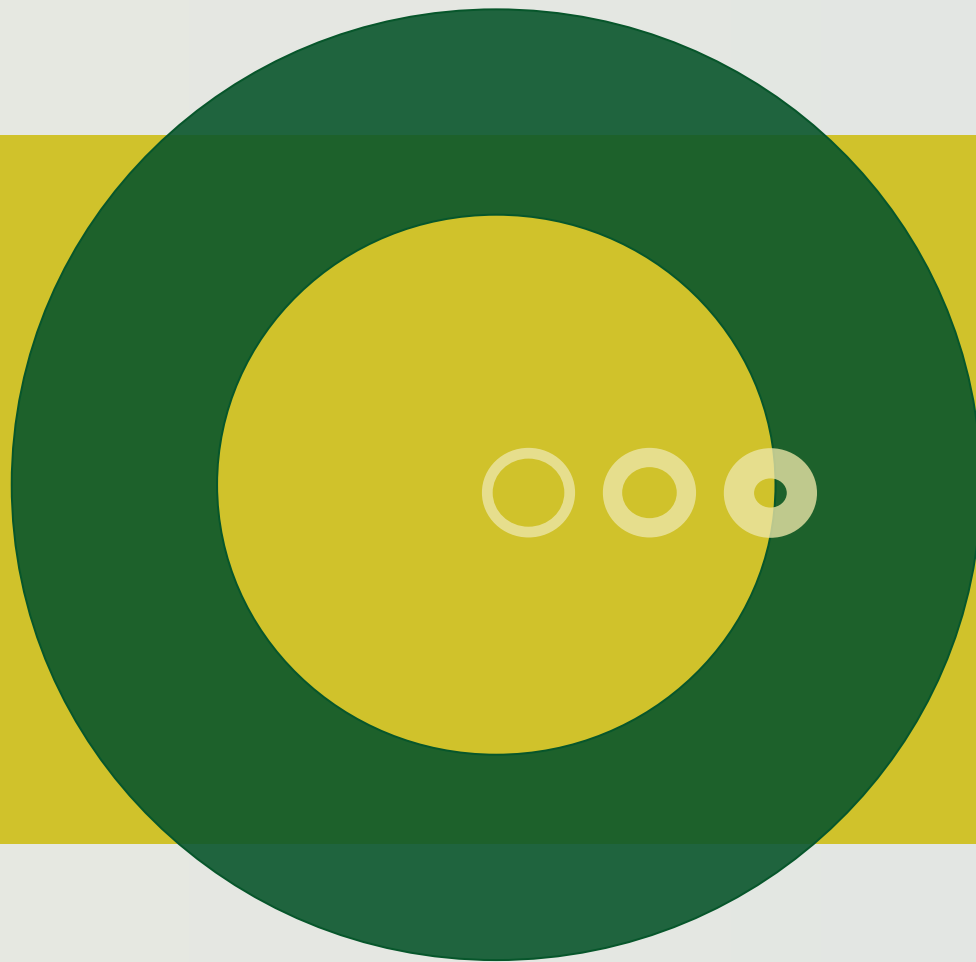


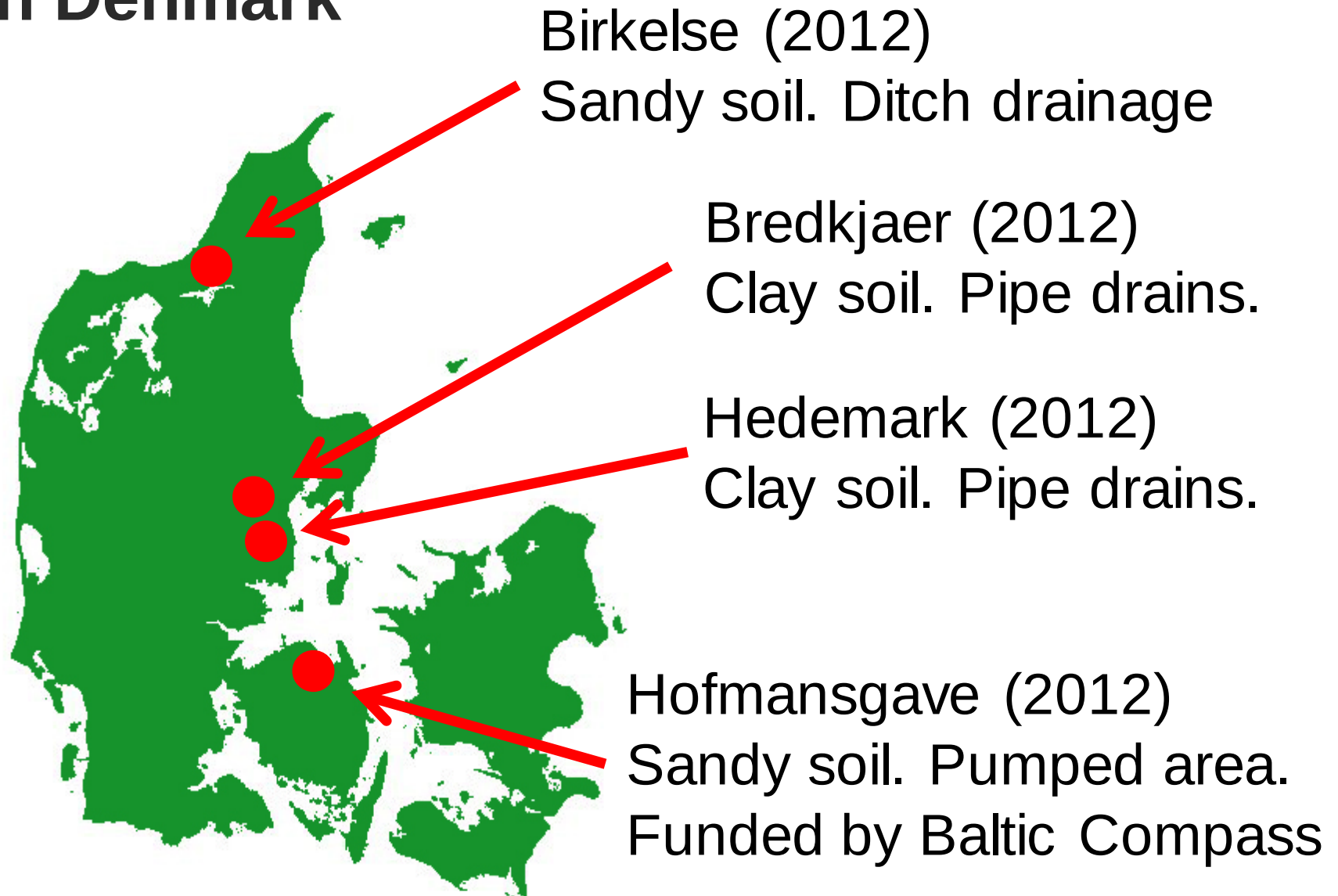
KNOWLEDGE CENTRE FOR AGRICULTURE

Controlled drainage and other SCIEN drainage technologies

