

# Pollinators

SD-FS-55  
May 2008

## WHAT ARE POLLINATORS AND WHY SHOULD YOU CARE?

The majority of pollinators in South Dakota (SD) are insects such as native bees, honey bees, beetles, flies, moths, and butterflies. Through the process of foraging, both native and nonnative pollinators provide pollinating services to (or at least use) roughly the entire suite of native flowering plants. Native flowering plants include forbs, legumes, shrubs, trees, and to a lesser extent, aquatic vascular plants. Native and nonnative pollinators forage on almost forty agricultural crop species grown in SD.

*Perennial* plants such as flowering shrubs, legumes, forbs, and wildflowers provide consistent foraging habitat during the spring, summer, and fall. *Annual* plants, such as certain commodity and produce crops provide foraging opportunities. Pollen (usually moistened with nectar or floral oil) is used to feed larvae, and nectar is used to fuel the flight of adults. Many pollinators are active above ground as adults for only a few weeks or months. Pollinators require a reliable protein source (nectar and/or pollen) during their active period (generally late April through early October) to carry the adult and offspring through the winter to the next blooming period.

Relatively undisturbed conditions with suitable ground and/or nest structure provide nesting sites. Nest sites are important because the further the pollinator must travel the more nutrients the pollinator uses. If the pollinator travels long distances to a “poor” food source, and if the pollinator is stressed, then the pollinator may be more susceptible to environmental factors such as parasites and disease resulting in possible starvation or



Photo courtesy of PDPhoto.org

possible reproductive decline. The average foraging distance for native pollinators ranges from approximately 50 feet to ½ mile. The optimal foraging distance for nonnative pollinators, such as the European Honey Bee, is approximately three-quarters of a mile to one mile from the colony.

## WHERE DO YOU START?

The Natural Resources Conservation Service (NRCS), in cooperation with its partners, has developed two publications to assist landowners. These publications are titled “Farming for Pollinators” and “Farming for Bees: Guidelines for Providing Native Bee Habitat on Farms.” These publications are available at your local United States Department of Agriculture Service Center NRCS office.

The publications recommend three initial landowner actions:

- Recognize the pollinators and pollinator habitats that are already on your property.
- Adapt existing production and land management practices to avoid causing undue harm to the pollinators already present.
- Provide habitat for native pollinators on and around the farm.

## WHAT CAN YOU DO?

Methods are available for providing or protecting nest site habitats for pollinator species in the agricultural landscape; many of them do not interfere with farming. They range from simple, low-cost measures to more complex and expensive methods:

- Provide undisturbed habitat by focusing on areas that are not farmed, including:
  - Unused land around fields, buildings, and service yards.
  - Areas more difficult to farm, such as edges of ditches, ponds and riparian areas, on hills, or around utility poles.
- Management of irrigation to preserve ground-nesting pollinators. By using drip or spray irrigation instead of flooding, producers can avoid drowning ground nesting pollinators and larvae. Irrigating can also be performed at night.
- Management of tillage to protect existing pollinator nests. By shallower tilling or using no-till agriculture, disturbance of nest sites can be avoided. For example, producers found three times more pollinators on squash and pumpkin farms that practice no-till agriculture than that of tilled farms.
- Active land management to provide nesting sites for pollinators, including:
  - Creating patches of bare ground within perennial plantings (a range of native plants blooming at different times during the spring, summer, and fall).
  - Leaving dead wood and standing snags, drilling holes in dead wood, and putting out trap nests for twig nesting pollinators.
  - Providing a sand-loam mix for ground nesting pollinators.
  - Putting out bumble bee nest boxes buried or above ground.

## HOW DO PESTICIDES AFFECT POLLINATORS?

Insecticides are differentially toxic to non target species, depending on the active ingredients, the strength and composition of the formulation (dust, powder, liquid), and the behavioral and physiological response of the target insect. Some pollinator species might not be killed outright by pesticide applications, but they could suffer sublethal effects, including reduced foraging ability that ultimately hamper their productivity.

Short of eliminating insecticide use altogether, producers can reduce risks to pollinators from pesticides in several ways:

- Choose appropriate pesticides. Some insecticides have active ingredients that are less likely to cause mortality or sublethal effects in pollinators, to have formulations that are less toxic to pollinators (for example, granular powders are less noxious than dust), and to break down more rapidly than others. Microencapsulated formulations should be avoided because they mimic pollen.
- Apply pesticides selectively. Producers may be able to avoid using insecticides during a crop's bloom period, or apply them at night while pollinators are in nests, and apply them on the ground rather than in aerial spray.
- Convert some or all fields to organic production.