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Pollinator Protection Plan

Introduction

The purpose of the New Mexico Beekeepers Association's Pollinator Protection Plan is to encourage communication and cooperation between beekeepers, growers, farmers, landowners, pesticide applicators and other parties that are interested in protecting pollinators from pesticides. We encourage any stakeholder to use this document as a guide in developing their own Pollinator Protection Plan. NMBKA is grateful to the Washington State Department of Agriculture for providing a plan that inspired us to adapt one for our state beekeeper organization. We encourage all relevant private and public entities to have a pollinator protection plan in place.

New Mexico, USA, also known as The Land of Enchantment is home for many known species of pollinators due to numerous specialized habitats and ecosystems. The size of the region, and close proximity to the subtropics of neighboring country Mexico also support New Mexico's native bee species richness and diversity (4th largest of all the states). New Mexico is home to the convergence of several ecoregions including the Southern Rocky Mountains, Arizona-New Mexico Mountains, Central and Southern Short-Grass Prairies, Apache Highlands, Chihuahuan Desert, and the Colorado Plateau.

New Mexico's high elevation and semi-arid landscapes make it a challenging region for human, animal, and plant life. Yet, despite the challenges, it is known for its tricultural tapestry and extreme landscapes. The revered chile plant is grown across the state in addition to onions, cotton, pecans, pistachios, stone fruits, alfalfa, and wild-harvests of piñon nuts (pine nuts). These cultivations are all fed by the Rio Grande and Pecos rivers or their tributaries. New Mexico is home to over 23 sovereign Indigenous nations including the Tiwa, Tewa, Tigua, Diné, Apache, and Kerés speaking communities. These Indigenous communities are the original stewards of these lands and they have adapted to the diverse landscapes of this region where they continue to thrive.

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New Mexico also boasts approximately 2,000 diverse pollinator species, including three hundred species of butterflies and around 1,400 species of bees. Increasing habitat loss, pesticide use, diseases, invasive species, and climate change are all impacting New Mexico pollinators. The severity of drought conditions due to rapidly increasing temperatures as a result of climate change is of particular concern. Farmers, gardeners, land stewards, and beekeepers alike are concerned about the plight of pollinators and should be working collaboratively to help increase habitat and support regenerative pollinator conservation.

New Mexico growers rely on both managed and feral populations of pollinators, honey bees being the most common. Over the past decade, many of the United States' research studies show that many pollinating insect populations are in decline. Industrial agricultural practices, loss of habitat, a shifting climate, and bee-specific pathogens and pests add to a decline in pollinator populations (vanEngelsdorp and Meixner 2010, Fairbrother et al. 2014).

The Bee Informed Partnership reported that the colony loss in New Mexico for 2019/2020 was 41.5%. Reporting were 17 beekeepers with 104 colonies. The losses dropped to 23.1% in 2020/2021 with 11 beekeepers reporting with 100 colonies. NMBKA is working on getting a larger sample for more accurate colony loss statistics.

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The NMBKA Pollinator Protection Plan

This Pollinator Protection Plan does not restrict the use of pesticides. Instead, this plan is intended to complement the existing label and rule requirements to protect bees from pesticides when pesticides are used in agricultural and non-agricultural settings.

This Pollinator Protection Plan contains voluntary Best Management Practices (BMP) for pesticide users, landowners/growers, and beekeepers in hopes of creating the following positive outcomes:

- ✓ Ensuring positive relationships and peaceful co-existence among beekeepers, landowners and pesticide applicators.
- ✓ Reducing pollinator exposure to pesticides.
- ✓ Ensuring a robust apiary industry, native pollinator population, and agriculture economy.
- ✓ Continued high compliance with pesticide label requirements and state rules to protect pollinators.

It is understood that localized issues may need more specific BMPs or efforts. These general guidelines are meant to be a starting point for protection of managed bee populations. Additional research and efforts may be needed for wild pollinators or beekeepers in a specific area facing a unique threat.

The first part of this document includes information that supports our statements and positions; the second half includes best practices or recommendations for beekeepers, land owners and pesticide applicators.

