



State Managed Pollinator Protection Plans: *Public-Private Partnerships*

I. Introduction

NASDA members, individually and collectively, have been actively engaged in identifying the various factors impacting pollinator health, and more importantly, developing public-private partnerships on the state level to bring forward sound solutions to protect and promote pollinator health.

NASDA promotes the development and implementation of state Managed Pollinator Protection Plans to ensure growers, applicators, beekeepers, and other agricultural stakeholders are able to continue to produce our nation's food, fiber, and fuel in a productive and collaborative manner.

II. About NASDA

NASDA represents the Commissioners, Secretaries, and Directors of the state departments of agriculture in all fifty states and four U.S. territories. State departments of agriculture are responsible for a wide range of programs including food safety, combating the spread of disease, and fostering the economic vitality of our rural communities. Conservation and environmental protection are also among our chief responsibilities.

In forty-three states and Puerto Rico, the state department of agriculture is the lead state agency responsible for the regulation of pesticide use under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and in forty-seven states the lead Apiary Inspector resides within the state department of agriculture. Both the [Association of American Pesticide Control Officials](#) (AAPCO) and the [Apiary Inspectors of America](#) (AIA) are affiliates of NASDA and have contributed to this document.

III. Apiculture is Agriculture

The U.S. Department of Agriculture's (USDA) [National Agricultural Library](#) defines apiculture as "the maintenance of honeybees and hives - provides farmers and hobbyists with a variety of enterprises including production of beeswax, honey and other edible bee products; crop pollination services and sale of bees to other beekeepers."

Apiculture, or beekeeping, is an essential component of agriculture, and bees (both commercially managed honey bees and wild bees) play an important role in global food production. In the United States alone, the value of insect pollination to U.S. agricultural production is estimated at \$16 billion

annually, of which about three-fourths is attributable to honey bees. Worldwide, the contribution of bees and other insects to global crop production for human food is valued at about \$190 billion.

IV. Summary of Factors Impacting Bee Health

There are numerous and complex factors associated with bee health, including: parasites and diseases, lack of genetic diversity, need for improved forage and nutrition, need for increased collaboration and information sharing, and a need for additional research on the potential impacts certain pesticides may have on honey bee health.

NASDA points to the scientific review of the 2007 National Academy of Sciences (NAS) report, *Status of Pollinators in North America*, and the 2013 USDA-EPA joint report, *National Stakeholders Conference on Honey Bee Health*, which published the following key findings:

- **Address Risks to Honey bees from Parasites and Disease:** the parasitic *Varroa* mite is recognized as “the major factor underlying colony loss” in the United States and in other countries. Moreover, there is “widespread resistance to the chemicals beekeepers use to control mites within the hive,” and new virus species have been found in the U.S. and several of these have been associated with Colony Collapse Disorder (CCD).
- **Need for Increased Genetic Diversity in Bee Colonies:** Genetic variation improves bees’ thermoregulation, disease resistance, and worker productivity in colonies, and bee breeding should emphasize traits (such as hygienic behavior) that confer improved resistance to *Varroa* mites and diseases.
- **Need for Improved Nutrition for Honey Bees:** Nutrition has a major impact on individual bee and colony longevity, and a poor diet can make bees more susceptible to harm from disease and parasites. Bees need better forage and a variety of plants to support colony health, and federal and state programs should consider land management strategies that maximize available nutritional forage and to protect bees by keeping them away from pesticide-treated fields.
- **Need for Collaboration and Information Sharing:** Best Management Practices (BMPs) associated with pesticide use and bees are known but are not widely or systematically followed by U.S. crop producers or beekeepers. “Informed and coordinated communication between growers and beekeepers” is needed, along with “effective collaboration between stakeholders on practices to protect bees from pesticides.” Beekeepers have identified the need for “accurate and timely bee kill incident reporting, monitoring, and enforcement.”
- **Additional Pesticide Research Needed:** According to EPA: “The most pressing pesticide research questions relate to determining actual pesticide exposures and effects of pesticides on bees in the field and the potential for impacts on bee health and productivity of whole honey bee colonies.”

These findings clearly delineate the complexity in evaluating and addressing bee health, and the multitude of these factors do not lend themselves to a single, uniform solution that will successfully address all of these variables across the diverse and robust agricultural community in all fifty states and four territories.