Søren Kolind Hvid
Knowledge Centre
for Agriculture,
Denmark



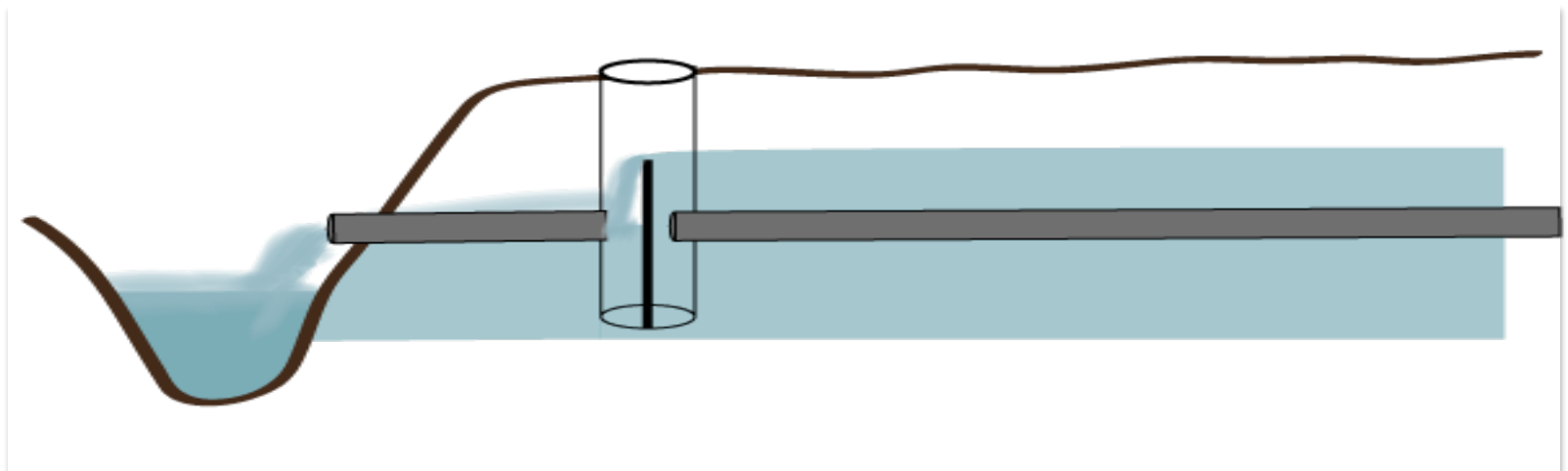
Controlled drainage demonstration sites in Denmark



