**Session Proposal**

# Session Title

# Changing the drainage target, balancing water control and environmental effects?

# Session Organizers

Lillian Øygarden. Chair of IUSS commission 3.2 Soil and water conservation. Lillian.oygarden@nibio.no.

Dorota Dec. Vice chair of commission 3.2 Soil and water conservation. Dorota.dec@uach.ch

# Session Description

Since the beginning of modern agriculture, land has been drained to increase the area for livestock, agricultural crops and forestry. Efficient drainage systems remove excess water from fields- leading to early spring tillage, better trafficability, crop and root development for nutrients utilization and higher yields. At the same time drainage can negatively affect soil functions and transport nutrients to water- giving serious problems with algae blooming and drinking water quality. Therefore, it is necessary to rethink the drainage design, through consideration of water conservation.

Changes in climate with changes of precipitation amounts, intensity and extreme events- force the need of revision of the technical dimensioning criteria and design of drainage systems.

Agricultural activities on soil surface influence also on drainage efficiency. One example is cattle production under humid soils, where drainage is an inseparable part of agricultural management. This leads to the changes of the physical and hydraulic soil properties, affecting soil water storage capacity, leads to overgrazing, and simultaneously -degradation, decreases in soil depth and affect negatively soil functions. Heavy machinery and resulting compaction can also influence on the efficiency of drainage systems. Many drainage systems are old, need maintenance and are designed based on earlier technical recommendations. In this session we welcome presentations with evaluations of efficient drainage systems and proposals of design adapted to changes in climate and soil management.

Environmental effects of drainage systems are both the direct pathway for transport of nutrients to water and the role of controlling greenhouse gas emissions. The conflicting goals of efficient drainage systems and transport pathway for pollutants, like e.g nitrogen, illustrate the need for measures for reducing losses by drainage water, like nature- based solutions or open drainage channels. We invite for presentations that addresses such drainage challenges and solutions that balance agricultural production and environmental purposes.

# Format

The session will be introduced (25 min) by an invited key note speaker (to be confirmed). This will be followed by shorter oral presentations (15 min). By the end of the session we will have a joint discussion with speakers and session participants.

Posters are also welcome.

# Proposed Speakers

A key note speaker will be invited.

Actual persons from:

Wageningen University: Jos van Dam, Ruud Bartholomeus, and Klaas Metselaar. They have not been contacted.

Nordic countries: Finland-Sweden -Norway – possible speakers

And more…

Presenters of oral presentations will be selected based on submitted abstracts.