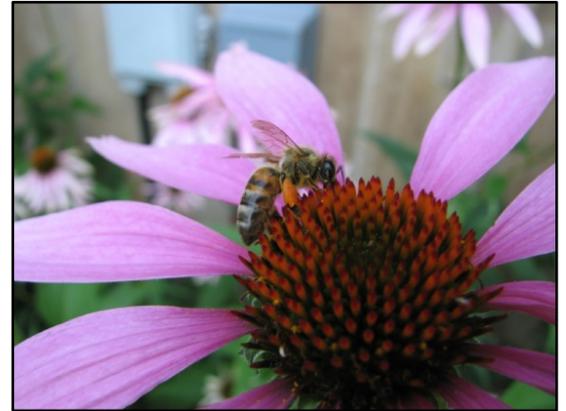


Idaho Pollinator Protection Plan



Prepared by: Division of
Agricultural Resources and
Division of Plant Industries



Factors Impacting Bee Health

Honeybees provide beekeepers and hobbyists with a variety of enterprises such as, beeswax, honey and other edible bee products, crop pollination services and sale of honeybees to other beekeepers. Raising honeybees can be a rewarding and profitable experience, but there are also many complex challenges facing beekeepers in keeping honeybee colonies alive and healthy. Some of the issues impacting honeybee colonies are: Colony Collapse Disorder (CCD), Varroa mites, Tracheal mites, small hive beetles, bacterial, fungal or viral diseases, reduction in quality forage, swarming, blunt force trauma, transportation of hives, hive robbing, lack of genetic diversity and exposure to pesticides. Environmental stress can also impact honeybees from hot and dry conditions to extreme cold temperatures. Proper hive management also plays an important role on honeybee health and survival.

Honeybee mortality rates per hive:

Normal die off rate: less than 100 bees per day

Low kill: 200 – 400 bees per day

Moderate kill: 500 – 900 bees per day

High kill: more than 1,000 bees per day

http://www.absoluteastronomy.com/topics/Pesticide_toxicity_to_bees

Many Idaho commercial beekeepers take their hives to California to pollinate almonds and other crops during the winter months. At that time of the year, California crops can provide honeybees with a good source of pollen for protein and nectar for carbohydrates. Essential amino acids and nutrients also come from a variety of plants. Long distance transportation back to Idaho can be very stressful to hives and contribute to poor colony health. Transporting honeybees from a warm and healthy environment to Idaho in early spring when there are much cooler temperatures and less available forage can take its toll on honey bee survival. Beekeepers can provide supplements to help sustain hives, but this still can't replace nor keep up with the environment they had previously been accustomed to.

Varroa mites were first found on honeybees in the 1950s. They are considered to be the main primary threat to honeybee colonies today. Varroa mites are external parasites that induce a disease known as varroosis. They attack both adults and the developing honeybee larvae, which weakens and shortens the life span of the honeybees. ISDA has registered several pesticides that can be used to help control mites in bee hives, but many cannot be used during honey production. In some cases, mites have developed a tolerance or resistance to the miticide. Some beekeepers may be tempted to resort to home remedies with the use of essential oils, such as thymol, eucalyptol or menthol. Animal drug products have also been reported as being used to control mites, which can be very risky, since there are no specific directions on how to apply these products. Beekeepers can run the risk of killing their honeybees or produce illegal or excessive chemical residues in the honey and wax when using animal drug products.

Pesticides are important tools used in agriculture to help protect yields and provide quality food products. Pesticides used in non-agricultural settings can also have a negative impact to honeybee populations. Some insecticides may be highly toxic to honeybees either from direct treatment, drift or from residues in the pollen that honeybees transport back to the hives. Honeybees can travel long distances (1 – 6 miles) to find a source of nectar. There are certain restrictions on the time of day when insecticides can be applied to agricultural crops that are attractive to honeybees when weeds or crops are in bloom. Crops that are not attractive to honeybees may be sprayed at any time during the day, which can expose honeybees to a direct treatment to insecticides while traveling to foraging areas. When spraying blooming crops or weeds that are attractive to honeybees, most beekeepers prefer that insecticide spraying occurs during the evening, whenever possible. Exposure to pesticides can be reduced by the use of protective netting or moving the hives to a safe location. The use of protective netting can have a negative impact to the honeybees, if the netting is left too long over the hives during high ambient temperatures. It can also be very difficult to move hives to a safe location when the beekeeper doesn't always know when or where agricultural fields are being sprayed. To determine the toxicity level of pesticides to honeybees, refer to the Oregon State University Extension Publication, PNW 591, on "How to Reduce Bee Poisoning from pesticides" at the following link: <https://catalog.extension.oregonstate.edu/files/project/pdf/pnw591.pdf>

