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MASSACHUSETTS



Pollinator Protection Plan

PREPARED BY:

Apiary Program Working Group
Division of Crop & Pest Services

AVAILABLE ONLINE AT:

mass.gov/eea/agencies/agr/farm-products/apiary

CONTACT:

Kim Skyrn
Chief Apiary Inspector
Division of Crop & Pest Services
Kim.Skyrm@state.ma.us

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Letter from Agriculture Commissioner (coming soon)

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INTRODUCTION

Agriculture is a vital part of life in Massachusetts, providing our state with valuable commodities, land preservation, employment opportunities, and economic growth. While there was a national decline in agriculture from 2007-2012, Massachusetts was one of the few states that experienced growth over that period, in number of farms as well as acres of farmland. Currently home to 7,755 farms consisting of 523,000 acres of operating farmland, Massachusetts is a key producer of crops specialized to the eastern seaboard, such as cranberries. Over 45% of agricultural commodities in our state rely on managed bee pollinators for crop pollination. The term “managed bee pollinators” refers to any species of bee pollinator that are managed by humans, be it for pollination services; the production of honey, beeswax, and other products; or for some other purpose. This group of pollinators consist of honey bees (*Apis mellifera*), bumble bees (*Bombus* spp), alfalfa leafcutting bees (*Megachile rotundata*), and mason bees (*Osmia* spp.).

DECLINE OF MANAGED BEE POPULATIONS

Over the past ten years, populations of managed bee pollinators nationwide have been experiencing significant challenges in their ability to survive and flourish. An example of this is evident in the consistent reports from beekeepers (commercial, sideliner and hobbyist) documenting annual colony die-offs of around 29% at the end of each winter, significantly higher than the acceptable level of 18%.⁵ This trend, along with the occurrence of Colony Collapse Disorder (CCD) and documented deficits in crop pollination, has drawn attention to losses of managed bee pollinators and the need for efforts to evaluate, sustain and ultimately enhance these populations. The phenomenon of CCD, a term used to refer to cases where large numbers of adult honey bees disappear from a colony during the spring and summer, received widespread media attention in 2006, after an alarming number of beekeepers experienced higher than normal rates of colony losses during the active bee season. CCD and overall declines of managed bee populations have been linked to a variety of factors, including parasites, diseases, lack of genetic diversity, habitat and forage degradation, climate change, and pesticides.^{1,2,3,4,6}

THE PLAN

Given the diversity of factors involved in the decline of managed bees, combined with the need to effectively evaluate, sustain and enhance these populations, there was a national memorandum issued in 2014 by President Obama, followed by the release of a National Strategy calling on Federal Agencies to coordinate their efforts to improve managed bee pollinator health.⁷ A key component of this strategy was the engagement of all states to develop independent state-level Pollinator Protection Plans (MP3) that facilitate collaboration and provide a set of recommendations of practices for those key stakeholders involved in the protection of managed bee pollinators including state agencies of agriculture, beekeepers, pesticide applicators, land managers/farmers and the nursery/landscaping industry.

After the consideration of comments to the initially proposed MP3 framework and MP3 guidance from State FIFRA Issue Research and Evaluation Group (SFIREG) and EPA: <http://wasba.org/wp/wp-content/uploads/2015/08/2015-SFIREG-MP3-Guidance-Document.pdf>, the Massachusetts Department of Agricultural Resources (MDAR) developed the following document to provide a set of voluntary guidelines to outline the roles of MDAR, beekeepers, pesticide applicators, land managers/farmers, nurseries/landscapers, and the general public in protecting pollinator health. While this plan focuses on managed bee pollinators, these guidelines will also contribute to and be used for coordinating efforts to provide protection and support for other native insect pollinators. The effectiveness and impact of this plan will be reviewed by MDAR on an annual basis by assessing a variety of performance metrics. For a detailed description of these metrics see Appendix A.

