Preliminary program

5th Forest Engineering Conference

together with the

47th International Symposium on Forestry Mechanisation

"Forest engineering: propelling the forest value chain"

September 23-26, 2014 in Gerardmer, France

FEC – FORMEC - 2014
Preliminary program

5th Forest Engineering Conference

together with the

47th International Symposium on Forestry Mechanisation

"Forest engineering: propelling the forest value chain"

September 23-26, 2014 in Gerardmer, France

FEC – FORMEC - 2014
Preliminary program

FCBA, the French technology institute for forestry, cellulose, wood construction and furniture, will host the **5th Forest Engineering Conference (FEC)** together with the **47th International Symposium on Forestry Mechanisation (FORMEC).**

The conference will take place on **September 23-26, 2014 in Gerardmer, France** under the general theme "**Forest engineering: propelling the forest value chain".**

Inspired by successful FEC and FORMEC past editions, this major international event will grant forest researchers and practitioners one of the best opportunities to meet, and share for 3 full days their experience, knowledge and emerging ideas.

Two days of indoor technical sessions will be completed with a full day of field demonstrations in the local mixed sub-mountainous forests.

Tuesday September 23.	Wednesday September 24.	Thursday September 25.	Friday September 26.
		Start at 07:30	
	Start at 08:00		**Start at 08:00**
	Welcome & Keynote adresses		Welcome again & Keynote adresses
	break		Break & POSTER session n°2
	3 Parallel sessions (A)		3 Parallel sessions (D)
	Lunch	Field trip (lunch included)	Lunch
	3 Parallel sessions (B)		3 Parallel sessions (E)
From 14:30			
Registration whenever you arrive…	Break & POSTER session n°1		Break
Pre-conference event INFRES Workshop (open to all)	3 Parallel sessions (C)		3 Parallel sessions (F)
Ice-breaking reception			wrap up and conclusions
			End at 19:00
free evening	Conference dinner (from 19:00)	GALA Dinner (from 19:00)	
			v(2)

(larger timeble available next page)

FEC – FORMEC - 2014
Preliminary program

	Tuesday September 23.	Wednesday September 24.	Thursday September 25.	Friday September 26.
			Start at 07:30	
		Start at 08:00		**Start at 08:00**
08:00 - 08:30		Welcome		Welcome again &
08:30 - 09:00		&		Keynote adresses
09:00 - 09:30		Keynote adresses		Break
09:30 - 10:00		break		&
10:00 -10:30		3 Parallel sessions (A)		POSTER session n°2
10:30 - 11:00				3 Parallel sessions (D)
11:00 - 11:30				
11:30 - 12:00				
12:00 - 12:30		Lunch		
12:30 - 13:00			Field trip	Lunch
13:00 - 13:30		3 Parallel sessions (B)		
13:30 - 14:00			(lunch included)	3 Parallel sessions (E)
14:00 - 14:30	**From 14:30**			
14:30 - 15:00	Registration whenever you arrive…			
15:00 - 15:30		Break		
15:30 - 16:00		&		Break
16:00 - 16:30	Pre-conference event INFRES Workshop (open to all)	POSTER session n°1		3 Parallel sessions (F)
16:30 - 17:00		3 Parallel sessions (C)		
17:00 - 17:30				
17:30 - 18:00				
18:00 - 18:30	Ice-breaking reception			wrap up and conclusions
18:30 - 19:00				**End at 19:00**
19:00 - 19:30		Conference dinner (from 19:00)	GALA Dinner (from 19:00)	
	free evening			
* 30' time slots				v(2)

FEC – FORMEC - 2014
Preliminary program

Contributions from the international forest engineering community

The call for paper announced six major themes for the 5th Forest Engineering Conference and the answers from the international community of researchers and practitioners brough the organisation committee to elaborate the program with 18 parallel sessions for oral presentations (A to C on Wednesday and D to F on Friday) completed with 2 collective poster sessions (P1 on Wednesday and P2 on Friday).

Parallel sessions for oral presentations are organised in two hours slots on the principle that each contribution is presented for 15 minutes (max) by the author and then discussed for 5 minutes (max) through the questions raised by the audience.

	Oral	Poster
1. Managing interactions between logging operations and forest ecosystems services		
▪ *Trafficability practices and understanding of forest soil characteristics*	B & D	P2
▪ *Forest operations: environmental concerns and natural hazards*	A	P2
▪ *Forest roads and environment*	E	P2
2. Answering specific challenges in harvesting technologies and working methods		
▪ *Innovation-driven developments in harvesters and forwarders*	A & D	P1
▪ *Logging in steep terrain*	C	P1
▪ *From traditional to automated work studies*	C	P1
▪ *Harvesting technics and working methods for biomass mobilization*	C	P1
▪ *Fuelwood quality and moisture content management*	E	P2
3. Being innovative in transportation solutions and logistics		
▪ *Measuring and tagging logs along the supply chain*	A	-
▪ *Wood supply chain management and decision support tools*	B	P1
4. Better working conditions and educational programs		
▪ *Workforce training and skills developments*	F	P2
▪ *Contractors and durable business*	E	P2
▪ *Ergonomics and Man-Machine co-developments*	B	P1
5. Organisational innovations and other strategies for a better planning and monitoring of forest operations in specific contexts		
▪ *Looking for efficient bioenergy supply chains*	D & F	P2
6. Implementing Precision Forestry concepts for improved wood-supply-chains		
▪ *Operational uses of remote sensing technologies for logging operation*	F	P2

