



South Dakota

MANAGED POLLINATOR PLAN

A South Dakota Department of Agriculture Publication

July 2017



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Executive Summary

South Dakota's beekeepers play a vital role in our agriculture economy, consistently ranking among the top in the nation for honey production. In 2016 alone, South Dakota beekeepers produced a honey crop worth over \$34.6 million from 280,000 colonies.¹ In the last decade, commercial beekeepers in the state and throughout the country have experienced hive losses far above historical rates, likely due to a combination of health issues, environmental stresses, and forage loss.

To protect this key part of our economy, the South Dakota Department of Agriculture (SDDA) worked with stakeholders to put together this Managed Pollinator Plan outlining efforts to protect managed pollinators, improve hive health, enhance habitat, and facilitate communications between beekeepers, land managers, and crop producers. With input from the public and industry stakeholders, the SDDA identified several ways to protect and improve managed pollinator health in South Dakota. These include:

- Improving communication mechanisms for beekeepers and pesticide applicators through participation in the SDDA Sensitive Sites Registry and finding ways for pesticide applicators to contact beekeepers before spraying;
- Providing best management practices for beekeepers, applicators, and land managers; and
- Helping land managers understand tools available to protect and increase forage habitat.

The goal of the South Dakota Managed Pollinator Plan is to improve practices in every segment of the industry in the state and increase awareness of different challenges faced by all parties. To make this a valuable tool, the SDDA will continue to monitor hive health, work with industry, and periodically review and modify the plan based on input from stakeholders.

¹ National Agriculture Statistics Service. "Honey." March 22, 2017. Accessed June 02, 2017. <http://usda.mannlib.cornell.edu/usda/current/Hone/Hone-03-22-2017.pdf>.

Introduction

South Dakota's beekeepers play a vital role in our agriculture economy, consistently ranking among the top in the nation for honey production. In 2016 alone, South Dakota beekeepers produced almost 20 million pounds of honey, or 12.3 percent of the total U.S. honey crop.² Total honey production in South Dakota was worth more than \$34 million in 2016.³ The commercial beekeeping industry contributes to the South Dakota economy by providing salaries for employees, paying taxes, purchasing or renting residential and commercial real estate, and making other expenditures in the conduct of their operations in the state.

Currently, there are more than 288 South Dakotans keeping bees in the state.⁴ South Dakota reliably ranks in the top five in the nation for total number of colonies or hives. In 2016, South Dakota's beekeepers managed more than 280,000 hives.⁵

While our honey and beeswax production is impressive, the value of honey bees as pollinators for agricultural crops is equally important. According to the U.S. Department of Agriculture (USDA), bee pollination is responsible for more than \$20 billion in crop production in the country.⁶ Honey bee pollination improves a variety of agriculture crops including alfalfa and sunflowers, two of South Dakota's other major crops.

In addition to pollinating crops at home, South Dakota beekeepers travel to orchards and groves in the Southeast and Western United States to provide pollination services for specialty crop producers. Commercial pollination is an important part of the industry and invaluable to fruit and vegetable production in the U.S.

Honey bees provide another, often overlooked, advantage to South Dakota: the bee's service to wildlife in the production of food and cover. For example, the production of sweet clover seed provides winter food for pheasants and other birds, winter wind protection, and seed to maintain the plant population over the years.

In the last decade, commercial beekeepers in the state and throughout the country have experienced hive losses far above historical rates, likely due to a combination of health issues, environmental stresses and forage loss. In 2006, U.S. beekeepers began reporting losses of 30-90 percent of their hives due to what became known as colony collapse disorder (CCD).

² National Agriculture Statistics Service. "Honey." March 22, 2017. Accessed June 02, 2017.

<http://usda.mannlib.cornell.edu/usda/current/Hone/Hone-03-22-2017.pdf>.

³ Ibid.

⁴ Ibid.

⁵ Ibid.

⁶ Garcia, Juan M., and Jason Weller. "Conservation Reserve Program (CRP)- Maintaining Beehives on CRP Acreage ." August 1, 2013. Accessed June 2, 2017. https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/EPAS/PDF/7722287_honey_bees.pdf.

The Agricultural Research Service and National Institute of Food and Agriculture have identified four general causes of CCD:

- pathogens
- parasites
- management stressors
- environmental stressors

To protect this key part of our economy, the South Dakota Department of Agriculture (SDDA) worked with stakeholders to put together this Managed Pollinator Plan outlining efforts to protect managed pollinators⁷, improve hive health, enhance habitat, and facilitate communications between beekeepers, land managers, and crop producers.

