

PROGRAM

PLANT AND MICROBE ADAPTATION TO THE COLD

ÅS - NORWAY, DECEMBER 4–8, 2009

FRIDAY 04.12.2009

17:00 - 20:00 Registration (Posters up) Biotechnology building

18:00 - 20:00 Reception Biotechnology building

SATURDAY 05.12.2009

Train from Ski at 08:11. Arrival Ås st. 08:16. Walking distance 15min.

Bus from Ski 08:12, arrival at the University at 08:31

SESSION 1 THE ENVIRONMENT – CHAIR: ANNE MARTE TRONSMO

08:00 - 09:00 Registration

09:00 - Opening by Tove Fjeld, Head of the Department, IPM

09:20 - 10:00 What is a normal climate? Climate change in a billion to thousand years perspective – *Mona Henriksen, Norway*

10:00 - 10:30 Effect of low temperature on the abiotic environment. (Ice formation, Soil movement, Desiccation) – *Lars Egil Haugen, Norway*

10:30 - 10:50 Coffee break

10:50 – 11:20 Snow – An environment conducive to psychrophilic fungi, "Snow moulds" – *Naoyuki Matsumoto, Japan*

SESSION 2A EFFECTS OF "COLD" ON PLANTS – CHAIR: JOHN EINSET

11:20 - 12:00 Dormancy, a *condicio sine qua non*, for winter hardiness in perennials – *Christiaan van der Schoot, Norway*

12:00 - 13:00 Lunch

13:00 - 13:20 Ice propagation and deep supercooling in woody stems monitored by infrared differential thermal analysis – *Gilbert Neuner, Austria*

13:20 - 13:40 Chemical genetic approach to cold tolerance in *Arabidopsis* – *John Einset, Norway*

13:40 - 14:00 Freezing patterns of reproductive organs of alpine and nival plants – *Jürgen Hacker, Austria*

14:00 - 14:20 Expression of dehydrins in wheat and barley under different temperatures – *Klára Kosovà, Czech Republic*

14:20 - 14:40 Spring radiant frost damage of winter cereals in Australia – *Troy Frederiks, Australia*

14:40 - 15:00 Coffee break

SESSION 2B EFFECTS OF INDIRECT COLD STRESS – CHAIR: BJARNI GUDLEIFSSON

15:00 - 15:40 The nature of ice encasement damage of herbage plant species – *Bjarni Gudleifsson, Iceland*

15:40 - 16:00 Delayed soil thawing has adverse effects on *Picea abies* (L.) Karst. – *Tapani Repo, Finland*

16:00 - 16:20 The importance of winter in annual ecosystem respiration in the high Arctic; effects of snow depth in two vegetation types – *Elisabeth J. Cooper, Norway*

16:30 - 19:00 POSTER SESSION and Refreshments. Biotechnology building

SUNDAY 06.12.2009

Train from Ski at 08:11. Arrival Ås st. 08:16. Walking distance 15min

SESSION 3A PHYSIOLOGICAL COLD ADAPTATIONS IN PLANTS – CHAIRS: JORUNN E. OLSEN AND KAREN TANINO

08:45 - 09:25 Environmental regulation of cold acclimation in herbaceous plants - physiological and molecular response – *Marcin Rapacz, Poland*

09:25 - 09:55 Involvement of plasma membrane dynamics in plant freezing tolerance – *Matsuo Uemura, Japan*

09:55 - 10:15 Effect of acclimation conditions on freezing survival of *Agrostis* spp. – *Tatsiana Espevig, Norway*

10:15 - 10:35 Coffee

10:35 - 11:15 Physiological cold adaptation in plants– acclimatization, cold hardening in woody plants – *Øystein Johnsen, Norway*

11:15 - 11:35 Temperature-driven plasticity in growth cessation and dormancy development in deciduous woody plants: a working hypothesis suggesting how molecular and cellular function is affected by temperature during dormancy induction – *Karen Tanino, Canada*

11:35 - 11:55 Testing the robustness of the relation between cold hardiness and carbohydrate status in walnut tree – *Thierry Améglio, France*

12:00 - 18:00 Excursion to Oslo, incl. lunch at Ekebergrestauranten and guided tour at the New Opera house or the Munch museum.

