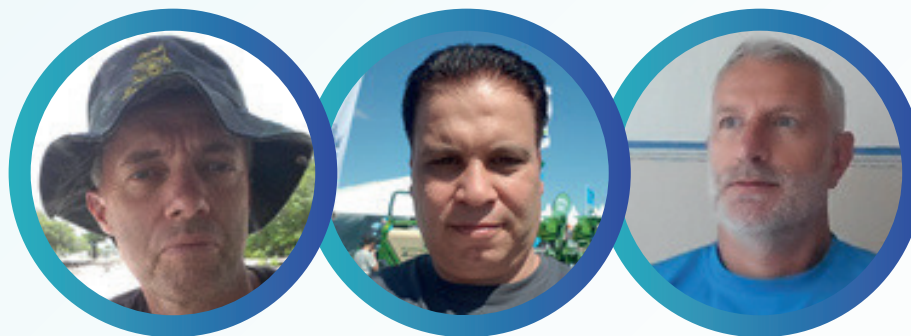


# Beslutningsstøttesystemer til planlægning på lokalt plan



**Mats Söderström, Omran Alshihabi, Faruk Djodjic**  
Sveriges Landbruksuniversitet

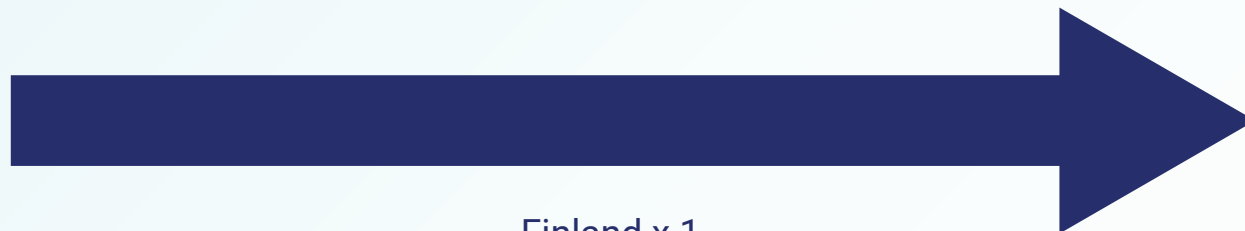
# Multifunktionalitet, sund jord

Kan vi præsentere avancerede modelleringsdata for slutbrugere, og gøre dem tilgængelige og anvendelige i en beslutningsstøtteproces i denne sammenhæng – kvantificering af effekter af tiltag i felt/inden for feltet skala?

**Virkninger af foranstaltninger på næringsstofftab reduktion fra (tilpasset) modellering**

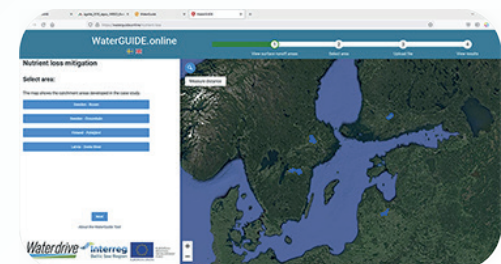
**Nedskalere til lokalt niveau ved hjælp af meget detaljeret digital geografiske data og automatiserede metoder**

**Gør dataene tilgængelige til slutbrugeren – rådgivere, landmænd, i en interaktiv system**



Finland x 1  
Latvia x 1  
Sweden x 2

**WaterGUIDE.online**



(Holger Johnsson,  
Kristina Mårtensson, et al)

Efterafgrøder, strukturelle  
kalkning, bufferzoner  
Modellering af reduktion  
virkninger på det regionale  
niveau

(Faruk Djodjic et al)

Vådområder, erosionsrisiko,  
flow akkumulering  
Modellering på  
lokalt niveau

Meget detaljeret  
data om jordstruktur,  
organisk jord,  
topografi, felter

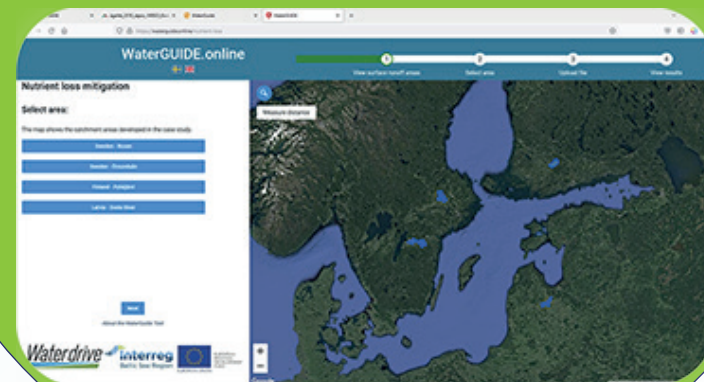
WP4 Økonomisk,  
rumlige aspekter

(Emma Svensson,  
Magnus Bång et al)

(Kristin Piikki et al)

Funktioner  
til nedskalering

Geografiske data  
og brugergrænseflade



Kilde | <https://waterguide.online/nutrient-loss>

# WaterGUIDE.online



## Nutrient loss mitigation

### Select area:

The map shows the catchment areas developed in the case study.

