

Loads and fate of fertilizer derived uranium.

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Uranium (U) is a radiological and chemical toxic heavy metal. Uranium occurs naturally in soils, is applied with mineral phosphate fertilizers, and accumulates in agricultural land. Fertilization of crop plants with mineral phosphate fertilizers is by far the largest non point source of environmental uranium contamination. Depending of the production conditions and the type of phosphate fertilizers used the average annual loads amount to 5-15 g/ha U. It is well known that the soil-plant transfer of U is of no greater risk for contamination in the food chain. However, ground and surface water may be contaminated increasingly through erosion, run-off and leaching, and the quality of drinking water diminished. This keynote introduces the most recent research results on uranium hazards to biological systems, the widest overview on uranium concentrations in fertilizers, models the fate of fertilizer derived uranium in ecosystems and suggests sustainable strategies to reduce uranium in fertilizers for the benefit of environmental quality.