



The BIO-BIO Project: Assessing the health of soil through biodiversity and bio-indicators

The JRC's unique BIO-BIO project, attempted to assess soil health by using an innovative approach that involved an assessment of biodiversity and the use of bioindicators in close combination with chemical and physical analysis of soil in relation to the use of the soil.

An experiment was set up in northern Italy to study the effects of three different land uses on the biodiversity of a single soil type.

- Soil treated with sewage sludge and cultivated with corn
- Soil treated with manure and cultivated as pasture (mixed grass)
- Soil treatment with farmyard compost (biodynamic) with crop rotation

Key soil properties (e.g. pH, water content, etc.), heavy metals, trace elements, pollutants, bacteria, protozoa, nematodes, arthropods, earthworms and clover (plants may have changes in DNA induced by pollutants in the soil) were measured four times a year at three layers (0-5 cm, 5-15 cm, 15-30 cm).

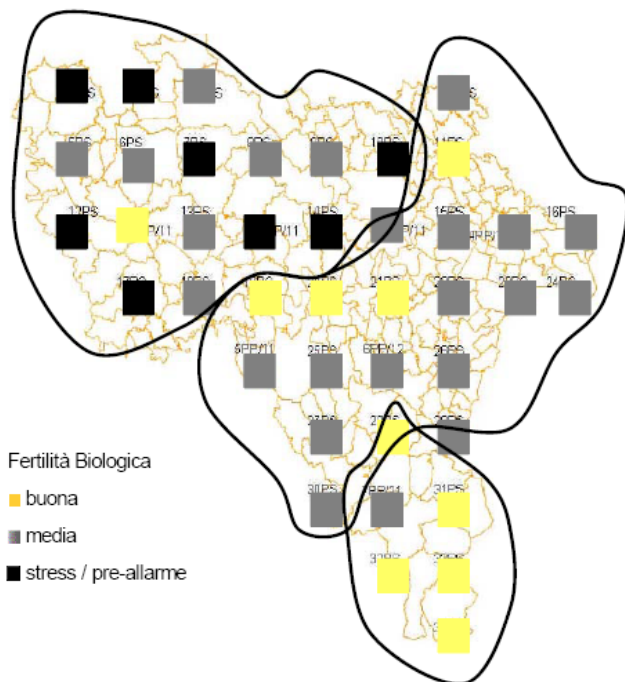
CONCLUSIONS

The study showed that biodiversity levels remained constant for the plots treated with manure and farmyard compost.

A reduction in biodiversity was observed in the plots treated with sewage sludge together with a slight increase in the concentration of heavy metals and dioxins.

The relationship between soil health, soil biodiversity, climate, soil type, land use and the levels of contaminants can only be addressed through a multi-disciplinary approach.

Further work is required to establish European standards to measure soil biodiversity.



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