B-62 Chemical changes in soils subjected to cover cropping

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Cultivation and cropping effects on soil organic matter (SOM) depletion have received attention because the soil organic fraction provides available plant nutrients and helps maintain desirable soil physical properties. Cover cropping has gained importance as they offer on-site source of plant biomass to restore SOM and plant nutrient availability. The recovery and maintenance of soil productivity depends on the cover crop biomass and what is done with the biomass. However, their effects on soil chemical characteristics are largely unknown.

Studies were conducted in 1992-1993 and 1993-1994 at the Oregon State University, USA to measure the effect of annual non-legume cover crops following potato, on soil chemical characteristics related to fertility. Winter wheat (*Triticum aestivum* L. cv. Stephens), winter barley (*Hordeum vulgare* L. cv. Hesk), spring barley (*Hordeum vulgare* L. cv. Steptoe), cereal rye (*Secale cereal* L.cv. Wheeler), triticale (*X triticosecale* Wittm. cv. Whitman), and rape (*Brassica napus* L.cv. Humus) were compared to fallow. Soil organic matter, pH, extractable P, extractable Ca, Mg, and K concentrations were measured at the 0-0.3m and 0.3-0.6m depths. One month after soil incorporation, cover crop treatments did not differ in soil pH, SOM, or extractable P,K, Ca, and Mg.

These results demonstrate that the incorporation of short-term non-legume cover crops following potato in a single rotation, does not affect either the distribution of the tested plant nutrients or chemical characteristics associated with soil fertility.

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