

Methodologies for Transitioning to Low-risk Pesticides

We present a combination of tools and processes that can support a transition to low-risk pesticides when employed in agricultural systems. The first, IPM Strategic Planning, was recently conducted in Malawi and Kenya (2019, report linked below). This process provides important details about current pest management practices for a given crop, and also reveals critical needs, derived through stakeholder consultations. The second is a recently published system which classifies over 650 pesticides by risks posed to bystanders, terrestrial wildlife, aquatic species, and pollinators. Accompanying the publication (see “Supplemental Materials”) is a guideline that encourages a focus on the lowest-risk pesticides first, which can meet most pest management needs with the least risks to human or environmental health.

About the Presenter



Katie Murray is an anthropologist, currently working as Oregon’s state-wide IPM coordinator. Katie develops models of engagement and assessment for diverse agricultural stakeholder groups to build connectivity, feedback, and collaboration within the research, education, and regulatory nodes of agricultural systems.



Paul Jepson is a semi-retired professor with expertise in entomology, ecology, and toxicology. Paul currently chaired the FAO’s technical working group on pesticides and fall armyworm, and is working with FAO and USAID on reduced risk approaches to FAW and locust control. Paul has contributed to a number of international projects aimed at IPM and pesticide risk management.

Disclaimer

Disclaimer: The information below represents the opinions of members participating from different countries expressed during the discussion.

Question 1: How can the process, “Guide to IPM Strategic Planning,” (resource below) inform the regulatory system? What other processes are currently utilized in your country or the country you work in to consult with farmers and others about pest management practices, challenges, and critical needs?

ZIMBABWE: Guide to IPM Strategic Planning: Pools together pests of economic importance in one document, making it a big advantage in timeously decision making. It has a stakeholder buy in, identifies research needs that are addressed by the academia and research institutions. Other processes used: Dialogue with farmer’s unions and participation of the wider farming community interest groups during the consultation process. Pest management is coordinated through the SADC block.

TANZANIA: Guide to IPM Strategic Planning: The processes in the guide to IPM strategic plan inform regulatory system on the importance of developing an IPM Strategic Plan. The other current processes include the development of IPM Packages documents for horticultural and cereal crops, training of farmers on the utilization of IPM packages in fields, involving farmers in an on-farm demonstration about the practice of IPM for pest management and reduction of pesticide use.

SOUTH AFRICA: Guide to IPM Strategic Planning: It helps industries focus on where time, money and energy should be invested in pest management issues. Other processes used: When information is required a tool is developed as an inspection tool to obtain the information that’s needed to include into a regulatory document and it is inclusive of challenges.

ZAMBIA: Guide to IPM Strategic Planning: Regulators get to obtain up to date pest management information taking into account good agriculture practices incorporating various techniques to combat pests which also provide an avenue for research opportunities. Other processes used: After consulting with farmers, the extension service in the department of agriculture plays a key role through farmer field schools, agriculture shows.

NIGERIA: Other processes used: Only the approved formulations with the acceptable low-risk pesticide or pesticide that can be used safely without PPE and any new substances meant to control the same pest (the same mode of action) must be ranked on the same assessment level.

USA: Other processes used: In the Western US this is a process used regularly with different food crop industries to understand what farmers are doing, and to align research and education activities with what the needs are.

TOGO: IPM Strategic planning is a collaborative framework to take evidence-based decision not only from researches but also from fields works and stakeholders experiences.

ESWATINI: Guide to IPM Strategic Planning: The process strengthens research and capacitate low literacy participants to have a clear view of risk of exposure to pesticides. Such information would help kick-start our pesticide registration process since there is non yet. Other processes used: Agricultural extension officers are stationed in the four regions of the country especially in rural areas. They disseminate information on pesticides management to rural areas and they inform agricultural board on the need of the local people.

Zambia: The approach helps in monitoring pest management approaches. The regulators can access information which may be useful to review pesticides registered in the country. It be used to come up with a phase out strategy for HHPs and in the development of minimum (lower risk) pesticides list.

BELIZE: Guide to IPM Strategic Planning: It is simple, straightforward and readily applicable. The system isn’t can be broken down in steps and regulators can decide what part they see best fits their use. Other processes used: The FFS approach to help farmers learn about pest management practices. There is also a National Certification Training Program for applicators.

“We wanted to draw your attention to this process as a way to emphasize the importance of consultation with farmers to understand current practices and critical needs. It’s important to rely on a process of consultation about current practices and needs so that responses to improve the system can be informed by what farmers are currently doing and saying they need to change behaviour”

Question 2: What do you think about the “minimum list” approach – the idea that we should focus use on the lowest-risk products that can meet IPM needs while limiting risks? What do you see as the pros and cons to implementing in your country or the country you work in?

