



# Managed Pollinator Protection Plan (MP3) Guidelines



The Colorado Department of Agriculture supports the health and well-being of all pollinators. There are hundreds of species of native bees in Colorado as well as several thousand hives of the honey bee (*Apis mellifera*) managed commercially and by hobby beekeepers across the state. All of these species as well as butterflies, moths, flies, hummingbirds and others are very important pollinators of native and non- native crop and landscape plants.

All pollinators are facing threats from complex interacting factors. Managed honey bees (*Apis mellifera*) are facing threats from increased disease and mite parasites, lack of genetic diversity, habitat loss due to expansion of urban landscapes and crop monoculture, stress due to transport of commercial hives to California to pollinate almonds and environmental toxins including pesticides.

The Colorado Department of Agriculture supports the use of integrated hive management to promote proper hive hygiene, mite and disease management, regulates the proper use of pesticides and promotes improved habitat for all pollinators.

## **Stakeholder Input and Participation**

The Managed Pollinator Protection Plan Guidelines were provided to the stakeholders represented through the Colorado Department of Agriculture's (CDA) Pesticide Advisory Committee in 2018. CDA also received comments from individual stakeholders from the general public.

The Pesticide Advisory Committee (PAC) was created under section 35-10-125, C.R.S. of the Pesticide Applicators' Act (PAA), to assist the commissioner in promulgating rules and regulations to carry out the provisions of the PAA.

The committee consists of fifteen members representing: pesticide formulators, commercial applicators from the agricultural, ornamental, and structural industries, limited commercial applicators, public applicators, Colorado State University, two members from the Colorado Department of Public Health and Environment, an agricultural worker, an organic agricultural producer, a member of a state or national beekeeping association and two members from the general public (one of whom is actively engaged in urban-agriculture production).

All members of the advisory committee, with the exception of the formulator, must be residents of the State of Colorado and each member serves on the committee for a term of three years.

## General Practices for Protecting Colorado Pollinators

### Use Integrated Pest management (IPM)

IPM is an environmentally sustainable approach to controlling pests that integrates a broad, interdisciplinary approach using the scientific principles of plant protection. By managing pest populations in a planned, systematic way pest numbers or damage is kept within acceptable economic and/or aesthetic levels. IPM focuses on 4 principles:

- Proper pest or disease identification
- Monitor and scout crops/plants routinely to keep track of pest and disease levels or pressure
- Optimize plant health by utilizing proper plant culture, fertility and care
- Managing pests and diseases only when they rise above economically damaging threshold levels by utilizing an integrated approach which includes
  - Cultural controls
  - Mechanical controls
  - Biological control
  - Chemical control

### Pesticide Safety for Pollinators

Pesticides are substances that are used to control pests. Used in landscapes and agricultural settings they most commonly include insecticides, fungicides, and herbicides to enhance plant health, aesthetics and production. Insecticides kill insects, fungicides kill fungi and herbicides kill plants/weeds.

The majority of our pollinators are insects and they can be negatively affected by indiscriminate applications of insecticides. As well, applications of fungicides and herbicides are now being thought to possibly be contributing to negative impacts on pollinator populations.

The proper use of pesticide products is crucial. Pesticides and pollinators can coexist, but the pesticide user must abide by the label and should do their part to minimize risk to bees and pollinating insects visiting crops and ornamental plants when in bloom.

If a pesticide must be used, choose the least-toxic material possible to achieve the desired control of the pest problem; read and follow label directions. Read and follow pesticide labels before purchasing; many pesticides are harmful to bees and other pollinators. Use the product properly by always following label directions as required by law.

