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Sendt: 31. oktober 2016 08:31
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Emne: BufferTech Nyhedsbrev oktober 2016

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Nyhedsbrev oktober 2016

Det er med stor fornøjelse, at vi nu udsender femte udgave af BufferTech nyhedsbrevet. I denne udgave kan du bl.a. læse om, hvordan der arbejdes med at værdisætte intelligente bufferzoner, ligesom du kan læse to korte beskrivelser af specialer, hvor et speciale har undersøgt, hvordan GIS-data kan bruges til at involvere landmænd i placeringen af intelligente bufferzoner og et andet speciale har undersøgt, om bl.a. fjernelsen af det øverste jordlag, kan fremme biodiversitet i bufferzonen.

Finansieringen til en ny intelligent bufferzone i Christiansfeld er nu på plads via promilleprojektet Udvikling og implementering af virkemidler - landbrug og vandmiljø, og der arbejdes på at finde yderligere finansiering til yderligere test og fuldskaalanlæg via de bevillinger, der er til test af målrettede virkemidler i Fødevarer og Landbrugspakken.

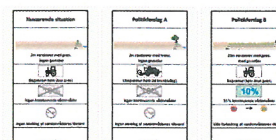
Om kort tid er der Følgegruppemøde i København, hvor bl.a. resultater i forhold til den intelligente bufferzones evne til fjernelse af kvælstof og fosfor præsenteres, og ligeledes præsenteres de første resultater vedrørende afhøstning af kvælstof og produktion af biogas af biomasse fra bufferzonen.

Projekt BufferTech er som altid repræsenteret vidt og bredt i både indland og udland, bl.a. ved The International Drainage Symposium i Iowa, USA, hvor der også blev delt ud af den nye BufferTech folder. Det kan du læse mere om på hjemmesiden, hvor Carl Christian Hoffmann har skrevet en rejseberetning.

Du kan som altid løbende følge med i nyhederne på www.buffertech.dk

Questionnaire data

Questionnaire data from 3,500 Danes has now been collected in WP5 with the purpose of investigating the welfare economic value of different buffer strip management policies.



[Læs mere...](#)

BufferTech repræsenteret ved SWS 2016

BufferTech havde arrangeret en session under konferencen, som blev afholdt 17.-20 maj 2016 i Berlin med titlen: "Intelligent use of Buffer Strips: The Buffertech project".



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The storage of P in Buffer Zone Soils and adjacent fields

Distribution of total phosphorous in buffer strips and adjacent fields was presented as poster at SWS Potsdam and IPW8 Rostock this year.



[Læs mere...](#)

Involving the farmer to improve the ecological status in surface waters

Læs om Martina Skjellerudsveens speciale, som bl.a. har undersøgt, hvordan GIS kan bruges som dialogværktøj med landmænd i forhold til placering af intelligente bufferzoner.

[Læs mere...](#)



Topsoil removal and seed addition as a management tool to improve biodiversity in buffer strips

Læs om Mette Krogaards speciale, som bl.a. har undersøgt om fjernelsen af det øverste næringsrige jordlag og såning med plantefrø kan give en bedre biodiversitet i bufferzonen.

[Læs mere...](#)



Structural and functional diversity in Danish riparian vegetation

Læs om undersøgelsen af hvilke typer planter, der dominerer de vandløbsnære arealer i Danmark

[Læs mere...](#)



Ny intelligent bufferzone i Christiansfeld på vej

Læs om arbejdet med placering af den nye intelligente bufferzone, samt processen med at få ansøgt om tilladelse fra kommunen.