FEC – FORMEC – 2014 Preliminary program

Parallel session **A: 10:00 – 12:00**	**Forest operations: environmental concerns and natural hazards**	**Innovation-driven developments in harvesters and forwarders (1/2)**	**Measuring and tagging logs along the supply chain**
	Tree damage in mechanized uneven-aged selection cuttings *M. Sirén, J. Hyvönen and H. Surakka (METLA)*	Evaluation of a prototype harvester head for rough delimbing and compression in early energy wood thinning *F. Di Fulvio and D. Bergström (SLU)*	Development of an automated system for counting, measuring and tracking export logs arriving on trucks and railway wagons *G. Murphy, R. Valkenburg and D. Ganley (GE Murphy & Associates)*
	Method of investigation towards better forest fires risk management due to the improved forest biomass utilization *V. Corbic, R. Klvac, D. Stojnic (Mendel University)*	Harvesting Machines for crooked trees *N. Perriguey, Z. E. Chebab, C. Devemy, G. Dargnat, B. Hatton, D. Goubet, J-C Fauroux, V. Gagnol, B-C Bouzgarrou, G. Gogu (IFMA)*	Influence of Region, Seasonality, and Species on Weight to Volume Relationships of Commercial Sawlogs in Idaho *J. Saralecos, R. F. Keefe, R. H. Brooks and L. R. Johnson (University of Idaho)*
	Application of fertilizer spreaders for wood ash utilization *C. Huber, G. Bohrn and K.Stampfer (BOKU)*	Directing the development of mechanised forest operations to meet changes in Polish forestry *P. S. Mederski, M. Bembenek, Z. Karaszewski & M. Gierszewska (Poznań University of Life Sciences)*	Improved wood delivery by new scaling methods of log piles. *M. Opferkuch and D. Jaeger (University of Freiburg)*
	HCT vehicles for timber transport in Sweden - Results from the ETTdemo project *J. Widinghoff; N. Fogdestam, C. Löfroth (Skogforsk)*	Estimating the harvester head's position - a missing link to the future's precision forestry *O. Lindroos, O. Ringdahl, P. La Hera, P. Hohnloser and T. Hellström (SLU)*	The impact of mechanical log surface damage on fibre loss and chip quality when processing Eucalyptus pulpwood using a single-grip harvester *J-P van der Merwe, R. E. Pulkki, P. A. Ackerman and D. Längin (Stellenbosch University)*
	Spatial prediction of slope failure in the Caspian forest using an adaptive neuro-fuzzy inference system and GIS *A. Jaafari and A. Najafi (Technical University in Zvolen & Tarbiat Modares University)*	New Model for Innovation of Forest Machine Technologies *B. Löfgren (Skogforsk)*	Comparative analysis of four estimation methods of stand volume and different staged measurement and analysis of sub-compartment output volume in Eucalyptus stump area *X. Ge, L. Wang, Z. Bao and T. Sun (Northeast Forestry University)*
	Environmental effects of forest operations on a suburban forest landscape – a forest engineering approach V. Drosos (Democritus University of Thrace)		
	Room (6ppt)	**Room (5ppt)**	**Room (5ppt)**

FEC – FORMEC – 2014 Preliminary program

Parallel session **B: 13:00 – 15:00**	**Trafficability practices and understanding of forest soil characteristics (1/2)**	**Ergonomics and Man-Machine co-developments**	**Wood supply chain management and decision support tools**
	Possibilities to predict moisture content of peat soil at the moment of harvest operation *J. Uusitalo, H. Lindeman and J. Ala-Ilomäki (METLA)*	Analysis of human generated crane motion patterns – towards the automation of forestry manipulators *P. La Hera, D. Ortiz Morales, S. Westerberg, O. Lindroos (SLU)*	West Virginia Logger Travel Distance and Wood Supply Zone Opportunities *B. Spong and S. Grushecky (West Virginia University)*
	Soil compaction on two sensitive sites in north-eastern France and natural or assisted recovery processes *N. Goutal-Pousse, P. Bonnaud, J. Demaison, G. Nourrisson, P. George and J. Ranger (ONF R&D department)*	An evaluation on whole-body vibration affecting tractor and truck operators *K. Melemez, M. Tunay Metin and T.Emir (University of Bartin)*	Wood transport qualification to anticipate regulatory constraints *T. Carrette and C. Ginet (FCBA)*
	Innovative concept of a forwarding system for considerate treatment of forest soil and improved efficiency *C. Knobloch and C. Jacobs (TU Dresden)*	Using a harvester simulator to evaluate work methods in thinning *Ö. Grönlund, M. Iwarsson Wide and M. Englund (Skogforsk)*	Optimised scheduling of harvesting teams *M. Frisk, M. Rönnqvist, P. Flisberg and G. Andersson (Skogforsk)*
	Flexible extra wheel-attachment to decrease ground pressure of a harvester. *M. Öhman, U. Bergsten, T. Nordfjell and A. Ågren (SLU)*	A comparison of OWAS and REBA observational techniques for assessing postural loads in tree felling and processing *N. Manavakun (Kasetsart University)*	Optimising Harvesting and Processing Operations within the Value Chain *R. Visser and A. Tolan (University of Canterbury)*
	Nutrient concentration on skid trails under brush-mats - Is a redistribution of nutrients possible? *H. Borchert and K. Goettlein (Bavarian State Institute of Forestry)*	Eye-tracking as a research tool to analyse work conducted by harvester operators *C. Häggström, M. Englund, O. Lindroos and G. Lidestav (SLU)*	Integrated transportation tools to optimise timber and biomass supply logistics *M. Acuna (University of the Sunshine Coast)*
			Forest Transportation Planning by using GIS-based Decision Support System *A. Akay and A. Azad Haji Kakol (Kahramanmaras Sutcu Imam University)*
	Room (5ppt)	**Room (5ppt)**	**Room (6ppt)**

