesselsøe  Karin J. Hesselsøe	09:15	Impact of stitched hybrid systems in hybrid bermudagrass athletic fields	Kyley Dickson
One minute 'Welcome to my poster' presentations  An evaluation of mat hybrid turfgrass systems under simulated traffic  The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL)  Andy McNitt  Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  Karin Juul Hesselsøe  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  COFFEE BREAK & EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  10:30  Moderators: Marco Volterrani  Auditorium: A2-81.01  10:35  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Kyley Dickson  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, Pesticide-free athletic fields playing surface quality  11:00  Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  One minute 'Welcome to my poster' presentations  Caria J. Hesselsøe  Karin J. Hesselsøe	09:30	Use of plastic geocellular modules as a replacement gravel layer for natural turf rootzones	Christian Spring
The development of practices for the testing and maintenance of synthetic turf fields in the National Football League (NFL)  Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  COFFEE BREAK & EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Auditorium: A2-81.01  10:30  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00  Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  Comparison of mechanical removal of perennial ryegrass overseed on turfgrass species in a controlled and provided to main the provided provided on the provided provided playing surface and provided play	09:45	One minute 'Welcome to my poster' presentations	
(NFL)  Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  Coffee Break & Exhibition  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Auditorium: A2-81.01  10:30  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00  Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  environment  Committee 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe		An evaluation of mat hybrid turfgrass systems under simulated traffic	Adam Thoms
(NFL)  Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  Coffee Break & Exhibition  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Auditorium: A2-81.01  10:30  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00  Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  environment  Committee 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe		The development of practices for the testing and maintenance of synthetic turf fields in the National Football League	
Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf  A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  Chase Straw  COFFEE BREAK & EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00  Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:30  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe			Andy McNitt
A hydroponic system for natural turf that can take extreme wear as an alternative to artificial grass surfaces  ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  COFFEE BREAK & EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00  Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  Alejandra Acuna  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe		Survival of Staphylococcus aureus applied to Poa pratensis, L. and synthetic turf	
ROBOGOLF: Robotic mowers for better turf quality on golf course fairways and semi-roughs Preliminary results from 2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  Chase Straw  COFFEE BREAK & EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Kyley Dickson  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:30  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe			<del>  '</del>
2020 and 21  A new era for golf course maintenance - from conventional to robotic mowers  A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  Chase Straw  COFFEE BREAK & EXHIBITION  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Kyley Dickson  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00  Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:30  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe			
