## Assessing soil health indicators in an organically managed grassland in Norway

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**Abstract**

Farmers and advisors seek simple methods to monitor soil health. Here, we assessed the performance of different soil health tests on the top soil (0-10 cm) of an organically managed grassland in Norway. Organic milk production was established at Tingvoll experimental farm in 1989, replacing the previous conventional sheep production. Since then, soil nutrient supply has been manure from its own herd, biological nitrogen fixation and liming. We selected different areas where variations on soil health were expected, a gradient from cultivated ley to permanent pasture was selected. The tests were performed in early summer 2021 (June). The tests comprised different aspects of soil health: soil organic matter content (ignition loss), labile soil carbon fractions (Active C), soil biology (microbiology and mesofauna), soil biological activity (soil respiration and feeding activity), soil aggregate stability and soil fertility. Overall, the permanent pasture showed a trend of high values of the selected indicators for soil health than cultivated areas. To be able to visualize and discuss the results in a participatory manner, we normalized the data by dividing single values by the maximum value observed for each soil indicator. By doing so, we obtained an overall soil health diagram that can be easily interpreted by farmers and advisors. The use of several simple tests together showed to be valuable also to inform about soil health within the organic milk production systems. Depending on the purpose of the assessment a visual evaluation of the topsoil and more comprehensive soil analyses are recommended to complement these tests. Furthermore, we need more field data to obtain “reference levels” for these indicators, which would help with the interpretation of the results in the future.

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