FEC – FORMEC – 2014 Preliminary program

Parallel session **C: 16:30 – 18:30**	**Logging in steep terrain**	**From traditionnal to automated work studies**	**Harvesting technics and working methods for biomass mobilization**
	New Developments in Fully Mechanising Steep Terrain Harvesting Operations *R. Visser, K. Raymond, Keith and H. Harrill (University of Canterbury)* Small and simple technology cable system for logging *F. Vélez (Independent professional in Colombia)* Productivity and Systems Analysis of an Excavator Based Running Skyline in Two Alternative Working Configurations in Norway *B. Talbot, G. Aalmo, K. Stampfer (NFLI)* Benefits of varying cable yarding technologies with respect to specific timber harvesting and extraction needs in Southern China *S. Hoffmann, S. Schoenherr, D. Jaeger and B. Engler (University of Freiburg)* Cable yarding potential and its current share in turkish logging *A. Altunel, T. Altunel, K. Enez and B. Aricak (Kastamonu University)*	Monitoring long-term forwarder productivity using onboard computer data *M. Strandgard, and R. Mitchell, Rick (University of the Sunshine Coast)* Forest work studies: who, why, how *B. Kosir and R. Spinelli (University of Ljubljana)* Time studies based on automatic data collection *J. Arlinger and J. Möller (Skogforsk)* Analyzing forwarder operation by consumer-grade GPS in mountainous conditions *S. Grigolato, A. Poje, M. Pellegrini, I. Potocnik and R. Cavalli (University of Padova)* Forwarding work study with automatic data recording *J. Manner, L. Palmroth, O. Lindroos and T. Nordfjell (SLU)* Estimating the Time Consumption and Productivity of Round Wood Skidding in Group Shelterwood Cuttings – A Case Study in a Mixed Stand Located in Reduced Accessibility Conditions *S. A. Borz, B. Popa, G. Ignea and G. Sparchez (Transilvania University of Brasov)*	A new machine for the extraction of SRC stumps for biomass production *G. Picchi, R. Spinelli and G. Ragaglini (CNR-IVALSA)* Productivity of multi-tree cutting in thinnings and clear cuttings of downy birch (Betula pubescens) in the integrated harvesting of pulpwood and energywood *J. Laitila, K. Väätäinen and P. Niemistö (METLA)* Mechanized harvesting of big broadleaves crowns. *P. Ruch, E. Ulrich, D. Pischedda, and X. Montagny (FCBA & ONF)* Effects of sieve size on chipper productivity, fuel consumption and chip size distribution for open drum chippers *L. Eliasson, H. von Hofsten, R. Spinelli and T. Johannesson (Skogforsk)* Case study: Comparation of two harvesting methods for bioenergy under Mediterranean conditions. *V. Lerma, J. Oliver-Villanueva and G Segura (AIDIMA UPV)* Determining the impact of felling method and time of the year on coppice regeneration *T. Gallagher, D. P. Leite de Souza, M. Smidt, T. McDonald, D. Mitchell & J. Wright (Auburn School of Forestry and Wildlife Sciences)*
	Room (5ppt)	**Room (6ppt)**	**Room (6ppt)**