A new era for golf course maintenance - from conventional to robotic mowers  Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  Chase Straw  Chase Straw  Chase Straw  Chase Straw  Chase Straw  Chase Straw  Coffee Break & Exhibition  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  It is a controlled environment  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Atle R. Hansen  Chase Straw  Chase Straw  Auditorium: A2-81.01  Auditorium: A2-81.01  Kyley Dickson  Kyley Dickson  Kyley Dickson  Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:30  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates			Karin Juul Hesselsøe
Comparing Ground-based and Aerial Data at Field Scale During Dry Down on Golf Course Fairways  Chase Straw  Chase Straw  Chase Straw  Chase Straw  Coffee Break & Exhibition  Thematic session: Turfgrass establishment & maintenance I  Moderators: Marco Volterrani  Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:30  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe		A new era for golf course maintenance - from conventional to robotic mowers	
10:00 COFFEE BREAK & EXHIBITION Thematic session: Turfgrass establishment & maintenance I Moderators: Marco Volterrani  10:30 Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00 Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:30 One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe			Chase Straw
Thematic session: Turfgrass establishment & maintenance I Moderators: Marco Volterrani  10:30 Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00 Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:30 One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe	10:00		
10:30 Moderators: Marco Volterrani  10:30 Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00 Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:30 One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe			
Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions  Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  Jason Henderson  Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe	10:30		Auditorium: A2-81.01
Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface  QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  Iffects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe			
Species, Cultivar and Seeding Rate Effects on Non-Irrigated, Pesticide-Free Athletic Fields Playing Surface QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00 Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:15 environment  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe	10:30	Comparison of mechanical removal of perennial ryegrass overseeding out of bermudagrass to chemical transitions	Kyley Dickson
10:45 QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00 Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:30 One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe			
10:45 QualitySpecies, cultivar and seeding rate effects on non-irrigated, pesticide-free athletic fields playing surface quality  11:00 Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:30 One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe		Species, Cultivar and Seeding Rate Effects on Non-Irrigated. Pesticide-Free Athletic Fields Playing Surface	
11:00 Effects of mowing height and Cynodon spp. cultivar on traffic tolerance  Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe	10:45		Jason Henderson
Effects of plant biostimulants on seedling root and shoot growth of three cool-season turfgrass species in a controlled environment  11:15 One minute 'Welcome to my poster' presentations Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe			
11:15 environment Alejandra Acuna  11:30 One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe			,, 5.0.00
11:30 One minute 'Welcome to my poster' presentations  Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe	11:15		Aleiandra Acupa
Poa trivialis or Lolium perenne as nurse crops for faster establishment of Agrostis stolonifera putting greens in northern climates  Karin J. Hesselsøe			, acjunara / teana
climates Karin J. Hesselsøe	11.30		,
			1
vveeu pressure and turigrass establishment in response to mulching media.			-
