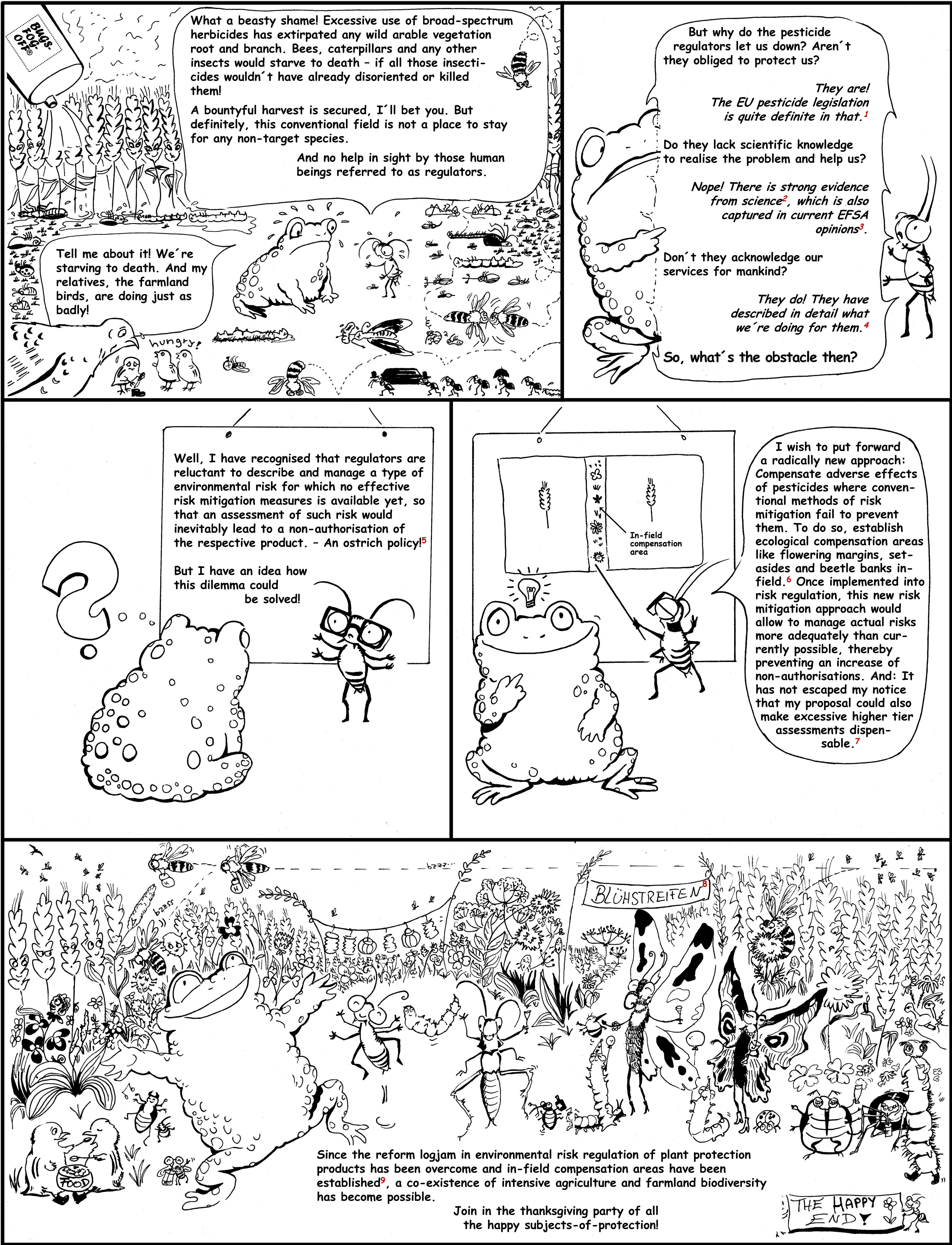


Eliminating Blind Spots in Risk Regulation of Pesticides

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ABSTRACT—Current environmental risk assessment (ERA) of pesticides overlooks a considerable part of existing risks and consequently fails to protect the environment from pesticide effects in toto. Two of such blind spots are risks to field-dwelling species including wild pollinators, amphibians and farmland birds as well as exposure to pesticides cocktails via tank mixtures and spraying schemes. Although scientifically well described and prominently discussed, eliminating these blind spots in the risk regulation has failed so far. We recognise that progress in ERA notably seems to be hampered for types of risk for which no effective risk mitigation measures are available, so that an assessment of such risks would inevitably lead to non-authorisations. To solve this conflict, we wish to put forward a radically new approach in risk management: Compensating adverse effects of pesticides where established methods of risk mitigation fail to prevent them. Once implemented into the iterative process of risk assessment, such new risk mitigation approaches would allow to manage actual risks more adequately than currently possible, thus preventing an increase of non-authorisations. It has not escaped our notice that our proposal could also make excessive higher tier assessments dispensable, thereby helping to solve the problem of the increase of complexity in ERA.