FEC – FORMEC – 2014 Preliminary program

Parallel session **D: 10:30 – 12:30**	**Trafficability practices and understanding of forest soil characteristics (2/2)**	**Innovation-driven developments in harvesters and forwarders (2/2)**	**Looking for efficient bioenergy supply chains (1/2)**
	Review and application of analytical models of forest soil bearing capacity *A. Pirnazarov, U. Sellgren and B. Löfgren (KTH)* Estimating soil displacement in skid train construction using stereo-photogrammetry and LIDAR *M. Pierzchała, B. Talbot and R. Astrup (NFLI)* Productibity and cost analysis of a wheeled skidder in chestnut coppice forests in the north of Spain. Preliminary evaluation of the soil compaction of forest road. *E. Canga, S. Sánchez-García, E. Prado and J. Majada (CETEMAS)* Possibilities to reduce rut formation in logging operations on unfrozen peatland *H. Lindeman, Ala-Ilomäki and J. Uusitalo (METLA)* Non-durable use wood motor roads . *M. Bicevskis and I. Kalmuks (Latvia`s state forest)*	The technical evolution and market of forwarders in Sweden *T. Nordfjell (SLU)* A concept study of a four-wheeled forestry machine with active pendulum axels operating on soft and rough soils *A. Ismoilov, U. Sellgren and K. Andersson (KTH)* Active brake-link for faster and safer forwarding *M. Öhman, C. Häggström and T. Nordfjell (SLU)* Answering future specific challenges in harvesting – Views of design students *U. Bergsten and M. Hedblom (SLU)* Multi-objective optimization and performance evaluation of chassis suspensions for forestry machines. *F. Báez Morandi Ezequiel* Awarded best Master thesis work'14 on strategic R&D tasks for increased efficiency and improved ergonomics on forest machines. (*Sweden*) Determination and optimization of delimbing forces on hardwood harvesting heads *C. Devemy, G. Dargnat, Benjamin HATTON, D. Goubet, N. Perriguey, Z. E. Chebab, J-C Fauroux, V. Gagnol, B-C Bouzgarrou, G. Gogu (IFMA)*	The logistics of wood chips in Estonian conditions - a case study *M. Irdla, A. Padari, P. Muiste and M. Irdla (Estonian University of Life Sciences)* Establishment of transportation system of low value wood biomass for the early stage of energy supply *M. Yoshida and S. Hideo (The University of Tokyo)* Life Cycle Assessment of woody biomass from energy crops *C. Cornillier and P. Ruch (FCBA)* TCS – An operational system for control and optimization of forest biomass logistics *T. Mustonen and M. Tuukkanen (ECOMOND)* The effect of implementing innovative harvesting and handling technologies for young dense thinning on the cost and energy efficiency of supply systems *D. Bergström, F. Di Fulvio (SLU)* Improved BioMass Market Efficiency and Price Discovery from Online Auctions *T.Turkmengil, E. Jessup and M. Dees (University of Freiburg)*
	Room (5ppt)	**Room (6ppt)**	**Room (6ppt)**

FEC – FORMEC – 2014 Preliminary program

Parallel session **E: 13:30 – 15:30**	**Forest roads and environment**	**Contractors and durable business**	**Fuelwood quality and moisture content management**
	Achieving successful road performance and reducing the environmental impact of resource roads in wetland environments *M. Partington and C. Gillies (FPInnovations)* Secondary opening of sloped terrain forests – a GIS study for timber skidding *T. Pentek , H. Nevečerel, T. Poršinsky, M. Šporčić, K. Lepoglavec, I. Papa and Ž. Tomašić (Forestry Faculty of Zagreb University)* Evaluation of the Effect of Lime-Stabilized Subgrade on the Performance of an Experimental Road Pavement *J. Péterfalvi; P. Primusz; Markó and Kosztka (University of West Hungary)* Assessment of environmental performance and cost analysis of forest roads due to construction, maintenance and utilization – case studies in Romanian and Norwegian mountain forests *A. Enache, K. Stampfer, B. Talbot and J. Bjerketvedt (BOKU)* Subgrade Strength Recovery in Forest Roads in Oregon. *K. Boston (Oregon State University)*	Importance of Internal and External Factors for Forest Contractors in Norway - The Manager's View *B. Vennesland, E. Skagestad and E. Nybakk (NFLI)* UGA Logging Cost Index: A Measure of Southern US Timber Harvesting Costs *S. Baker and D. Greene (University of Georgia)* Consequences of Varying Industrial Contexts on Procurement and Management of Logging Services: Comparisons Between two Swedish Forest Companies *E. Erlandsson, G. Lidestav and D. Fjeld (SLU)* Influence of Prescribed Method of Roundwood Scaling on Forwarder Efficiency *A. Đuka, T. Poršinsky, T. Pentek and M. Šporčić (Faculty of Forestry Zagreb)* The communication process between contactors and clients *M. Sääf and R. Björheden (Skogforsk)* Logging Cost Indices for the United States *E. Dodson, D. Greene, S. Baker and S. Hayes (University of Montana)*	Fuelwood moisture content management through meteorological data based modelling *G. Erber (BOKU)* Precision Measurement of Forest Harvesting Residue Moisture Change and Dry Matter Losses by Constant Weight Monitoring *J. Routa and L. Sikanen (METLA)* An accurate and fast method for moisture content determination. *L. Fridh and L. Eliasson (Skogforsk)* Energy efficient production of high quality wood chips using energy round wood instead of forest residues *D. Kuptz and H. Hartmann (Technologie- und Förderzentrum TFZ)* Wood chip quality. *E. Nordhagen, S. Gjølsjø and E. Nordhagen (NFLI)* BioGas Woodchip Drying Innovation for Reduced Bioenergy Production Cost *E. Jessup, J. Walkiewicz and M. Dees (University of Freiburg)*
	Room (5ppt)	**Room (6ppt)**	**Room (6ppt)**

