First circular

9th International Plant Cold Hardiness Seminar

Low temperature stress in a warming world

17 – 22 July 2011
Abbey of Neumunster
Luxembourg City
G.-D. Luxembourg

&

Course on Plant Low Temperature Stress: Principles, Concepts and Practical Approaches

12 – 15 July 2011
Centre de Recherche Public – Gabriel Lippmann
Belvaux
G.-D. Luxembourg

Website: http://ipchs.lippmann.lu Contact: ipchs@lippmann.lu

Dear fellow researcher

The Scientific Committee of the **9th International Plant Cold Hardiness Seminar (9IPCHS)** is pleased to invite all of you to join this discussion on the fundamental and practical aspects of scientific developments in the field of plant cold hardiness research.

For its ninth edition, the Seminar will be hosted by the Public Research Centre - Gabriel Lippmann in **Luxembourg**. It follows the successful meetings organized in St. Paul, USA, in 1977, Sapporo, Japan (1981), Shanghai, PRC (1986), Uppsala, Sweden (1991), Corvallis, USA (1996), Helsinki, Finland (2001), Sapporo, Japan (2004), and finally, Saskatoon, Canada (2007). The 10th edition will take place in Chile in 2014.

Since 1977 we have witnessed the development of new technologies in the area of molecular biology, genomics, proteomics, and metabolomics, developments that have impacted our understanding of **plant cold hardiness**. We are now beginning to understand how plants perceive cold signals, genes involved in cold acclimation have been identified, and the mechanisms controlling expression of these "cold-regulated" genes studied. Improving the cold hardiness of plants by gene transfer has also been achieved. All these advances have provided the opportunity to re-explore and better understand the physiology of cold tolerance, avoidance, and acclimation in plants.

At the 9th IPCHS, participants will have the opportunity to **present their recent research** on various aspects of cold hardiness, meet with colleagues to discuss recent advances, and obtain an up-to-the-minute overview of cold hardiness research and related fields. The seminar will include invited lectures, selected presentations and poster sessions.

In the tradition of the 8 previous Seminars, the 9^{th} is organized with the explicit motivation to **bring together** different researchers. Therefore scientific sessions and discussions will be mixed with social events, promoting the interchange of information among leading scientists in the field.

The committee is proud to announce the **opening keynote lecturer**: **Prof. Larry Gusta** from the University of Saskatchewan, Canada. Prof. Gusta will give an overview of the last 40 years of research in the field of cold and plants, and he will present the perspective of this incredibly topical subject.

Six thematic sessions will be organized, expecting to cover the entire spectrum of current cold hardiness research (suggested sub-topics).

Session 1: *Biochemical and Genetic Responses to Low Temperature*

- microRNA and Epigenetic Regulation of Cold Tolerance
- Low Temperature Perception and Signalling
- Stress Regulated Pathways and Cross Talk in Plants
- Cell Membrane Adaptations to Low Temperatures
- Biophysics of Nucleation and Ice
- Cellular Mechanism of Freeze-Thaw Injury

Session 2: *(Eco)physiological Aspects of Low Temperature Adaptation*

- Ice Nucleators, Antifreeze Proteins, and Nucleation Inhibitors
- Ecophysiology and Freeze Avoidance in Alpine Ecosystems
- Understanding Short and Long Term Responses to Low Temperature
- Photosynthesis, Low Temperature Response and Oxidative Reponses-

Session 3: *Impact of Genomics on Understanding Cold Hardiness*

- Phenotyping Cold hardiness and Marker Assisted Breeding in Crop Plants
- CBF as a Genetic Marker for Cold Hardiness
- Epigenetic Imprinting of Seeds
- Breeding for Cold Tolerance in crops
- Improving Cold Tolerance in the Era of Genomics

Session 4: *Climate Change as a New Challenge in Cold and Plants*

- Deacclimation – Physiology and Genetic Regulation
- Elevated CO2 and Global Climate Change Impact on Cold Acclimation
- Breeding Nursery Crops and the Challenges of an Erratic Environment
- Bud break or flowering and late spring frosts

Session 5: *Systems Biology and Abiotic Stress: Integrators at the Cross-Roads of Multiple Stresses*

- Dormancy Research in Woody Plants
- Bioinformatic Analyses of Candidate Genes
- Mal-Adaptive Factors for Freeze-Tolerance or Cold Acclimation
- Coldomics

Session 6: *Improving Stress Adaptation in Plants: Challenges and Opportunities*

- Commercial Application of Stress Tolerance Genes in Commercial Crops
- Cost of Crop Cold Hardiness Improvement
- Cryopreservation of Germplasm Collections

In the week before the Seminar, the infrastructure of the Centre de Recherche Public – Gabriel Lippmann will be open for **a Course on "Plant Low Temperature Stress: Principles, Concepts and Practical Approaches"**. Scientists, experienced in the different analytical and technical tools currently used in plant cold hardiness research, will provide invaluable insights in the potential but also the problems related to the use of these tools.

During the Seminar scientific results can be presented as oral presentations or as posters. Apart from a number of invited speakers, the scientific committee will select a number of abstracts to grant the opportunity to present results as oral presentations.

The seminar will be held in the Abbey of Neumunster conference centre in the **UNESCO protected area** of the heart of Luxembourg city (http://www.ccrn.lu). Hotels and restaurants can be found in the immediate vicinity of the conference venue, and the city of Luxembourg is easily reached by plane or train.

Those interested in joining the Seminar are invited to visit our website:

(http://ipchs.lippmann.lu)

or to contact the local organizers for further information

Jean-Francois HAUSMAN, Jenny RENAUT, Kjell SERGEANT

email: ipchs@lippmann.lu.

A tentative scientific program will be provided in the next months.

Looking forward to seeing you at the Seminar

The scientific committee.

Rajeev ARORA, Iowa State University, USA
León A. BRAVO, Universidad de Concepción, Chile
Luigi CATTIVELLI, Agricultural Research Council of Italy, Italy
Larry GUSTA , University of Saskatchewan, Canada
Jean-Francois HAUSMAN, CRP - Gabriel Lippmann, Luxembourg
Tapio PALVA, University of Helsinki, Finland
Ilja Tom PRASIL, Crop Research Institute, Czech Republic
Jenny RENAUT, CRP - Gabriel Lippmann, Luxembourg
Kjell SERGEANT CRP - Gabriel Lippmann, Luxembourg
Karen TANINO, University of Saskatchewan, Canada
Matsuo UEMURA, Iwate University, Japan
Michael WISNIEWSKI, USDA-ARS, USA