Sweden - Roxen

Sweden - Örsundaån

Finland - Pyhäjärvi

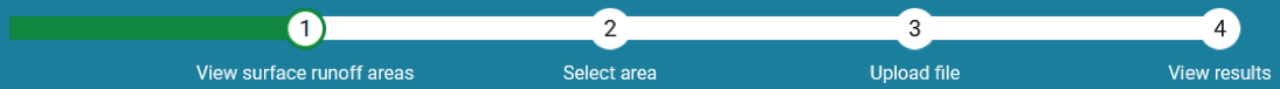
Latvia - Svete River

Next

About the WaterGuide Tool



# WaterGUIDE.online



## Nutrient loss mitigation

### Select area:

The map shows the catchment areas developed in the case study.

- Sweden - Roxen
- Sweden - Örsundaån
- Finland - Pyhäjärvi
- Latvia - Svete River

Next

About the WaterGuide Tool



# WaterGUIDE.online



## Nutrient loss mitigation

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Sweden - Roxen

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Finland - Pyhäjärvi

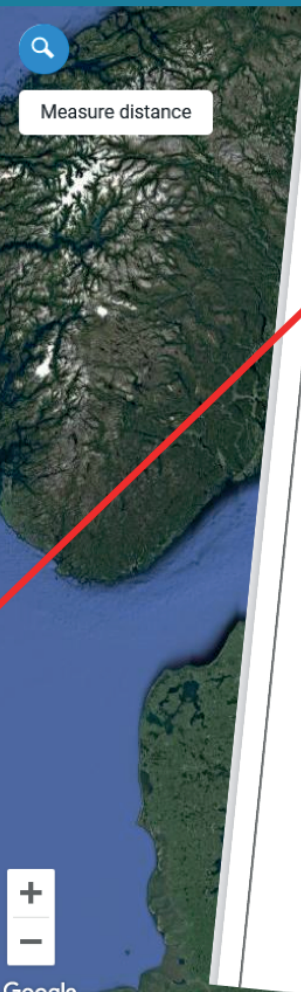
Latvia - Svete River

Next

About the WaterGuide Tool



Measure distance



version 2021-11-05

## WaterGUIDE.online – Nutrient loss mitigation Manual and training material

Read the text in the box below before you use the system

This decision support tool was developed by the Swedish University of Agricultural Sciences (SLU) within work packages 3 and 4 in the Interreg Baltic Sea Region Programme project Waterdrive in collaboration with a number of project partners.

**Please note: The decision support tool is provided as is, the information presented is not guaranteed to be error free, and in most cases it was generated in a more general scale than the field level. The authors do not take any responsibility for the use of the tool; all users are solely responsible for any decisions made based on the tool. The intended users of this tool should be well acquainted with local field conditions, and the information provided. It is recommended that you go through this document before general use. The tool shall be regarded as working material, which provides information for discussion that exemplifies how various types of data related to nutrient loss from arable land can be presented to users (e.g. farmers, advisors and authorities) at the field scale, or even within-field scale. All numbers of costs and payments mentioned are only examples in the system, and should be used only for testing the system. Please read information material before using the tool. Remember that changes of the tool can be made at any time since it is a developing product within the Waterdrive project.**

Read more about Waterdrive, and WP3 and WP4 here: <https://water-drive.eu/about/>  
More project info here: <https://projects.interreg-baltic.eu/projects/waterdrive-194.html>

Read more about R&D on decision support systems at SLU: <http://www.slu.se/LADS>

Contacts:  
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Omran Alshihabi, SLU, omran.alshihabi(at)slu.se  
Faruk Djodjic, SLU, faruk.djodjic(at)slu.se



# WaterGUIDE.online



## Nutrient loss mitigation

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Sweden - Roxen

Sweden - Örsundaån

Finland - Pyhäjärvi

Latvia - Svete River

Next

About the WaterGuide Tool



version 2021-11-05

Start – and find your field (Sweden, Finland, Latvia)

Open <https://waterguide.online/nutrient-loss>

WaterGUIDE.online

Nutrient loss mitigation

Select area:

The map shows the catchment areas developed in the case study.

