

Utah Department of Agriculture and Food

Draft Managed Pollinator Protection Plan

Introduction

In the State of Utah, the honey bee (*Apis mellifera*) is an insect of great importance agriculturally, economically and symbolically. There are an estimated 30,000 hives in Utah, which produce over 900,000 pounds of honey every year. The beehive was selected as the emblem of the provisional State of Deseret in 1848 and the symbol became part of the state's official seal when Utah joined the Union in 1896. In 1983 the honey bee became the official insect of the state. Utah is also famously known as “the Beehive State.”

The beekeeping industry in Utah produces over \$2 million in honey annually. However the economic importance of this insect extends far beyond this figure. Honey bees provide pollination for most of Utah's \$17 million fruit and berry industry. Indeed, managed honey bees are the primary pollinator of the state's commercial apple, pear, apricot and sweet cherry orchards. They provide the bulk of pollination services for berry operations and cucurbit farms. Honey bees are critical for alfalfa seed production in this state as well. Finally, Utah is also home to many migratory honey bee operations, which provide pollination services for fruits and vegetables in other states.

There are currently over 2,000 beekeepers that are registered with the Utah Department of Agriculture and Food (UDAF). The popularity of managing honey bees grows every year. Current and future beekeepers will face a number of biotic and abiotic problems with their colonies. UDAF is committed to helping beekeepers cope with these challenges.

Current Problems in Beekeeping

Despite the need for increased pollination services in agriculture, the total number of managed honey bee colonies has declined by 50% in the last 70 years. Utah has been no exception to this trend and has experienced high annual colony losses according to beekeeper surveys conducted by UDAF and the Bee Informed Partnership. The cause of these losses is complex and cannot be attributed to a single factor. Managed bees struggle with Varroa mite (*Varroa destructor*) infestations and the rise of galvanized viruses often associated with this parasite. They continue to battle longstanding diseases such as American foulbrood (*Paenbacillus larvae*) and *Nosema apis*, plus newly introduced pathogens like *Nosema ceranae*. Fragmented habitat and nutritional deficiencies have significantly deteriorated the health of managed bees as well. Certain pesticides have also been implicated in problems with beekeeping and attributed to colony

losses. These losses are typically associated with poor communication between the applicator and the beekeeper or violations of the pesticide label restrictions by an applicator.

Current Problems for Growers

With an ever growing demand for food, growers are under enormous pressure to increase yields. Growers must contend with many challenges to obtain acceptable yields including: insect pests, diseases, weeds, drought and many other issues that reduce crop production and quality. There is an array of pest management tools and strategies to choose from that help with these challenges. However these choices present growers with difficult decisions. Growers must consider the timing of pesticide applications with regards to harvest and rotational intervals. Even when implementing integrated pest management (IPM) strategies, pests are often quick to adapt and their populations will rapidly increase if left unchecked. For this reason, making timely chemical applications as part of an IPM plan are often critical in managing pests effectively.

Current Problems for Pesticide Applicators

Pesticide applicators are not immune to the challenges presented in modern agriculture. In many instances, pesticide applicators have a narrow window of time to make an effective application. Considerations such as pest infestation levels, temperature, precipitation, wind speed, water levels, use buffers and presence of honey bees all affect pesticide selection and decisions on when, where, and how to apply pesticides. Applicators also must consider the welfare of adjacent sensitive areas near treatment sites, including: surface water, endangered species, organic fields, vineyards and beeyards. The ideal opportunity to apply certain chemicals often coincides with when honey bees are most active. These realities put pesticide applicators in a challenging position in which they must balance pest management needs and their legal requirement to protect pollinators.

Utah's MP3

Pesticides are essential tools which help control devastating agricultural pests. Unfortunately, beneficial insects such as honey bees are sensitive to certain pesticides and can be inadvertently killed or injured when a pesticide applicator is targeting another organism.

The objective of this plan is not to eliminate the use of pesticides near beehives, nor is it to restrict the use of beekeeper-applied miticides. Instead the goal is to create a framework in which problems faced by all parties involved can be resolved collaboratively. The department has developed a draft Managed Pollinator Protection Plan (MP3) with voluntary Best

Management Practices (BMP) that will allow growers to manage their pest problems in a manner that protects beneficial pollinators such as honey bees.