The Colorado Department of Agriculture recommends care when applying any pesticide, regardless of type, to help protect our state's pollinating insects. If pollinators are active:

1. Always consider alternatives to pesticides, first. Use integrated solutions to manage a plant problem.  
<http://www.colostate.edu/Dept/CoopExt/4dmg/PHC/10steps.htm>
2. Choose the least toxic pesticides whenever possible.  
<http://www.ext.colostate.edu/ptlk/1427.html>
3. Avoid applying all pesticides including insecticides and fungicides during bloom on flowering plants that attract pollinators. Apply pesticides after flower petals have fallen or are no longer attractive to bees.
4. Follow any specific requirements to protect pollinators on the pesticide label.
5. Avoid pesticide drift.
6. If there is no way to avoid applying a pesticide to plants that are attractive to pollinators, spray early in the morning when temperatures are < 50° F or at dusk when bees and other pollinators are less likely to be active.

### **Foster Communication between Beekeepers and those Applying Pesticides**

Be aware of the presence of neighboring managed beehives on property adjacent to yours. Communicate with neighboring landowners about the presence of managed beehives on your property.

Utilizing the Colorado Department of Agriculture's "DriftWatch" pesticide sensitive viewer program to identify apiary sites and contact information can help facilitate communication. You can find this tool at: [https://https://co.driftwatch.org/](https://co.driftwatch.org/)

### **Plant Pollinator Forage**

Urbanization, loss of undisturbed natural areas and crop monoculture are partially to blame for the crisis facing pollinators. A landscape that is made up predominately of grasses and non-flowering plants does not provide pollinators with adequate food and forage to sustain bees. Landscapes and agricultural areas made up of a variety of plants with a large number of flowering shrubs, trees, annual and perennial flowers that provides a diversity of food and forage for pollinators of all types and sizes are necessary to provide adequate forage. Colorado's natural landscape does not always

provide an abundant variety of forage and therefore it may be necessary to supplement your bee's diet to ensure survival.

Support native pollinators by providing habitat and forage. Trees, shrubs and flowers provide forage for many different types of pollinators. Pollinator forage can be incorporated along roadsides, ditches, in urban backyards, parks, in parking lots and between farmers' fields.

**Note: The Managed Pollinator Protection Plan Guidelines are recommended best management practices (BMP) that all stakeholders are encouraged to follow. The recommended BMPs are not enforceable by law. This document is a living document and may be updated any time new information becomes available.**

## Operational Best Management Practices (BMP) to Avoid Pesticide Related Bee Kills for Pesticides Applicators and Beekeepers

The following guidelines are the result of input from commercial pesticide applicators, beekeepers, and the Colorado Department of Agriculture.

### Responsibilities of Aerial Applicators:

1. Applicators should work with beekeepers to map the apiaries within their operating areas.
2. Applicators should attempt to contact the known beekeepers as soon as possible after being contracted to spray within one mile of an apiary. Notification should be attempted 48 hours prior if possible, but no less than 24 hours, prior to the application. Notification is most important when liquid insecticides are being applied, and it need not be given when granular formulations are being used.
3. When arranging a job, applicators should ask the farmer for the locations of any known nearby bee yards. *If the grower knows the beekeeper, ask for contact information to open a dialogue to discuss the application and pollinator protection options.*
4. When treating near areas with apiaries, applicators should try to find a product that both the grower and beekeepers can agree has the best pollinator protections and select insecticides with low bee toxicity and use a surfactant if possible. When possible, use a product with a low extended residual insecticide (non-ERI) and make applications in the early morning (<50° F) or in the evening.
5. Applicators must follow product label directions and ensure all bee specific precautions are carefully considered to avoid harm or negative impacts to honeybees.
6. Applicators should circle the area being treated before spraying to check for bee yards.
7. Applicators should, whenever possible, time their spraying before 8:00 a.m. or after 6:00 p.m. when treating near apiaries. Use a non-ERI when possible.
8. Pesticide applications should never be made to blooming crops, unless allowed by the label, or applied in a manner that off-target movement occurs outside

of the treatment area onto blooming crops or weeds. If an application to a blooming crop is allowed by the label (i.e.: crops always in bloom like sunflowers) then make applications in the early morning or late evening when honeybees are not actively foraging. Encourage growers to mow areas surrounding their fields with heavily blooming weedy borders. When these areas cannot be mowed, allow for additional buffers to avoid applications onto blooming weeds.