		AACCA bi coorie and rankiaoo coranionnicir in Leohonoe ro marchink menia	Oct alu Helli y

		Cont. Maller
	Fall establishment of Zoysiagrass (Z.japonica) on roadsides in the US transition zone	Grady Miller
	Practical reestablishment of golf greens following winter damages – A field study  Climbian return degrees minoral histogram requirements for begrounds grees (Compden and Maurice in Meditagramen)	Carl Johan Lönnberg
	Clippings return decreases mineral nitrogen requirements for bermuda-grass (Cynodon spp.) lawns in Mediterranean Europe	Marco Schiavon
	Glycerin-based nitrogen applications for turfgrass growth	Adam Thoms
	Evaluating the use of the Branched-Chain Amino Acids in Combination with Urea on Creeping Bentgrass at	Additi filotiis
	Establishment	Adam Thoms
	Thematic session: Turfgrass genetics, breeding and species/variety testing I	Additi filotiis
10:30	Moderators: Leah Brilman / Don Loch	Auditorium: A2-70.04
10:30	Divot recovery of cool-season turfgrass species and mixtures in low maintenance fairways	Lindsey Hoffman
	Seed mixtures of red fescue and colonial, creeping, or velvet bentgrass for pesticide-free management of Nordic golf	
10:45	greens	Karin Juul Hesselsøe
11:00	Review of cool-season turfgrasses for salt-affected roadsides in cold climates	Eric Watkins
11:15	One minute 'Welcome to my poster' presentations	
	Predictive ability of perennial ryegrass spaced-plant nurseries for turfgrass and seed production swards in Minnesota	Eric Watkins
	SCANTURF - Evaluation of turfgrass varieties for lawns and sports grounds in Scandinavia	Lars Havstad
	Domestication of native grasses in New Zealand	Alan Stewart
	Winter survival of experimental bermudagrasses in the upper transition zone of the U.S.	Nathan Walker
	Mixing warm-season turfgrass cultivars to reduce weed pressure and increase lawn quality	Kevin Kenworthy
10.55	Low-input golf course putting green performance of fine-textured inter- and intra-specific zoysiagrass (Zoysia spp.)	Chrissie Segars
12:00	LUNCH & EXHIBITION	
12,20	Thematic session: Turfgrass establishment & maintenance II	Auditorium A3 84 84
13:30	Moderators: Marco Volterrani  Evaluating Rielegical Thatch Control on Golf Grooms	Auditorium: A2-81.01
13:30	Evaluating Biological Thatch Control on Golf Greens  A Povious of a Novel Enzyma System for the Management of Thatch and Soil Water Penellancy in Turfgrass	Bert McCarty
13:45 14:00	A Review of a Novel Enzyme System for the Management of Thatch and Soil Water Repellency in Turfgrass  Identification of earthworm species in sand-topdressed hybrid bermudagrass golf tees	Sudeep Sidhu Paige Boyle
14.00	Using local weather stations to generate growing degree-day data to predict the flowering pattern of an annual	Paige Boyle
14:15	bluegrass fairway in Michigan	Aaron Hathaway
11125	Plant growth regulator and low-dose herbicide programs for annual bluegrass seedhead suppression in fairway and	, and the state of
14:30	athletic-height turfurf	John Peppers
14:45	One minute 'Welcome to my poster' presentations	Transcription of the state of t
	Influence of mowing height of cut and frequency for golf tournament preparation on putting green ball roll distance	
	and turfgrass quality	John Kaminski
	Influence of brush type and brushing frequency on putting green ball roll distance and turfgrass quality	John Kaminski
	Velvet bentgrass putting green quality, water retention, and infiltration as affected by topdressing sand size and rate	Ruing Wang
	Comparing conventional aerification practices with the core recycler	Gerald Henry
	Evaluating biological thatch control on Zoysia matrella (L.) Merr. golf greens	Bert McCarty
	Irrigation frequencies and reference evapotranspiration replacement affecting annual bluegrass encroachment in	
	perennial ryegrass in western Oregon	Alec Kowalewski
	Maximizing seedhead suppression of Poa annua L. in Michigan by using growing degree-days to predict optimum	
	application timing for mefluidide, ethephon, or ethephon plus trinexapac-ethyl	Aaron Hathaway
	Thematic session: Turfgrass genetics, breeding and species/variety testing II	
13:30	Moderators: Leah Brilman / Don Loch	Auditorium: A2-70.03