However, a state-by-state approach utilizing the state departments of agriculture as the vehicle to unify, discuss, and develop best management plans will result in a productive and synergetic relationship between beekeepers, growers, applicators, and other agricultural stakeholders. This state driven model, known as a State Managed Pollinator Protection Plan (MP³), is already a proven formula in a number of states.

V. Scope & Purpose of State Managed Pollinator Plans

A Managed Pollinator Protection Plan or “MP³” is a set of recommendations and practices for the protection of managed pollinators that allows both crop production and bee keeping to thrive. MP³s facilitate a collaborative approach to implementing risk mitigation practices for beekeepers, growers, and applicators while allowing for the appropriate and necessary use of crop protection tools. MP³s account for the wide variation in regulatory authorities across the states and territories by providing each respective jurisdiction the needed flexibility to develop plans based on their agricultural systems and regulatory authority.

The scope of the MP³ is currently limited to “managed pollinators”, which include any species of pollinators managed by humans, be it for pollination services; the production of honey, beeswax, and other products; or for some other purpose. 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.*).

The primary purpose of the MP³ is to establish a systematic and comprehensive method for beekeepers, growers, pesticide applicators, and landowners to cooperate and communicate in a timely manner that allows all parties to operate successfully within the state. It is the intent that such open communication will lead to practices that both mitigate potential pesticide exposure to bees and allow for the effective management of various pest stressors.

In addition to mitigating risk of pesticides to pollinators, MP³s can also establish clear expectations among stakeholders when pesticide applications are made near managed pollinators. This open communication will not only help build relationships and increase mutual understanding, but it will also ensure peaceful co-existence and allow all parties to operate successfully.

The MP³ is tailored to the distinct and diverse agricultural operations in each respective state and region, and the plans in place have demonstrated success in reducing losses to bee production while allowing

crop producers to retain and utilize important crop protection tools. The MP³s developed and implemented in various geographical regions and crop production systems across the country demonstrate the value and success of this state-driven approach.

VI. Common Elements of State Managed Pollinator Protection Plans

To date, approximately thirty states have either implemented or are in some stage of the MP³ development process. While each of these plans is unique, several of the MP³s currently developed or implemented share many of the following common elements that mitigate risk to pollinators, allow growers access to critical crop protection tools, and ensure communication and coordination among stakeholders:

1. Public Stakeholder Participation Process

MP³s developed to date have benefited from direct discussions among beekeepers, crop producers, pesticide applicators, and other agricultural stakeholders. Stakeholder participation is essential to identifying key issues affecting pollinator health at the state level while also building relationships and sharing information across various agriculture practices. Existing state pollinator plans originated with stakeholder meetings initiated and facilitated by the state department of agriculture (or FIFRA State Lead Agency) providing opportunities for stakeholders to offer input and recommendations.

To successfully balance the need to protect both managed bees and crop production practices, a public process is recommended to bring the relevant parties together. Providing opportunities for input from a balanced (*i.e.*, representative) cross-section of stakeholders when plans are being developed or updated has been very successful when done through face-to-face public meetings involving broad agricultural stakeholder involvement. The process may also provide opportunities for the public to comment on a draft MP³ prior to it being finalized.

2. Growers and applicators awareness of managed pollinators near treatment sites

Growers, applicators, and landowners need accurate and timely information on the location of nearby colonies in order to adequately coordinate and communicate with beekeepers. States have developed various approaches to facilitate this communication and information exchange, which can be essential for a pesticide applicator to contact a beekeeper whose colonies may be near a treatment area.

Several states have defined the distance around a hive in which the applicator is asked to identify the location of the managed colonies (*i.e.* a “pollinator awareness zone”). Some MP³s have defined this as an area within a 1-2 mile radius of the treatment site in agricultural areas, while other MP³s have used alternative measurements. MP³s may define the mechanism or means by which a pesticide user will be able to identify the location of managed bee colonies within the pollinator awareness zone. Methods for accomplishing this include mandatory or voluntary hive/apiary registration systems that identify location of colonies geographically or other strategies to visually identify hive/apiary locations (*e.g.*, bee

flags). In some cases, the geographic location information is very specific (*e.g.*, GPS coordinates), while in others the location is within a township, section, range, in which case the grower/applicator may directly contact the beekeeper to determine the exact location.