9. Applicators should cease applications, *modify the target area or change the application pattern* when bees are located downwind and weather conditions *are such as to create a scenario where off target movement from the application site is likely.*
10. Participate in the DriftWatch program or other means to facilitate communication between the grower, applicator and beekeeper.

### **Responsibilities of Agricultural Applicators:**

1. Applicators should work with beekeepers to map the apiaries within their operating areas.
2. Applicators should attempt to contact the known beekeepers as soon as possible after being contracted to spray within one mile of an apiary. Notification should be attempted 48 hours prior if possible, but no less than 24 hours, prior to the application. Notification is most important when liquid insecticides are being applied, and it need not be given when granular formulations are being used.
3. When arranging a job, applicators should ask the farmer for the locations of any known nearby bee yards. *If the grower knows the beekeeper, ask for contact information to open a dialogue to discuss the application and pollinator protection options.*
4. When treating near areas with apiaries, applicators should try to find a product that both the grower and beekeepers can agree has the best pollinator protections and select insecticides with low bee toxicity and use a surfactant if possible. When possible, use a product with a low extended residual insecticide (non-ERI) and make applications in the early morning (<50° F) or in the evening.
5. Applicators must follow product label directions and ensure all bee specific precautions are carefully considered to avoid harm or negative impacts to honeybees.
6. Applicators should, whenever possible, time their spraying before 8:00 a.m.

or after 6:00 p.m. when treating near apiaries. Use a non-ERI when possible.

7. Pesticide applications should never be made to blooming crops, unless allowed by the label, or applied in a manner that off-target movement occurs outside of the treatment area onto blooming crops or weeds. If an application to a blooming crop is allowed by the label (i.e.: crops always in bloom like sunflowers) then make applications in the early morning (< 50 F) or late evening when honeybees are not actively foraging. Encourage growers to mow areas surrounding their fields with heavily blooming weedy borders. When these areas cannot be mowed, allow for additional buffers to avoid applications onto blooming weeds.
8. Applicators should cease applications, *modify the target area or change the application pattern* when bees are located downwind and weather conditions *are such as to create a scenario where off target movement from the application site is likely*.
9. Participate in the DriftWatch program or other means to facilitate communication between the grower, applicator and beekeeper.



## Operational Best Management Practices (BMP) For Urban Pesticide Applicators

### Responsibilities of Applicators:

1. Applicators should work with beekeepers to map the apiaries within their operating areas. In rural areas where all beekeepers may not be known, applicators should utilize the CDA DriftWatch program to identify apiary sites that may be in close proximity to account locations.
2. Notification is most important when liquid insecticides are being applied, and it need not be given when granular formulations are being used. When necessary, applicators should attempt to contact known beekeepers as soon as possible after being contracted to spray abutting properties. Notification should be attempted 48 hours prior if possible, but no less than 24 hours, prior to the application.
3. When arranging a job, applicators should ask the customer if they are aware of any neighbors that maintain bees. *If the customer knows a beekeeper, ask for contact information to open dialogue and discuss application and pollinator protection options*
4. When treating near areas with apiaries, applicators should try to find a product that both the customer and beekeeper can agree has the best pollinator protections and select insecticides with low bee toxicity. Identifying the best method of application to control the target pest (i.e.: soil injection, granular applications, etc.) that can also reduce the potential for pollinator exposure should also be considered. When possible, use a product with a low extended residual insecticide (non-ERI) and make spray applications in the early morning or in the evening.
5. Applicators must follow product label directions and ensure all bee specific precautions are carefully considered to avoid harm or negative impacts to honeybees.
6. Applicators should check DriftWatch around the account area being treated before spraying to check for apiary sites.
7. Applicators should, whenever possible, time their spraying before 8:00 a.m. or after 6:00 p.m. when treating near apiaries.
8. Pesticide applications should never be made to blooming flowers or weeds, unless allowed by the label. Applications should be made to ensure there is no

off-target movement outside of the treatment area onto blooming crops or weeds. If an application to a blooming ornamental plant is allowed by the label (i.e.: trees, bushes in bloom) then make applications in the early morning or late evening when honeybees are not actively foraging. Encourage customers to mow their yards prior to applications to remove blooming weeds or clover. When these areas cannot be mowed, avoid applications onto blooming weeds. When blooming ornamental plants cannot be avoided, cover blooming plants with a tarp or plastic sheeting when possible.

