



Impact of organic amendments on the dynamics of soil microbial biomass and bacterial communities in agricultural practice.

Raphael CALBRIX, Karine LAVAL, Olivier CHABRERIE, Laetitia FOURRIE and Sylvie BARRAY

The impact of organic products and soil management on soil microbial communities was assessed in the course of a two year kinetic study after the spreading of 3 types of organic products (“sewage sludge”, “turkey manure” and “compost made of turkey manure and lineous waste”) and a “mineral treatment” on agricultural plots (beet – wheat). The change in the amount of soil microorganisms measured with three different methods showed no significant differences between the quantitative variables of the three organic treatments and the mineral treatment three months after spreading.

The potential metabolic activity showed that organic products have a transient specific impact during the three first months, depending on their characteristics. The proportions of mineralisable carbon and lignin in organic products seem to influence the behaviour of the bacterial communities. After a period of three months, no effect specific to the type of organic products was detected.

Finally, analysis of the genetic and metabolic diversity of the bacterial communities showed that the mechanical management of the soil, such as tillage, or a change in crop type and growth cycle of plants have a greater effect on the communities than the specific effect of organic matter.