

# The 7th Circumpolar Agricultural Conference

Circumpolar Agricultural and Land Use Resources - Prospects and Perspectives for Circumpolar Productions and Industries



The world northernmost sheep farmer at 70.9°N

photo: Oskar Puschmann

## Abstract booklet

Alta, Finnmark, Norway  
September 6 - 8, 2010



# Unique Qualities in Circumpolar Food Products

Monday, Sept. 6th

## **Growth, survival and phytoecdysteroid production of an endangered plant species *Silene tatarica* (Caryophyllaceae) in relation to fertilization in tree soil types: A field experiment**

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### **Authors:**

*Erling Fjelldal, Marianne Svenske, Tone R. Aandahl, Vladimir Volodin, Paul Eric Aspholm, Snorre B. Hagen, Ingvild Wartainen*

### **Institution:**

Norwegian Institute for Agriculture and Environmental Research, Soil and Environment Svanhovd, Norway

### **Abstract:**

*Silene tatarica* (Catchfly) is a red listed plant species which in Norway occurs only in Finnmark County. We carried out a field experiment over several years where we studied the performance of the species and its production of ectosteroids under various fertilization treatments in tree soil types. The primary aim of the study was to assess whether it is possible to cultivate the plant and to determine under which abiotic conditions cultivation is facilitated as part of a general conservation strategy. Another aim of the study was to carry out a screening test for the occurrence of phytoecdysteroids and to determine how these chemical compounds vary within the plant according to experimental treatments (fertilization and soil type). Phytoecdysteroids are substances that are considered health promoting for mammals and may be potentially interesting for possible future commercial use. At CAA 2010, we will present a paper/manuscript with a complete formal analysis of the data from this experiment.

## **Differences in metal concentrations in juniper (*Juniperus communis*) and bilberry (*Vaccinium myrtillus*) shoots collected from northern and southern Finland**

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*Rainer Peltola and Sari Stark*

### **Institution:**

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### **Abstract:**

“Northern quality” is a part of the brand of many agricultural products originating from the Arctic area of the Nordic Countries. One scope of arctic quality is purity, i.e. it is

considered that arctic area faces less anthropogenic stress as compared to more industrialized areas. We analyzed metal concentrations (arsenic, cadmium, lead, cobalt, molybdenum, nickel) in two important natural product raw materials in Finland, juniper and bilberry shoots (*Vaccinium myrtillus* and *Juniperus communis*, used in, for example, herbal teas and muscle relaxants) collected in Finland along a latitudinal gradient. The average metal concentrations in all juniper samples (n = 19) originating from Finnish Lapland north from polar circle were lower than in southern samples (n = 28). The difference was statistically significant (one-way ANOVA, p = 0.05) for cadmium, cobalt and molybdenum. Three juniper samples were collected from north-east Lapland. These samples showed no elevated concentrations of analyzed metals, indicating that the atmospheric emissions from Russian ore mill areas do not lower the quality of studied raw material.

For bilberry, situation was different. Average arsenic, cadmium, lead and nickel concentrations were lower but cobalt and molybdenum concentrations were higher in northern (n = 19) than in southern samples (n = 38). The difference was significant (one-way ANOVA, p = 0.05) for cobalt and nickel.

### **Evaluation of cloudberry (*rubus chamaeorus* l). Clones for selection of high quality varieties**

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#### **Authors:**

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#### **Institution:**

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#### **Abstract**

Two female and two male cultivars have previously been released as a result of clone evaluation at Bioforsk Nord Holt. Selection criteria have been number of pistils or stamens per flower, number of flowers and number of shoots per m<sup>2</sup>. Currently a new group of clones are evaluated with the aim of finding new cultivars for release. The clones are collected from different parts of Norway, as well as from England and Spitsbergen. Preliminary results from harvesting 2005, 2006, 2007 and 2008 indicate good production potential for some of the tested clones. In addition to prior selection criteria based on berry yield, the levels of total anthocyanins and total phenols have been analyzed. This includes studies on the role of female clone, male pollinator and temperature on berry quality.