Idaho Apiary Program

The ISDA has statutes and rules that require commercial beekeepers to register their colonies. Registered beekeepers are also required to mark their colonies with the name, address, phone number and state registration number of the owner. Title 22, Chapter 25, Bee Inspection statute is located at the following link: <http://www.legislature.idaho.gov/idstat/Title22/T22CH25.htm>. The Idaho Rules Under the Idaho Bee Inspection Law, IDAPA 02.06.03, are located at the following link: <http://adminrules.idaho.gov/rules/current/02/0630.pdf>. The ISDA maintains a list of registered beekeepers by county with contact information available to pesticide applicators to help prevent accidental poisoning of honeybees with pesticides.

Idaho Pesticide Law and Rules

The ISDA has statutes and rules that require growers and professional applicators to be licensed for certain types of pesticide applications. There are also specific restrictions in rule to help reduce the risks in protecting pollinators from pesticide exposure. Certain pesticide labels are also designed to help protect pollinators. Title 22, Chapter 34, Pesticides and Chemigation statute is located at the following link: <http://www.legislature.idaho.gov/idstat/Title22/T22CH34.htm>. The Idaho Rules Governing Pesticide and Chemigation Use and Application are located at the following link: <http://adminrules.idaho.gov/rules/current/02/0303.pdf>. When reported, ISDA may investigate honeybee kills that are allegedly caused for an exposure to pesticides. ISDA uses the guidelines developed by the Environmental Protection Agency <https://www.epa.gov/sites/production/files/2013-09/documents/bee-inspection-guide.pdf>.

Issues for Growers

Idaho growers are responsible for producing an affordable, safe, abundant and high-quality food and feed supply for the U.S. and worldwide. They must be good stewards of the land and protect the environment to continue producing the crops that are in high demand. Growers understand the importance of protecting pollinators, but they also have to deal with a significant number of pest problems in order to maintain high yields, provide quality products and to stay in business.

There are a number of control measures growers can use when dealing with various pest management decisions, such as cultural, biological and chemical control. Any one of these types of control measures can have a negative impact to honeybees. Biological and cultural control measures could be used to remove or control weeds that are attractive to honeybees, which reduces habitat. Alternative control measures may not be as good or cost efficient for growers. When a pest problem is not adequately controlled, this can reduce yields and profit margins for a grower. Extreme caution is used by the grower to protect his orchard or seed crop from insect pests with the use of pesticides and yet protect the honeybees that are also necessary to pollinate his crop in order to obtain a good yield. Other instances are when growers are unaware of where honeybee colonies are located. Crops that are not attractive to honeybees can be sprayed with pesticides at anytime during the day, but the honeybees may be flying over these fields when applications are being made, in order to get to a blooming field they are attracted to, which can result in significant honeybee kills.

Issues for Pesticide Applicators

Idaho has over 10,000 individuals certified and licensed to apply pesticides. Approximately 9,600 applicators are certified to apply insecticides in agricultural and/or nonagricultural settings. The 9,600 applicators consist of over 3,600 licensed private applicators and approximately 6,000 professional applicators. Licensed applicators are more aware of the adverse effects pesticides can have to honeybees and the environment and they understand what precautionary measures are needed to prevent adverse effects from pesticides. There are many factors that applicators must consider when making a pesticide application to a labeled site, such as: pest type and infestation level, type of pesticide, stage of growth for target pest, weather conditions, buffers for sensitive areas, pollinators, ground and surface water, organic crops, etc. In many instances, professional applicators may not be familiar with the area and they rely on the grower or crop consultant to inform them of sensitive crops or pollinators in the area. Unfortunately, this information does not always get communicated to the applicator or it is unknown whether honeybee colonies are located in the general vicinity. At times, applicators are caught in the middle when having to control insect pests for the grower and protecting pollinators. Mosquito Abatement districts have a responsibility to control mosquitoes that may transmit West Nile Virus or Zika Virus. Mosquito Abatement districts need to provide adequate notification to beekeepers of when and where mosquito control applications are going to take place.

When Honeybees Become a Pest Problem

On occasion, honeybees can become a pest problem when they swarm or establish hives in residential areas. This can be a major medical concern for individuals who are highly allergic to bee stings or for parents that are concerned for the safety of their children. When these situations occur, ISDA recommends the homeowner or applicator first contact a local beekeeper to collect

the honeybees. ISDA maintains a list of beekeepers that are willing to collect honeybees that have established their hive in residential areas. If a beekeeper is unable to collect the honeybees, then it is permissible to control the honeybees with a properly-labeled pesticide.