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Pesticides

Risks to pollinators associated with pesticides is primarily an operational issue and can be managed by communication and education. Using pesticides wisely can help protect pollinators and reduce problems with pest tolerance.

One class of pesticides, neonicotinoids, however, are particularly concerning. Neonicotinoids are a group of insecticides used widely on farms and in urban landscapes. They are absorbed by plants and can be present in pollen and nectar, making them toxic to bees. In 2016, there was uncertainty about the impact these insecticides were having on bees. Research published since then clearly shows how neonicotinoids are killing bees and changing their behaviors in ways that harm honey bee colonies. They are also finding that neonicotinoids persist in plants and in soil much longer than we first expected.

In May 2013, the European Commission (the EU's executive branch) banned the use of three neonicotinoids—imidacloprid, thiamethoxam and clothianidin—on flowering crops attractive to pollinators and on crops growing grains for cereals. In May of 2018, it went further and banned all outdoor uses of the trio, and in February 2020, it decided not to renew the approval of a fourth neonicotinoid called thiacloprid, resulting in its de facto ban.

The Land of Enchantment, New Mexico, relies on the health of its land, water, wildlife and agriculture. In order to thrive, access to secure food systems, clean water, and healthy soils is imperative. We recommend legislation that would restrict the use of neonicotinoids in New Mexico by:

- banning the sale and use of neonicotinoids in outdoor urban settings
- requiring stricter licensure, and better enforcement of proper use of neonicotinoids in commercial agriculture,
- instituting labeling requirements and educational materials that will help guide consumers

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AND

We also recommend a common-sense approach that would control the use of neonicotinoids in New Mexico:

- Halt use of neonicotinoid products by backyard gardeners and other unlicensed applicators.
- Require labeling of plants and plant materials that have been treated with neonicotinoids.
- Prohibit applications of all neonicotinoid products on bee-attractive crop plants during bloom.
- Continued research on the effects of neonicotinoids on both managed bees and wild bee populations.

Challenges Faced by Beekeepers and Pesticide Users

Beekeepers - Nutrition and Pests

Nutrition has an impact on individual bee health and colony longevity. Bees generally become active in the spring with warm weather and the flowering of plants. Ensuring nutritious forage during the active season is essential to their survival.

Honey bees rely on a wide variety of plants blooming throughout a season to provide pollen for their protein source and utilize nectar for carbohydrates. Honey bees are generalists; they visit many different blooming plants in order to obtain all of the essential amino acids and nutrients required to build and maintain a strong hive. Bees can become easy targets for pests, predators and pathogens when they do not obtain the proper balance of nutrients. Bees provided with quality forage are better able to handle external stressors like pesticides and parasites.

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To maintain vibrant honey bee colonies during fall and winter months, bees must have proper food sources, including sugar and protein, in order to overwinter in a healthy state. Providing less nutritious overwintering foods, such as high-fructose corn syrup, may result in bees overwintering in a weakened state, making them more susceptible to the parasitic Varroa mite and viral diseases. Varroa mites are a widespread bee pest and are primarily responsible for the decline of honey bee populations in the United States. Miticides are generally needed to control the pest; however, miticides should be used carefully and according to label instructions so as not to create problems with resistance. Improper use of miticides by beekeepers can also harm the bees and hive products like honey, in addition to creating problems with resistance. The products are only effective at killing varroa when used according to their label directions. Mite control should be part of an overall hive hygiene program that also addresses pest and disease management and includes provisions for proper hive ventilation.

Researchers and queen producers should work together to make breeding/selection programs more robust with the goal of improving traits such as pest resistance, productivity, etc. They can then provide higher quality queens to both commercial pollinator operations and even backyard beekeepers. The Department of Entomology at Washington State University's College of Agriculture and Human and Natural Resource Sciences is a national leader in the science of beekeeping. In addition to providing ongoing research on beekeeping and bee health, scientists from the Department of Entomology provide training workshops on topics related to beekeeping, including how to rear high quality queens. New Mexico State University (NMSU) Department of Agriculture is a vital resource for the managed pollinator industry in the state of New Mexico. The New Mexico Beekeepers Association also offers a state certification program that teaches students best beekeeping practices, including how to test and treat for mites, and how to raise quality queens.

