



Climate effects on land management and stream nitrogen concentrations in small agricultural catchments in Norway.

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Author: Hannah Wennig
Marianne Bechmann
Tore Krogstad
Eva Skarbøvik

Author Affiliation: Norwegian Institute for Bioeconomy Research (NIBIO), Norwegian University of Life Science (NMBU), Fredrik A. Dahls vei 20, 1430, Ås, Norway. hannah.wennig@nibio.no.

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Abstract: Land use and climate change can impact water quality in agricultural catchments. The objectives were to assess long-term monitoring data to quantify changes to the thermal growing season length, investigate farmer adaptations to this and examine these and other factors in relation to total nitrogen and nitrate water concentrations. Data (1991-2017) from seven small Norwegian agricultural catchments were analysed using Mann-Kendall Trend Tests, Pearson correlation and a linear mixed model. The growing season length increased significantly in four of seven catchments. In catchments with cereal production, the increased growing season length corresponded to a reduction in nitrogen concentrations, but there was no such relationship in grassland catchments. In one cereal catchment, a significant correlation was found between the start of sowing and start of the thermal growing season. Understanding the role of the growing season and other factors can provide additional insight into processes and land use choices taking place in agricultural catchments.

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