MONDAY 07.12.2009

Train from Ski at 08:11. Arrival Ås st. 08:16. Walking distance 15min.

Bus from Ski 08:12, arrival at the University at 08:31

SESSION 3B GENETIC ADAPTION IN PLANTS/PLANT BREEDING – CHAIRS: ODD ARNE ROGNLI AND LUIGI CATTIVELLI

08:45 - 09:25 Genetic bases of the cold adaptation in cereals – *Gabor Galiba, Hungary*

09:25 - 09:55 Association mapping of frost tolerance QTL in barley – *Luigi Cattivelli, Italy*

09:55 - 10:15 Phenological development and proteom analysis of low-temperature tolerance in wheat – *Siroos Mahfooz, Iran*

10:15 - 10:45 Lessons from a decade of frost tolerance research using forage grasses as a model system – *Odd Arne Rognli, Norway*

10:45 - 11:05 Coffee

11:05 - 11:25 Decoding the genetics of cold acclimation in *Festuca pratensis* Huds – *Heidi Rudi, Norway*

11:25 - 11:45 Identification of molecular markers associated with winter survival in the cultivated strawberry – *Muath Alsheikh, Norway*

11:45 - 13:00 Lunch

SESSION 4A PLANT- MICROBE INTERACTIONS IN A COLD ENVIRONMENT – CHAIRS: INGERD S. HOFGAARD AND DENIS A. GAUDET

13:00 - 13:40 Plant – microbe interactions in a cold environment – *Denis Gaudet, Canada*

13:40 - 14:10 Genetic and molecular bases of snow mold resistance in annual bluegrass – *Annick Bertrand, Canada*

14:10 - 14:30 Differential tolerance to simulated ice encasement and *Microdochium nivale* in greens-type *Poa annua* – *Trygve Sveen Aamlid, Norway*

14:30 - 14:50 Molecular basis of disease resistance acquired through cold acclimation – *Ryozo Imai, Japan*

14:50 - 15:10 Adult plant resistance to biotrophic pathogens can be detected in wheat seedlings under low temperature – *Morten Lillemo, Norway*

15:10 - 15:30 Coffee break

SESSION 4B COLD ADAPTED MICROORGANISMS/BIOLOGICAL CONTROL – CHAIR: ARNE TRONSMO

15:30 - 16:00 Cold-adaptation in fungi – *Tamotsu Hoshino, Japan*

16:00 - 16:40 Biological control of plant diseases in cold environments – *Tom Hsiang, Canada*

16:40 - 17:10 The impact on plants of mineral sequestration of *Trichoderma atroviride*, a cold adapted biological control agent found in Alaska – *Jenifer Huang McBeath, USA*

19:30 Conference dinner Studentsamfunnet

TRANSPORTATION:

BUS to Ås: SKI – UMB, 19:12

BUS, return to Ski: UMB – SKI, 21:55 or 22:55

TRAIN, return to Ski: ÅS ST – SKI, 22:34 or 23:34

TUESDAY 08.12.2009

Train from Ski at 08:11 - Arrival Ås st. 08:16. Walking distance 15min.

Bus from Ski 08:12 - Arrival at the University at 08:31

SESSION 5A MODELLING THE EFFECTS OF CLIMATIC CHANGE – CHAIR: TROND RAFOSS

08:45 - 09:25 Process-based modelling of the impact of climate change on vegetation – *Marcel van Oijen, UK*

09:25 - 09:45 Fine-tuning Bayesian calibration for complex systems with application to a snow depth model – *Anne-Grethe Roer, Norway*

09:45 - 10:05 Low-temperature gas exchange in winter wheat – *Hans Martin Hanslin, Norway*

10:05 - 10:25 Assessing winter survival of forage grasses in Norway under future climate scenarios by simulating potential frost tolerance in combination with simpler agroclimatic indices – *Stig Morten Thorsen, Norway*

10:25 - 10:45 Coffee

10:45 - 11:05 Can climate change in autumn affect frost tolerance of *Elymus repens*, *Cirsium arvense* and *Sonchus arvensis*? – *Kirsten Semb Tørresen, Norway*

11:05 - 11:25 How cold hardening can it be possible for a cold-deprived tree? An experimental validation for a physiological model for frost hardiness – *Guillaume Charrier, France*

SESSION 5B DISCUSSION SESSION ON "BIOLOGICAL RESPONSE TO CLIMATE CHANGE". WHAT ARE OUR MAIN KNOWLEDGE GAPS? – CHAIR: ?