13:30	A novel method of generating RNAi library for high throughput gene function analysis in creeping bentgrass	Shui-zhang Fei
13:45	Genetic diversity and species-specific DNA markers of Cynodon  Octoploid zoysiagrass: Origin, stability, characteristics, and breeding behavior	Marta Pudzianowska
14:00	Genetic identity and diversity among experimental selections and cultivars of vegetatively propagated turf	Ken Quesenberry
14:15	bermudagrass as assessed with SSR markers	Nathan Walker
14.13	Student presentations / competition I	IARCHAIL ANGING!
13:30	Moderator: Paul Koch	Auditorium: A2-70.04
	Effects of perennial ryegrass competition on bermudagrass and hybrid bermudagrass cover, biomass, and total	
13:30	nonstructural carbohydrate accumulation	John Peppers
13:45	Evaluation of South-African common bermudagrass germplasm for shade tolerance	Esdras Carbajal
14:00	Minimal irrigation requirements of Kentucky bluegrass and tall fescue blends in the northern transition zone	Jada Powlen
	Aboveground and belowground traits of turf-type bahiagrass (Paspalum notatum Flügge) genotypes under simulated	
14:15	drought	Pablo Boeri
14:30	Aerial and ground-based assessments of preemergence herbicide effects on St. Augustinegrass grow-in	Amy Wilber
15:00	COFFEE & EXHIBITION	
	Thematic session: Turfgrass establishment & maintenance III	
15:30	Moderators: Marco Volterrani	Auditorium: A2-81.01
15:30	Traffic form and season of wear affect responses of fine fescues	Hui (Eric) Chen
	Influence of foot traffic, irrigation, nitrogen fertilization, and weather factors on tissue N content in creeping bentgrass	
15:45	'Focus'	Doug Soldat
16.00	Effects of growing degree day based trinexapac-ethyl application on ultradwarf hybrid bermudagrass putting green	lamas Kama
16:00	quality and ball roll	James Kerns
16:15	Impact of putting green management on visible wear damage caused by foot traffic	Thom Nicholai
16:30	One minute 'Welcome to my poster' presentations  Assessing fine fescue mixtures and plant growth regulator applications to determine their effect on traffic tolerance	1
	Assessing fine rescue mixtures and plant growth regulator applications to determine their effect on traffic tolerance and divot recovery	Maggie Reiter
	Evaluation of Late Season Nitrogen Source Application on Autumn Color and Winter Injury of 'Riviera' Bermudagrass in	Maggie Reiter
	the Upper Transition Zone of the U.S.	Nathan Walker
	Plant parasitic nematodes, substrates or grass species as reasons for poor reestablishment of a sand-based putting	IAGELIALI ANAIVEI
	green after winter kill	Trygve S. Aamlid
	10	110.00

	Thematic session: Turfgrass genetics, breeding and species/variety testing III	
15:30	Moderators: Leah Brilman / Don Loch	Auditorium: A2-70.03
15:30	Use of endophytic fungi in turf grasses; difficulties in delivering to the market	Alan Stewart
15:45	Variation in southern chinch bug (Blissus insularis) survival and damage on St. Augustinegrass germplasm	Esdras Carbajal
15.00	Evaluation and genetic analysis of red thread (Laetisaria fuciformis) disease prevalence in tall fescue (Festuca	 
16:00 16:15	arundinacea)	Yuanshuo 'Henry' Qu
10.15	One minute 'Welcome to my poster' presentations Identification of sources of resistance to gray leaf spot in Stenotaphrum germplasm	Esdras Carbajal
	Global DNA methylation predicts epigenetic reprogramming and transgenerational plasticity in Poa annua L	John Kaminski
	Multispecies genotype × environment interaction for turfgrass quality in five turfgrass breeding programs in the	
	southeastern United States	Kevin Kenworthy
	Multienvironment evaluation of St. Augustinegrass breeding lines for turf performance via a mixed-models approach	Kevin Kenworthy
	Identification of QTL associated with cold acclimation and freezing tolerance in Zoysia japonica	Esdras Carbajal
	Characterizing the growth and winter survival of commercially available and experimental genotypes of St.	Karda Kanasakha
	Augustinegrass	Kevin Kenworthy
	Effects of St. Augustinegrass Genotype and Irrigation Frequency on Turfgrass Quality in a Subtropical Environment	Kevin Kenworthy
	Gene expression differences for drought stress response in three cool-season turfgrasses	Paul Johnson
	Discussion with presenters	
	Student presentations / competition II	
