Conference Program

Advancing Silvicultural Technology

SLU Campus Umeå, Sweden - August 22-24th 2023

The objectives of the conference are to present ongoing R&D in the Nordic-Baltic region on forest management systems and technology and to discuss future R&D needs. Researchers, undergraduate- and PhD students as well as professionals from operational forestry, forest authorities and industry and other forest organizations are welcome to participate.

The conference is free of charged and open for everyone to participate after registration (deadline August 14th). You can participate Sessions 1-5 digital – a link will be provided after registration! Look out for more info and updates at: https://www.slu.se/institutioner/skogens-biomaterial-teknologi/forskning_in/forskningsprojekt-vid-sbt/advancing-silvicultural-technology/ Register by emailing: dan.bergstrom@slu.se

Day 1 (22 Aug). SLU, Campus Umeå

08.00 – 08.45   Registration, poster display. Coffee and tea is served.

Session 1

08.45	*Welcome to the Conference!*
	Dan Bergström, Associate Professor, Swedish University of Agricultural Sciences (SLU)
08.50	*Some words about SNS*
	Jonas Rönnberg, Head of secretariat at SNS & Researcher at SLU (digital presentation)
08.55	*Some words about IUFRO*
	Timo Saksa, Visiting Specialist, Natural Resources Institute Finland (Luke)
09.00	*Future forest operations – current advances in data-gathering, decision supports, machine designs and robotics*
	Ola Lindroos, Professor, SLU
09.20	*Forest restoration mechanization from science to practice – Nordic Baltic technology transfer - last twenty years*
	Dagnija Lazdiņa, Senior Researcher, Latvian State Forest Research Institute (Silava)
09.40	*Improved information flow between inventory and silviculture as the foundation for precision management.*
	Ramus Astrup, Head of Research, Norwegian Institute of Bioeconomy Research (NIBIO)
10.00	*New digital tools and business models for silvicultural services – how about the market potential?*
	Ville Kankaanhuhta, Group Manager, Senior Scientist, Luke
10.20	*RFFL – Resilient Future Forests Lab – a new generation of long-term demonstration experiments in operational scale.*
	Palle Madsen, InNovaSilva, Denmark. (Flash presentation).

10.30   30 min break, poster display. Coffee and tea is served.

Day 1, Session 2

11.00	*Mechanized tree planting: examining the bottlenecks preventing full-scale implementation of tree planting machines in Swedish forestry*
	Back Tomas Ersson (SLU), Jussi Manner, Lars-Göran Sundblad & Mats Hannerz
11.20	*Factors affecting mechanized tree planting productivity: results from time studies.*
	Kristaps Makovskis (Silava), Toms Arturs Stals, Viktorija Vendina, Sindija Zigure, Dagnija Lazdina
11.40	*Detecting the time consumption and productivity of mechanized forest planting based on Risutec ASTA gpx files.*
	Antti Sairanen, Kalle Kärhä (University of Eastern Finland (UEF)), Heli Viiri, Laura Pikkarainen & Heli Peltola. (Flash presentation).
11.50	*Long-term growth response of Norway spruce in different mounding and vegetation control treatments on fine-textured soils.*
	Karri Uotila (Luke), Juha Heiskanen & Jaana Luoranen. (Flash presentation).
12.00	***1 hour Lunch break, poster display***
13.00	*A cloud-connected planting: SmartPlanter for precision planting*
	Csongor Horvath (NIBIO), Kjersti Holt Hanssen, Simon Berg, Rasmus Astrup
13.20	*Pathfinder – A decision support tool for operational planning of forest regeneration measures*
	Linnea Hansson (Skogforsk), Patrik Flisberg, Mikael Rönnqvist, Fredrik Johansson, Rasmus Sörensen, Petrus Jönsson
13.40	*Big data in evaluating the factors affecting the success of regeneration*
	Jari Miina (Luke), Saija Huuskonen, Aura Salmivaara and Karri Uotila
14.00	*Traceability in seedling logistics using RFID, and climate sensors*
	Anders Rowell (Skogforsk) & Anders Nilsson. (Flash presentation).
14.10	*Preliminary findings from the fenced and non-fenced study plots in Sodankylä, Finnish Lapland: Some regeneration results and spatial patterns*
	Janne Miettinen (Luke) & Kari Mäkitalo. (Flash presentation).
14.20	*Standardization of data from mechanized scarification and planting.*
	John Arlinger (Skogforsk), Johan Möller, Linnea Hansson, and Maria Nordström. (Flash presentation).
14.30	***30 min break, poster display. Coffee and tea is served.***

Session 3

15.00	*Use of drones and deep learning in forest regeneration surveys.*
	Stefano Puliti, Kjersti Holt Hanssen (NIBIO), Rasmus Astrup
15.20	*Forestry Automation using the AORO Research Vehicle Platform.*
	Håkan Lideskog (Luleå University of Technology), Torbjörn Lindbäck & Magnus Karlberg
15.40	*Utilizing Drone-based Point Clouds for Forest Inventory and Experimental Plantations*
	Andreas Davidsen (InNovaSilva), Laura Roed Bonde, Palle Madsen. (Flash presentation).
15.50	*Automating the crane of AORO: Advancements and potential for automation in the forestry industry*
	Pedro La Hera (SLU). (Flash presentation).
16.00	*Autoplant – concepts and tests of autonomous forest regeneration*
	Linnea Hansson (Skogforsk), Morgan Rossander, Håkan Lideskog, Gustav Sten, Ruben van Westendorp. (Flash presentation).
16.10	*AI Image recognition – Is a point after soil preparation good enough for tree planting or not?*
	Tomas Nordfjell (SLU) & Alice Kårehagen. (Flash presentation).
16.20	*Creating FOMO: An Annotated Image Dataset for Forest Operations.*
	Christian Höök (SLU) & Ola Lindroos. (Flash presentation).