THE ROLE OF MASSACHUSETTS DEPARTMENT OF AGRICULTURAL RESOURCES (MDAR)

Apiary Inspection Program

It is the responsibility of MDAR to provide support to beekeepers through the Apiary Inspection Program and through collaboration with other government agencies. Key areas of support include:

- Communicating with beekeepers to determine their needs
- Keeping up to date on the status of managed bee pollinators
- Marketing of honey and other bee products as agricultural commodities
- Providing notification to stakeholders of any apicultural health concerns

MDAR considers the Apiary Inspection Program to be an integral component of the department and will continue to ensure adequate funding and staffing to provide support to beekeepers. The program staff will continue to consist of a full time Chief Apiary Inspector and a team of seasonal full time inspectors to service the state. While the current job duties of the Chief Apiary Inspector include a small portion of time providing nursery inspection support, the majority of the position is focused on the protection and health of honey bees. Seasonal Apiary Inspectors support the Chief Apiary Inspector by performing annual health and regulatory inspections of bee hives, evaluating hives for the presence of parasites, pathogens and pests, and providing education to stakeholders. All inspectors work with county-level bee organizations, universities, state-level agencies, and national inspectors in order to stay updated on the needs of beekeepers and the health concerns facing managed bee pollinator populations.

The Apiary Program webpage is in the process of being updated in order to provide a portal for all stakeholders to access current information related to beekeeping, bee health, and apiary laws and regulations. MDAR also plans to research the feasibility of creating of a voluntary hive mapping program, as a method of improving communication between beekeepers and pesticide applicators and mitigating the risk of pesticide exposure. This tool would also provide a way for the Apiary Program to identify geographic areas that are hotspots for bee health issues. MDAR will also investigate potential funding sources in order to create and maintain its

own apiary, in order to provide support to beekeepers through demonstrations of beekeeping practices, hive management strategies, public outreach, and data collection for parameters related to bee health.

Pesticide Enforcement Program

MDAR's Pesticide Enforcement Program is tasked with protecting the environment by providing licenses to individuals who apply pesticides, registering pesticide products used in the Commonwealth, and enforcing both federal and state pesticide laws and regulations. The program will work with the Chief Apiary Inspector to develop outreach materials and include pollinator safety information as part of any pesticide applicator training that the program participates in. MDAR will also encourage outside programs to include pollinator safety in any training provided to pesticide applicators. The program also acts as support staff for the Pesticide Board, Pesticide Board Subcommittee, MDAR department heads, and Apiary Program, by informing these groups about products needed for managing bee health issues or those involved in causing harm.

The Pesticide Enforcement Program will also continue its partnership with the Apiary Inspection program to investigate reported bee kills, using guidelines created by the Environmental Protection Agency (<http://www2.epa.gov/sites/production/files/2013-09/documents/bee-inspection-guide.pdf>). All data collected on managed bee pollinator health will be analyzed, converted to an electronic format, and provided to the public in an annual report. This data will be reviewed to determine if there are any trends regarding pesticides and pollinator health.

THE ROLE OF BEEKEEPERS

Beekeepers have the main responsibility for the overall health and welfare of managed bee hives. This includes taking steps to ensure good bee health, proper hive husbandry, continuing education of novice beekeepers, and communication with land managers, farmers, pesticide applicators, and the public to mitigate pesticide risk and enhance forage. The Massachusetts Beekeeper Association has developed a set of BMPs for honey bees

(<http://www.massbee.org/addons/BestPractices/BMP03-14.pdf>) that should be used as a

guideline for good husbandry practices in beekeeping. In addition, beekeepers are encouraged to do the following:

