

Valuable Honey Bees

A colleague of mine was recently diagnosing problems with some apple trees that were in blossom and found hundreds of dead honey bees under the trees. The most likely cause of said deaths was pesticide exposure. As far as my colleague could tell, the homeowner had not applied any insecticide. Perhaps the bees had flown in from another location and died while working the blossoms of the apple trees. There is evidence that beneficial bees are sometimes killed with insecticides that are intended to control destructive insects. We all need to work harder at preventing such poisonings since populations of both native pollinators and honeybees continue to decline.

History indicates that honeybees have been domesticated since the time of the building of the Egyptian pyramids. These busy social insects have repeatedly demonstrated their value to society as they fly from plant to plant collecting nectar. Pollen from multiple plants stick to the bee's pollen baskets (hairs on the hind legs) and repeatedly gets rubbed off as the bees move from plant to plant. This process pollinates many flowering plants, allowing them to reproduce. Without the vital work of bees, the productivity of plants would be diminished and society would quickly become very hungry.

One paradox we deal with is that orchards and fields continue to grow larger and numbers of wild pollinators have diminished. This pollination shortage is compensated by commercial bee keepers (apiarists) who maintain beehives and move them to priority geographic locations according to climatic conditions and plant needs. Domestic honeybees have significant commercial value as pollinators of crops. Apiarists, who always have a major investment in their bees and equipment, harvest the excess honey as a very tasty and nutritious food for human consumption. The important role they play in keeping all of us fed cannot be overemphasized.

Dr Howard Deer and Dr Richard Beard, Utah State University Extension Specialists, have written a Fact Sheet http://extension.usu.edu/files/publications/factsheet/Pesticides_No_19.pdf, providing excellent advice on reducing honey bee losses. The authors give suggestions to pesticide applicators, growers, and bee keepers, emphasizing that all three parties share responsibility. A few recommendations are listed below.

- **Never spray a blooming plant with any insecticide for any reason.**
 - Apply insecticides in late evening, night, or early morning while bees are not actively foraging. Evening applications are generally less hazardous to bees than early morning applications. When

high temperatures cause bees to start foraging earlier or continue later than usual, shift time accordingly.

- Apply insecticides when temperatures are not expected to be unusually low following treatment. Residues will remain toxic to bees for a much longer time under such conditions.
- Contact the beekeeper and ask him to remove his colonies from the area or to keep the bees confined during the application period.
- Growers should learn the pollination requirements of the crops they raise. Application of insecticides hazardous to bees on these crops, or driving beekeepers out of your area by the use of insecticides on other blossoming crops, will likely cause lower crop yields.
- Growers and applicators should learn about the beekeeper's problems with the poisoning of bees and enter into mutually advantageous agreements to best produce bee-pollinated crops.
- Beekeepers should mark colonies of bees that are next to orchards or fields that may be treated. Post your name, mailing address, email address, and phone number in printing large enough to be read at some distance in all apiaries so you can be contacted readily to move the colonies before hazardous insecticides are applied.
- Keep hives out of fields treated with the more hazardous insecticides for at least 36 hours after the application. Tests have shown that about 90 percent of bee mortalities occur within 24 hours after application.
- Apiarists should learn about pest control problems and programs so they can develop mutually beneficial agreements with growers concerning pollination service and prudent use of pesticides.

We realize that in many instances it is difficult to determine the appropriate time to apply pesticides.

One really good source is the Utah State University Pest Lab. The Lab provides weekly updates on orchard and vegetable crops and also landscape plants. They answer such questions as when and what to spray and identify specific insects that are troublesome during the season. To sign up for these weekly advisories access the following webpage: <http://utahpests.usu.edu/ipm/>.

Coincidentally, specialists report that the day to start spraying for codling moth in Cache Valley is June 6-8, depending on your area of the valley. Warmer areas would be the earlier date. Cherries should not be sprayed until they turn straw yellow to prevent cherry fruit fly. For homeowners, products such as Malathion and Carbaryl can be used to control these pests. However, before purchasing any pesticide, check the label to be certain the product can be used, how often the product can be applied and always follow the listed application rates.