

Päätöksen tukijärjestelmät paikallistason suunnitteluun



Mats Söderström, Omran Alshihabi, Faruk Djodjic

Ruotsin maataloustieteiden yliopisto

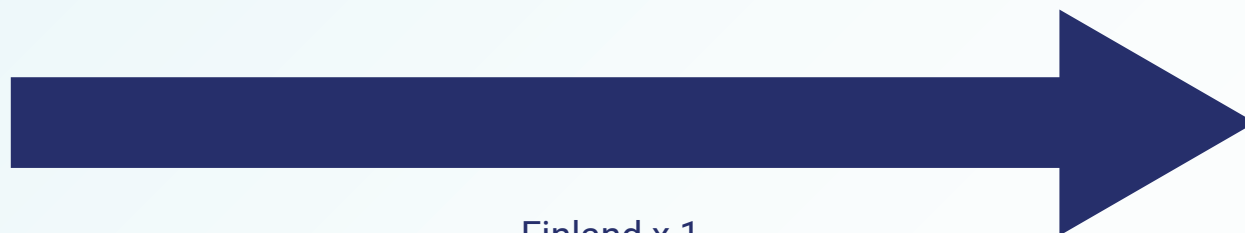
Monikäyttöisyys, terve maaperä

Pystymmekö esittelemään edistyneitä mallinnustietoja loppukäyttäjille ja tekemään niistä saatavia ja käyttökelpoisia päätöksenteon tukiprosessissa tässä yhteydessä – toimenpiteiden vaikutusten kvantifiointi kentällä/kentän sisällä?

Effects of measures
on nutrient loss
reduction from
(adapted) modelling

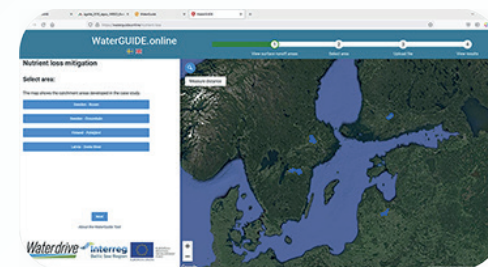
Pienennetään paikallista
tasolla käyttämällä erittäin
yksityiskohtainen digitaalinen
maantieteelliset tiedot
ja automatisoidut menetelmät

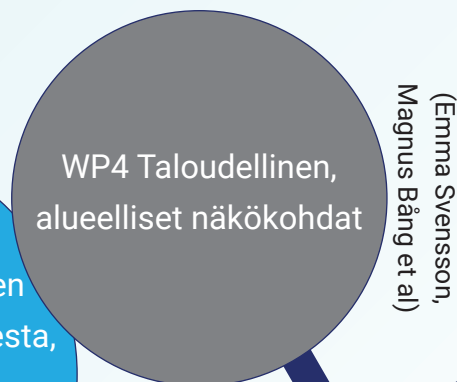
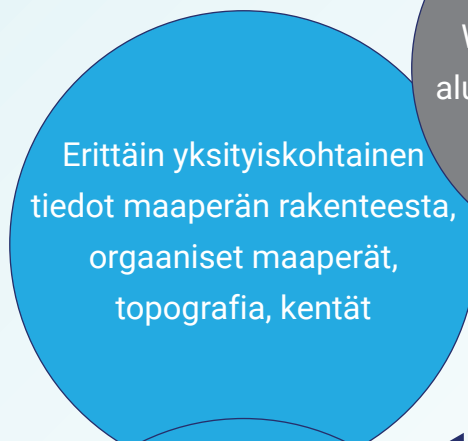
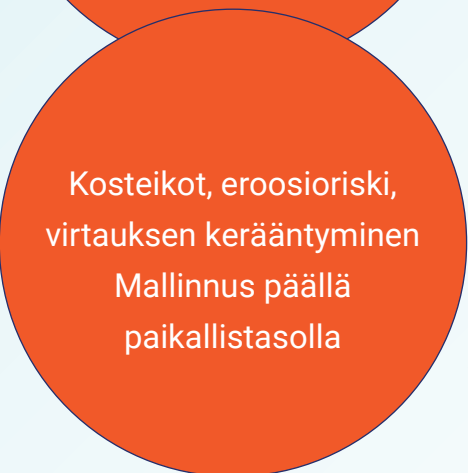
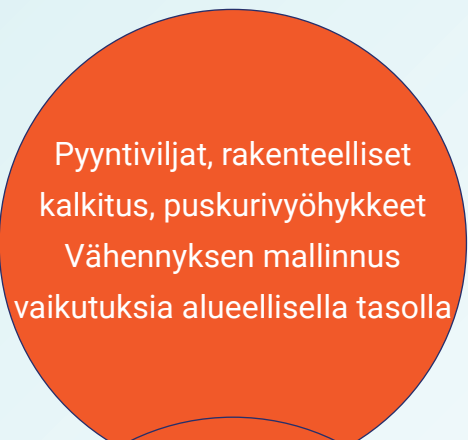
Aseta tiedot saataville
loppukäyttäjäll
– neuvonantajat,
viljelijät interaktiivisessa
muodossa
järjestelmä



