

Scientists take objective look at terms 'least toxic pesticides' applied as 'last resort'

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Summary: Recommendations and decisions to use "least toxic pesticides" and "pesticides as a last resort" have flourished in the last decade, but according to three scientific organizations -- the Weed Science Society of America, the American Phytopathological Society and the Plant-Insect Ecosystems Section of the Entomological Society of America -- these are not the correct approaches to the pesticide component of an Integrated Pest Management program.

FULL STORY

Recommendations and decisions to use "least toxic pesticides" and "pesticides as a last resort" have flourished in the last decade, but according to three scientific organizations - the Weed Science Society of America (WSSA), the American Phytopathological Society (APS) and the Plant-Insect Ecosystems Section of the Entomological Society of America (P-IE ESA) -- these are not the correct approaches to the pesticide component of an Integrated Pest Management (IPM) program.

The three organizations have joined to take an objective look at the problems associated with "least toxic pesticides" applied as a "last resort" and today issued the following statement:

IPM is Fundamental Wherever Pests Must Be Controlled

It is essential to practice IPM, whether managing weeds, insect pests or plant diseases -- on the farm, on commercial sites, on public lands, or in or around the home. Key components of IPM include making the habitat unfavorable for pests, excluding pests where feasible, using proper sanitation practices, monitoring the infestation level, knowing the pest tolerance level for the specific situation and implementing the necessary management practices.

Judicious use of pesticides is a critical component of many IPM programs. Judicious (careful) use refers to various practices -- following all label directions and making all appropriate stewardship decisions required in the particular situation. This includes applying a product registered for the target pest(s) after accurate pest identification, and consideration of the level of infestation and the potential for economic, health or other negative pest impacts. Careful use extends beyond pesticides to household chemicals, automobiles, medicines, alcoholic beverages, and countless other products that are part of our daily lives.

The Problem with Selecting Only "Least Toxic Pesticides"

- "Least toxic" implies there are pesticides available for every pest spectrum that are least toxic to everything else. This is not true. The toxicity of a pesticide depends on what is being evaluated -- short-term or long-term toxicity -- and who or what may be affected (e.g. applicators, farmworkers, livestock, wildlife, pets, birds, fish, beneficial insects, earthworms, sediment-dwelling organisms, crops). It is also important to remember that toxicity is not the same as risk, which is dependent on both toxicity and exposure.

- The risk associated with the use of pesticides and other chemicals is managed by establishing safe exposure levels based on the toxicity specific to each product. Assigning a "most" or "least" toxic rating does not equate to actual risk when the product is **properly** applied. For example, the label of a pesticide product that may cause skin irritation will also contain requirements for personal protective equipment that safeguards the skin, while a product that may affect fish will contain use directions, precautions and possibly even restrictions intended to protect fish. This is why the EPA-approved label instructions **must** be followed.

- All pesticides -- including those referred to as "least toxic," "organic" and "natural" -- are toxic to one or more pests and possibly humans and other organisms as well. Use of these terms can lead to false security regarding the need for careful handling of pesticides and proper environmental stewardship.

- Over-reliance on a "least toxic" pesticide can cause new problems. For example, glyphosate is considered a "least toxic" herbicide choice, but overreliance on it has led to significant weed resistance problems. Over-use or misuse of **any** pest management tactic can cause problems -- for example, cultivation to control weeds on hilly land can cause soil erosion, and excessive hand-hoeing can cause back injuries and increase the risk of skin cancer.

- Often, "least toxic" products do not work as well on the pest(s), leading to the need for re-treatment with another pesticide on larger and/or harder-to-control pest infestations. This can result in higher costs, reduced control and undesirable environmental effects attributable to the pest.

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The Problem with Using Pesticides Only "As a Last Resort"

- "Last resort" implies that pesticides will work as well when every non-chemical control technique is attempted first. However, delaying application of a pesticide can cause buildup of the pest(s) in crops, gardens, buildings and other sites, with negative impacts on yield, quality and/or health. In fact, delaying treatment can significantly increase the ecological and economic damage to crop and non-crop areas.

- Using pesticides as the last line of defense can result in a more limited choice of pesticides, as well as reduced crop tolerance, the need for higher rates, and less effective control because of higher infestation levels and/or more tolerant pest stages. For example, seedling weeds and early-stage insect larvae and diseases are usually more easily controlled than later pest stages.

- Effective pesticide choices, when they are applied as a "last resort," means fewer options to rotate pesticides, which is a critical step in preventing a pest from becoming resistant to a pesticide. "Last resort" pesticide strategies may also increase the need for multiple products and higher application rates to control the pest effectively.

- "Last resort" suggests pesticides are always the worst choice, which is not true. First using non-chemical techniques that are ineffective or inefficient has the potential to add to the cost of pest management, intensify the pest problem or create new problems.

- Branding pesticides as the "last resort" choice certainly does not stimulate a strong public interest in funding education on their proper use. Pesticides are widely used, but discretionary federal funding of the U.S. Pesticide Safety Education Program has been eliminated in 2011 and 2012. This program is vital to educate pesticide users and dealers who must be certified to apply or sell pesticides, and to teach the public how to use pesticides safely.

There is no benefit or scientific basis to simplistic messages like "use least toxic pesticides as a last resort" for the large number of pesticide users who apply pesticides according to the label and practice good stewardship. Nor are these messages beneficial for those who neither seek training nor adequately read the label believing instead that it is safe, practical, and effective to simply choose a product considered a "least toxic pesticide" and apply it only as a "last resort." These messages hinder pesticide safety and stewardship education and practices that are in the best interest of the pesticide user, our food supply, public health and ecosystem preservation.

The WSSA, APS and P-IE ESA do not promote the use of pesticides above other pest management techniques. Pesticides should ONLY be used when needed, when risks to non-target organisms and habitats have been carefully considered, and when diligent attention will be given to following all label directions and other applicable laws. In addition, general and product-specific stewardship must always be practiced to prevent undesired effects under the particular application conditions.

Pesticides are an important component of many IPM programs for a variety of reasons. A fungicide, for example, may prevent disease, have curative effects, induce plant resistance to disease or promote plant health and yield. The most important message is to follow the label -- the entire label, including all safety and other precautions -- and practice good stewardship. Suggesting that only "least toxic pesticides" be used, as a "last resort," ignores the extensive research, regulatory, educational and stewardship efforts that make important pesticide tools available and define their proper and safe use in Integrated Pest Management programs.

Societies Renew Their Endorsement of IPM Definition in USDA "National Road Map for Integrated Pest Management"

No pest management-related term has been defined in so many different ways as "Integrated Pest Management." WSSA, APS and P-IE ESA strongly oppose a non-scientific approach to IPM and re-endorse the USDA National Road Map definition:

"Integrated Pest Management, or IPM, is a long-standing, science-based, decision-making process that identifies and reduces risks from pests and pest management related strategies. It coordinates the use of pest biology, environmental information and available technology to prevent unacceptable levels of pest damage by the most economical means, while posing the least possible risk to people, property, resources and the environment. IPM provides an effective strategy for managing pests in all arenas, from developed agricultural, residential, and public areas to wild lands. IPM serves as an umbrella to provide an effective, all encompassing, low-risk approach to protect resources and people from pests." (USDA National Road Map for Integrated Pest Management)

Real examples (<http://wssa.net/WSSA/PressRoom/CaseStudyExamples.pdf>) of the risks when pesticides are used only as a "last resort" and the benefits of using appropriately timed pesticides as part of an integrated pest management program, as well as common questions and answers (<http://wssa.net/WSSA/PressRoom/CommonQuestions.pdf>), are available online.