Additional factors that beekeepers face in keeping colonies healthy include: varroa destructor mites, tracheal mites, small hive beetles, bacterial, fungal and viral diseases, declining quality forage and pesticide exposure. Nationally, year-to-year colony survival is variable.

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Growers and pesticide applicators can help with reducing the exposure to pesticides and improve the quality of forage available through communication with beekeepers, and by discussing proper hive placement. Varroa mites are considered to be the greatest “in-hive” threat to honey bee colonies, and the reduction of the ancillary bee stress related to pesticide exposure will improve survivability.

Knowing where managed honey bee colonies are located is an important factor in the ability to avoid colony exposure to pesticides and to employ special practices to protect them. For example, limiting pesticide applications to low activity periods (e.g., spraying in evening hours) in areas where managed colonies are known to be present could help reduce the incidence of pesticide exposure to honey bees. Notifying beekeepers when spraying is going to happen, and allowing them time to move or net hives can also be helpful.

BeeCheck is a voluntary communication tool that enables beekeepers and pesticide applicators in New Mexico to work together to protect apiaries through use of the BeeCheck mapping program. It is not a substitute for any state regulatory requirements. Beecheck is a no cost apiary registry service provided by FieldWatch, Inc.

BeeCheck could also be used to provide information regarding the location of managed honey bee colonies in urban areas. Coupled with an active public education program, the website could be helpful in protecting managed honey bee colonies in urban areas from non-agricultural pesticide use.

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Pesticide User Challenges

Growers and Applicators encounter a number of challenges in their daily operations. Growers have to manage insect pests, diseases, weeds and other factors impacting crop production and quality. Growers have a variety of pest management tools and strategies to choose from. They often need to affordably eliminate pests and competing plants without impacting yields.

Pesticide applicators often have a limited time frame to make an application. Factors such as pest infestation levels, temperature, precipitation, wind, water levels, buffers, and the presence of pollinators all affect pesticide choices and decisions on when, where and how to make an application. Applicators also must pay attention to the location of sensitive sites adjacent to treatment sites, such as surface water, endangered species, organic fields, vineyards and honey bee colonies. The best time to make an application is likely to coincide with when the pollinators are most active, putting pesticide applicators in a difficult position of balancing pest management needs and protecting pollinators.

Growers also must consider the timing of pesticide applications with respect to harvest and rotational intervals. Even with integrated pest management (IPM) systems, pests often are able to adapt quickly to different methods, rotations, or pesticides, or reproduce so quickly that they seem to explode within a short amount of time. Because of the nature of such pests, making timely chemical applications as part of an IPM plan is essential.

Growers and Applicators face difficult decisions when managing pests and minimizing impacts to pollinators. This plan should demonstrate how they can do both. Following the Best Management Practices (BMPs) within this document will help ensure abundant, affordable, safe and nutritious food for years to come.

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Beekeeper Best Management Practices

Improve Pollinator Habitat

- ✓ Locate honey bees where they will find flowers during the whole forage season, or be ready to supplement their diet with protein and carbohydrates.
- ✓ Create, and encourage others to create more forage.
- ✓ Ensure clean water is available.

Varroa Control

- ✓ Rigorous monitoring of mite populations to detect increases in the number of mites early and to assess the effectiveness of controls.
- ✓ Use of cultural practices (i.e., breeding, screen bottom board, removal of drone brood, etc.) to deter mite population build-up.
- ✓ Rotation of chemical products that considers mite/ bee population dynamics and minimizes potential development of mite resistance caused by repeated use of any one chemical control.
- ✓ Using soft chemicals for management of varroa before considering the use of harder chemicals like Apivar.
- ✓ Follow guidelines of Honeybee Health Coalition.

- ✓ Consider adopting or creating an Integrated Pest Management approach to managing varroa mites.

