

# Soil fertility — changes during the conversion process

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## Background

Soil fertility is of fundamental importance in organic agriculture. Farmers considering conversion are often concerned about the transition from a system in which nutrients are applied as soluble fertilisers to one in which there is much greater emphasis on the use of fertility building crops with limited use of soil amendments.

## Methods

Ten commercial farms were studied between 1997 and 2003. This covered both the conversion period itself and the first years of organic production.



The farms were selected to reflect a range of soil types and systems but focussed on field vegetable production in both stockless and arable/livestock systems.

Soil from selected fields was sampled in March each year. Visual observations were also made of soil structure and crop growth.



## Conclusions

Although there were specific fertility problems most farmers were able to develop strategies to address them. Relatively few changes were detected, partly because of the long time scales involved; monitoring is continuing on several of the farms as part of new projects (OF0340 and OF0332).

## Results

Organic matter levels varied greatly between farms but at individual sites there were few changes with time.

There was no overall pattern for the availability of P. Initial levels were variable. On some farms the soil concentration increased during the study, on others it went down.

Initial levels of available K were also variable but levels tended to decline at many sites.

Soil structural problems were seen on several of the farms. Compaction was often associated with harvesting vegetables in wet conditions or as a result of mowing leys.

Nitrogen shortage was sometimes a problem. Fertility building crops often failed to perform as well as expected. This could be due to seasonal difficulties or to inexperience with managing this type of crop.