9. Applicators should cease applications, *modify the target area or change the application pattern* when bees are located downwind and weather conditions *are such as to create a scenario where off target movement from the application site is likely*.
10. Participate in the DriftWatch program or other means to facilitate communication between the grower, applicator and beekeeper.

**National Pest Management Association (NPMA)**  
**Pollinator Protection Best Management Practices**  
**for Structural Pest Management**

1. Familiarize yourself with pollinator-attractive plants in your area, especially plants common around structures, and be able to determine what plants are in bloom. Remember that many plants produce small and/or cryptic flowers that are not readily apparent. Prior to application, service personnel are advised to perform an inspection of the property to locate flowering plants that are attractive to pollinators.
2. Do not make insecticide applications to the flowers or foliage of blooming plants, even weeds (unless specifically allowed by the label instructions). Careful application to other parts of the plant (trunk, stems, and roots) may be permissible if the label allows and pesticide residues will not be deposited on flowers or foliage during application.
3. Use caution while making any applications if managed hives are known to be nearby and when bees are foraging near the application site. The distance will vary and should be based on variables of the application including: weather, type of equipment, and application method. If managed hives are on the property, or adjacent to the property, communicate with your client and/or hive owner to consider moving, covering, or otherwise protecting hives prior to treatment. Check to see if your state has a registry or voluntary beehive location program to help communicate with beekeepers and locate beehives in areas in which you make treatments.
4. Be aware of environmental conditions before, during, and after treatment to keep insecticides where you intended to apply them. Account for wind conditions to prevent insecticides from drifting onto flowers when making spray or mist applications. Use low pressure, coarse spray application when possible to minimize drift. If wind conditions make spray and mist applications unwise, consider using a granular formulation if similar results can be achieved.
5. Pesticide applications may be necessary to eliminate feral bee colonies within or around structures if they pose a threat to human health or property. When reasonable, PMPs are encouraged to remove and relocate honey bee colonies or swarms from in and around structures but only if no

insecticidal treatments have already been made. Identify local bee removal experts, beekeepers, or apiarists available that you can contact. To find a local listing, consult your state apiarist, department of agriculture, university extension website, or local beekeeping association.

**Note:** This document refers to structural pest management applications only.

## **Operational Best Management Practices (BMP) for Beekeepers**

1. Beekeepers should clearly mark their hives with their name, address, and telephone number (and brand) in a font large enough to be seen from a distance (2 - 3 inch lettering) so applicators, crop advisors and farmers can alert the beekeeper of any impending application or when they are making plans for pesticide applications. Beekeepers in urban areas should notify their neighbors that they are maintaining hives on their property and where.
2. Beekeepers should attempt to place their hives for protection from possible pesticide exposures and for easier visibility from the air or neighboring property lines whenever possible.
3. Beekeepers should try to site their yards so they are not at intersections of several property owners; this leaves them open to exposure from the pesticides used by each of the farmers. If this is not possible, beekeepers should notify all adjoining property owners of location of their bee yards and need for caution.
4. Beekeepers should contact the area applicators and growers, identifying their apiary locations each year and/or whenever yard sites change so the applicator can alert the beekeeper on impending applications and allow for a dialogue to be opened to discuss what pesticide product options there may be to reduce or eliminate impacts to honeybees.
5. When at all possible, beekeepers should move, cover, or plug their hives when notified of spraying. When a beekeeper is unable to take these precautionary steps, communicate with the grower and applicator to facilitate communication to find alternative application times, lower toxicity products or methods to reduce or eliminate impacts to honeybees.
6. Beekeepers should learn about the pest control practices on the farms where their hives are located. Work cooperatively with the farmer and the farmer's applicator to insure that they are aware of hive locations and that notification of applications are communicated effectively.
7. If a beekeeper should experience bee mortality which they believe is pesticide related, they should inform the Department, grower and the applicator, if known, as soon as possible.
8. Beekeepers may want to consider placing wind socks in their bee yards, especially the more vulnerable sites.