The goal of the plan is to improve practices in every segment of the industry in the state and increase awareness of different challenges faced by all parties. To make this a valuable tool, the SDDA will continue to monitor hive health, work with industry, and periodically review and modify the plan based on input from stakeholders.

Challenges to Managed Pollinators and Regulatory Solutions

Honey bees, like all other animals, are afflicted with certain diseases, viruses, parasites, and predators. Current research points to four general reasons for the decline in honey bee health: pathogens, parasites, management stressors, and environmental stressors.

To track threats to bee health, the SDDA has participated in the National Honey Bee Survey every year since 2010. This survey takes an epidemiological approach to documenting honey bee diseases, pests, and pathogens. Additionally, this survey monitors for the presence or absence of invasive threats to colony health. Around 25 live samples are taken each year and sent to a national laboratory to be tested for viruses, parasites, and pesticide residues. The results are shared with beekeepers to help them make informed health management decisions.

The SDDA's apiary program houses the state apiarist, as well as oversees the regulation of managed pollinators in the state and provides various resources to beekeepers. Routine inspections are conducted by the SDDA apiary program in order to reduce the spread of apiary disease such as American Foulbrood, honey bee tracheal mite, and the Varroa mite. Inspections generally occur in the spring and summer to check on bee health, often prior to moving bees to another location for pollination work.

The SDDA's apiary program also coordinates the interstate movement of bees and advises

⁷ Managed pollinators are honey bees kept for commercial or hobby purposes, as opposed to wild native pollinators.

beekeepers on the identification and treatment of pests and diseases. When bringing bees into the state, an entrance permit must be submitted to the department. This applies to queens, nucs, packages, colonies, and equipment. South Dakota also requires a health certificate from the state where the bees originated.

The SDDA also requires registration of apiaries within the state. Any person that owns, leases, or possesses bees is required to register their hives. An application must be completed giving the legal description of the location, the name of the land managers or the licensee of the location, and the number of colonies of bees in each apiary. Other information may be required based on the location of the colony. If a beekeeper does not register their apiaries, civil penalties may be imposed. Beekeepers and landowners can contact the SDDA about unknown or uninvited hives.

To protect against disease, South Dakota law requires there be at least three miles between apiaries to lessen comingling of bees from different apiaries. This three-mile zone helps check the spread of diseases such as American and European Foulbrood and tracheal and Varroa Mites.

For more information on South Dakota's apiary laws or to register your hives, see <https://sdda.sd.gov/ag-services/beekeeping-apiary-resources/apiary-inspection-program/>.

The SDDA also investigates concerns from landowners and beekeepers when hive loss occurs. To request an investigation, beekeepers may call (605) 773-4432 or download a form at <http://sdda.sd.gov/form-finder/pdf/incident.complaint.form.pdf>. The form should be mailed to:

South Dakota Department of Agriculture
Foss Building
523 East Capitol Avenue
Pierre SD 5750-3182

Forms may also be emailed to agmail@state.sd.us.

Best Management Practices for Beekeepers

To maximize hive health and decrease losses, there are several steps hobby and commercial beekeepers can take to protect their hives:

- Be a good partner with land managers. Be flexible and work to develop a long-standing relationship. Notify land managers and crop producers when locating hives. Keep the land managers informed of hive locations, status, and concerns. Be willing to consider removing hives if the need arises.

- When granted permission to keep hives on a parcel, do not “sublet” and allow other beekeepers to bring in their hives. Subleasing is not permissible under state law.
- Communicate with fellow beekeepers working in your area to share information, encourage adoption of recommendations, facilitate movement of hives, and identify holding locations for temporary foraging.
- Use registered pesticides and comply with all restrictions, precautions, and directions found on the pesticide labels, as required by law.
- Introduce genetic diversity as genetic variation improves disease resistance.
- Report hive losses to the SDDA for investigation.

Best Management Practices for Pesticide Applicators

Commercial and private pesticide applicators also play an important role in protecting South Dakota’s beekeeping industry. By following common sense practices, applicators can minimize any accidental damage to hives while still operating in an efficient manner. Some of these practices include:

- Choose appropriate pesticides to reduce the risk to pollinators. Some insecticides have active ingredients that are less likely to cause mortality in bees.
- Pesticide applicators are encouraged to work with beekeepers in regards to timing of the applications to reduce risk to honey bees.
- Commercial applicators must use registered pesticides and comply with all restrictions, precautions and directions found on the pesticide labels, as required by law. Failure to comply with directions may increase the risk of adverse effects to bees, decrease the effectiveness of pesticides, cause unsafe pesticide residues in honey and other products, and potentially lead to pesticide resistance.