FEC – FORMEC – 2014 Preliminary program

Parallel session **F: 16:00 – 18:00**	**Operational uses of remote sensing technologies for logging operation**	**Workforce training and skills developments**	**Looking for efficient bioenergy supply chains (2/2)**
	LiDAR Mapping as an Aid to Partial Cutting in Heterogeneous Stands. *P. Meek and J-M Lussier (FPInnovations)* How to Effectively Set up Cable Yarding Corridors: A Case Study of Central Turkish Example *B. Aricak, H. Acar, A. Altunel, A. Kurtipek and K. Enez (Kastamonu University)* Variable extraction cost modelling on high resolution terrain models *N. Søvde, B. Talbot, J. Bjerketvedt and M. Pierzchala (NFLI)* A case study on the prediction of detailed product recovery from individual stem profiles based on airborne laser scanning and models for predicting wood and fibre properties and forest residues *L. Wilhelmsson, A. Barth, J.J Möller, J. Arlinger, R. Hedberg and U. Söderman (Skogforsk)* Applications of multi-transmitter GPS-VHF in forest engineering *R. Keefe (University of Idaho)*	The Limiting Factor in North American Forest Operations: A Skilled Workforce *J. Garland (Consulting Forest Engineer)* Development and Implementation of Innovations in Croatian Forestry *M. Šporčić, S. Posavec, M. Landekić, T. Pentek and T. Poršinsky (Forestry Faculty of Zagreb University)* University training for industrial wood supply *D. Fjeld, Erikson, Frisk, Lemieux, Marrier, M. Rönnqvist (SLU)* Successful training strategies for introducing cable yarding technologies in China *S. Schoenherr, S. Hoffmann, D. Jaeger and B. Engler (University of Freiburg)* An assessment of wage and skill level among logging equipment operators in the USA *M. Smidt, Xu and Zhang (Auburn University)* Analysis of the first steps in the introduction of the harvester and the forwarder in logging in Bulgaria *D. Dinev and J. Vardunski (Oak Forest Experimental Station)*	Logistics optimization of a biomass supply chain *A. Bouvet and B. Penz (FCBA)* Biomass harvesting resimurphyue supply chain optimisation and verifying the effect of major parameters affecting the supply chain cost in Western Australia *M. R. Ghaffariyan, M. Acuna and M. Brown (AFORA, University of the Sunshine Coast)* Success factors for larger forest fuel terminals *D. Athanassiadis, J. Enström, M. Öhman and Ö. Grönlund (SLU)* Optimizing Bioenergy Supply Chain Configurations for the Northeastern United States *J. Wang and D. Hartley (West Virginia University)* Improving the efficiency of forest biomass supply chains in Canada. *D. Roser (FPInnovations)*
	Room (5ppt)	**Room (6ppt)**	**Room (5ppt)**

FEC – FORMEC – 2014 Preliminary program

Poster sessions

2 collective poster sessions are planned in the program, with time and space arrangements to guarantee the posters' visibility and accessibility for all congressists.

The posters will be organised in relevant groups in order to bring additional light on the conference themes, as complement and in parallel to the oral presentations.

The posters are heredown listed according to the day of their presentation and the major theme they relate to.

1st poster session (P1) is organised on Wednesday (September 24.) from 15:00 to 16:30

2. Answering specific challenges in harvesting technologies and working methods

- *Innovation-driven developments in harvesters and forwarders*
- *From traditional to automated work studies*
- *Logging in steep terrain*
- *Harvesting technics and working methods for biomass mobilization*

ID	Title of the poster	Authors	Affiliation
90	Harvesting of heart stumps from Poplar and Maritime Pine forest in South West France	R. Emeyriat, S. Cloarec, H. Husson, J-R Liarçou & J.Moreau	FORET LOGISTIQUE CONSEIL
22	Optimum combination of animal and farm tractor skidding systems in log removing	N. Gilanipour, A. Najafi & M. Seyed Heshmatolvaezin	Tech. University in Zvolen Tarbiat Modares University
147	Time structure of working day while performing wood harvesting – economic view	T. Nurek	Warsaw University of Life Sciences
150	Scrutiny of factors affecting extraction distances of forwarders	O. Lindroos & E. Wadbro	SLU
179	Mathematical Time Prediction Models of Loader HSM 904 Using Multiple Linear Regressions (MLR) and Adaptive Neuro Fuzzy Inference System (ANFIS)	I. Ghajar, R. Naghdi, M. Nikooy & S. Yousefifard	University of Guilan
6	The cutting productivity in integrated harvesting of pulpwood and delimbed energy wood with a forestry-equipped peat harvesting tractor	J. Laitila & K. Väätäinen	METLA
20	Ground disturbance and diameters of roots at breakage points after stump harvesting	S. Berg, T. Nordfjell & J. Nurmi	SLU
33	Comparison of harvester time consumption and productivity in Eucalyptus globulus planted and second rotation coppiced plantations in south west Western Australia	R. Mitchell & M. Strandgard	University of the Sunshine Coast
39	State and trends for utilization of the wood biomass for biofuels in Bulgaria	L. Trichkov & D. Dinev	Oak Forest Experimental Station
59	Efficient chip supply systems improve chipper utilisation	L. Eliasson, C. Lombardini & J. Widinghoff	Skogforsk

