

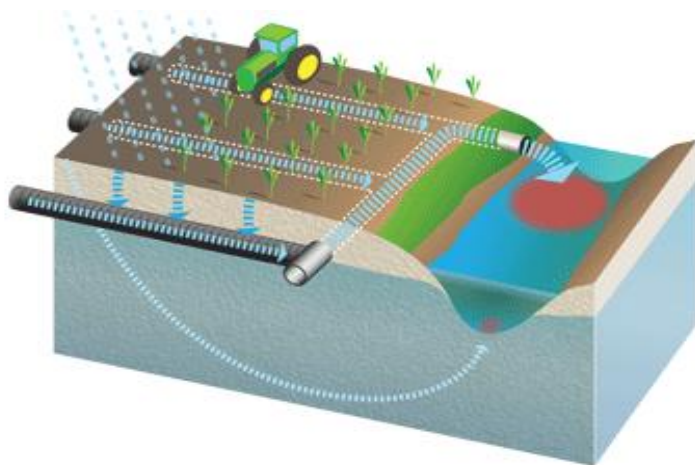
# Iron coated sand filter

Phosphorus losses 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

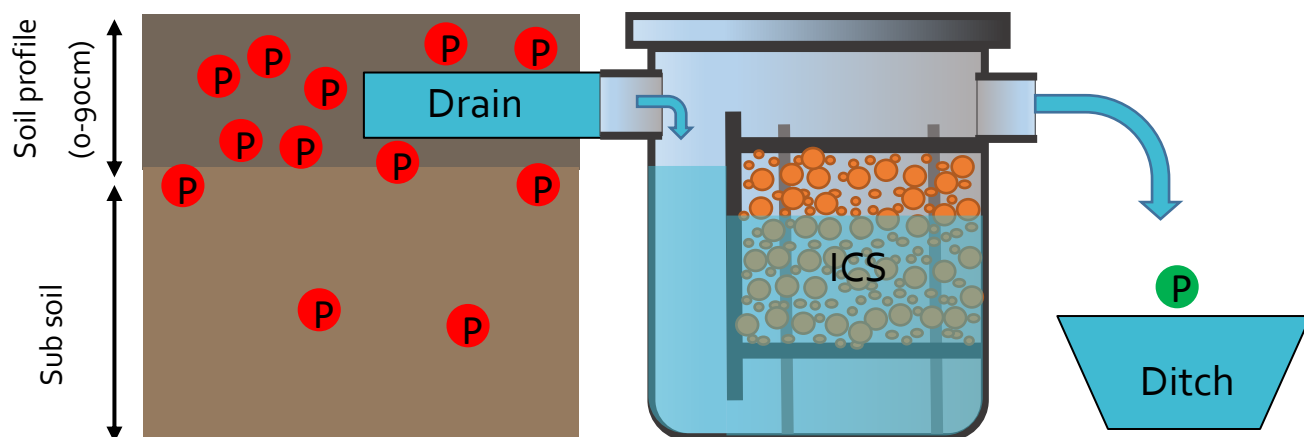


## Solution

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



## Mechanism of the filter

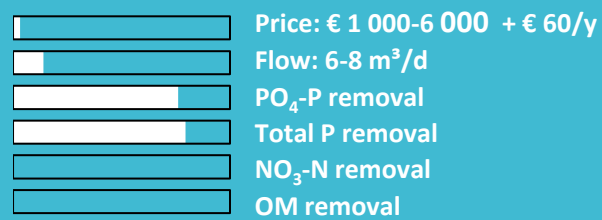


P is removed from water by absorbing into ICS



# Iron coated sand filter

Phosphorus losses from drained agriculture fields



## 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

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