[Læs mere...](#)



Nyt fra BufferTech

Korte nyheder om Projekt BufferTech fra ind og udland

[Læs mere...](#)



Questionnaire data from 3.500 Danes has now been collected in WP5

Af Kennet Christian Uggeldahl

During spring and summer 2016, roughly 3500 randomly sampled Danes have answered a questionnaire regarding their preferences for different types of buffer strip policies, developed by work package 5 (WP5). The questionnaire first gave respondents some general information about buffer strips and the water quality in the area where they lived. They were then presented with six different choice situations. Each situation consisted of three different future buffer strip policy scenarios, from which respondents were asked to indicate which one they would vote for in an election. Figure 1 provides an example of one of the six choice situations displayed to respondents. The buffer strip policy options that respondents could choose between varied in seven important characteristics: 1) the width of the buffer strip, 2) the primary vegetation in the buffer strip, 3) if paths were established in the buffer strips, 4) to what extent harvesting of the vegetation in the buffer strip was allowed, 5) if integrated buffer zones were created in the buffer strips, 6) changes in water quality resulting from the overall policy including not only buffer strips but also other measures to improve water quality, and finally, 7) what the resulting cost of the policy would be in terms of an increase in the respondents yearly tax payment. If they did not like any option, respondents could always choose the current situation (seen on the left in Figure 1).

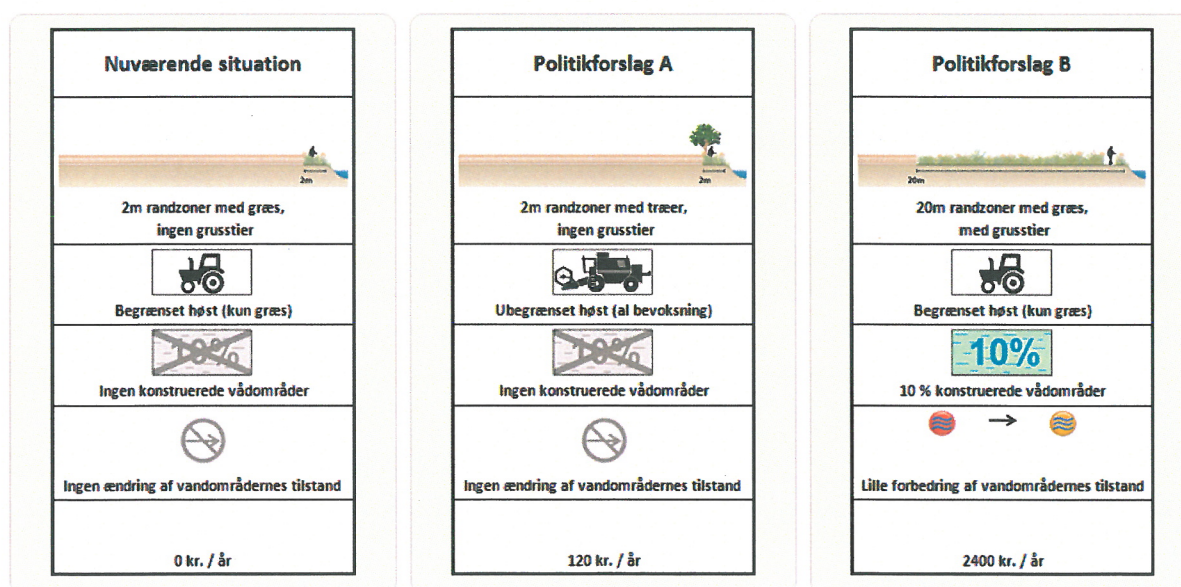


Figure 1. An example of a choice situation

The answers to the six choice situations provide WP5 with the data needed in order to identify and monetize the effects of each of the different buffer strip characteristics, which can then be added together to assess the welfare

economic value associated with different buffer strip management policies. The data has been collected on a local and very specific level with 200 respondents evaluating changes in buffer strip management along the stream Sillerup Bæk in Haderslev Municipality, as well as on a national and more generic level with 3300 respondents evaluating changes in buffer strip management in general in their entire regional area. The data from the Sillerup Bæk area will be used to analyze the costs and benefits of one specific case area in detail, whereas the data from the national survey can be used to more broadly analyze changes to the national buffer strip policy.

BufferTech repræsenteret ved SWS

Af Brian Kronvang

BufferTech havde arrangeret en session under den Europæiske vådområde konference, som blev afholdt 17-20 maj 2016 i Berlin. Vores session havde titlen: "Intelligent use of Buffer Strips: The Buffertech project".

