Universität Bremen

Ecological Seminar

Wednesday, 19th Jan 2022, 16:15 h, UFT 1790

Prof. Dr. Andreas Schäffer

Institute for Environmental Research
RWTH Aachen University

Gaps in the environmental risk assessment of pesticides

What would you answer to the question of which global problems threaten our environment and us humans the most, apart from the current pandemic, the effects of which will hopefully soon diminish? Climate change and biodiversity loss would probably be a common answer to this question. That's right: Both processes have truly dramatic and long-term consequences for our planet and are continuously monitored by the Intergovernmental Panel on Climate Change (IPCC) and that on Biological Diversity (IPBES) to advise policy makers with the latest scientific findings and proposed solutions. But: as a problem of equal global importance, the UN Environment Assembly and Governing Council has identified the worldwide pollution with chemicals and waste. All three processes are interrelated as "global threats" in many ways and influence each other. Recently, scientists proposed the establishment of a World Chemicals Council, with a mandate analogous to IPCC and IPBES to improve the exchange between science and policy and, thus, the global management of chemicals and waste[1].

The number and variety of xenobiotics amplified at an ever increasing rate during the last decades. More than about 150 million chemical substances are now listed in the Chemical Abstract Register, of which ca. 100´000 have been commercialized. Hundreds of million tons of these products are annually used of which many can be found as contaminants in soils, sediments, water, and air. Most environmental scientists agree that bioactive chemicals like pesticides threaten exposed organisms and communities on a regional, continental and global scale. Pesticides are used in intensive agriculture and are, thus, deliberately introduced into the environment in large amounts. As one example for the environmental impact, herbicides reduce the diversity and abundance of flowering plants and weeds. With this loss of food and habitat resources, the insect diversity and that of their consumers is not only reduced in biotopes of the field boundaries, but throughout the entire agricultural landscape.

With a focus on pesticides I will present gaps in their current environmental risk assessment: the discrepancy between single substance testing, the typical scenario for authorization studies, and fate and effect studies of mixtures, the disregard of further stress factors (multiple stress), and the gap in their persistence assessment.

M. Diekmann, J. Filser, M. Reich, M. Rohlfs

[1] DOI: 10.1126/science.abe9090