15:30	Moderator: Paul Koch	Auditorium: A2-70.04
15:30	Resolving issues related to target-site resistance detection in Poa annua alpha-tubulin	Claudia Ann Rutland
	Evaluation of nitrogen fertility and plant growth regulator impacts on annual bluegrass weevil (Listronotus maculicollis)	
15:45	oviposition and larval survivorship  The propriete handstress missibility of Traditional sulturing and sequencing results compared with material and sequencing results.	Audrey Simard
16:00	The creeping bentgrass microbiome: Traditional culturing and sequencing results compared with metagenomic	Edward McNab
16.00	techniques	Edward Michab
17:00-19:00	Poster Session with refeshments	Marmor Hall
	WEDNESDAY 13 JULY	
	Technical Tours all day	
08:30	See descriptions of the tours in the app. All tours will end at DLF Seeds and Science research station for BBQ dinner	
	THURSDAY 14 JULY	
	Interdisciplinary plenary session: Integrated Pest Mangement	
08:30	Moderator: Bruce Clarke	Auditorium: A2-81.01
		Niels Dokkuma, Netherlands Golf
08:30	Setting the agenda: Invited introduction from industry	Federation
08:45	Integrated pest management effects on weed populations managed without herbicides in the Pacific Northwest	Emily Braithwaite
09:00	A new device for selective, mechanical weed control in turfgrasses	Jason Henderson
05.00	Empirical and theoretical assessment of mechanical and injection cultivation methods to manage white grubs in	Jason Henderson
09:15	turfgrass	Ben McGraw
09:30	Non-conventional fungicides to control dollar spot disease	Tom Hsiang
09:45	Utilizing organic amendments for general suppression of dollar spot on creeping bentgrass turf	Joe Roberts
10:00	Discussion with presenters in panel	
10:30	COFFEE & EXHIBITION	
11.00	Thematic session: Turfgrass weed management I	A
11:00	Moderators: Scott McElroy / Diego Gomez de Barreda  Long-term influence of nitrogen, plant growth regulators, and iron sulfate on annual bluegrass populations and	Auditorium: A2-81.01
11:00	turfgrass quality on a golf green	Kaiyuan Tang
11.00	Characterization of mutations conferring inherent resistance to acetyl coenzyme A carboxylase-inhibiting herbicides in	Karyaan Tang
11:15	turfgrass and grassy weeds	Trent Tate
(		
11:30	Lolium arundinaceum leaf and root developmental temperatures influence its allelopathic potency on Poa annua	Daewon Koo
11:30 11:45	One minute 'Welcome to my poster' presentations	
	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators	Gerald Henry
	One minute 'Welcome to my poster' presentations	
	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon	Gerald Henry Alec Kowalewski
	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands	Gerald Henry Alec Kowalewski Peter Landschoot
	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon	Gerald Henry Alec Kowalewski
	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift	Gerald Henry Alec Kowalewski Peter Landschoot Shawn Askew
	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron	Gerald Henry Alec Kowalewski Peter Landschoot Shawn Askew
11:45 11:00 11:00	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron Thematic session: Turfgrass Disease and Insect Pest Management I Moderator: Ruth Mann Etiology and management of Pythium root rot in golf course putting greens	Gerald Henry Alec Kowalewski  Peter Landschoot Shawn Askew Shawn Askew Auditorium: A2-70.04 James Kerns
11:45 11:00 11:00 11:15	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon  Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron  Thematic session: Turfgrass Disease and Insect Pest Management I  Moderator: Ruth Mann  Etiology and management of Pythium root rot in golf course putting greens  Strategies for increasing ferrous sulfate efficacy against dollar spot of creeping bentgrass	Gerald Henry Alec Kowalewski  Peter Landschoot Shawn Askew Shawn Askew Auditorium: A2-70.04 James Kerns Wendell Hutchens
11:45 11:00 11:00 11:15 11:30	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon  Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron  Thematic session: Turfgrass Disease and Insect Pest Management I  Moderator: Ruth Mann  Etiology and management of Pythium root rot in golf course putting greens  Strategies for increasing ferrous sulfate efficacy against dollar spot of creeping bentgrass Suppression of Microdochium patch using rotations of mineral oil, sulfur, and phosphorous acid	Gerald Henry Alec Kowalewski  Peter Landschoot Shawn Askew Shawn Askew Auditorium: A2-70.04 James Kerns