9. Beekeepers should use caution and follow the label when using a pesticide to control insect pests such as ants and flies around beekeeping storage facilities or apiaries.
10. Beekeepers should use only EPA-registered products, registered for the use in and for the control of parasites and diseases in apiaries.
11. Beekeepers should understand and learn best management practices to ensure their hives are healthy. Learn what the signs of pest or disease pressures may be in your hives and take steps to avoid problems or treat them at the first sign of a pest or disease problem. This also helps your fellow beekeepers from being infected with pest and disease problems.
12. Participate in the DriftWatch program or other means to facilitate communication between the grower, applicator and beekeeper.

## Operational Best Management Practices (BMP) for Homeowners/Property Owners

1. Plant pollinator forage by putting out potted flowering plants, creating flower beds and planting flowering trees and shrubs. Make sure to select plants that are suited to Colorado's semi-arid climate by choosing native or adapted plant varieties.
2. If pests become a problem visit your local CSU Extension Office or local Garden Center for plant pest and disease identification and management information.
3. Always consider alternatives to pesticides, first. Use integrated solutions to manage a pest problem. [Colorado Center for Sustainable Pest Management](#)
4. Choose the least toxic pesticides whenever possible. [Pesticide Residues in Perspective](#)
5. Always read and follow pesticide label directions before application.
6. Follow any specific requirements to protect pollinators on the pesticide label.
7. Avoid applying all pesticides including insecticides and fungicides during bloom on flowering plants that attract pollinators. Apply pesticides after flower petals have fallen.
8. Avoid pesticide drift or unintended application to a non-target plant or organism.
9. If there is no way to avoid applying a pesticide to plants that are attractive to pollinators, spray at dusk when bees and other pollinators are not active.

## **Operational Best Management Practices (BMP) for Agricultural Producers**

To minimize the impact of crop protection products on managed pollinators, the following practices are recommended. These practices focus on the importance of initiating and maintaining good lines of communication between producers and beekeepers.

Note: These practices only apply to those products that pose a potential risk to pollinators as indicated on their labels.

1. Read product labels thoroughly. Check carefully for any language regarding risk to pollinators. This information is often found in the Environmental Hazards section of the label, or for some products, is indicated by the bee hazard icon.
2. Establish an ongoing line of communication with beekeepers with hives on property adjacent to your fields/vineyards/orchards. Pick the media for communicating that fits the people involved. Producers are also urged to use the VDACS online communication tool, just as beekeepers are urged to participate by posting hive locations.
3. If producers are renting land for agricultural production, they should communicate with the landowner about hive locations and obtain contacts for the beekeepers involved.
4. If producers are contracting product applications, they should provide information to commercial applicators regarding known beekeepers and the location of hives that could be impacted by applications.
5. Utilize economic thresholds and other IPM (Integrated Pest Management) practices to determine if crop protection is warranted.
6. If applications are warranted and there is a potential for impact on managed pollinators, please use the procedures listed below.
  - a. When possible, select products with low toxicity to bees, that are repellent to bees, or have short residual activity. Note: Products with short residual activity may result in multiple applications and can therefore increase potential for pollinator exposure.



- b. Notify the beekeeper of the expected application time.
  - c. Abide by spray drift advisories (often found on product labels).
7. When planting seeds treated with insecticides, when possible, utilize alternatives to talc/graphite if alternatives will provide the performance needed to assure accurate seeding. Talc and graphite can cause the insecticide treatment to come off of the seeds during planting creating insecticide-containing dust that can drift onto hives and flowering plants or otherwise be picked up by bees. Talc/graphite alternatives can reduce drift and exposure by bees to insecticides used to treat seeds.