Der var i sessionen 6 mundtlige indlæg og 3 poster indlæg. Heraf var de 5 mundtlige indlæg og de 2 poster indlæg fra BufferTech projektet. Titelne på indlæggene og første forfatter er listet herunder. Der findes på <http://sws-europe.igb-berlin.de/> mulighed for at downloade en bog med abstracts fra konferencen.

Kronvang, B. m.fl. Experiences gained from the Danish BufferTech project on the multifunctionality of Buffer Strips.

Egemose, S. m.fl. P retention in integrated bufferzones - and potential of enhanced P removal by Fe addition (Oral).

Zak, D. m.fl. Nitrate removal in intelligent buffer zones: a first evaluation (Oral).

Hille, S. m.fl. Is storage of P in Buffer Zones and Soils close to Water Courses related to the local Landscape Shape? (Poster)

Uggeldahl, K. m.fl. Public preferences for buffer strips in Denmark: An economic valuation study (Oral)

Feuerbach, P. m.fl. Measures for improved ecological status of streams: Constructed Wetlands and Integrated Buffer Zones in Sweden (Oral)

Heckrath, G.J. m.fl. Distributed water erosion modelling for evaluating scenarios of riparian buffer zone placement in Denmark (Oral).

Cochran, M.W. m.fl. Surface flow constructed wetlands with filter matrix targeting drainage water" (Poster)

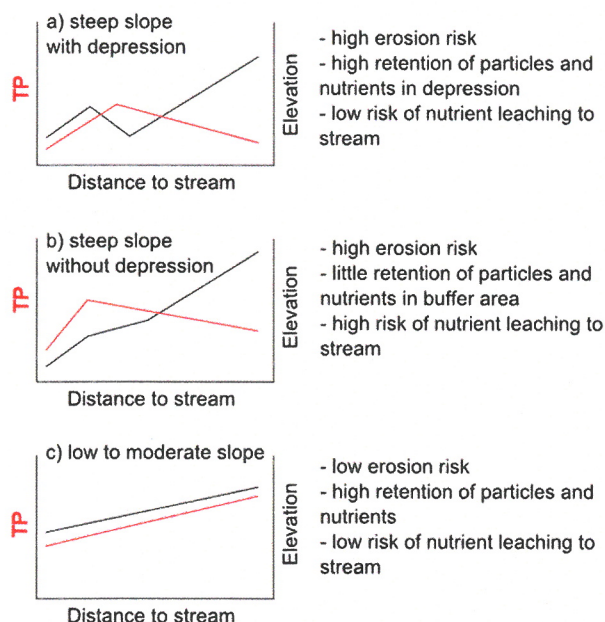
Krogsgaard, M. m.fl. Topsoil removal and seed addition as a management tool to improve biodiversity in buffer strips" (Poster)



The storage of P in bufferzone soils and adjacent fields

Af Sandra Hille, Goswin Heckrath & Gitte Holton Rubæk

We conducted a study on phosphorous (P) storage and distribution in soils of 6 buffer strips from stream towards field with sampling points at increasing distance from the stream. We sampled soil cores to 50 cm depth and measured elevation at each sampling point, as well as total P and bulk density. For sites with a depression in the buffer strip, a sloping landscape behind and a slight elevation close to the stream, more P was stored in the buffer strip soil than in the area from the adjacent fields, thus the risk of P leaching into the stream water is low. When such a depression was missing less P was stored in the buffer strip than in the adjacent fields; in this case P could be leached to the stream, especially during high rainfall events with a lot of surface runoff. A depression allows the retention of runoff water, which in turn lets sediments and nutrients settle. We conclude that it is important to take local buffer relief into account when planning the placement of buffer strips.



Picture 1: conceptual graph on the relation between buffer relief and the storage of phosphorous, picture 2: experimental soil core from one of the studied buffer areas.