Communication

Communication between the beekeeper, grower and the applicator is critical in protecting honeybees from pesticide applications. All individuals must work cooperatively in determining what the best pest management strategy is and how to protect or reduce the risks to pollinators. Communication seems to work well when growers contract with beekeepers for pollination services; however, it is much more difficult when beekeepers locate their colonies in agricultural areas and don't let the growers in the area know that hives are present. Growers and applicators also need to understand that it can be very difficult for beekeepers to move their colonies. There is a certain amount of bee loss when beekeepers move their hives, but it may also be difficult to find a location where no pesticides are being applied in agricultural areas. When beekeepers locate their honeybee colonies in agricultural areas, they must also understand that there is a risk of losing some of their honeybees from exposure to pesticides. Beekeepers need to let growers know if there are honeybee colonies in the area and work with growers and applicators, so growers can protect their crops from invading insect pests and reduce the risks to the honeybees and other pollinators.

The Plan

The ultimate goal of this plan is to bring awareness to the issues faced by all parties, find an acceptable solution to control pests and protect or reduce the risks to pollinators. The primary purpose of the plan is to establish a systematic and comprehensive method for beekeepers, growers, pesticide applicators, and landowners to cooperate and communicate in a timely manner that allows all parties to operate successfully within the state. It is the intent that such open communication will lead to practices that both mitigate potential pesticide exposure to honeybees and allow for the effective management of various pest problems on agricultural crops. This open communication will not only help build relationships and increase mutual understanding, but it will also ensure peaceful co-existence and allow all parties to operate successfully. The plan is not designed to eliminate or further restrict pesticide use or to ban the use of pesticides in hives or in close proximity to hives. The following Best Management Practices (BMPs) are developed with this in mind.

Beekeeper BMPs

Work with landowners when choosing hive locations. Get permission from the landowner every year prior to placing colonies in a specific area. It is important that everybody understands that hives are not placed without first obtaining permission. Select a location to ensure that the honeybees or hives do not create a nuisance. Ideal hive locations will have minimal impacts on agricultural activities, but will still have adequate access to forage and water. Be familiar with cropping practices and changing crop rotations in a specific area. Avoid placing hives in low lying areas to minimize the impacts from drift or temperature inversions. Beekeepers should also request applicator contact information from the landowner in order to help coordinate spray activities or take precautions to protect hives when applications take place. If hives are placed

within a Mosquito Abatement District, notify the District of where hives are located and provide them with beekeeper contact information to be informed of any spray activities in the area.

Be cognizant of impacts to neighboring landowners when placing and choosing hive locations. Avoid blocking roads, trails or right-of-ways with colonies. Take steps to avoid potential negative impacts when locating hives near residential areas, equipment yards, grain bins, storage sites, livestock feeding and watering areas, etc.

Ensure honeybees have sufficient resources throughout the year. Availability of pollination and water sources can change throughout the year. If blooming forage crops become limited, honeybees may become stressed, if they need to fly long distances in search of a new nectar source. This also puts stress on the overall health of the hive, if insufficient food becomes unavailable. Natural sources of water may become unavailable during drought or late summer. Beekeepers should consider using stock tanks, similar to what ranchers do to water their livestock. Avoid using the rancher's watering tanks that could be bothersome for landowners or their livestock.

Work cooperatively with the landowner and the applicator when pesticide applications are scheduled to control pest problems. Let them know what capabilities are available to move hives or place netting over the hives to prevent pesticide exposure to the honeybees. Let them know how much notification is needed in order to move or put netting over the hives. Determine when is the best time of day for the spray application to take place based on the honeybee activity of the hives. Mark hives in a way that applicators can easily identify that there are hives in the area, who owns the hives and how to contact the beekeeper. It is recommended that hives be painted white or other color that stands out from the surrounding area.

Report suspected pesticide-related bee kills to ISDA. It is important to monitor honeybees more frequently when pesticide applications are taking place in the area. When beekeepers monitor hives every 10 – 14 days, it is very difficult to determine exactly when a bee kill actually occurred. Due to multiple applications taking place in an area on multiple days, it is also difficult to determine who the responsible party might be. Some pesticides breakdown very rapidly and it is helpful to report the incident as soon as possible, so that ISDA can collect a good sample for analyzing pesticide residues. In some scenarios the bee keeper may be asked to assist in collecting pollen and honeybee samples, especially when honeybees are highly agitated. Beekeepers can also help by maintaining good records of the number of honeybees that are dying on a daily basis to determine if the bee kill is a result of natural mortality or if the kill is rated to be low, moderate or high.

