

THE ONLINE INFORMATION BULLETIN OF THE GLOBAL FOREST SCIENCE NETWORK

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Forest Genetics and Tree Breeding in the Age of Genomics

Bailian Li, Coordinator of IUFRO 2.02.00 Conifer Breeding and Genetic Resources

Report from the conference on "Forest Genetics and Tree Breeding in the Age of Genomics - Progress and Future" organized by Research Group [2.02.00 Conifer Breeding and Genetic Resources](#) together with multiple working parties related to breeding and genetic resource management from November 1-5, 2004, in Charleston, South Carolina, USA.

Genetically improved plantations from breeding programs have had and continue to make significant impacts on forest productivity, wood supplies, and sustainability of forest resources. Forest genetics and tree breeding, especially the potential application of biotechnology and genomics in the future, are therefore issues of wide spread interest. The IUFRO conference "Forest Genetics and Tree Breeding in the Age of Genomics - Progress and Future" brought together geneticists, breeders, applied and basic scientists, managers and professional foresters to give insight into the state of the art and exchange views on potential future developments.

The conference revealed that significant progress has been made in forest genetics research and tree breeding in the last three decades. Many breeding programs in the world have progressed rapidly from provenance testing to advanced-generation breeding. Substantial genetic gains have been achieved for most tree species in adaptation, productivity, pest resistance and wood quality. New breeding strategies, selection and testing methods are being developed to improve breeding efficiency to capture much greater genetic gains in tree breeding programs. However, the traditional breeding programs are being challenged by the overwhelming level of new information in biotechnology and genomics.

These new advances in biotechnology/genomics— especially in somatic embryogenesis (SE) technology – have had a great impact in recent years on the deployment of genetic materials for several major breeding programs. SE has also offered great opportunities for genetic transformation and production of clonal forestry with improved



Picture from the field tour

productivity, reduced disease, and enhanced wood quality in plantations.

Based on up-to-date information provided by conference participants on this and other breakthroughs in genomics research, such as genome sequencing, conference participants explored opportunities for integration of new genomics and biotechnology into major areas of breeding and genetic resource management. However, some key challenges remain such as successful transformation systems for major species, gene expression, risk analysis and last but not least the acceptance of the public.

The participants of this international conference exchanged the latest information on forest genetics and tree breeding, with special focus on the potential application of biotechnology and genomics in the future. A total of 231 people from 22 countries participated and over 120 papers and posters were presented.

The [full report](#) and the [conference proceedings](#) can be accessed online at http://www.ncsu.edu/feop/iufro_genetics2004/proceedings.pdf . For further information, contact: Professor Bailian Li, Department of Forestry and Environmental Resources, North Carolina State University, Raleigh, USA. Email <Bailian_Li@ncsu.edu>

Finnish Prime Minister Underlines Key Role of Research for the Forest Sector at FAO COFO 2005

Over 630 delegates from 127 countries gathered in Rome, Italy, from 15-19 March 2005 for the Seventeenth Session of the FAO Committee on Forestry (COFO 2005), the most important of the FAO forestry statutory bodies. This year's opening keynote speech was given by His Excellency Matti Vanhanen, Prime Minister of Finland. In his speech, Mr. Vanhanen placed particular emphasis on the key role of scientific knowledge for today's society and the forest sector. According to the Prime Minister,



Photo: Prime Minister Matti Vanhanen of Finland
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"New innovations and technologies require research. Therefore, the forest management and conservation as well as the development of processes and products must be based on research."

Mr. Vanhanen also pointed out that the innovative and sustainable use of forest resources demands an efficient and well-structured research system. He noted that

"research results have little value if they are not used. Research should be an integral part of all national and international policy processes".

To facilitate this, forums would be needed that connect the research community to decision-makers and other users of research results, according to the Prime Minister.

These statements are an encouragement for IUFRO to further strengthen its collaborative science activities as well as to enhance the dissemination of scientific knowledge to decision-makers.

Towards the New IUFRO Strategy

The IUFRO Management Committee met from 21-22 February 2005 in India. One of the Committee's main tasks was to prepare a draft strategy for IUFRO for the years to come.

Following the invitation of former Enlarged Board Member, Professor Prem Kumar Khosla, the Management Committee (MC) met on 21 February in Delhi and on 22 February in Dehradun, India. The MC discussed, among other things, the preparations for the IUFRO World Congress in Brisbane as well as proposed new IUFRO activities in the next Board period.

One of the main tasks of the meeting was to consider a first draft of a new IUFRO strategy, based on the outcomes of the Enlarged Board Meeting in October 2004 and taking into account the findings of the IUFRO Review 2004. In this context, the MC discussed possible strategic objectives for IUFRO's work in the period 2006 to 2010, such as

- to strengthen research for the benefit of forests and society,
- to expand strategic partnerships and collaboration with other actors,
- to enhance the dissemination of forest-related scientific knowledge, and
- to strengthen the administrative, financial and legal basis of IUFRO.