ID	Title of the poster	Authors	Affiliation
76	Forest management systems for increased harvest of small trees for energy purposes.	J. Sonesson, S. Jacobson, L. Eliasson, L. Wilhelmsson & J. Arlinger	Skogforsk
159	Survey of forest roadside wood chipping operations in Bavaria	F. Schulmeyer & K. Hüttl	Bavarian State Institute of Forestry
193	A harvesting system for agricultural woody crops at plantation removal	P. Gianni, G. Aminti & R. Spinelli	CNR-IVALSA
81	Simulated Productivity of Conceptual, Multi-Headed Tree Planting Devices	T. B. Ersson, L. Jundén, M. Lindh & U. Bergsten	SLU
124	Morphological analysis of chainsaws – useful decision making tool	M. Zorić, D. Horvat, M. Šušnjar, Z. Pandur & J. Galović	Forestry Faculty of Zagreb University
220	Analyzing different machines for mechanized harvesting of hardwoods in Italy	J. Schweier, R. Spinelli & G. Becker	Albert-Ludwigs-Universität Freiburg
14	A Chute System Integrated with Mobile Winch and Synthetic Rope to Extract Logs in Mountainous Regions	A. E. Akay, N. Gulci & S. Gulci	Kahramanmaras Sutcu Imam University
48	Analyze of productivities data's for cable yarding in the French Alps	P. Magaud	FCBA
121	Recovery of logging residues from final harvest in steep terrain	Nordhagen, Gjølsjø, Belbo & Kjøstelsen	NFLI
173	Project SLOPE: introducing new technologies in mountain forest operations	G. Picchi, S. Huurinainen, J. Gort-Oromi, E. Nolan, E. Keane, M. Kuhmaier & R. De Amicis	CNR-IVALSA
224	Mechanical tools for site preparation in forest plantation: networks of field sites for evaluating and promoting innovative methods	C. Collet, G. Gibaud, J. Piat, C. Richter, Q.Girard, E. Ulrich, L. Wehrlen, F. Duez, M. Dassot, J-Y. Fraysse, A.Berthelot, L.Cotten, C. Sedilot-Gasmi, R. Koller, M. Bakker & L. Augusto	INRA

3. Being innovative in transportation solutions and logistics

- *Wood supply chain management and decision support tools*

ID	Title of the poster	Authors	Affiliation
2	Monitoring forest supply chains in remote areas using FPInnovations' FPSuite platform	J-F. Gingras, M. Castonguay & J. Favreau	FPInnovations
8	Assessing Systematical Framework in Forest Products Supply Chain to Sustain Forest Industry	A. M. Abdolahian Sohi	Islamic Azad University
46	Development and Implementation of a Sustainability Performance Improvement Model on Transport and Logistics Chains in the French Forest Based Sector	F. Müller	FCBA
77	An information platform for forest harvesting technologies and working methods as decision support system for practitioners	F. Brodbeck & U. H. Sauter	Forest Research Institute of Baden-Wuerttemberg

ID	Title of the poster	Authors	Affiliation
170	Life cycle analysis for technology selection in timber harvesting	M. Eker & Y. E. Önal	Süleyman Demirel University
182	Building models with the simulation software Witness.	C. Förster	TU Dresden
192	Development and Validation of a Physically Based Forest Operations Model	L. Grayson & R. Keefe	University of Idaho
302	Improved trucking logistics in Canada: Great savings but limited uptake	J. Favreau	FPInnovations

4. Better working conditions and educational programs

- *Ergonomics and Man-Machine co-developments*

ID	Title of the poster	Authors	Affiliation
72	Automatic clearcut obstacle identification using a time-of-flight camera	H. Lideskog & M. Karlberg	Luleå University of Technology
180	Terrestrial real-time navigation for harvesting machines	U. H. Sauter & J. Foeller	Forest Research Institute Baden-Wuerttemberg

FEC – FORMEC – 2014 Preliminary program

2nd poster session (P2) on Friday (September 26.) from 9:00 to 10:30

1. Managing interactions between logging operations and forest ecosystems services

- *Forest roads and environment*
- *Trafficability practices and understanding of forest soil characteristics*
- *Forest operations: environmental concerns and natural hazards*

ID	Title of the poster	Authors	Affiliation
184	Forest Road Standard Registration	J. Bjerketvedt	NFLI
188	Analysis of existing road network in order to plan and configure a rationally managed one in Greek mountainous area	V. C. Drosos	Democritus University of Thrace
191	Design of the phase two portable rail project track: a new system to minimize site disturbance in specialized forest operations and recreational applications	R. Keefe	University of Idaho
15	Reconstruction of the forest road network model in the conversion of the coppice companies to high forest enterprises	E. Dursun, H. H.i Acar & Ö. Göksu	Blacksea Technical University
19	Spatial Multi Criteria Decision Making for Estimating Environmental Costs of Road Management Activities	S. Ezzati & A. Najafi	Tech. University in Zvolen Tarbiat Modares University
26	Planning of Forest Roads with Plateia Software	Y. Turk, S. Gumus, T. Ural & R. Eker	Duzce University
27	Construction Method of Forest Roads in Turkey	Y. Turk	Duzce University
136	A Methodological Approach to the Determination of Forest Roads' Technical Competence	C. Ozer, B. Aricak, A. O. Altunel & K. Enez	Kastamonu University
171	GIS Based Strategy on Timber Transportation System in Mountainous Forest Regions	H. O. Çoban & M. Eker	Süleyman Demirel University
149	LoggingMap – concept for better planning of logging trail network in rough terrain conditions	S. Lamminen, K. Väätäinen, J. Ala-Ilomäki, M. Sirén & A. Asikainen	METLA
70	Environmental Factors Affecting Technical Efficiency in Norwegian Steep Terrain	G. Ottaviani Aalmo & S. Baardsen	NFLI
181	Reducing land damages using optimization for efficient logging planning	K. Westlund, P. Jönsson, G. Andersson, P. Flisberg & M. Rönnqvist	Skogforsk
51	Skidding tracks as forest infrastructure – promoting natural regeneration processes with regard to economic and ecological issues	H.C. Fründ, A. Averdiek, C. Kohn, M. Müller-Inkmann, O. Hemker, H. von Dressler & T.Gaertig	Hochschule Osnabrück
123	Influence of wheel load and wheel slip on rutting in forest operations	S. Pasemann, H. Jacke & J. Hittenbeck	ThüringenForst
149	LoggingMap – concept for better planning of logging trail network in rough terrain conditions	S. Lamminen, K. Väätäinen, J. Ala-Ilomäki, M. Sirén & A. Asikainen	METLA