11:45 11:00 11:00 11:15	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon  Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron  Thematic session: Turfgrass Disease and Insect Pest Management I  Moderator: Ruth Mann  Etiology and management of Pythium root rot in golf course putting greens  Strategies for increasing ferrous sulfate efficacy against dollar spot of creeping bentgrass	Gerald Henry Alec Kowalewski  Peter Landschoot Shawn Askew Shawn Askew  Auditorium: A2-70.04 James Kerns Wendell Hutchens
11:45 11:00 11:00 11:15 11:30	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron Thematic session: Turfgrass Disease and Insect Pest Management I Moderator: Ruth Mann Etiology and management of Pythium root rot in golf course putting greens Strategies for increasing ferrous sulfate efficacy against dollar spot of creeping bentgrass Suppression of Microdochium patch using rotations of mineral oil, sulfur, and phosphorous acid One minute 'Welcome to my poster' presentations	Gerald Henry Alec Kowalewski  Peter Landschoot Shawn Askew Shawn Askew  Auditorium: A2-70.04 James Kerns Wendell Hutchens Clint Mattox
11:45 11:00 11:00 11:15 11:30	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon  Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron Thematic session: Turfgrass Disease and Insect Pest Management I Moderator: Ruth Mann Etiology and management of Pythium root rot in golf course putting greens Strategies for increasing ferrous sulfate efficacy against dollar spot of creeping bentgrass Suppression of Microdochium patch using rotations of mineral oil, sulfur, and phosphorous acid One minute 'Welcome to my poster' presentations  Comparing rates of mineral oil, sulfur, and phosphorous acid on Microdochium patch suppression and turfgrass quality	Gerald Henry Alec Kowalewski  Peter Landschoot Shawn Askew Shawn Askew  Auditorium: A2-70.04 James Kerns Wendell Hutchens Clint Mattox  Clint Mattox
11:45 11:00 11:00 11:15 11:30	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron Thematic session: Turfgrass Disease and Insect Pest Management I Moderator: Ruth Mann Etiology and management of Pythium root rot in golf course putting greens Strategies for increasing ferrous sulfate efficacy against dollar spot of creeping bentgrass Suppression of Microdochium patch using rotations of mineral oil, sulfur, and phosphorous acid One minute 'Welcome to my poster' presentations Comparing rates of mineral oil, sulfur, and phosphorous acid on Microdochium patch suppression and turfgrass quality In vitro screening of turfgrass species and cultivars for resistance to dollar spot	Gerald Henry Alec Kowalewski  Peter Landschoot Shawn Askew Shawn Askew  Auditorium: A2-70.04 James Kerns Wendell Hutchens Clint Mattox  Tatsiana Espevig
11:45 11:00 11:00 11:15 11:30	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron Thematic session: Turfgrass Disease and Insect Pest Management I Moderator: Ruth Mann Etiology and management of Pythium root rot in golf course putting greens Strategies for increasing ferrous sulfate efficacy against dollar spot of creeping bentgrass Suppression of Microdochium patch using rotations of mineral oil, sulfur, and phosphorous acid One minute 'Welcome to my poster' presentations  Comparing rates of mineral oil, sulfur, and phosphorous acid on Microdochium patch suppression and turfgrass quality In vitro screening of turfgrass species and cultivars for resistance to dollar spot Pacific shoot-gall disease control in annual bluegrass putting greens using a new formulation of abamectin	Gerald Henry Alec Kowalewski  Peter Landschoot Shawn Askew Shawn Askew  Auditorium: A2-70.04 James Kerns Wendell Hutchens Clint Mattox  Tatsiana Espevig Pawel Orlinski