Involving the farmer to improve the ecological status in surface waters

Af Martina Skjellerudsveen

The concrete measure that was investigated in the work presented here was the Integrated Buffer Zone (IBZ). The objective of the BufferTech project present challenges of both technical and structural nature. Biophysical data in high resolution is needed to model nutrient losses on a very small scale, which is time consuming to collect. Convincing farmers to take out land that is pointed out as high-risk areas of nutrient losses represent a management barrier to fulfill the objectives of the project.

I conducted a pilot study to create an advisory strategy for the advisory service (or a potential catchment advisor) that consisted of biophysical mapping with the use of Geographical Information Systems (GIS) combined with an approach that considered the farmers as part of the solution, holding the local knowledge about the landscape. To create this strategy a quantitative analysis of phosphorus losses were made highlighting the challenges of working with modeled data on a very small scale. Furthermore qualitative interviews with farmers were conducted with the aim to investigate the motivation of the farmer and what factors were the most important for the farmer to contribute with land for environmental measures.

Conclusion drawn from my pilot study was that the method used for locating phosphorus losses to the stream was not accurate enough to capture the small high-risk areas. The interviews reviled a willingness to contribute to environmental projects in general but that the measure in question had to correspond to the production system. Dairy farmers were more interested in having larger areas along the stream converted to low intensity grazing than to take out a smaller area to create a ditch and plant trees.

This study shows that more detailed data is needed if modeling is used as the tool for predicting the specific risk areas of nutrient losses. Even if the areas are pointed out by the use of modeling- and GIS tools, additional intimate investigation by physical presence on the site is also necessary for establishing an IBZ. Furthermore the most attractive and suitable incentives for farmers to join must be identified to support their motivation.

Topsoil removal and seed addition as a management tool to improve biodiversity in buffer strips

Af Sandra Hille & Mette Krogsgaard

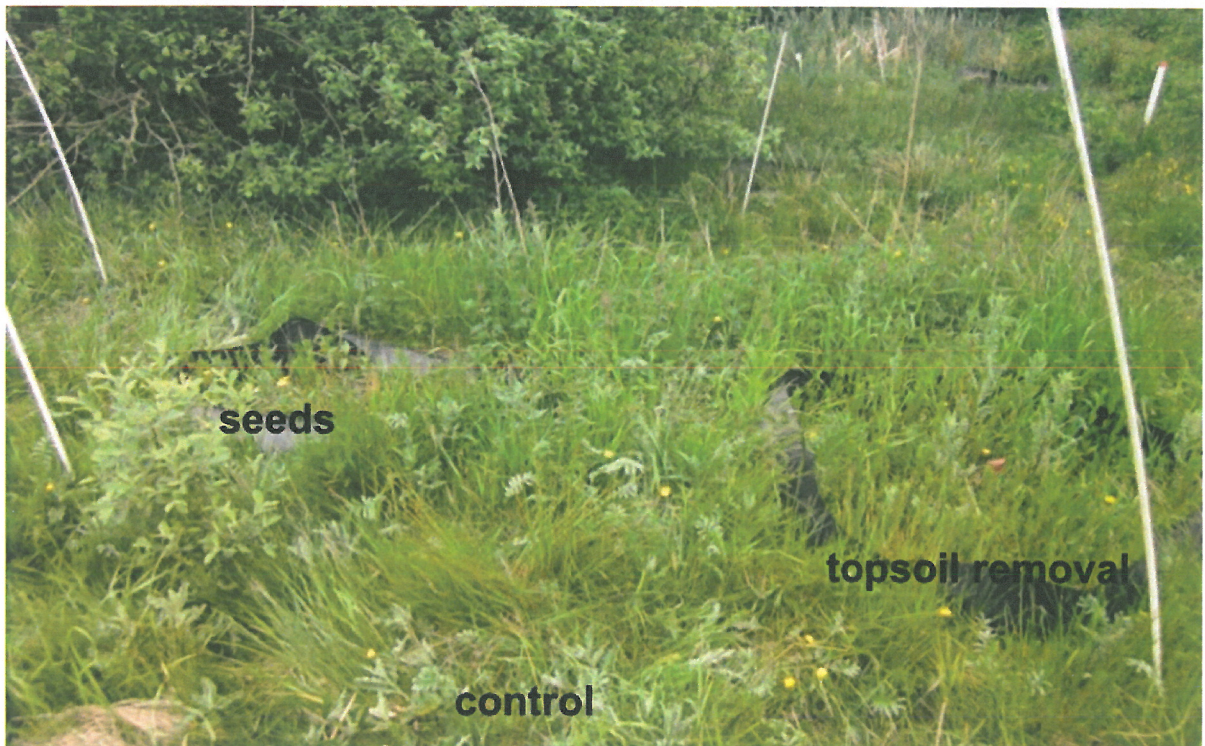
Master thesis Mette Krogsgaard: 'Topsoil removal and seed addition as a management tool to improve biodiversity in buffer strips' à was presented as poster at SWS Potsdam this year

