

Pesticide Program Dialogue Committee

Resistance Management Work Group – Final Report October 2021

Co-Chairs: Bill Chism, Alan Reynolds, and David Shaw

Work Group Goal:

Develop recommendations to EPA on how the agency can assist stakeholders in addressing the challenges of conventional pesticide resistance

Introduction

Pest resistance is a classic example of a “wicked” problem: the causes arise from a myriad of biological and technological factors, and are affected by a host of other, non-pest management decisions, including economic, social, environmental and pest control actions.

EPA already plays a critical role in pest resistance management, but has the opportunity to have an even greater impact. The Agency must take a stronger role if valuable pest management options are to be preserved and enhanced

A wicked problem such as resistance management cannot be solved by overly simplistic recommendations. Given the uncertainty and complexity of the causes of resistance, making progress in proactively and reactively managing resistance development will require new learning and adaptive management through time. EPA can make a positive impact on bringing stakeholders together to address pesticide resistance issues as well as how pesticides are used in integrated pest management through the adoption of these recommended actions.

Charge Questions

1. Are there current EPA policies that positively or negatively affect conventional pesticide resistance management? What policies could be re-worked to more positively address resistance management?
2. Are there current Industry programs that positively or negatively affect conventional pesticide resistance management? Would EPA have a role in those programs, and what might that be to positively influence industry?
3. Are there incentives (for registrants or pesticide users) that could be considered related to conventional pesticide regulation that might positively affect resistance management? Are there other ways in which the agency can work with stakeholders (e.g., growers, commodity groups, academics) to cooperatively address resistance management?
4. Are there elements from EPA's Bt PIP resistance management program that could be used in conventional pesticide resistance management?

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The RMWG's report to the PPDC makes 5 major recommendations that encompass the original charge:

- 1. EPA should explore changes in pesticide labels to make them more uniform across manufacturers. Labels need to contain clear and concise language so all needed information to implement resistance management is easily found and understood by end users such as crop consultants, pesticide decision makers, and commercial and private pesticide applicators.**
- 2. EPA should conduct a thorough review of EPA policies and regulations that impact resistance management, and remove contradictions and situations that hinder effective resistance management to the maximum extent possible.**
- 3. EPA should expand collaboration and outreach efforts with other federal agencies and convene panels of relevant stakeholders to address specific priority issues and questions associated with resistance and resistance management.**

The RMWG's report to the PPDC makes 5 major recommendations that encompass the original charge:

- 4. EPA should explore how it can encourage proactive pesticide resistance management and prevention programs in cooperation with industries and universities through cooperative agreements, updated training materials, and grant programs.**
- 5. EPA should explore the creation of incentive programs for assistance in overcoming the hurdles associated with resistance management, in particular incentives to researchers, users and suppliers for accurate early detection and timely adoption of regionally specific resistance management actions between the time of detection of potential resistance and confirmation of resistance.**

EPA should explore changes in pesticide labels to make them more uniform across manufacturers. Labels need to contain clear and concise language so all needed information to implement resistance management is easily found and understood by end users such as crop consultants, pesticide decision makers, and commercial and private pesticide applicators.

- Information on current pesticide labels that is needed for effective use in resistance management is often difficult to find due to varying formats used by registrants.
- *EPA should evaluate, create, and implement a standard label template which would require manufacturers to organize label information in a uniform, clear and concise format.*

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- *EPA should explore the use of the OPPEL pilot delivery system focused on resistance management to provide access to searchable local resistance language as well as verified and documented resistance and potential resistant pest watch lists. While not feasible to include local language on a federal label, the OPPEL delivery system in particular would allow registrants to provide access to up-to-date local IPM recommendations and information to supplement the general resistance management language already present on the label.*
- Benefits of the recommended label improvements would be to sharpen the engagement and understanding of all relevant stakeholders, improve the understanding of label language and information by users/applicators, and create a format that includes the importance of not only federal language, but also local socio-ecological conditions and their importance on efficacy of pesticides and the development of resistance.

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- EPA is charged with implementing many regulatory recommendations and requirements. A number of these were drafted with other regulatory objectives in mind beyond resistance management, such as health and environmental safety. Consequently, their implications for advancing or hindering pesticide resistance management often were not considered. Thus, EPA should:
 - *Preserve the efficacy of current pesticides: Develop or revise policies that delay development of resistance to preserve or extend the durability of pesticide efficacies in the market.*

EPA should conduct a thorough review of EPA policies and regulations that impact resistance management, and remove contradictions and situations that hinder effective resistance management to the maximum extent possible.