2. Answering specific challenges in harvesting technologies and working methods

- *Fuelwood quality and moisture content management*

ID	Title of the poster	Authors	Affiliation
118	Wood chips characterization for small boiler in the Italy	S. Grigolato, A. Sgarbossa, M. Zanetti, G. Cosola & R. Cavalli	University of Padova
25	Evapo-transpiration as an accelerating tool for seasoning – A case study	R. Klvac Radomir, M. Kleibl, P. Tsioras & T. Cesek	Mendel University in Brno

4. Better working conditions and educational programs

- *Workforce training and skills developments*
- *Contractors and durable business*

ID	Title of the poster	Authors	Affiliation
61	Logging Capacity Impacts to the US South, 2006-2012	S. Baker & D. Greene	University of Georgia
207	Explotic implementation	V. Morillon & M. Bonnemazou	FCBA

5. Organisational innovations and other strategies for a better planning and monitoring of forest operations in specific contexts

- *Looking for efficient bioenergy supply chains*

ID	Title of the poster	Authors	Affiliation
11	Creation of geodatabase using geographical information system (GIS): its integration in forest road network and application in calculating biomass supply chain costs – case study from northern Spain	S. Sánchez-García, C. Prendes, E. Canga & J. Majada	CETEMAS
78	Biomass potential from young-dense stands in Sweden and road hauling to industries	R. Fernandez-Lacruz, F. Di Fulvio, D. Athanassiadis, D. Bergström & T. Nordfjell	SLU
82	Systems comparison of 10 supply chains for whole tree chips.	H. Belbo & B. Talbot	NFLI
89	Simulation of forest energy chips provision chain from the stand to the heating plant – Characterisation of the energy efficiency and minerals exportation.	N. Bilot, M. Fournier, H. Wernsdörfer & Y. Rogaume	INRA
153	Evaluation of terminal strategies by flow optimization	V. Asmoarp	Skogforsk
206	Feasibility of Adapting Existing Forestry Practices for Improved Biomass Production	M. Dees & E. Jessup	Albert-Ludwigs-Universität Freiburg

6. Implementing Precision Forestry concepts for improved wood-supply-chains

- *Operational uses of remote sensing technologies for logging operation*

ID	Title of the poster	Authors	Affiliation
28	The Effectiveness of Topographic Earth Representations in Forest Engineering	A. O. Altunel, O. Emre Sakici, B. Aricak & C. Ozer	Kastamonu University
30	The Comparison of different GPS devices in Turkish forestry practices	R. Erdem, A. O. Altunel & K. Erdin	Kastamonu University
163	Modeling the landslide susceptibility of a mountainous forest using Artificial Neural Network	R. Naghdi, I. Ghajar & A. Abasian	University of Guilan

FEC – FORMEC – 2014 Preliminary program

Publications from presenting authors

Three types of publications will be gathered in final proceedings:

1. Full manuscripts, for papers with scientific content;

2. Extended abstracts, for posters, practitioners' testimonials on specific experiences or products, or impacts of past research results successfully transfered to field operations;

3. Peer-reviewed scientific papers, also to be published either in the International Journal of Forest Engineering (IJFE) or in the Croatian Journal of Forest Engineering (CROJFE). NB: This option is only open to candidates selected for oral presentation during the conference.

Guidelines for the different types are provided to authors through the conference website.

Pre-conference event

On Tuesday 23rd, a special pre-conference event will be hosted at the conference center from 16:00 to 18:00 just before the FEC-FORMEC ice-breaking reception.

The INFRES Workshop "**Adaptation of forestry practices and business innovations for Bioenergy supply**" will be open to all and free of charge. Your prior registration would be highly appreciated, please contact workshop@infres.eu

Partners from the INFRES consortium will give the following presentations:

INFRES – Competitiveness for forest energy through technology, logistics, fuel quality and energy product portfolio. *A. Asikainen & J. Routa (METLA)*

Forest management systems for increased harvest of small trees for energy purposes. *J. Sonesson, S. Jacobson, L. Eliasson, L. Wilhelmsson, J. Arlinger (Skogforsk)*

BioGas Woodchip Drying Innovation for Reduced Bioenergy Production Cost. *E. Jessup, J. Walkiewicz, M. Dees (Albert-Ludwigs-Universität Freiburg)*

Improved BioMass Market Efficiency and Price Discovery from Online Auctions.
T. Turkmengil, E. Jessup, M.Dees (Albert-Ludwigs-Universität Freiburg)

Feasibility of Adapting Existing Forestry Practices for Improved Biomass Production. *M. Dees, E. Jessup (Albert-Ludwigs-Universität Freiburg)*