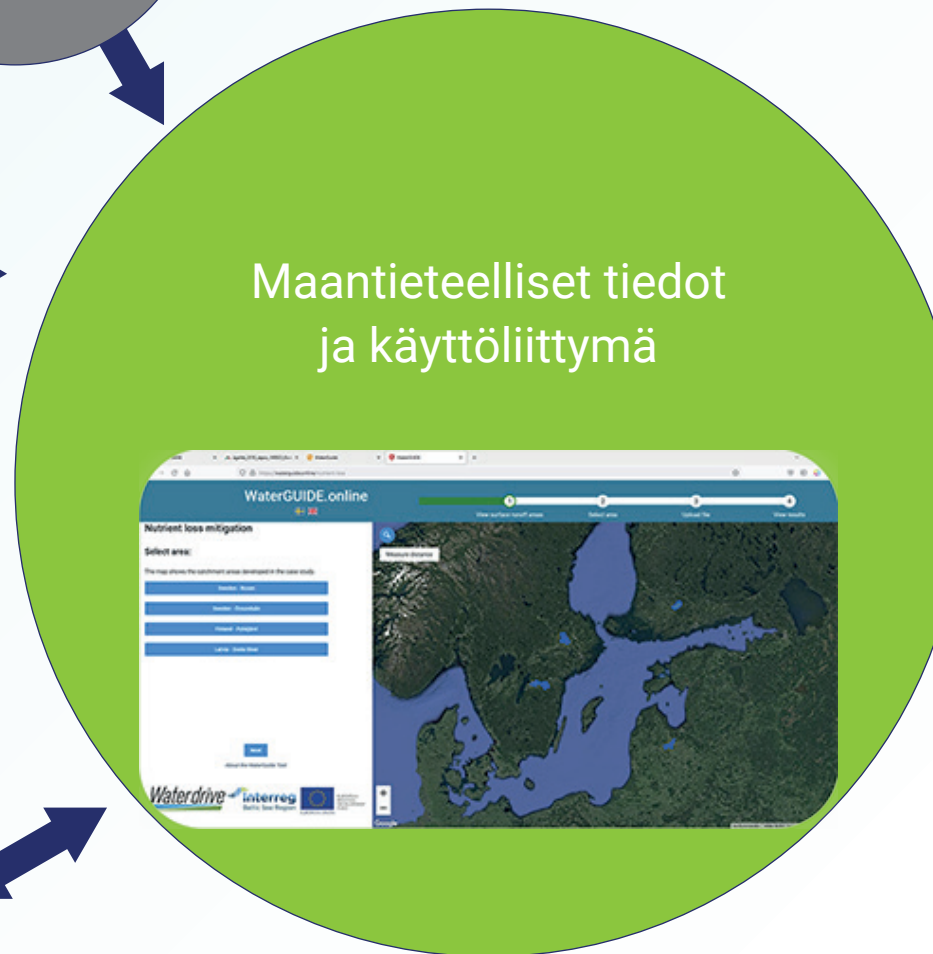
Finland x 1
Latvia x 1
Sweden x 2

WaterGUIDE.online





(Emma Svensson,
Magnus Bång et al)