- Read, become familiar and comply with the following Massachusetts Apiary Laws and Regulations related to beekeeping:
 - Chapter 128 of Mass. General Law, Sections 32-36B:
<https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXIX/Chapter128>
 - 330 CMR 8.00: Apiary Inspection Regulations:
<http://www.mass.gov/eea/docs/agr/legal/regs/330-cmr-8-00.pdf>
- Ensure good colony health by providing adequate food provisions, access to water sources, and proper sanitation practices year-round.
- Learn to recognize and understand the life history and management options for common honey bee pests, parasites, and pathogens. If treating for these organisms, beekeepers should evaluate pre/post population levels so that informed decisions on control options can be made.
- Attend a bee school and/or work with a mentor to learn about beekeeping practices. Currently, there are opportunities for classroom instruction, field training, and mentoring provided by knowledgeable beekeepers to members of county beekeeping associations.
- Work within the local beekeeping community to encourage queen rearing using northern adapted bees, in order to increase vitality and genetics.
- Prevent swarming by colonies. If a swarm is discovered, capture and re-home the unit to avoid public concern.
- Register the location of hives with MDAR, so that they can be included on a hive map, used for contacting beekeepers in times of health concerns as well as a resource that pesticide applicators can use to mitigate pesticide exposure.
- Work with neighbors and land managers when moving and establishing hives so that bees are not considered a nuisance or public safety issue. Be aware of crop production practices in your area and communicate with land managers/farmers and

nursery/landscaping professionals on strategies to prevent pesticide damage prior to application.

- Work with Mosquito Control Projects to be included on “No Spray” lists. Ensure that hives are visible to users/applicators by using marking flags and/or paints.
- Only use pesticides currently registered for hive use, and use them according to label instructions. Obtain a pesticide applicator license for material classified for Section 18/Emergency Exemption Use or Restricted Use.
- In the case of “Bee Kills” where pesticide use is suspected, report to MDAR promptly for investigation.
- If needed, request an annual inspection from MDAR to evaluate hive health.
- Participate in state and national surveys related to hive health, so that the status of Massachusetts honey bees can be documented.

THE ROLE OF PESTICIDE APPLICATORS

Pesticides have the ability to negatively impact managed bee pollinators based on the type, rate, timing, and proximity to the hive of the materials used. Communication, cooperation, and education among stakeholders are the best tools to use to avoid non-target impacts of pesticides on managed bee pollinators. Information about hive locations as well as locations of agricultural commodities grown near apiaries should be shared between stakeholders, as must anticipated pesticide products to be used and timing of applications. Stakeholders must also cooperate and educate one another about their individual needs so that the best decisions can be made for mitigating negative impacts on managed bee pollinators. Given this, pesticide applicators are encouraged to:

- Obtain proper licensure from MDAR prior to applying pesticides.
- Seek training to learn about the biology, life history, husbandry, and best management practices (BMPs) of managed bee pollinators, in order to better understand methods that avoid non-target impacts.
- Follow BMP’s for using pesticides in a way that protects pollinators:

<http://www.epa.gov/pollinator-protection/find-best-management-practices-protect->

[pollinators; https://ag.umass.edu/fact-sheets/pollinators-in-landscape-iii-creating-maintaining-pollinator-landscapes\)](https://ag.umass.edu/fact-sheets/pollinators-in-landscape-iii-creating-maintaining-pollinator-landscapes)

- Use an Integrated Pest Management (IPM) approach to pest control, by utilizing economic thresholds for determining actions. If pesticides are required, seek products that have low toxicity, short residual toxicity, and properties that are repellent to bees.
- Read and carefully evaluate all products prior to use, to ensure that proper application of the products will not impact bees. Only use currently registered pesticides, and use them according to label instructions. To aid applicators, the EPA has released a new Bee Advisory Box for products that are toxic to bees and are labeled for use on blooming crops or bee attractive plants (<http://www.epa.gov/sites/production/files/2013-11/documents/bee-label-info-graphic.pdf>).
- When possible, apply products when managed bee pollinators are less actively foraging (i.e. at night) and when crops attractive to bees for floral resources are not in bloom. Apply pesticides in a manner that they do not drift off target. Do not make applications in areas adjacent to pollinator habitat when the wind is blowing in the direction of hives.