COUNTRY	PRO'S	CON'S
Uganda	It is Suitable for smallholder farmers where weak or no pesticide regulations occur. Helps to select effective lowest-risk products that can meet IPM objectives.	Inadequate use of PPE among smallholder farmers exposes them to dangers of highly toxic pesticides.
Zimbabwe	LMIC farmers are usually resource poor and this concept will reduce the risk to the vulnerable populations. It gives time to draft plans and mitigation measures for pesticides that do not have readily available alternatives.	It does not take into account new pesticides (this will require the revision of the list). The list limits the number of pesticides that can be registered.
Belize	I believe the approach is an excellent idea.	The adaptability is another factor because changing the way farmers think and choose a pesticide is difficult.
South Africa	It promotes the use of environmentally friendly pesticides that eliminate the negative impacts caused by HHPs. Less cases of pesticides poisoning will be seen in my area.	Limited number of pesticide to be registered, supply will not meet the demand; which will cause the farmers to relapse to using illegal imported Banned HHPs.
Zambia	We may have reduced incidences of food poisoning (markets containing less harmful products with pesticide residues). In addition, the registration process may be faster as compared to hazardous pesticides.	It is slow in action, acceptability by farmers may be low, on the other hand, supply may not meet demand due to low supply owing to very few of such products being registered currently.
ESWATINI	It reduces pesticide effects to farm workers, bystanders and children; users can easily find effective lowest-risk pesticide to use. Minimum list approach is advantageous, as it will save time on registration and implementation of low risk pesticides.	Pests can easily develop resistances where only chemical control methods are used. The time required to change pesticides users behaviour in adopting the approach is another disadvantage.
Tanzania	It helps the pesticide companies registering their products to deal with the only pesticides identified by the country. It also enables farmers to integrate the pesticides of low risk identified in the list in IPM programs. The approach can help to reduce risks associated with high-risk pesticides.	The disadvantage of this approach is that it needs financial resources for awareness creation to the stakeholders on the importance of utilizing the minimum list approach for pest management in the country.
Tanzania	The minimum list is a good idea if we can package it in a way that it will be accessible by the end users. In Tanzania almost everyone has a mobile phone, we could come up with a program that will use technology to inform end users.	
Nigeria	By only using pesticides with minimum risk, there will be a reduction to some degree in the overall health and environmental hazard effects from pesticides; hence, saving cost incurred in the treatment of the impact of pesticides.	
Kenya	Has a system of "spray service providers" - people farmers can ask to apply the pesticides. They weren't available in all areas, or at numbers to serve all farmers, but this seemed an important piece of the equation so that farmers themselves are not using pesticides, and these providers could be trained	
Zambia	The minimum list approach is a good idea. I think it can be used during the identification of alternatives to HHPs. Most countries are in the process of identifying and phasing out HHPs.	
Presenter's notes	A national IPM policy can help ensure that policies and funding are prioritizing IPM. But all levels have to be engaged - research, extension/education, regulation, chemical companies - so that the structures are in place to respond to information needs.	There are many challenging steps between the list, and ensuring farmers have access to low-risk pesticides and information on how to use them. The cost issue for low vs high-risk pesticides is a challenge.

Question 3: What (actionable measures) would need to happen in order to successfully employ a classification system as the one linked below (An International Guideline), which prioritizes the use of low-risk pesticides or a "minimum list"?

ACTIONABLE MEASURES

In order to successfully employ such a classification system, there is need for change in policies or introduction of policies that will support such actions.	The prioritization of "low-risk pesticides or a "minimum list" requires the identification of all pesticides that are used for agricultural and public health purposes.
I think the information on bees is very handy. I think if you link the PPE with the categories and then cost the PPE per category , people will see it is actually more expensive to use HHP as the PPE is more and thus costs more than the lower risk pesticides, that would be a good exercise to do.	Secondly there legislative framework has to provide incentives for using low risk pesticides and disincentives for high risk ones. There also has to be stringent measures to be followed if using high-risk pesticides. Awareness raising and farmer education is also important.
Identify current HHPs in the market and what they are used for ; then develop a substitution based on the need.	Awareness raising and farmer education is important.
The governments should make sure that for every renewal of every pesticide it is in accordance to the International Guideline as low risk pesticide or a minimum list.	Implementation of IPM and information dissemination can successfully employ a classification system as the international Guideline. The application of buffer zones to protect terrestrial wildlife and the immediate ecosystems is vital.
The government should encourage and support the researchers to develop low-risk pesticides that can be	I suggest a regional approach . Some pesticides can be agreed upon at SADC level through SAPReF. Then countries can use the

integrated into IPM programs.	already agreed minimum pesticides list.
Critical reviewing of current classification of HHP replacing it with new evidence based information.	Removing the most hazardous pesticides. A low risk pesticides is good as long as new evidence is always incorporated and the context within which the pesticides will be used

Resources:

Resources and Further Reading

1. Selection of pesticides to reduce human and environmental health risks: a global guideline and minimum pesticides list: <https://www.sciencedirect.com/science/article/pii/S2542519619302669>
2. IPM Strategic Planning for Malawi Maize: https://www.agrilinks.org/sites/default/files/faw_malawi_ipm_strategy_072019_snglpg.pdf
3. Guide to IPM Strategic Planning as applied in the Western US: <https://catalog.extension.oregonstate.edu/em9238>
4. Selection of pesticides to reduce human and environmental health risks: a global guideline and minimum pesticides list: <https://www.sciencedirect.com/science/article/pii/S2542519619302669>
5. Pesticide Risk Reduction: An International Guideline: <https://ars.els-cdn.com/content/image/1-s2.0-S2542519619302669-mm1.pdf>
6. Selection of pesticides to reduce human and environmental health risks: a global guideline and minimum pesticides list: <https://www.sciencedirect.com/science/article/pii/S2542519619302669>
Pesticide Risk Reduction: An International Guideline: <https://ars.els-cdn.com/content/image/1-s2.0-S2542519619302669-mm1.pdf>

Disclaimer

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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 Post-Graduate Diploma in Pesticide Risk Management (DPRM). Our aim is to provide support for managing pesticide risks and implementing risk reduction strategies. DEH is based in the School of Public Health and Family Medicine at the University of Cape Town (UCT). **This Digest was produced by: Tatum Louw** | Forum Administrator | lwxtat001@myuct.ac.za. **Prof Andrea Rother** | Forum Moderator | andrea.rother@uct.ac.za
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