



Original thinking... applied

# Plant Uptake Factor (PUF)

The Test and Ring  
Trial Progress



## A Brief Overview

Our CCSS Fate team are currently involved in a project designed to develop an OECD guideline for a Plant Uptake Factor (PUF) study. We have been involved in the various discussions and trial stages since 2014, and recently took part in the most recent round of ring trials, presented at SETAC by the project coordinator. CCSS have also performed commercial PUF studies, each in accordance with the latest version of the guideline which has changed over the years.

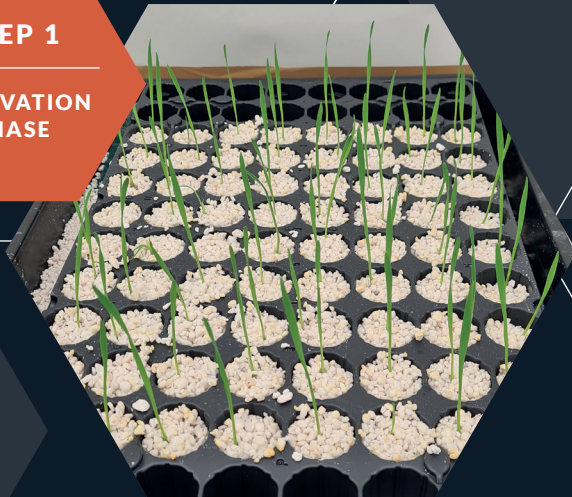
The plant uptake factor (PUF) is a parameter used to describe the potential for plants to take up substances from the soil pore water via their root systems. This quantity of substance is therefore not susceptible to leaching processes into groundwater. Consequently, the PUF can be a crucial modeling parameter with a high impact on exposure and therefore regulatory decision making.

The transpiration stream concentration factor (TSCF) is the ratio of the concentration of substance in the transpiration stream to that in the soil pore water, and is used as a surrogate for the PUF. Environmental fate models used for regulatory risk assessment (e.g. PEARL, PELMO and PRZM) simulate the plant uptake of active substances and their transformation products from soil pore water by considering the TSCF value.

The proposed outcome of the project is to produce a technical guidance on how to determine the potential of substances for uptake via the root system into the above ground-level parts of the plant. The round robin test was set up to compare reproducibility of the proposed experimental design between different laboratories.

### STEP 1

#### CULTIVATION PHASE



### STEP 2

#### PRE-CONDITIONING



### STEP 3

#### MAIN TEST PHASE



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