

Top Five FAQ on Bees and Bee Health

1. Why are bees so important to Canadian agriculture?

Bees are vitally important to the sustainability of Canadian agriculture because they pollinate a significant portion of our crops, contributing nearly \$2 billion to crop pollination in this country alone.

As bees fly from plant to plant gathering pollen and nectar, the pollen they pick up at one plant brushes off on the next, completing the bees' reproductive role in cross-pollination.

Without pollination by bees, many members of the agriculture value chain would be negatively impacted. Consumers would also be affected and not have ready access to many foods they enjoy that are dependent on bee pollination, including certain fruits and vegetables.

2. What are the factors that affect bee health?

Many experts agree that bee health is affected by several interdependent factors. These include the following:

- Pests and diseases, in particular Varroa mites and the viruses they carry, and the gut parasite *Nosema ceranae*, which have been found in hives throughout Canada
- Poor nutrition due to lack of availability and quality of nectar and pollen in areas with limited biodiversity
- Lack of knowledge of professional and hygienic hive management
- Genetic uniformity of the majority of honey bees, leading to weakened resistance to pests and diseases
- Stress caused by commercial transportation over long distances to pollinate particular seasonal crops
- Unusual weather
- Pesticides used both within and outside bee hives. Some of these products are designed to control insects that reduce the yield and quality of crops produced by farmers and must be managed accordingly to minimize their risk to bees and other beneficial organisms

The scientific consensus from ongoing work suggests that while there is no single factor responsible for bee health, the *Varroa* mite is the main factor involved in bee colony decline in certain parts of the world and overwintering losses here in Canada.

3. Why are seed treatments used and how can we ensure they do not pose a risk to honey bees?

While there is no such thing as zero risk, it is important to note that bees are recognized as beneficial insects and are not the target organisms of these products.

Without bees and other pollinators, many of the crops that our products are designed to protect would not exist. Since pollinators play a vital role in maintaining a healthy and productive agricultural system, we all have a vested interest in protecting their health.

The pesticide registration process requires scientific studies to evaluate the safety of pesticides to honey bees and other beneficial insects. These data are considered by regulators prior to the approval and sale of products in Canada and are also used to determine label directions and precautions to protect beneficial organisms.

With respect to seed treatments specifically, they are one of the most advanced and environmentally friendly forms of crop protection. They are applied to the seed as a coating prior to planting. This enables the plant to defend itself against pests that feed directly on the seed prior to germination or the newly emerging plant. These pests would otherwise harm or destroy the crop, significantly reducing crop yield and quality and needlessly wasting the productive capacity of vast amounts of soil and water.

4. What is Syngenta doing to promote bee health?

Syngenta is working with various parties, locally and globally, to address issues related to bee health. For example, we are researching a range of solutions to combat diseases affecting bees, including new biological and chemical control agents to fight parasitic mites such as the *Varroa* mite and the gut parasite, *Nosema ceranae*, found in beehives around the world.

We are also involved in efforts to alleviate the problem of food scarcity for bees and other pollinators. To this end, Syngenta launched Operation Bumble Bee in the United Kingdom in 2005. This involved planting field borders with combinations of nectar/pollen producing species that flower at different times of the year. Within three years, the project had increased bee populations several times over and helped to regenerate rare species previously close to extinction. Syngenta extended this work to the rest of Europe in 2008 through Operation Pollinator, which encourages bee-friendly farming and helps to ensure the availability of flowering plants at times when agricultural crops do not offer a sufficient supply of pollen and nectar for bees.

Here in Canada, we are involved in research with universities and various local initiatives to promote and support bee health, biodiversity, and pollinator habitat in both on-farm and off-farm locations.

These efforts include Best Management Practices (BMPs) that support the proper treatment and handling of insecticide-treated seed, our Operation Pollinator program which has three components and focus areas (research, golf, and education and outreach), and work with dust deflectors and other technology to reduce the generation and off-field movement of seed dust.

5. What can farmers do to protect bee health?

Farmers are well known to be excellent stewards of the land. Following Best Management Practices for the proper treatment and handling of insecticide-treated seed will help to maximize the benefits of seed treatments and protect the bees around farm operations at the same time.

Of course, this starts by **reading and following all label directions** associated with the use of any and all crop protection products.

Learn more at www.beehealth.ca.