Commercial Beekeeper BMP

In some cases, pesticide poisonings of honey bees can be avoided when beekeepers follow good practices. The following are some ways beekeepers can prevent poisonings:

Work with the landowner to select apiary locations. The beekeeper and the landowner should work together to find a location which suits both parties. Ideal locations will provide a safe space for honey bees, without obstructing agricultural activities. Since insecticides tend to drift downward, it is best to place apiaries at higher elevations. The bees should also have access to forage and clean water.

Beekeepers should be aware of the needs of the landowner. Discuss with the landowner their needs regarding access to roads, trails and section lines. Keep in mind that these requirements may change due to weather events. Also be cognizant of neighboring landowners, who may also use the same right-of-ways. Get the contact information of neighbors and make them aware that you are in the area.

Collaborate with applicators when informed that a pesticide application is planned. As part of this MP3, pesticide applicators are being asked to inform beekeepers when they are planning an application. Be prepared for these notices and work actively to protect your bees by blocking, netting or moving hives.

Make preparations in case hives need to be moved. Locate a holding yard at least two miles from crops that are treated with pesticides known to be hazardous to bees. If bees are moved because of an application, wait 48-72 hours before returning to areas treated with chemicals that are highly toxic to bees.

Don't leave hives in orchards or fields that are unmarked. Clearly mark hives with contact information on hives (i.e. name, company, phone etc.) so that pesticide applicators or neighbors can identify hive ownership.

Register hives with UDAF. Keep registrations current and update apiary locations with the department. This will ensure that beekeepers can be notified if an insect eradication program is being conducted or there are other beekeeping emergencies.

Paint the registration number on the side of at least one hive in the apiary. This will allow applicators to contact the department if they cannot locate the beekeeper. It also helps state and county bee inspectors to communicate emergencies.

Follow the label when using miticides. Beekeepers can poison their own bees when they do not follow label instructions or misuse pesticides. Always follow the label and do not use pesticides that are not labeled for Varroa mite treatment.

Practice IPM. Use genetic, cultural and mechanical practices to manage Varroa. Monitor your mite load to inform treatment decisions.

Immediately report all suspected pesticide poisonings of honey bees to UDAF. Inspect your bees on a regular basis. If you believe your colonies may have been exposed to pesticides which are toxic to bees, report the suspected applicator to UDAF immediately. Since many chemicals rapidly degrade, timely reporting is crucial for UDAF to determine whether a pesticide poisoning occurred. **If you suspect an applicator has poisoned your bees, do not move your hives!** Moving the bees after an alleged pesticide exposure will confound indicators of non-target poisoning.

Hobbyist Beekeeper BMP

Pesticide poisonings can occur in urban and suburban areas. The likelihood of these events can be reduced by good communication between the beekeeper and neighbors. It is also important that honey bees kept in residential areas do not become a nuisance.

Inform your neighbors that you have bees. Exchange contact information and ask nearby residents to contact you 48 hours in advance of pesticide applications that are hazardous to bees. Ask the neighbor to read and follow pesticides labels before making applications.

Make preparations for applications. Work with neighbors to devise a strategy that will protect your bees. Encourage the neighbor to make applications at night or in the early morning. Be prepared to cover the hives with wet burlap or locate a holding area for the bees in the event that moving the hives is the preferred option.

Do not allow your bees to become a nuisance. Minimize defensive behavior by preventing robbing, using smoke and inspecting when time and weather appropriate. Provide a consistent water supply from March 1st to October 31st and practice swarm management. Keep no more than four hives per ¼ acre of property. Use flyway barriers to direct the flight way of the bees. Requeen aggressive stock.

Don't leave hives on other properties that are unmarked. Mark hives with contact information on hives (i.e. registration number, name, company, phone, etc.) so that pesticide applicators or neighbors can identify hive ownership.

Register hives with UDAF and keep locations updated. The department will contact you if an invasive species eradication program is being conducted.

Follow the label when using miticides. Beekeepers can poison their own bees when they do not follow label instructions on miticides or use pesticides not labeled for Varroa mite treatment.

Practice IPM. Use genetic, cultural and mechanical practices to manage Varroa. Monitor your mite load to inform treatment decisions.

Immediately report all suspected pesticide poisonings of honey bees to UDAF. Inspect your bees on a regular basis. If you believe your colonies may have been exposed to pesticides which are toxic to bees, report the suspected applicator to UDAF immediately. Since many chemicals rapidly degrade, timely reporting is crucial for UDAF to determine whether a pesticide poisoning occurred. **If you suspect an applicator has poisoned your bees, do not move your hives!** Moving the bees after an alleged pesticide exposure will confound indicators of non-target poisoning.