16.30	***10 min break, Coffee and tea is served***
16.40	*Advancing Silvicultural Technology: Solutions for Integrated Service Provision the Current and Future State.*
	Henrik Janer, Risutec, Finland. (Flash presentation).
16.50	*A hub for forestry research and innovation.*
	Linda Nyström, CEO & <u>Anneli Lundmark,</u> project manager (Skogstekniska klustret). (Flash presentation).
17.00	*Conclusion of the day and information.*
	Dan Bergström, SLU

17.10 – 18.00	***Poster display.***
19.30	***Conference dinner***

Day 2 (23 Aug):

08 – 17	***Field excursions in Vindeln, Buss departure ca 08. Back in Umeå ca 17. Information about logistics will be updated!***
19.30	***Conference dinner.***

Day 3 (24 Aug):

08.00 – 08.50	***Poster display. Coffee and tea is served***

Session 4

08.50	*Summary of the conference, so far!*
	Dan Bergström, SLU
09.00	*Positioning accuracy of Global Navigation Satellite Systems under canopy cover during a thinning operation.*
	Kari Väätäinen (Luke), Antero Kukko, Harri Kaartinen, Antti Raatevaara, Perttu Anttila, Eero Holmström, Johanna Routa, Lauri Sikanen, Eugene Lopatin, Ville Kankare, Mikko Vastaranta, Tuomas Yrttimaa
09.20	*Evaluation of the possibilities to use compact-class harvesters in pre-commercial thinning*
	Santa Kaleja (Silava), Agris Zimelis & Andis Lazdins
09.40	*Mapping the need for pre-commercial thinnings using IoT, AI and remotelly sensed information.*
	Liviu Ene (Skogforsk), Atiqur Rahaman, Kari Hyll, Martin Längkvist, Rikard Hedberg, Filippa Sidén, Maria Nordström, Erik Willén
10.00	*Potential of harvester's selective boom corridor thinning working method in young unmanaged uneven structured birch dominated forests.*
	Yrjö Nuutinen (Luke), Joel Kostensalo, Eugene Lopatin, Simone Bianchi & Timo Muhonen. (Flash presentation).
10.10	*Young (5-25 years) stands growth – potentials versus yield table data.*
	Laura Roed Bonde (InNovaSilva), Andreas Davidsen, Palle Madsen. (Flash presentation).

10.20	***30 min break, poster display. Coffee and tea is served.***

Day 3, Session 5

10.50	*Transition to selection cutting management in mature stands in Estonia: effect on stand production and development.* Marek Uri (Estonian University of Life Sciences), Aun, K., Kukumägi, M., Varik, M., Becker, H., Aosaar, J., Sepaste, A., Buht, M., Padari, A., Uri, V.
11.10	*Quantifying Forest Dynamics in Continuous Cover Forestry Using Mobile Laser Scanning and UAV Laser Scanning.* Evgeny Lopatin (Luke)
11.30	*Does forest fertilisation intrude on protection zones?* Simon Berg (NIBIO), Kjersti Holt Hanssen. (Flash presentation).
11.40	*Family forest owners' awareness, knowledge and forest management preferences regarding forest damage: a survey from northern Sweden.* Thomas Kronholm (SLU). (Flash presentation).
11.50	*Implementing an operator protective device on quad-bikes - user experiences.* Carola Häggström (SLU), Thomas Kronholm & Tomas Nordfjell. (Flash presentation).
12.00	***1,5 hour Lunch break, poster display***

Session 6: Workshop

13.30	*Workshop: Advancing Silvicultural Technology - Future RDI needs!?*
15.00	*Summary of the Workshop and Conclusion of the Conference*
15.30	***The End…***

The conference and excursion is free of charged and open for everyone to participate after registration!

Register by emailing: Dan Bergström, Associate Professor, Division of Forest Operations, Department of Forest Biomaterials and Technology, Swedish University of Agriculture Sciences (SLU), Umeå, Sweden. dan.bergstrom@slu.se, +46907868214, +46730498014

Look out for more info and updates at: https://www.slu.se/institutioner/skogens-biomaterial-teknologi/forskning_in/forskningsprojekt-vid-sbt/advancing-silvicultural-technology/

The Conference is as a joint arrangement between IUFRO, SLU, LUKE, NIBIO, SILAVA, InNovaSilva ApS and Estonian University of Life Sciences and is financed by the SNS: https://nordicforestresearch.org/