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ENDNOTES

- (1) Regulation (EU) 1107/2009 stipulates that a PPP ‘shall have no unacceptable effects on the environment...’. Inter alia, ‘its impact on non-target species’ and ‘its impact on biodiversity and the ecosystem’ has to be considered. According to Reg. (EU) 283/2013 this includes ‘potential indirect effects via alteration of the food web’. A general principle for decision making is to ‘ensure that use of plant protection products does not have any long-term repercussions for the abundance and diversity of non-target species’ (Reg. EU 546/2011).
- (2) Since more than two decades it is established that indirect effects of PPP via alteration of the food web is one of the most relevant reasons of loss of biodiversity in agricultural landscapes. Regarding farmland birds, this has currently been reviewed comprehensively (Jahn et al. 2014).
- (3) The recently published scientific opinions on the science behind the ERA for non-target arthropods and non-target plants (EFSA PPR Panel, 2015, 2016) discuss the evidence and relevance of indirect effects, considering NTA or NTTP as key drivers of a ‘food web support’ for higher trophic levels such as farmland birds. It is confirmed that indirect effects should be considered in future ERA.
- (4) The ‘Scientific Opinion on the development of specific protection goal options’ (EFSA PPR Panel, 2010) has set the starting point for the implementation of an ecosystem-services-based approach in risk regulation which aimed at making general protection goals such as biodiversity operational for use in the ERA. ‘The PPR Panel identified those ecosystem services which could potentially be directly or indirectly (e.g. via trophic interactions) affected by the normal agricultural use of plant protection products and identified the groups of organisms which constitute the most important key drivers for those ecosystem services to address the potential environmental risks of plant protection product use resulting from normal agricultural practice’.
- (5) According to our interpretation, this is the main reason why – irrespective of an unambiguous legal obligation – the existing in-field effects on arable plants and insects and the indirect effects on farmland bird populations resulting from that have not yet been implemented in the risk assessment of PPP. The still pending adoption of the EFSA bee guidance document (GD) could be interpreted as another example of this phenomenon: The EFSA GD suggests implementing an assessment of the risks to wild bees – which is rejected by some stakeholders due to potential impacts on the authorisation of PPPs.
- (6) As a result of two MAGPie workshops in 2013, a toolbox of possible risk mitigation measures in agro-ecosystems has been developed, including mitigation measures to compensate for indirect effects of PPP use (publication by SETAC press announced for 2016, Alix et al., 2015). Jahn et al. (2014) have systematically reviewed the suitability and feasibility of various compensation measures, based on practical experiences in Germany.
- (7) An increase of complexity is observable in the ERA of PPP, partly due to applicants’ investments in an extensive higher tier ERA in order to defend their product by all means possible. At a workshop held in November 2015, experts from assessment authorities of 13 MS, EFSA and COM have discussed the extent to which this trend (i) is appropriate or is disadvantageous for the environment, (ii) overly binds capacities in competent authorities, and (iii) places excessive demands on the risk communication (Duquesne et al., 2016: “Outcomes of the workshop „Reflecting on the increasing complexity ...”, poster presented at this conference). In the workshop, it was also brought forward that complex higher tier ERA could be partly avoided by implementing additional options of risk mitigation measures in the ERA process.
- (8) German for flowering margin / flowering strip.
- (9) In practice, ERA of PPP is an iterative process: When a standard assessment indicates a high risk, the risk is recalculated considering available risk mitigation measures until a safe use is established. E.g., in the RA for surface water buffer zones of different widths are considered. We suggest adding compensation measures to the toolbox of quantitative risk mitigating measures routinely used in the PPP risk assessment for non-target plants, arthropods and pollinators in particular (thereby accounting for foodweb effects on farmland birds as well). To our understanding, this innovation in risk regulation of PPP will be essential to ensure that we reach the legal protection aims.

Let your children colour in this comic strip and explain the content to them. You don't need to be an expert in PPP risk assessment to realise the need for action!

Artwork by alexasabarth.de