



Pesticide Discussion Forum Summary Digest

Issue 11: Protecting pollinators from pesticides: Urgent need for action

Pollinators are not only essential for fruit, vegetable, oilseed, and forage production, but also to produce seeds for many root and fibre crops. Pollinators additionally contribute to the production of medicines, biofuels (e.g., canola and palm oil), fibres (e.g., cotton and linen) and construction materials (e.g., timber). Furthermore, the livelihoods and economies in many rural communities are based on beekeeping and honey hunting. The large importance of pollinators for both wild and cultivated plants, means that they are fundamental to maintaining ecosystem services and upholding global biodiversity. Bees and insect pollinators can be exposed to pesticides used in agriculture (or disease vector control) in various ways, including direct over spraying, ingestion of contaminated pollen, nectar, or honeydew, and contact with residues on foliage or flowers. Pesticides have also shown a broad range of lethal and sublethal effects on insect pollinators, particularly on bees. These consist of direct mortality of the insects, but also adverse sub-lethal effects such as impaired foraging, reduced brood success, or perturbed homing ability. Pesticide use has been among the top-3 drivers of pollinator decline in almost all parts of the world, together with habitat destruction and intensive (agricultural) land management. Elaborating, adopting, and implementing coherent and comprehensive national policies which enable and foster activities to safeguard and promote wild and managed pollinators, is greatly needed.

This document is a summary of the University of Cape Town's Division of Environmental Health's Pesticide Community of Practice held on November the 3rd 2022, titled: "Protecting pollinators from pesticides: Urgent need for action". This digest presents the issues and points raised, and the information shared by participants in response to three questions prepared by the presenters, Harold van der Valk and Kim-Anh Tempelman. Kindly see summary of the PDF that took place on the 3rd of November: A total of 72 participants joined the live discussion and 1 individual blogged their responses. From the members who attended, 75% were from Africa, 10% from Latin America and the Caribbean, 7% from Europe, 4% were from North America, 3% from Eastern Mediterranean, 1% South-East Asia.

About the Presenter



Harold van der Valk worked for the Food and Agriculture Organization of the United Nations (FAO) from 1988 until 2000. He was originally based in Rome (Italy), where he was involved in insecticide use in locust control. Thereafter, he moved to Dakar (Senegal) where he worked for the "Locustox programme", which conducted research in West Africa on the environmental and human health side effects of locust control. He set up a small local research institute (now the CERES/Locustox Foundation) and trained a large number of scientists and technicians in environmental impact studies. His next position at FAO was in Bamako (Mali), where he provided technical support to the Sahelian Pesticides Committee (CSP) and the regional pesticide registration board of the CILSS member states.



Kim-Anh Tempelman worked most of her professional life on promoting the sustainable use and conservation of biodiversity for food and agriculture at national regional and global levels. She worked with the Food and Agriculture Organization of the United Nations (FAO), the biosafety unit of Convention on Biological Diversity, Biodiversity International and the Norwegian Institute of Bioeconomy Research. Kim-Anh currently works in FAO's Pest and Pesticide Management team as coordinator of the EU-funded ACP MEAs 3 capacity building programme. ACP MEAs 3 aims to support countries in Africa, the Caribbean, and the Pacific to develop an institutional and policy environment conducive to sound pesticide and biodiversity management in agriculture.

DISCLAIMER: The information below represents the opinions of members participating from different countries expressed during the discussion and shall not necessarily be taken to reflect the official opinion of the DEH, UCT, FAO, or KemI.

PRESENTED BELOW ARE THE THREE QUESTIONS AND RESULTING DISCUSSION INPUTS FROM PARTICIPANTS:

Question 1: Do you have examples of bees killed by pesticides, or pollinators experiencing other adverse effects from pesticide exposure, in your country? (Indicate when this happened (year), the extent of the damage it caused, which pesticide was involved, and which crop was affected. List your country in your response)

CAMEROON

- Beekeeping is an important activity for livelihood, particularly for those who are not involved with agriculture and forest exploitation.
- Hive products and pollination contribute to poverty alleviation and environmental protection.

GUYANA

- In 2012, tomato farmers were complaining of the tomato flowering but with no fruits. After investigation, the lack of fruits could be attributed to the use of pesticides like methomyl and oxamyl. In addition, physical observation indicated there was a low insect population in the area, including pests.