Current MP³s have utilized various measures to facilitate this information sharing process. For example, North Dakota has a state apiary registration requirement that provides information on the [location of registered colonies](#). Other states have utilized third party or self-registry sites, and other states may seek to mirror Florida's [Apiary-Citrus Industry Link Mapping Service](#).

3. A method for growers and applicators to identify and contact beekeepers prior to application

Once growers and applicators identify managed hives in the pollinator awareness zone, states may choose to develop a means for growers and applicators to contact those beekeepers and 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 may be accomplished by temporarily moving colonies to a protected location or by temporarily netting hives.

Some MP³s may seek to address ways for growers or applicators to notify beekeepers in advance of certain treatments so involved parties may discuss and decide upon steps to protect the managed bees in the defined area, while still allowing management of the pest(s). Several MP³s have identified a minimum time period (such as 48 hours) prior to an anticipated pesticide application in which beekeepers of managed colonies in the defined action zone should be contacted.

MP³s may choose to incorporate methods for pesticide applicators and/or landowners to obtain contact information for owners of managed colonies near a pesticide treatment area. In the plans that have been developed to date, states have utilized a variety of strategies to provide applicators with beekeeper contact information. These include web-based apiary registration databases or self-registry websites in which an applicator can quickly and easily obtain beekeeper contact information for a given colony. Other states have utilized requirements for beekeepers to prominently display beekeeper contact information via signage at the colony location. Regardless of the approach, stakeholders participating in the MP³ development process have identified this information sharing with and means for pesticide applicators to obtain timely contact information for beekeepers as a valuable component.

4. Inclusion of best management practices to minimize risk of pesticides to bees

Several MP³s developed to date include best management practices (BMPs) for both applicators and beekeepers to minimize the risk of pesticides to bees and promote sound hive management practices while utilizing sound Integrated Pest Management (IPM) practices and other approaches.

BMPs will always reinforce the requirement to use registered pesticides consistent with the product's labeling. Growers and applicators are trained to apply crop protection products in strict compliance with the pesticide label directions, which are developed within the requirements of the Federal

Insecticide, Fungicide and Rodenticide Act (FIFRA). EPA carefully reviews and approves these labels after evaluating potential environmental and health hazards. MP³s and BMPs must account for label compliance requirements, which apply not only to persons making pesticide applications near managed pollinators but also with beekeepers using pesticides in their hives.

Several states have developed or incorporated BMPs with the assistance of university researchers and extension specialists, as well as input from crop producers, beekeepers, and other stakeholders.

5. A clear defined plan for public outreach

State MP³s are only as successful as the individuals who participate in both the plan development process and the plan implementation process. Several states have enhanced this outreach process by widely publicizing the MP³ development process through meetings with organized stakeholder groups, such as trade associations, commodity groups, and beekeeping organizations.

6. A mechanism to measure effectiveness of an MP³

As stated above, the objective of an MP³ is to establish a systematic and comprehensive method for beekeepers, growers, pesticide applicators, and landowners to cooperate and communicate in a timely manner that allows all parties to operate successfully within the state. As with any initiative, states are interested in determining the effectiveness of their MP³, and stakeholders may seek to discuss certain measures to be used to determine whether the Plan's objective is being met. These measures may differ among states based on the scope and nature of a state's plan, state pesticide and apiary laws, available resources, and other factors.

Examples of measures may include such elements such as changes in behavior (e.g. improvements in levels of communication and cooperation among stakeholders) or changes in overall pollinator health. Regardless of the measure, it is unlikely any single metric will definitively measure the effectiveness of an MP³. Instead, states may seek to develop a number of metrics over time to assess whether their plan is meeting its intended goals.

7. Communication with crop advisors and agricultural extension service

Many landowners utilize crop advisors and agricultural extension specialists for input on cropping and pest management decisions. These individuals are often aware of local pest pressures, specific geographical and climate variables, and crop protection needs at the field level. Crop advisors and agricultural extension offices are important partners in integrating effective crop protection and sound beekeeping practices.

Stakeholders may choose to engage in regular communication to explore and develop strategies on how the expertise and input of crop advisors and agricultural extension services can be utilized in pollinator

protection efforts. Extension services can also serve an important role in engaging stakeholders, disseminating technical information, facilitating discussions, and educating the public on plans.