Landowner/Grower BMP

Growers can also alter their operations in a way that prevents honey bee poisonings. Below are some simple, inexpensive steps which growers can take to reduce damage to non-target insects:

Work with beekeepers to choose hive locations. The beekeeper and the landowner should work together to find a location which suits both parties. Ideal locations will provide a safe space for honey bees, without obstructing agricultural activities. Since insecticides tend to drift downward, it is best to place apiaries at higher elevations. The bees should also have access to forage and clean water.

Discuss honey bee issues with renters. Landowners frequently rent their properties for agricultural production. There should be good communication between parties regarding considerations related to beekeeping, such as who is allowed to have bees on the property, hive placement, how long bees are allowed on the property and the beekeeper's contact information.

Decide who is responsible for locating hives and notifying beekeepers of application. If a commercial pesticide applicator is contracted to make applications, be sure to make clear who has the responsibility of locating and notifying nearby beekeepers. This will typically be the duty of the applicator, since they should be making prior application notifications part of their

standard operating procedures. However, there may be instances where the landowner prefers to assume these obligations.

If it is dangerous to bees, consider selecting an alternative chemical. Read the label to determine if a pesticide is hazardous to bees. Consider using a different chemical or formulation that is less hazardous to bees. Also keep in mind that agricultural chemicals which are not pesticides can sometimes be toxic to bees. For example, certain blossom thinning agents are harmful to bees and therefore BMP need to be followed for these applications as well.

Control weeds before they begin to bloom. If weeds are already in bloom, kill them mechanically or with a selective herbicide that is not hazardous to bees.

Advice from agronomists should incorporate pollinator concerns. Crop consultants and agronomists should consider the effects of management recommendations on pollinators. This includes any advice on pesticide timing and pesticide selection.

Plant for pollinators. Plant flowering plants, trees and shrubs to provide forage sources for honey bees. This is especially useful in non-crop or non-farmable areas because it will attract bees away from fields that are treated with pesticides.

- Certain pesticide labels require that an untreated vegetative buffer strip be grown in sensitive areas. Flowering plants in these areas will provide additional food sources for honey bees.
- If a cover crop is grown, add flowering plants to the assortment of plants.

Pesticide Applicator BMP

Pest control programs can be modified to protect bees without creating economic burden or substantial inconvenience to the applicator. Here are good practices to observe:

Take an IPM approach to pest control. Use economic thresholds to determine when to make pesticide applications. This will protect honey bees, reduce the amount of chemicals that are applied and save money. If applications are deemed necessary, use an insecticide that is the least toxic to honey bees, has the shortest residual toxicity, is in a formulation that is safe for bees and/or has properties that repel honey bees.

Read and strictly follow the pesticide label. The pesticide label is designed to ensure the protection of the applicator, human health, the environment and non-target organisms such as honey bees. When applicators disregard label instructions they put themselves and the interests of others at risk; they are also in violation of the law. Read the label carefully and obey instructions that protect honey bees. BMP are measures that act as a complement to label

instructions—not a substitution. Applicators are to abide by all directions, precautions and restrictions on a pesticide label even when following BMP.

Avoid applications when honey bees are actively foraging. Honey bees actively forage during the daylight, when temperatures are above 55° Fahrenheit. If an insecticide is hazardous to bees, spray when bees are not actively foraging—early in the morning or between late evening and midnight. Pesticides toxic to honey bees should not be applied if plants in bloom are present (this includes weeds).

- Be mindful that there are temperature restrictions on certain pesticides and that the effectiveness of some pesticides are reduced at certain temperatures.
- If temperature inversions are present, this should be considered when deciding when to make an application.

Don't allow pesticides to drift. Drift is the movement of pesticides to non-target sites through the air in the form of mist, particles or vapor. Insecticide drift can cause harm to non-target insects such as honey bees. It also reduces the effectiveness of the application to the target site because the concentration of the chemical applied is diluted. Preventing drift of herbicides is also important as best practice. While drift of herbicides which are not toxic to honey bees may not cause direct harm to bees, it can nonetheless cause indirect injury by reducing potential forage sources for pollinators.

Before applying a pesticide, identify and notify beekeepers of the application. Honey bees will fly numerous miles to locate forage sources. Consequently, pesticide applicators should identify and notify beekeepers within two miles of a treatment area with at least 48 hours notice—if the pesticide used is labeled toxic to honey bees. Prior notification will allow the beekeeper and the applicator to work together to devise a strategy for protecting the honey bees. This may include covering hives, moving hives or timing the application so that the bees are not put at risk.