KENYA

- Reduced bee numbers have been associated with reliance on pesticides in Kenya.
- A bill to regulate bee farming among other farming aspects was introduced in parliament in 2021. However, after the public had a general disagreement over the bill, it was let go of. Among others, the draft bill required farmers to keep bees or bee keeping equipment for commercial purposes. To do this, land registration, apiary/equipment and certification is a requirement.

IRAN

- Many cases have been observed in low- and middle-income countries (LMICs) where pesticide regulations and enforcements are weak.
- There are strict rules for spraying near honeybee hives in all LMICs that make it mandatory for workers to comply with.
- As Iran is a highly ranked country for honey production, incidents happen frequently in the year and as a result are damaging for pollinators.
- Many organophosphorus insecticides have been used and are responsible for bee deaths. In recent years, the country tried to improve the situation.

SOUTH AFRICA:

- In 2018, Cape Town beekeepers were finding dead bees in front of their hives. It was blamed on widespread poisoning where local farmers were spraying their crops with pesticides that contained a mixture of molasses and ant poison. In the Constantia Vineyards in Cape Town in 2018, wine growers mixed ant poison and molasses to kill ants. This attracted the local bee populations and resulted in mass deaths. They used fipronil as the bait in the molasses.

TANZANIA

- To date, there has been no formal information or event regarding killed bees, however it has been believed imidacloprid has been associated with decline of honey production in some parts of Tanzania.

TUNISIA

- Although there is little awareness and information on the issue of bee killings from pesticides in the country, it is a problem.

UGANDA

- There are few communities in Uganda who regard bees as important insects outside of making honey. As a result, there is a need for awareness raising and information dissemination of bees in communities.
- There is no data on pollinators killed by pesticides.

ZAMBIA

- There is little awareness and information on bees killed from pesticide exposure.
- There is a need for farmers (especially in Central and North-Western provinces of Zambia) to be interacted with and to be provided with up-to-date information on pesticides and bees.

ZIMBABWE

- Zimbabwe has a Bees Act that has provisions on notice of intention to use pesticides. However, data in these aspects is not readily available.

Question 2: Which measures can be taken to protect pollinators from pesticides? Please list 3 measures you think are most effective.

LEGISLATION AND POLICY

- HHP use should be eliminated.
- Policies that promote the use of biopesticides should be implemented.
- Legislation should be strengthened.
- Policies for effective management and protection of pollinators should be developed.

ALTERNATIVES

- Integrated Pest Management (IPM) to reduce the use of pesticides should be promoted.
- Knowing where beehives are located and observing pollinator activity to minimize exposure are important strategies.
- The use of systemic pesticides, like insecticides, should be stopped.
- Alternative farming technologies, like the use of greenhouses, should be adopted.
- The use of biological pest control can be implemented to protect pollinators from pesticides.
- IPM is very powerful to reduce pesticide use. However, to apply IPM, farmers should have tools such as traps, pheromones etc. with the same level of availability as pesticides.
- Use of green chemistry, i.e. pesticides with lesser harm, should be promoted.
- Use of repellent crops and crops attractants should be promoted in pest management in agriculture.
- Organic pesticide use should be encouraged.
- There should be a shift to biopesticides as one of the methods for controlling pests.

AWARENESS AND TRAINING

- Working with pesticide applicators to understand the impacts of pesticides on pollinators can help applicators use pesticides only when necessary.
- As legislation is challenging to implement during pesticide application, inspectors and enforcement agencies should be available to monitor the application of pesticides.
- Awareness and capacity building should be intensified.
- Bee keeping should be increased to balance the ecosystem.
- [Building capacity related to Multilateral Environmental Agreements in African, Caribbean and Pacific countries \(ACP MEAs 3\)](#)

APPLICATION AND SUBSTITUTION

- Field controls on the use of pesticides should be more effective than strengthening legislation.
- Environmental conditions to minimize drift should be monitored.
- Choice of pesticide and control measures, time of application (e.g., night vs daytime application)
- Use equipment that reduces drift and treating only the targeted area.
- Bee friendly pesticides should be used.
- Ground application methods, as opposed to aerial application, should be applied.
- Pesticides that are not toxic to the bees should be chosen and sprayed during the time when there is no bee activity.
- Location of bee houses should be far from the farms or fields.
- Substituting toxic pesticides with less toxic pesticides can play a role in lowering pesticides' impact on bees.