11:45 11:00 11:00 11:15 11:30	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron Thematic session: Turfgrass Disease and Insect Pest Management I Moderator: Ruth Mann Etiology and management of Pythium root rot in golf course putting greens Strategies for increasing ferrous sulfate efficacy against dollar spot of creeping bentgrass Suppression of Microdochium patch using rotations of mineral oil, sulfur, and phosphorous acid One minute 'Welcome to my poster' presentations  Comparing rates of mineral oil, sulfur, and phosphorous acid on Microdochium patch suppression and turfgrass quality In vitro screening of turfgrass species and cultivars for resistance to dollar spot Pacific shoot-gall disease control in annual bluegrass putting greens using a new formulation of abamectin Effects of fungicides on creeping bentgrass health and rooting characteristics under abiotic stress	Gerald Henry Alec Kowalewski  Peter Landschoot Shawn Askew Shawn Askew  Auditorium: A2-70.04 James Kerns Wendell Hutchens Clint Mattox  Clint Mattox Tatsiana Espevig Pawel Orlinski Pawel Petelewicz
11:45 11:00 11:00 11:15 11:30	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron Thematic session: Turfgrass Disease and Insect Pest Management I Moderator: Ruth Mann Etiology and management of Pythium root rot in golf course putting greens Strategies for increasing ferrous sulfate efficacy against dollar spot of creeping bentgrass Suppression of Microdochium patch using rotations of mineral oil, sulfur, and phosphorous acid One minute 'Welcome to my poster' presentations  Comparing rates of mineral oil, sulfur, and phosphorous acid on Microdochium patch suppression and turfgrass quality In vitro screening of turfgrass species and cultivars for resistance to dollar spot Pacific shoot-gall disease control in annual bluegrass putting greens using a new formulation of abamectin	Gerald Henry Alec Kowalewski  Peter Landschoot Shawn Askew Shawn Askew  Auditorium: A2-70.04 James Kerns Wendell Hutchens Clint Mattox  Tatsiana Espevig Pawel Orlinski
11:45 11:00 11:00 11:15 11:30	One minute 'Welcome to my poster' presentations Response of creeping bentgrass (Agrostis stolonifera) and weed species to plant growth regulators Nitrogen fertility rates affecting weed population dynamics in a perennial ryegrass stand in western Oregon  Influence of grass species and mowing practices on weed cover and quality in infrequently mowed grass stands Field assessment of flazasulfuron and trifloxysulfuron sodium drift Selective perennial ryegrass control in creeping bentgrass with flazasulfuron  Thematic session: Turfgrass Disease and Insect Pest Management I Moderator: Ruth Mann  Etiology and management of Pythium root rot in golf course putting greens Strategies for increasing ferrous sulfate efficacy against dollar spot of creeping bentgrass Suppression of Microdochium patch using rotations of mineral oil, sulfur, and phosphorous acid One minute 'Welcome to my poster' presentations  Comparing rates of mineral oil, sulfur, and phosphorous acid on Microdochium patch suppression and turfgrass quality In vitro screening of turfgrass species and cultivars for resistance to dollar spot Pacific shoot-gall disease control in annual bluegrass putting greens using a new formulation of abamectin  Effects of fungicides on creeping bentgrass health and rooting characteristics under abiotic stress Use of fans and their effects on the turf microenvironment and disease development	Gerald Henry Alec Kowalewski  Peter Landschoot Shawn Askew Shawn Askew  Auditorium: A2-70.04 James Kerns Wendell Hutchens Clint Mattox  Clint Mattox Tatsiana Espevig Pawel Orlinski Pawel Petelewicz

	Thematic session: Turfgrass weed management II	
13:00	Moderators: Scott McElroy / Diego Gomez de Barreda	Auditorium: A2-81.01
13:00	Turfgrass response to flazasulfuron and trifloxysulfuron sodium deposited by runoff water	Shawn Askew
13:15	Effect of spray droplet size on pronamide control of Poa annua	Martin Ignes
		-
13:30	Perennial ryegrass phytotoxicity increases with mesotrione rate and growth-promoting environmental conditions	Shawn Askew
13:45	Postemergence Polygonum aviculare control in Cynodon dactylon turf	Whitnee Askew
14:00	One minute 'Welcome to my poster' presentations	
	Efficacy of Natural Herbicides on Dandelion (Taraxacum officinale Weber x Wiggers) and White Clover (Trifolium repens	
