

Subject: Proposed EU limits on cadmium (Cd) in phosphate fertilizers – Erik Smolders acknowledges no dispute with the Wageningen Research group (Smolders, 2017; Römkens et al., 2017)

Attention to: Members of the European Parliament, the European Commission, and the European Council

Dear Madame/Sir,

The Commission and the Parliament have proposed cadmium (Cd) limits in mineral fertilizers, transitioning from 60 (Cd-60 scenario) to 20 mg Cd/kg P₂O₅ (Cd-20 scenario) over a 16-year period. These limits are based on the conclusion of an impact assessment study that stated that fertilizers containing 20 mg Cd/kg P₂O₅ or less would unlikely lead to long-term accumulation in EU soil. The rationale for the proposed limits is further supported by WHO/EFSA findings stating that some societal groups are meeting or exceeding acceptable cadmium levels.

These findings are supported with a recent modelling study by Römkens et al. (2017), Wageningen University and Research. The study finds Cd to accumulate in soils even in a business-as-usual scenario and to become more pronounced with a Cd fertilizer content equal or larger than 20 mg/kg P₂O₅. The predicted average changes in the soil Cd content at country level after 100 years vary from 0% in case of the Cd-0 scenario to +12% in case of the Cd-60 scenario for arable soils compared to current levels in arable soils. These findings somewhat contrast earlier findings by Six and Smolders (2014) and Smolders (2017), which found that the stand-still scenario in average EU soils to be 73 mg Cd/kg P₂O₅ and with about 21% decrease of soil Cd under the Cd-20 scenario.

% change in soil Cd after 100 years at actual EU average fertiliser Cd	Smolders (2017)	Römkens et al. (2017)
Business-as-usual	-16	+6
20	-21	+4
40	-13	+8
60	-5	+12
80	+3	+16

It is important to note three major differences between their modelling approaches and predicted change in soil Cd after 100 years:

Approach differences	Smolders (2017)	Römkens et al. (2017)
Soil Data	Distribution of predictions from specific soil samples (2000; GEMAS)	Regionally explicit model based on spatial units (40.000 combinations)
Crop Data	Potato and wheat	True land use including all crops
Leaching factor	2.0 g Cd ha ⁻¹ yr ⁻¹ (EU-wide average leaching rate)	0.55 g Cd ha ⁻¹ yr ⁻¹ (EU-wide average leaching rate for arable soils)

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The role of science in informing decision making is an important one. Active dispute between experts and findings can potentially provoke difficulties in decision-making. We therefore consider it important for the members of the EU legislative bodies to bring to their attention that:

1. Erik Smolders has no dispute with the Wageningen Research group; both parties have overly stressed that the leaching is the most uncertain in the assessment and that, for both independent assessments, it is based on a model that is based on best available information. Erik Smolders had stressed the difficulty to proof the accuracy of models in the peer reviewed publication (Six and Smolders 2014) and engages himself as a co-author of the publication "A spatially explicit model to calculate Cadmium balances in agro-ecosystems in the EU-27: model description and scenario analysis" (Römkens et al., in final preparation). The manuscript will be submitted to a scientific journal before the end of the year for peer-review. That study had been funded by Phosagro and the European Environment Agency (Integrator model development).
2. Erik Smolders has provided feedback and input to the preliminary findings of the Wageningen study, published this summer and available online at www.saferphosphates.com.

Erik Smolders and Paul Römkens herewith confirm the above statement.

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Prof. Dr. Erik Smolders
Leuven University, Belgium
Date & Place:

.....
Dr. Paul Römkens
Wageningen University and Research (WUR)
Date & place:

Wageningen, 21-11-2017

Yours sincerely,

Members of Safer Phosphates