



## **GEMAS: The Fennoscandian perspective**

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The GEMAS Project (Geochemical Mapping of Agricultural and Grazing Land Soil in Europe) resulted in a large coherent data set displaying baseline levels of elements in agricultural and grazing land soil, on both a European and a regional scale. The geochemical mapping of agricultural and grazing land soil in Norway, Sweden and Finland revealed regional features, noticeably different from the general geochemical pattern in the rest of Europe. When looking at the European data set as a whole, Norway, Sweden and Finland stand out as geochemically distinct, mainly due to the old bedrock and the extent of the last glaciations. They were thus considered valuable for a study as a separate entity.

The interpretation of element maps and statistics identified several factors responsible for the observed trends in the geochemical patterns in Norway, Sweden and Finland, with the most important factors being bedrock geology, the presence of ore deposits, the soil type and its properties, and climate. The soil of the Fennoscandian Shield is very young and the composition of parent material has a crucial influence on the soil chemical signature. On the other hand the occurrence of organic peaty soil and clayey varieties plays an important role in enrichment processes leading to enhanced levels of many elements. Anthropogenic impact on soils appears to have a minor influence on the soil geochemistry of both agricultural and grazing land. In mining regions, with the natural signal from the mineralisation, it is often difficult to discriminate between the original anomaly and any additional anthropogenic contamination.

The results of this survey are available to the public and can be used by both local authorities and research groups.