The aim of this project was to study whether the removal of nutrient rich topsoil and the addition of Danish riparian plant seeds can promote a higher plant biodiversity in buffer strips. We found that the removal of topsoil led to a higher number of plant species in the buffer area, but that plant diversity was reduced, even were seeds were brought out. This can happen when one species dominates the area and others only occur with very few individuals; which can be explained with the heavy disturbance (removal of topsoil) and short duration (only 1 year) of the experiment. However, the difference on plant trait level was pronounced even after this short time, as

treated areas had a higher number of species that can tolerate disturbance while the control areas had a higher number of competitive species.



Picture 1. Example of a topsoil removal area.



Picture 2. Example of the experimental area in Spjald at the time of data collection in June 2015

Structional and functional diversity in Danish riparian vegetation

Af Sandra Hille & Annette Baattrup-Pedersen

Plant traits as the mainly physiological, morphological and functional characteristics of plants provide a link from species richness to ecosystem functions. We analyzed an extensive monitoring dataset (NOVANA) for plant traits in riparian areas and found that plants growing in these areas are tough, mainly herbs, that die back during winter, flower within the first year of germination and produce a high number of long-term resistant seeds. They grow tall (>1,7m), tolerate high light intensities, moderately dry conditions and relatively high nutrient levels. We found riparian plant communities to be generally highly productive but clearly not natural as a majority of the plants is predominantly spread by humans. Thus we conclude that riparian plant communities will have a high potential for nutrient removal by harvesting plant material in buffer strips but probably a low potential for nitrogen removal from the soil through denitrification due to too dry conditions. Besides do we expect that without diversity promoting mitigation measures the plant diversity in Danish, riparian areas to be always limited, as these areas are subjected to strong human influence.



Pictures 1-3: examples of Danish riparian areas

Ny intelligente bufferzone i Christiansfeld på vej

Af Frank Bondgaard

Den 8. august var Brian Kronvang AU, Asger Kristensen Sønderjysk Landboforening, Irene Asta Wiborg, SEGES og Frank Bondgaard, SEGES på felttur for at finde egnede placeringer til intelligente bufferzoner i Sønderjylland

Finansieringen til en ny intelligent bufferzone i Christiansfeld er nu på plads via et promilleprojekt om 3732 og der arbejdes på at finde yderligere finansiering til yderligere test og fuldskaalanlæg via de bevillinger til test af målrettede virkemidler i Fødevarer og Landbrugspakken.

Parallelt hermed arbejdes der på at få de nødvendige tilladelser af kommunen til de udvalgte gode placeringer. Der er således den 28. oktober ansøgt om Landzonetilladelse til etablering af et forsøgsanlæg med en Intelligent Bufferzone ved Halk. Sagen skal herefter i offentlig høring i 4 uger.

Nedenfor ses to gode områder til Intelligente Bufferzoner, som vi fandt på turen. Karakteristisk for disse områder er, at der er et godt terrænfald, så der ikke vil komme bagvand i drænsystemet hos landmanden når/ hvis anlæggene placeres her.