- *Proactively review and adjust rules to account for opportunities presented by new technologies and that account for the diversity of US cropping systems and pesticide uses.*
- *Elevate resistance management as a major benefit: Develop/revise policies that achieve balance in various pesticide application requirements without compromising best resistance management practices to support long term availability of pest control options.*
- *Improve efficiency in approval of pesticides that growers need to manage pests and fight the selection of resistant pest populations.*

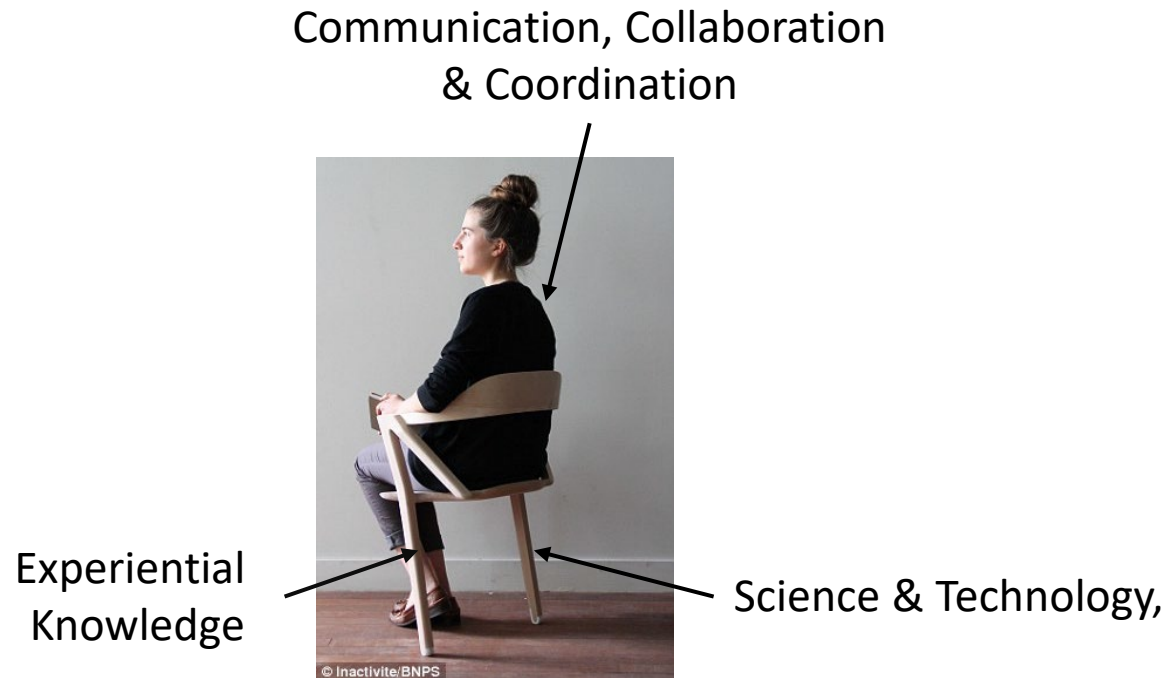
EPA should expand collaboration and outreach efforts with other federal agencies and convene panels of relevant stakeholders to address specific priority issues and questions associated with resistance and resistance management.

- ❖ Pesticide resistance is a community problem



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- ❖ Sustainable management of pesticide resistance is like sitting in a two-legged chair.



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1. *Enhance communication, collaboration and coordination amongst diverse stakeholders:*
 - *Formation of a Federal Working Group on Resistance Management (FWGRM)*
 - *PPDC Resistance Management Workgroup should be maintained to facilitate and coordinate with non-federal stakeholders*
2. *Facilitate innovation through Scientific Advisory Panels (SAPs) focusing on new technology for resistance detection, monitoring and reporting.*

EPA should explore how it can encourage proactive pesticide resistance management and prevention programs in cooperation with industries and universities through cooperative agreements, updated training materials, and grant programs.

- Collectively planning for resistance *before* it becomes unmanageable preserves current pest management technologies, protects yield, safeguards consumers, and results in the best financial, environmental, and societal outcomes for a wide variety of agricultural stakeholders and society at large.
- *EPA should conduct an analysis of current resistance management programs as well as training information available. The EPA should also conduct an analysis of the target audience for the programs as well as the success rate or outcomes.*

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- *EPA should explore the creation of a grants program for community-based resistance management efforts.*
- Creation of an integrated framework that allows for better coordination across the community of stakeholders of programs that foster awareness and implementation of programs to manage resistance proactively instead of reactively.

EPA should explore the creation of incentive programs for assistance in overcoming the hurdles associated with resistance management, in particular incentives to researchers, users and suppliers for accurate early detection and timely adoption of regionally specific resistance management actions between the time of detection of potential resistance and confirmation of resistance.

- *EPA should explore mechanisms to encourage the development of successful, voluntary cooperative management efforts at the local level. More specifically, we recommend that the EPA consider creating a grant program to support the formation of community-based resistance management groups.*
- *EPA should explore the creation of incentive programs for researchers, users, and suppliers for accurate and faster confirmation of resistance and early implementation of resistance management tactics following reports of potential resistance.*

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- EPA should consider strategies that can shorten the timeline between suspected resistance and confirmation (or not) of that resistance. We include two specific recommendations toward this end.
 - *EPA should consider a establishing a nationwide research-focused grant program that would encourage and support efforts to accelerate the rate at which resistance confirmation testing occurs.*
 - *EPA should explore programs that would provide decision makers like growers, consultants, farm managers, and applicators the tools necessary to implement resistance management tactics between the period of suspected resistance and confirmation.*