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Press Relation Officer: Martin Ittershagen

Deputy Press Relation Officer: Stephan Gabriel Haufe

PR-staff: Marc Rathmann, Martin Stallmann;

Office: Doreen Redlich, Uwe Weber

Telephone: +49 340 2103 -2122, -6625, -2250, -2507, -2669, -2637

Address: Federal Environment Agency, P.O. box 1406, 06813 Dessau-Roßlau

E-Mail: pressestelle@uba.de

Internet: www.umweltbundesamt.de

Facebook: www.facebook.com/umweltbundesamt.de



Pesticides can harm amphibians

Need for action on plant protection agents

Amphibians are the most endangered group of vertebrates worldwide. More than half of the frogs, toads and newts in Germany are also on the Red List of Threatened Species. The results of a current research project done on behalf of the Federal Environment Agency (UBA) indicate that the application of pesticides in agriculture is in part responsible for the disappearance of amphibians. Tests conducted by a research consortium showed that pesticides applied in conventional amounts led to mortality rates of 20-100 per cent in the common frog. "Amphibians inhabit agricultural landscapes and traverse this land in their migration to spawning grounds", said UBA President Jochen Flasbarth. "The study indicates the need for action. The Federal Environment Agency believes that the product authorisation procedure and agricultural practice must take greater consideration of the protection of amphibians."

Pesticides are only authorised in the EU after extensive testing of their environmental sustainability. UBA is the responsible body in Germany for environmental risk assessment. If it determines there are indefensible risks for the ecosystem, European law stipulates that these plant protection agents are not eligible for authorisation. Risk assessment for amphibians has not yet been part of the assessment scheme established at European level. As they migrate from one habitat to another, amphibians may traverse agricultural landscapes. Some species also inhabit fields and pastures outside of migration periods and may come into contact with plant protection agents while or after they are applied. UBA therefore commissioned a review of whether the assessments associated with the authorisation of plant protect agents take adequate account of amphibians' need for protection. The recently published research results point out the risk potential for amphibians exposed to plant protection agents.

Tests simulated the application of seven different products on the common frog (*Rana temporaria*) in an agricultural overspray scenario. Six of the tested products resulted in a mortality rate of 40-100 per cent. Three of the products were acutely toxic immediately upon contact at only one-tenth of the recommended label rate - 40 per cent of the animals died within seven days. The study did not, however, expose the underlying mechanisms of the toxicity of pesticides for frogs. The degree of impact seems to also depend on the solvents that have been added to pesticide products. The solvents are either toxic in and of themselves or enhance the absorption of active ingredients by the organism.

Risk assessment for wild animals has made great progress in the past thanks to research efforts and is now better adapted to actual circumstances in the landscape - with the exception of amphibians. The results of the study, which was done as part of a research project on the effects of pesticides on biological diversity, show how important it is to further reduce the use of plant protection agents and to create enough refuge areas for wildlife.

Jochen Flasbarth said, "Based on these results the UBA recommends revision of the EU guidelines on the risk assessment of pesticides. In addition to amendment of the authorisation procedure, habitats must be more closely interlinked and protective belts of water in agricultural landscapes must be laid out." The expansion of organic farming would also have a favourable effect as it shuns the use of chemical pesticides. These are also the goals of the reform of the common agricultural policy pursued by the EU Agriculture Commissioner. Ambitious implementation of the recommendations issued in Brussels would help to maintain amphibians.

Further information and links:

The study entitled *Terrestrial pesticide exposure of amphibians: An underestimated cause of global decline?* is the result of a research consortium headed by Dr. Carsten Brühl of the Institute for Environmental Sciences at the University Koblenz-Landau.

Study published in *Nature*:

<http://www.nature.com/srep/2013/130124/srep01135/full/srep01135.html>

Kommentar [m1]:

Press release of University Koblenz-Landau:

<http://idw-online.de/pages/de/news516411>

Kommentar [m2]:

Article in *Pour la Science* (in French):

http://www.pourlascience.fr/ewb_pages/a/actualite-amphibiens-la-mort-par-les-pesticides-31011.php

Kommentar [m3]:

Dessau-Roßlau, 01.02.2013