

# Summary of Responses to Interview Questions

In order to gain a deeper understanding of the conflict between the utility of bees and the effects of pesticides, we decided to identify stakeholders from a variety of sectors and reach out to them through interviews to obtain their views ([link to map](#)). We conducted interviews with nine people, each with a unique perspective on the use of pesticides and perceived effects on bee health ([list](#)).

To do this, we utilized a set of common questions regarding the role of bees as pollinators, bee health, feedback on our probeeotics idea and the usage of insecticides ([link](#)) as well as specific questions pertinent to the interviewees' field of expertise.

## **What is your assessment on the role of bees as pollinators for the agricultural sector/environment?**

All interviewees concluded that bees play a significant role as pollinators, deeply impacting many facets of our lives, including food security and agricultural productivity.

*“They are fundamental to the ecosystem.”*

*“It is hard not to be amazed at their complex lifestyle and their critical role in nature and human agriculture.”*

*“We rely heavily on pollination services, especially for seed production.”*

Interviewees who self-identified as growers acknowledged that honey bees are not the only source of pollination for their crops (tree fruits and canola). However, as they do enhance the pollination process and reportedly increase yields, they both hire commercial beekeepers to pollinate their fields during regular blooming seasons.

Opinions differed on whether bee pollination contributes to achieving complete pollination and contribute to product quality. This may be explained by the fact that the interviewees are involved with different types of crops.

## **Are you aware of Colony Collapse Disorder and what factors may be contributing to it?**

All 10 interviewees were aware of Colony Collapse Disorder (CCD) and general declining bee health as well as, to a varying extent, the ramifications it could have. Additionally, they were able to name a number of potential factors in CCD and bee death, including: a changing environment, the nosema parasite, varroa mite, pesticides in general and inducing stress on the bees by altering their habitat constantly (eg. hive hiring). As expected, they differed on the contribution of each factor to bee deaths. Our academic interviewees tended to take a cautious approach, stressing the multifaceted nature of CCD and that scientists themselves remain unsure of the contributions of each factor, as well as the fact that there may be additional, not-yet-described factors to CCD.

*“A bunch of factors contribute reduced bee health and greater disease susceptibility”*

*“Current losses for bee death can be attributed to other causes (other than pesticides)”*  
*“Farms are becoming specialized...we are losing the original habitat for bees”*  
*“Transfer of bees facilitates the spreading of disease”*

In addition, both of the grower’s associations we interviewed implement measures to decrease the interaction of pesticide action with the time when the hives are hired from commercial beekeepers. It was mentioned that the canola industry has not sensed any direct impact; however, the number of commercial beekeepers operating in Saskatchewan is increasing.

Given how interviewees regarded the importance of bees as pollinators, the ramifications from a declining bee population appeared to be clear and effect all sectors. The strain on apiculture, pollination, crop production and consequently food provision was explicitly mentioned in (3/6) interviews.

*“They are integral to the balance....without them the cost of food would sky rocket” Mellifera bees.*

*“Its a really big cost for bee keepers to be consistently buying bees on a yearly basis”*

However, interviewees differed on whether the general public might not be entirely aware of bee deaths, all causes related to CCD and the contribution bees have to their diets. Multiple interviewees mentioned that a strong media presence has increased public awareness of bee deaths; however, much of the media attention focuses on the implications rather than the potential causes.

*“They know bees might not be doing well though”*

*“Recently, there has been quite good publicity regarding the plight of the bees. I think the general public has an idea that something is causing bee declines in many parts of the world, but probably not much beyond that.”*

### **How do you regard the importance of insecticides in agriculture?**

Insecticides were assessed by interviewees to be of key importance at multiple stages during crop development when dealing with an opportunistic pest.

*“Without them there would be a lot of issues on flea beetles, increase their pop”*

*“In certain segments of agriculture, insecticides are critically important”*

*“In early stages, as a seedling, use of insecticide is critical...for the canola plant if you do not use the insecticide you cannot keep up with the damage done to the seedling as it emerges from the soil”*

When asked about government measures such as the European Union 3-year ban on neonicotinoid use, interviewees from grower associations agreed that an outright ban would be detrimental and that education on what and when to spray is preferred. Essentially, banning pesticides limits what commercial farmers can use, leading them to use older, more toxic pesticides or bringing back pests. It was mentioned that, rather than an outright ban,

governments should consider models like Ontario's stewardship-based approach based on demonstration of pests, strong educational components, and increased research into application techniques to reduce bystander toxicity.

*"Neonics tend to have a lower risk for mammals than the products they've replaced"*

In mentioning the ban and addressing the knowledge gap behind public understanding on all causes behind bee deaths/ccd, (number) interviewees concurred in media focus on pesticides as culprit for ccd in comparison to other factors being detrimental. In particular, multiple interviewees questioned the disproportionate attention focused on neonicotinoids rather than other commonly-used pesticides.

*"From what I've read in the media recently, it looks like a lot of fingers are being pointed in the direction of the neonicotinoids"*

*"Media is just a conduit. Disproportionately some voices are heard"*

*"In science related industries we try to focus on the science behind it but people are emotional beings that tend to listen to the media rather than technical experts because media is telling a story which people might relate to"*

When inquiring what could be done to change this, our interviewees emphasized the need for better communication between academia and the public as well as a clearer explanation of all factors contributing to bee health.

*"Every sector needs to engage with the public in order for them to understand how their food is produced and what it contains."*

*"We need to change how we are providing the information."*

*"Must increase communication between farmers and beekeepers."*

*"The issue is, even researchers are very much in the dark as to what is causing the population declines - it is a very active area of investigation. So, we can't really fault the public being confused if the experts are as well...it also needs to be done carefully, or scientists could get into a 'boy who cries wolf' scenario if preliminary research is communicated too quickly or loudly."*

### **Summary points:**

- Insecticides are far more beneficial to the agriculture industry than perceived. These pesticides kill many classes of pests and unfortunately bees are collateral damage.
- In essence, pesticides are a "necessary evil".
- Banning current insecticides, such as neonics, leads to farmers switching back to traditional pesticides, which are actually more harmful to the environment.
- Although it is a necessity, not enough is done in terms of regulatory assessment of insecticides and other chemicals in terms of long term effects on the environment
- Before registering all pesticide companies must test their product for environmental impact and effect on mammals and unintended organisms.