	L.) Populations	John Kaminski
	Monitoring fall CO2 efflux of dallisgrass and bermudagrass: Implications for non-selective weed control	Gerald Henry
	Assessing a programmatic approach for the control of quinclorac-resistant smooth crabgrass (Digitaria ischaemum) in	
	established bermudagrass turf	Atikah Putri
	Effect of hollow-tine cultivation on crabgrass infestation in cool-season turf	Bruce Clarke
	Effects of soil compaction and moisture on the growth of Juncus tenuis	Jay McCurdy
	Thematic session: Turfgrass Disease and Insect Pest Management II	
13:00	Moderator: Ruth Mann	Auditorium: A2-70.04
12.00	In Vitra Constituity of Claricandia Function and Microdophium Indated from Crasses to Commandy Head Functions	NA mine Heelteene
13:00 13:15	In Vitro Sensitivity of Clarireedia, Fusarium and Microdochium Isolated from Grasses to Commonly Used Fungicides	Marina Usoltseva Paul Koch
13:30	Evaluating biological and oil-based fungicides for dollar spot suppression on turfgrass  Management of leaf and sheath spot (mini ring) on hybrid bermudagrass in Hawaii	Zhiqiang Cheng
13.30	Reproductive phenology and feeding patterns of Listronotus maculicollis during spring emergence: Implications for	Zinqiang Cheng
13:45	spring management	Garrett Price
14:00	One minute 'Welcome to my poster' presentations	- Carrett Frice
24.00	Impact of nitrogen source, fall fertilizers, and preventive fungicides on spring dead spot caused by Ophiosphaerella	
	korrae and O. herpotricha	James Kerns
	Phylogenetic evaluation of Cochliobolus spp. collected from turfgrass	Nathan Walker
		TRACTION FYMINGS
	Influence of calcium and nitrogen fertilizer on creeping bentgrass infected with dollar spot under cool temperatures	Deying Li
	Effects of nitrogen, phosphorus and potassium rates on Microdochium patch	Alec Kowalewski
	Nitrogen source impacts Rhizoctonia leaf and sheath spot severity in ultradwarf bermudagrass	James Kerns
	   Field evaluations and in vitro sensitivity of Microdochium nivale to succinate dehydrogenase (SDHI) fungicides	Kurt Hockemeyer
	Red bermudagrass mite severely reduces growth in hybrid bermudagrass	Don Loch
	Diversity, composition, and freedom to choose drive effects of St. Augu-stinegrass cultivar blends on an herbivorous	
	insect	Kevin Kenworthy
	Detection of cyanotoxins in irrigation water and potential impact on putting green health	Lee Miller
	Pyricularia oryzae incites gray leaf spot disease on hard fescue (Festuca brevipila)	Bruce Clarke
	Resistance to the demethylation-inhibiting fungicide propiconazole in Canadian populations of Microdochium nivale	Tom Hsiang
15:00	Poster Session with refeshments	Marmor Hall
15:30-17:00	ITS Quadrennial meeting, including student presentation awards	Auditorium: A2-70.02
19:00-24:00	Conference dinner	Axelborg Salen
	FRIDAY 15 JULY	
	111111111111111111111111111111111111111	
	Symposium: Winter Stresses of Turfgrass (I)	
08:30	Moderator: Eric Watkins	Auditorium: A2-70.03
08:30	WinterTurf: A new approach to studying turfgrass winter stresses	Eric Watkins
08:55	Covering greens to reduce winter stress damage	Trygve Aamlid
09:20	Development of disease prediction models for snow moulds	Paul Koch
09:45	Discussion	
08:30	Symposium: Turfgrass Management in the Transition Zone (I)	Auditorium: A2-70.04
		Alessandro De Luca & Massimo
		Mocioni, Simone Magni & Marco
08:30	General Introduction	Volterrani
		Diego Gomez de Barreda & Stefano
09:00	Actions in Europe	Macolino
09:30	Actions in Asia	Kyosuke Yamamoto & Kehua Wang
10:00-10:30	COFFEE BREAK	
	Symposium: Winter Stresses of Turfgrass (II)	
10:30	Moderator: Eric Watkins	Auditorium: A2-70.03
10:30	Winter deacclimation dynamics in a changing climate	Michelle DaCosta
10:55	Winter stresses of grasses in the Arctic	Sigridur Dalmannsdottir
11:20	Discussion	
10:30	Symposium: Turfgrass Management in the Transition Zone (II)	Auditorium: A2-70.04
10:30	Actions in USA	Jim Kerns
11:00	Actions in Australia	Chris Lambrides
11:30	Final discussion and summary	1
	·	Auditorium A3 70 04
12:00-12:30	Conclusion of ITRC 2022	Auditorium: A2-70.04
12:30-14:00	Farewell lunch, dismantling of posters	Marmor Hall
13:30-16:00	ITS Post conference board meeting	Hotel Scandic Falkoner