**Notifying a beekeeper about a planned application does not exempt applicators from obeying label restrictions. Labels that prohibit the application of the product when bees are foraging must still be followed regardless of prior notification. Also, beekeepers are not required to move their hives as a condition of notification.*

Select products that are lower risk to honey bees if available. Choose products that have a lower residual toxicity to honey bees. Furthermore look for formulations that present less risk to honey bees. Dusts and wettable powder formulations are higher risk to honey bees because they leave powdery residues which can stick to the hairs on the bees. These residues are then brought back to the hive and possibly expose the entire colony. Granular formulations are safer for

honey bees because they are usually not picked up by bees. Likewise liquid formulations present less risk because liquids dry on plant surfaces.

UDAF Efforts

UDAF currently provides educational materials and training to pesticide applicators regarding the protection of honey bees from pesticide exposure. These efforts will be greatly expanded:

Improving awareness of pesticide hazards to honey bees. UDAF's Apiary Program and Pesticide Program will work collaboratively to develop posters and other informational material that expand on our current efforts to educate pesticide applicators. These materials will be distributed at establishments that sell pesticides and posted on our website. These efforts will be modeled after UDAF's Pesticide Program's current strategy to educate applicators regarding pesticide licensing requirements.

Better training of pesticide applicators. Representatives of the UDAF Apiary Program will present at Continuing Education Unit (CEU) courses that pesticide applicators attend to earn credits toward renewal of their licenses. Honey bee specialists will outline BMPs for preventing honey bee poisonings.

Outreach to applicators. Apiary Program officials will seek new outreach opportunities to educate applicators about BMPs for pesticide exposure to honey bees. Opportunities already identified include meetings hosted by the Utah Nursery Landscape Association, the Utah Pest Control Lawncare Association (UPCLA) and the Utah State Horticulture Association (USHA) meetings.

Collaborating with USU Extension. The UDAF Apiary Program will collaborate with USU Extension to educate Master Gardeners and the general public about pesticide concerns relating to honey bees.

Creating Pollinator Forage & Habitat

Enhance Bee Forage. Planting forage for bees is a responsibility that every citizen and institution can assume. Plants that provide nectar and pollen for honey bees are likewise beneficial to other wildlife. They also enhance the visual landscape and conserve soil resources. Bedding flowers often come to mind when considering honey bee nutrition, however it is important to keep in mind that bees forage on the flower parts of trees, shrubs, and other less-noticeable plants as well. Maximizing diversity is essential when choosing plants that will provide adequate forage for pollinators. It is also important to select plants that bloom at

different times of the year; this ensures there is adequate forage throughout the entire season. Below are some simple, effective ways to improve pollinator forage:

- **Municipalities** can add trees, shrubs and flowers to their planting lists which are of benefit to pollinators. Pollen and nectar of different plants carries distinct nutritional qualities for the honey bees. Diversification of forage sources can be worked into new plantings. For instance, whenever a plant is added or replaced in a landscape, choose a plant that expands the diversity of forage sources available to bees.
- **Counties** can plant or encourage the growth of bee forage sources along secondary roads. Secondary road ditches often have numerous plants that provide forage sources for honey bees. Ditches are often mowed for motorist safety and to prevent drifting snow. Consider spot spraying noxious weeds and mowing ditches later in the year to ensure that bee forage is accessible. Incorporate shorter flowering plants into secondary road ditches to decrease attraction of large wildlife.
- **Homeowners** can plant pollinator-friendly gardens. Selecting a diversity of flowering plants will not only beautify homes, but also provide forage sources for honey bees throughout the season. Homeowners need to take steps to prevent pesticide poisonings of honey bees as well. Although homeowners are not required to have a pesticide applicator license to use most pesticides on their own property, they are nonetheless required by law to follow the label restrictions which protect honey bees.
- **Create habitat for beneficial, native pollinators.** Utah is home to approximately 900 native bee species. Some of these native bees nest in the ground and burrow into areas of well-drained, bare or partially vegetated soil. Certain bees will use dead trees and branches for habitat. Nesting habitats can be created in home landscapes by leaving deadfalls and brush piles.

**Please be assured that foraging honey bees are typically not aggressive and will usually not attack humans or other animals unprovoked.*

This is a working document subject to annual review

Utah Department of Agriculture and Food 2015