Work with Landowners to Choose Apiary Locations

- ✓ Obtain permission from growers/landowners before placing honey bee colonies.
- ✓ Avoid low spots to minimize impacts from drift or temperature inversions on colonies.
- ✓ Coordinate dates in and out to assure access.
- ✓ Consider timing after rain events when determining which roads to travel.
- ✓ Discuss with landowners preferred roads/trails to use.
- ✓ Request contact information and have frequent communication between growers, beekeepers and neighbors.
- ✓ Ask to be notified of any pesticide applications and be prepared to move hives or net hives if necessary.
- ✓ Register hives on Driftwatch.

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Be Aware of Neighboring Landowners when Placing and Moving Honey Bee Colonies

- ✓ See that colonies have access to clean water without bothering people or livestock.
- ✓ Do not block right of ways or place colonies so close to shared roads, trails and section lines that they may cause problems with neighbors.
- ✓ Notify landowners and applicators when arriving and moving colonies.
- ✓ Avoid overloading areas with colonies.

Work Constructively with Applicators when Notified of Upcoming Pesticide Applications

- ✓ Have frequent and open communication with growers and applicators on spraying and other practices which might damage honey bees, and engage in creatively finding solutions.
- ✓ Block, move or net hives when informed of a pesticide application, or work with applicators on ways to manage pests while minimizing pesticide exposure to honey bees (spraying in the evening or pre-dawn, for example).

File Suspected Pesticide-related Bee Incidents

- ✓ Report suspected pesticide-related bee incidents promptly to New Mexico Department of Agriculture (NMDA) Pesticide Management Division. This will allow NMDA inspectors quick turnaround on collection

of important samples for analysis. They will also generate a notification to the EPA National Pesticide Information Center automatically in this process. Beekeepers should make sure to rule out any other causes of a bee-kill (e.g. viruses due to high varroa levels or foulbrood) prior to contacting NMDA when they suspect a pesticide is involved. Be transparent with inspectors about any mite treatments or other chemicals that are being used inside the hive over the past year as well, and have labels ready if requested. This could help NMDA rule out a potential issue with in-hive products.

✓ Contact Pesticide Management Division at:

Website: Go to Website

Steve Baca 575-339-5026

Taryn VanWassenhove
Program Specialist (Enforcement)
575-646-2678

Use Registered Pesticides According to Label

✓ Use only legal products for controlling pests and diseases, and use them correctly. Misuse can harm bees, contaminate honey and wax, and cause pest and disease resistance.

✓ Contact NMDA Pesticide Management Division with any questions on pesticide labeling or to determine whether a pesticide is registered for distribution in the state.

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Comply with all Requirements of New Mexico and local Beekeeping Law

- ✓ Register your colonies if required by your locality or state of New Mexico.
- ✓ Mark your hives with your commercial beekeeper identification number, if available, or other identification to help the public get in touch with you when needed and to aid in recovery in the case of theft.

Ensure Hives are Easily Visible to Applicators

- ✓ Hives must be visible so applicators can locate them before spraying.
- ✓ Paint hives white or a color that stands out from the surrounding area.

Landowner/Grower Best Practice Management

Work with Beekeepers to Choose Apiary Locations

- ✓ Be mindful of the placement of apiary sites where your farming activity will occur.
- ✓ Work with beekeepers to choose appropriate colony locations.

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Communicate with Renters about Bee Issues

- ✓ Landowners and renters should discuss bee issues, such as who has the authority to allow bees, how long they will be allowed and colony placement.

Communicate Pesticide Issues

- ✓ Discuss with pesticide applicators whose responsibility it is to look for hives, notify neighbors and other crucial tasks.

- ✓ When contracting with commercial pesticide applicators, establish clear understanding about who is responsible for identifying apiary locations, and communicating with beekeepers.

Agronomists; Consider Pollinator Impacts when Making Pesticide Recommendations

- ✓ Consider spray timing, location and communication with beekeepers when apiary sites are adjacent to your property.

- ✓ Control blooming weeds, such as dandelion or mustard, in the treatment area. This is especially important in early spring when honey bees will fly several miles to obtain pollen and nectar.

- ✓ Learn the pollination requirements of your crops, if and when they are attractive to bees, and plan your pest- control operations with bee hazards in mind.

