

THE 5th ANIMINE ACADEMY

Saturday, September 2nd, 2023

Radisson Blu Hotel Lyon (France)

Every 2 years, Animine organizes its scientific academy, a unique meeting point between the feed industry and academy. This cross-cutting event offers neutral and non-promotional topics with the aim of presenting the latest advances in mineral science to the public.



Chairman: Dr. Wilhelm WINDISCH
Technische Universität München (GERMANY)

Morning session:

8.30am-12.15pm



Animal sourced foods to fulfill mineral requirements of human populations

Dr Marta LOPEZ-ALONSO, Universidad de Santiago de Compostela (SPAIN)



Trace minerals added to agricultural soils by animal effluents: an ecotoxicological issue?

Dr Matthieu BRAVIN, CIRAD (FRANCE)

Ruminants

OR

Monogastrics



Mineral requirements : how to define and apply them?

Dr Bill WEISS, Ohio State University (USA)



Avian eggshell and bone mineralisation in long laying cycles

Dr Alejandro RODRIGUEZ NAVARRO, Universidad de Granada (SPAIN)



Challenges of copper metabolism in large ruminants

Dr Andrea CLARKSON, Nottingham University (UK)



Digestible Ca and P to optimize growth and bone ash in pigs

Dr Hans STEIN, University of Illinois (USA)

Afternoon sessions:

1.30pm-5.30pm

Trace minerals added to agricultural soils by animal effluents: an ecotoxicological issue?

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Abstract: Called trace minerals in animal nutrition or trace elements in soil science, their sustainable use from the feed to the food is a common interest of the two disciplines. This common interest is more particularly obvious about the potential ecotoxicological impact of trace elements given as feed supplements to animal and added to agricultural soils by animal effluent applications. Most trace elements are more concentrated in animal effluents than in soils in such a way that their repetitive applications to soils tended irreversibly to accumulate trace elements in soils. Global life cycle assessments (LCA) of this agricultural practice recently suggested a potentially high ecotoxicological impact on soils for some trace elements, copper and zinc more particularly. However, these conclusions are challenged by the theoretical and empirical knowledge concerning the biogeochemistry of trace elements in the agro-ecosystems. Accordingly, this presentation will aim at confronting the framework used in LCA for assessing soil ecotoxicity with the bioavailability theory and empirical evidences obtained in soil biogeochemistry. Although the LCA framework is roughly in line with the bioavailability theory, empirical evidences obtained in the past 15 years suggest that the protective effect of animal effluents on the ecotoxicity of trace elements accumulated in amended soils is not accounted for in LCA. This protective effect seems efficient to avoid ecotoxicological impact of trace elements over about a decade. However, trace elements accumulation in soils under an intensive rate of animal effluent applications could be at risk over a few decades. Accordingly, animal nutritionists, soil scientists, and plant physiologists would benefit to work all together to determine the set of levers able to maintain the concentration of trace elements in amended soils under ecotoxicological thresholds.