

# Indiana Pollinator Protection Plan

(DRAFT 9-2-15)

## Introduction

Pollinator health is a high priority national issue due to significant colony losses experienced by U.S. beekeepers over the past decade. In his June 2014 memo, “*Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators*”, President Obama called attention to the issue of pollinator health and directed federal efforts to reverse pollinator losses and help restore populations to healthy levels. The federal task force charged with developing a national strategy for promoting bee health and survival has set several goals, including: 1) reduce overwintering hive losses to less than 15%; 2) restore or enhance over seven million acres of pollinator supportive forage and habitat; and 3) minimize impacts from pesticide exposure. In particular, the President’s memo directed the U.S. Environmental Protection Agency (EPA) to engage state agencies in developing state pollinator protection plans as a means of mitigating the risk of pesticides to bees and other managed pollinators.

In Indiana the Office of Indiana State Chemist (OISC) is the state agency charged with regulating the use of pesticides. The Indiana Pesticide Review Board (IPRB) is the Governor appointed board charged with developing state pesticide policy and advising the OISC on matters of pesticide regulation. The IPRB and OISC are working collaboratively to facilitate the development of a state *Pollinator Protection Plan* to identify activities that can improve pollinator health. Key activities will include but will certainly not be limited to: 1) reduce pesticide exposure to bees and other pollinators through timely communication and coordination among key stakeholders; and 2) increase foraging, shelter, nesting, and brooding areas for bees and other pollinators.

## Goal

The goal of this plan is not to serve as the sole definitive source of how pollinators should be supported or protected by every relative stakeholder group or agency in Indiana. Nor is the goal to eliminate or ban pesticide (insecticide, fungicide, herbicide, etc.) use in areas frequented by pollinators. Instead, the goal is to bring awareness to the issues faced by pollinators and all related stakeholders. The hope is that this plan can serve as a starting point to develop a blueprint of how each stakeholder group might contribute to the task of improving pollinator health.

## Scope

It is estimated that one-third of our current food production requires pollinators. Managed pollinators and contracted pollination services on such Indiana grown agricultural crops such as apples, melons, blue berries, and cucumbers are some of the more obvious examples of this fact. The term “managed pollinators” includes any species of pollinators that are managed by humans. Pollinator management is usually conducted for purposes of pollination services or the production of honey, beeswax, and other related products. Managed pollinators are primarily honey bees (*Apis mellifera*), but could include other species of bees, such as alfalfa leafcutting bees (*Megachile rotundata*), orchard bees (*Osmia* spp.), mason bees (*Osmia* spp.) and some species of bumble bees (*Bombus* spp.).

Managed pollinators are the easiest to clearly associate with a stakeholder group, i.e. beekeepers. However, it is widely recognized that unmanaged native pollinators such as butterflies, flower flies, and hundreds of wild bee species are also important to agriculture, home gardens, orchards, and other successful plant development processes. It is also recognized that strategies that are protective of managed pollinators will also be protective of unmanaged native pollinators. Therefore, the scope of this plan will extend to all pollinators, not just managed pollinators, where feasible. In addition, the plan will attempt to incorporate agriculture and non-agricultural settings, commercial beekeepers and hobbyists.

### **Stakeholder participation for development of this plan**

In consideration of the relatively broad scope of this plan, insuring participation by all potential stakeholders is challenging. However, one of the objectives will be to facilitate that participation as effectively as possible. To that end, the first step was an open face-to-face organizational and information gathering meeting on March 31, 2015.

Subsequent steps identified for plan development include general circulation of any draft plan documents and open discussion and comment at quarterly meetings of the Indiana Pesticide Review Board (IPRB). It should be noted that, even though the scope of this plan has not been limited to just protection of pollinators from pesticide exposure, the IPRB is being utilized as a vehicle for plan development based on their existing meeting schedule and public process.

In addition, because enhancing pollinator habitat and forage has been identified as a crucial component to improving pollinator health, the IPRB will work closely with and support the efforts of the Indiana State Department of Agriculture (ISDA). ISDA is taking the lead to coordinate and facilitate those enhancement efforts.