Use registered pesticides according to the label. When pests become a problem within a hive, beekeepers should use pesticides that are registered with EPA and ISDA. Beekeepers are required to read and follow the pesticide label directions. Failure to follow the label directions may decrease the effectiveness of the pesticide(s), increase the risk of adverse effects to the honeybees, result in illegal pesticide residues in the honey or honeycomb, or lead to pesticide resistance. Avoid using animal drugs or home remedies. These products do not have specific directions for use in controlling pests within a hive and can result in similar problems as when they fail to follow the directions on a pesticide label.

Comply with all requirements of the Idaho beekeeping law and associated rules.

Commercial beekeepers are required to register their honeybees and hive locations with the ISDA. ISDA will not investigate honeybee kill complaints, if the commercial beekeeper does not register their hives in accordance with the Apiary laws and rules. Although not required, some honeybee hobbyists will also register their hives with ISDA. Beekeepers must clearly post contact information and beekeeper ID number at all hive locations. Beekeepers should provide ISDA with up-to-date hive locations throughout the season.

Landowner/Grower BMPs

Work with beekeepers to select hive locations. Choose an area that will have minimal impact on farming/ranching operations, but still allow honeybees to access forage and water. The area should be easily visible for applicators to identify hive locations. Inform beekeepers of the preferred routes to travel when gaining access to hive locations.

Communicate with beekeepers. Communicate with beekeepers to let them know when pesticide applications are being scheduled and allow adequate time for notifications, so the beekeeper can take precautions to protect or move hives. Provide contact information to the beekeeper for the applicator(s), renter and neighbors.

Communicate with renters, pesticide applicators and agronomists. Landowners and renters should discuss honeybee issues and which one has the authority to allow honeybees on the property, as well as, how long they will be present and where the hives should be located on the property. When hiring a professional applicator, make sure the applicator is aware that honeybees are present on the property and where the hives are located. Let your agronomist or crop consultant know that honeybees are present. This will enable them to make proper recommendations for pesticide selections and to select the proper timing of applications for controlling pest problems and reducing risks to honeybees. If there are multiple pesticides that can adequately control the pest problem, choose the pesticide that has a lower toxicity to honeybees whenever possible.

Plant bee forage areas. Planting flowering plants, trees and shrubs that are attractive to honeybees in non-farmable or non-cropland areas can provide honeybees with a nearby forage source. Some pesticide labels require untreated vegetative buffer strips near surface waters. Selecting flowering plants that are attractive to honeybees for vegetative strips can help provide a good forage area near a water source to maintain healthy hives. This may also help keep honeybees from visiting or traveling over agricultural crops to get to foraging areas long distances away from the hives.

Pesticide Applicator BMPs

Use Integrated Pest Management (IPM) Principles. Scout fields and determine economic thresholds before pesticides are used to manage pest problems. Look at other alternatives for controlling pests and only use pesticides as a last resort. Applicators shall only use registered pesticides and apply them in accordance with the product's labeling.

Identify and notify beekeepers in the area prior to pesticide applications. Contact the grower and the crop consultant to determine if there are beehives located in the area. Applicators can obtain a list of beekeepers from ISDA to determine which cities or counties hives are located. Honeybees are known to travel several miles to find quality forage. Pesticide applicators should notify beekeepers with hives located within a 1-2 mile radius of the treated field (“*pollinator awareness zone*”). Notification should be provided at least 48 hours prior to the application, in order to give the beekeeper ample time to protect or move the hives. If the hives cannot be netted or moved, the applicator and beekeeper should develop a mutually acceptable strategy to control the pest, while mitigating risk to the honeybees. *Notification of beekeepers does not exempt applicators from complying with pesticide label requirements or the rules protecting pollinators.*

Choose products with lower risk to bees. The Oregon State University Extension Publication, PNW 591, “How to Reduce Bee Poisoning from Pesticides” is located at the following link: <https://catalog.extension.oregonstate.edu/files/project/pdf/pnw591.pdf>. This publication provides a list of pesticides and rates the level of toxicity to honeybees. Selecting the proper formulation of a pesticide can also influence the impact to honeybees. Dusts and wettable powder formulations can leave residues that can stick to the hairs on honeybees and be transported back to the hives. Choose products with less residual toxicity to honeybees. A highly toxic insecticide with a short half-life may be better than a low toxic insecticide with a longer residual half-life.