11:25 - 11:40 Introduction to panel discussion:

Plant acclimatization and freezing resistance under a changing climate (John Einset)

Plant diseases in a changing winter climate (Denis Gaudet)

Breeding plants that tolerates an unpredictable climate (Odd Arne Rognli)

11:40 - 12:10 Discussion, panel and plenum

12:10 - 12:20 Summing up

12:20 - 12:30 Closing remarks

12:30 - 13:30 Lunch

13:30 DEPARTURE

POSTER PRESENTER AND TITLE

- P1 **Athmer, Benedikt**; Comparative transcript profiling of cold acclimation responsive genes in *Triticeae* species
- P2 **Bleken, Marina**; Effect of temperature on respiration of wheat during winter
- P3 **Buchner, Othmar**; Reassessment of winter frost hardiness of European timberline trees
- P4 **Fjellheim, Siri**; Identification of cold regulated genes in *Festuca pratensis* and *Phleum pratense* by high throughput transcriptome sequencing
- P5 **Grieu, Philippe**; Genetic analysis and modelling to find genotypes of sunflower adapted to early sowing
- P6 **Hofgaard, Ingerd Skow**; Variation in the relative distribution of *Microdochium majus* and *Microdochium nivale* on leaves and seeds of grasses and cereals
- P7 **Kosmala, Arkadiusz**; Proteome response to cold acclimation in *Lolium-Festuca* species
- P8 **Kosovà, Klàra**; Expression of dehydrins in wheat and barley under different temperatures
- P9 **Lee, Yang Ping**; Natural genetic variation of abiotic stress tolerance in *Thellugiella salsuginea*, an *Arabidopsis* related model species
- P10 **Pagter, Majken**; Deacclimation kinetics of *Hydrangea* under natural and experimental temperature changes
- P11 **Prasil, Ilja Tom**; Analysis of proteome in wheat substitution lines during long-term cold acclimation
- P12 **Trond Rafoss**; Growing season length in Norway, inferred from air vs. Soil temperature
- P13 **Repo, Tapani**; Frost hardiness of mycorrhizal and non-mycorrhizal Scots pine (*Pinus sylvestris* L.) Roots
- P14 **Rinne, Päivi. L.H.**; Cellular mechanisms of temperature-induced recovery from bud dormancy in *Populus*
- P15 **Rinne, Päivi. L.H.**; Seed-specific oleosins are expressed in meristem cells and have a putative role in dormancy and freezing tolerance
- P16 **Schoot, Christiaan van der**; Meristem identity gene, *Centroradialis*-Like 1, in end-of -season growth cessation, chilling and bud burst in *Populus*
- P17 **Semenchuk, P.R.**; Snowcover manipulation leads to changes in plant phenological development and reproduction in high arctic Svalbard
- P18 **Sherudilo, Elena**; Seed priming with temperature drop affects cold resistance, growth and flowering of *Tagetes*
- P19 **Strimbeck, G.R.**; Proteomics of extreme low-temperature acclimatization in Siberian spruce (*Picea obovata*)
- P20 **Sysoeva, Marina**; Potato plant responses to temperature drop and phytonematode invasion
- P21 **Téoulé, Evelyne**; Natural variability and QTL analysis for cold tolerance in *Arabidopsis thaliana*
- P22 **Tronsmo, Anne Marte**; Survival of *M. nivale* during summer in golf greens
- P23 **Wendell, Micael**; Cold day and warm night induce flowering and elevate the expression of *FT* in the autonomous pathway mutant *FCA-1* in *Arabidopsis thaliana*
- P24 **Zimmermann, Sonja**; Ice formation in buds of alpine timberline species