Sweden - Roxen

Sweden - Örsundaån

Finland - Pyhäjärvi

Latvia - Svete River

Select case study area. The system has more functions in the Swedish areas Roxen and Örsundaån. In the areas in Finland (Pyhäjärvi) and Latvia (Svete River) the functionality is limited due to differences in data availability. In this document we cover one of the Swedish areas on pages 1-10. Pages 3, 4, 5, 7, 10 are relevant if you choose a field in the case study areas in Latvia or Finland. In this training example, we click on *Sweden - Roxen*.

WaterGUIDE.online

Select demarcation

Search by block number

Example of block ids  
Sweden: 64784858152  
Finland: 8340145781  
Latvia: 44345-25013

The system only works on single agricultural fields. There are different ways of finding the block as it is denoted here) of your interest. You can search using the block-id (example of the system is shown above), to zoom directly to the field. You can also do it manually, for first using the search function to find a location, then zoom in to your field. Alternatively, map) on the block of interest to select it. In this example we fill in the block number 64784858152, and then click *Search*.

- Sådan, f.eks.:
- Find et felt
  - Opdel et felt
  - Upload egne data



## Measures against nutrient loss adapted to the characteristics of the field

Navigate the tabs to see the results.

Hide field boundaries

Soil texture, erosion risk    **Wetlands**    Structural-liming    Buffer zones    Catch crops

**Wetlands** ⓘ

Wetland (optimal area)

- 1.00 - 5.00 ha
- 0.50 - 1.00 ha
- 0.25 - 0.50 ha
- 0.10 - 0.25 ha

Wetland area (ha)	0.1
Reduced P-losses (kg/ha/Year)	77.6
N-reduction (kg/ha/Year)	465.6
Load P (kg/Year)	194.0
Load N (kg/Year)	3481.3
Cost (SEK/kg P/Year)	307.0
Cost (SEK/kg N/Year)	51.0
Upstream (ha)	71.7

- Resultatfaner:**
- Jordstruktur / erosionsrisiko
  - Vådområder
  - Strukturel kalkning
  - Bufferzoner
  - Efterafgrøder



Previous    New search

About the WaterGuide Tool





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Previous    New search

About the WaterGuide Tool

**Resultatfaner:**

- Jordstruktur / erosionsrisiko
- Vådområder
- Strukturel kalkning
- Bufferzoner
- Efterafgrøder

**Output tabelldata, f.eks.:**

- N-, P-tabsreduktionseffekter
- Omkostninger
- Økonomisk kompensation





## Measures against nutrient loss adapted to the characteristics of the field

Navigate the tabs to see the results.

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Soil texture, erosion risk   **Wetlands**   Structural liming   Buffer zones   Catch crops

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Previous

New search

About the WaterGuide Tool



### Wetlands

This result tab contain modelled values for potential locations of selected field are shown to provide overview. This depends on the modelled information are interested in to display detailed information optimal size is shown):

- Wetland area (ha): Calculated optimal wetland size, based on a hydrological load where 100 m (100 m<sup>3</sup> water/m<sup>2</sup> wetland and year) is assumed to optimal. For run-off modelled values per sub-catchment are used. Only wetlands within a calculated optimal size range of 0.1-5.0 ha are displayed.
- P-reduction (kg/ha/year): Potential reduction in kg P/year in kg/ha wetland. Calculated according to Weisner et al. (2016).
- N-reduktion (kg/ha/year): As above but for nitrogen (N).
- Load P (kg/year): Load in kg P/year for the potential wetlands. Calculations are based on the average runoff and HELCOM Pollution Load Compilation 7 (PLC-7) type concentrations in the subcatchment (Hansson et al., 2019).
- Load N (kg/year): As above but for N.
- Cost (SEK/kg P/year): Potential cost in SEK/kg P/year for the wetland locations. Calculations are based on the following assumptions: a construction cost of 350,000 SEK/ha wetland and 20 years (17,500 SEK/year); maintenance cost 4,000 SEK/year; tenant costs depending on region (2,334 SEK/year where Roxen is location and 1,486 SEK/year where Örsundaån is located; from Statistics Sweden (SCB) in 2018).
- Cost (SEK/kg N/year): As above but for N.
- Upstream (ha): Calculated upstream drainage area in ha to a wetland location.

Please note: In reality, other locations for wetland may be more suitable due to local conditions not included in the modelling. The map shows the results from the modelling based on the data used and assumptions made.

