

NJF seminar 419

Plant breeding and management for human nutrition

How we can produce more healthful crops and food products?

Forssa, Finland, 10-11 June 2010

Programme

9 June

18:00-21:00 **Registration at Hotel Pumpulienkeli, Forssa**

19:00-21:00 **Welcoming get-together at Hotel PumpuliEnkeli hosted by Boreal Plant Breeding Ltd**
Hotel PumpuliEnkeli

10 June

08:30-09:00 **Registration at HAMK University of Applied Sciences, Forssa**

09:00-09:45 **Opening session**
Chair: Dr Oiva Niemeläinen,

09:00-09:05 **Welcoming address**
President Oiva Niemeläinen, NJF

09:05-09:15 **Opening address**
Research Director Anu Harkki, MTT Agrifood Research Finland

09:15-09:45 **Opening presentation: Various Means to Improve Nutritional Contents of Plant Foods**
Vice President MD Åke Bruce, The Royal Swedish Academy of Agriculture and Forestry, Sweden

09:45-12:00 **Session 1: Where is our aim with cereals, the feeder of the world**
Chair: Dr Outi Manninen, MTT ,

09:45-10:15 **Exploiting Grain Bioactivity for Improved Nutrition and Health**
Academy Prof. Kaisa Poutanen, VTT Technical Research Center of Finland

10:15-10:45 **Genomic Tools for Grain Improvement**
Prof. Alan Schulman, MTT & BI Plant Genomics Lab., Finland

10:45-11:15 **Coffee break & poster viewing**

11:15-11:45 **Biofortification of food chain with selenium**
Dr Mervi Seppänen, Dept. of Agricultural Sciences, University of Helsinki

11:45-12:05 **Problems in cereal resistance to toxigenic Fusarium species**
Dr Tapani Yli-Mattila, Dept. of Biochemistry and Food Chemistry, Univ. of Turku

12:05-12:30 **Briefing of posters 6, 7, 10, 13, 16, 23, 24 and discussion**

12:30-13:30

Lunch

13:30-15:00

Session 2: Oilseed crops - record of achievements and future prospects

Chair: Dr Simo Hovinen,

13:30-14:00

Turnip rape quality breeding - a Nordic perspective

Plant breeder Elina Nissilä, Boreal Plant Breeding Ltd, Finland

14:00-14:20

Effect of nitrogen fertilizer and cultivar on secondary metabolite concentration in mustard, linen and caraway

Dr Marjo Keskitalo, Plant Production Research, MTT Agrifood Research Finland

14:20-14:40

Glucosinolate turnover in Brassicas - How to optimize plant protection and health promotion

Prof. Johan Meijer, Swedish University of Agricultural Sciences, Sweden

14:40-15:00

Briefing of posters 4, 14, 19 and 22 and discussion

15:00-15:30

Coffee break & poster viewing

15:30-17:10

Session 3: Possibilities with potato and legumes

Chair: Dr Kimmo Rumpunen, SLU,

15:30-16:00

Grain legumes yield more than protein for food and feed

Dr Frederick Stoddard, University of Helsinki

16:00-16:30

Cultivation characteristics of fababean (*Vicia faba*) and its role in Egyptian diet

Director Prof. Mohamed El-Nahrawy, Field Crops Research Institute, Agricultural Research Center, Egypt

16:30-17:00

Bioactive compounds - added value for potato from genetic resources and industrial waste streams

Dr Veli-Matti Rokka, MTT Agrifood Research Finland

17:00-17:10

Briefing of posters 3 and 11, and discussion

18:00-22:00

Excursion & Seminar Dinner, MTT Agrifood Research Finland, Jokioinen

11 June

08:30-11:30

Session 4: How can horticultural crops be improved for healthfulness?

