

Optimised nutrients recycling

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Smart Agricultural tools – Just launched!



Quali Agro



&
other
programmes

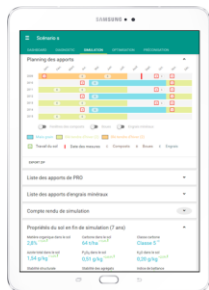
SEDE VEOLIA



~1.5 Mt/y OW
valorised in FR
~20 kt P₂O₅



SoilDiag V0



SoilAdvisor V1

Soil diagnosis
in-situ

Simulation with tech.
itinerary, soil & climate
data

Estimation of the
nutrients' lack in relation
to the target

Optimisation of the
fertilisation plan

Recommendations
to the farmer

- ❖ NIR Spectrometer
- ❖ Calibration and validation of the models based on 64 plots in France

- ❖ Simulation model Century – created by Parton et al. (1987), CSU (Colorado State University)
- ❖ Optimisation algorithm developed in partnership with Innovation 24.

➤ *Helping farmers optimising organic and mineral fertilisation*

➤ *Optimising the usage of the recycled (and new) nutrients*

STRUVIA™ full-scale installation

Helsingør WWTP (DK) by **KRÜGER** **VEOLIA**

- 76300 PE design, actual load ~50 %
- 15 kg/d P-PO₄ in sludge digestion dewat. liquor

Reactor

Chemicals

Struvite
draining

- Struvia solution
 - Very compact, robust, low cost solution
 - ~90 % P-PO₄ removal
 - ~100 kg/d struvite
 - Product approved by Danish EPA as a fertiliser in Denmark and by REACH
 - Working on fertiliser formulations with SEDE-ADS (Veolia's subsidiary)
 - Looking for a local user to minimise transportation



Upgrading phosphorus recovery

Objective:

20 – 25 % recovery



> 50 % recovery

- Boosted dissolution of P, biology based, without dosing of mineral acids
- Evaluation of recovery of phosphorus in precipitated forms other than struvite: targeting higher interest products for fertiliser producers and lower operational costs
- Tertiary recovery of P
- Various pilot projects:

Scotland, part of the Phos4You project.
In partnership with the ERI, Scotland.



Lille, France, part of the Phos4You project.
In partnership with the IRSTEA, France.



Schönebeck, Germany – PhosForce project.

Consortium:

- Veolia
- MEERI, Poland
- UNL, Portugal

Funding  RawMaterials