Best Management Practices for Land Managers

Pollinator Habitat

Land managers are encouraged to plant and maintain areas of native habitat to support pollinators and other wildlife populations. A variety of federal and state programs may be available to assist land managers in establishing pollinator habitat (a brief list may be found in the appendix).

Roadside right-of-ways have value as a habitat for pollinators as well. These areas can offer a diversity of wildflowers that provide nectar and pollen for all pollinators. Land managers can help by taking a judicious approach to mowing and balancing habitat preservation with the need for traffic safety. Spot spraying for noxious weed control can be an effective way to also maintain pollinator habitat. Land managers should always consult state and county law before

mowing right-of-ways as there may be restrictions in place.

Pollinator habitat is also a priority on land owned by the State of South Dakota. The South Dakota Department of Transportation has implemented test projects to improve habitat for pollinators and other species. Test plots in state highway right-of ways have been planted with native warm season grasses and flowering species, which provide improved habitat for pollinators and other wildlife species. Warm season grasses grow later in the summer and retain their nutritional value longer. This also can allow land managers to harvest the grass for hay later in the year.

Land managers can also help by including features on their property that provide additional habitat for pollinators. Below are some examples.

- Riparian buffers can create habitat along streams that contain a diversity of plants.
- Hedgerows and windbreaks with a wide variety of plants that have overlapping flowering periods will provide pollinator habitat throughout the growing season.
- A vegetable, flower, or herb garden with a diverse assortment of plants is a good source of forage for pollinators, especially those varieties that are good producers of pollen or nectar.
- Planting fields with clover or other pollinator mixes can supply bees with pollen and nectar.
- Leaving areas next to a field untilled and unsprayed to support flowering plants can provide good forage areas for pollinators.
- Certain legumes or other flowering plants can be included in cover crop mixes to supply pollen and nectar.

Weeds

Vegetation can provide excellent pollinator habitat. Using native grasses, staging planting, controlling erosion, selecting appropriate shrubs and trees for the given area and strategically managing woody vegetation and trees can contribute to the creation of successful habitat. However, land managers should take care to avoid any noxious weeds and invasive species that may not be planted in South Dakota. A list of noxious weeds and declared pests can be found at <https://sdda.sd.gov/ag-services/weed-and-pest-control/weed-pest-control/>.

The South Dakota Weed and Pest Commission is responsible for developing and implementing a state-wide program for control of noxious weeds. Spot spraying is encouraged by landowners and applicators. Spot treatments are a variation on broadcast treatment where applications target specific weed patches instead of treating the entire area. This is useful for controlling slow-spreading weeds which form dense, patchy infestations. The Weed and Pest Commission and the SDDA work with land managers and local governments to preserve pollinator habitat while eliminating noxious weeds and declared pests.

Working with Beekeepers

Land managers can also help by working with beekeepers that may be keeping hives on their property. Working together, land managers and beekeepers should reach agreements that address issues including:

- Number of hives allowed;
- How hives and bee yards will be marked by the beekeeper as required by law;
- Where hives will be placed so that they will not interfere with property management and reduce the likelihood of exposure of hives to pesticides;
- If the land managers will provide a list of pesticide products intended to be used while hives are on the land;
- How the land managers will communicate plans to apply pesticides that may involve relocation of bee hives, if requested;
- Identification of temporary holding areas, if available, where hives may be relocated during pesticide applications; and
- The best means to quickly contact each party if urgent issues arise.

Best Management Practices for Crop Production

While many crops raised in South Dakota do not rely on honey bee pollination, producers should still be aware that managed hives may be in their area and take appropriate measures to mitigate pesticide exposure. Some practices that producers may consider implementing include:

- Avoiding use of products prone to drift under windy conditions;
- Utilizing conservation practices like cover crops that can reduce pesticide costs and increase habitat;
- When using seed treatments, consider whether treatment is vital to the success of the crop and whether utilizing smaller amounts of treatment would be equally successful;
- Use modern application equipment, such as nozzles that create spray droplets less affected by wind, to help keep crop protection products in the intended application area;
- When using treated seed, consider modern lubricant technologies that can reduce or eliminate dust-off;
- Use properly calibrated and specialized seeding machinery;
- Properly dispose of unused seed and containers;
- Clean seed equipment regularly; and
- Consider utilizing Integrated Pest Management techniques that can reduce reliance on chemical fertilizers and seed treatments.