8. Crop-specific or site-specific plans

Because different crops have different crop protection needs and different pollinator risk mitigation strategies, states may choose to develop separate or modified MP³s for specific cropping systems. In addition, strategies to ensure stakeholder communication and cooperation may vary significantly between agricultural and non-agricultural settings, and certain MP³s may incorporate various strategies for agricultural and non-agricultural settings.

9. More formalized agreements between beekeepers, crop producers, and property owners for crops under contracted pollination services

Growers, applicators, landowners and beekeepers may seek to articulate their respective responsibilities related to the placement of bee hives on property controlled by the grower or landowner. The MP³ development process may be the appropriate means to discuss the framework of these agreements, such as: stipulating to the process for placing hives on certain property, ensuring the parties have appropriate contact information, expectations regarding notification prior to treatment, expected crop protection needs and practices, specifications regarding hive location, specifications regarding time frames for placement and removal of hives, and any other factors growers, applicators, landowners and beekeepers might discuss to ensure mutually beneficial practices.

10. Ability to deal with unknown or uninvited hives

Some states have found the unknown placement of hives by a beekeeper without the grower's knowledge has been problematic in some areas, and in these cases, the identity and contact information for the hive's owner is often times not known. Stakeholders may choose to discuss or include an appropriate resolution to these situations during the MP³ development process.

11. A mechanism for publicizing the state plan and increasing communication between bee keepers, agricultural community and encouraging participation in the development of the plans

Several states have conducted robust outreach efforts to beekeepers, growers, applicators, and landowners through a variety of means, such as: public notices, news alerts, collaboration with organized stakeholder groups, such as trade associations, commodity groups, and bee keeping organizations, and other public meetings.

12. A process to periodically review and modify each plan

Many state MP³s were developed with the intent to be living documents that are periodically reviewed and updated, and several states that have already implemented their MP³ are in the process of updating

or expanding certain portions of their plans. Future MP³s may also choose to account for a process and timeline on how the plan will be periodically reviewed and modified.

VII. Conclusion

NASDA supports the development and implementation of state MP³s, which are a proven model of success in promoting pollinator health and ensuring growers have access to essential crop protection tools.

This state-driven, public-private partnership process can also be a vehicle for educational opportunities, habitat improvements, and identifying research priorities in honey bee health, nutrition, habitat and forage availability, disease and parasite resistance, and genetic diversity.

NASDA continues to promote the development and implementation of state Managed Pollinator Protection Plans to ensure growers, applicators, beekeepers, and other agricultural stakeholders are able to continue to produce our nation's food, fiber, and fuel in a productive and collaborative manner.

Additional Resources:

[NASDA Policy Statements:](#)

In 2013, the NASDA membership reviewed, updated, and approved our Policy Statement ([Domestic Bee Protection: Sec. 1.7](#)), which recognizes: (1) the importance of the beekeeping industry to American agriculture; (2) the need to protect the beekeeping industry from introductions of undesirable honey bee diseases, parasites, pests, or genetic strains of bees in the United States; (3) the critical need for continued funding of science-based research initiatives, in both the private and public sectors, to identify the definitive causes of CCD and support the development of integrated pest management practices with lower risk to bees, new tools to manage *Varroa* mites, and pesticides and adjuvants with bee repellent properties as a way to reduce potential stressors to pollinators; and (4) the continued development of state department of agriculture pollinator plans as guidelines to promote the health and welfare of pollinators.

In 2015, the NASDA membership reviewed and approved an [Action Item](#) to “Promote the development and implementation of state managed pollinator plans to ensure growers, applicators, beekeepers, and other agricultural stakeholders are able to continue to produce our nation’s food, fiber, and fuel in a productive and collaborative manner.”

Association of American Pesticide Control Officials (AAPCO):

- [Report of AAPCO Committee on Managed Pollinator Protection Plans](#)
- [AAPCO & State FIFRA Issues Research & Evaluation Group \(SFIREG\) Pollinator Materials](#)

Current State MP³s Available for Review:

- North Dakota: <http://www.nd.gov/ndda/files/resource/NorthDakotaPollinatorPlan2014.pdf>
- California: <http://www.cdpr.ca.gov/docs/legbills/calcode/030203.htm>
- Mississippi: <http://www.mdac.state.ms.us/departments/bpi/index.html>
- Florida: <http://www.freshfromflorida.com/Consumer-Resources/Florida-Bee-Protection>
- Colorado: <http://www.cepep.colostate.edu/Pollinator%20Protection/index.html>