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SUSALPS Conference 2018 – Book of Abstracts: Montane and alpine grasslands under climate change – ways in a sustainable future

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Title SUSALPS Conference 2018 – Book of Abstracts: Montane and alpine grasslands under climate change – ways in a sustainable future

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Abstract

From 18 to 20 September 2018, the SUSALPS Conference "Montane and alpine grasslands under climate change – ways in a sustainable future" was held in Garmisch-Partenkirchen, Germany. More than 60 participants from nine nations attended the conference. The event covered a broad scope and offered the opportunity to discuss both fundamental research and practical approaches in grassland management. At the conference's closing day, excursions took place to the SUSALPS experimental areas in Fendt and on the Brunnenkopfbalm. This publication provides the abstracts of all oral and poster presentations.

Keywords

montane and alpine grasslands, soil organic matter, microbiome, plant diversity and productivity, biogeochemical cycles, remote sensing, ecosystem services, alpine farming



SUSALPS Conference 2018

Book of Abstracts

MONTANE AND ALPINE GRASSLANDS UNDER CLIMATE CHANGE – WAYS IN A SUSTAINABLE FUTURE

18-20 September 2018 | Garmisch-Partenkirchen, Germany



Opportunities for farming in alpine countries – pathways to truly grassland-based beef and milk production in Austria and Switzerland

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Abstract:

Farming in the alpine countries of Austria and Switzerland fulfils important economic, socio-cultural and ecological functions for society. At the same time, it is responsible for important environmental impacts, whereas nitrogen balance surpluses and related impacts play a central role. It is crucial to reduce nitrogen inputs and site-adapted production and closing material cycles are core elements of ecologically sustainable land use.

The study analysed the effects of adapted beef and dairy systems on the environmental impact and the food production with the help of the SOL mass-flow model. This includes higher reliance on grassland-based feed by abandoning the use of concentrate feed and forage maize, locally adapted reduction of livestock numbers, increased use of nitrogen-fixing legumes, reduction in mineral nitrogen fertilization, site-specific plant production and increase in nitrogen efficiency in both animal husbandry and crop production.

The implementation of such a grassland-based beef and milk production results in lower ammonia emissions, reduction of nitrogen balance surpluses and lower total greenhouse gas emissions from agriculture. These environmental improvements exceed the effects of the agricultural policy since the 1990s, even though the latter has increasingly focussed on environmental impacts. Moreover, the reduction in concentrate feed and forage maize releases arable land for alternative use. This allows for increased plant-based food production and therefore minimizes the competition between food and feed production. Other options for the use of the released land are less intensive farm operations, ecological compensation areas and/or nature conservation. Finally, the reduction in animal-based food production could be offset by changed dietary patterns and the increase of plant-based food production.

The suggested transformation from a production focussed to an ecologically-oriented land use and food system requires a political framework and market conditions which cannot be implemented quickly but need awareness raising and fundamental societal change.

Keywords: agricultural policy, environmental impact, ruminant, concentrate feed, nitrogen, modelling