

5.4 The U.S. National Strategy to Promote the Health of Honey Bees and Other Pollinators and the Role of MP3s

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Abstract

The U.S. Environmental Protection Agency is tasked with regulating the use of pesticides and has been working with its regulatory counterparts internationally to ensure that the best available science serves as a foundation for informing its regulatory decisions. While regulatory decisions may include compulsory and/or advisory restrictions on pesticide use as part of label statements, efforts have also been directed at engaging a broad range of stakeholders to adopt more regionally-based practices which can result in reduced exposure to pesticides. These efforts have extended to mitigating the likelihood of adverse effects on insect pollinators from exposure to pesticides and can potentially extend to other factors known to impact both honey bees (*Apis mellifera*) and non-*Apis* bees. This presentation will discuss the U.S. National Strategy to Promote the Health of Honey Bees and Other Pollinators and will focus on EPA's efforts to promote managed pollinator protection programs (MP3s) across States and Tribes.

Disclaimer. The views presented in this paper may not reflect those of the U.S. Environmental Protection Agency and/or the U.S. Government.

Introduction

In response to declines in some pollinator species and continued elevated losses of honey bee colonies in the U.S., in June 2014, President Obama issued a directive to federal agencies to increase and coordinate their efforts to improve bee health by developing an integrated strategy. The memorandum also specifically directed EPA to engage state and tribal agencies in the development of pollinator protection plans. EPA and the U.S. Department of Agriculture co-chaired the federal task force and in 2015, the White House released the National Strategy to Promote the Health of Honey Bees and other Pollinators (White House, 2015). This strategy outlined multiple commitments by federal agencies to promote honey bee health. It included a pollinator research action plan to address uncertainties, a public education plan, and an emphasis on the need for public/private partnerships. The overarching goals articulated in the National Strategy include reducing honey bee overwintering losses to <15% within 10 years, restoring Eastern monarch butterfly numbers to 225 million by 2020, and restoring or enhancing seven million acres of land for pollinators to forage over the next five years. EPA made multiple commitments within the National Strategy. Those commitments included assessing the effects of pesticides on bees and other pollinators, restricting the use of bee-toxic pesticides in crops that require managed (contracted) pollination services, and engaging state and tribal partners in the development of managed pollinator protection plans (MP3s), among other actions.

With respect to the first action, EPA has been evaluating the hazard of pesticides to bees for well over 20 years. Throughout this process of learning about the multiple factors associated with pollinator declines, EPA's focus has been on ensuring that the best science is brought to bear in assessing the potential role that pesticides may be playing in the declines of some species of insect pollinators. Well before the National Strategy was released in 2015, in 2011, EPA issued interim guidance on assessing exposure and effects data on bees. This guidance was based on the results of a Society of Environmental Toxicology and Chemistry (SETAC) Global Pellston Workshop on pollinator risk assessment (Fischer and Moriarty, 2011) and on work underway in Europe through the European and Mediterranean Plant Protection Organization (EPPO, 2010a 2010b). In 2012, EPA, in collaboration with Health Canada's Pest Management Regulatory Agency and the California Department of Pesticide Regulation, presented a White Paper, describing a conceptual framework for assessing risks of pesticides to bees (USEPA *et al.*, 2012), to the Federal Insecticide, Fungicide and Rodenticide (FIFRA) Scientific Advisory Panel (SAP). In 2014, based on the White

Paper, input from the SAP, and additional guidance documents generated through the European Food Safety Authority, EPA / PMRA released a harmonized guidance for assessing pesticide risks to bees (USEPA *et al.*, 2014). This guidance has subsequently been translated into Spanish for consideration as a North American Free Trade Agreement (NAFTA)-harmonized guidance document. In addition to the 2014 guidance, in 2016, EPA issued an additional guidance document for agency risk assessors that discusses the regulatory provisions for requiring data, the current pollinator data requirements for conventional pesticides, and additional bee toxicity and exposure studies, which are currently being codified (USEPA, 2016). These studies include laboratory-based studies of individual bees and field-based studies of whole colonies as well as residue monitoring studies in pollen and nectar.

Building on previous efforts to reduce potential acute exposure of bees to neonicotinoid insecticides in 2014, EPA released a draft acute risk mitigation strategy for public comment in 2015. This strategy identified proposed label restrictions for pesticides used on crops requiring managed pollination services, and it discussed state/tribal MP3s that would be protective for bee colonies not specifically under contract. The Agency received 113,209 comments on the draft mitigation strategy. The majority (99%) of comments were from mass mail campaigns, but there were 457 unique comments, the majority of which were from people who identified themselves as individual citizens followed by growers.

