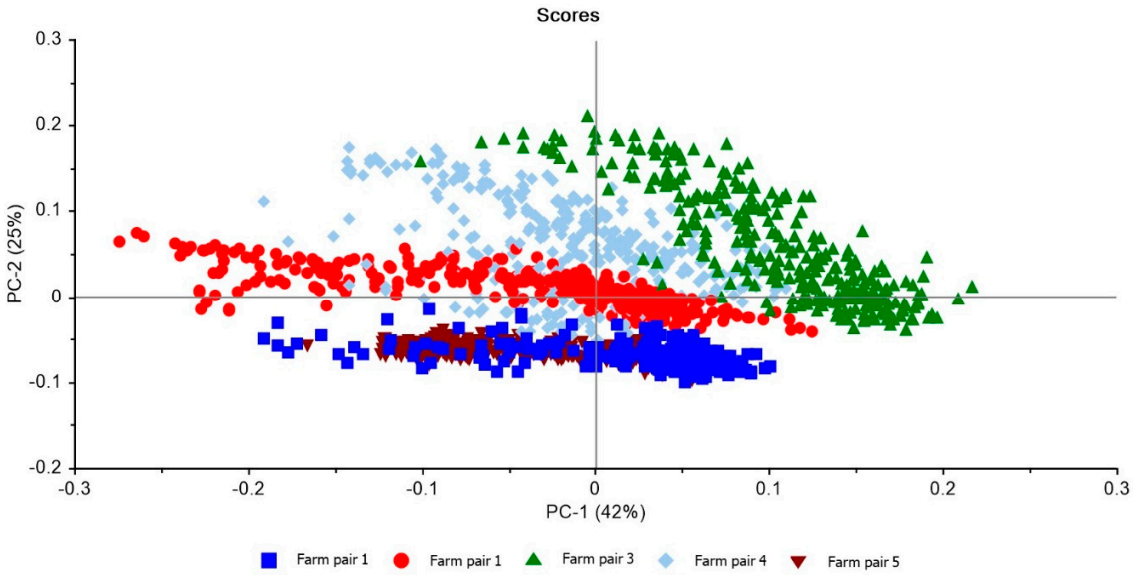
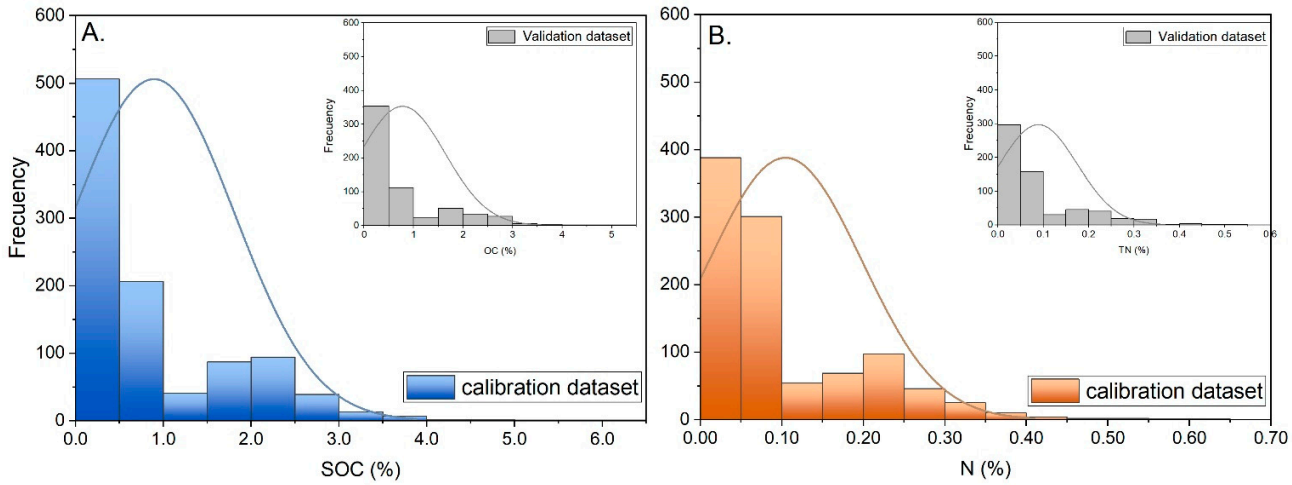
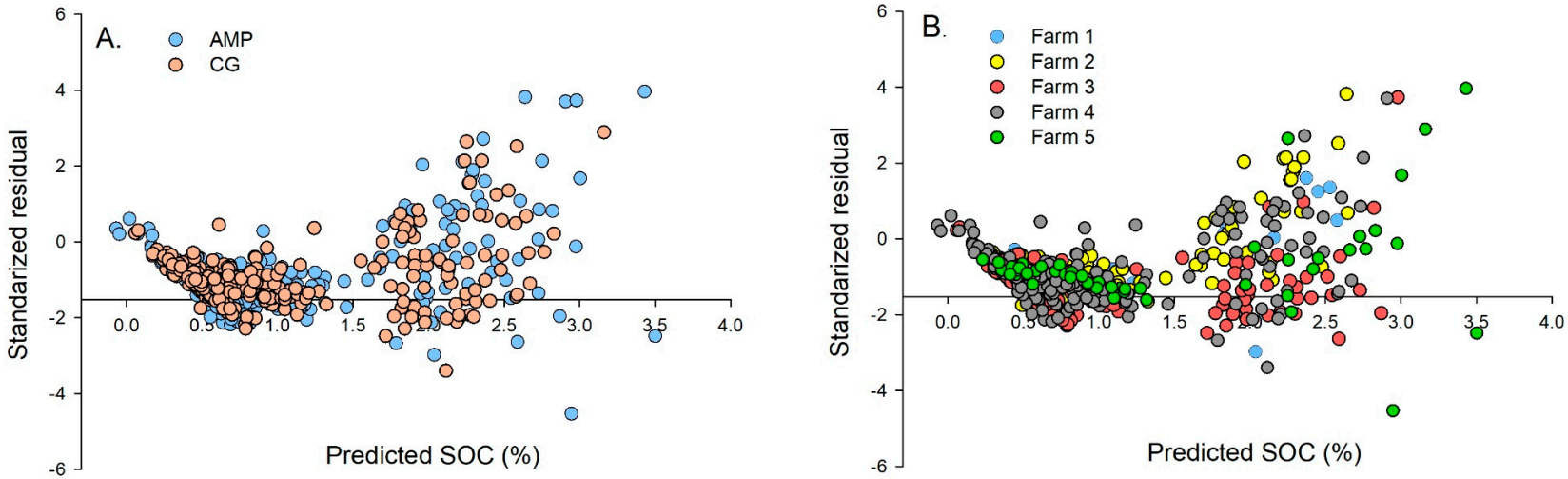
Supplementary material



Supplementary Figure S1. Principal component analysis (PCA) score plot showing farm pairs (1 to 5) with high spatial spectral heterogeneity between soils. Axis 1 accounts 42% of variance in the data set and Axis 2 accounts for 25%.



Supplementary Figure S2. Frequency histograms for calibration (1000 samples) and validation dataset (612 samples) dataset for A) soil organic carbon (SOC) and (B) total soil nitrogen (N). The predictions were achieved by keeping the same frequency distribution between the calibration and validation dataset using a Kennard-stone sampling algorithm.



Supplementary Figure S3. Effect of sampling grazing practice and farm-pair soil on soil organic carbon (SOC) prediction using partial least squared (PLS). The training dataset contains 400 samples. All standardized residuals (residual = measured – predicted) were then plotted against their predicted C content. If the calibration model is appropriate, the residuals should be distributed randomly around the y = 0 line.