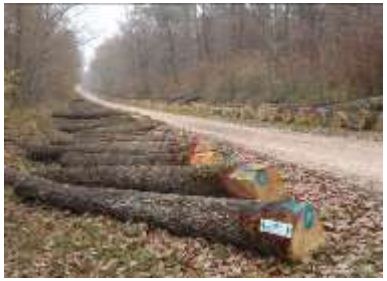
TCS – An operational system for control and optimization of forest biomass logistics. *T. Mustonen & M. Tuukkanen (ECOMOND)*

FEC – FORMEC – 2014 Preliminary program

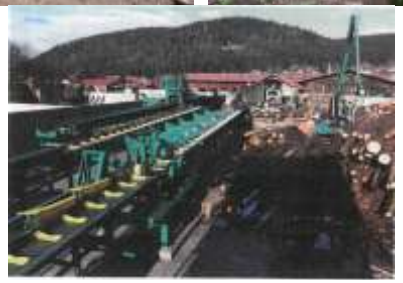
Field trip

Congressists will be invited to attend the field demonstrations in connection with the conference themes on Thursday 25.
There will be two separate excursions, a energy-focused one in LORRAINE and a steeper one in ALSACE to the east. The two circuits will provide different illustrations of the local forest engineering conditions, challenges and operational practices to overcome them.

PLAINS



VOSGES MOUNTAINS



Plains:

- Collaborative biomass supply chain in practice with Forêts & Bois de l'Est and ONFE
- First thinnings in broadleaves stands on sensitive soils : a modern challenge for mechanization
- Hardwood assortements: the right logs for the right value chain
- Wagons and trucks all meet on the logistics platform of the "Green Valley" where NorskeSkog Golbey and Pavatex will open their gates for us

Vosges Mountains:

- Ready for Vosgian slopes with innovative material and working methods
- Mechanized and motor-manual logging operations: appropriate combinations for each local conditions
- Mobilizing and processing large diameter softwoods: local know-how and value creation at the family-owned sawmill Matthieu
- Transport: modern practices for material and information flows

FEC – FORMEC – 2014 Preliminary program

Important dates

Congressists should pay attention to the following deadlines:

Early birds and student rates for registration	March 31st, 2014
Full paper submission for candidates to peer-review publication *	April 30th, 2014
Extended abstracts and full paper submission	June 15th, 2014
Registration	July 31st 2014

Registration is now closed with more than 260 participants ready to participate in the conference.

Assistance is still available for the booking of local hotels at a walking distance from the conference centre. Please use the dedicated form (also available on the conference website) and follow the described procedure if you wish to arrange your travel to Gerardmer. The "first come first served principle" applies and early booking is recommended!

A traveller's guide is also available online if you are looking for suggestions on how to reach Gerardmer.

FEC-FORMEC 2014 technical committee

Maryse Bigot, ONF, France.
Karl Stampfer, BOKU, Austria
Pierre Ackerman, Stellenbosch Univ., South Africa
Jean-Francois Gingras, FP Innovations, Canada
Hans Heinimann, ETHZ, Switzerland
Raffaele Cavalli, University of Padova, Italia
Mark Brown, USC and AFORA, Australia
Ola Lindroos, SLU, Sweden
Fernando Seixas, ESALQ, Brazil
Bruce Talbot, Skog og landskap, Norway
Antti Asikainen, METLA, Finland
Jori Uusitalo, METLA, Finland
Bo Dahlin, University of Helsinki, Finland
Magnus Thor, Skogforsk, Sweden
Rien Visser, Canterbury University, New-Zealand
Loren Kellogg, Oregon State University, USA
Woodam Chung, University of Montana, USA

Contacts :

FCBA
Morgan Vuillermoz & Emmanuel Cacot
10, avenue de Saint Mandé
F-75012 Paris
FRANCE
Tel +33(0)1 40 19 48 75
Fax +33(0)1 40 19 48 91

FEC2014@fcba.fr

Web: fec2014.fcba.fr

And http://www.formec.org/

Partners :

FCBA is proud to count on its professional partners, Office National des Forêts (ONF), Norske Skog Golbey (NSG) and the forest cooperative Forêt et Bois de l'Est (FBE) for the organization of this major conference.

The conference benefits from a fruitful partnership with the two major scientific journals in the domain of forest engineering. Authors selected for oral presentation at FEC-FORMEC-2014 can propose their paper to be peer-reviewed and published in either the Croatian Journal of Forest Engineering (CROJFE) or the International Journal of Forest Engineering (IJFE).

The conference is also organised in partnership with the International Union of Forest Research Organisations (IUFRO) and its Division 3 (Forest Operations Engineering and Management).

FEC – FORMEC – 2014 Preliminary program

Financial partners :

FCBA is thankful of the support of the financial partners of the conference, namely the French ministry for agriculture and forestry (MAAF), the French Environment and Energy Management Agency (ADEME), the commissariat de massif Vosges, the Conseil Général des Vosges (CG88), the Conseil Régional Lorraine and the association of French Paper Industries (COPACEL)

The conference is also supported by a grant overseen by the French National Research Agency (ANR) as part of the "Investissements d'Avenir" program (ANR-11-LABX-0002-01, Lab of Excellence ARBRE)

Sponsors :