



Computed pesticide leaching from ridge and furrow soil systems in a potato field

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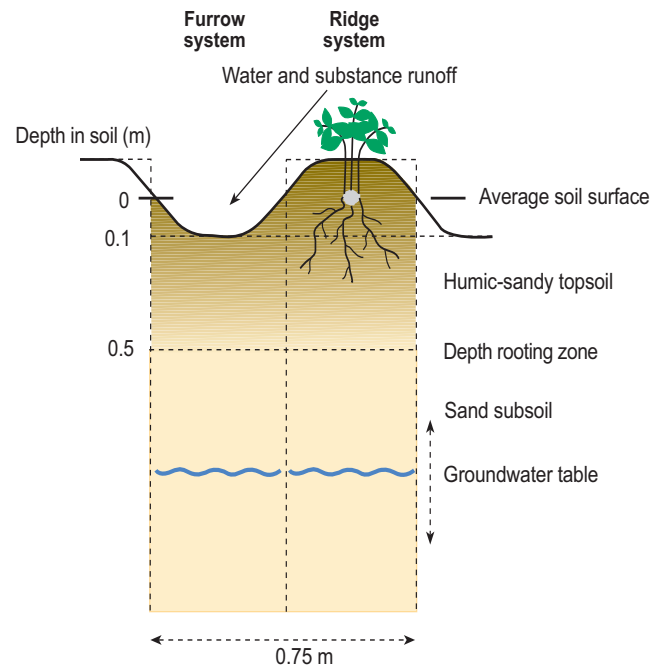
Introduction

Some crops are grown on ridges, e.g. potato
May cause complications in water flow and pesticide transport
Question: increased risk of pesticide leaching?



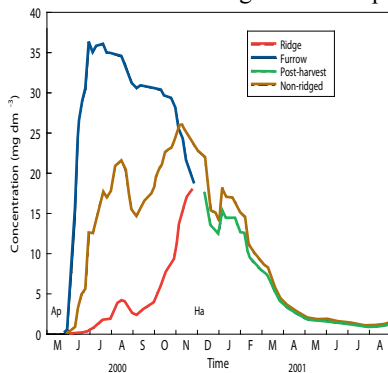
Procedures

Computer simulations based on a field experiment on humic-sandy soil
Ridge and furrow systems are distinguished (until harvest)
Simulations with the PEARL-SWAP combination of models
Estimated: runoff of water (20%) and pesticide (15%) from ridges to furrows
Processes in soil: water flow, pesticide behaviour, uptake by crop roots
Compared with computations for non-ridged field (culture with level surface)

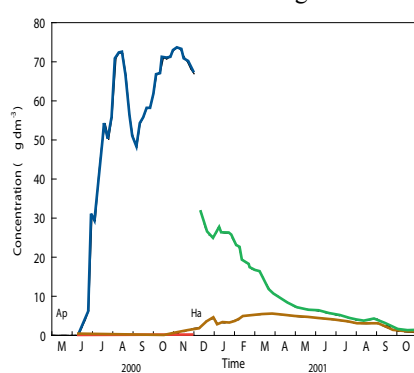


Results

Bromide-ion breakthrough at 1 m depth



Carbofuran breakthrough at 1 m depth



Conclusions

Causes of the higher pesticide leaching from the furrows:

- More water infiltration
- Higher pesticide load
- Less uptake of water and pesticide by the crop roots
- Thinner bio-active soil zone
- Less time for pesticide transformation in soil