



Mercator Research Program | Call 3

Extensive Grazing on Subalpine Pastures: Integrating biodiversity and production of meat with special quality

Background

Marginal subalpine pastures offer much to society including animal-source food of special quality, unique biodiversity, and recreational space with aesthetic value. These services are threatened by ongoing transitions in mountain agriculture, which often lead to the abandonment of traditional land use and subsequent shrub encroachment. Maintaining extensive grazing, typical in organic food production, is a key strategy to mitigate such adverse effects while simultaneously conserving biodiversity. While natural succession is initially beneficial for biodiversity, it is unclear how much shrub cover is ideal in any given site and how the shrubs affect the quantity and quality of the meat from the grazing animals.

Objective

This project aims to quantify effects of shrub cover on vegetation in subalpine pastures under different geologic, climatic and topographic conditions. It investigates how extensive grazing of cattle, sheep, and goats on shrub-encroached pastures affects the composition of vegetation, growth, slaughter performance, and meat quality.

Research Approach

Vegetation survey along gradients of shrub cover across the Swiss Alps; grazing experiment with cattle, sheep and goats at two sites with and without shrubs; use of GPS tracking, feeding behavioral sensors and physiological indicators; analysis of carcass and meat nutritional quality with emphasis on fatty acid composition and oxidative stability.

Relevance and Expected Outcomes

This interdisciplinary project will (1) provide policy makers with site-specific advice about the degrees of shrub cover desirable in subalpine pastures and suitable ruminant genotypes to control shrub cover; (2) inform producers about optimal grazing strategies to integrate biodiversity conservation and production of high-quality meat; and (3) help quantify the potential for a sustainable valorization of underestimated forage resources for ruminants by producing organic meat with special nutritional quality while considering the environment and animal well-being.

Food System Challenges Addressed

Sustainable land use, biodiversity conservation, ecological intensification, production of high-value food

www.worldfoodsystem.ethz.ch/research/research-programs/MRP

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Project Duration 2015-2018

Project Cost 190'000 CHF

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