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Finding and Demonstrating Ways of Better Managing the Land



SOWAP
SOIL & WATER PROTECTION

Nutrient loss

- In the UK, concentrations of Nitrogen and Phosphorus in eroded sediment are lower for the conservation tillage treatments. At one of the sites, conservation tillage also reduces the levels of Phosphorus in runoff. There is no effect of soil management on the loss of carbon in sediment or runoff.

Terrestrial Ecology

- Conservation tillage favours earlier skylark nesting, and may increase the length of the effective breeding season. However, this observation may be due to the interaction between wide-row spacing and the large quantities of residue in the no-till system practised on this particular farm
- Soil microbial community structure is significantly affected by tillage type at both UK field sites. Ploughing results in greater variation in the microbial community structure than in soils under conservation tillage.

Catchment Ecology

- In ploughed catchments, there was a slight decrease in invertebrate species richness compared to conservation tilled and semi-natural catchments. *Gammarus pulex* (a freshwater shrimp) was more abundant in ploughed catchments, possibly due to reduced competition from smaller populations of more sensitive species
- Stoneflies, the most sensitive macro-invertebrate group to environmental stress, were significantly less frequent in cultivated landscapes than woodland
- Initial results for diatoms indicate that there are differences in some key indicator species between conservation tilled and ploughed catchments suggesting that more eutrophic conditions may exist in the latter.

Yield

- With the second SOWAP harvest complete, crops grown under conservation tillage produce similar yields to those established by ploughing. However for conservation tillage techniques, the risk of getting lower yields increases as tillage intensity decreases

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