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

WaterGUIDE.online



1

2

3

4

View surface runoff areas

Select area

Upload file

View results

Nutrient loss mitigation

Select area:

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

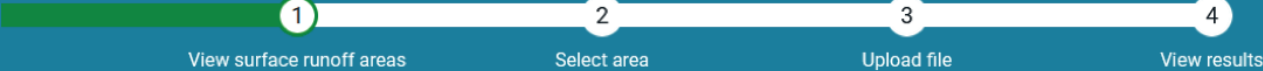
- Sweden - Roxen
- Sweden - Örsundaån
- Finland - Pyhäjärvi
- Latvia - Svete River

Next

About the WaterGuide Tool



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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

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About the WaterGuide Tool



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Nutrient loss mitigation

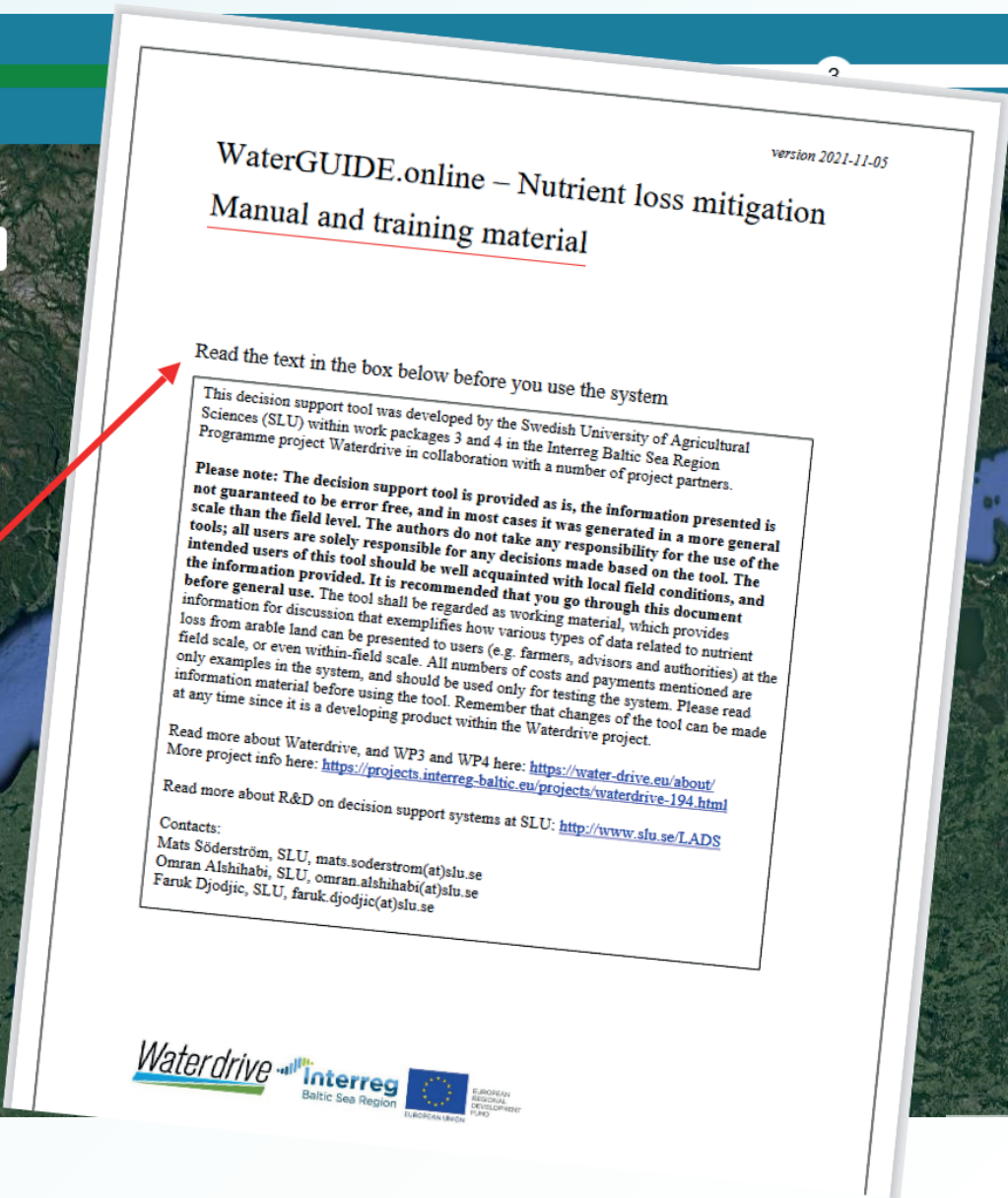
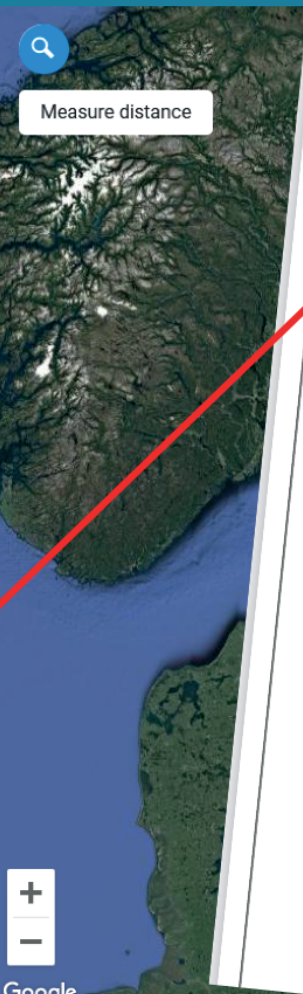
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About the WaterGuide Tool



