

HS5.7
Mitigation measures to improve water quality in agricultural landscapes

Promilleafgiftsfonden for landbrug



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EDI
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For the improvement of water quality both the restoration of wetlands but also the establishment of different filter solutions such as constructed wetlands, bioreactors, integrated bufferzones and saturated bufferzones as drainage mitigation measures are important strategies applied for combating sediment and nutrient losses to surface waters as part of Water Framework Directive, River Basin Management Plans. It is essential to know the processes and driving factors behind that control sediment and nutrient retention and their relative importance over time to ensure the best management. Moreover, there is also a great need to learn about possible side-effects to avoid inter alia nutrient swapping. Perfect knowledge of the processes, namely their large spatial and temporal variability may never be achieved. Still, it is essential that we communicate what is known to water authorities and landscape managers to foster environmentally sound decision making. Additionally, other aspects, such as economic and social issues may vary greatly, even on a local scale, consequently such measures must be implemented as one element within a holistic and systemic management plan. This session deals with various nature based and filter-based solutions to reduce the losses of sediment and nutrients from agriculture. The session looks for new advancements in already established measures, such as restoration of riparian wetlands, larger lowlands areas including fens and swamps, re-establishment of shallow lakes, constructed wetlands (surface flow and subsurface flow), as well as drainage mitigation measures recently introduced in Europe and still under development such as integrated buffer zones, saturated buffer zones and controlled drainage.

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Convener: Dominik Zak
Co-conveners: Brian Kronvang , Jan Vymazal , Astrid Maagaard
▶ [Presentations](#) | Tue, 24 May, 08:30–09:58 (CEST) Room 3.29/30

Presentations: Tue, 24 May | Room 3.29/30

Chairpersons: Brian Kronvang, Jørgen Windolf

08:30–08:40 | EGU22-7487 | solicited | Presentation form not yet defined
[Artificial wetland for mitigation of non-point source agricultural pollution in a French drained context: lessons from a 10-years monitoring.](#) ▶
Julien Tournebize, Cédric Chaumont, Aliénor Jeliaskov, Jérémie Lebrun, Aya Bahi, Alexandre Michel, Bruno Lemaire, and Hocine Henine

08:40–08:46 | EGU22-4101 | | Virtual presentation
[Mitigation measures for improvement of agricultural drainage water and surface water quality in Denmark](#) ▶
Carl Hoffmann, Dominik Zak, Brian Kronvang, Mette Carstensen, and Joachim Audet

08:46–08:52 | EGU22-620 | | On-site presentation
[Restoring the liver of the river: Instream wood as a nature-based solution to nutrient pollution in agricultural watercourses](#) ▶
Ben Howard, Ian Baker, Nick Kettridge, Sami Ullah, and Stefan Krause

08:52–08:58 | EGU22-3761 | | Presentation form not yet defined
[The role of floodplains for denitrification along large rivers in central Europe – measurements and modeling for a comprehensive overview](#) ▶
Stephanie Natho, Thomas Hein, Ute Susanne Kaden, Ann-Christin Kra, and Martin Tschikof

08:58–09:04 | EGU22-5708 | | On-site presentation
[Natural Flood Management features mitigate sediment and nutrient loading in a lowland agricultural catchment in England](#) ▶
John Robotham, Gareth Old, Ponnambalam Rameshwaran, David Sear, Emily Trill, James Bishop, David Gasca-Tucker, Joanne Old, and David McKnight

09:04–09:10 | EGU22-10377 | On-site presentation
[Challenges in model based estimation of mitigation measures to improve water quality on catchment scale](#) ▶
Tomasz Okruszko, Mateusz Grygoruk, Pawel Marcinkowski, and Mikołaj Piniewski

09:10–09:16 | EGU22-7572 | | Virtual presentation
[PESTIPOND: A fate model of pesticides in ponds](#) ▶
Aya Bahi, Sabine Sauvage, Sylvain Payraudeau, Gwenaël Imfeld, and Julien Tournebize

09:16–09:22 | EGU22-2204 | | On-site presentation
[Terrestrial nutrient exports and environmental changes explain eutrophication trends in fifty large lakes of Yangtze Plain, China](#) ▶
Qi Guan, Jing Tang, Lian Feng, Stefan Olin, and Guy Schurgers

09:22–09:28 | EGU22-13064 | Presentation form not yet defined
[Compact filter system for mitigating phosphorus losses from agricultural drainage discharge](#) ▶
Goswin Heckrath and Lorenzo Pugliese

09:28–09:34 | EGU22-13435 | Virtual presentation
[A field study of nitrogen removal and N2O and CH4 fluxes from integrated buffer zones](#) ▶
Mette Vodder Carstensen, Dominik Zak, Sofie van't Veen, Kamila Wisniewska, Niels Ovesen, Brian Kronvang, and Joachim Audet

09:34–09:40 | EGU22-13454 | Presentation form not yet defined
[Wetland observatories for rewetting of drained peatlands \(ReWeT-DK\)](#) ▶
Rasmus Jes Petersen, Dominik Zak, Astrid Maagaard, Carl Hoffmann, Andersen Hans, Christiansen Jesper, Elsgaard Lars, Pullens Johannes, and Lærke Paul

09:40–09:46 | EGU22-13507 | | On-site presentation
[Climate impact of constructed wetlands treating nitrate-rich agricultural runoff: The methane problem](#) ▶
Ülo Mander, Kaido Soosaar, Julien Tournebize, Keit Kill, Cedric Chaumont, Martin Maddison, and Kuno Kasak

09:46–09:52 | EGU22-13510 | On-site presentation
[Saturated buffer zones as novel drainage mitigation measure in Denmark](#) ▶
Dominik Zak, Astrid Maagaard, Brian Kronvang, Carl Hoffmann, Joachim Audet, and Rasmus Petersen

09:52–09:58 | EGU22-13332 | | Presentation form not yet defined
Mitigation measures to improve water quality in agricultural landscapes
Adam Sochacki