***Activity Leaders:** Indiana Pesticide Review Board; Indiana State Department of Agriculture; Office of Indiana State Chemist;*

### **Make growers & applicators aware of pollinators near pesticide application sites**

In order to adequately coordinate and communicate with beekeepers and pollinator managers, both growers and pesticide applicators need accurate and timely information on the location of nearby colonies that could affect application decisions. Therefore, a critical element of this plan is the ability for a pesticide applicator to contact nearby managers and beekeepers to alert them of a pending pesticide application.

The distance from the pesticide treatment site inside which the applicator should be cognizant of the location of managed colonies will henceforth be referenced as the “pollinator awareness zone”. For purposes of this plan, the pollinator awareness zone associated with agricultural pesticide application sites shall be considered an area within a two mile radius. For urban, turf, ornamental, and outdoor structural pesticide applications the zone shall be limited to properties immediately adjacent to the location of the managed pollinator colony. It should be noted that pesticides not identified as toxic to bees may not be targeted for inclusion in this communication activity.

The proposed mechanism by which a pesticide user will be able to identify the location of managed pollinator colonies within the pollinator awareness zone should be the voluntary web-based registry *BeeCheck*<sup>TM</sup> <https://beecheck.org>. Beekeepers are encouraged to register and routinely update the locations of their hives on *BeeCheck*<sup>TM</sup> during the pesticide application season. Growers and pesticide applicators are encouraged to register to get automated email messages alerting them to the presence of pollinators in their application area(s). In addition, it is recommended that dedicated state nature preserves be added to *BeeCheck*<sup>TM</sup> as potential pesticide sensitive sites in order to raise awareness of pesticide applicators for pollinators living and foraging in these areas.

Two-way communication between pollinator managers and pesticide users prior to pesticide application is voluntary. So is participation in *BeeCheck*<sup>TM</sup>. However, both activities are strongly recommended as they are critical to the success of this plan.

*Activity Leaders: FieldWatch, Inc.; Indiana Nature Conservancy; Indiana Department of Natural Resources (IDNR); Beekeeper Associations; Grower and Applicator User Groups.*

### **Encourage growers & pesticide applicators to contact nearby beekeepers prior to application**

Once growers and applicators identify managed hives in the pollinator awareness zone, there needs to be a means for growers and applicators to contact those beekeepers to notify them of a pending pesticide application. Beekeepers, in turn, need a reasonable time period to take action to protect their colonies, if necessary. This is often done by moving colonies temporarily to a protected location, by temporarily netting hives, or other means. Growers or applicators should notify pollinator managers in advance of treatment so that parties can discuss and decide upon steps to protect the pollinators in the defined area, while still allowing management of the pest(s).

It is recommended that the grower or pesticide applicator make a reasonable attempt to contact all *BeeCheck*<sup>TM</sup> registered beekeepers in the pollinator awareness zone a minimum of 24 hours prior to an anticipated pesticide application. However, it is important to recognize that there are often competing priorities and challenges to consider. For example, the presence of other nearby pesticide sensitive sites, changing weather conditions, and emerging development stages of plants and pests will introduce complicating variables into this process.

*Activity Leaders: Office of Indiana State Chemist ; Purdue Pesticide Programs; Beekeeper Associations; Grower and Applicator User Groups.*

### **Support regulatory measures to promote pollinator protection & health**

There are a number of pesticide regulatory measures that are being proposed or are already in place to promote protection of pollinators. Recently (5-28-15) EPA proposed to revise pesticide product label language to address acute exposure to pesticides from foliar applications. While the proposed mitigation focuses on managed bees under contract pollination services, EPA believes that in protecting managed bees in these circumstance, these measures would also protect unmanaged native solitary and social bees that are also in and around pesticide treatment areas. EPA's current proposal includes pesticide label language as follows:

**“It is a violation of Federal law to use this product in a manner inconsistent with its labeling. FOR FOLIAR APPLICATIONS OF THIS PRODUCT TO SITES WITH BEES ON-SITE FOR COMMERCIAL POLLINATION SERVICES: Foliar application of this product is prohibited from onset of flowering until flowering is complete when bees are on-site under contract, unless the application is made in association with a government-declared public health response. If site-specific pollinator protection/pre-bloom restrictions exist, then those restrictions must also be followed.”**