Additionally, the Pollinator Partnership (www.pollinator.org) has many resources available on crop production techniques.

Beekeeper/Applicator Communications

Pesticide applicators need accurate and timely information from producers on the location of hives that could affect application decisions. The SDDA maintains a website with the location of managed bee colonies and contact information for beekeepers on the SDDA's Sensitive Site Registry (<http://arcgis.sd.gov/server/ag/sensitivesites/default-map.aspx>). Producers of pesticide-sensitive crops and livestock can also register their sensitive production areas on this site. When a producer registers an area, an email is sent to each applicator who has registered a service area which includes that location. This registry is designed to provide a simple way to inform pesticide applicators that an area is sensitive to pesticides and should be avoided.

Growers and applicators are encouraged to use the Sensitive Site Registry to notify beekeepers when an application needs to be made. Doing so can give beekeepers adequate time to take measures to protect their hives. Growers and applicators are encouraged to communicate with beekeepers in regards to time of spraying along with the types of pesticide products that are applied.

Some commercial applicators that live out of state may follow Fieldwatch™, a registry tool that is meant to help pesticide applicators and producers communicate more effectively to promote awareness and stewardship activities to help prevent and manage pesticide drift effects. For more information see www.fieldwatch.com. The SDDA encourages commercial applicators that use Fieldwatch™ to also register with the Sensitive Site Registry.

Future Needs

As more research becomes available on pollinator health, the SDDA will continue to revise and update the Managed Pollinator Plan to reflect current best management practices. In addition, the SDDA will seek to provide producers and the public with the best information possible through outreach and education activities, including:

- Promoting the establishment of pollinator habitat and landscape management;
- Working with cities and municipalities within South Dakota to promote pollinator habitat;
- Encouraging counties and townships to maintain bee forage along secondary roads when it is safe to do so;
- Promoting beekeeping at local schools and community events; and
- Exploring the possibility of beekeepers placing honey bees on state and federal lands.

Appendix

Education

Many land managers utilize crop advisors and agricultural extension specialists for input on cropping and pest management decisions. South Dakota State University (SDSU) Extension employs educators and specialists in all regions of South Dakota that can serve as a resource to beekeepers, land managers and pesticide applicators.

SDSU Extension Regional Centers include:

- Aberdeen Regional Center - 13 Second Ave SE Aberdeen SD 57401 phone: 605-626-2870
- Lemmon Regional Center - 408 Regional St. W., Lemmon SD 57638 phone: 605-374-4177
- Mitchell Regional Center - 1800 E. Spruce St, Mitchell SD 57301 phone: 605-995-7378
- Pierre Regional Center - 412 W Missouri Ave Pierre SD 57501 phone: 605-773-8120
- Rapid City Regional Center - 1530 Samco Road, Rapid City 57702 phone: 605-394-1722
- Sioux Falls Regional Center - 2001 E 8th St, Sioux Falls SD 57103 phone: 605-782-3290
- Watertown Regional Center - 1910 W. Kemp Ave. Watertown SD 57201 phone: 605-882-5140
- Winner Regional Center - P.O. Box 270 Winner SD 57580 phone: 605-842-1267

Additionally, SDSU has 60 county offices that can assist applicators and beekeepers. Find out more at <http://igrow.org/community-development/communities/honey-beekeeping/>.

Land Management Assistance

Land managers can also access assistance with federal programs for education and habitat establishment. The USDA's Natural Resources Conservation Service (NRCS) administers several programs that offer assistance. To contact your local NRCS office, visit www.nrcs.usda.gov/wps/portal/nrcs/site/sd/home/.

The South Dakota Department of Game, Fish and Parks also offers technical assistance to land managers interested in protecting pollinators. For more information, <http://gfp.sd.gov/wildlife/>.

Additional Online Resources

Bee Informed Partnership: www.beeinformed.org

South Dakota Habitat Pays: <http://habitat.sd.gov/>

South Dakota Department of Agriculture Sensitive Site Registry:

<http://arcgis.sd.gov/server/ag/sensitivesites/default-map.aspx>

South Dakota Department of Agriculture: <https://sdda.sd.gov/ag-services/beekeeping-apiary-resources/>

Center for Integrated Pest Management: www.pesticidestewardship.org

The Pollinator Partnership: www.pollinator.org

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