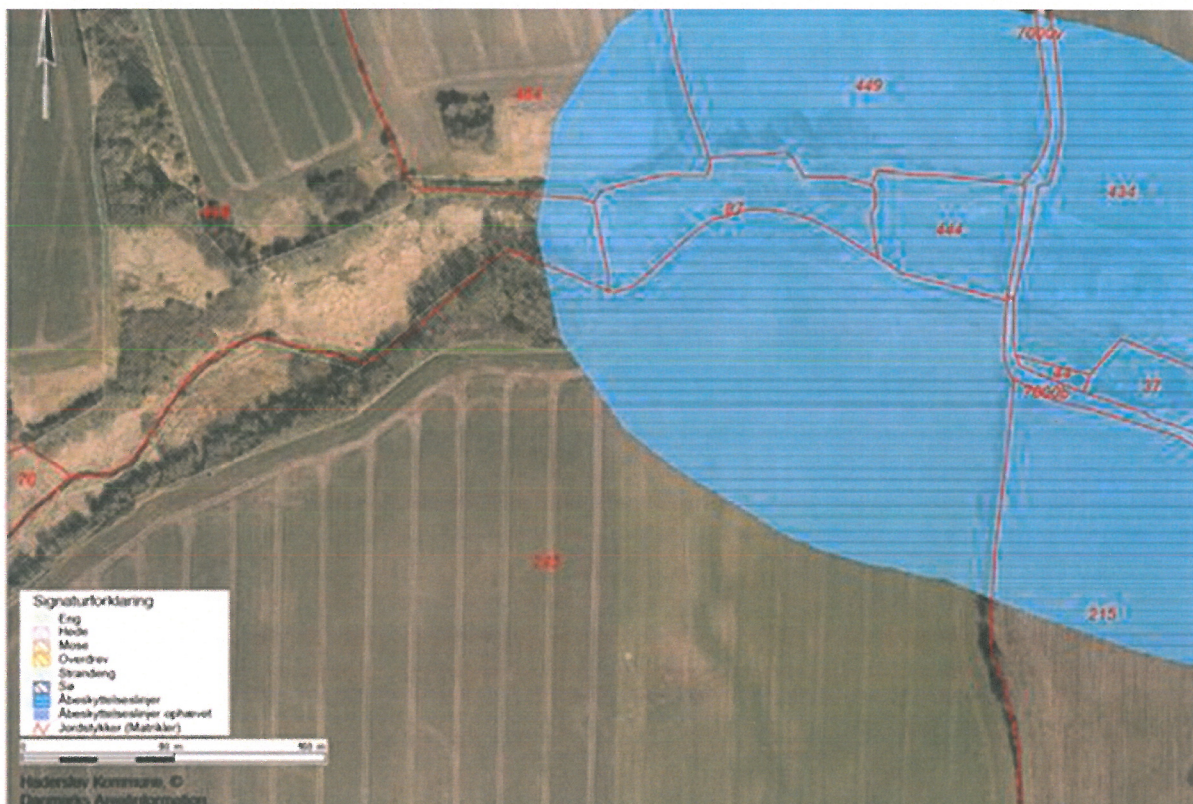
Det sortmarkerede område (dvs. Syd for kørespor) kan bruges til anlæg.

Placering af forsøgsanlæg ved Halk. Foto: af Frank Bondgaard, SEGES og skitse af Asger Kristensen Sønderjysk Landboforening.



Placering af demoanlæg ved Sillerup bæk tæt på offentlig vej. Foto: Frank Bondgaard, SEGES

Placeringen ved Sillerup synes optimal til et demonstrationsanlæg pga. af tæt placering på offentlig vej og der arbejdes nu på en dispensation for åbeskyttelseslinjen. Åbeskyttelseslinjen og problematikken om at få dispensation fra denne er en af de udfordringer for etablering som der dukkede i dialogen med kommunen efter feltturen. Skal vi fremadrettet have etableret mange Intelligente Bufferzoner er vores vurdering at der bør gives nogle forbedrede vejledninger til kommunerne omkring hvornår de kan dispenseres. Det vil være skidt for vandmiljøet og en hindring for den målrettede indsats hvis beskyttelseslinjer i fremtiden bliver en barriere for at lave gode miljøtiltag på markjord som bliver inddraget til miljøbeskyttelse.