Moreover, EPA recognizes there are concerns associated with potential exposure to some pesticides that are not classified as acutely toxic to pollinators by contact. These concerns include pesticides used in combination which may result in enhanced toxicity, and crops which incorporate pesticide residues in pollen/nectar. EPA has plans to address these situations by conducting chemical-specific risk assessments for bees and will consider additional product-specific mitigation, as needed, in the Office of Pesticide Program’s (OPP’s) registration and re-registration review programs. Specifically EPA has accelerated the schedule for re-evaluation of the neonicotinoid class of insecticides. These systemic insecticides are used in both non-agriculture and agriculture settings, including extensive use as a seed treatment.

In addition to the proposed label language, there are currently a variety of existing legally enforceable label restrictions focused on keeping pesticides from drifting off-target and protection of pollinators. Some pesticide labels have restrictions prohibiting application when bees are foraging. Others may prohibit application when crops are blooming. Still other labels may restrict off-target drift to pollinators or their forage. Where adequate label drift restrictions do not exist, Indiana law provides a restriction against off-target drift that documentably causes harm. Each of these regulatory provisions are enforced in Indiana by OISC. OISC has developed specific investigation procedures for responding to alleged pollinator pesticide exposure incidents. OISC also maintains an active complaint response investigation and enforcement program that examines both direct exposure of pollinators to pesticides and indirect exposure from pesticide treated articles such as treated agricultural seeds.

*Activity Leader: U.S. Environmental Protection Agency; Office of Indiana State Chemist*

## **Promote Best Management Practices (BMPs) for pollinator protection & health**

Regulatory safeguards aside, it is a primary objective of this plan to promote pollinator Best Management Practices (BMPs) that can be utilized by beekeepers, pesticide users, growers, land managers, government, homeowners and other stakeholders engaged in the protection of pollinators. Plan developers will rely heavily on BMPs being developed by the Purdue University Cooperative Extension Service (CES) Issues Based Action Team (IBAT). The IBAT is an inter-departmental multi-discipline team focused on protecting Indiana pollinators. Following are a series of stakeholder organized BMPs that should serve as placeholders while the IBAT and IPRB proceed with their detailed development work.

### ***Bee Keeper & Pollinator Manager BMPs:***

**Work with landowners to choose hive locations.** Ideal hive locations will have minimal impact on agricultural activities but will still have adequate access to forage and water. Avoid low spots to minimize impacts from drift or temperature inversions on hives. Give consideration to timing after rain events when determining which roads to travel. Discuss with landowners preferred roads/trails to use.

Beekeepers should also request contact information for applicators, renters, and neighbors (if applicable).

**Be cognizant of neighboring landowners when placing and moving hives.** Neighboring landowners often use the same roads, trails, and section lines. Do not block these right-of-ways or place hives so close they may cause problems for other land-users. Take appropriate steps to ensure that bees do not negatively affect operations of neighboring landowners, such as considering the proximity of hives to neighbor's yard, bins, equipment, or storage sites.

**Notify landowners and applicators when arriving and when moving hives.** If possible, notify nearby pesticide applicators and landowners when you place or move beehives. This will ensure they are aware of current hive locations and can notify you before making pesticide applications. Contact information for nearby pesticide applicators can usually be obtained from landowners.

**Report all suspected pesticide-related bee kills to the OISC pesticide program immediately.** Inspect bee behavior regularly. The OISC is the lead pesticide regulatory agency in the state. The OISC will respond to complaints, including collecting and analyzing the location for pesticide residues. Some pesticides degrade rapidly, and timely reporting will aid the pesticide investigation. Beekeepers can report suspected pesticide incidents by calling 1-800-893-6637.

**Ensure hives are easily visible to applicators.** Hives must be visible so applicators can locate them before spraying. It is strongly suggested that hives be painted a color that stands out from the surrounding area and/or visibly marked with a *BeeCheck*<sup>TM</sup> flag or field sign.

