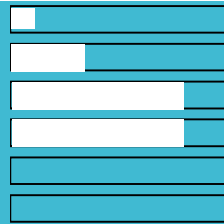


# Iron coated sand filter

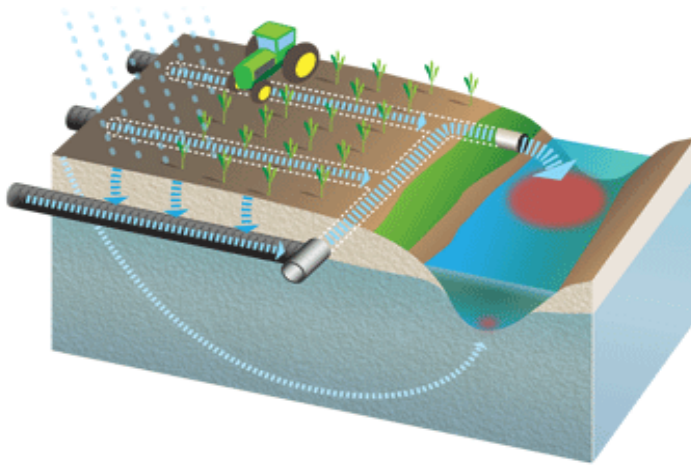
Phosphorus removal from drained agriculture fields



Price: € 1,000-6,000 + € 60/y  
 Flow: 6-8 m<sup>3</sup>/d  
 PO<sub>4</sub>-P removal  
 Total P removal  
 NO<sub>3</sub>-N removal  
 OM removal

## Problem

Direct phosphorus (P) discharge towards the surrounding water due to high P content in soil

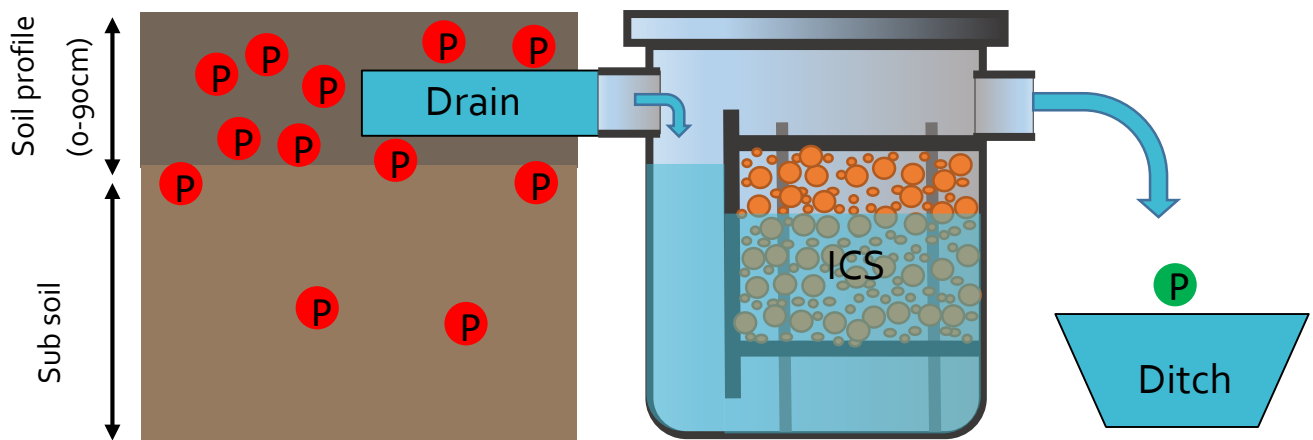


## Solution

To install Iron coated sand (ICS) filter at the end of drainage pipes



## Mechanism of the filter

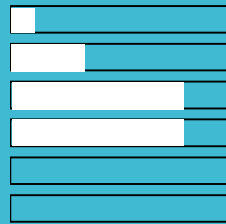


P is removed from water by absorbing into ICS



# Iron coated sand filter

Phosphorus removal from drained agriculture fields



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Total P removal  
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OM removal

## Conditions for installation and application

### Advantage



- + Low-tech solution: easy installation and operation
- + High P removal efficiency
- + Low cost of filter materials: ICS is industrial by-product
- + No impact on accessibility and landscape
- + Causes no other contaminations

### Disadvantage



- Only applicable for individual drains
- Filter materials may need to be replaced every 2-3 years
- Mostly remove dissolved reactive P
- No P recovery

### Budget



Drainage water from agricultural fields (up to 6-8 m<sup>3</sup>/day)



**Simple filter cost:**  
€ 1000/ ha (10 filters/ ha  
for 10 years)

**Custom-designed filter cost:**  
€ 6000/ ha (10 filters/ ha for  
10 years)



**ICS cost:** €60/year/ ha (assuming a 2 year lifespan of filter materials)

### Important



Efficiency of P removal strongly depends on P levels of water, hydraulic load filter and ICS filter service life.

### Legal



After efficient P removal, the content of drainage water is lower than 0.1 mg P L<sup>-1</sup> meeting the EU standard.

### DISCLAIMER

*This fact sheet is informative. NuReDrain has done efforts to assure the given information is correct at the time of publication. NuReDrain cannot be held responsible for decisions taken based on this information. This document reflects the insights of the authors.*