Project: Controlled drainage as a measure to reduce the outlet of nitrogen to the aquatic environment (2012-2015)

Objective:

To obtain the necessary documentation so that controlled drainage can be recognized as a measure to reduce the outlet of nitrogen and phosphorus to the aquatic environment (in order to meet the goals of the WFD)



Hofmansgave demonstration site

Crop rotation:
Maize - winterwheat



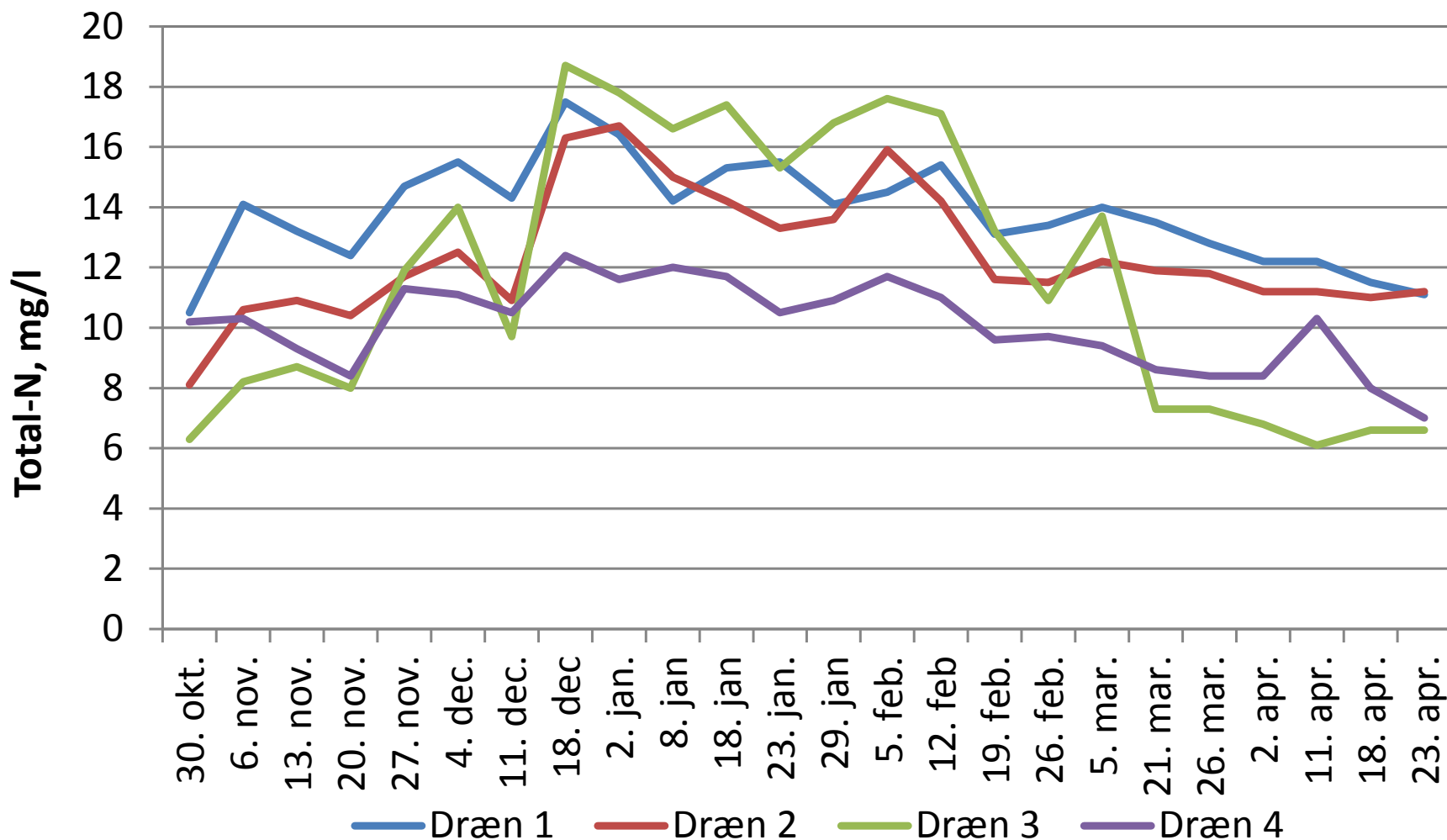
Control well

Measuring well

Drainage system at Hofmansgave



Nitrogen in drainage water at Hofmansgave 2012-13 (reference year), mg N/l (total-N)



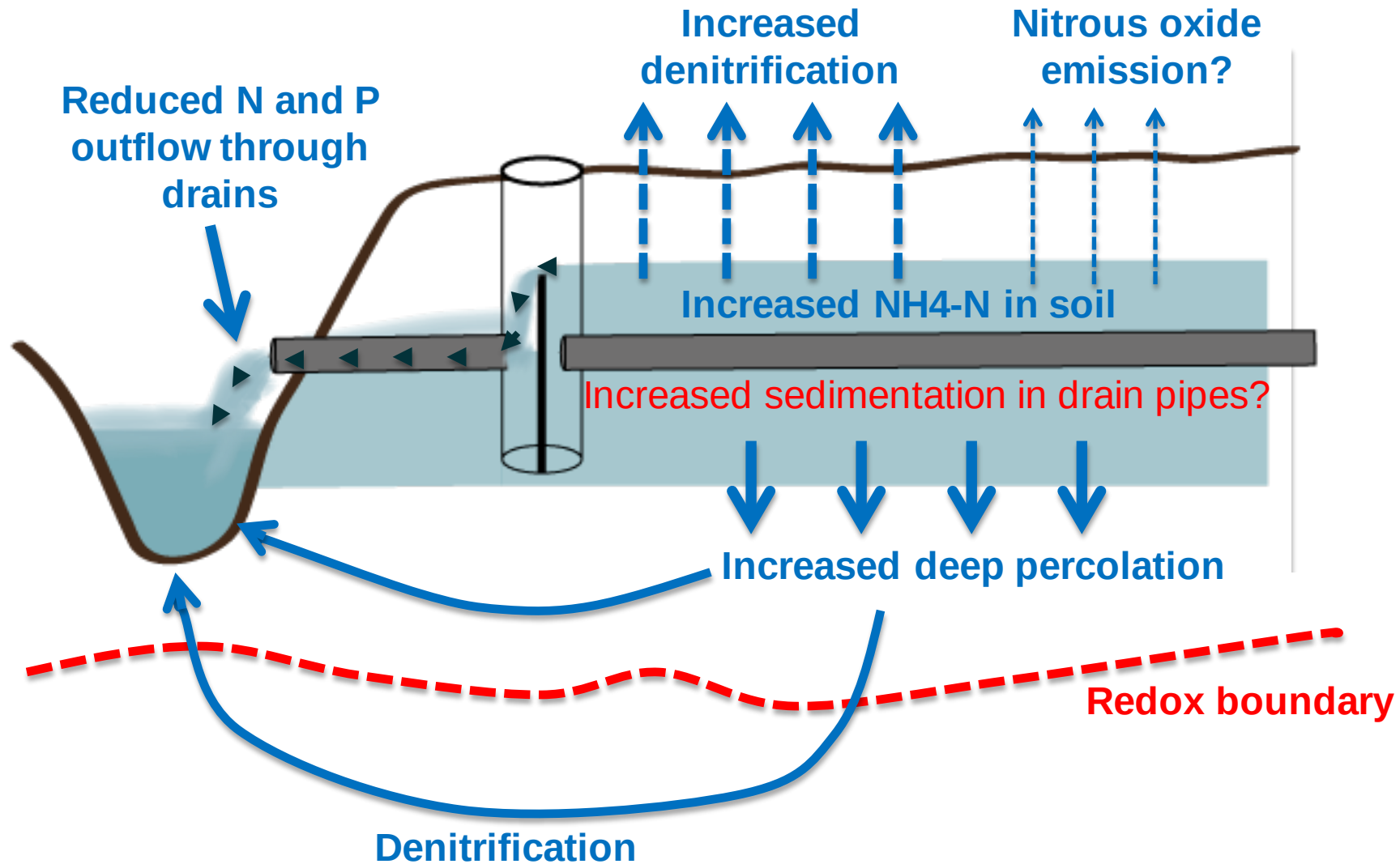
Outlet of nitrogen from drain 1-4 at Hofmangave 2012-13 (reference year)