In 2016, EPA released the final acute risk mitigation policy (USEPA, 2016b). With respect to reducing exposure to bees under contract services to pollinator-attractive crops, the restriction applies to foliar applied pesticides to crops that have contracted pollination services. The initially proposed mitigation policy was for any pesticide that was highly or moderately toxic to bees on an acute contact exposure basis. However, based on public comments, EPA revised the policy to those pesticides with risk estimates that exceed the acute risk level of concern (LOC) of 0.4¹.

There is flexibility built into the policy for chemicals that have short residual toxicity times, referred to as RT25² values and for crops that have extended bloom periods, *i.e.*, indeterminate³ bloom (*e.g.*, cotton, squash).

The actual label language states: for foliar applications of this product to a crop where bees are under contract to pollinate that crop, foliar application of this product is prohibited to a crop from onset of flowering until flowering is complete unless the application is made to prevent or control a threat to public health and/or animal health as determined by a state, tribal, authorized local health department, or vector control agency. As noted, there is some flexibility in this restriction for non-systemic chemicals that have a residual toxicity (RT25) value of ≤ 6 hrs, such that applications could be made 2 hrs prior to sunset, but not less than 8 hrs prior to sunrise.

For indeterminate blooming crops, applications can be made 2 hrs prior to sunset and up to 2-hrs before sunrise. Also, applications can be made when air temperature at the application site is $\leq 10^{\circ}\text{C}$ (50°F). EPA has also received considerable input from state lead agencies on the environmental hazard statements for protecting pollinators. To address these concerns, a revised environmental hazard statement will be included where the contact acute median lethal dose for 50% of the bees tested (*i.e.*, LD₅₀) is < 2 $\mu\text{g}/\text{bee}$ (EPA acute toxicity classification: highly toxic) or the $2 \leq \text{LD}_{50} \leq 11$ $\mu\text{g}/\text{bee}$ (EPA acute toxicity classification: moderately toxic). This language is intended to address adverse effects on bees as a result of acute exposure; label language to address potential adverse effects from chronic exposure will be addressed on a case-by-case basis.

¹The acute risk level of concern (LOC) is exceeded when the ratio (referred to as the risk quotient [RQ]) of exposure dose to the LD₅₀ value exceeds 0.4. (the exposure level at which 50% of exposed bees die). Additional information on acute risk LOC for bees can also be found in EPA's Guidance for Assessing Pesticide Risks to Bees, see: https://www.epa.gov/sites/production/files/2014-06/documents/pollinator_risk_assessment_guidance_06_19_14.pdf

² The RT25 is defined as the exposure time required to result in 25% mortality to bees exposed via contact to weathered residues on foliage.

³ EPA uses the term "indeterminate bloom" to indicate crops that bloom either continuously or intermittently for multiple weeks and/or for most of the crop's growing season that bloom for longer than four consecutive weeks.

As part of the National Strategy to protect honey bees and other pollinators (White House, 2015), EPA also committed to working with States and Tribes on the development of MP3s. This proposed effort was released for public comment, and of the comments received on the proposed managed pollinator protection plans, the majority (90% of the respondents) favored the plans and indicated that they provide states/tribes with greater flexibility, that the plans would extend protection for honey bee colonies not under contract to provide pollination services, and that the plans would be able to take advantage of effective best management practices. Those opposed to the plan (10% of the respondents) felt that there should be a federal rather than state plan, that the plans were too reliant on voluntary actions, and that differing plans across states/tribes could make it difficult for states to protect bees produced by commercial beekeepers who cross jurisdictions (*i.e.*, migratory beekeepers). In general, EPA is promoting MP3s as a means to mitigate exposure to bees from acutely toxic pesticides to bees. It is important to note that States/Tribes are not required to develop plans (*i.e.*, the plans are voluntary) and that States/Tribes have the option of adopting a regulatory approach or voluntary approach. However, the scope of the plans can be expanded to address other pesticide-related issues and can expand to include other factors impacting pollinator health. While EPA is reviewing State/Tribal MP3s, it is not approving these plans. However, EPA has encouraged state/tribes to develop/implement the plans quickly.

In 2016, EPA, the U.S. Department of Agriculture, the National Association for State Departments of Agriculture, and the Honey Bee Health Coalition sponsored a symposium to bring together a broad range of stakeholders to share tools/experience regarding the development of MP3s. The key messages from the symposium were that the majority of states (>90%) had either implemented or had MP3s in some stage of development; however, participants expressed uncertainty regarding the scope of the plans and how the effectiveness of the plans could be evaluated at the local, regional or national level. EPA is continuing to work with States/Tribes on identifying means of evaluating the efficacy of MP3s. As part of this effort, EPA formed a workgroup of its federal advisory committee, *i.e.*, the Pesticide Program Dialogue Committee, to provide recommendations on various metrics that could be used in evaluating MP3s.

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