Chair Mrs Irmelin Nyman, SLF/ProAgria,

08:30-09:00

Improving Fruits and Berries for Health Characteristics

Development Manager, Kimmo Rumpunen, Swedish University of Agricultural Sciences, Sweden

09:00-09:30

New Novel Crops

Prof. Brian Grout, University of Copenhagen, Denmark

09:30-09:50

Cranberrybush *Viburnum opulus* - a new plant for horticulture

Prof. Remigijus Daubaras and Dr Laima Cesoniene, Kaunas Botanical Garden of Vytautas Magnus University, Lithuania

09:50-10:10

Northern berries are superfruits - how to increase consumption and

	appreciation? <i>Prof. Raija Tahvonen, MTT Agrifood Research Finland</i>
10:10-10:30	Coffee break and poster viewing
10:30-10:50	Compositional variation in fruits of currants as function of genotypes and their interactions with growth environments <i>Baoru Yang, Jie Zheng and Heikki Kallio , , Department of Biochemistry and Food Chemistry, University of Turku, Finland</i>
10:50-11:30	Briefing of posters 5, 8, 9, 12, 15, and 18 and discussion
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11:30-12:30	Session 5: Regulatory framework for health claims in human nutrition Chair: Prof. Åke Bruce, KSLA,
11:30-12:00	Regulatory Framework for Nutritionally Improved GMO and non-GMO Products <i>Dr Essi Sarkkinen, Foodfiles Ltd, Finland</i>
12:00-12:20	Antioxidative and antimicrobial properties of American and European cranberries <i>Prof. Remigijus Daubaras and Dr Laima Cesoniene, Kaunas Botanical Garden of Vytautas Magnus University, Lithuania</i>
12:20-12:30	Briefing of posters 1, 2, 17 and 21 and discussion
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12:30-13:30	Lunch
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13:30-14:30	Session 6: Improving healthfulness characteristics in animal products by feed quality and by animal breeding Chair: Prof. Raija Tahvonen, MTT,
13:30-14:00	Altering the composition of ruminant-derived food for improved human health <i>Prof. Kevin Shingfield, MTT Animal Production Research, Finland</i>
14:00-14:20	Genomic selection, a new tool for improving pork production and quality characteristics <i>Dr Pekka Uimari, MTT Biotechnology and Food Research, Genetics Research</i>
14:20-14:30	Discussion: Which is better - to modify existing products or change diet?
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14:30-16:30	Session 7: Possibilities to improve human nutrition in developing countries by plant breeding and management Chair: Dr Oiva Niemeläinen,
14:30-15:00	Possibilities to Improve Nutrition in Developing World by Improved Plant Production <i>Prof. Brian Grout, University of Copenhagen, Denmark</i>
15:00-15:15	Coffee break
15:15-15:45	Induced mutations for enhancing nutrition for food production <i>Dr Shri Mohan Jain, Dept. of Agricultural Sciences, University of Helsinki</i>
15:45-16:15	Challenges to feed 80 million people by 3,3 million hectares cultivated land – recent success stories and future challenges for plant breeding and management in Egypt <i>Director Prof. Mohamed El-Nahrawy, Field Crops Research Institute, Agricultural Research Center, Egypt</i>
16:15-16:25	Briefing of posters 20 and 25 and discussion

16:25-16:30

Closing the seminar

17:00-17:00

Poster presentations

In code (X SY) X means the number of poster and Y is in which session it is presented),

00:00-00:00

(1 S5) ACE inhibition and antioxidant activities of rapeseed protein hydrolysates

Sari Mäkinen, Gerd Vegarud, Tessa Johansson and Anne Pihlanto, MTT Agrifood Research Finland & Norwegian University of Life Sciences

00:00-00:00

(2 S5) Glycemic index of buckwheat bread

Susanna Rokka, Eila Järvenpää and Raija Tahvonon, MTT Agrifood Research Finland

00:00-00:00

(3 S3) Nutritive quality of Finnish grown grain legumes

Clara Lizarazo et al. , University of Helsinki, Department of Agricultural Sciences

00:00-00:00

(4 S2) Traceability in Brassica-species by DNA-markers

Maria Erkkilä, Ruslan Kalendar & Alan Schulman, MTT Agrifood Research Finland

00:00-00:00

(5 S4) Evaluation of blackcurrant cultivars and hybrids for fruit quality

Kaspars Kampuss, Latvian University of Agriculture, Faculty of Agriculture, Jelgava, Latvia

00:00-00:00

(6 S1) Genomic region affecting Hagberg falling number in rye

Teija Tenhola-Roininen, MTT Agrifood Research Finland

00:00-00:00

(7 S1) Genomic regions affecting α -glucan content in the doubled haploid oat progeny

P. Tanhuanpää, O. Manninen, A. Beattie, P. Eckstein, G. Scoles, B. Rosnagel, R. Kalendar, A. Schulman, M. Euroola, V. Hietaniemi, and E. Kiviharju, MTT, Finland & Crop Development Centre, University of Saskatchewan, Canada