More information in Djodjic et al. (2020)

Brug dokumentationen til forklarende tekst og referencer

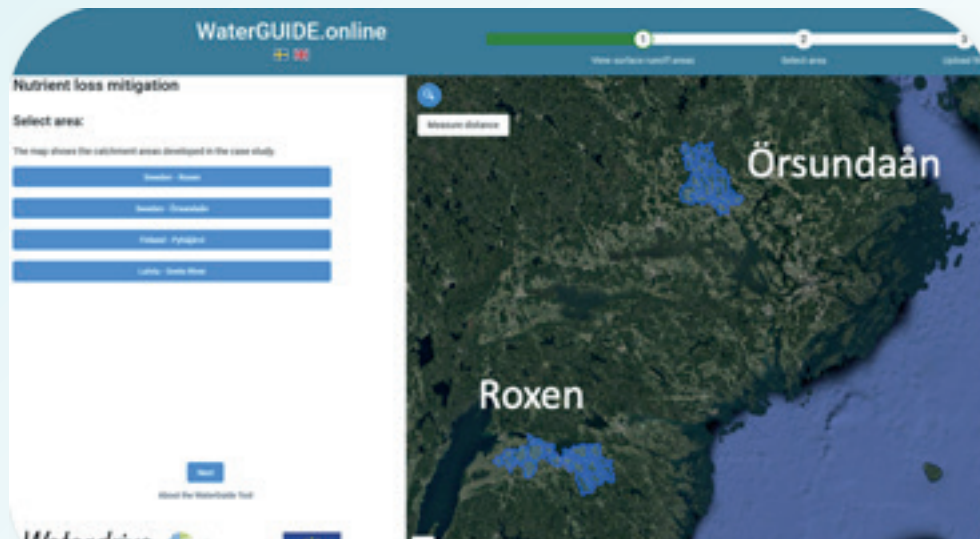
# Tilbage til regionalt niveau...

Regionale data

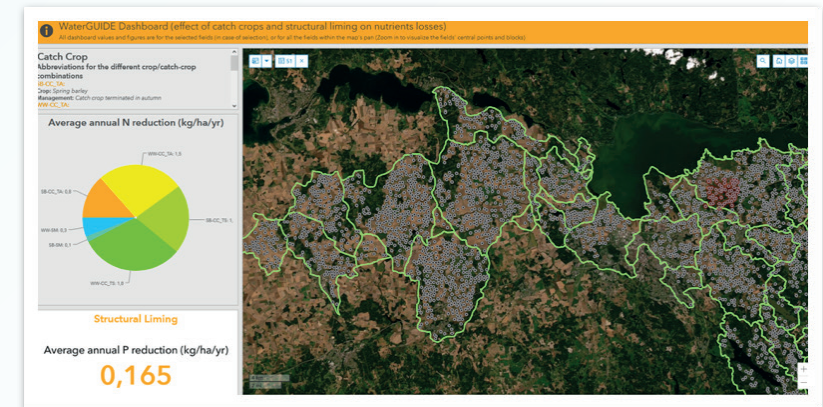
Nedskalering

Lokale data

Lokale data for regionale  
oversigt  
i et Dashboard



<https://waterguide.online/nutrient-loss>



[https://bit.ly/waterguide\\_dashboard](https://bit.ly/waterguide_dashboard)

**Roxen område:**

**3379 marker >2 ha dyrket mark**

**Örsundaån område:**

**2418 marker >2 ha dyrket mark**

**Eksempel: Effekt af**

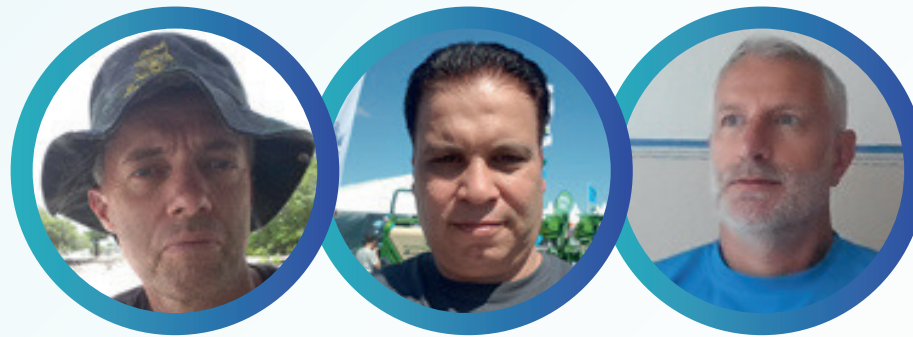
- dækafgrøder ved reduceret N-tab
- strukturel kalkning på reduceret P-tab

# Afsluttende bemærkninger

- Se dette som en prototype – ikke komplet, første forsøg
- Udfordring at nedskalere – både for forskere og brugere
- Kæmpe dataefterspørgsel – lokale data bør passe til modelleringen, der mangler en masse data
- Let at fejlfortolke – tests og træning nødvendig
- Velegnet til gruppediskussioner – én del af beslutningsstøtten, ikke den eneste
- Nye muligheder – når du starter, bliver nye muligheder/behov tydelige

<https://waterguide.online/nutrient-loss> | [https://bit.ly/waterguide\\_dashboard](https://bit.ly/waterguide_dashboard)

# Beslutningsstøttesystemer til planlægning på lokalt plan



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