### ***Grower, Landowner , and Property Manager BMPs:***

**Work with beekeepers to choose hive locations.** Ideal locations for hives will have minimal impact on farming operations, but will still allow bees to access forage and water. Communicate with beekeepers which roads/trails can be problematic when wet and any preferred traffic routes. Landowners may also want to provide contact information for applicators, renters, and neighbors (if applicable).

**Communicate with renters about bee issues.** Renting land for agricultural production is a common practice. Landowners and renters should discuss bee issues, such as who has authority to allow bees, how long they will be allowed, and hive placement. These issues should be addressed and included when rental agreements are negotiated.

**Communicate with pesticide applicators to identify who is responsible for locating hives and notify beekeepers.** When contracting with commercial pesticide applicators, make sure that there is a clear understanding of who has the responsibility to identify hive locations and communicate with beekeepers. Applicators may do this as part of their standard procedures, but some landowners may prefer to make beekeeper contacts themselves.

**Agronomists should consider pollinator impacts when making pesticide recommendations.** Ensure that agronomists and crop consultants consider pollinator issues when making pesticide recommendations, including product choices and pesticide timing decisions.

**Learn to interpret seed tags and what pesticides may have been used to treat crop seeds.**

Some pesticide used as protective seed treatments may be more or less likely to cause bee health issues than others. Related pesticide exposure issues can include: 1) toxicity of the active ingredient; 2) whether the pesticide works systemically, transferring from the treated seed to the growing plant; or 3) pesticide containing dust created by seed handling/planting processes becoming airborne. Regardless, carefully consider the specific pest pressures that your crop may face and choose seed treatment options that are less hazardous to pollinators. Also consider if use of untreated seed may be an option.

**Utilize alternatives to talc/graphite in planters.** When planting seeds treated with insecticides, utilize alternatives to talc/graphite as they become available. The talc and graphite can abrade the insecticide treatment off of the seeds, thereby creating insecticide-containing dust that can drift onto hives and flowering plants.

**Use Integrated Pest Management (IPM).** Utilize economic thresholds and integrated pest management (IPM) to determine if insecticides are required to manage pests. When insecticides are required, try to choose insecticides with low toxicity to bees, short residual toxicity, or repellent properties towards bees.

***Pesticide Applicator BMPs:***

**When possible, apply pesticides early morning or in the evening.** Pollinators are most active during daylight hours and when the temperature is over 55 degrees Fahrenheit. Apply pesticides early in the morning or in the evening when bees are less active to reduce the chances that bees will be foraging in or near the treatment site. Be cognizant of temperature restrictions on pesticides. The efficacy of some pesticides is reduced at certain temperatures. Be aware of temperature inversions when choosing the best time for applications.

**Identify and notify beekeepers in the area prior to pesticide applications.** Bees will fly several miles to find quality forage. Therefore, pesticide applicators should identify and notify beekeepers within two miles of a site to be treated at least 24 hours prior to application or as soon as possible. Timely notification will help ensure ample time for the beekeeper and applicator to develop a mutually acceptable strategy to manage pests while mitigating risk to honey bees. This may include covering hives, moving hives, or choosing the time of day to apply. *\*Notifying beekeepers does not exempt applicators from complying with pesticide label restrictions. Many insecticide labels prohibit use if pollinators (bees) are present in the treatment area.*

**Choose products with lower risk to bees.** Avoid dusts and wettable powder insecticide formulations. Dust and wettable powder pesticide formulations can leave a powdery residue which sticks to hairs on bees. Bees then bring the pesticide back to the hive and potentially expose the entire hive to the pesticide for an unknown amount of time. Granular and liquid formulations are safer for pollinators since granules are not typically picked up by bees, and liquids dry onto plant surfaces. Also choose products with lower residual toxicity to bees.

***General Public, Homeowner, and Government Agency BMPs:***

**Plant pollinator forage.** Everyone can plant forage for bees. Plants that support pollinators are also beneficial for other wildlife, are often visually attractive, and can help improve soil health. Flowers often

come to mind when thinking about bees, but bees also utilize trees, shrubs, and other less-noticeable plants for pollen and nectar sources. It is important to consider diversity when choosing plants to ensure adequate forage for the entire growing season. Diversity will also ensure pollinators have access to all of the nutrients they require to be healthy. Here are some easy, efficient ways to improve pollinator forage.