	Ha	Run-off, mm	Total-N mg/l	Kg N per ha	Kg N per 210 mm
Drain 1	6,2	213	15,0	32	32
Drain 2	5,4	241	13,3	32	28
Drain 3	4,2	288	14,9	43	31
Drain 4	3,8	282	10,6	30	22

Percolation: 210 mm in 2012-13

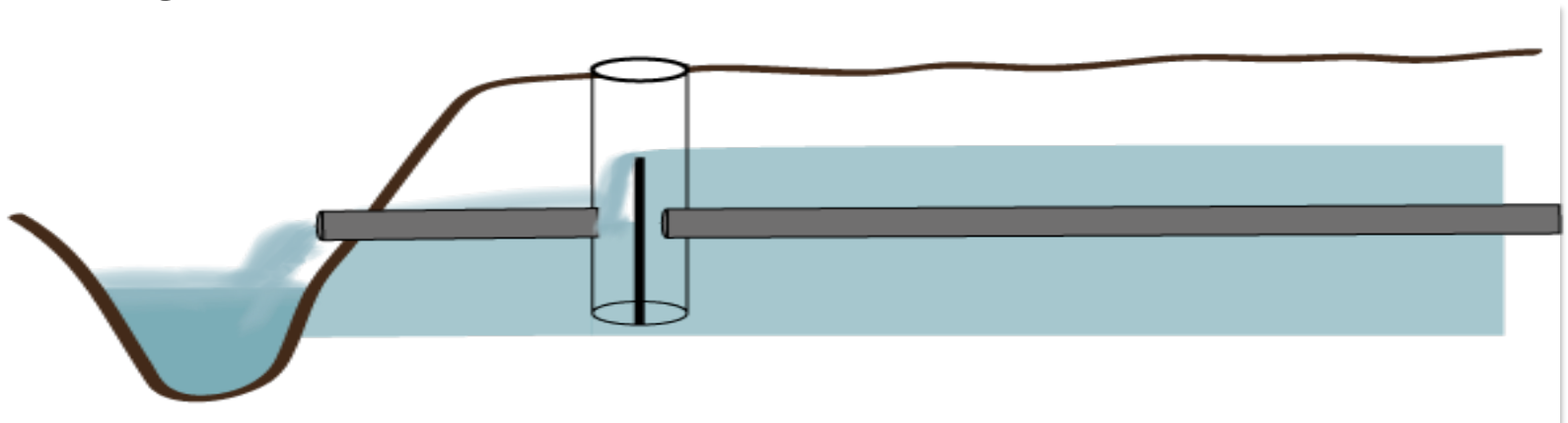
Effects of controlled drainage

Water level is raised during autumn and winter

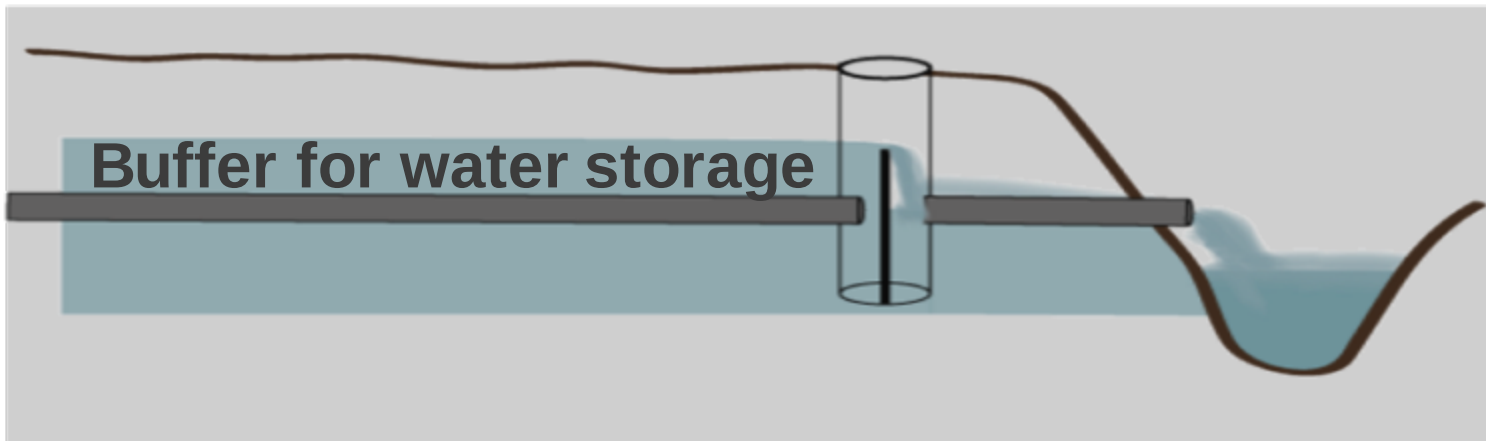


Implementation of controlled drainage (CD) in Denmark