WaterGUIDE.online – Nutrient loss mitigation

Manual and training material

version 2021-11-05

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 tools; 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>

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Nutrient loss mitigation

Select area:

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

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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

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About the WaterGuide Tool

Measure distance

Waterdrive

interreg

Baltic Sea Region

EUROPEAN UNION

EUROPEAN REGIONAL DEVELOPMENT FUND

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

There is an area given to enter the point name or location in the search bar. The background map will help you find your way. Click above the map, and then click the field or area you want to search with up to 100 characters on the map.

Search by block number

Enter the block number (e.g. 64784858152)

Example of block ids

Sweden: 64784858152

Finland: 8340145781

Latvia: 44345-25013

Search

Waterdrive

interreg

Baltic Sea Region

EUROPEAN UNION

EUROPEAN REGIONAL DEVELOPMENT FUND

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, entirely manually, then click on Show blocks (you must be zoomed in to do this), then click (in the map) on the block of interest to select it. In this example we fill in the block number 64784858152, and then click Search.

- Miten esim.:
- Etsi kenttä
 - Jaa kenttä
 - Lataa omat tiedot

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

Previous

New search

About the WaterGuide Tool

Tulosvälilehdet:

- Maaperän rakenne/eroosioriski
- Kosteikot
- Rakennekalkitus
- Puskurivyöhykkeet
- Pyydä satoa



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

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Tulosta taulukkotietoja, esim.

- N-, P-häviötä vähentävät vaikutukset
- Kustannukset
- Taloudellinen korvaus



Navigate the tabs to see the results.

Hide field boundaries

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

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[Previous](#)[New search](#)

About the WaterGuide Tool



Wetlands

Käytä dokumenttia

Käytä dokumentaatiota selittävä teksti ja viitteet

- Wetland area (ha): Calculated optimal wetland size, based on a hydrological load where 100 m (100 m³ water/m² wetland and year) is assumed to be 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.
- ase note: In reality, other locations

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)

More information in Djodjic et al. (2020).

