BSAP Fund

Reduction of Nutrient Inputs to Baltic Sea from agriculture via regenerative farming measures

Lykkan

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1. Executive summary of the project

Agriculture is a major source of nutrient inputs to the Baltic Sea, contributing almost half of the total waterborne inputs. The project aimed to address this issue by promoting regenerative farming practices, which have been shown to significantly reduce nutrient discharges. The project also aimed to develop a model for financially supporting farmers in generating more ecosystem services on their land.

The project included creating a monitoring, reporting, and verification (MRV) model for ecosystem services in agriculture. This involved baseline sampling and soil analysis, remote monitoring using satellite data, development of a digital platform for monitoring and reporting, and creation of a pilot farm network. Collaboration with local and international experts ensured the application of the best available knowledge.

Fieldwork was based on soil scanning and sampling to characterize fields and divide them into zones. Measurements included pH, electrical conductivity, soil structure, and microbial activity. Samples were collected for laboratory analysis of parameters indicating soil health such as organic carbon, aggregate stability, soil respiration, nutrient balance, and cation exchange capacity. Sampling of drainage water was conducted to assess leaching of nutrients from the fields. Comparison between soil organic carbon and the soil health index showed a strong correlation. However, already a soil organic carbon content of 5% gives a good health score and after that the score does not increase significantly.

Biodiversity and the occurrence of pollinators in connection with flowering fields at the pilot farms was in 2023 assessed in collaboration with Turku University. In 2024, we repeated the sampling in the same areas in collaboration with the University of Eastern Finland. The results revealed variations in pollinator groups, abundance, predatory insect populations, flower enhancement designs, and plant species used. The University of Eastern Finland is planning to continue the research on how flower strips can be used in agricul-tural settings to enhance biodiversity and pollination. As a part of this research, collaboration with Lykkan pilot farms will continue.

Lykkan conducted an assessment of existing tools and service providers to develop a digital platform for monitoring, reporting, and verification of soil health, carbon sequestration, and biodiversity data. Collaboration with 11latoa led to the development of a prototype platform using Airtable and the peltolohkot map service.

Lykkan intends to continue the work with soil health in agricultural lands and has become a partner in the international MultiSoil Consortium led by the Finnish Natural Resources Institute (Luke). The goal is to co-create, test, and demonstrate agricultural practices that improve soil and plant health factors and maintain soil functional biodiversity.