

North Dakota Fact Sheet

Honey Bee

What is the Honey Bee and Beekeeping?

The European honey bee (*Apis mellifera*) is one of the most familiar insects in North America. Living as domesticated livestock in colonies called hives, a single queen and tens of thousands of worker bees can persist many years. An **apiary** is a place where multiple beehives are located.

Introduced to the U.S. in the early 1600s, beekeepers currently manage over 2 million apiaries. Beekeepers earn their living renting hives for pollination and by refining and selling honey. Through the growing season, beekeepers move bees around the Nation to pollinate crops of flowering vegetables, citrus, nut and other fruit trees or shrubs. At the end of pollination season in southern States, bees are returned to a northern home base to rest and produce a honey crop. The Dakotas are the most important resting grounds in the U.S.

While bees do eat some protein and nutrient rich pollen, much of the reason bees are at flowers is to consume the sweet nectar used to make honey. Many flowers evolved so when bees burrow deep into the flower to get at the nectar, the sticky pollen adheres to the bee's body. The bee transports pollen to the next flower and pollination occurs.

Where in North Dakota do they call home?

Beekeepers maintain apiaries (groups of 20 to 32 hives) in most North Dakota counties from late spring (May) thru fall. The ideal honey bee apiary is located near high-quality "bee pastures". A bee pasture is any grass cover with suitable flowering plants providing abundant nectar and pollen. A diverse mix of flowering species with blossoms occurring throughout the spring, summer and fall are necessary to ensure honey bees make a full recovery following their journey.

Beekeepers prefer to locate apiaries within 2 miles of quality bee pasture and/or crops, such as sunflower or canola. It is extremely important for

beekeepers to know their bees will be protected from insecticides.



Photo by NRCS

What is happening to the honey bee?

Recent introduction of numerous honey bee pests, diseases and widespread insecticide use have taken a toll on honey bee numbers. Neonicotinoid class insecticides are widely used as seed treatments, taken up by and protecting growing plants from insect damage. Neonicotinoids may disrupt the immune system of non-target honey bees. Colony Collapse Disorder (CCD) has decimated populations (>30% annually in recent years) of honeybees. Causes of CCD are unknown, but may be caused by a mutated virus, insecticides, travel stress or any combination of stressors.

What are the threats?

- Conversion of habitat to wind-pollinated crops.
- Loss of foraging plants due to management favoring cool-season invasive grasses which out-compete many wildflowers.
- Mortality due to insecticides.
- Loss of foraging plants to broadleaf herbicides.
- Lack of a bee-safe Integrated Pest Management strategy.

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What are the opportunities for landowners?

Bee Forage Establishment/Enhancement:

Establish honey bee-friendly forage in cropland within 2 miles of apiaries. This can include establishing rows of trees and shrubs or perennial vegetation on headlands, field borders, filter strips or food plots.

Consider inter-seed flowering plants into existing tame grass cover to address both honey bee and livestock forage needs. The NRCS can help develop conservation plans that provide for quality honey bee habitat and livestock forage.

There are several suitable bee forage species to choose from. Three of the most common, commercially available species of preferred foraging plants are *Rocky Mountain bee plant*, *purple prairie clover*, and *white prairie clover*.

Cover Crops:

Effective cover crops plantings offer a diversity of species with blossoms throughout the spring, summer and fall bloom periods. Cover crops should be established within 2 miles of apiaries. Cover crops with limited bloom periods may be harvested for livestock forage after the bloom period ends.

NRCS assists in developing cover crop systems to provide high quality honey bee forage, potential livestock grazing and soil health benefits.

Integrated Pest Management (IPM):

IPM is a decision-making process used to solve pest problems while minimizing risks to people and the environment. It employs a five-principle strategy consisting of:

- 1) Pest identification
- 2) Monitoring and assessing pest populations,
- 3) Guidelines for when management action is needed,
- 4) Preventing pest problems and
- 5) Use a combination of biological, cultural, physical/mechanical and chemical management tools.

Pesticides, in various forms, are used on nearly all agricultural lands in North Dakota. All agricultural producers play an important role in honey bee protection with their decisions on the use of pesticides to control weeds and insects. Many of these pesticides have significant impacts on honey bees and their forage areas. Apiaries cannot easily be moved out of agricultural areas to protect them from careless insecticide applications.

The NRCS can provide risk assessments that identify pesticide hazards for producers to consider when developing IPM plans.

Maintain and Improve Healthy Grazing Lands:

To benefit honey bees, a grazing plan could encourage control of cool-season invasives and promote native communities rich in forbs. Properly managed livestock grazing is one of the most economical and efficient ways to maintain quality grassland habitat.

The NRCS can assist in developing grazing systems that maintain or improve high quality honey bee forage, plant health and livestock production.

The NRCS has partnered with the Xerces Society's Pollinator Conservation Program to develop guidance for supporting honey bees, native bees and other pollinators. For more information, visit www.xerces.org.

To learn more contact your local NRCS office, or go to www.nd.nrcs.usda.gov.



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