Use proper timing to apply pesticides that are toxic to honeybees. Some residual pesticide applications may be made pre-bloom to help control anticipated pest problems for crops that are attractive to honeybees. If blooming crops attractive to honeybees must be sprayed, it is best to spray early morning (no later than three hours after sunrise) or late evening (no sooner than three hours before sunset) when honeybee activity is lowest. Night time spraying can also help protect honeybees from pesticides. Honeybees typically become active once ambient temperatures start to get above 50° F.

Supporting Pollinator Forage & Habitat

Honeybee Forage. Everyone can help plant forage for honeybees. Plants that support pollinators are also beneficial for other wildlife, are often visually attractive, and can help improve soil health. Flowers often come to mind when thinking about honeybees, but honeybees also utilize trees, shrubs, and other less-noticeable plants for pollen and nectar sources. It is important to consider diversity when choosing plants to ensure adequate forage throughout the entire growing season. Diversity will also ensure that pollinators have access to all of the nutrients they require to be healthy. Here are some easy, efficient ways to improve pollinator forage.

Municipalities can plant trees, shrubs and flowers that provide good forage for all types of pollinators. Diversity is important, the pollen and nectar of each species carries a different nutrient load for the pollinators. This can be worked into new plantings as well. Every time a plant is added or replaced, choose a variety that will contribute to pollinator forage. Foraging honeybees are typically not aggressive.

Counties can create honeybee forage along secondary roads. Secondary road ditches often contain several species of plants that provide forage for pollinators. It is a common practice to mow ditches for the safety of motorists and to prevent drifting snow. Consider spot spraying noxious weeds and mowing ditches later in the year to ensure that honeybee forage is available. Incorporate short forbs into secondary road ditches to minimize attracting large wildlife.

Homeowners can put out flower pots, create flowerbeds, plant trees or shrubs, or establish gardens to provide forage. Homeowners should also take special precaution when applying pesticides to protect pollinators. The pesticide user BMPs apply to anyone using pesticides. Remember, the pesticide label is the law and it is in place to minimize risks to the environment and human health.

Create habitat for beneficial, wild pollinators. Roughly 70 percent of native bees nest in the ground. They burrow into areas of well-drained, bare, or partially vegetated soil. Other bees nest in abandoned beetle houses in snags or in soft-centered, hollow twigs and plant stems. Bees will also utilize dead trees and branches. Habitats can be created by leaving deadfalls and brush piles as nesting habitat. Consider the type of habitat you wish to create and the pollinators you want to attract.

Public land access. Public land typically does not incorporate crop production or large scale insecticide use. However, there may on occasion be grasshopper or Mormon Cricket projects on BLM lands or large forest projects where insecticides are applied. There are some agencies that allow beekeepers to place honeybees on state and federal lands. Permission must be obtained and hives placed on state or federal lands also need to be registered with ISDA.

It is our hope that by following these guidelines pollinator populations will increase to the benefit of all Idaho's agricultural production and environment.

References and other resources:

National Pollinator Health Strategy

<https://www.whitehouse.gov/sites/default/files/microsites/ostp/Pollinator%20Health%20Strategy%202015.pdf>

North Dakota MP3 http://www.nd.gov/ndda/files/resource/ND_Pollinator_Plan_2016.pdf

CropLife Briefing Document https://croplife.org/wp-content/uploads/pdf_files/Briefing-Preserving-the-Wellbeing-of-the-Honey-Bee.pdf

National Association of State Departments of Agriculture (NASDA)

<http://www.nasda.org/File.aspx?id=34760>

Idaho Agricultural Statistics

http://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=IDAHO

The Prairie Star/Ag Weekly http://www.theprairiestar.com/agweekly/news/crop/idaho-s-honey-bee-production-up-since/article_3ce18b4e-cf43-11e4-b629-03d0ec2472f4.html

National Pest Management Association (NMPA) <http://nmpapestworld.org/pollinator/bmps/>

Massachusetts Department of Agriculture

<http://www.mass.gov/eea/docs/agr/farmproducts/docs/mdar-pollinator-plan-final-draft.pdf>

Bee Culture <http://www.beeeculture.com/catch-the-buzz-get-involved-in-your-states-plan-or-dont-complain-when-its-done/>

Massachusetts Beekeepers Association Best Management Practices

<http://www.massbee.org/addons/BestPractices/BMP03-14.pdf>

USDA Diagnosis of Honey Bee Diseases

<http://www.ars.usda.gov/is/np/honeybeediseases/honeybeediseases.pdf>

EPA Best Management Practices to Protect Pollinators

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

North Carolina Protecting Pollinators <http://ncagr.gov/spcap/bee/>

Bee Informed: <https://beeinformed.org/>