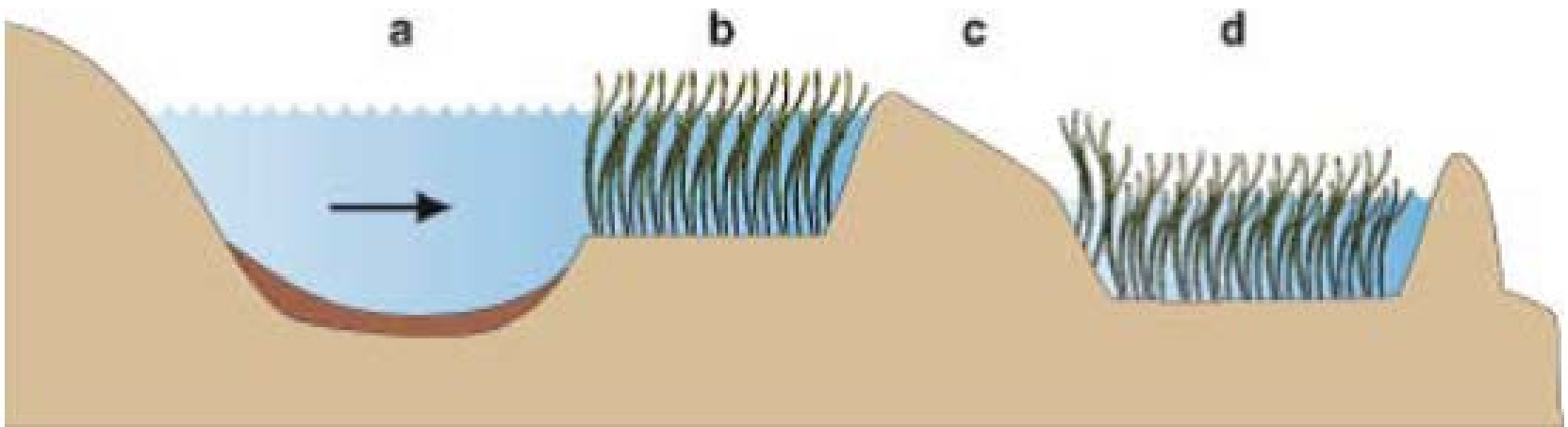
- CD is hopefully a recognized measure in 2016
- Maybe 10 % of the agricultural area is suitable for CD
- CD is probably not profitable for the farmer by itself
- Maybe CD is profitable as an alternative to compulsory catch crops and reduced N quotas
- CD will probably often be combined with constructed wetlands and riparian buffer zones in order to optimize nitrogen removal