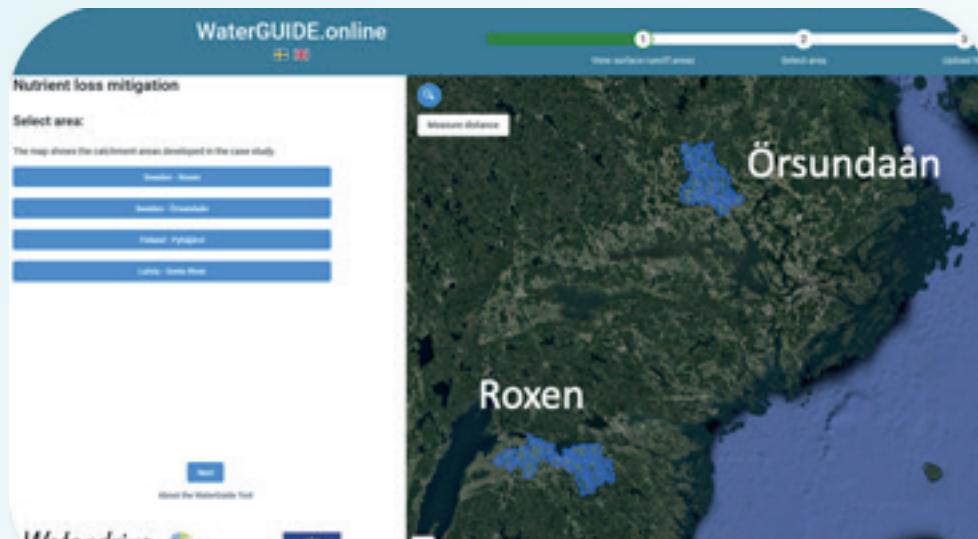
Takaisin aluetasolle...

Alueelliset tiedot

Skaalaus

Paikalliset tiedot

Alueelliset paikalliset tiedot
yleiskatsaus
kojelaudassa



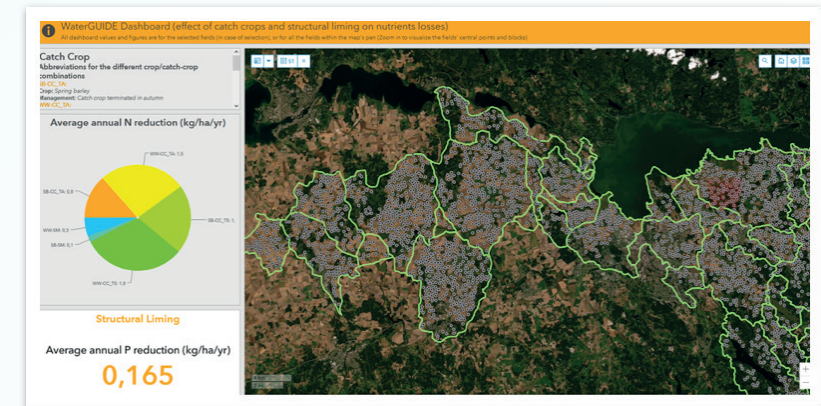
<https://waterguide.online/nutrient-loss>

Roxenin alue:

3379 peltoa > 2 ha viljelysmaata

Örsundaånin alue:

2418 peltoa > 2 ha viljelysmaata



https://bit.ly/waterguide_dashboard

Esimerkki: Vaikutus

- peittokasvit pienemmällä typen häviöllä
- rakenteellinen kalkitus vähentää P-häviötä

Päätelmät

- Katso tämä prototyyppinä – ei valmis, ensimmäinen yritys
- Haaste pienentää – sekä tutkijoille että käyttäjille
- Valtava tiedon kysyntä – paikallisen datan pitäisi sopia mallinnukseen, paljon dataa puuttuu
- Helppo tulkita väärin – tarvitaan testejä ja koulutusta
- Sopii ryhmäkeskusteluihin – yksi osa päätöksentekoa, ei ainoa
- Uudet mahdollisuudet – kun aloitat, uudet mahdollisuudet/tarpeet tulevat ilmeisiksi

<https://waterguide.online/nutrient-loss> | https://bit.ly/waterguide_dashboard

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