Åbeskyttelseslinjen ved Sillerup Bæk markeret som blå område

Hvis dispensationen gives, så vil der i 2017 være 1-2 intelligente bufferzoner etableret i Sønderjylland.

Nyt fra BufferTech

Af Brian Kronvang og Sebastian Zacho

1. MSc Martina Skjellerudsveen (AU) har afsluttet sit speciale med projektet "Involving the farmer to improve the ecological status in surface waters".
MSc Mette Krogsgaard (AU) har afsluttet sit speciale med projektet "Topsoil removal and seed addition as a management tool to improve biodiversity in buffer strips".
MSc Britt Dalby (SDU) har afsluttet sit speciale med projektet "Enhancing phosphorus binding capacity in integrated buffer zones by addition of commercial ferric hydroxide" (læs mere herom i næste nyhedsbrev). Vi ønsker tillykke til dem alle tre.
2. Brian Kronvang er blevet inviteret til en konference i New Zealand som Key Note – Science and Policy:

Nutrient Management Challenges for the next generation – 7-9 February 2017, Massey University, New Zealand.

3. Næste projektmøde i BufferTech afholdes som en projekt workshop sammen med James Hutton Institute i Skotland i marts 2017.
4. BufferTech ved Brian Kronvang m.fl. holder et indlæg på Hydrologidagen i Odense den 27. oktober med titlen: 'De seneste erfaringer med betydning af intelligente bufferzoner til retention af næringsstoffer'.

Kommende arrangementer

Land Use and Water Quality Conference 2017

LUWQ2017 konferencen afholdes for 3. gang i Den Haag, Holland i perioden 29. maj til 1. juni 2017 (se <http://www.luwig2017.nl>). BufferTech har arrangeret en speciel session omkring randzoner:

'Session S1: Special Session on Multi-functionality of buffer strips for reducing edge of field losses of sediment, nutrients and pesticides and enhance biodiversity'. Der vil blive forsøgt at få arrangeret med et Special Issue i et internationalt videnskabeligt tidsskrift med artikler fra nogle af indlæggene. I spidsen for sessionen står Brian Kronvang, Bioscience, AU og Marc Stutter, James Hutton Institute med tilslutning af en session 5 (se herunder) foreslået af Joachim Rozemeijer, Deltare, The Netherlands.

De foreslåede emner i sessioner er:

Topic S1-1: Sediment, nutrient and pesticide removal efficiency of traditional buffer strips

Topic S1-2: Biodiversity of buffer strips – how can it be enhanced?

Topic S1-3: New technologies applied in buffer strips for improving their nutrient retention

Topic S1-4: Can we reuse nutrients and biomass from buffer strips?

Topic S1-5: Edge of field reactors to catch N, P, and/or Pesticides from agricultural drainage and runoff

Hydrologidag 2016

Den 27. oktober 2016 afholdes Hydrologidag 2016 i Odense med temaet *Det åbne land, landbrug og hydrologi*

Formålet med Hydrologidagen er at skabe et nationalt forum for hydrologi som videnskab, der bygger bro mellem forskere og brugere hos Naturstyrelsen, regioner, kommuner, vandforsyninger og rådgivere.

[Du kan her læse mere om programmet, indlægsholdere og tilmelding.](#)

Følgegruppemøde i projekt BufferTech i København

Den 4. november afholdes Følgegruppemøde med Københavns Universitet som vært. På programmet er bl.a. de seneste resultater i forhold til reducere af kvælstof og fosfor, værdisætning af bufferzoner samt første resultater vedr. af høstning af kvælstof og fosfor og produktion af biogas.

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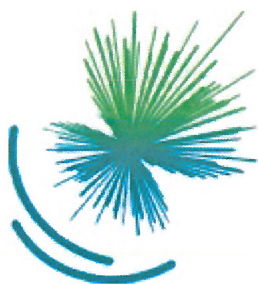
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