**Create pollinator forage along secondary roads.** Secondary road ditches often contain several species of plants that provide forage for pollinators. It is a common practice to mow ditches for the safety of motorists and to prevent drifting snow. Consider spot spraying noxious weeds and mowing ditches later in the year to ensure that bee forage is available. Incorporate short forbs into secondary road ditches to minimize attracting large wildlife.

**Create pollinator forage in residential and urban settings.** Put out flower pots, create flowerbeds, plant trees or shrubs, or establish gardens to provide forage. Homeowners should also take special precaution when applying pesticides. The pesticide user BMPs apply to anyone using pesticides. Remember, the pesticide label is the law and it is in place to minimize risk to the environment and human health.

**Create habitat for beneficial, wild pollinators.** Roughly 70 percent of native bees nest in the ground. They burrow into areas of well-drained, bare, or partially vegetated soil. Other bees nest in abandoned beetle houses in snags or in soft centered, hollow twigs and plant stems. Bees will also utilize dead trees and branches. Habitats can be created by leaving deadfalls and brush piles as nesting habitat. Consider the type of habitat you wish to create and pollinators you want to attract. Be cognizant that certain structures might attract other animals such as fox, coyote, opossums, and skunks.

## **Educate & inform stakeholders & the public about the plan**

This plan will be successful only if there is robust adoption of the measures herein. One way to accomplish this is through outreach to publicize the plan and its recommendations and requirements. Outreach efforts should target both key stakeholders and the general public and should include: 1) both initial and continuing certification training for licensed commercial pesticide applicators; 2) both initial and continuing certification training for licensed private applicators (growers/farmers); 3) consumer brochures and fact sheets provided at point-of-sale pesticide distributors; 4) communication through beekeeper association meetings; 5) communication through neighborhood and homeowner association meetings; 6) public outreach through Master Gardener programs (CES) and Master Naturalist programs (IDNR); 7) educational displays at Indianapolis Zoo Butterfly Building and White River Gardens ; 8) publications by Indiana Native Plants and Wildflower Society(INPAWS); 9) publications by the Xerces Society ; 10) stakeholder targeted BMPs, publications and outreach through Purdue University Cooperative Extension Service (CES) Issues Based Action Team (IBAT) on Protecting Indiana Pollinators; and 11) and government agency web sites.

***Activity Leaders:*** Purdue CES; Purdue Pesticide Programs; INPAWS; IDNR; OISC

## **Process for periodic review of this plan**

This plan is meant to be a dynamic document that will be periodically reviewed and updated. The IPRB must determine whether or how to adjust the plan based on stakeholder feedback so that the plan ultimately leads to better relationships among the stakeholders and greater degrees of protection for

pollinators. Therefore, in addition to providing opportunities for review and update at regularly scheduled quarterly IPRB meetings, this plan should be comprehensively evaluated at least every three years. As with the initial plan development, it is critical that this comprehensive review include a public stakeholder process to evaluate the effectiveness of the plan and to make modifications as needed.

**Activity Leaders:** IPRB; OISC

### **Measuring the effectiveness of this plan**

At the time of this writing, states continue to work with EPA and other stakeholders to discuss appropriate measures for the effectiveness of state Pollinator Protection Plans. Examples of measures could include such things as changes in behavior (e.g. improvements in levels of communication and cooperation among stakeholders), changes in pesticide exposure to bees, trends in a catalog of reported swarms, trends in the use of the *BeeCheck<sup>TM</sup>*, environmental monitoring showing reductions in the presence of residual insecticides of concern, adoption rate of BMPs, reported and confirmed incidents of bee kills caused by pesticides, changes in overall pollinator health, or other metrics. It is unlikely that any single measure will be available to definitively measure the effectiveness of the plan. Instead, Indiana may need to develop a number of metrics to assess whether this plan is meeting its intended goals over time.

**Activity Leaders:** IPRB; OISC; IDNR