THE ROLE OF LAND MANAGERS/FARMERS

All bees require flowering plants for food resources (pollen and nectar). Some managed pollinators also need access to water, which is used to maintain hive climate. Land managers and farmers serve an important role in sustaining managed bee pollinators by providing floral resources, land for hive locations, and staging yards for migratory beekeepers. Farmers, private land managers, and agencies overseeing public lands are encouraged to incorporate bee pollinator habitat as part of their management regime. Areas of concern that could be augmented to provide suitable pollinator habitat include state-owned land parcels, areas around public buildings, land along highways and within the highway median, land within power line right-of-ways, golf courses, and parcels within existing agricultural landscapes. Land managers/farmers should be encouraged to:

- Work with beekeepers to select appropriate hive locations and offer land parcels for bee staging yards for migratory beekeepers.

- Suppress pesticide use when not necessary. Instead, use IPM and reduced risk chemicals, if necessary.
- Use planting and landscape guidelines for pollinators: <https://ag.umass.edu/fact-sheets/pollinators-in-landscape-ii-plants-pollinators>.
- Work with state agencies to determine the BMPs needed for weedy, invasive plants by either timing management applications after bloom or providing replacement forage options using non-invasive plants.
- Participate in state and national surveys related to bee forage and land use, so that the status of MA landscapes as resources for managed bee pollinators can be documented.
- Seek funding to improve and expand landscapes by incorporating plants beneficial to bees. There are currently special incentives available for land managers/farmers seeking assistance for incorporating pollinator habitat through the USDA Farm Service Agency Conservation Reserve Program: <https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index>.

THE ROLE OF THE NURSERY/LANDSCAPING INDUSTRY

Nurseries and landscapers serve an important role in sustaining pollinator health by providing opportunities for property owners to purchase and plant bee pollinator forage resources. The industry has made strides in recent years in selection of pollinator-friendly landscaping options. Stakeholders including University Extension and beekeepers are encouraged to work with landscape/nursery businesses to further improve pollinator planting seed mixes and increase availability of plants that provide the most benefit to bees. Concurrent work is also needed to determine the most optimal plants for honey production.

CONTINUED EFFORTS

MDAR will continue working with a committee of key stakeholders to evaluate and assess efforts put forth in this document. The notes from these discussions will be made public so that policy makers and others can understand the status of the state's managed bee pollinators as well as the broader perspective on these issues. MDAR will also periodically review and modify the plan as needed to ensure that it meets the needs of stakeholders in providing the most

comprehensive protection strategies for managed bee pollinators. Efforts will be made to find additional funding for pollinator outreach, protection and assistance, whether it is through grants or budgetary allocations.

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APPENDIX A – PERFORMANCE METRICS

MDAR will evaluate the effectiveness and impact the plan has had on the health of managed bee pollinator populations using the performance metrics listed below. Key areas of interest include the educational outreach and change in behavior of stakeholder groups, reduction in exposure of bees to pesticides, methods to improve bee health, and compliance of regulations related to reducing risks to managed bee populations. When needed, baseline data will be collected related to the performance metrics listed below to enhance and compliment current collection strategies. This combination of qualitative and quantitative data will be analyzed on an annual basis to provide a detailed assessment of the plan.

A. Outreach

- Number of pollinator specific trainings provided by MDAR
- Number of trainings that contained pollinator information provided by MDAR
- Outreach materials developed and provided by MDAR for stakeholder groups:
 - Beekeepers
 - Pesticide Applicators
 - Homeowners
 - Farmers/Land Managers
 - Nurseries/Landscapers

B. Behavioral Changes

- Number of individuals (pre vs. post plan):
 - Registering hives
 - Requesting hive inspections
 - Requesting pollinator specific training
 - Requesting to be on “No Spray List” for mosquito control applications
- New laws and/or regulations that were created

C. Reducing Exposure to Pesticides

- Number of calls alleging pesticide suspected bee kills
- Number of bee kills which resulted in pesticides found in samples, but inconclusive of involvement with hive death
- Number of bee kills determined to be due to pesticides
- Types of pesticides found in samples

D. Improving Hive Health

- Number of bee kills not related to pesticide use:
 - Varroa mites and related parasites
 - *Nosema* spp.
 - Viruses and related pathogens
 - Other factors