

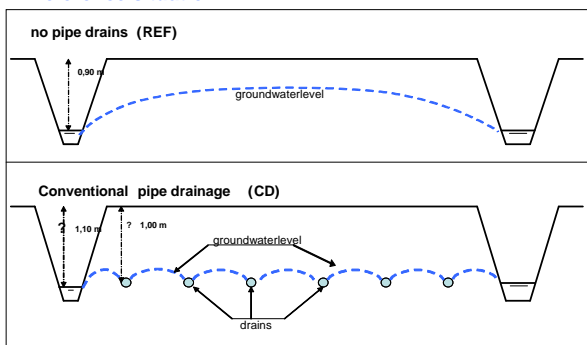
Controlled drainage: For all your water goals?

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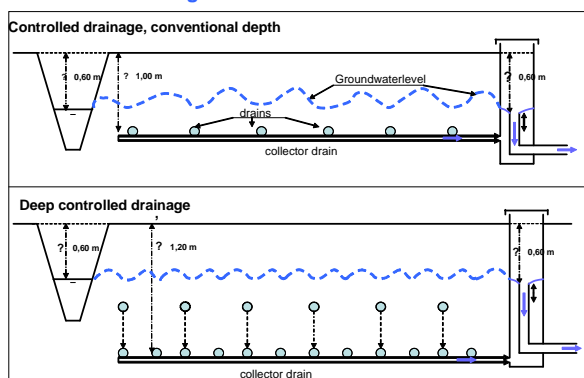
Introduction

- Conventional drainage results in **lower** groundwater levels and a **higher** risk of nitrogen losses, but it will decrease phosphorous losses to the environment.
- Controlled drainage has opportunities to reduce the negative effect of conventional drainage on nitrogen losses.
- Therefore a deep drainage system (under water) and a high groundwater level is necessary
- To reduce the risk of flooding an intensive drainage system and a controlled water level must be applied.
- A controlled drainage system can be used for this purpose.

Reference situation



Controlled drainage

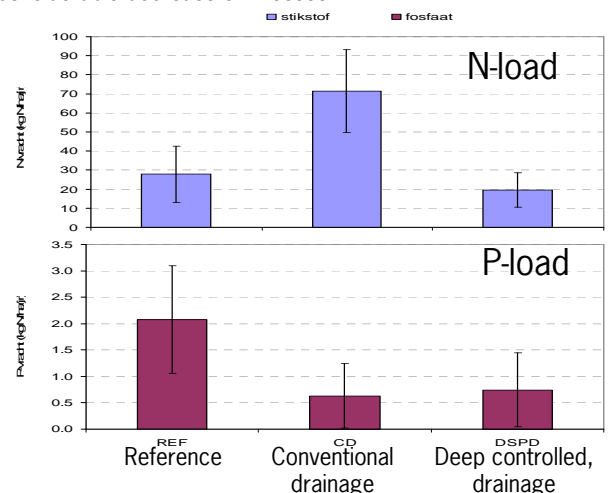


Model analysis

- Prior to upcoming field experiments a model analysis was carried out
- We selected 9 plots (no drainage) and 4 plots (drained) within the sandy area of Noord-Brabant and Limburg
- Two reference situations and two controlled drainage systems were simulated with the models SWAP (water) and ANIMO (N and P)
- The influence of the (new) drainage system on regional groundwater dynamics was simulated with the model SIMGRO

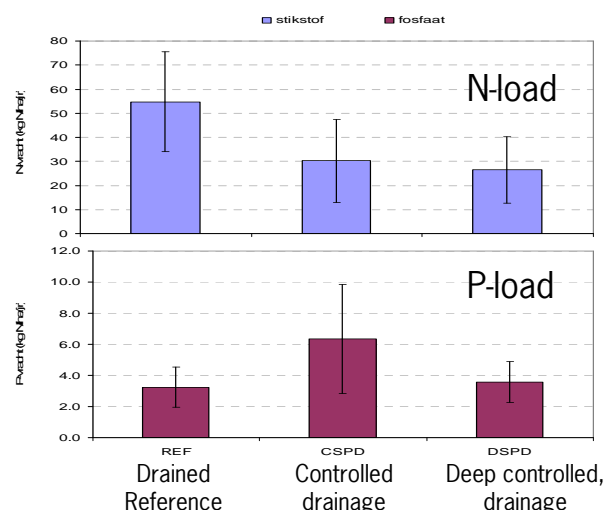
Model results (undrained reference situation)

- Conventional drainage results in a considerable lowering of the groundwater level, an increase of N-losses and a decrease of P-losses to the environment.
- Controlled drainage results in a slight decrease of N-losses and a considerable decrease of P-losses.



Model results (drained reference situation)

- Changing from conventional drainage to controlled drainage results in a decrease of the N-losses but an increase of the P-losses.
- Changing from conventional drainage to deep controlled drainage results in less N-losses and only a slight increase of P-losses



(Preliminary) conclusions

- Controlled drainage has good prospects for combined water goals
- Fieldwork is necessary to corroborate model results