

Can arable field margins and non-inversion tillage stimulate earthworm diversity?

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Arable field margins have been implemented as a source of biodiversity in arable land. Vertebrates and invertebrates can migrate out of the field margin and colonize cropland, enhancing ecosystem services.

Non inversion tillage (NIT) has been introduced as an alternative to ploughing, in order to reduce soil disturbance and enhance soil life.

the objective of our study was to determine the effects of field margins and reduced tillage (NIT) on abundance, biomass and diversity of earthworms.



Earthworms as soil ecosystem engineers play an important role in functioning of agro-ecosystems, and different species are important for different ecosystem functions.

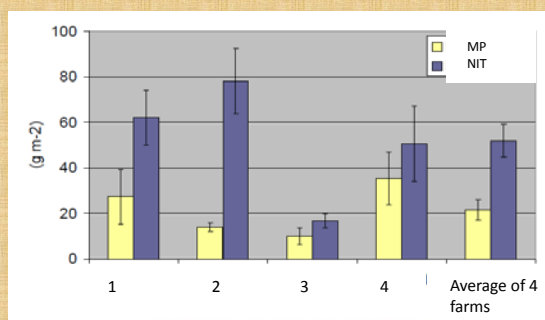
Four farms with or without permanent field margins and with different tillage systems (mouldboard plough vs. NIT) were sampled in the Hoeksche Waard, SW Netherlands. Earthworms were collected in field margins and in crop fields at different distances from the field margin. Monolith (20x20x20cm) sampling and formaldehyde extraction was used. Samplings took place in spring and fall between 2010 and 2012.

Hoeksche Waard



Results and conclusions (preliminary analysis)

- A total of 7 earthworm species was found (endogeics: *A. caliginosa*, *A. limicola*, *A. chlorotica*, *A. rosea*; anecic: *L. terrestris*; and epigeics: *L. rubelus*, *L. castanea*).
- The highest earthworm biomass was observed in NIT and in field margins
- A significant effect of tillage type on earthworm abundance was observed, but the effect depended on species and life stage.
- Anecic species (*L. terrestris*) were rare.



Average across 8 farm fields in the Hoeksche Waard