Question 3: What are the major constraints in your country to develop and implement effective policy to protect pollinators from pesticides; and how might such constraints be best resolved? (List your country in your response)

AFRICA

ESWATINI	<ul style="list-style-type: none"> ➤ Lack of knowledge on the root cause of pollinator extinction is a challenge. ➤ Awareness (e.g., through policy briefs) among experts in the field and the ministry of agriculture is necessary.
KENYA	<ul style="list-style-type: none"> ➤ New regulations should focus on managing pollinators sustainably. It should encompass “win-win” strategies that are trade-offs between bees, nature/biodiversity, and the farmers. For example, the bill that was let go of in 2021 may be re-introduced with a focus on sustainability of bees and should not be too punitive to farmers as the earlier version was.
MALAWI	<ul style="list-style-type: none"> ➤ Quantifying the risk of pesticides on bees is important to enable policy development. The main challenge is proving that certain pesticides are a threat to pollinators, as risk or hazard assessment data is presented by importers and manufacturers. Therefore, the initial step, I would suggest, would be to quantify the problem and raise awareness for legislative backing
RWANDA	<ul style="list-style-type: none"> ➤ The major issues in Rwanda are related to agricultural intensification which involves the use of agrochemicals that are harmful to the bees. In addition, the

	control of vector-borne diseases by spraying in swamps and forests also negatively impact bees.
SOUTH AFRICA	➤ Challenges faced in the country is that legislation is not enabled by politicians.
TANZANIA	➤ Policy is there but the big challenge is its implementation. The public lacks awareness and its administration is given less attention. ➤ There is a lack of data to prove the loss of pollinators due to pesticide use. Research should be conducted to gather important data for policy making.
TUNISIA	➤ Pesticide legislation should be reviewed to prohibit certain insecticides that are highly toxic.
UGANDA	➤ In Uganda less attention is given to the field of entomology.
ZAMBIA	➤ Capacity to implement is not adequate. ➤ There is inadequate enforcement of existing policy and legislation and lack of prioritization by government to support the implementation.
ZIMBABWE	➤ Pollinators are not given proper attention in agriculture.

MIDDLE EAST

IRAN	➤ The diversity of land and difficulties to reach beekeepers is a challenge in the country. ➤ There is a lack of proper and adequate enforcement activities. ➤ The availability of diverse types of HHPs due to smuggling from many neighbouring countries is a challenge.
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LATIN AMERICA AND THE CARRIBEAN

BARBADOS	➤ Policies must consider all the other pollinators like birds, bats, butterflies, moths, wasps, flies, beetles, ants, etc.
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BRITAIN

UNITED KINGDOM	➤ In the UK, there have been several policies for individuals to grow plants in their gardens for pollinators. ➤ Some municipal land is not mowed to allow plants to grow for pollinators.
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RESOURCE LIST

- Protecting pollinators from pesticides – Urgent need for action. Policy Brief: <https://www.fao.org/documents/card/en/c/cc0170en>
- Global Seminar on Strengthening Regulations to Protect Pollinators from Pesticides (held 23-24 February 2022). Web pages with much background information; make sure to also check the resources section: <https://www.fao.org/in-action/building-capacity-environmental-agreements/global/pollinator-seminar/en/>
- Review of existing legislation to protect pollinators from pesticides in selected countries: <http://www.fao.org/3/cc0226en/cc0226en.pdf>
- Review of approaches to the environmental risk assessment (ERA) for bees and other pollinators: https://www.openagrar.de/receive/openagrar_mods_00077352
- Assessment Report on Pollinators, Pollination and Food Production. Landmark review report. Chapter 2.3 of the main Assessment report discusses the effects of pesticides on pollinators: <https://ipbes.net/assessment-reports/pollinators>

If you are not a member, we invite you to join UCT's Pesticide Discussion Forum:
<https://forms.gle/NzYH5REfUruL3jdm6>

The Division of Environmental Health (DEH) Pesticide Discussion Forum is a bi-monthly online seminar for pesticide regulators and resource persons, as well as students in the postgraduate Diploma in Pesticide Risk Management (DPRM). Our aim is to provide support for managing pesticide risks and implementing risk reduction strategies.

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