00:00-00:00

(8 S4) Background information for breeding: High variation in vitamin C in Finnish currant and gooseberry collections

Tarja Hietaranta, Salla Karhu and Merja Veteläinen, MTT Agrifood Research Finland

00:00-00:00

(9 S4) MTT's berry varieties - rich in phytochemicals

Karhu S., Hellstöm, J., Hietaranta T., Mattila P., Pihlava J.-M. & Tahvonon, R.T., MTT Agrifood Research Finland

00:00-00:00

(10 S1) The content of phenolics in barley, oats, rye and wheat cultivars

Juha-Matti Pihlava, Pekka Reinikainen, Veli Hietaniemi and Anu Kaukovirta-Norja , MTT Agrifood Research Finland, LP Research Centre Ltd., VTT Finland

00:00-00:00

(11 S3) The role of boron in biological systems with focus on legumes in crop production

Lisbeth Linse, Dept. of Crop Production Ecology, Swedish University of Agricultural Sciences, Sweden

00:00-00:00

(12 S4) Production of healthy sauerkrauts with high ascorbigen content from white cabbages grown in two different locations of Spain

Elena Peñas, Juana Frias, Cristina Martinez-Villaluenga, Concepcion Vidal-Valverde, Instituto de Ciencia y Tecnologia de Alimentos y Nutricion, CSIC, Spain

00:00-00:00

(13 S1) K-maatalous Experimental Farm -research for Finnish crop production

Marjo Serenius, K-maatalous Experimental Farm, Finland

00:00-00:00

(14 S 2) Lignan, cadmium and lead contents in flaxseed and oil hemp

Marketta Saastamoinen, Juha-Matti Pihlava and Merja Euroola, Satafood & MTT Agrifood Research Finland

00:00-00:00

(15 S 4) High variability in anthocyanin contents between different blackcurrant varieties

Jarkko Hellström, Tarja Hietaranta, Salla Karhu, Pirjo Mattila, Timo Tiirikka and Merja Veteläinen, MTT Agrifood Research Finland

- 00:00-00:00 **(16 S1) Production of novel ingredients from whole grain barley flour – Composition of air-classified barley fractions**
Ulla Holopainen, Tuija Kössö, Anu Kaukovirta-Norja, Kaisa Poutanen, Juha-Matti Pihlava, Veli Hietaniemi and Pekka Lehtinen , VTT Technical Research Centre of Finland & MTT
- 00:00-00:00 **(17 S5) Risk assessment for volunteer and seedling GM potatoes in the northernmost European growing areas**
Leo Mustonen, Pirjo Peltonen-Sainio and Katri Pahkala, MTT Plant Production Research
- 00:00-00:00 **(18 S4) The highbush blueberry berry quality comparison with forest blueberry**
Solvita Kampuse, Latvia University of Agricultural Sciences, Dept. of Food technology, Latvia
- 00:00-00:00 **(19 S2) Evaluation of some Lithuanian spontaneous mustards species ex situ**
Nijolė Maršalkienė, Algirdas Sliesaravičius, Birutė Karpavičienė, Department of Crop Science and Animal Husbandry. Lithuanian University of Agriculture, Lithuania
- 00:00-00:00 **(20 S7) Fields for energy or for food?**
Kaija Hakala, MTT Plant Production Research, Finland
- 00:00-00:00 **(21 S5) Anticancer properties of sea buckthorn extracts**
Kimmo Rumpunen, Swedish University of Agricultural Sciences, Sweden
- 00:00-00:00 **(22 S2) Gene flow by volunteers of spring oilseed rape**
Katri Pahkala, MTT Plant Production Research, Finland
- 00:00-00:00 **(23 S1) Triticeae genomics for the advancement of essential European crops**
Alan Schulman & Tritigen Consortium,
- 00:00-00:00 **(24 S1) TriticeaeGenome: Genomics for Triticae improvement**
Alan Schulman & TriticeaeGenome Partnership,
- 00:00-00:00 **(25 S7) Doubled haploids from Chinese oats**
S. Li, S. Moisander, L. Deng, C. Ren and E. Kiviharju, Baicheng Academy of Agricultural Sciences, China & MTT