- ✓ Consider using alternatives to pesticides, if available. Work with cooperative extension to identify effective alternative products registered for use in New Mexico that may be safer for pollinators.

- ✓ When applying pesticides, always follow label directions to protect bees and other non-target beneficial insects.

Plant Bee Forage

- ✓ Plant flowering plants, such as trees and shrubs, to improve bee forage.

- ✓ Adding flowering plants to cover crop mix can provide a considerable amount of forage for pollinators.

Pesticide Applicator Best Management Practices

Use Integrated Pest Management (IPM)

- ✓ Utilize economic thresholds and IPM to determine if insecticides are required to manage pests.

- ✓ When insecticides are required, try to choose ones with low toxicity to bees, short residual toxicity, or repellent properties towards bees.

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Use Registered Pesticides According to the Label

- ✓ Pesticide label language is developed to ensure that pesticides will not pose a risk of unreasonable adverse effects to human health or the environment. Failure to comply with the label not only puts humans and the environment at risk, it is also illegal.

- ✓ Many pesticides, especially insecticides, have use restrictions prohibiting applications when bees are foraging in the treatment area. Some labels prohibit applications when crops are blooming and require that the applicator notify beekeepers in the area prior to application.

- ✓ Always comply with these and other label restrictions to reduce risks. Applicators are bound by all directions, precautions, and restrictions on pesticide labeling, even when following other BMPs.

When Possible, Apply Pesticides Early in the Morning or Late Evening

- ✓ Honey bees are most active during daylight hours and when the temperature is over 55 degrees Fahrenheit.

- ✓ Apply pesticides early in the morning or in the late evening when bees are less active to reduce the chances that bees will be foraging in or near the treatment site.

- ✓ Be aware of temperature restrictions on pesticides. The effectiveness of some pesticides is reduced at certain temperatures.

- ✓ Be aware of temperature inversions when choosing the best time for applications.

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Avoid Drift

- ✓ Pesticide drift is the off-site movement of pesticides through the air from the treatment site to adjacent areas, either in the form of mist, particles, or vapor.

- ✓ Drift reduces the effectiveness of the chemical applied since only part of the applied amount reaches the target. Drifting insecticides also pose a risk to non-target organisms that come in contact with the off-target residues. These insecticides can negatively affect bees and other beneficial insects by direct contact or by contaminating their forage and habitat.

- ✓ Drifting herbicides have the potential to further reduce quality forage available to pollinators.

- ✓ Use the smallest effective dose.

- ✓ Create windbreaks to prevent drift from fields (making sure the windbreak is not made up of plants bees would forage on, such as cyprus and other evergreens).

Notify Beekeepers in the Area before Pesticide Applications

- ✓ Honey bees will fly several miles to find quality forage. Therefore, pesticide applicators should notify nearby beekeepers of a site to be treated at least 48 hours before application or as soon as possible. In New Mexico, use FieldWatch to identify registered apiary sites.

- ✓ 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.

Choose Products with Lower Risk to Honey Bees

- ✓ Many insecticide labels prohibit use if pollinators (bees) are present in the treatment area.

- ✓ If a label states that a product is harmful to honey bees, it can be assumed that it is also harmful to native bees, as they are less tolerant to pesticide exposure.

Resources and References

Washington State University

Washington State Managed Pollinator Protection Plan for Alfalfa Seed Production

New Mexico Department of Agriculture

Pesticide Compliance

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Bee Informed Partnership

https://beeinformed.org/

Honeybee Health Coalition – Tools for Varroa Mite Management

https://honeybeehealthcoalition.org Tools for Varroa Mite Management

Oregon State University – How to Reduce Bee Poisoning from Pesticides

https://catalog.extension.oregonstate.edu/pnw591

Pollinator Partnership

http://www.pollinator.org/

USDA Natural Resources Conservation Service

Insects & Pollinator

USEPA Pollinator Protection

https://www.epa.gov/pollinator-protection

Xerces Society for Invertebrate Conservation

How Neonicotinoids Can Kill Bees

Recommendations to Protect Pollinators from Neonicotinoids