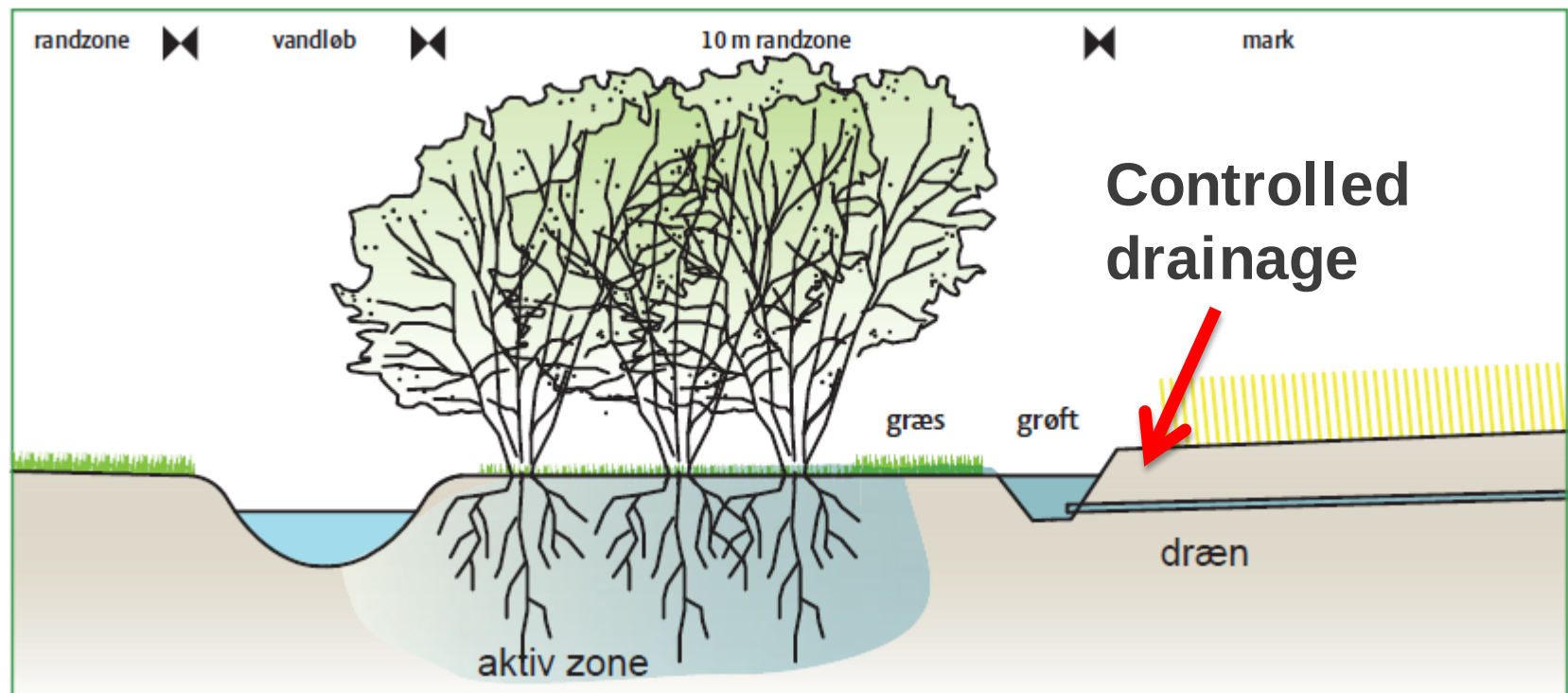
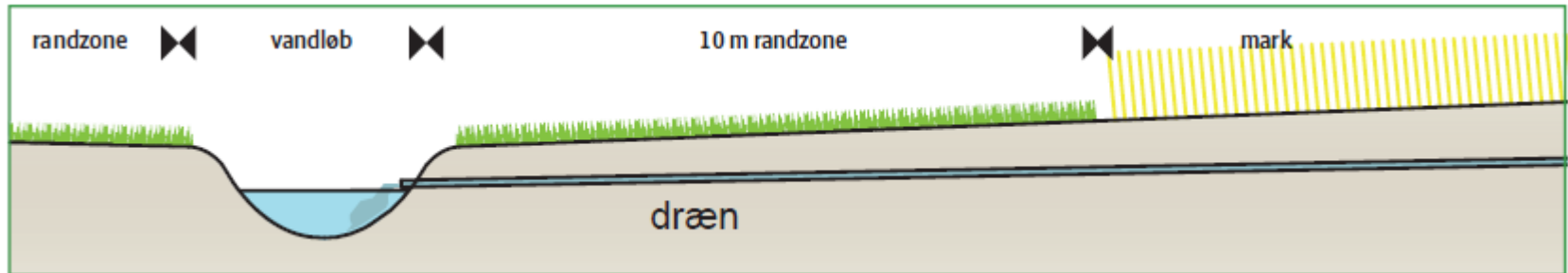
Constructed wetlands



Controlled drainage can level out the inflow of drainage water to a constructed wetland



Riparian buffer zones



Thank you for your attention!

Project homepage:

www.vfl.dk/hofmansgave

or

www.vfl.dk/kontrolleretdraening



The Hofmansgave demonstration site is partly funded by BALTIC COMPASS

