

The Growing Threat of Pests Resistant to Pesticides and Other Management Tactics

Ongoing Investment in Integrated Pest Management Safeguards America's Agricultural Industry and Food Supply

Agricultural pests, including insects, plant diseases and weeds, can become resistant to pesticides and other pest-management strategies. This means that the methods used to manage these pests no longer work as well as they once did, or stop working altogether. This costs growers money and threatens America's food supply. The science of integrated pest management helps prevent resistant pests from emerging and helps manage the ones already present. However, research must keep up with the threats, which can emerge every year.

Pests hurt U.S. agriculture — Resistance makes it worse

U.S. farmers spent an estimated \$9 billion on pesticides in 2019. An estimated 10 percent of this, some \$900 million, was just to respray fields where pests survived a first pesticide application. Weather and application timing can contribute to pest survival, but pesticide resistance does as well.

Despite the \$9 billion spent on pesticides annually, U.S. farmers still lose approximately 10 to 35 percent of crops to pest damage. That's a huge financial loss for individuals and the agriculture industry, and also represents millions of tons of food that does not make it to supermarkets and dinner tables. In a time when childhood hunger and food-insecurity are all too common, this is a problem that cannot be ignored.


Science has a solution — Integrated Pest Management

The science of integrated pest management (IPM) can prevent resistant pest populations from emerging. As the name implies, IPM integrates multiple pest management tactics across seasons to protect crops. Because a number of different strategies and technologies are alternated and combined, no individual control method is overused and pest resistance is slowed or even stopped.

IPM programs are the best way — and in many cases the only effective way — to manage insects, weeds and pathogens that already are resistant. But new resistant populations or the arrival of new invasive pests can disrupt an IPM program and leave growers, and our food supply, vulnerable. As pests develop resistance, there is a consistent need to adapt and improve our IPM programs. For example, waterhemp is a weed resistant to six different types of herbicides. Weed scientists responded by developing an IPM strategy including narrow row spacing, cover crops to suppress weed populations, and careful herbicide selection to make use of multiple modes of actions.

Looking to the future

Managing pest resistance will be an ongoing priority for American agriculture, and ongoing funding for crop-protection efforts is essential. New research creates technology to identify and track resistance, develops management tools for newly resistant pests and identifies practices and new technologies that decrease pest damage. In addition, funding is necessary to support Cooperative Extension services that share this new information with farmers, ranchers, and crop protection specialists to help implement IPM programs necessary to slow resistance development and control damaging pests. **America's rural economy and the nation's food supply depend on it.**



The National Integrated Pest Management Coordinating Committee is a committee of the Experiment Station Committee on Organization and Policy and the Extension Committee on Organization and Policy within the Association of Public and Land-grant Universities governing structure. It assists in development of reports and strategic plans on pest management issues and pursues activities that facilitate coordination and collaboration nationally among and between IPM research and extension at the land-grant universities, and between the land-grants and federal agencies involved in IPM. Learn more at:

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