Based on the outcomes of the discussion, the IUFRO strategy will be further developed by the MC. A draft will be presented to the IUFRO Board for comments in the coming months.



The MC members with the Governor of Himachal Pradesh during an official visit to Shimla

Meetings

Find announcements and reports of IUFRO events on our [on-line calendar](#) and the respective homepages of [IUFRO Units](#).

Announcement of IUFRO Meetings

26-29 April 2005, Bordeaux, France

Biodiversity and Conservation Biology in Plantation Forests

Contact <herve.jactel@pierroton.inra.fr> or visit <http://www.pierroton.inra.fr/IEFC/manifestations/IUFROD82005.html>

24-28 April 2005, Bangalore, India

IRG-36 Annual Conference

IUFRO 5.03.00 Wood Protection in cooperation with IRG Andrew H. H. Wong ; University Malaysia Sarawak (UNIMAS) ; Tel: +6082 679201, Email: <ahhwong#frst.unimas.my>

15-18 June 2005, Cracow and Krynica, Poland

Ecological, Ergonomic and Economical Optimization of Forest Utilization in Sustainable Forest Management"

Organized by the Department of Forest and Wood Utilization, The Hugo Kollataj Agricultural University of Cracow, and co-sponsored by IUFRO 3.04.00. [Web site](#) Contact: Prof. Dr. Januz Sowa <rsowa#cyf-kr.edu.pl>

10-23 July 2005, Pacific Northwest, USA

Pacific Northwest, USA, Forest Harvesting Study Tour

The Oregon State University, Department of Forest Engineering is offering a two-week Forest Harvesting Study Tour in the Pacific Northwest of the United States. The tour will begin in San Francisco, CA and travel north to Portland, OR. Along the way, participants will explore a variety of forest harvesting topics and forest conditions through both technical and field sessions. The two week tour will also incorporate the Council on Forest Engineering (COFE) 2005 Annual Meeting with the theme of "Soil, Water, and Timber Management: Forest Engineering Solutions in Response to Forest Regulations."

The event is supported by IUFRO Division 3. Please visit the website: <http://ifei.cof.orst.edu/IFEIstudyTour.htm>.

25-26 July and July 27-28, 2005, Las Vegas, Nevada, USA

ScanTech 2005: The 11th International Conference on Scanning Technology and Process Optimization in the Wood Industry

SawTech 2005: The Ninth International Conference on Sawing Technology

(in conjunction with the AWFS Woodworking Machinery and Furniture Suppliers Fair); WP 5.04.08 in cooperation with the Forest Products Society and the Wood Machining Institute; Contact: Ryszard Szymani Email: <szymani#woodmachining.com>

7 – 11 November 2005, Pretoria, South Africa

IUFRO Tree Biotechnology 2005

Online registration process open (www.iufro.up.ac.za). Conference Secretariat: <IUFRO2005#conferencecontacts.co.za>

Other Events

29 March - 1 April, San Jose, Costa Rica

Country Led Initiative in support of UNFF5:

International Expert Meeting on Innovative Financial Mechanisms: Searching for Viable Alternatives to Secure Basis for the Financial Sustainability of Forests

4-8 April, Petropolis, Brazil

Country and Organization Led Initiative in support of UNFF5:

Global Initiative on Forest Landscape Restoration Supported by the Government of UK; IUCN, WWF Web site: <http://www.unep-wcmc.org/forest/restoration/globalpartnership>

16-27 May, UNHQ, New York, USA

5th Session of the UNFF

UNFF Secretariat: <http://www.un.org/esa/forests>

5-9 June 2005, Tartu, Estonia

COST E38 Meeting

"Woody Roots in Contrasting Species", For more detailed information, visit their website at www.cost38.net, or contact Prof. D. L. Godbold, <d.l.godbold#bangor.ac.uk>

15 - 20 October 2005, Ascona, Switzerland

Metal fluxes and their stress on terrestrial ecosystems

http://www.waldschutz.ch/bioindic/monte_verita/

IUFRO World Congress

Reminder:

Booking Business Sessions for IUFRO Research Groups and Working Parties

Please find all the relevant information and the on-line booking form for business sessions on the Congress Web site <http://www.iufro2005.com/>. **Deadline: 1 April 2005**

Proceedings and Reports from Meetings

Nursery Production and Stand Establishment to Promote Sustainable Forest Management

Proceedings from a meeting organized by APAT, Dalarna University and IUFRO units 3.02.00, 3.02.03, and 3.02.01 in Rome, Italy, from May 7 - 10, 2001. [Available on the web.](#)

Long-term Air Pollution Effect on Forest Ecosystems

Proceedings from a meeting in Zvolen, Slovakia, Aug 30 - Sept 1, 2002, organized by IUFRO units 7.04.00, 7.04.01, 7.04.02, 7.04.03 7.04.04, 7.04.05. Local Host: Blanka Mankovska, Society for Sustainable Living in the Slovak Republic. Published in Ekologia (Bratislava) 2003, vol. 22, supplement 1, 399 pp. ISSN 1335-342X